

Cloud Computing Lab

Experiment-7

Find a procedure to launch virtual machine using trystack (Online Openstack Demo Version)

TryStack was once an OpenStack-powered online demo platform for testing OpenStack's features, such as launching virtual machines (VMs). However, TryStack has been discontinued. Today, the best way to try OpenStack without a full installation is to use either **devstack** (for local installation on a single machine) or public cloud providers that offer OpenStack-based services.

OpenStack is an open-source software cloud computing platform. OpenStack is primarily used for deploying an infrastructure as a service (IaaS) solution like Amazon Web Service (AWS).

TryStack is the easiest and free way to do it.

Minimum requirements for OpenStack is listed below:

4 GB Of Ram.

4 CPU Units.

30 GB Disk Space.

Step 1: Prepare the environment for installing OpenStack:

Run the following commands and you will be done with it to bring all your packages to the latest version and install git so that we can clone OpenStack to our Linux machine.

Commands :

```
sudo apt-get update
sudo apt-get upgrade
sudo apt-get dist-
upgrade sudo apt-get
install git -y sudo reboot
```

Step 2: Download and Install OpenStack!

Note: If you already have a “stack” user on your virtual machine or laptop (with sudo privileges), then you do not need to create an additional user.

After your virtual machine is done with a reboot, you are now ready to install OpenStack.

Normally OpenStack runs under non-root user with sudo privileges. We can easily create one to start with using:

Create the user named as “stack”

```
Sudo useradd -s /bin/bash -d /opt/stack -m stack
```

Now let us give this user sudo privileges using:

```
echo"stack ALL=(ALL) NOPASSWD: ALL"|sudotee/etc/sudoers.d/stack
```

We now have to log in as user “stack” to proceed with our installation as

```
sudo su - stack
```

Start with the installation of openstack by downloading the required material.

```
git clone https://git.openstack.org/openstack-dev/devstack
```

```
# cd to the cloned directory
```

```
cd devstack
```

Normally during installing it will ask you to set various passwords, you can automate this process by creating a file in your current directory named “local.conf”. Save and exit the following file, this will automate the installation process.

```
# create the file
```

```
$ nano local.conf
```

```
# Now paste following contents in  
the file [[local|localrc]]
```

```
ADMIN_PASSWORD=secret
```

```
DATABASE_PASSWORD=$ADMIN_PASSWORD
```

```
RABBIT_PASSWORD=$ADMIN_PASSWORD
```

```
SERVICE_PASSWORD=$ADMIN_PASSWORD
```

We are now ready to run the installation script. Installation script can be launched using the command:

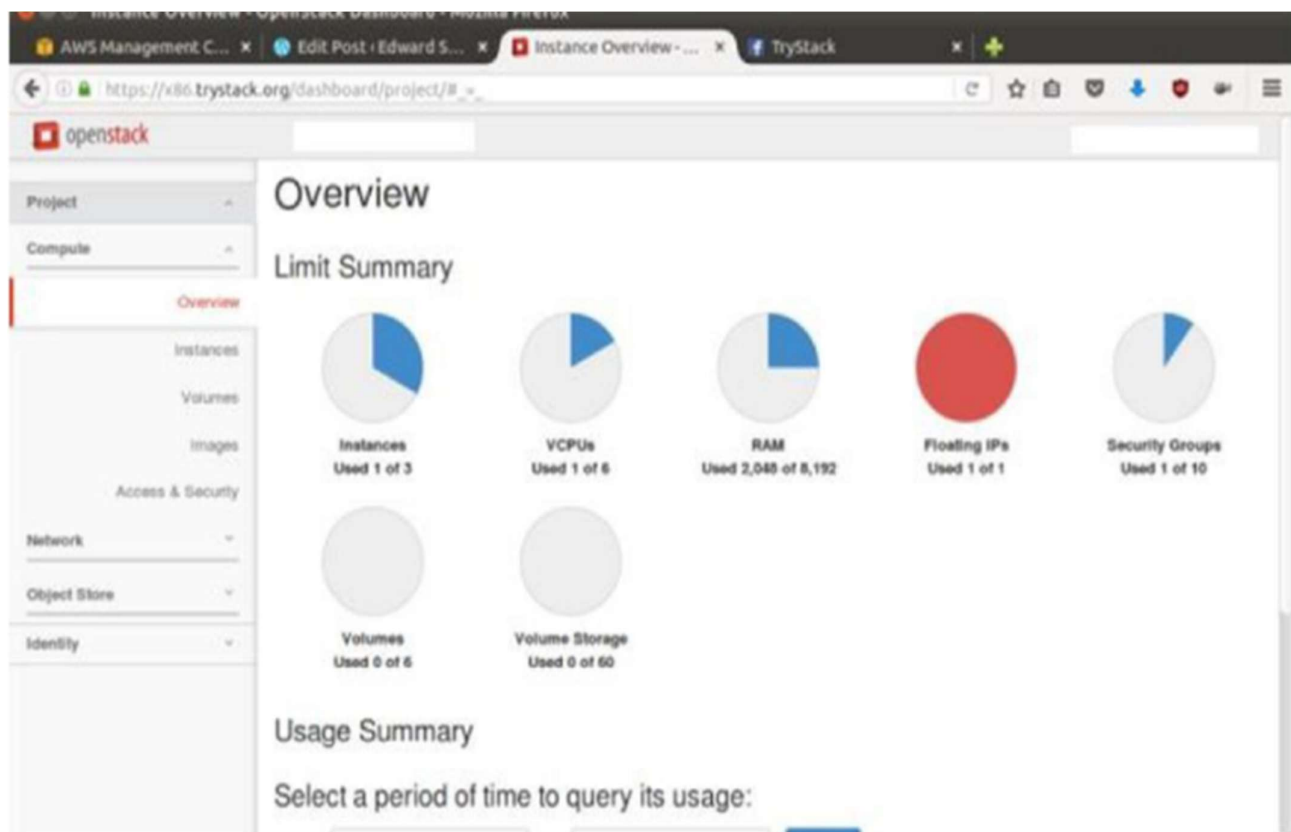
```
./stack.sh
```

Once installation is complete your screen should be :

```
This is your host IP address: 10.0.0.1
This is your host IPv6 address: fe80::...
Horizon is now available at http://10.0.0.1/dashboard
Keystone is serving at http://10.0.0.1/identity/
The default users are: admin and demo
The password: secret
Services are running under systemd unit files.
For more information see:
https://docs.openstack.org/developer/devstack/systemd.html
2017-06-19 16:13:18.557 | WARNING:
2017-06-19 16:13:18.557 | Using lib/neutron-legacy is deprecated, and it will be removed in the future
2017-06-19 16:13:18.557 | stack.sh completed in 1933 seconds.
stack@devstack:~/devstack$
```

OpenStack dashboard can now be accessed at :

```
http://<IPAddress>/dashboard/
```



Step 3: Create Network!

Note: Please remember that without having a network, you can not launch an instance/virtual machine.

After you are logged into the OpenStack Dashboard it will look something like this:

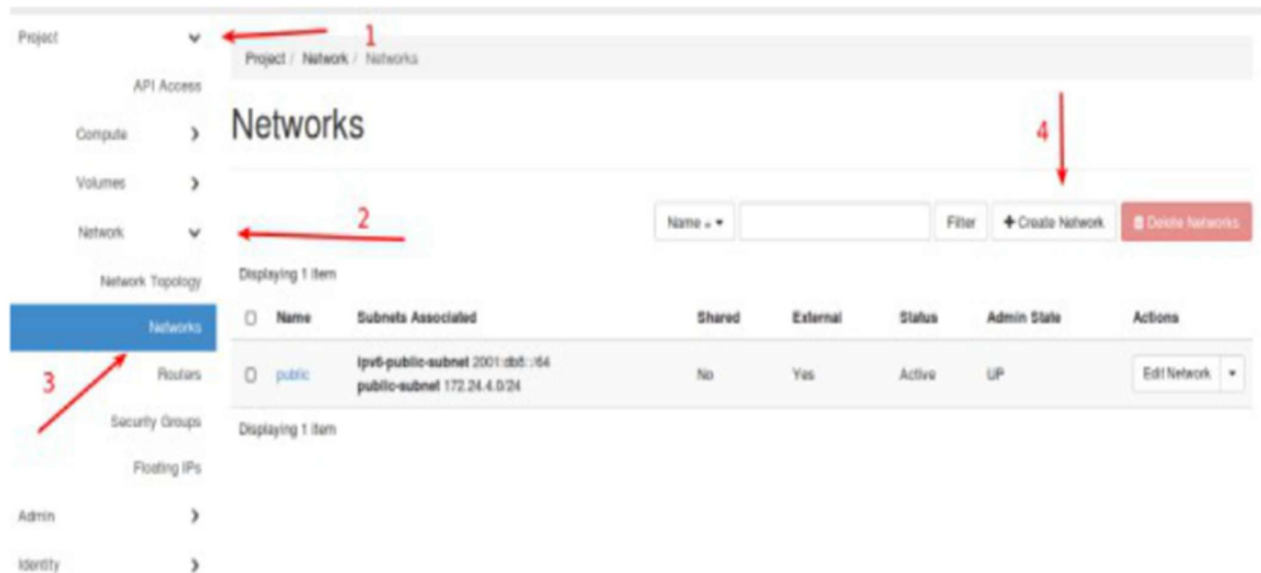
The screenshot shows the OpenStack Dashboard Projects page. The left sidebar contains navigation links for Project, Admin, Identity, and Projects (selected). The main content area is titled 'Projects' and displays a table of projects. At the top right, there are buttons for 'Create Project' and 'Delete Projects'.

Name	Description	Project ID	Domain Name	Enabled	Actions
it_demo		041se75225674c009ka1a1fb07cd7e4	Default	Yes	Manage Members
demo		320acaa3b34e10b072980f1cf1d9b8	Default	Yes	Manage Members

We need to create a network that virtual machine can use. For now, it will just be a dummy network:

Steps:

1. Click the Project Drop Down.
2. Click the Network Drop Down.
3. From network Drop Down select Networks, and this window will open that you see on the right side.
4. Finally, click Create Network



Create Network

Network Subnet Subnet Details

Network Name

CyberPersons

Create a new network. In addition, a subnet associated with the network can be created in the following steps of this wizard.

☒ Enable Admin State ⓘ

☐ Shared

☒ Create Subnet

Cancel Back Next

Create Network

Network Subnet Subnet Details

Subnet Name
CyberPersons

Network Address Source
Allocate Network Address from a pool

Address pool
shared-default-subnetpool (10.0.0.0/22)

Network Mask
26 (pool default)

IP Version
IPv4

Gateway IP ⓘ

Creates a subnet associated with the network. You need to enter a valid "Network Address" and "Gateway IP". If you did not enter the "Gateway IP", the first value of a network will be assigned by default. If you do not want gateway please check the "Disable Gateway" checkbox. Advanced configuration is available by clicking on the "Subnet Details" tab.

1 2 3 4 5

Cancel < Back Next >

Once all these things are done, click "Next".

Now everything is optional in this below window if you are interested in filling something up, you can. Otherwise, leave everything as it is and click "Create". You now have a network that you can use to launch a virtual machine.

Create Network

Network Subnet Subnet Details

☒ **Enable DHCP**

Specify additional attributes for the subnet.

Allocation Pools ⓘ

DNS Name Servers ⓘ

Host Routes ⓘ

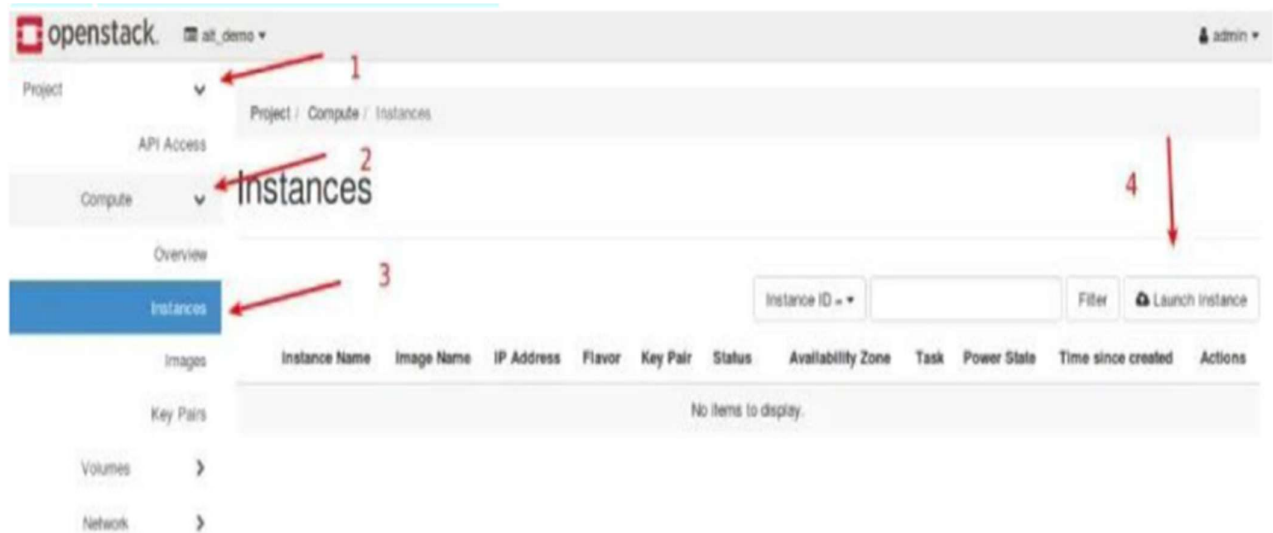
Cancel < Back Create

Step 4: Create Virtual Machine/Instance

After the network is created, we are now ready to create our very first virtual machine.

Steps:

1. Click on “Project” drop down.
2. Inside project click “Compute” drop down.
3. Under compute you have four options, since we are interested in creating an instance, you have to click on “Instance”.
4. Finally, click “Launch Instance”.



Launch Instance

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

Details

Source *

Flavor *

Networks

Network Ports

Security Groups

Key Pair

Configuration

Server Groups

Scheduler Hints

Metadata

Instance Name *

CyberPersons

Availability Zone

nova

Count *

1

Total Instances (10 Max)

10%

0 Current Usage

1 Added

9 Remaining

Cancel

Back

Next >

Launch Instance

Now, there are 11 tabs to create an instance, we will go through each tab one by one.

Details Tab :

This is a general information tab for creating an instance,
You will have to assign a name to your virtual machine on this tab.
Select zone to launch a virtual machine, and
Tell how many copies of virtual machine you want.

The screenshot shows the 'Launch Instance' dialog with the 'Details' tab selected. The dialog has a sidebar with 11 tabs: Details, Source, Flavor, Networks, Network Ports, Security Groups, Key Pair, Configuration, Server Groups, Scheduler Hints, and Metadata. The main area contains the following fields and information:

- Instructions:** Please provide the initial hostname for the instance, the availability zone where it will be deployed, and the instance count. Increase the Count to create multiple instances with the same settings.
- Instance Name:** A text input field containing 'CyberPersons'.
- Availability Zone:** A dropdown menu showing 'nova'.
- Count:** A numeric input field with '1' and up/down arrows.
- Total Instances (10 Max):** A donut chart showing 10% usage. The legend indicates: 0 Current Usage (blue), 1 Added (light blue), and 9 Remaining (grey).

At the bottom, there are three buttons: 'Cancel', '< Back', and 'Next > Launch Instance'.

Source Tab

Normally when we create a virtual machine on Proxmox or VMWare we need to insert CD-ROM

In OpenStack this is done by Source Tab, you can use various ways to launch a new virtual machine, OpenStack allows you to choose following as a source to create your instance.

Image
Snapshot of already created instance
Volume or a volume Snapshot

We are going to use "Cirros" image to create our instance.

Launch Instance

Source *

Flavor *

Networks

Network Ports

Security Groups

Key Pair

Configuration

Server Groups

Scheduler Hints

Metadata

Select Boot Source

Image

Volume Size (GB) *

1

Create New Volume

Yes No

Delete Volume on Instance Delete

Yes No

Allocated

Name	Updated	Size	Type	Visibility
Select an item from Available items below				

Available 2

Select one

Click here for filters.

Name	Updated	Size	Type	Visibility
> ubuntu	6/22/17 3:17 AM	829.00 MB	iso	Public
> cirros-0.3.5-x86_64-disk	6/22/17 2:14 AM	12.65 MB	qcow2	Public

< Back

Next >

Launch Instance

1. Click on the icon where the first arrow is pointing, so that we can use “Cirros” to launch our virtual machine.
2. After the image is selected, just click “Next” so that we can move to “Flavor” tab.

Flavor Tab

Flavor tab will allow you to allocate resource to your instance. Like:

Ram.

CPU.

Disk Space.

It is similar to giving virtual resources to the virtual machine, but OpenStack gives fancy names to everything

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
> m1.tiny	1	512 MB	1 GB	1 GB	0 GB	Yes

Available 11

Select one

Click here for filters.

Name	VCPUS	RAM	Total Disk	Root Disk	Ephemeral Disk	Public
> 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.nano	1	64 MB	0 GB	0 GB	0 GB	Yes
> m1.xlarge	8	16 GB	160 GB	160 GB	0 GB	Yes

< Back

Next >

Launch Instance

You can see that there are 11 available pre-configured templates to choose from. The one I choose gave following resources to the instance:

1 virtual CPU.

512 MB Ram.

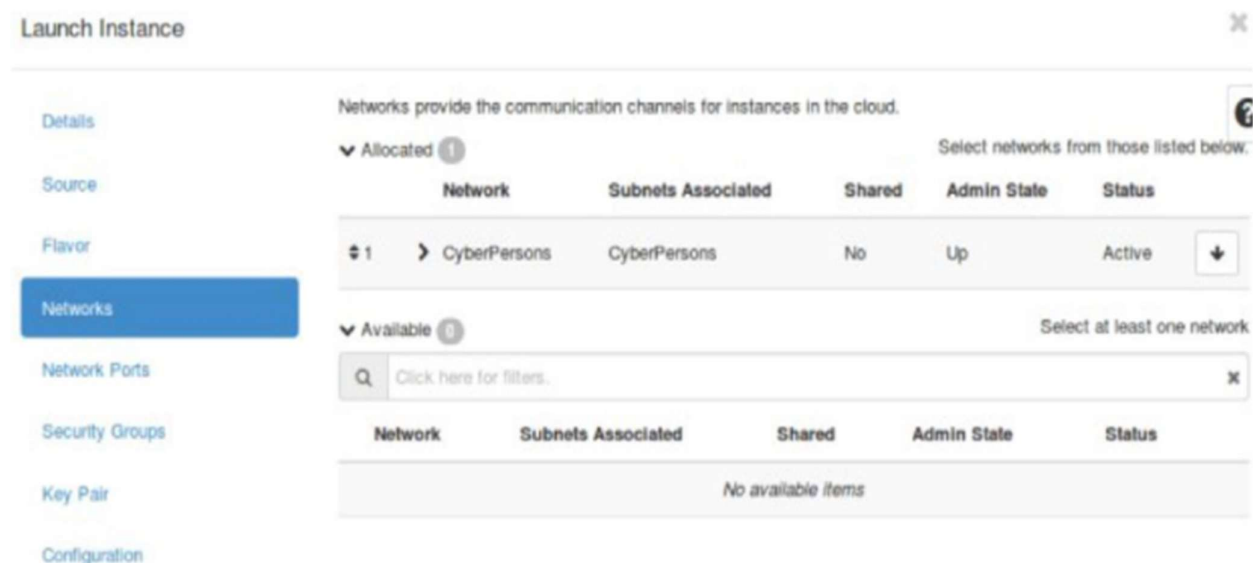
1 GB Disk.

After flavor is selected, just press “Next”.

Network Tab

Network tab allows us to define a network for our virtual machine, you might have remembered that we’ve created a network above for this purpose.

Now by default, the network you have created above will be selected for this machine, as seen in the image below:



Don’t change anything just click “Next”.

Network Ports Tab

For now, just leave the default settings on “Network Ports” tab and click next.

Security Groups Tab

Security groups define how a specific virtual machine is allowed to talk with the outer world. As for now, we are just trying to create our first virtual machine, you can leave all the defaults.

Key-Pair Tab

Leave defaults and click Next.

Configuration Tab

Leave defaults and click Next.

Server Groups Tab

Leave defaults and click Next.

Scheduler Hints Tab

Leave defaults and click Next.

Metadata Tab

Leave defaults and click Next.

Launch Instance

After going through all the tabs, you are now ready to press that magic “Launch Instance” button.

Once you click “Launch Instance” button, OpenStack will start creating our virtual machine, and it is going to look something like this:

Displaying 1 item

<input type="checkbox"/>	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Time since created	Actions
<input type="checkbox"/>	CyberPersons	-	10.0.0.75	m1.tiny	-	Build	nova	Block Device Mapping	No State	0 minutes	Associate Floating IP

Displaying 1 item

Step 5: Access Virtual Machine Console!

Once you click “Launch Instance” it will take OpenStack few seconds to create your virtual machine. Once ready you can access the console to see how the command line of your first virtual machine looks like.

Displaying 1 item

<input type="checkbox"/>	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Time since created	Actions
<input type="checkbox"/>	CyberPersons	-	172.24.4.11 2001:db8::6	m1.tiny	-	Active	nova	None	Running	3 minutes	Create Snapshot

Displaying 1 item

- 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
- Shelve Instance
- Resize Instance
- Lock Instance
- Soft Reboot Instance
- Hard Reboot Instance
- Shut Off Instance

Click on “Console” and OpenStack will take you to the console of the virtual machine. The console will look something like this:

A screenshot of a QEMU console window. The title bar reads "Connected (unencrypted) to: QEMU (instance-000000001)" and there is a "Send C" button on the right. The console displays a series of boot logs with timestamps in brackets. The logs include: "2.164811] NET: Registered protocol family 10", "2.180216] NET: Registered protocol family 17", "2.181637] Registering the dns_resolver key type", "2.221567] registered taskstats version 1", "2.251264] Freeing initrd memory: 3452k freed", "2.406290] Magic number: 5:833:342", "2.407395] rtc_cmos 00:01: setting system clock to 2017-06-22 18:18:41 UTC (1498155521)", "2.410548] powernow-k8: Processor cpuid 663 not supported", "2.414248] BIOS EDD facility v0.16 2004-Jun-25, 0 devices found", "2.414675] EDD information not available.", "2.440477] Freeing unused kernel memory: 928k freed", "2.469513] Write protecting the kernel read-only data: 12288k", "2.521076] Freeing unused kernel memory: 1596k freed", "2.560647] Freeing unused kernel memory: 1184k freed", "2.563628] Refined TSC clocksource calibration: 2593.959 MHz.", and "2.564469] Switching to clocksource tsc". At the bottom, it says "further output written to /dev/ttyS0".

```
Connected (unencrypted) to: QEMU (instance-000000001) Send C
[ 2.164811] NET: Registered protocol family 10
[ 2.180216] NET: Registered protocol family 17
[ 2.181637] Registering the dns_resolver key type
[ 2.221567] registered taskstats version 1
[ 2.251264] Freeing initrd memory: 3452k freed
[ 2.406290] Magic number: 5:833:342
[ 2.407395] rtc_cmos 00:01: setting system clock to 2017-06-22 18:18:41 UTC (
1498155521)
[ 2.410548] powernow-k8: Processor cpuid 663 not supported
[ 2.414248] BIOS EDD facility v0.16 2004-Jun-25, 0 devices found
[ 2.414675] EDD information not available.
[ 2.440477] Freeing unused kernel memory: 928k freed
[ 2.469513] Write protecting the kernel read-only data: 12288k
[ 2.521076] Freeing unused kernel memory: 1596k freed
[ 2.560647] Freeing unused kernel memory: 1184k freed
[ 2.563628] Refined TSC clocksource calibration: 2593.959 MHz.
[ 2.564469] Switching to clocksource tsc

further output written to /dev/ttyS0
```

RESULT:

The procedure for find a procedure to launch virtual machine using trystack(online openstack demo version) was learned and verified successfully