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Introduction to OpenStack

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- This will be a very basic explanation.
  - We will only set up a simple OpenStack instance.
  - It can run on your laptop or in a very basic laboratory.

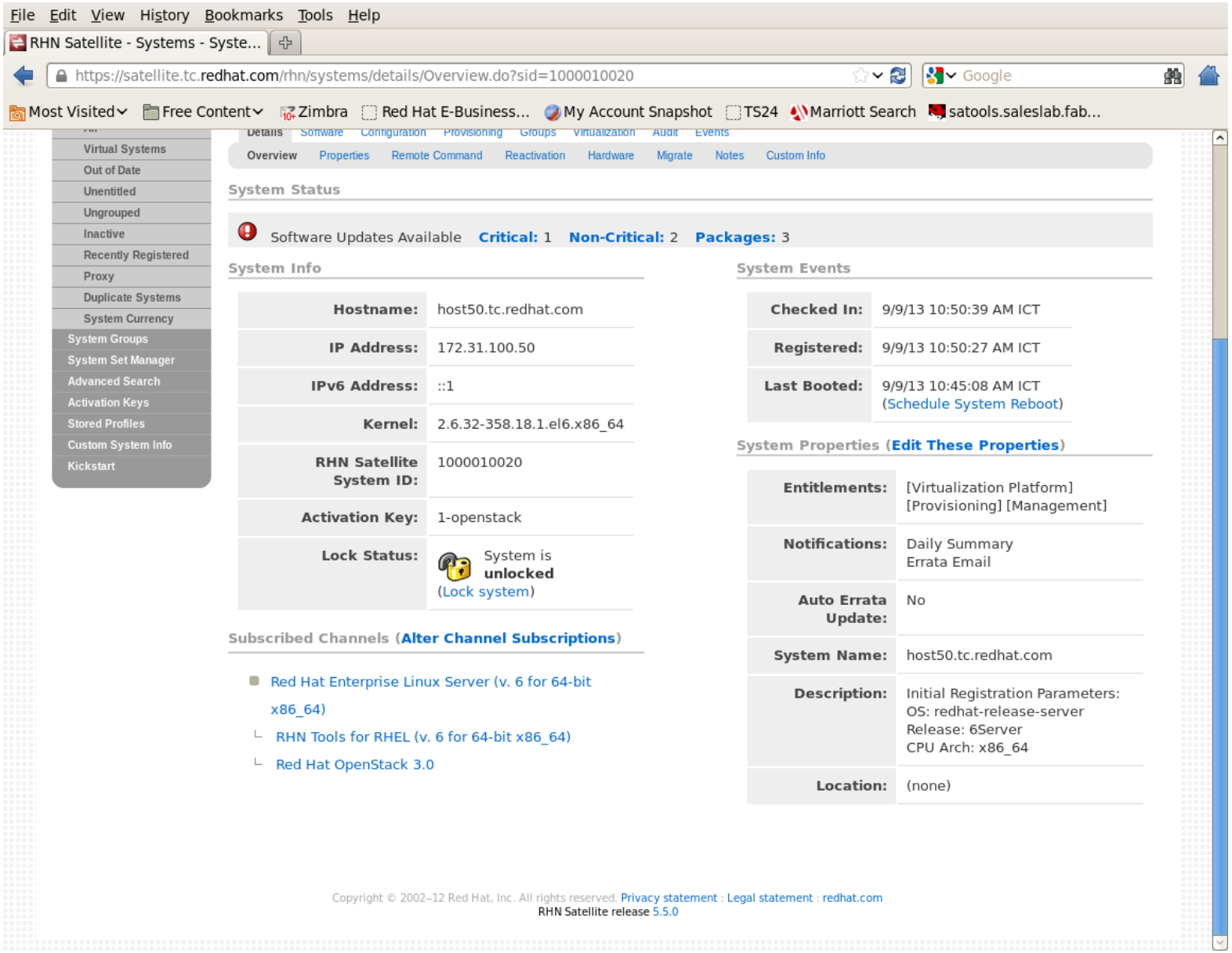
- You can do a very simple installation:
  - part /boot --fstype=ext4 --size=200
  - part swap --fstype=swap --size=2100
  - part / --fstype=ext4 --size=61000

- Optional: More complex installation:
  - Separate **volume group** for Cinder (block storage)
    - No logical volumes
  - Separate **partition** or **logical volume** for Swift (object storage)

- Optional: More complex installation:
  - part /boot --fstype=ext4 --size=500
  - part swap --fstype swap --size 2100
  - part / --fstype=ext4 --size=1 --grow --maxsize=61000
  - part /srv/node/device1 --fstype=ext4 --size=21000
  - part pv.01 --size=21000
  - volgroup cinder-volumes pv.01

- Can be very simple:
  - @base
- It is also acceptable to have a full desktop installation on your laptop, it should not conflict with the OpenStack components

- Register your system with Red Hat Network
  - You need access to the Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64) parent channel
  - You need access to the Red Hat OpenStack 3.0 child channel


File Edit View History Bookmarks Tools Help
RHN Satellite - Systems - Syste...
https://satellite.tc.redhat.com/rhn/systems/details/Overview.do?sid=1000010020
Google
Most Visited
Free Content
Zimbra
Red Hat E-Business...
My Account Snapshot
TS24
Marriott Search
satools.saleslab.fab...
Virtual Systems
Out of Date
Unentitled
Ungrouped
Inactive
Recently Registered
Proxy
Duplicate Systems
System Currency
System Groups
System Set Manager
Advanced Search
Activation Keys
Stored Profiles
Custom System Info
Kickstart
Details Software Configuration Provisioning Groups Virtualization Audit Events
Overview Properties Remote Command Reactivation Hardware Migrate Notes Custom Info
System Status
Software Updates Available Critical: 1 Non-Critical: 2 Packages: 3
System Info
Hostname: host50.tc.redhat.com
IP Address: 172.31.100.50
IPv6 Address: ::1
Kernel: 2.6.32-358.18.1.el6.x86_64
RHN Satellite System ID: 1000010020
Activation Key: 1-openstack
Lock Status: System is unlocked (Lock system)
Subscribed Channels (Alter Channel Subscriptions)
Red Hat Enterprise Linux Server (v. 6 for 64-bit x86_64)
RHN Tools for RHEL (v. 6 for 64-bit x86_64)
Red Hat OpenStack 3.0
System Events
Checked In: 9/9/13 10:50:39 AM ICT
Registered: 9/9/13 10:50:27 AM ICT
Last Booted: 9/9/13 10:45:08 AM ICT (Schedule System Reboot)
System Properties (Edit These Properties)
Entitlements: [Virtualization Platform] [Provisioning] [Management]
Notifications: Daily Summary Errata Email
Auto Errata Update: No
System Name: host50.tc.redhat.com
Description: Initial Registration Parameters: OS: redhat-release-server Release: 6Server CPU Arch: x86_64
Location: (none)
Copyright © 2002–12 Red Hat, Inc. All rights reserved. Privacy statement : Legal statement : redhat.com
RHN Satellite release 5.5.0

File Edit View Search Terminal Help

```
[root@host50 ~]# yum repolist
Loaded plugins: product-id, rhnplugin, security, subscription-manager
This system is not registered to Red Hat Subscription Management. You can use su
bscription-manager to register.
This system is receiving updates from RHN Classic or RHN Satellite.
repo id                          repo name                                  status
rhel-x86_64-server-6             Red Hat Enterprise Linux Server (v. 6 for  10,870
rhel-x86_64-server-6-ost-3       Red Hat OpenStack 3.0                        601
rhn-tools-rhel-x86_64-server-6 RHN Tools for RHEL (v. 6 for 64-bit x86_64     101
repolist: 11,572
[root@host50 ~]#
```

- Install the openstack-packstack package
  - yum -y install openstack-packstack

File Edit View Search Terminal Help

```
[root@host50 ~]# yum -y install openstack-packstack
Loaded plugins: product-id, rhnplugin, security, subscription-manager
This system is not registered to Red Hat Subscription Management. You can use su
bscription-manager to register.
This system is receiving updates from RHN Classic or RHN Satellite.
Setting up Install Process
Resolving Dependencies
--> Running transaction check
---> Package openstack-packstack.noarch 0:2013.1.1-0.23.dev642.el6ost will be in
stalled
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================
 Package    Arch   Version                      Repository                  Size
================================================================================
Installing:
 openstack-packstack
            noarch 2013.1.1-0.23.dev642.el6ost rhel-x86_64-server-6-ost-3 540 k

Transaction Summary
================================================================================
Install       1 Package(s)

Total download size: 540 k
Installed size: 0
Downloading Packages:
openstack-packstack-2013.1.1-0.23.dev642.el6ost.noarch.r | 540 kB     00:00
Running rpm_check_debug
Running Transaction Test
Transaction Test Succeeded
Running Transaction
  Installing : openstack-packstack-2013.1.1-0.23.dev642.el6ost.noarch       1/1
  Verifying  : openstack-packstack-2013.1.1-0.23.dev642.el6ost.noarch       1/1

Installed:
  openstack-packstack.noarch 0:2013.1.1-0.23.dev642.el6ost

Complete!
[root@host50 ~]#
```

- Create an answer file:
  - packstack --gen-answer-file packstack-answer.txt

File Edit View Search Terminal Help

```
[root@host50 ~]# packstack --gen-answer-file packstack-answer.txt
[root@host50 ~]#
```

- These are the changes to make

- Image ("Glance") provides a catalog and repository for virtual disk images. These disk images are mostly commonly used in OpenStack Compute. While this service is technically optional, any cloud of size will require it.
  - `# Set to 'y' if you would like Packstack to install Glance`
  - `CONFIG_GLANCE_INSTALL=y`

- Cinder provides an infrastructure for managing volumes in OpenStack. It was originally a Nova component called nova-volume, but has become an independent project since the Folsom release.
- If you do not have a separate volume group, it will still install.
  - `# Set to 'y' if you would like Packstack to install Cinder`
  - `CONFIG_CINDER_INSTALL=y`

- Compute ("Nova") provides virtual servers upon demand. Similar to Amazon's EC2 service, it also provides volume services analogous to Elastic Block Services (EBS).
  - `# Set to 'y' if you would like Packstack to install Nova`
  - `CONFIG_NOVA_INSTALL=y`

- Neutron (formerly Quantum) is an OpenStack project to provide "networking as a service" between interface devices (e.g., vNICs) managed by other Openstack services (e.g., nova).
- Change this to “n” - Neutron does not work well for “all-in-one” installations.
  - `# Set to 'y' if you would like Packstack to install Quantum`
  - `CONFIG_QUANTUM_INSTALL=n`

- Horizon is the canonical implementation of Openstack's Dashboard, which provides a web based user interface to OpenStack services including Nova, Swift, Keystone, etc.
  - `# Set to 'y' if you would like Packstack to install Horizon`
  - `CONFIG_HORIZON_INSTALL=y`

- The OpenStack Object Store project, known as Swift, offers cloud storage software so that you can store and retrieve lots of data in virtual containers. It's based on the Cloud Files offering from Rackspace.
- Change this to “y” - Swift will run even if you do not have a dedicated partition for it.
  - `# Set to 'y' if you would like Packstack to install Swift`
  - `CONFIG_SWIFT_INSTALL=y`

- You should install client configuration tools. An “rc” file (adminrc-keystone) will be built which can be used to set environment variables.
  - `# Set to 'y' if you would like Packstack to install the OpenStack`
  - `# Client packages. An admin "rc" file will also be installed`
  - `CONFIG_CLIENT_INSTALL=y`

- If you have a network time (NTP) server, set the address for it:
  - `# Comma separated list of NTP servers. Leave plain if Packstack`
  - `# should not install ntpd on instances.`
  - `CONFIG_NTP_SERVERS=12.10.191.251`

- Install Nagios if you want to demonstrate monitoring your virtual machines. This is not required.
  - # Set to 'y' if you would like Packstack to install Nagios to monitor
  - # openstack hosts
  - CONFIG_NAGIOS_INSTALL=y

- For each of the following services, you can define the host upon which the service will run. The default is the local machine. The default is fine for an all-in-one installation.
  - QPID (messaging)
  - Keystone (identity management)
  - Glance
  - Cinder
  - Nova

File Edit View Search Terminal Help

```
[root@host50 ~]# grep HOST packstack-answer.txt
CONFIG_MYSQL_HOST=172.31.100.50
CONFIG_QPID_HOST=172.31.100.50
CONFIG_KEYSTONE_HOST=172.31.100.50
CONFIG_GLANCE_HOST=172.31.100.50
CONFIG_CINDER_HOST=172.31.100.50
CONFIG_NOVA_API_HOST=172.31.100.50
CONFIG_NOVA_CERT_HOST=172.31.100.50
CONFIG_NOVA_VNCPROXY_HOST=172.31.100.50
CONFIG_NOVA_COMPUTE_HOSTS=172.31.100.50
CONFIG_NOVA_CONDUCTOR_HOST=172.31.100.50
CONFIG_NOVA_SCHED_HOST=172.31.100.50
CONFIG_NOVA_NETWORK_HOST=172.31.100.50
CONFIG_QUANTUM_SERVER_HOST=172.31.100.50
CONFIG_QUANTUM_L3_HOSTS=172.31.100.50
CONFIG_QUANTUM_DHCP_HOSTS=172.31.100.50
CONFIG_QUANTUM_METADATA_HOSTS=172.31.100.50
CONFIG_OSCLIENT_HOST=172.31.100.50
CONFIG_HORIZON_HOST=172.31.100.50
CONFIG_SWIFT_PROXY_HOSTS=172.31.100.50
CONFIG_SWIFT_STORAGE_HOSTS=172.31.100.50
CONFIG_NAGIOS_HOST=172.31.100.50
[root@host50 ~]#
```

- For each of the following services, the installer will create a user and random password in the Keystone MySQL database. The defaults are fine.
  - QPID (messaging)
  - Keystone (identity management)
  - Glance
  - Cinder
  - Nova

File Edit View Search Terminal Help

```
[root@host50 ~]# egrep "password|PW" packstack-answer.txt
# password and this key will be installed so the password will not be
CONFIG_MYSQL_PW=73495044d0e946db
# The password to use for the Keystone to access DB
CONFIG_KEYSTONE_DB_PW=8560d3e08e394c6e
# The password to use for the Keystone admin user
CONFIG_KEYSTONE_ADMIN_PW=633f7da1ed8149de
# The password to use for the Glance to access DB
CONFIG_GLANCE_DB_PW=993f39a475fd43ae
# The password to use for the Glance to authenticate with Keystone
CONFIG_GLANCE_KS_PW=f9c998dbe03c40de
# The password to use for the Cinder to access DB
CONFIG_CINDER_DB_PW=339f5a95eddd4322
# The password to use for the Cinder to authenticate with Keystone
CONFIG_CINDER_KS_PW=6219fdb8574f491c
# The password to use for the Nova to access DB
CONFIG_NOVA_DB_PW=9c3d9694570d45ca
# The password to use for the Nova to authenticate with Keystone
CONFIG_NOVA_KS_PW=6dd7840b369c4ff2
# The password to use for Quantum to authenticate with Keystone
CONFIG_QUANTUM_KS_PW=a4db07edff9f44cc
# The password to use for Quantum to access DB
CONFIG_QUANTUM_DB_PW=7b320158a55b42f2
CONFIG_QUANTUM_METADATA_PW=a980eab09bd74897
# The password to use for the Swift to authenticate with Keystone
CONFIG_SWIFT_KS_PW=eee2ed668436464d
# this with CONFIG_RH_PW
CONFIG_RH_PW=
# here. Note that either satellite's username/password or activtion
CONFIG_SATELLITE_PW=
# Specify a password to use with an authenticated HTTP proxy.
CONFIG_SATELLITE_PROXY_PW=
# The password of the nagiosadmin user on the Nagios server
CONFIG_NAGIOS_PW=58364019a46d4e3b
[root@host50 ~]#
```

- If you did not create a volume group for Cinder, let packstack create one. It will be a file mounted loopback as a block device.
  - `# Create Cinder's volumes group. This should only be done for testing`
  - `# on a proof-of-concept installation of Cinder.  This will create a`
  - `# file-backed volume group and is not suitable for production usage.`
  - `CONFIG_CINDER_VOLUMES_CREATE=y`

- If you did not create a volume group for Cinder, define the size of the loopback device:
  - `# Cinder's volumes group size`
  - `CONFIG_CINDER_VOLUMES_SIZE=20G`

- If you **did** create a volume group for Cinder, change this to “n” so that Cinder will use that volume group.
  - `# Create Cinder's volumes group. This should only be done for testing`
  - `# on a proof-of-concept installation of Cinder.  This will create a`
  - `# file-backed volume group and is not suitable for production usage.`
  - `CONFIG_CINDER_VOLUMES_CREATE=n`

- The flat DHCP network is the network your virtual machines will use. It needs to be bound to an ethernet interface. Since your laptop only has one ethernet interface, bind it to the loopback interface:
  - `# Private interface for Flat DHCP on the Nova compute servers`
  - `CONFIG_NOVA_COMPUTE_PRIVIF=lo`

- The range of addresses used for the virtual machines is private. It doesn't really matter what they are, so the default range is fine.
  - `# IP Range for Flat DHCP`
  - `CONFIG_NOVA_NETWORK_FIXEDRANGE=192.168.32.0/24`

- The range for the floating IPs **does** need to be changed. It needs to be on the network segment your system is installed on.
- For example, if your system is 172.31.100.50/24, and your DHCP server is allocating addresses from 172.31.100.50-172.31.100.100, then your floating IP addresses need to be in a different range.
- 172.31.100.159/27 results in 172.31.100.159 – 172.31.100.191 being available for floating IP addresses.

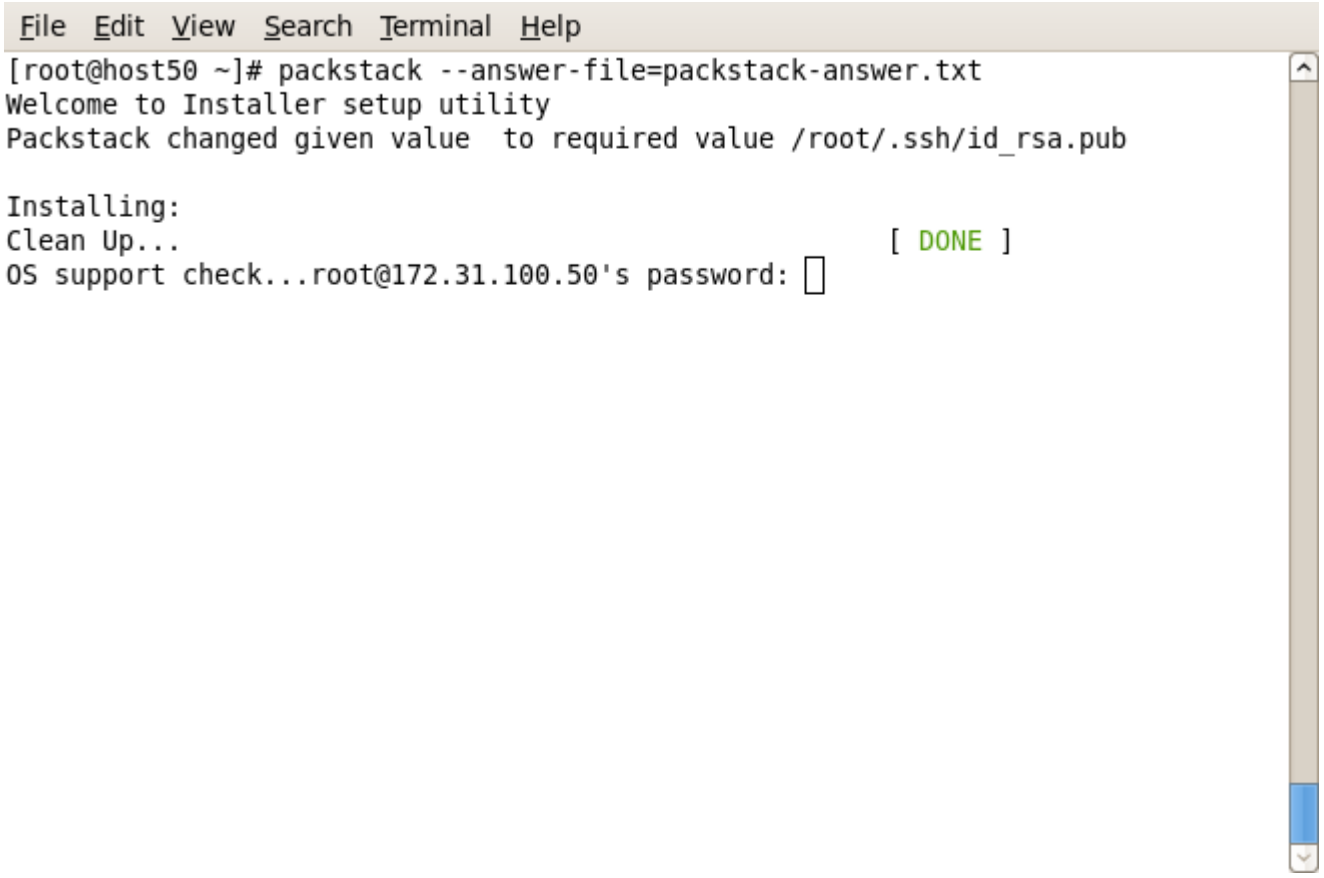
- This is what it would look like:
  - `# IP Range for Floating IP's`
  - `CONFIG_NOVA_NETWORK_FLOATRANGE=172.31.100.159/27`

- Configure Swift storage. If you did **not** create a dedicated partition for Swift, then leave the default:
  - `# <ipaddress>[/dev], for example 127.0.0.1/vdb will install /dev/vdb`
  - `# on 127.0.0.1 as a swift storage device(packstack does not create the`
  - `# filesystem, you must do this first), if /dev is omitted Packstack`
  - `# will create a loopback device for a test setup`
  - `CONFIG_SWIFT_STORAGE_HOSTS=172.31.100.51`

- Configure Swift storage. If you **did** create a dedicated partition for Swift, then define what partition or logical volume it is on:
  - `# <ipaddress>[/dev], for example 127.0.0.1/vdb will install /dev/vdb`
  - `# on 127.0.0.1 as a swift storage device(packstack does not create the`
  - `# filesystem, you must do this first), if /dev is omitted Packstack`
  - `# will create a loopback device for a test setup`
  - `CONFIG_SWIFT_STORAGE_HOSTS=172.31.100.51/sda3`

- Leave Extra Packages for Enterprise Linux (EPEL) set to “n” as we do not want EPEL packages.
- Leave the Red Hat Network settings unset, as the machine should already be registered.

- Run the installer with the --answerfile=[file] argument:
  - packstack –answer-file=/root/packstack-answer.txt


File Edit View Search Terminal Help
[root@host50 ~]# packstack --answer-file=packstack-answer.txt
Welcome to Installer setup utility
Packstack changed given value to required value /root/.ssh/id_rsa.pub
Installing:
Clean Up... [DONE]
OS support check...root@172.31.100.50's password:

```
File  Edit  View  Search  Terminal  Help
Adding Nova Keystone manifest entries...                [ DONE ]
Adding Nova Cert manifest entries...                    [ DONE ]
Adding Nova Conductor manifest entries...               [ DONE ]
Adding Nova Compute manifest entries...                 [ DONE ]
Adding Nova Scheduler manifest entries...               [ DONE ]
Adding Nova VNC Proxy manifest entries...               [ DONE ]
Adding Nova Common manifest entries...                  [ DONE ]
Adding Nova Network manifest entries...                 [ DONE ]
Adding OpenStack Client manifest entries...             [ DONE ]
Adding Horizon manifest entries...                      [ DONE ]
Adding Swift Keystone manifest entries...               [ DONE ]
Adding Swift builder manifest entries...                [ DONE ]
Adding Swift proxy manifest entries...                  [ DONE ]
Adding Swift storage manifest entries...                [ DONE ]
Adding Swift common manifest entries...                 [ DONE ]
Preparing servers...                                    [ DONE ]
Adding Nagios server manifest entries...                [ DONE ]
Adding Nagios host manifest entries...                  [ DONE ]
Adding post install manifest entries...                 [ DONE ]
Installing Dependencies...                              [ DONE ]
Copying Puppet modules and manifests...                 [ DONE ]
Applying Puppet manifests...
Applying 172.31.100.50_prescript.pp
Testing if puppet apply is finished : 172.31.100.50_prescript.pp [ | ]
```

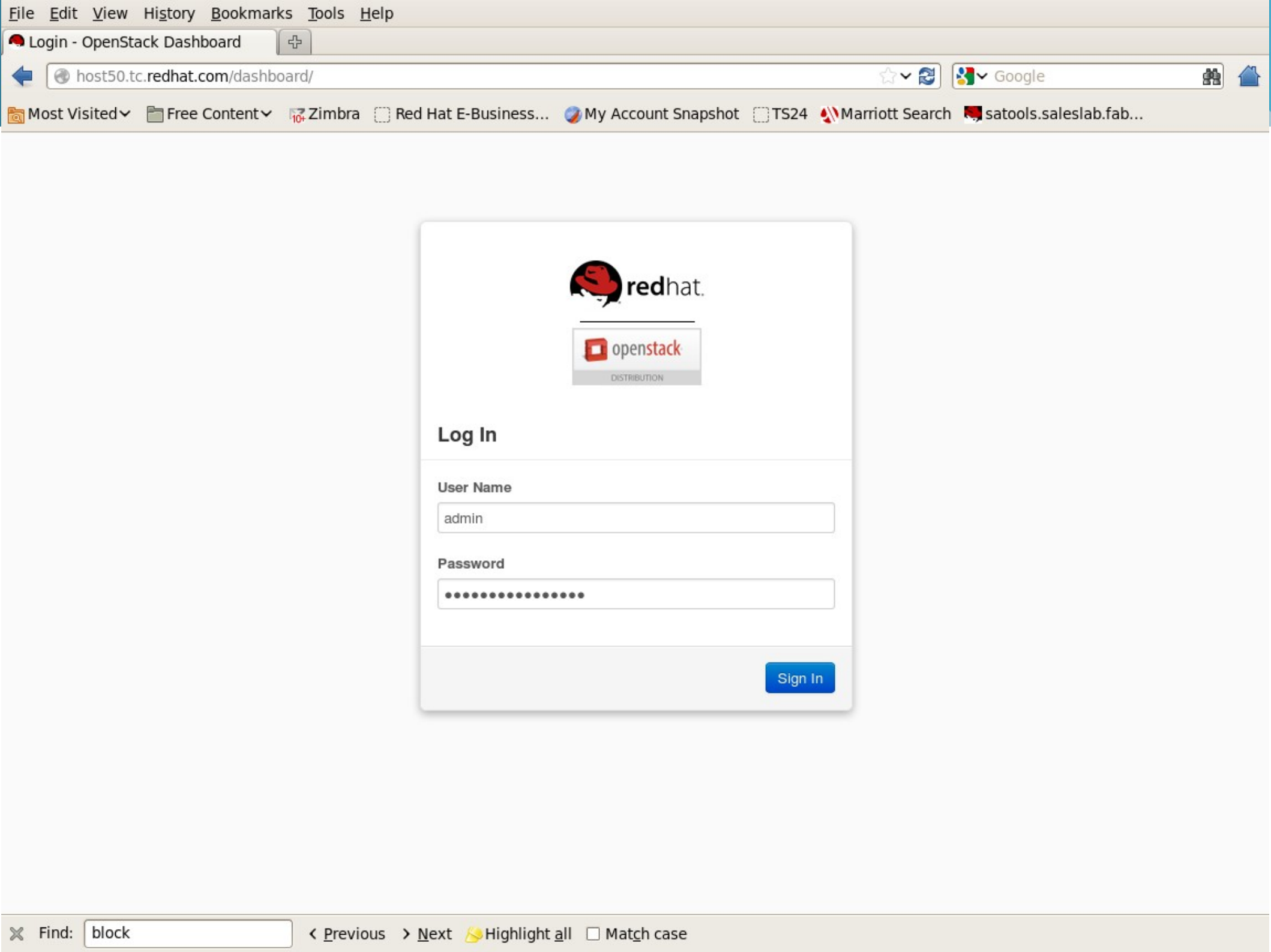
File Edit View Search Terminal Help

```
Applying 172.31.100.50_swift.pp
Applying 172.31.100.50_nagios.pp
Applying 172.31.100.50_nagios_nrpe.pp
172.31.100.50_swift.pp :                                           [ DONE ]
172.31.100.50_nagios.pp :                                          [ DONE ]
172.31.100.50_nagios_nrpe.pp :                                     [ DONE ]
Applying 172.31.100.50_postscript.pp
172.31.100.50_postscript.pp :                                      [ DONE ]
                            [ DONE ]

 **** Installation completed successfully ******


Additional information:
 * To use the command line tools you need to source the file /root/keystonerc_ad
min created on 172.31.100.50
 * To use the console, browse to http://172.31.100.50/dashboard
 * To use Nagios, browse to http://172.31.100.50/nagios username : nagiosadmin,
password : 2299ffbf2c724bed
 * Kernel package with netns support has been installed on host 172.31.100.50. B
ecause of the kernel update host mentioned above requires reboot.
 * The installation log file is available at: /var/tmp/packstack/20130909-152254
-WLKDCE/openstack-setup.log
[root@host50 ~]#
```

- Connect with your web browser. The username is “admin” and the password is in root's ~/keystonerc_admin file

File Edit View Search Terminal Help

```
[root@host50 ~]# cat keystonerc_admin
export OS_USERNAME=admin
export OS_TENANT_NAME=admin
export OS_PASSWORD=76ac84f09d324225
export OS_AUTH_URL=http://172.31.100.50:35357/v2.0/
export PS1='[\u@\h \W(keystone_admin)]\$ '
[root@host50 ~]#
```


File Edit View History Bookmarks Tools Help
Login - OpenStack Dashboard
host50.tc.redhat.com/dashboard/
Google
Most Visited
Free Content
Zimbra
Red Hat E-Business...
My Account Snapshot
TS24
Marriott Search
satools.saleslab.fab...
redhat.
openstack
DISTRIBUTION
Log In
User Name
admin
Password
Sign In
Find:
block
Previous
Next
Highlight all
Match case

- Upload a system image. The RHEL 6 one is at
  - https://rhn.redhat.com/rhn/software/channel/downloads/Download.do?cid=16952

Red Hat Common (for RHEL 6 Server x86_64)

ISO Image Downloads

NOTE: By downloading this software, you agree to the terms and conditions of the applicable License Agreement (available at http://www.redhat.com/licenses/)

Not sure how to download and use these images? Check out our ISO Download Help.

Latest Release

Below please find the complete set of ISO images for the **latest release** of Red Hat Common (for RHEL 6 Server x86_64). Depending on the variant of Red Hat Common (for RHEL 6 Server x86_64) you'd like to install, you may only need a subset of these discs. (more information)

RHEL Server 6.4 Guest Images

ISO	Size	Checksum
KVM Guest Image	667 MB	MD5: e793566cf8aa170db033e37467334ecd SHA-256: 3c0f2d737d1363bec70df635e1b18405efed00e9c1f098cd20d4634cb83d991a

Older Releases

Below please find complete sets of ISO images for the **older releases** of Red Hat Common (for RHEL 6 Server x86_64). Note that only one set of ISO images is necessary to install any particular release of Red Hat Common (for RHEL 6 Server x86_64).

View ISO Images for Older Releases

- Go to Project/Images and then choose “Create Image”

File Edit View History Bookmarks Tools Help

Images & Snapshots - OpenSta...

host50.tc.redhat.com/dashboard/project/images_and_snapshots/

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Project Admin

CURRENT PROJECT
admin

Manage Compute

- Overview
- Instances
- Volumes
- Images & Snapshots
- Access & Security

Object Store

- Containers

Images & Snapshots

Logged in as: admin Settings Help Sign Out

Images

Project (0) | Shared with Me (0) | Public (0) | + Create Image

	Image Name	Status	Public	Format	Actions
No items to display.					

Displaying 0 items

Instance Snapshots

	Image Name	Status	Public	Format	Actions
No items to display.					

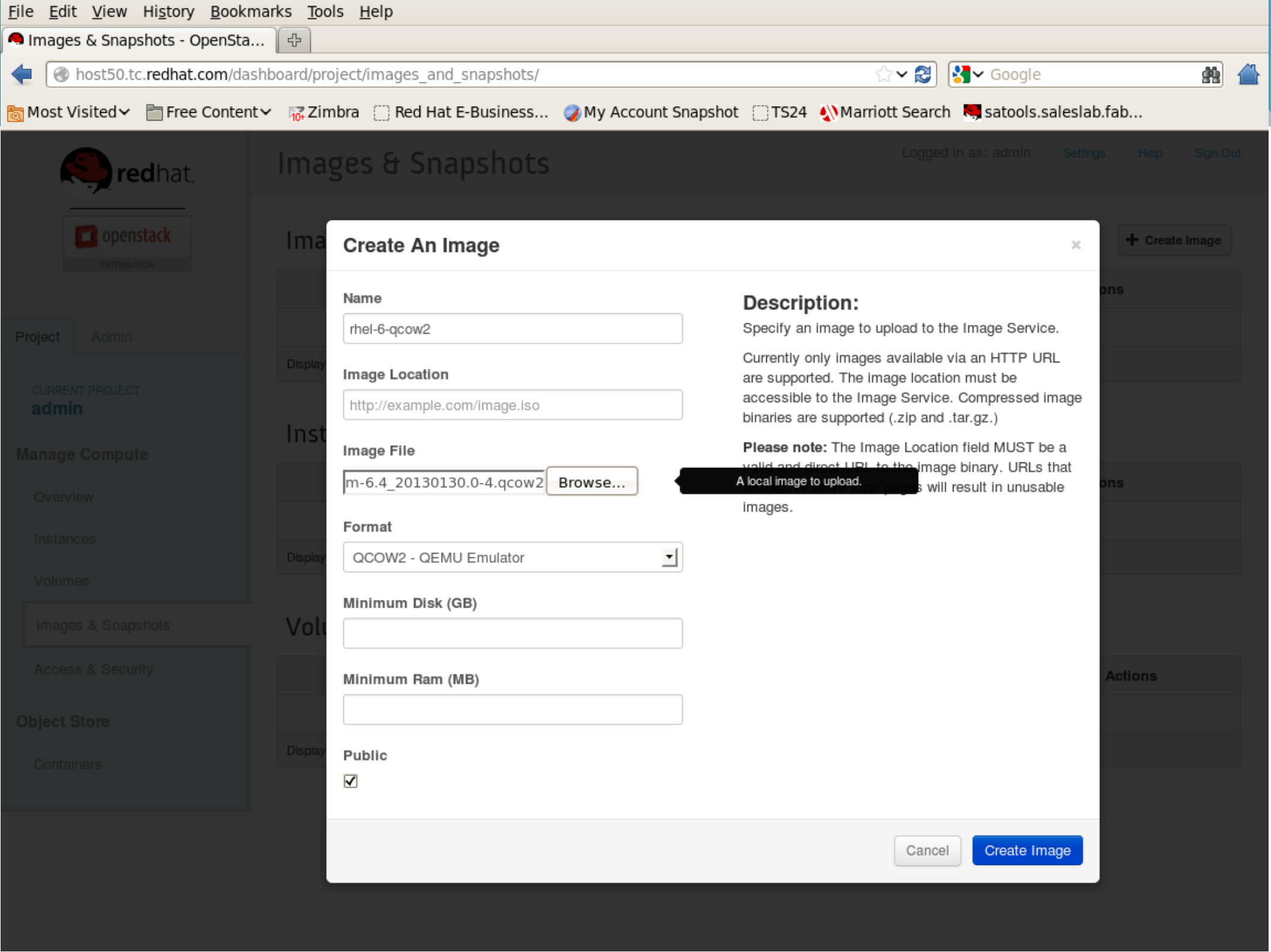
Displaying 0 items

Volume Snapshots

	Name	Description	Size	Status	Volume Name	Actions
No items to display.						

Displaying 0 items

host50.tc.redhat.com/dashboard/project/images_and_snapshots/create/


File Edit View History Bookmarks Tools Help
Images & Snapshots - OpenSta...
host50.tc.redhat.com/dashboard/project/images_and_snapshots/
Google
Most Visited
Free Content
Zimbra
Red Hat E-Business...
My Account Snapshot
TS24
Marriott Search
satools.saleslab.fab...
redhat
openstack
DISTRIBUTION
Images & Snapshots
Logged in as: admin
Settings
Help
Sign Out
Create Image
Project
Admin
CURRENT PROJECT
admin
Manage Compute
Overview
Instances
Volumes
Images & Snapshots
Access & Security
Object Store
Containers
Actions
Create An Image
Name
rhel-6-qcow2
Image Location
http://example.com/image.iso
Image File
m-6.4_20130130.0-4.qcow2
Browse...
A local image to upload.
Format
QCOW2 - QEMU Emulator
Minimum Disk (GB)
Minimum Ram (MB)
Public
Description:
Specify an image to upload to the Image Service.
Currently only images available via an HTTP URL are supported. The image location must be accessible to the Image Service. Compressed image binaries are supported (.zip and .tar.gz.)
Please note: The Image Location field MUST be a
s will result in unusable images.
Cancel
Create Image

```
File  Edit  View  Search  Terminal  Help
[root@host50 images(keystone_admin)]# file /var/lib/glance/images/46f42e83-25b3-
417b-bd23-c3fafeae32e6
/var/lib/glance/images/46f42e83-25b3-417b-bd23-c3fafeae32e6: Qemu Image, Format:
 Qcow , Version: 2
[root@host50 images(keystone_admin)]#
```

File Edit View History Bookmarks Tools Help

Images & Snapshots - OpenSta...

host50.tc.redhat.com/dashboard/project/images_and_snapshots/

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redhat.

openstack DISTRIBUTION

Project Admin

CURRENT PROJECT
admin

Manage Compute

- Overview
- Instances
- Volumes
- Images & Snapshots
- Access & Security

Object Store

- Containers

Images & Snapshots

Logged in as: admin Settings Help Sign Out

Images

Project (1) | Shared with Me (0) | Public (1)

+ Create Image | Delete Images

	Image Name	Status	Public	Format	Actions
☐	rhel-6-qcow2	Active	Yes	QCOW2	Launch More

Displaying 1 item

Instance Snapshots

	Image Name	Status	Public	Format	Actions
	No items to display.				

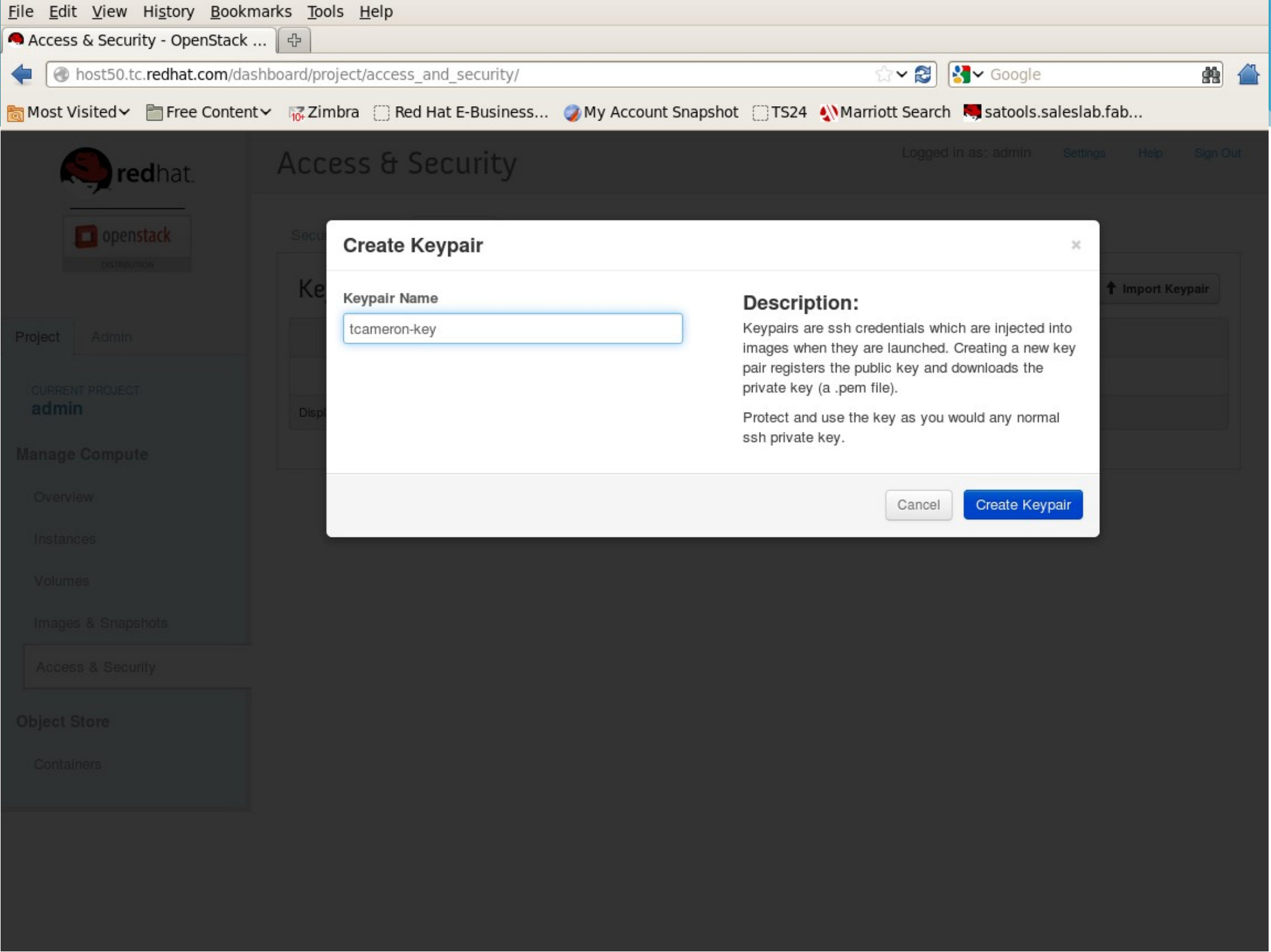
Displaying 0 items

Volume Snapshots

	Name	Description	Size	Status	Volume Name	Actions
	No items to display.					

Displaying 0 items

- Create a keypair. Go to Project/Access & Security/Keypairs and choose “Create Keypair”
- Save it to ~/.ssh on your machine


File Edit View History Bookmarks Tools Help
Access & Security - OpenStack ...
host50.tc.redhat.com/dashboard/project/access_and_security/
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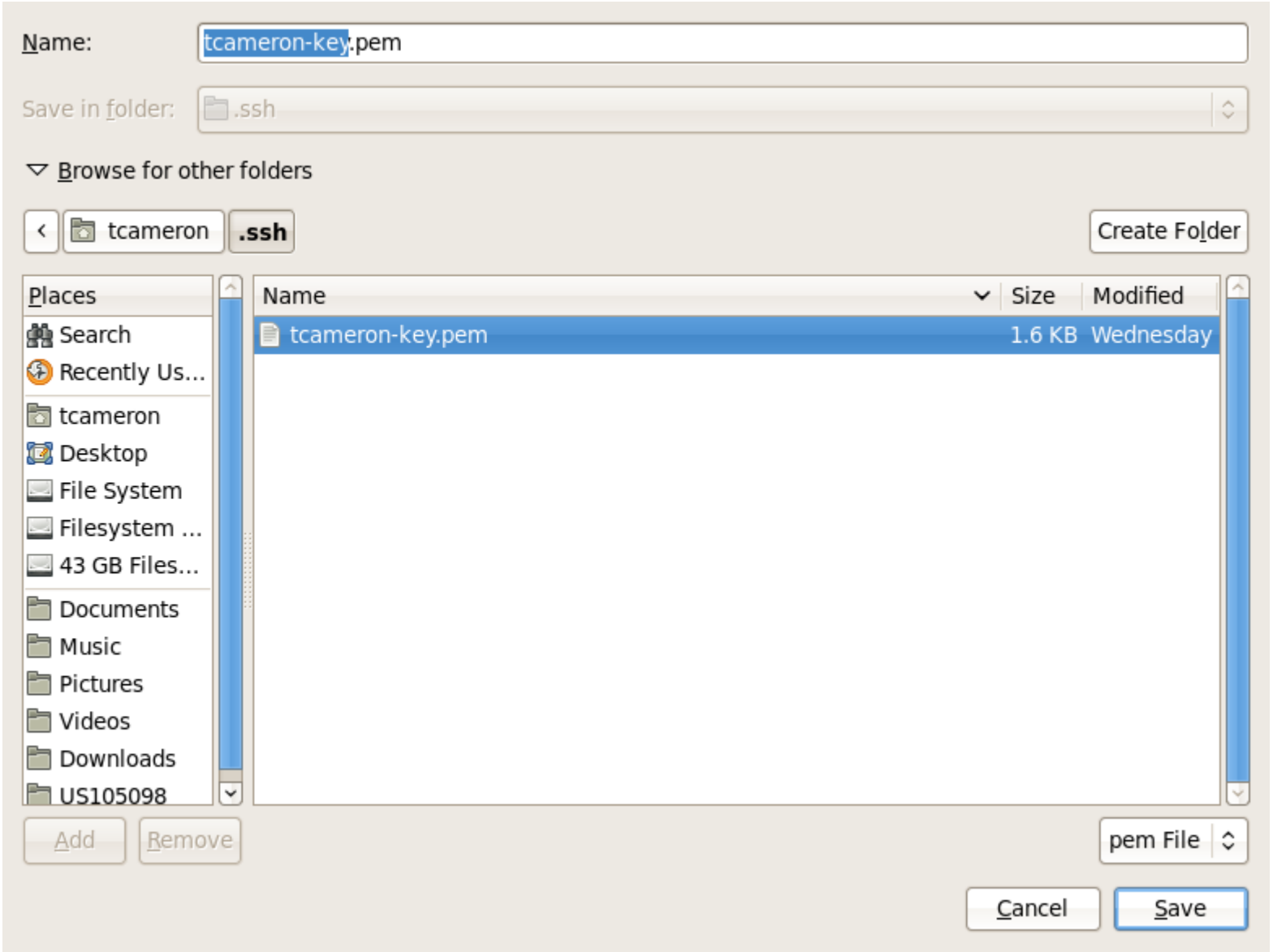
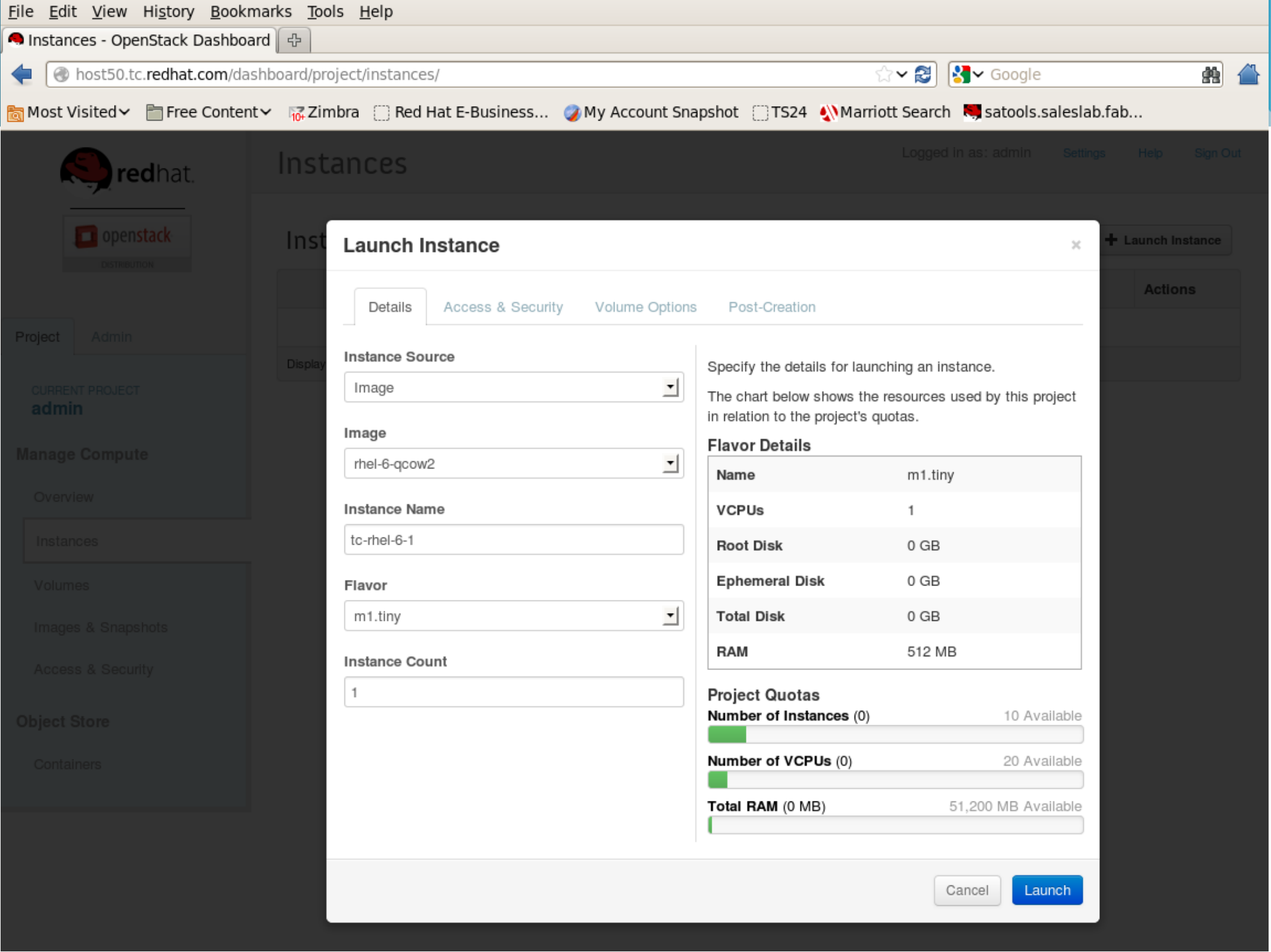
Create Keypair
Keypair Name
tcameron-key
Description:
Keypairs are ssh credentials which are injected into images when they are launched. Creating a new key pair registers the public key and downloads the private key (a .pem file).
Protect and use the key as you would any normal ssh private key.
Cancel
Create Keypair


Name:
tcameron-key.pem
Save in folder:
.ssh
Browse for other folders
tcameron
.ssh
Create Folder
Places
Search
Recently Us...
tcameron
Desktop
File System
Filesystem ...
43 GB Files...
Documents
Music
Pictures
Videos
Downloads
US105098
Name
Size
Modified
tcameron-key.pem
1.6 KB
Wednesday
Add
Remove
pem File
Cancel
Save

- Launch an instance. Go to Project/Instances and choose “Launch Instance”
- Set the instance source
- Choose the image to launch
- Choose the Flavor (size)
- Choose the Instance Count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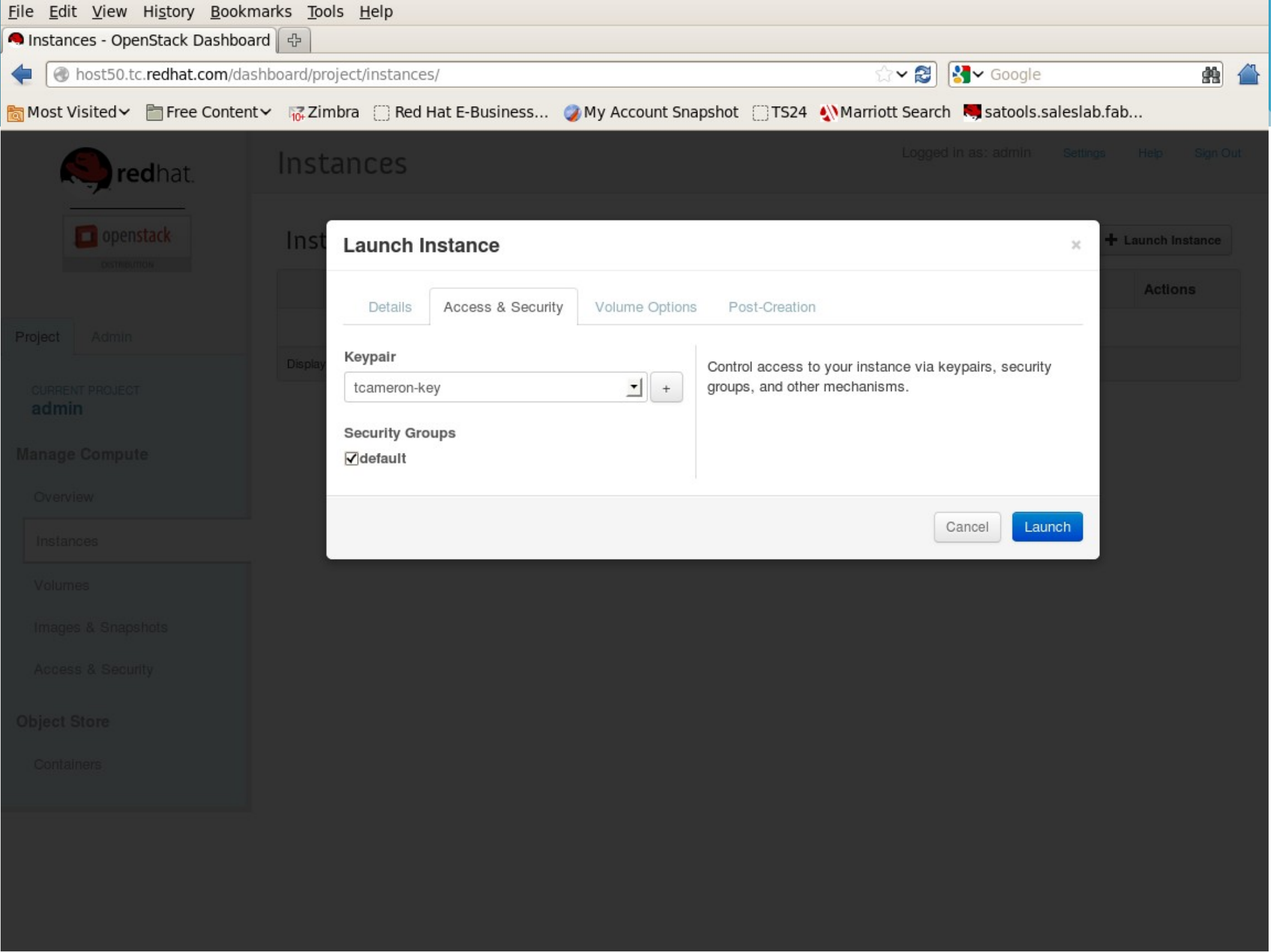
Instance Source
Image
Image
rhel-6-qcow2
Instance Name
tc-rhel-6-1
Flavor
m1.tiny
Instance Count
1
Specify the details for launching an instance.
The chart below shows the resources used by this project in relation to the project's quotas.
Flavor Details
Name m1.tiny
VCPUs 1
Root Disk 0 GB
Ephemeral Disk 0 GB
Total Disk 0 GB
RAM 512 MB
Project Quotas
Number of Instances (0) 10 Available
Number of VCPUs (0) 20 Available
Total RAM (0 MB) 51,200 MB Available
Cancel
Launch

- Go to Access & Security to make sure the keypair created earlier is selected and click “Launch”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tcameron-key
Security Groups
default
Control access to your instance via keypairs, security groups, and other mechanisms.
Cancel
Launch

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Instances

Logged in as: admin Settings Help Sign Out

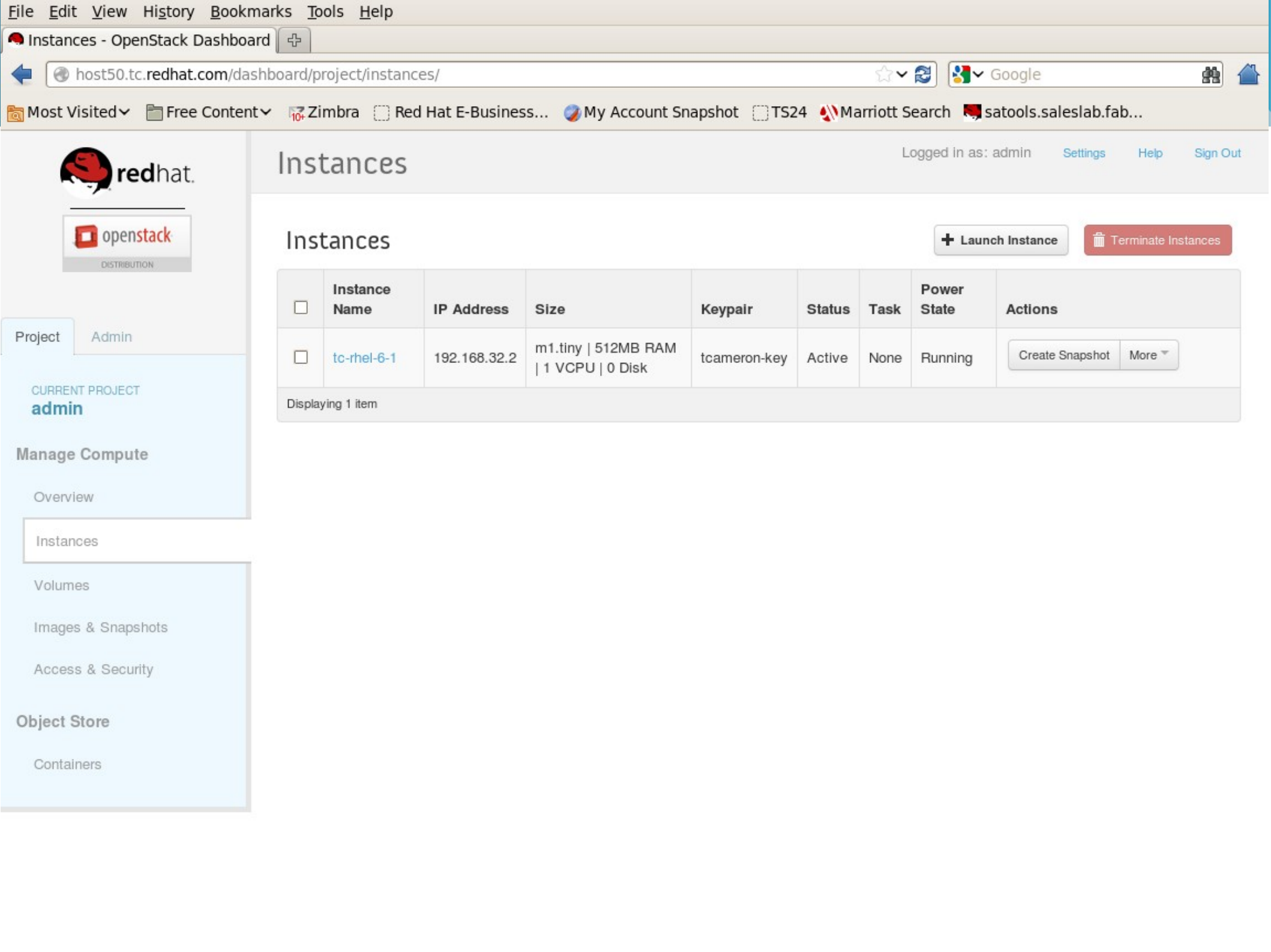
Success: Launched instance named "tc-rhel-6-1".

Instances

+ Launch Instance | Terminate Instances

	Instance Name	IP Address	Size	Keypair	Status	Task	Power State	Actions
☐	tc-rhel-6-1		m1.tiny | 512MB RAM | 1 VCPU | 0 Disk	tcameron-key	Build	Networking	No State	Associate Floating IP | More

Displaying 1 item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IP Address
Size
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Task
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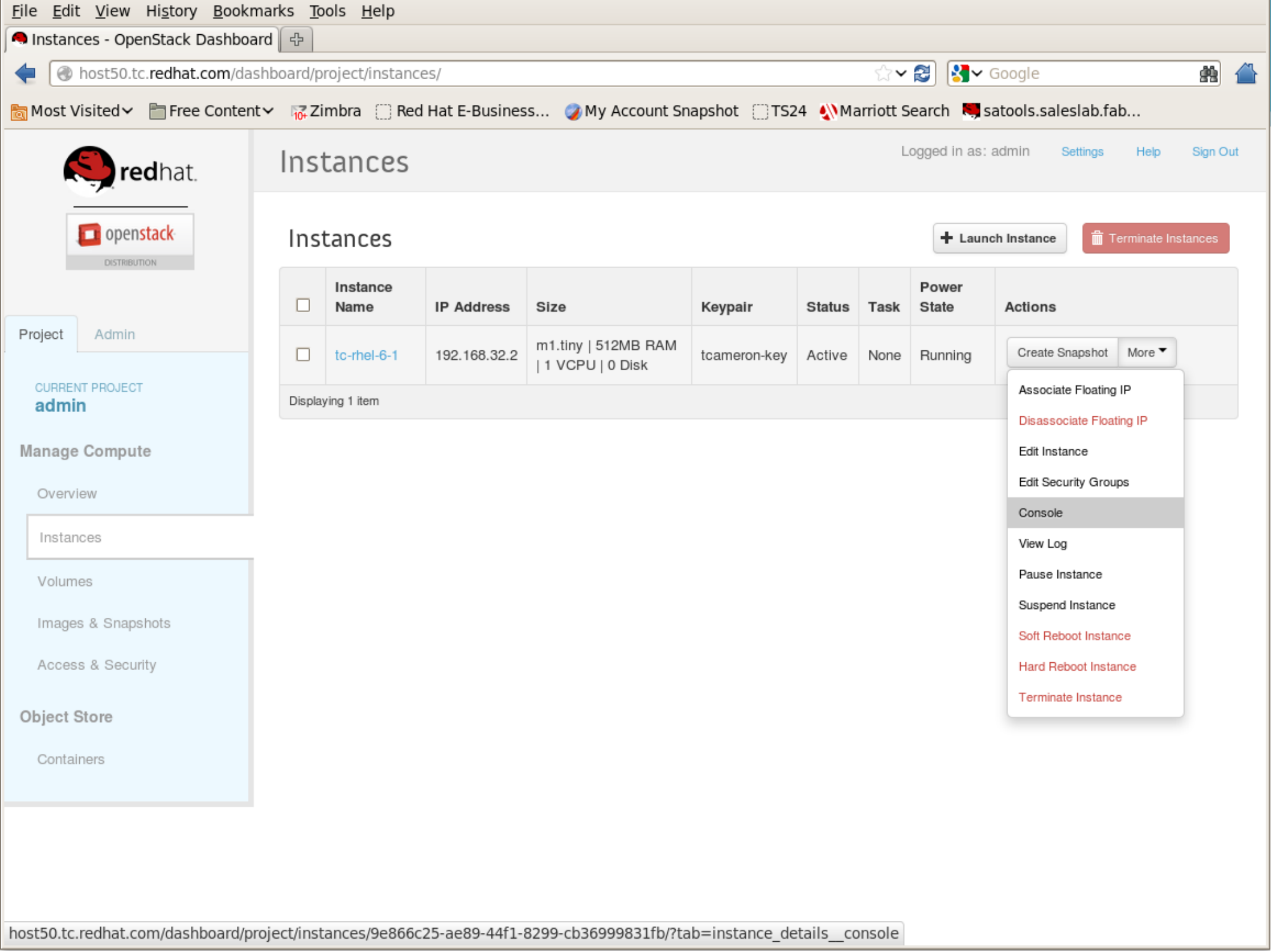
Actions
tc-rhel-6-1
192.168.32.2
m1.tiny | 512MB RAM | 1 VCPU | 0 Disk
tcameron-key
Active
None
Running
Create Snapshot
More
Displaying 1 item

- Open a console to see that the system has booted.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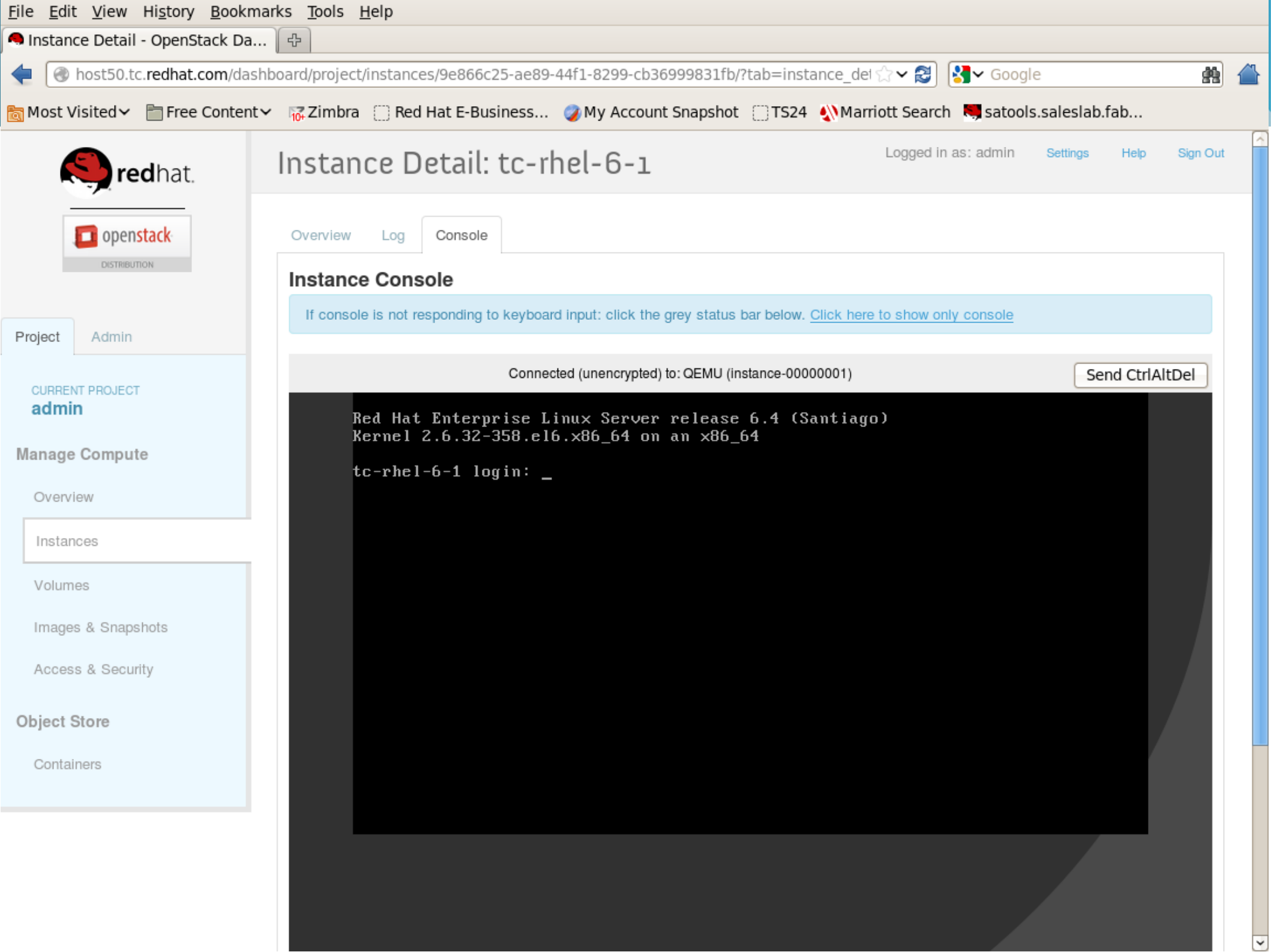
m1.tiny | 512MB RAM | 1 VCPU | 0 Disk
tcameron-key
Active
None
Running
Create Snapshot
More
Associate Floating IP
Disassociate Floating IP
Edit Instance
Edit Security Groups
Console
View Log
Pause Instance
Suspend Instance
Soft Reboot Instance
Hard Reboot Instance
Terminate Instance
Displaying 1 item
host50.tc.redhat.com/dashboard/project/instances/9e866c25-ae89-44f1-8299-cb36999831fb/?tab=instance_details__console


File Edit View History Bookmarks Tools Help
Instance Detail - OpenStack Da...
host50.tc.redhat.com/dashboard/project/instances/9e866c25-ae89-44f1-8299-cb36999831fb/?tab=instance_de
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Instance Detail: tc-rhel-6-1
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Log
Console
Instance Console
If console is not responding to keyboard input: click the grey status bar below. Click here to show only console
Connected (unencrypted) to: QEMU (instance-00000001)
Send CtrlAltDel
Red Hat Enterprise Linux Server release 6.4 (Santiago)
Kernel 2.6.32-358.el6.x86_64 on an x86_64
tc-rhel-6-1 login: _
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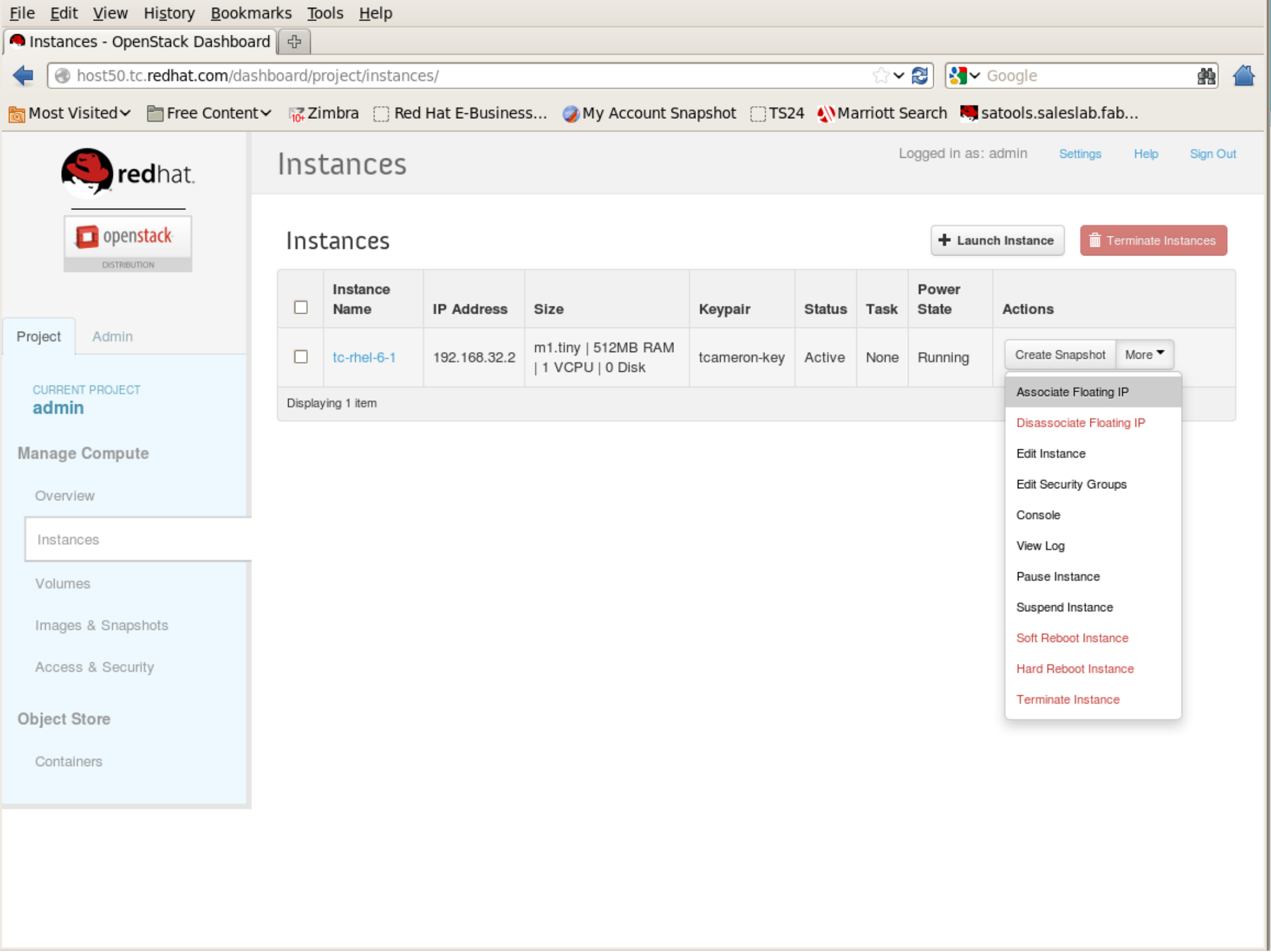
- Associate a floating IP address with the instance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192.168.32.2
m1.tiny | 512MB RAM | 1 VCPU | 0 Disk
tcameron-key
Active
None
Running
Create Snapshot
More
Displaying 1 item
Associate Floating IP
Disassociate Floating IP
Edit Instance
Edit Security Groups
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Suspend Instance
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Hard Reboot Instance
Terminate Instance

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Logged in as: admin Settings Help Sign Out

Success: Successfully associated floating IP: 172.31.100.161 ×

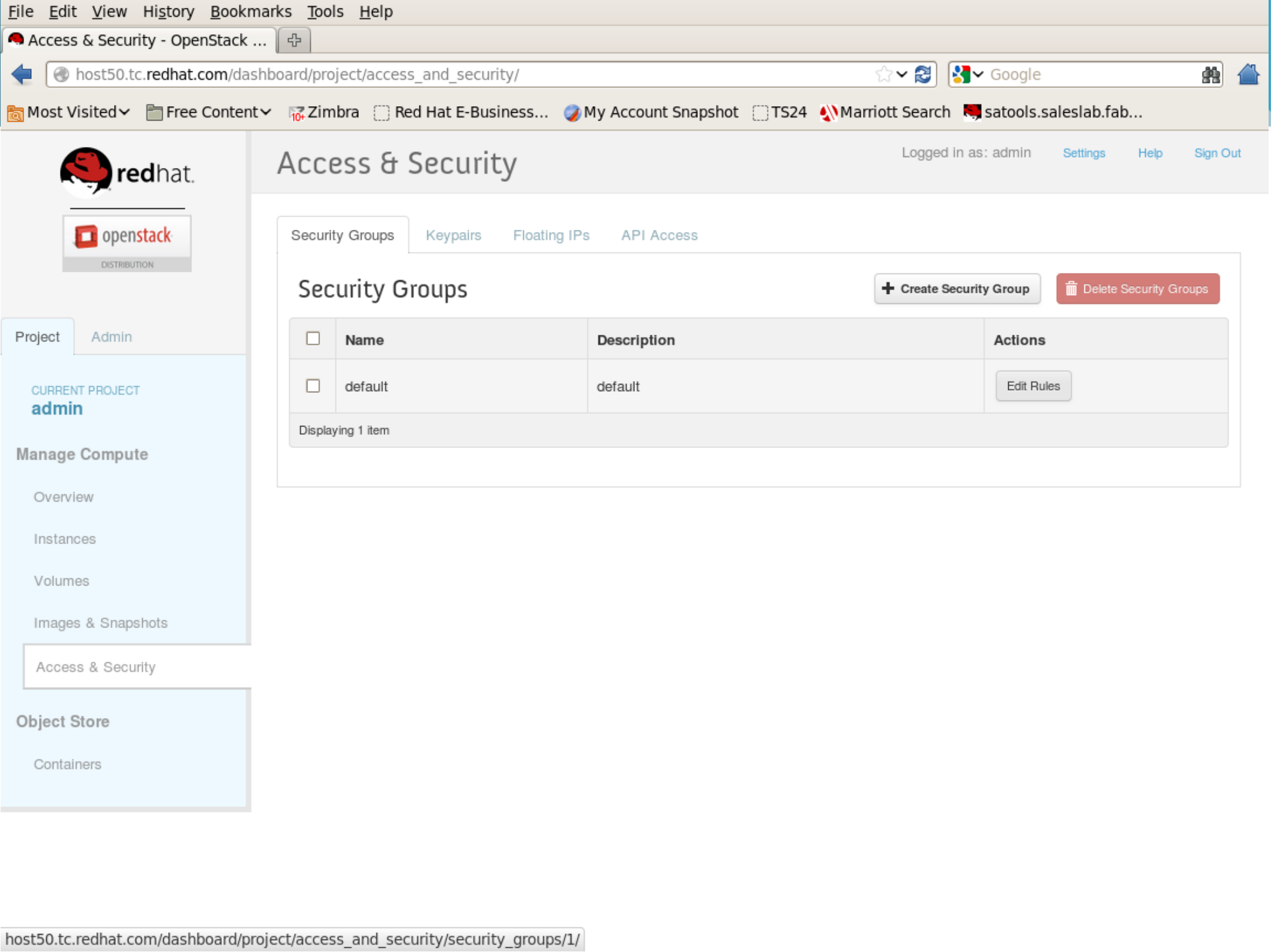
Instances

+ Launch Instance | Terminate Instances

	Instance Name	IP Address	Size	Keypair	Status	Task	Power State	Actions
☐	tc-rhel-6-1	192.168.32.2 172.31.100.161	m1.tiny | 512MB RAM | 1 VCPU | 0 Disk	tcameron-key	Active	None	Running	Create Snapshot | More

Displaying 1 item

- Add a rule to allow ssh. Choose Project/Access & Security/Security Groups and click “Edit Rules”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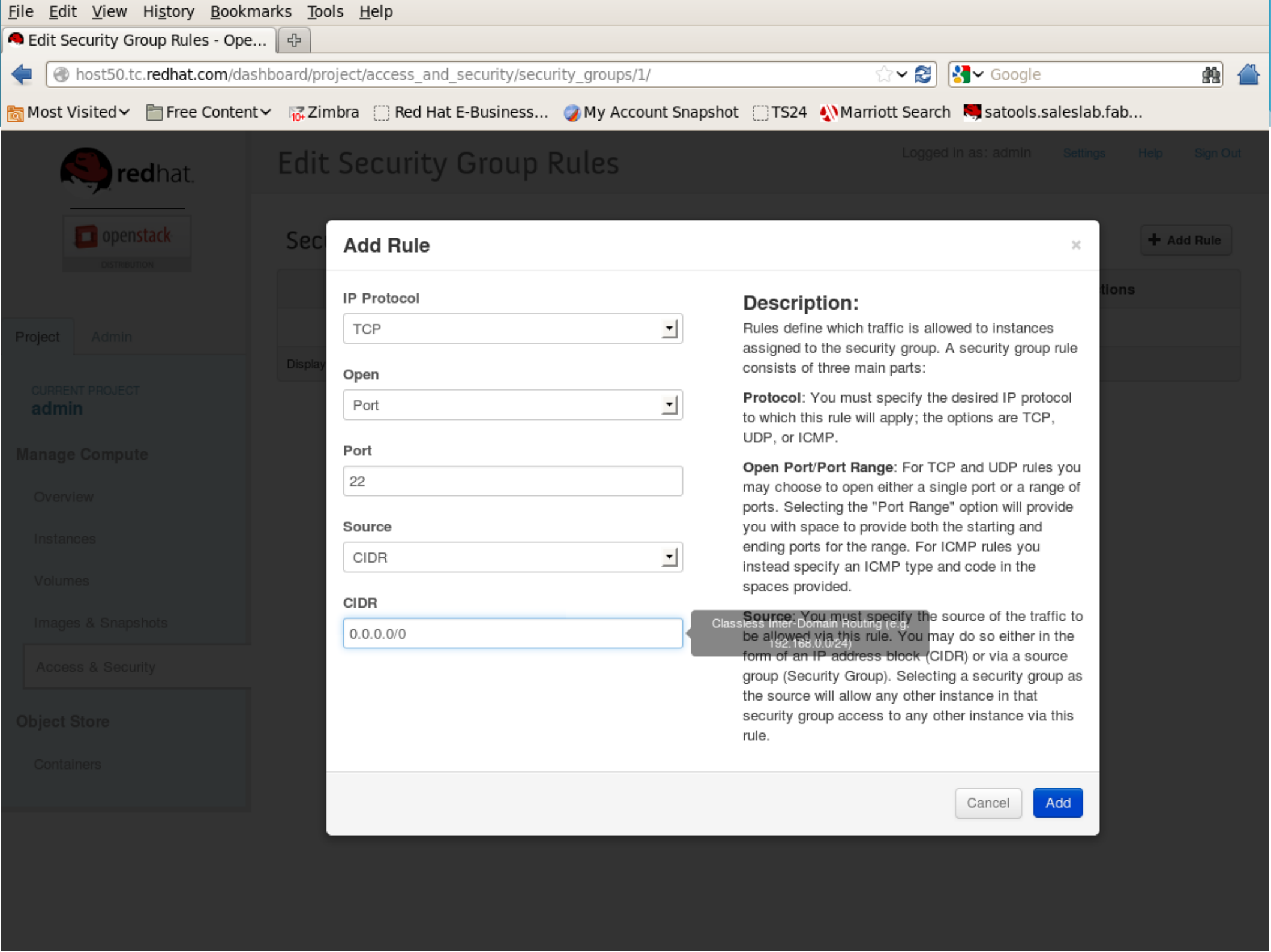
API Access
Security Groups
Create Security Group
Delete Security Groups
Name
Description
Actions
default
default
Edit Rules
Displaying 1 item
host50.tc.redhat.com/dashboard/project/access_and_security/security_groups/1/

- Click on Add Rule and choose the protocol (TCP), the port (22) and the CIDR from where this rule applies (0.0.0.0)


File Edit View History Bookmarks Tools Help
Edit Security Group Rules - Ope...
host50.tc.redhat.com/dashboard/project/access_and_security/security_groups/1/
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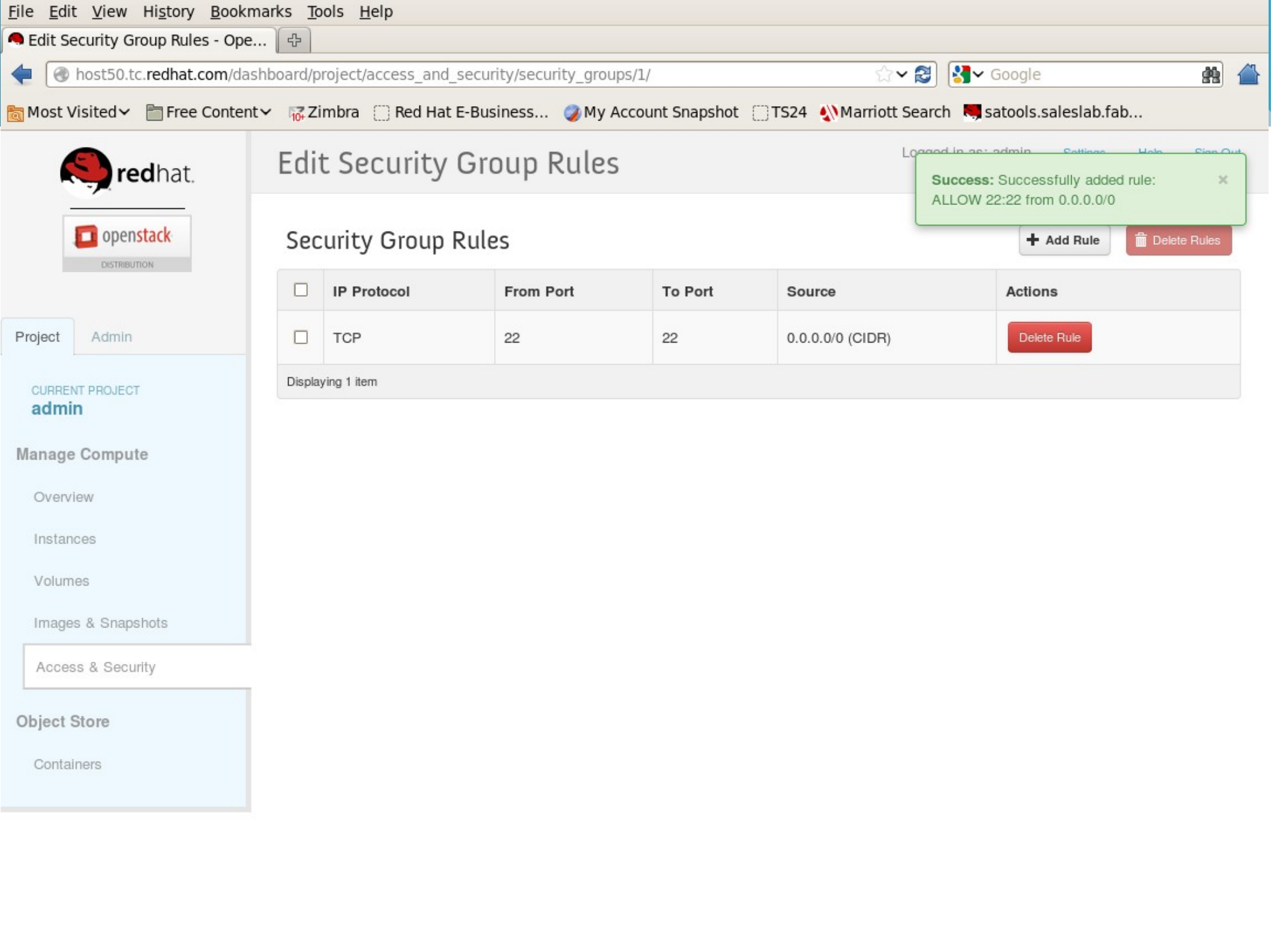
Add Rule
IP Protocol
TCP
Open
Port
Port
22
Source
CIDR
CIDR
0.0.0.0/0
Classless Inter-Domain Routing (e.g. 192.168.0.0/24)
Description:
Rules define which traffic is allowed to instances assigned to the security group. A security group rule consists of three main parts:
Protocol: You must specify the desired IP protocol to which this rule will apply; the options are TCP, UDP, or ICMP.
Open Port/Port Range: For TCP and UDP rules you may choose to open either a single port or a range of ports. Selecting the "Port Range" option will provide you with space to provide both the starting and ending ports for the range. For ICMP rules you instead specify an ICMP type and code in the spaces provided.
Source: You must specify the source of the traffic to be allowed via this rule. You may do so either in the form of an IP address block (CIDR) or via a source group (Security Group). Selecting a security group as the source will allow any other instance in that security group access to any other instance via this rule.
Cancel
Add


File Edit View History Bookmarks Tools Help
Edit Security Group Rules - Ope...
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Edit Security Group Rules
Success: Successfully added rule:
ALLOW 22:22 from 0.0.0.0/0
Security Group Rules
Add Rule
Delete Rules
IP Protocol
From Port
To Port
Source
Actions
TCP
22
22
0.0.0.0/0 (CIDR)
Delete Rule
Displaying 1 item

- Set the permissions for the ssh keypair you created (chmod 600 ~/.ssh/[key]
- Add the ssh keypair and log in.

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```
[tcameron@t530 ~]$ chmod 600 .ssh/tcameron-key.pem
[tcameron@t530 ~]$ ssh-add .ssh/tcameron-key.pem
Identity added: .ssh/tcameron-key.pem (.ssh/tcameron-key.pem)
[tcameron@t530 ~]$ ssh root@172.31.100.161
Warning: Permanently added '172.31.100.161' (RSA) to the list of known hosts.
Last login: Mon Sep  9 10:10:56 2013 from 172.31.100.20
[root@tc-rhel-6-1 ~]#
```

- Add a volume (similar to Amazon Elastic Block Service) to the instance. Choose Project/Volumes/Create Volume.

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Volumes - OpenStack Dashboard

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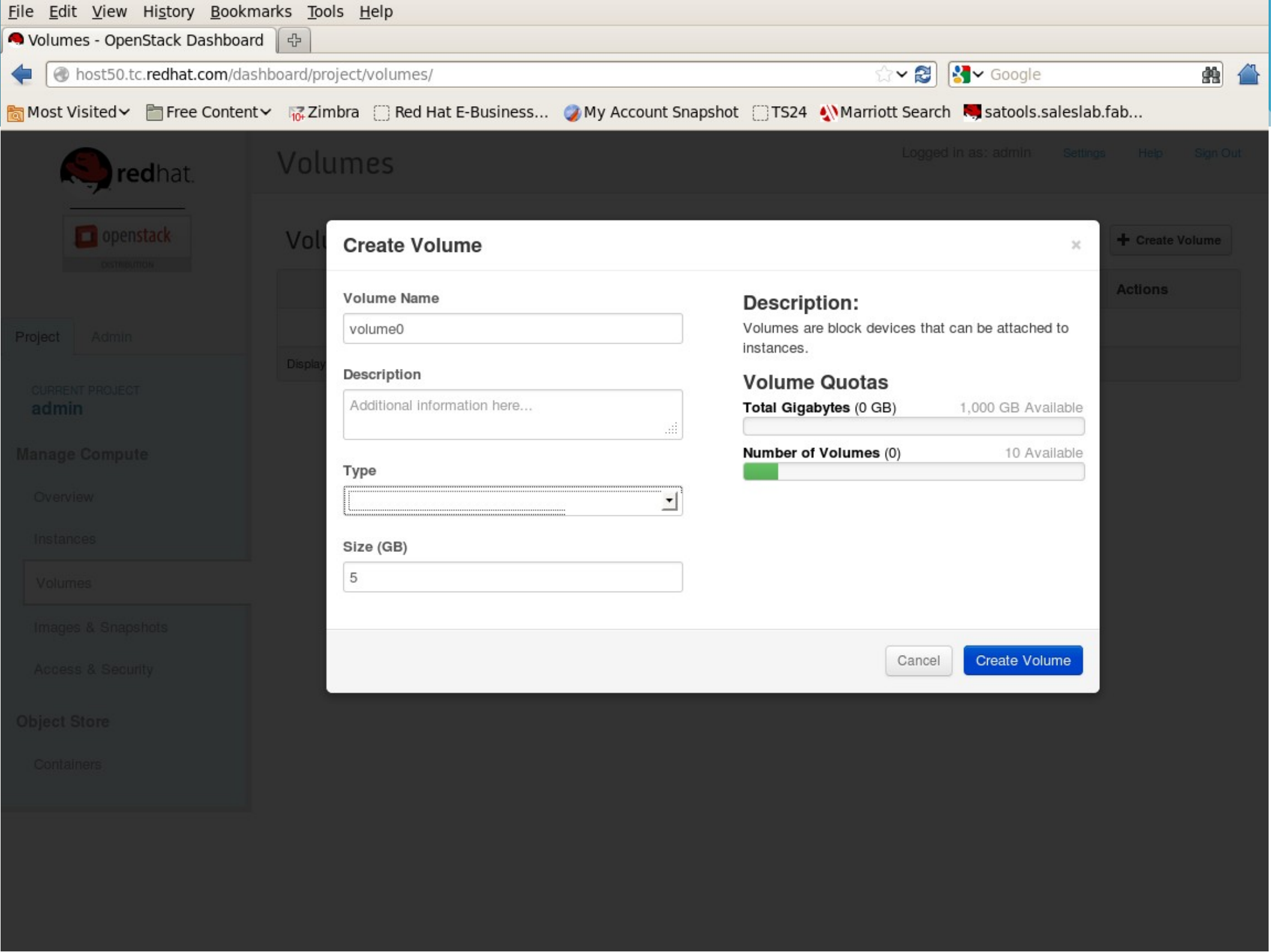
+ Create Volume

	Name	Description	Size	Status	Type	Attached To	Actions
No items to display.							

Displaying 0 items

- Add a volume (similar to Amazon Elastic Block Service) to the instance. Choose Project/Volumes/Create Volume.
- Enter the name and choose the size of the volume, and choose Create.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Create Volume
Volume Name
volume0
Description
Additional information here...
Type
Size (GB)
5
Description:
Volumes are block devices that can be attached to instances.
Volume Quotas
Total Gigabytes (0 GB)
1,000 GB Available
Number of Volumes (0)
10 Available
Cancel
Create Volume

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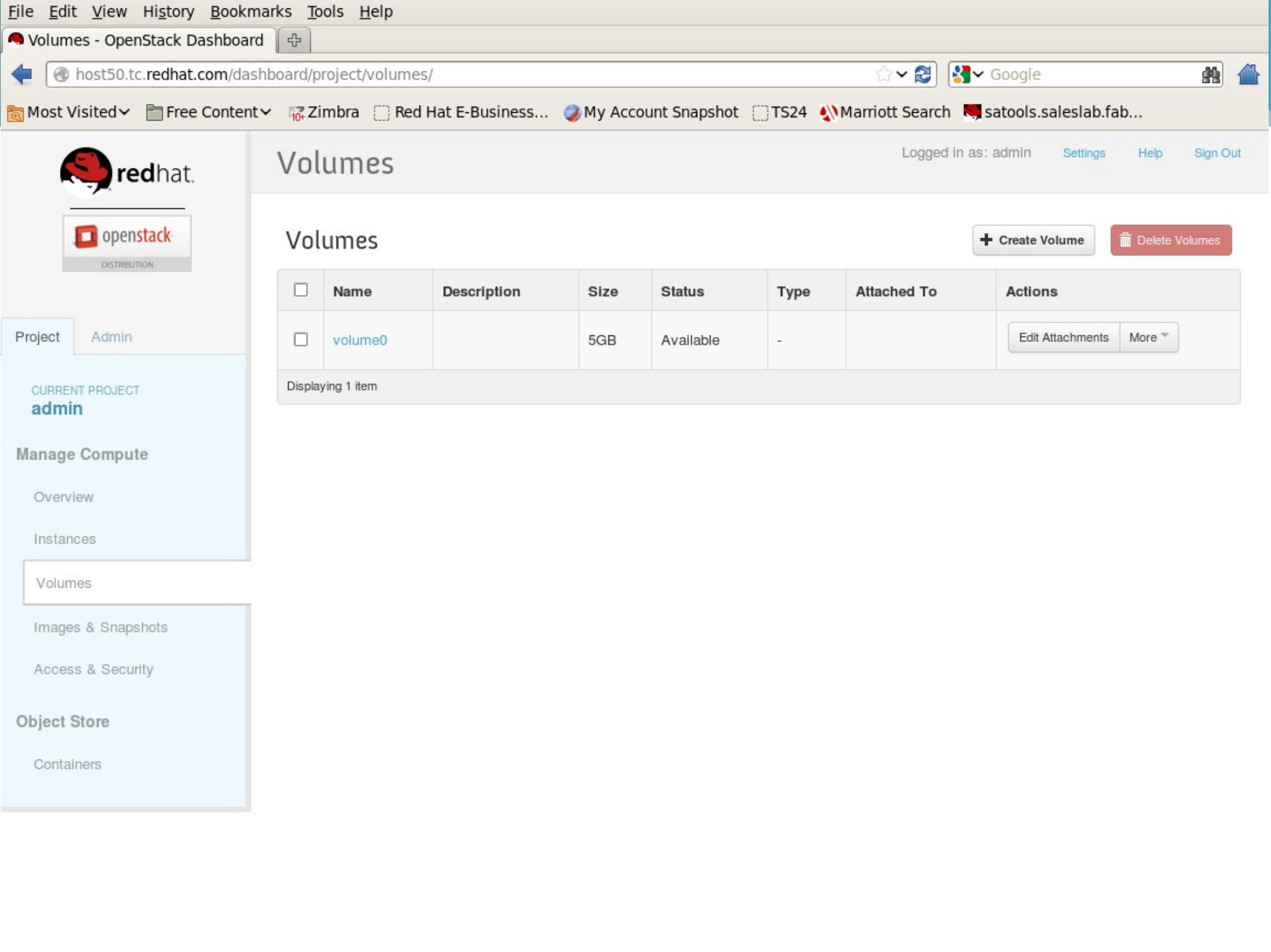
Info: Creating volume "volume0"

Volumes

+ Create Volume Delete Volumes

	Name	Description	Size	Status	Type	Attached To	Actions
☐	volume0		5GB	Creating	-		

Displaying 1 item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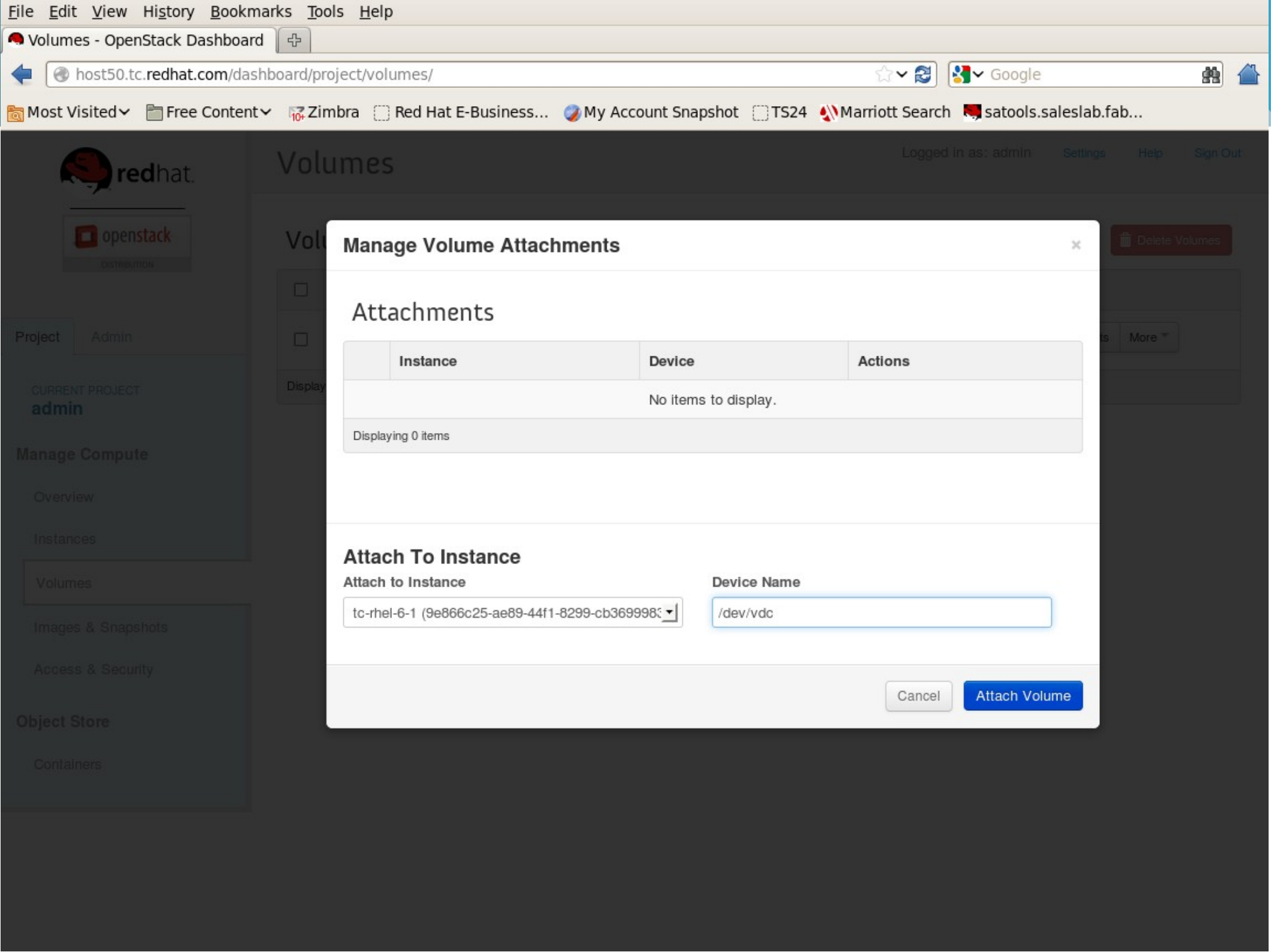
Status
Type
Attached To
Actions
volume0
5GB
Available
-
Edit Attachments
More
Displaying 1 item

- Attach the volume to your instance. Click “Edit Attachments,” choose an instance, and what device it will present to the guest OS.
- You can check the system console to see any messages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Manage Volume Attachments
Attachments
Instance
Device
Actions
No items to display.
Displaying 0 items
Attach To Instance
Attach to Instance
tc-rhel-6-1 (9e866c25-ae89-44f1-8299-cb3699983
Device Name
/dev/vdc
Cancel
Attach Volume

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Info: Attaching volume volume0 to instance tc-rhel-6-1 on /dev/vdc. ×

Volumes

+ Create Volume Delete Volumes

	Name	Description	Size	Status	Type	Attached To	Actions
☐	volume0		5GB	Attaching	-		

Displaying 1 item

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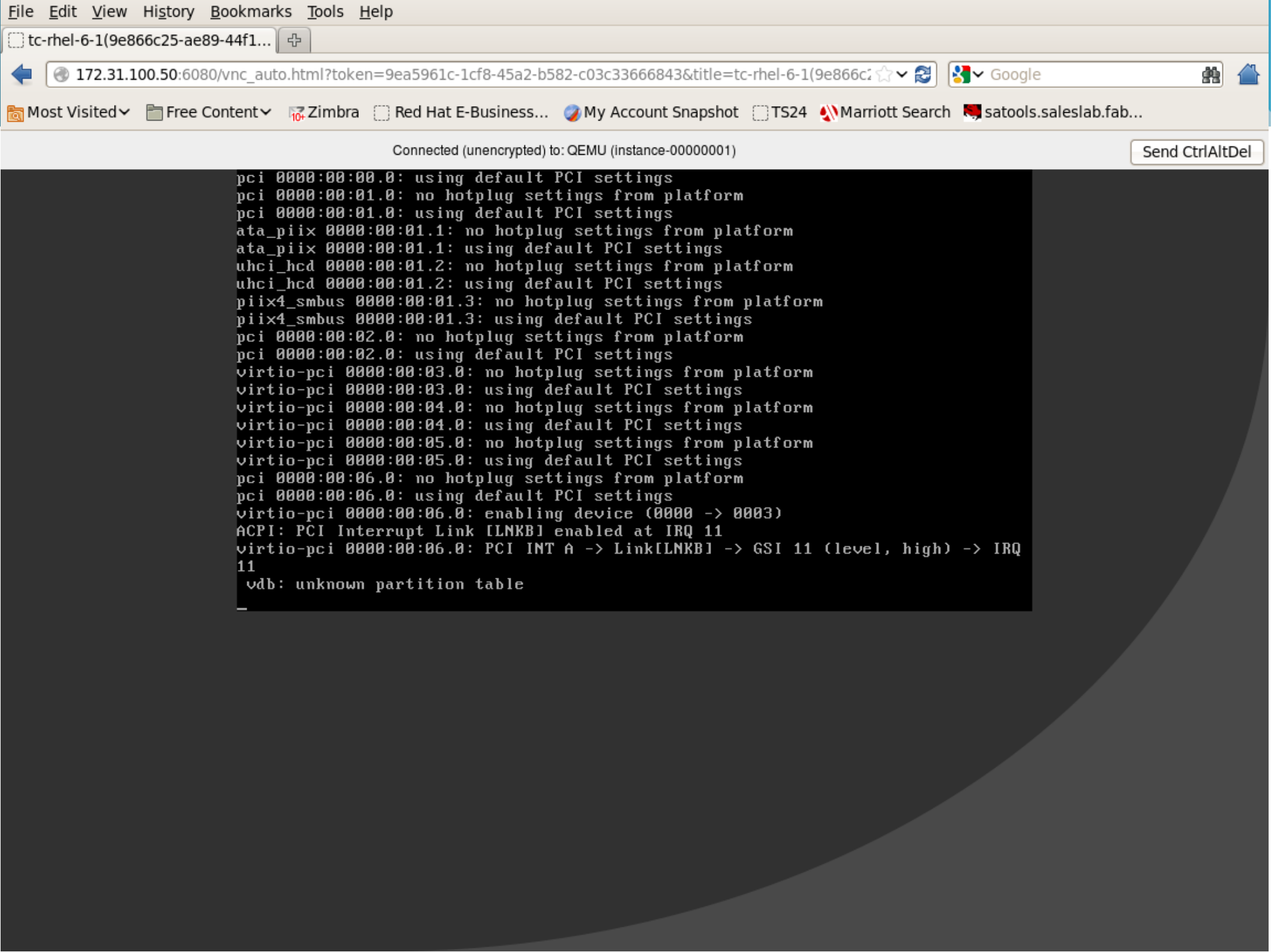
+ Create Volume Delete Volumes

	Name	Description	Size	Status	Type	Attached To	Actions
☐	volume0		5GB	In-Use	-	Attached to tc-rhel-6-1 on /dev/vdc	Edit Attachments

Displaying 1 item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tc-rhel-6-1(9e866c25-ae89-44f1...
172.31.100.50:6080/vnc_auto.html?token=9ea5961c-1cf8-45a2-b582-c03c33666843&title=tc-rhel-6-1(9e866c2
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Connected (unencrypted) to: QEMU (instance-00000001)
Send CtrlAltDel
pci 0000:00:00.0: using default PCI settings
pci 0000:00:01.0: no hotplug settings from platform
pci 0000:00:01.0: using default PCI settings
ata_piix 0000:00:01.1: no hotplug settings from platform
ata_piix 0000:00:01.1: using default PCI settings
uhci_hcd 0000:00:01.2: no hotplug settings from platform
uhci_hcd 0000:00:01.2: using default PCI settings
piix4_smbus 0000:00:01.3: no hotplug settings from platform
piix4_smbus 0000:00:01.3: using default PCI settings
pci 0000:00:02.0: no hotplug settings from platform
pci 0000:00:02.0: using default PCI settings
virtio-pci 0000:00:03.0: no hotplug settings from platform
virtio-pci 0000:00:03.0: using default PCI settings
virtio-pci 0000:00:04.0: no hotplug settings from platform
virtio-pci 0000:00:04.0: using default PCI settings
virtio-pci 0000:00:05.0: no hotplug settings from platform
virtio-pci 0000:00:05.0: using default PCI settings
pci 0000:00:06.0: no hotplug settings from platform
pci 0000:00:06.0: using default PCI settings
virtio-pci 0000:00:06.0: enabling device (0000 -> 0003)
ACPI: PCI Interrupt Link [LNKB] enabled at IRQ 11
virtio-pci 0000:00:06.0: PCI INT A -> Link[LNKB] -> GSI 11 (level, high) -> IRQ 11
vdb: unknown partition table

- The volume is stored in the “cinder-volumes” volume group.

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```
[root@host50 ~]# lvdisplay
  --- Logical volume ---
  LV Path                /dev/cinder-volumes/volume-add46761-ad31-414f-8ce3-c558
90054870
  LV Name                volume-add46761-ad31-414f-8ce3-c55890054870
  VG Name                cinder-volumes
  LV UUID                dFDZmC-vOnd-4ExO-Z6P5-sRoq-5Vcd-jQwsp6
  LV Write Access        read/write
  LV Creation host, time host50.tc.redhat.com, 2013-09-09 17:15:29 +0700
  LV Status              available
  # open                 1
  LV Size                5.00 GiB
  Current LE             160
  Segments               1
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     4096
  Block device           253:0

[root@host50 ~]#
```

- This is a very basic installation. With only one hour we can't get too complex, but this should get you started.
- Any questions?

- Thank you very much!
- thomas@redhat.com for any questions!