

Aim: Installation and configuration of private cloud using Eucalyptus / openstack.

Theory:

Eucalyptus is an open source cloud platform. It is a paid and open-source computer software for building Amazon web services (AWS) - compatible private and hybrid cloud computing environments, originally developed by the computing company Eucalyptus Systems.

It is an acronym for elastic utility computing architecture for linking your program to useful systems.

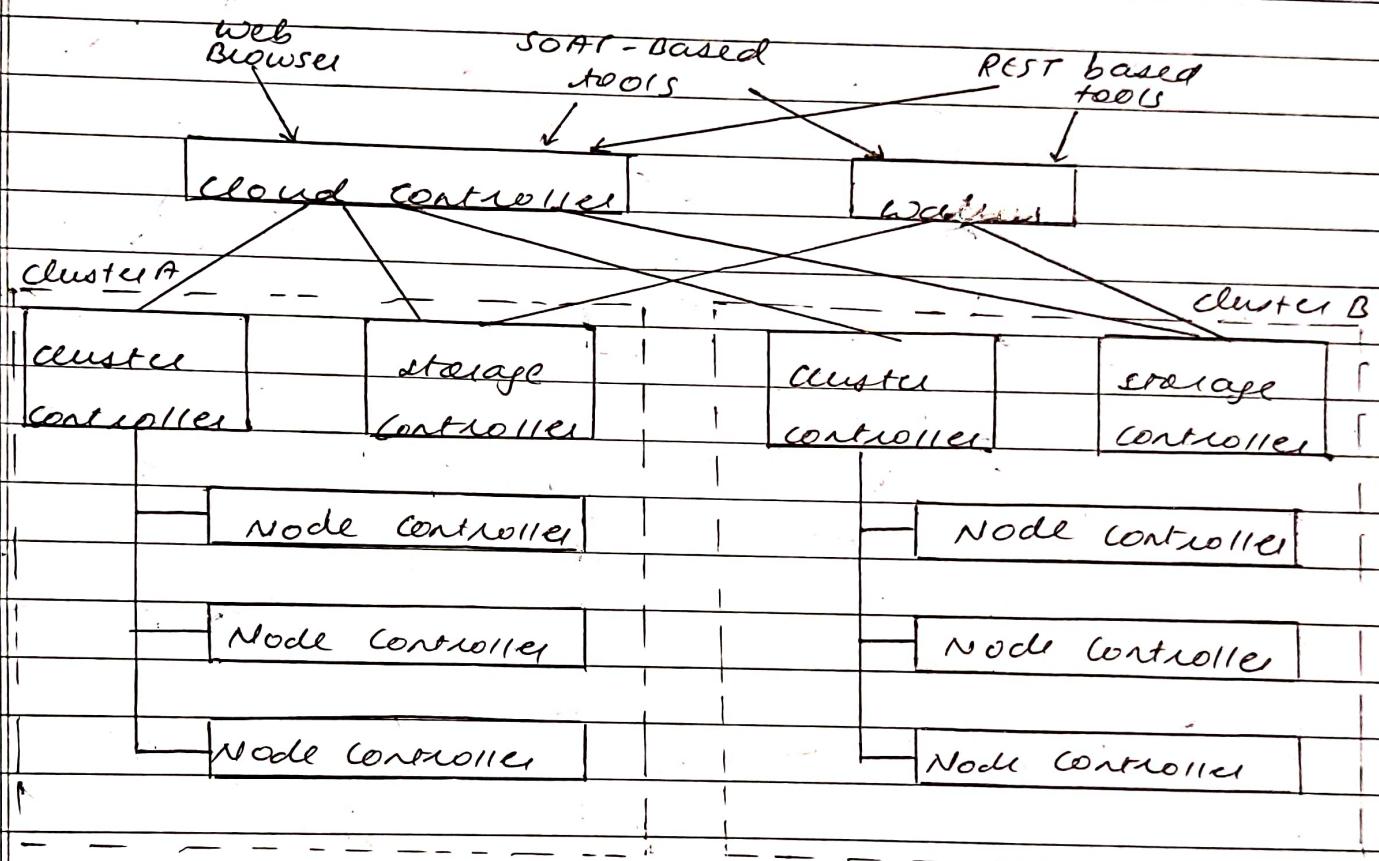
Eucalyptus enables pooling compute, storage and network resources that can be dynamically scaled up or down as application workload changes.

#### \* Components

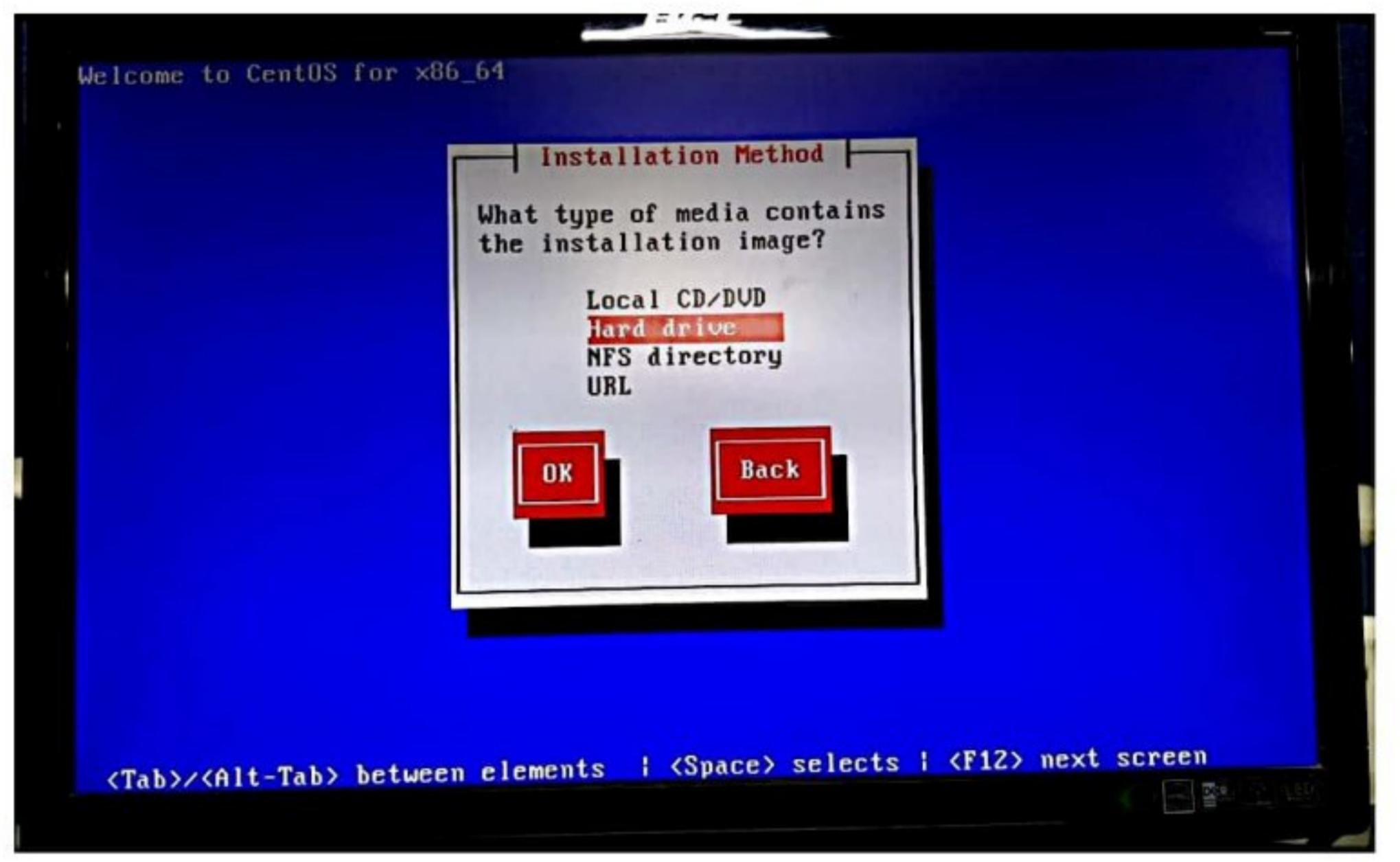
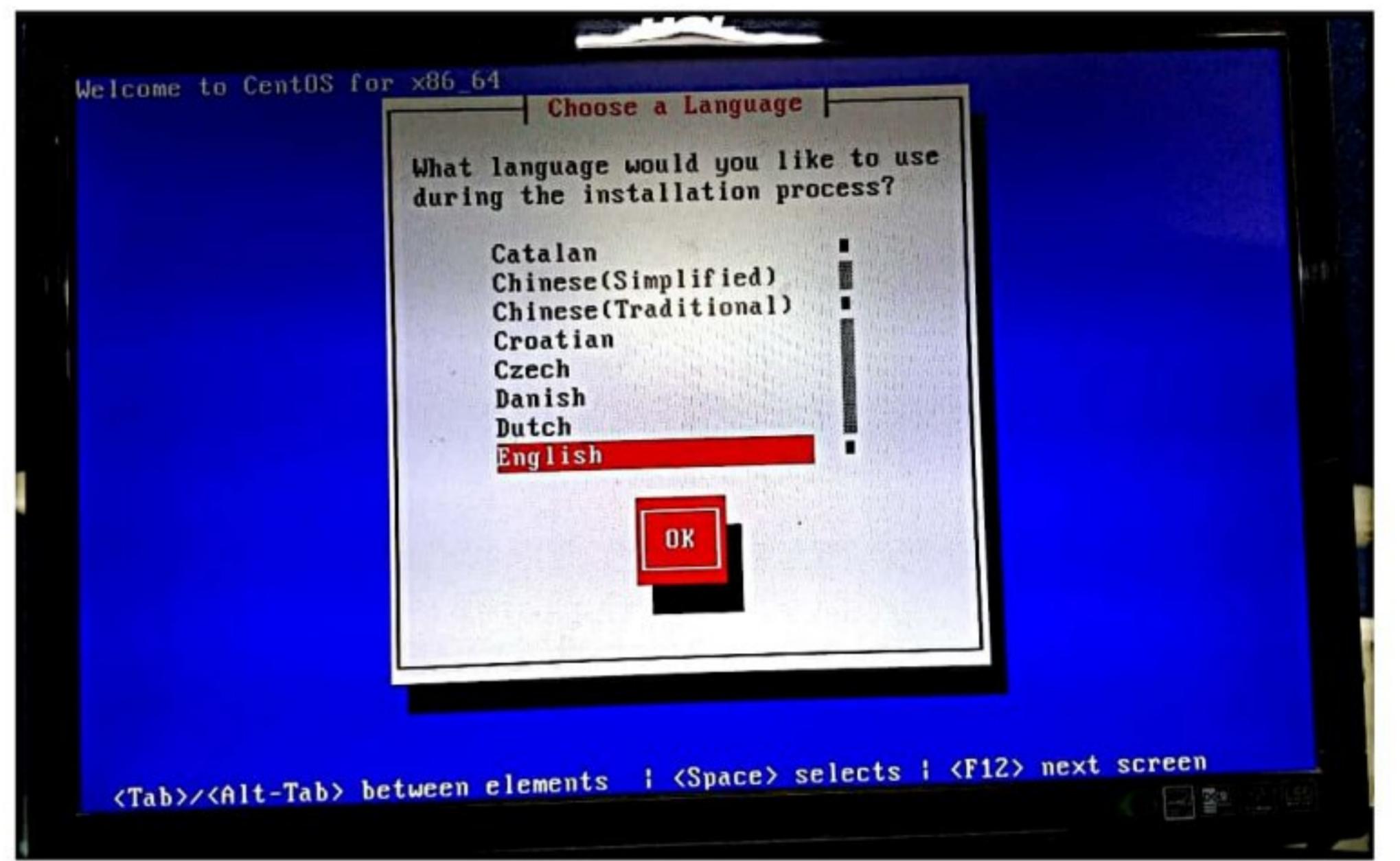
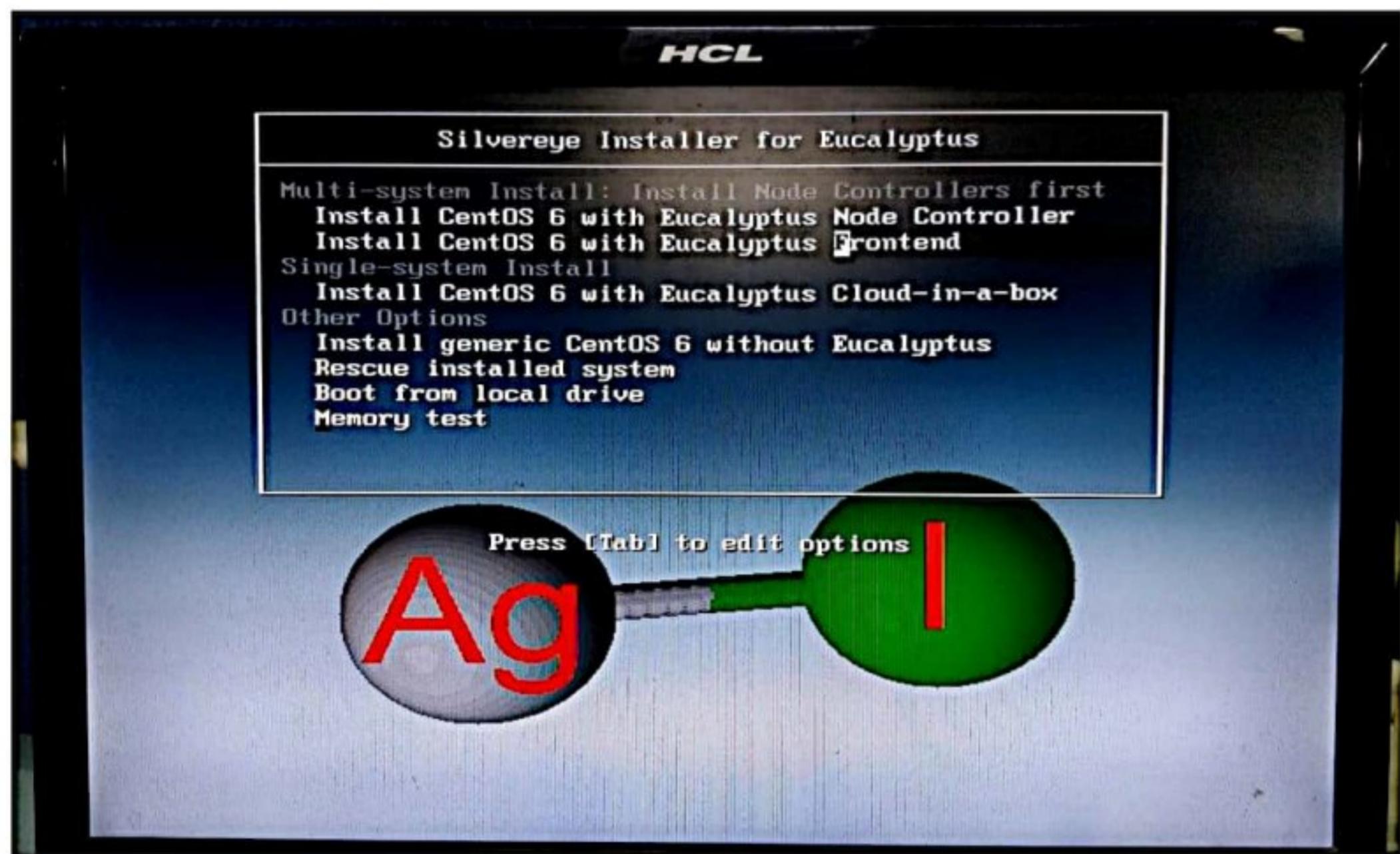
- o The Cloud Controller (CCL) is a Java program that offers EC2 compatible interface, as well as a web interface to the outside world. In addition to handling incoming requests, the CCL acts as the administrative interface for cloud management and performs high level resource scheduling and system accounting.

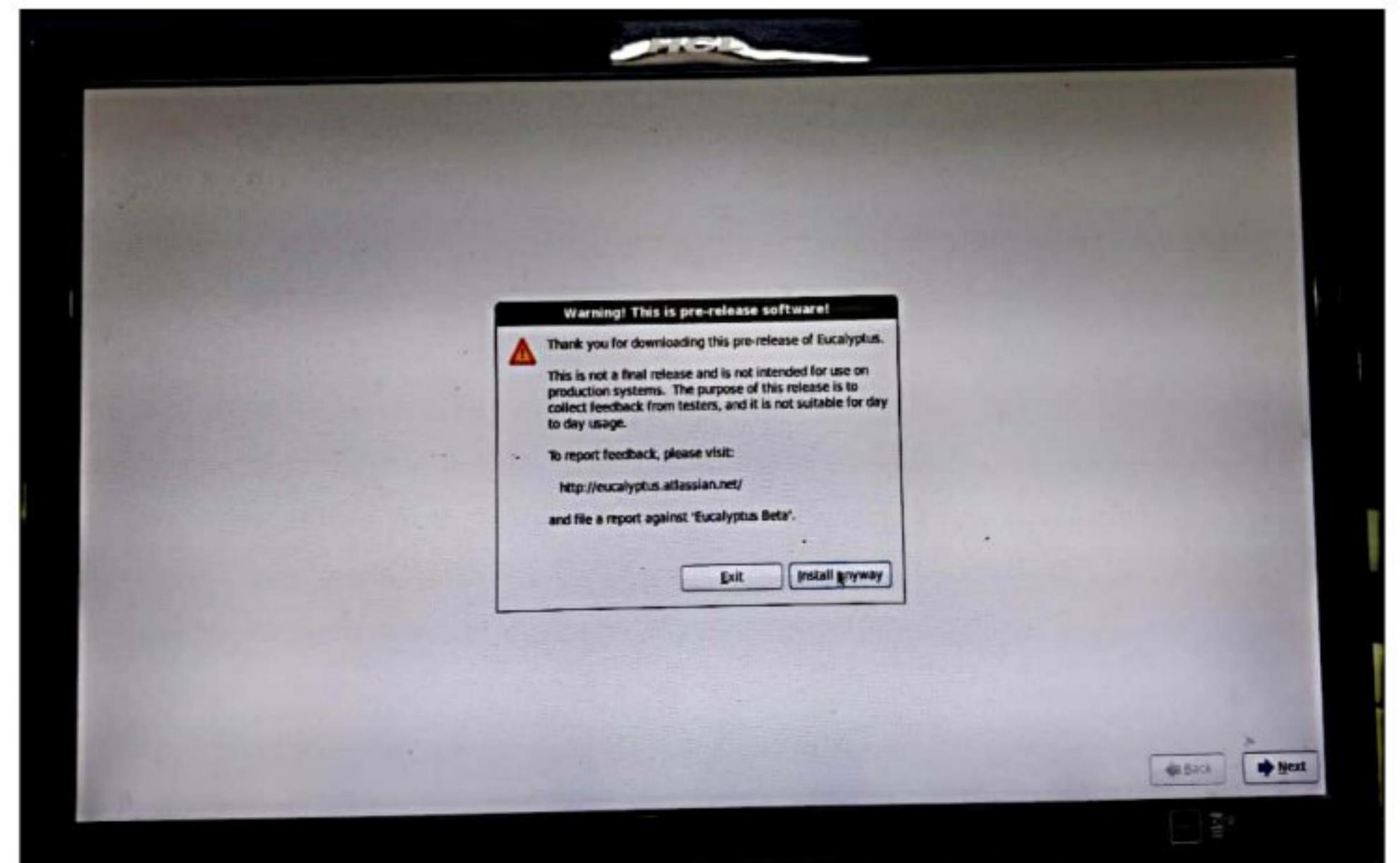
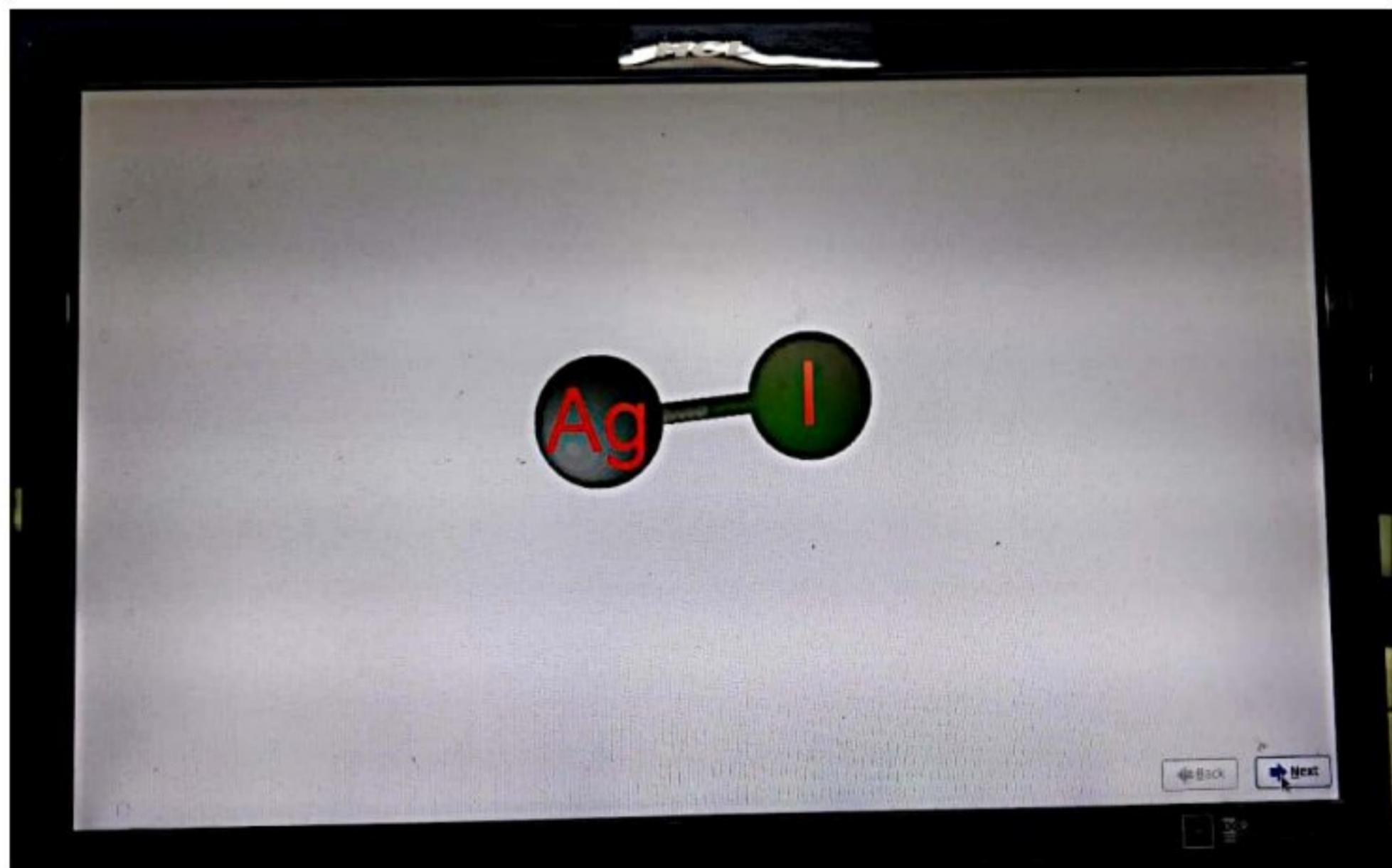
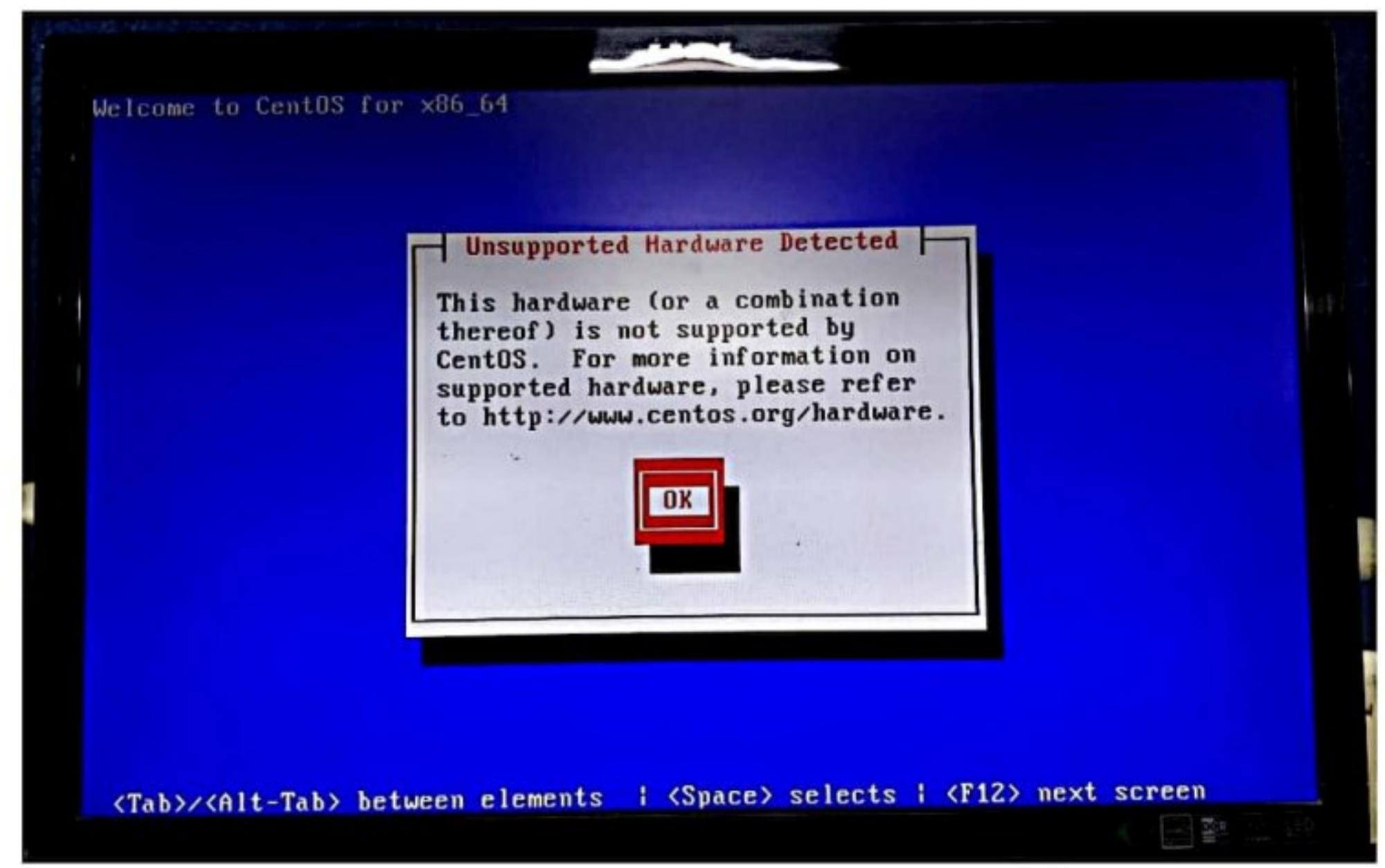
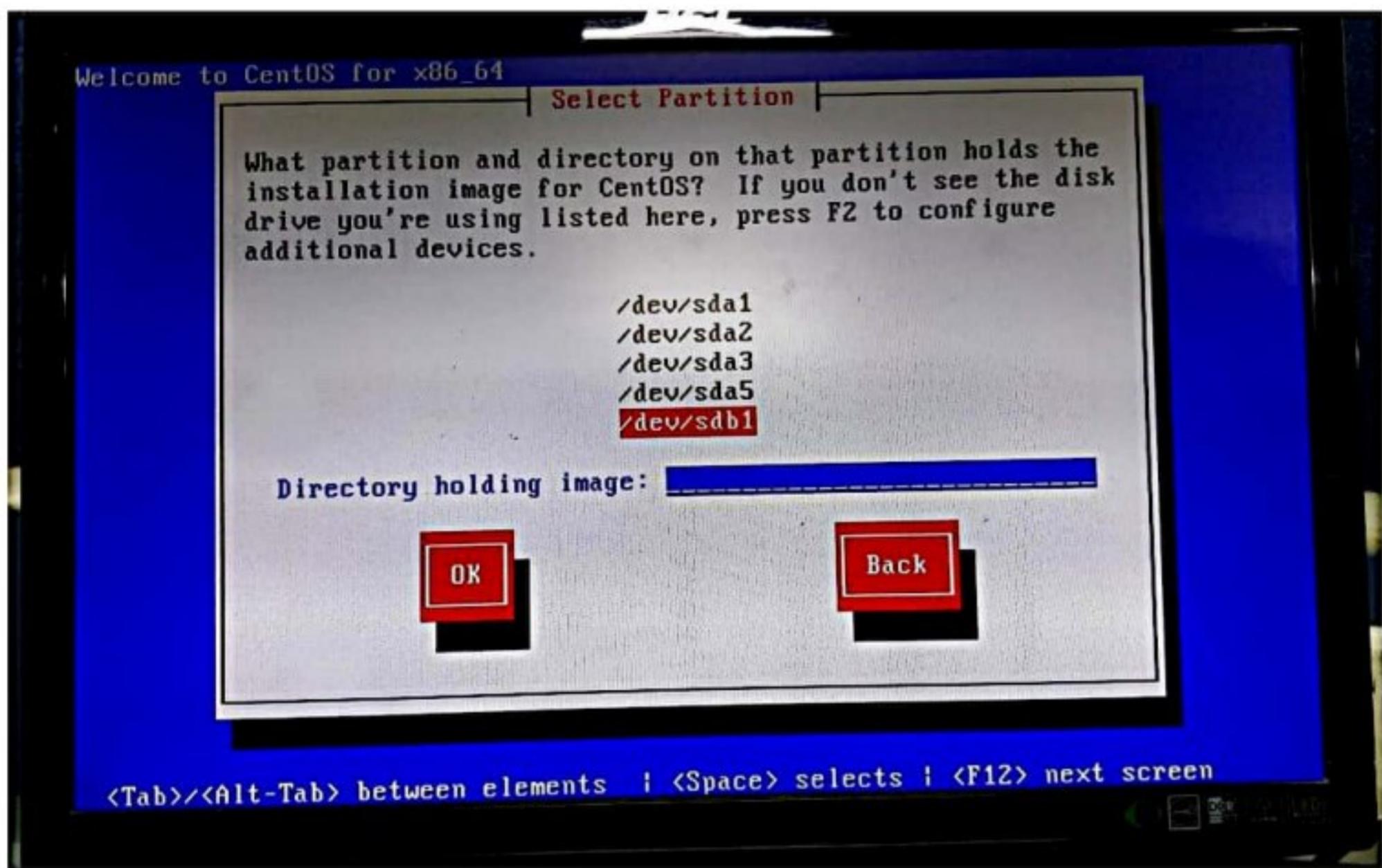
- o Walrus also written in Java, is the Eucalyptus equivalent to AWS simple storage service (S3). Walrus offers persistent storage to all of the virtual machines in the Eucalyptus cloud and can be used as a simple HTTP put/get storage as a service API.
- o The cluster controller (CC) is written in C and acts as the front end for a cluster within a Eucalyptus cloud and communicates with the storage controller and node controller. It manages instance (i.e. virtual machines) execution and service level agreements (SLAs) per cluster.
- o The storage controller (SC) is written in Java and is the Eucalyptus to AWS EBS. It communicates with the cluster controller & node controller and manages Eucalyptus block volumes & snapshots to the instances within its specific cluster.
- o The vmware broker is an optional component that provides an AWS-comparable interface for vmware environments & physically runs on the cluster controller.
- o The node controller (NC) is written in C and holds the virtual machine instances and manages the virtual network endpoints. It downloads and caches images from Walrus as well as creates and caches instances.

## \* Architecture



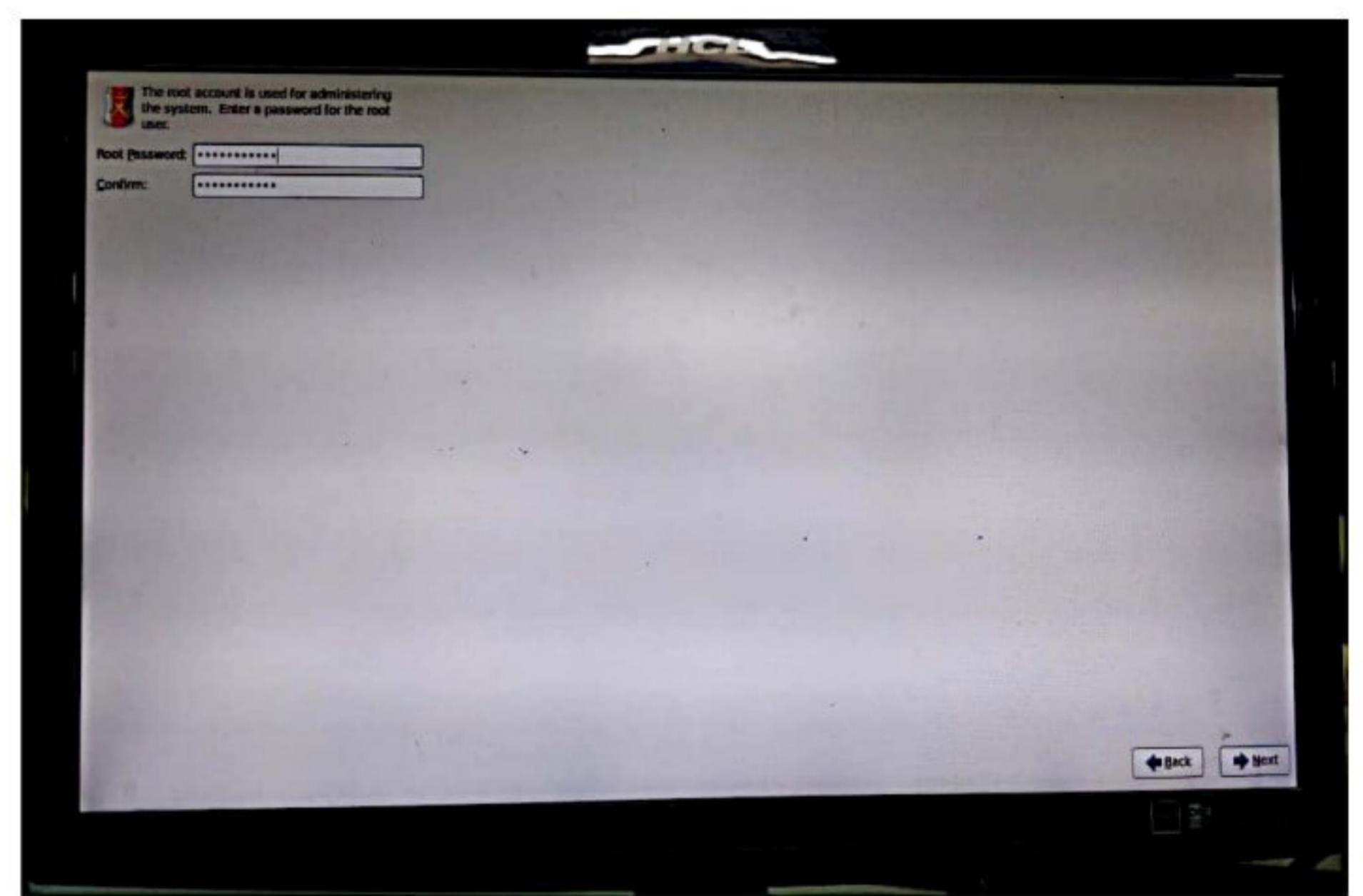
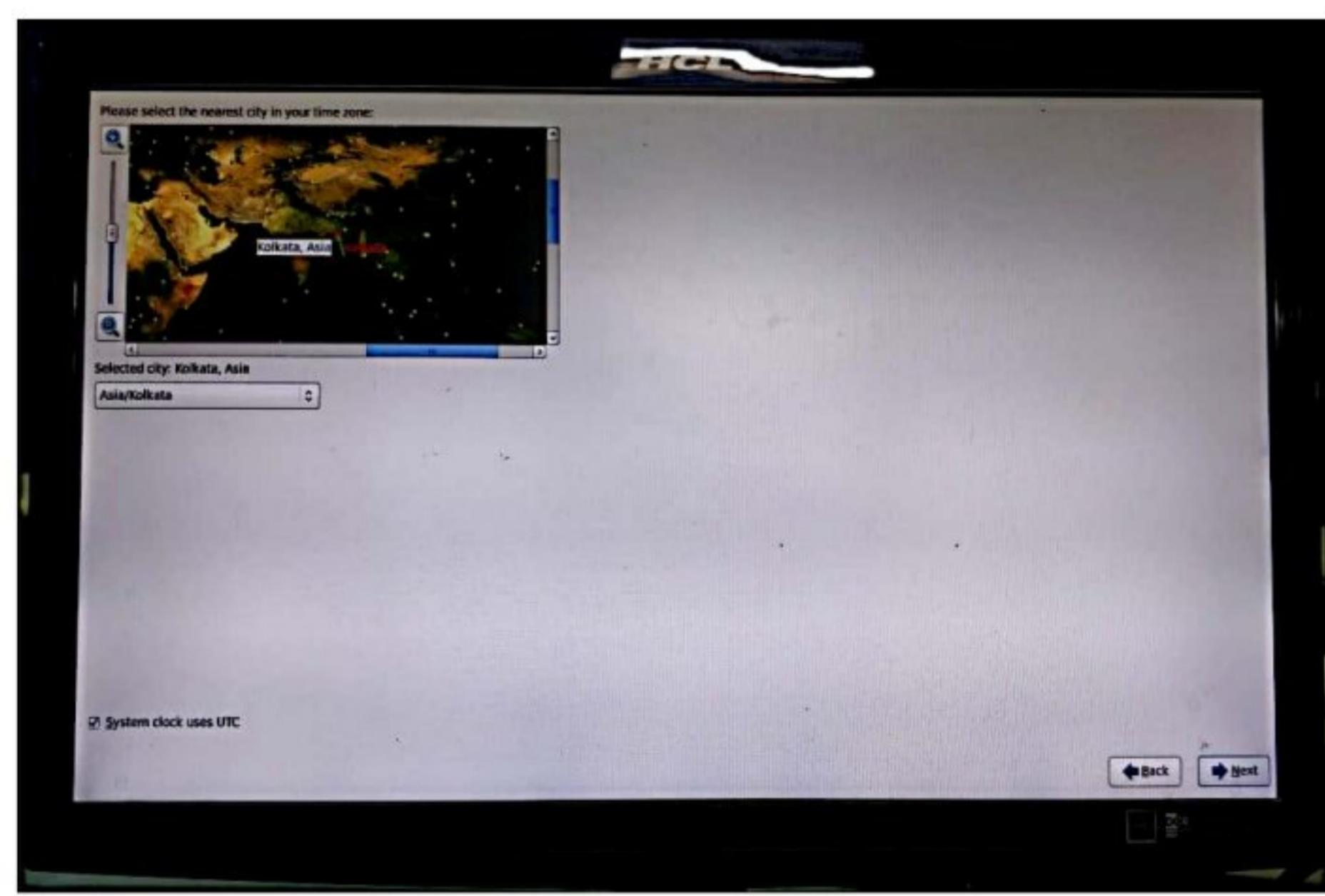
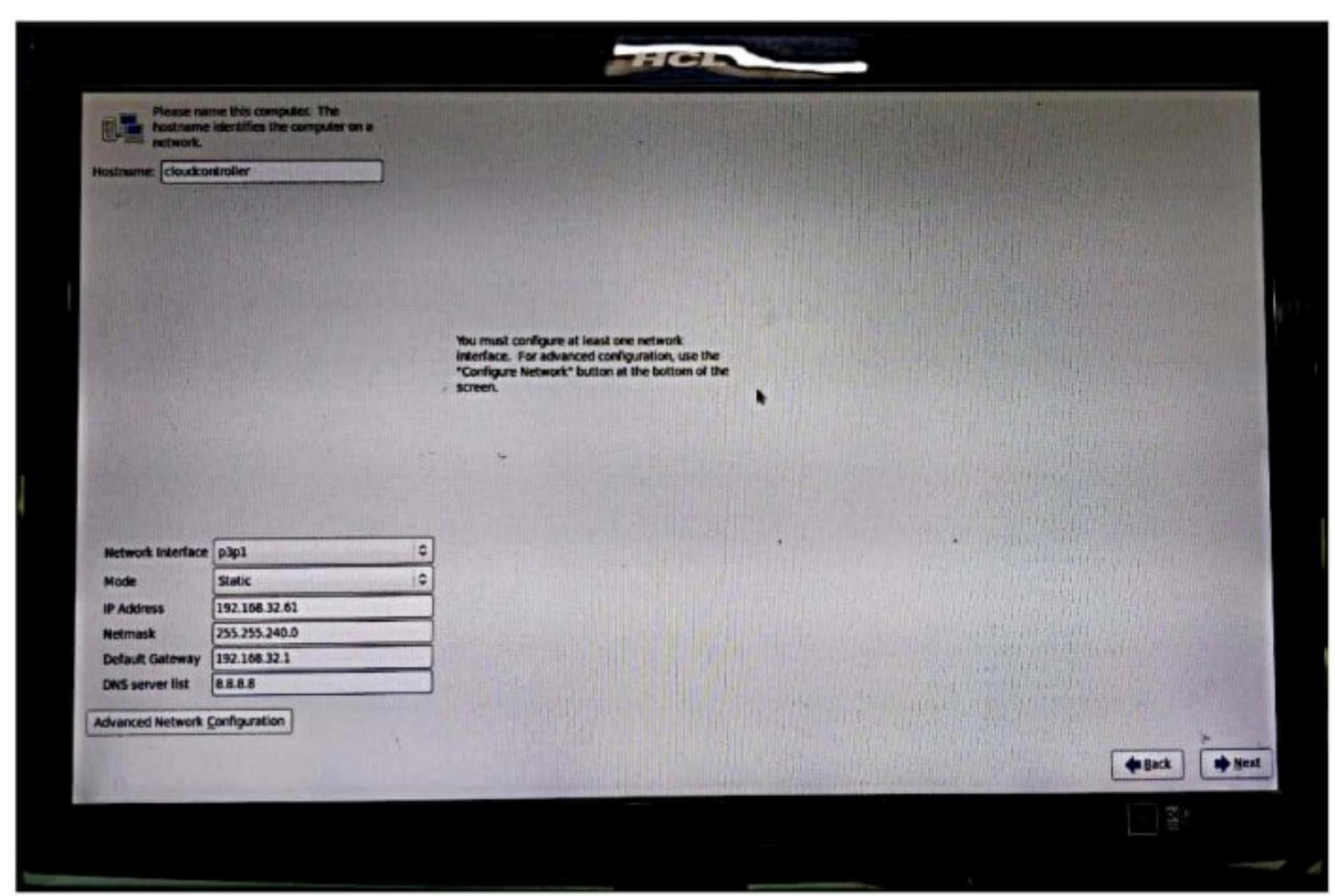
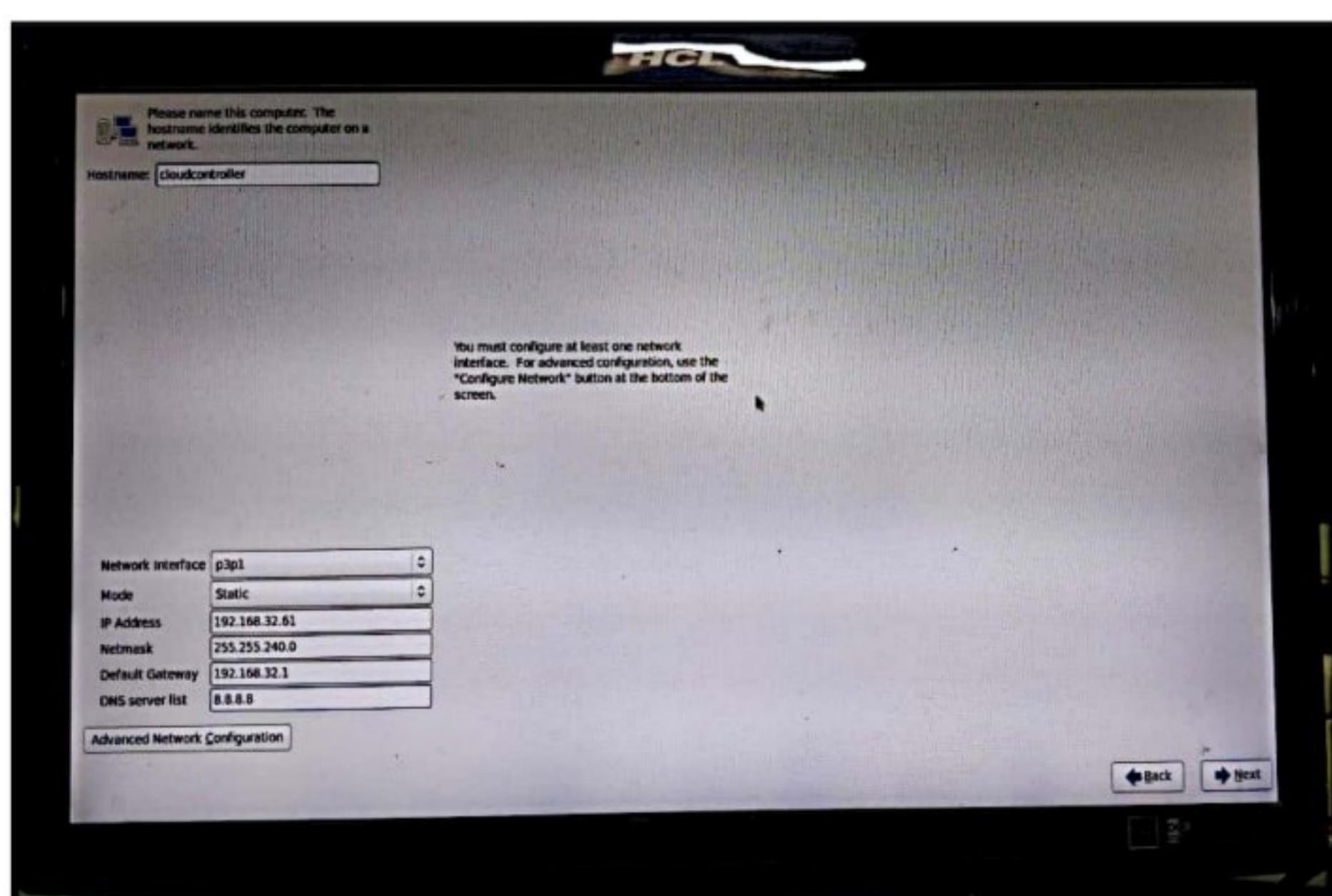
**Conclusion:** Thus we have seen what Eucalyptus is and installed it successfully.

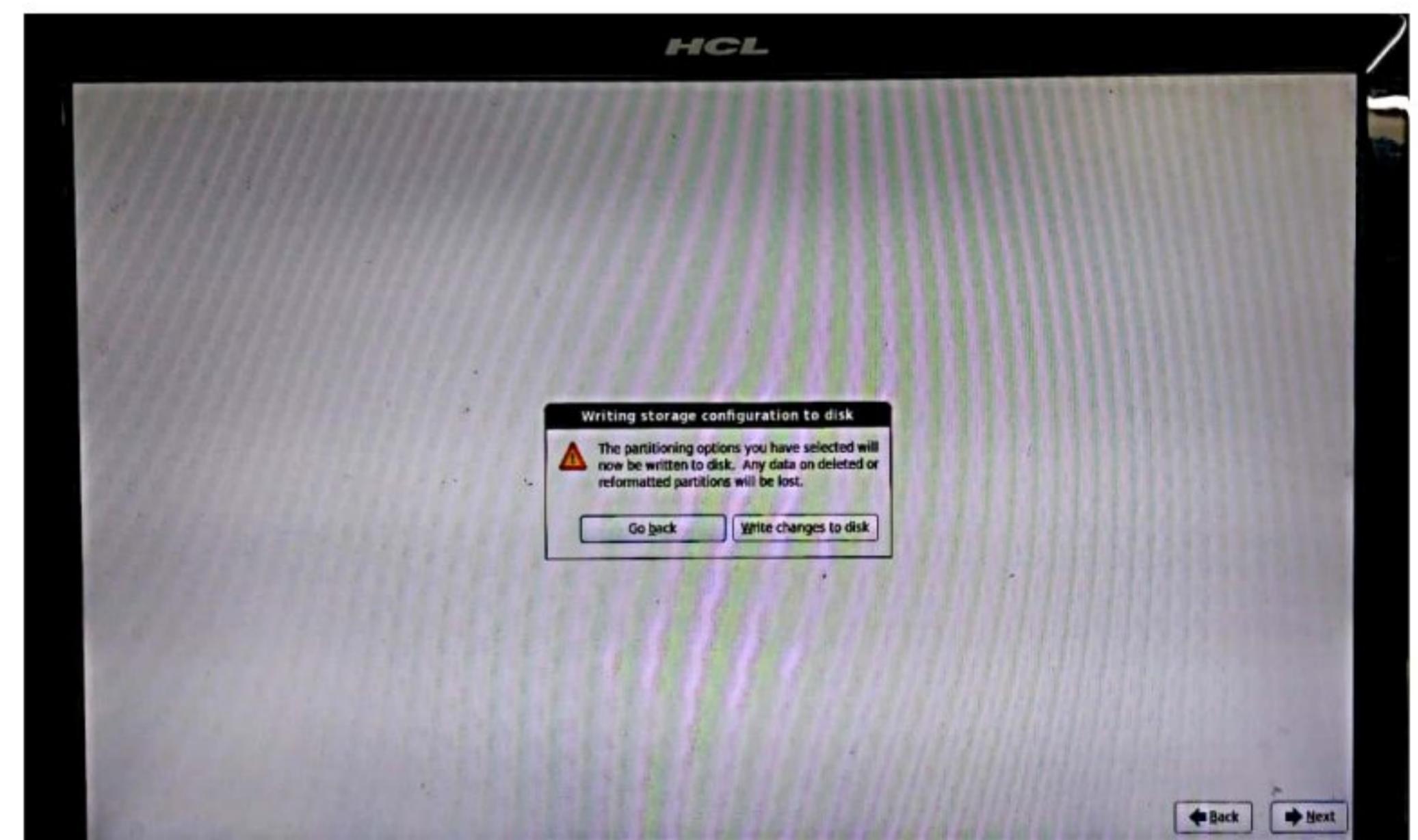
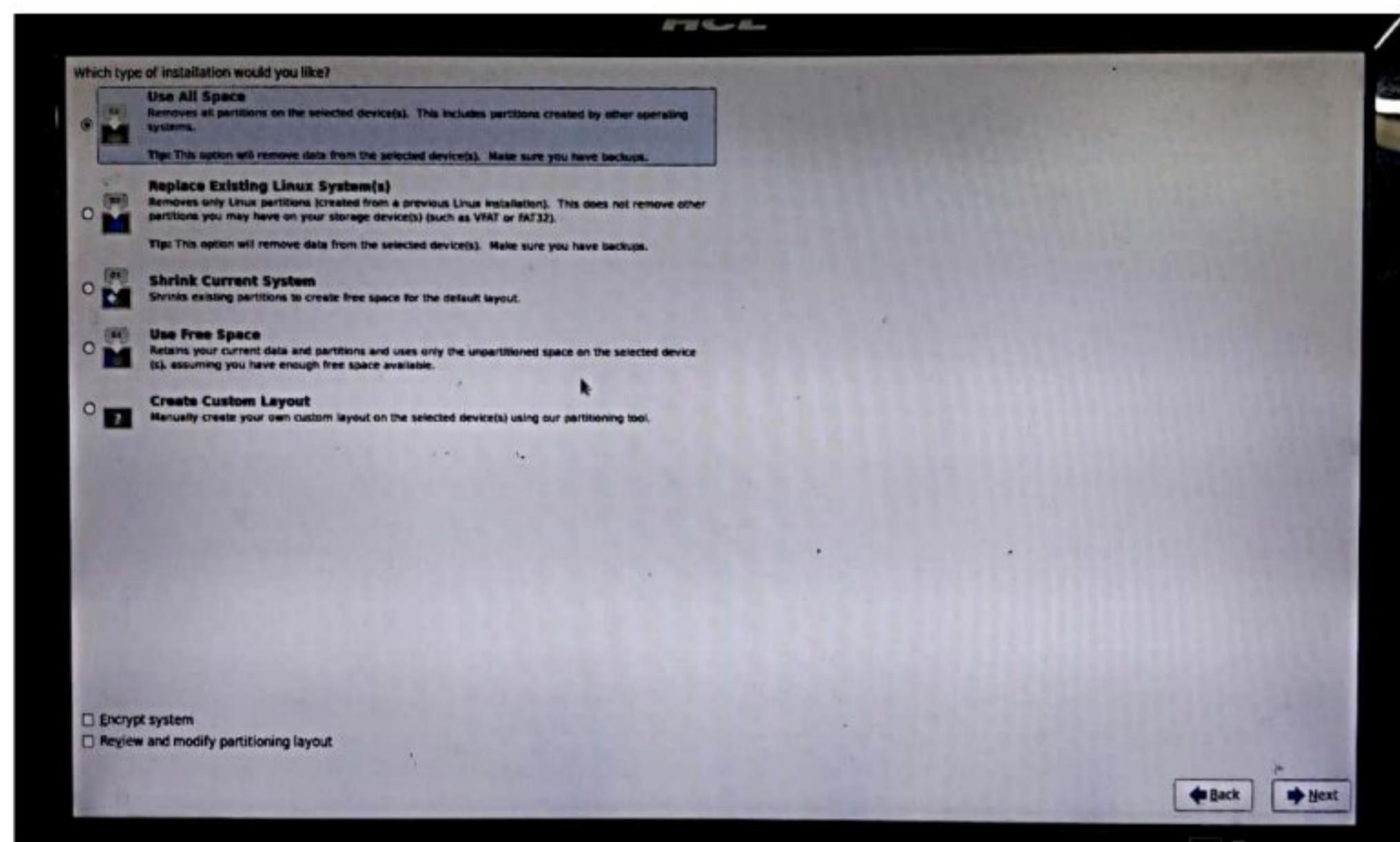
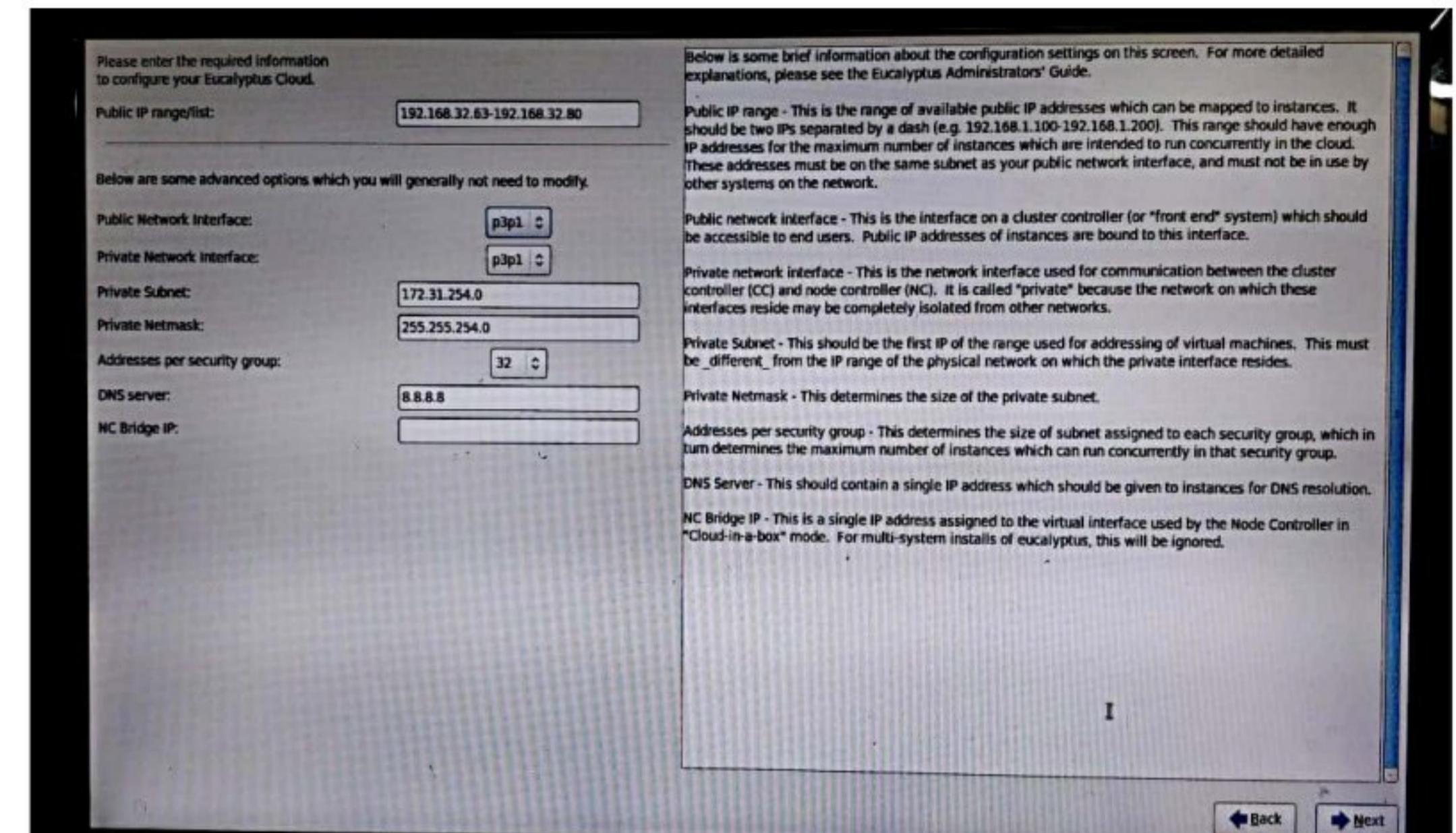
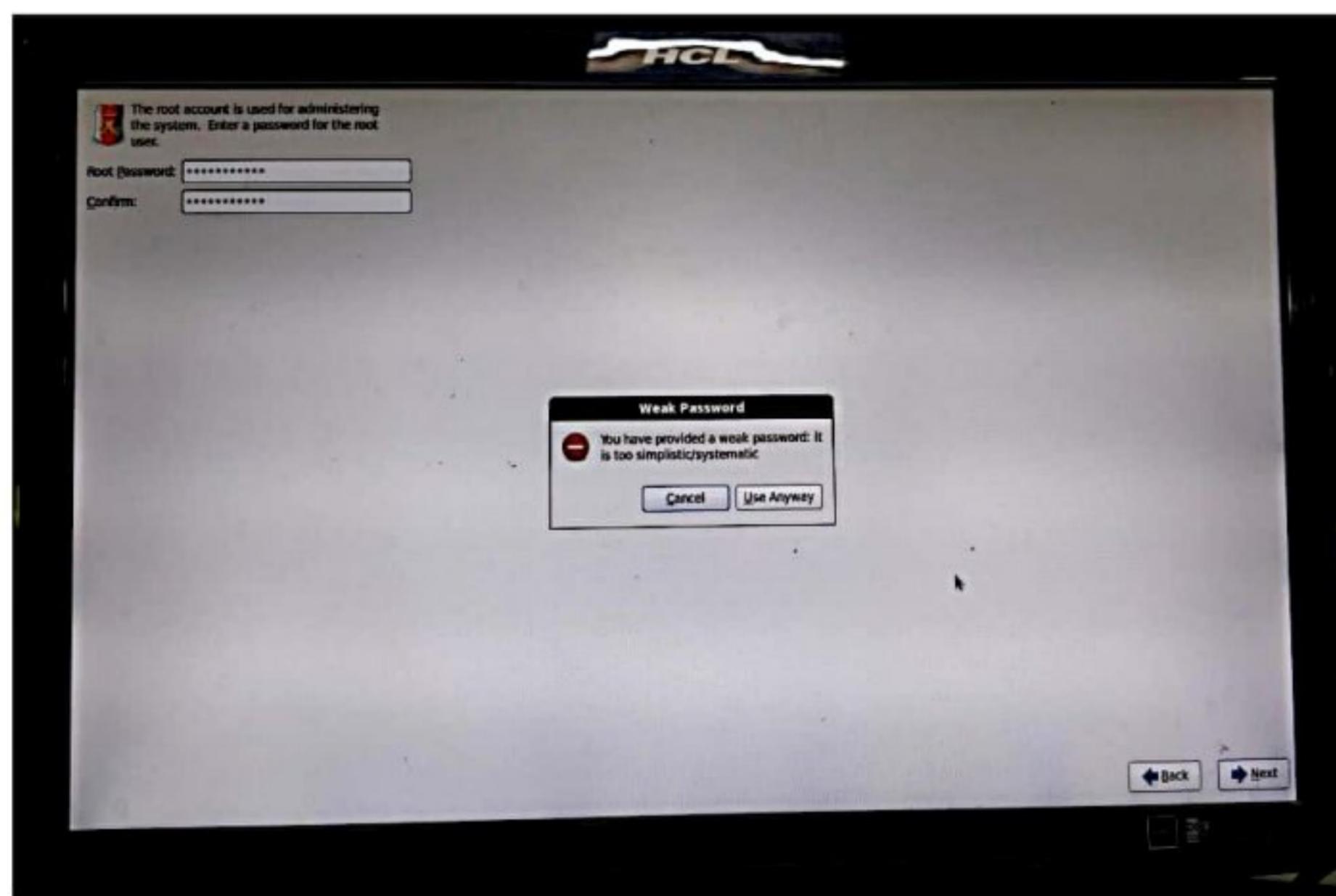


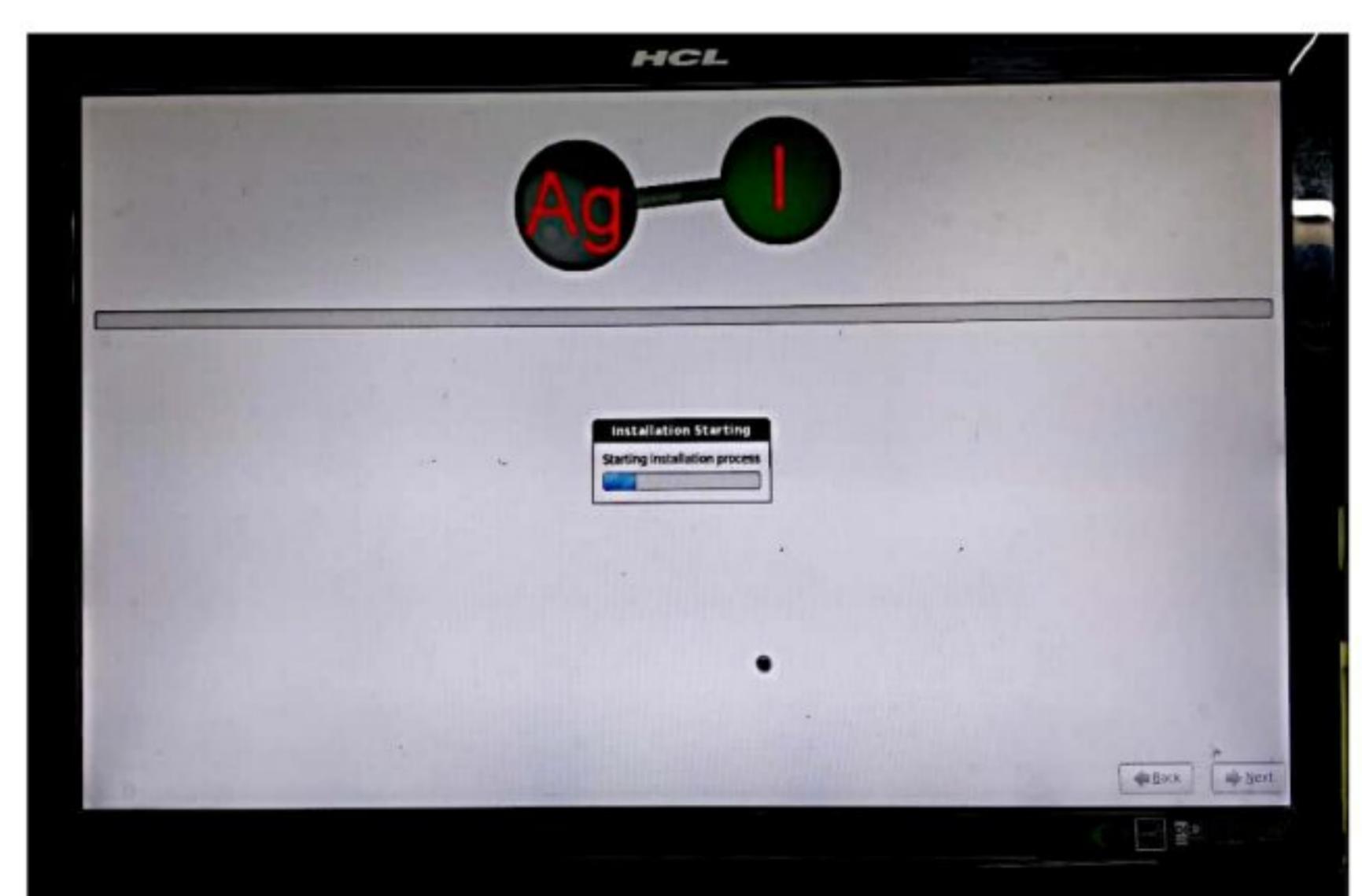
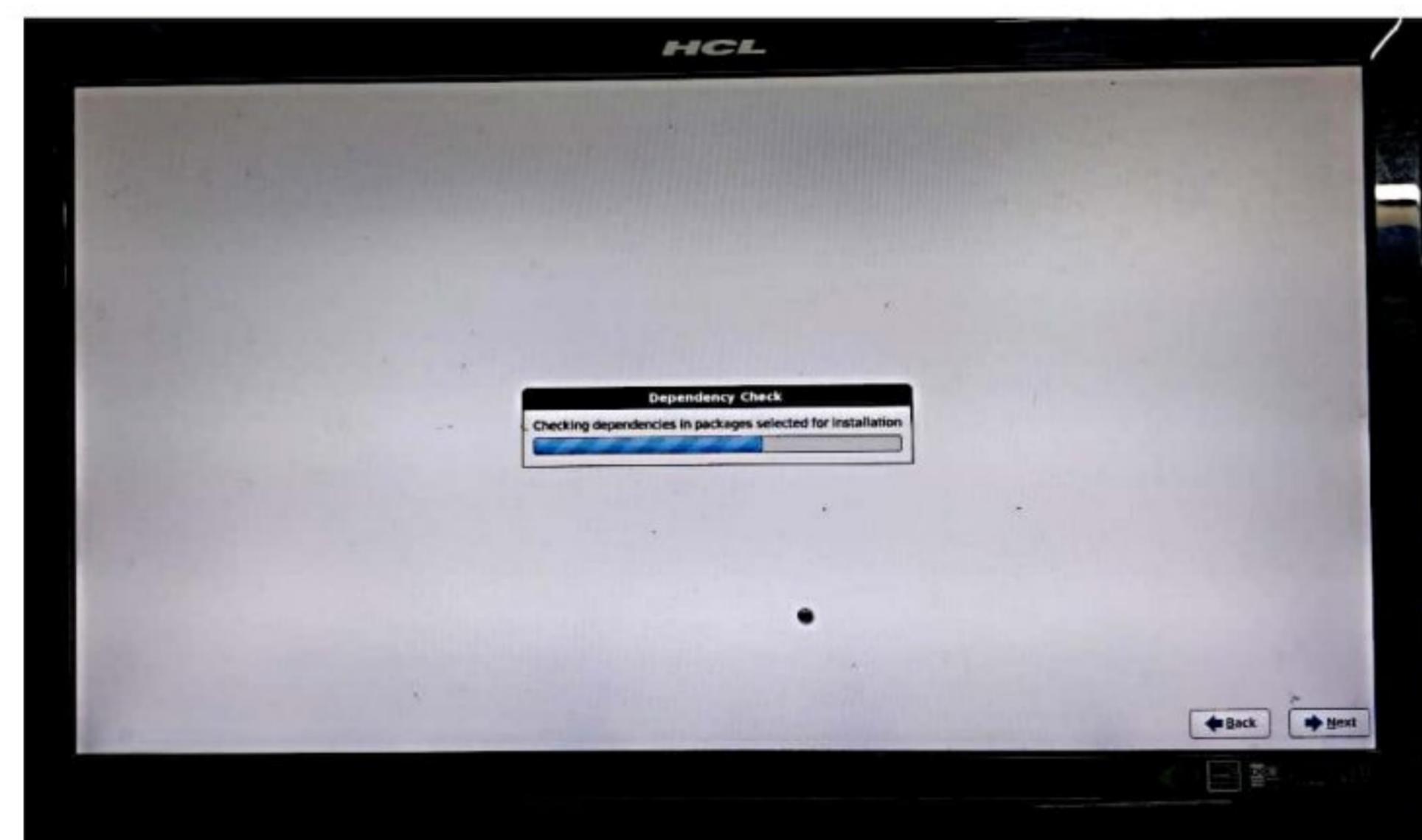
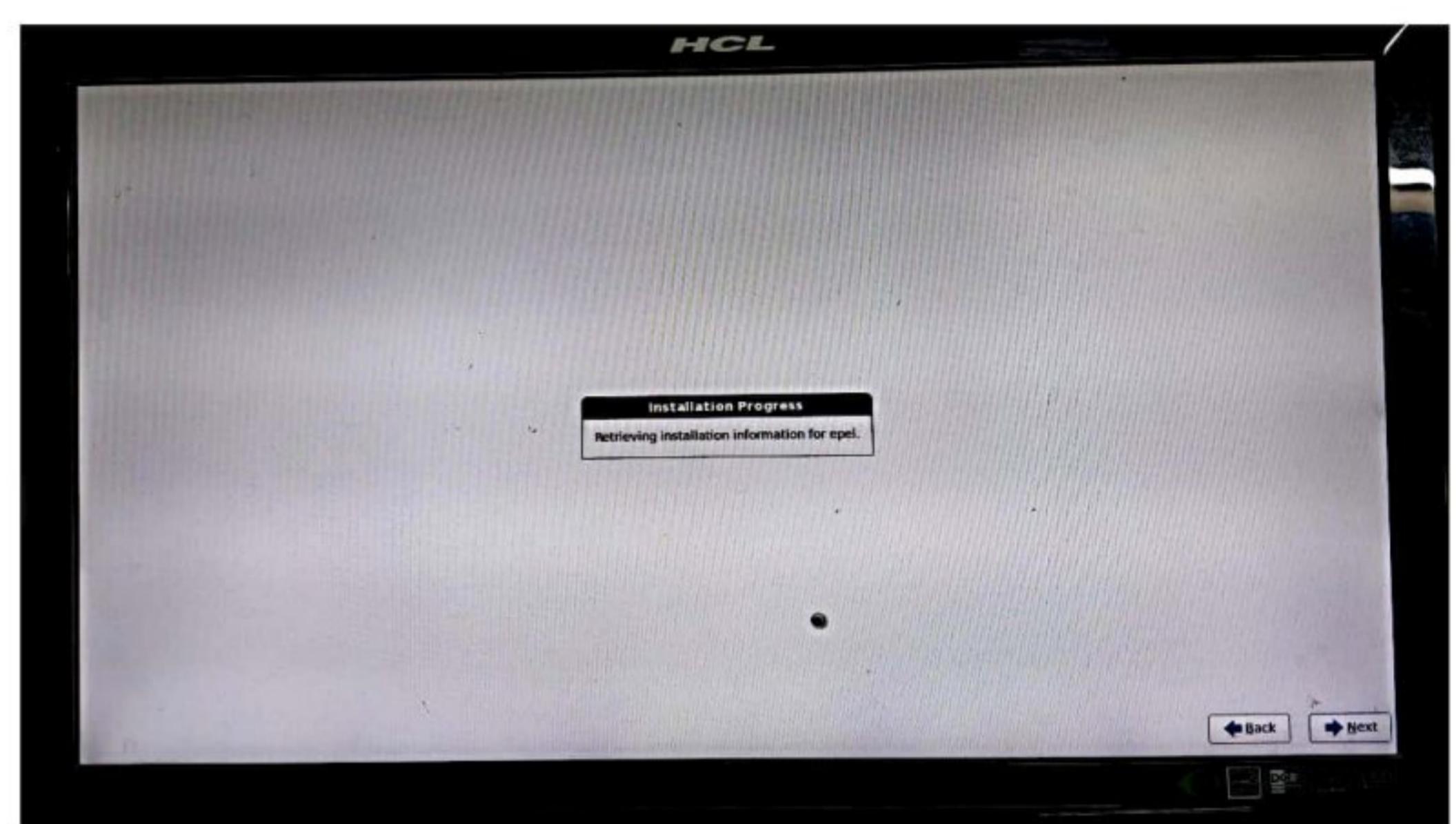
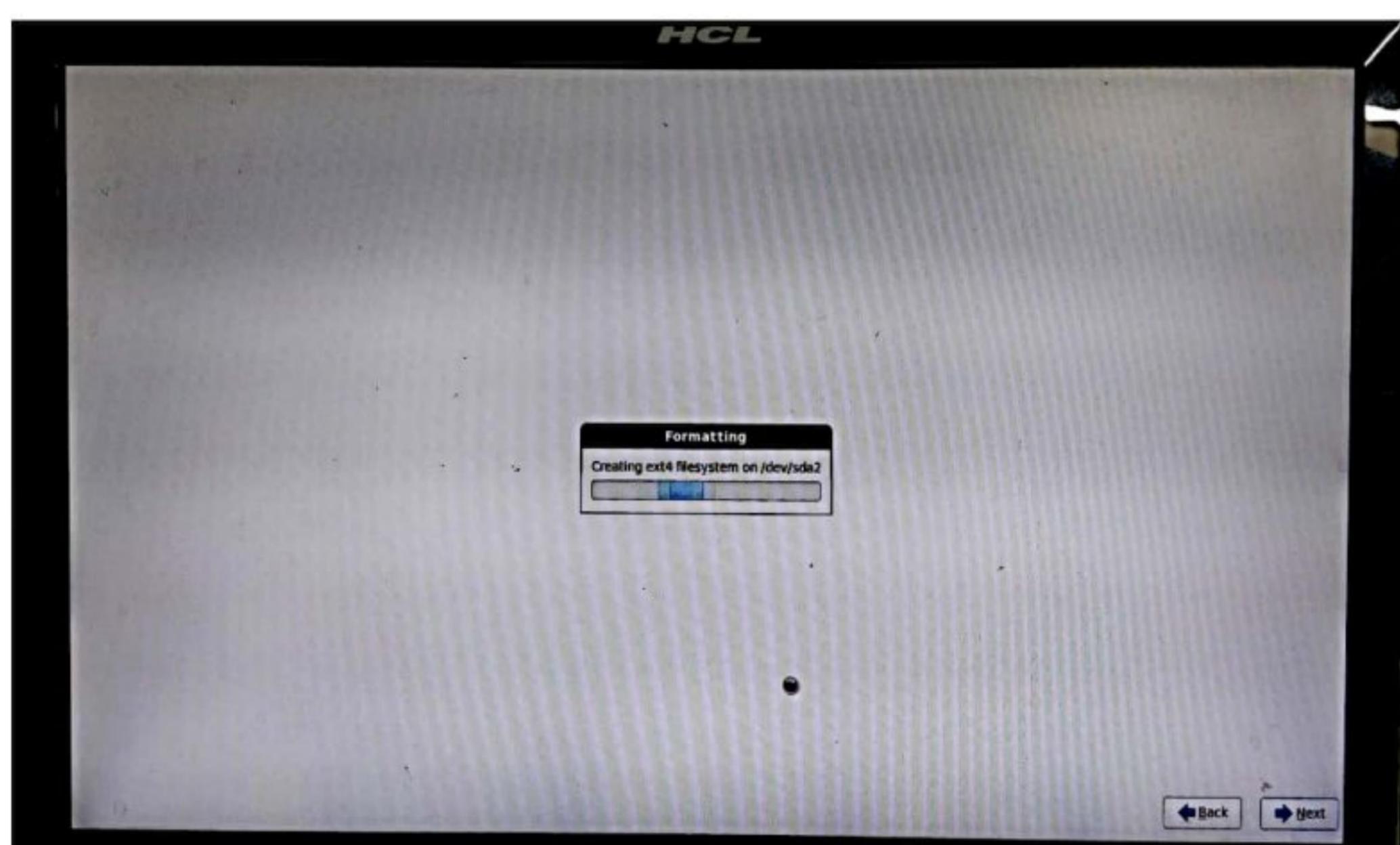


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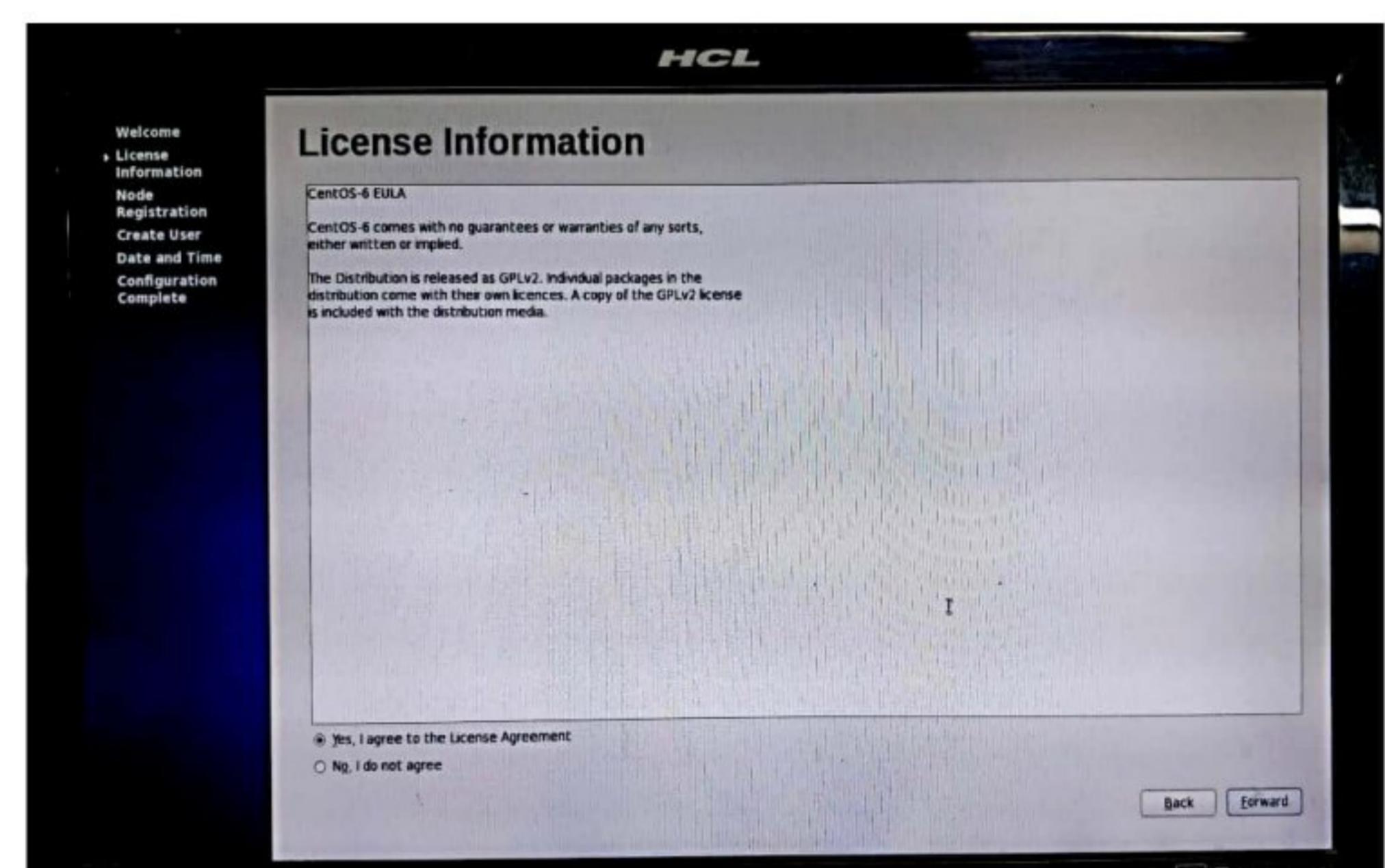
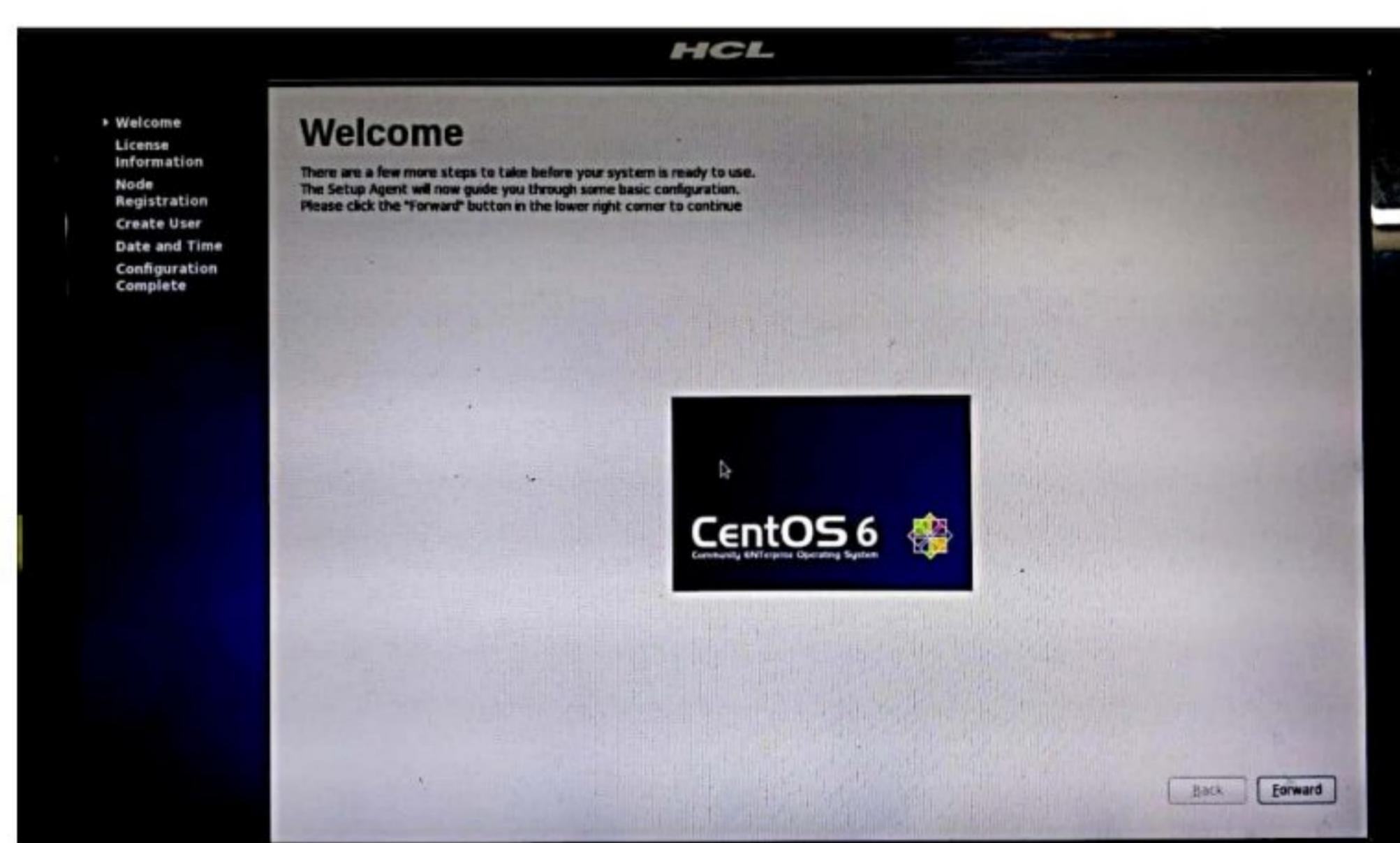
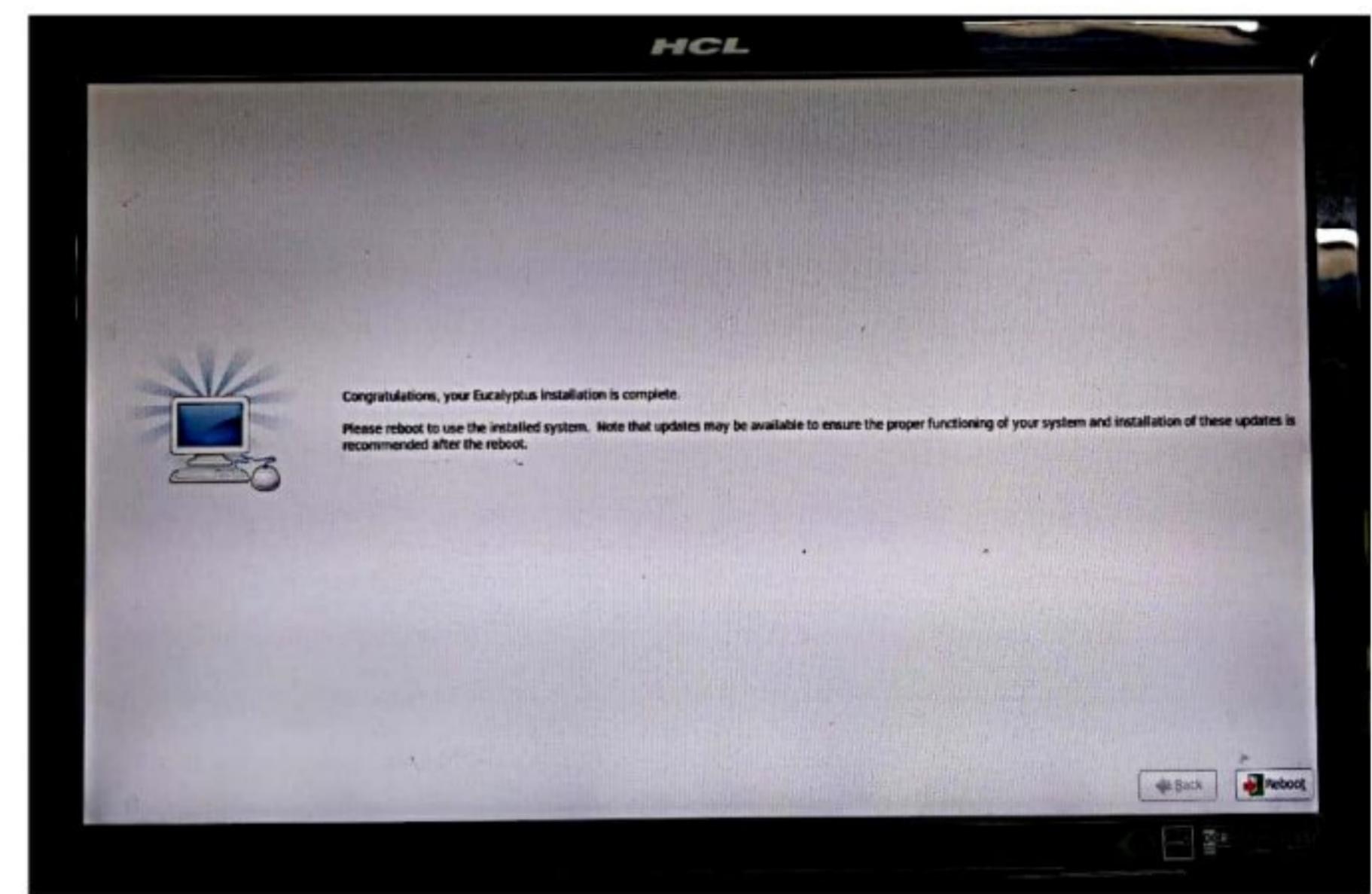
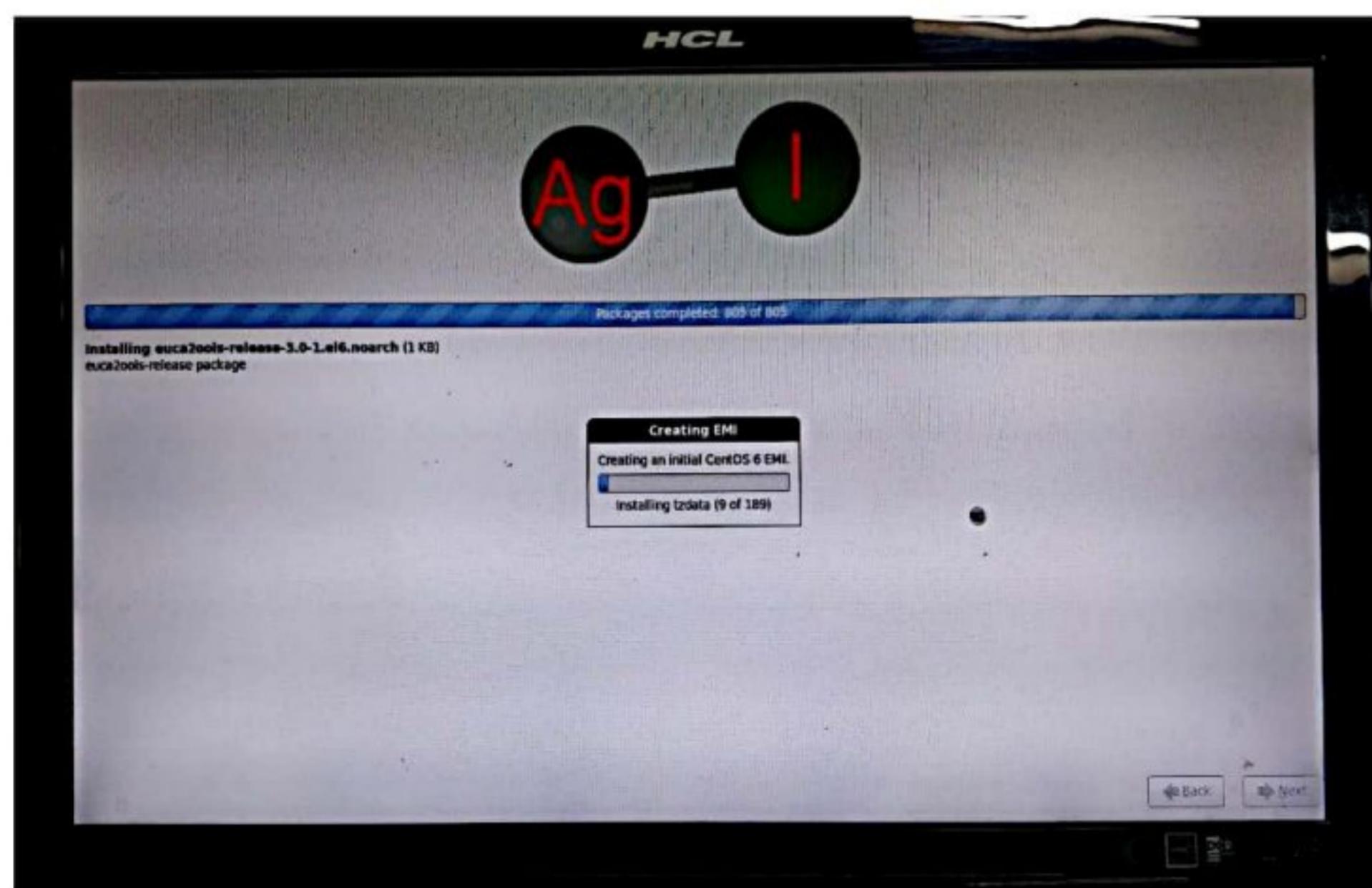






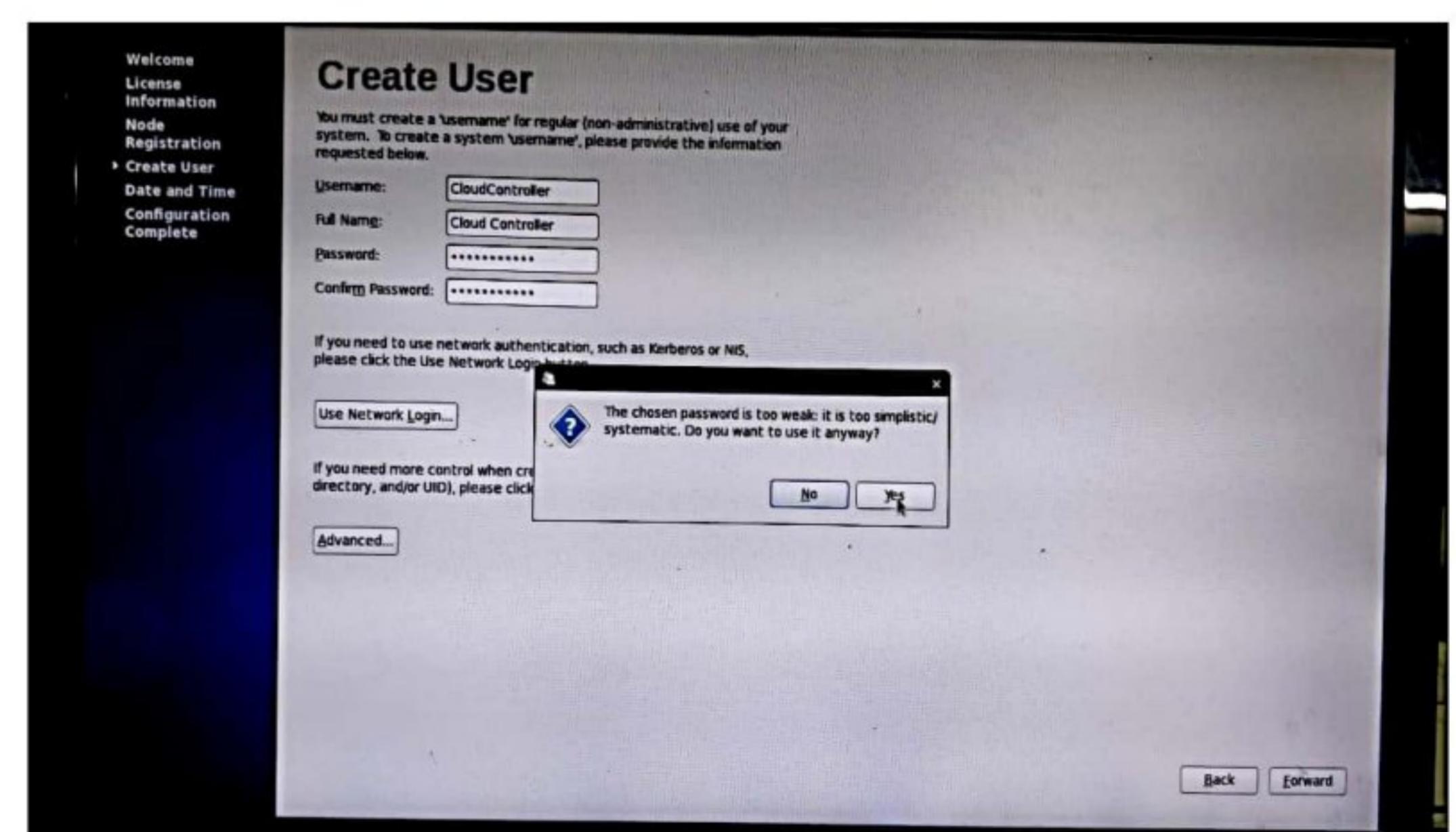
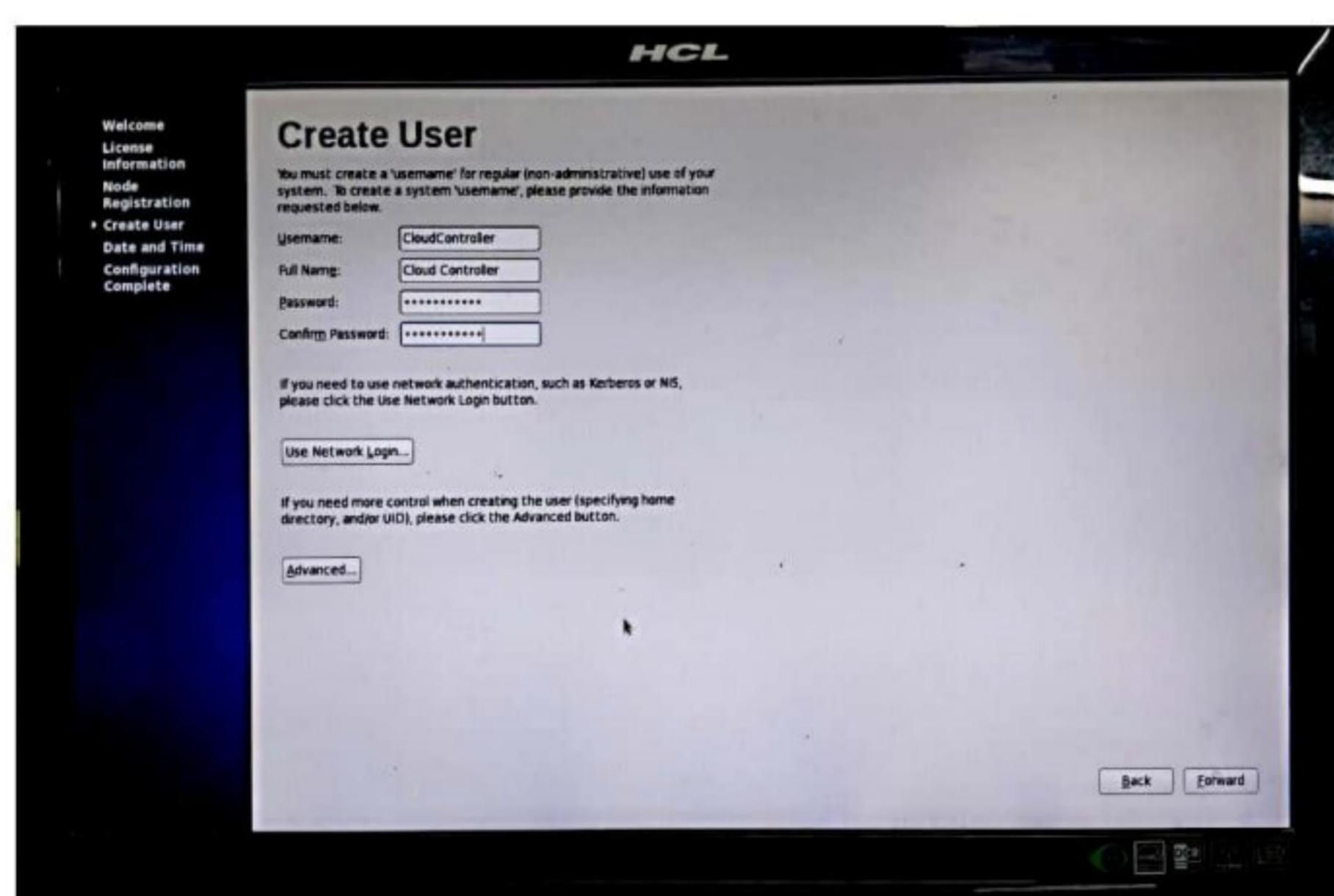
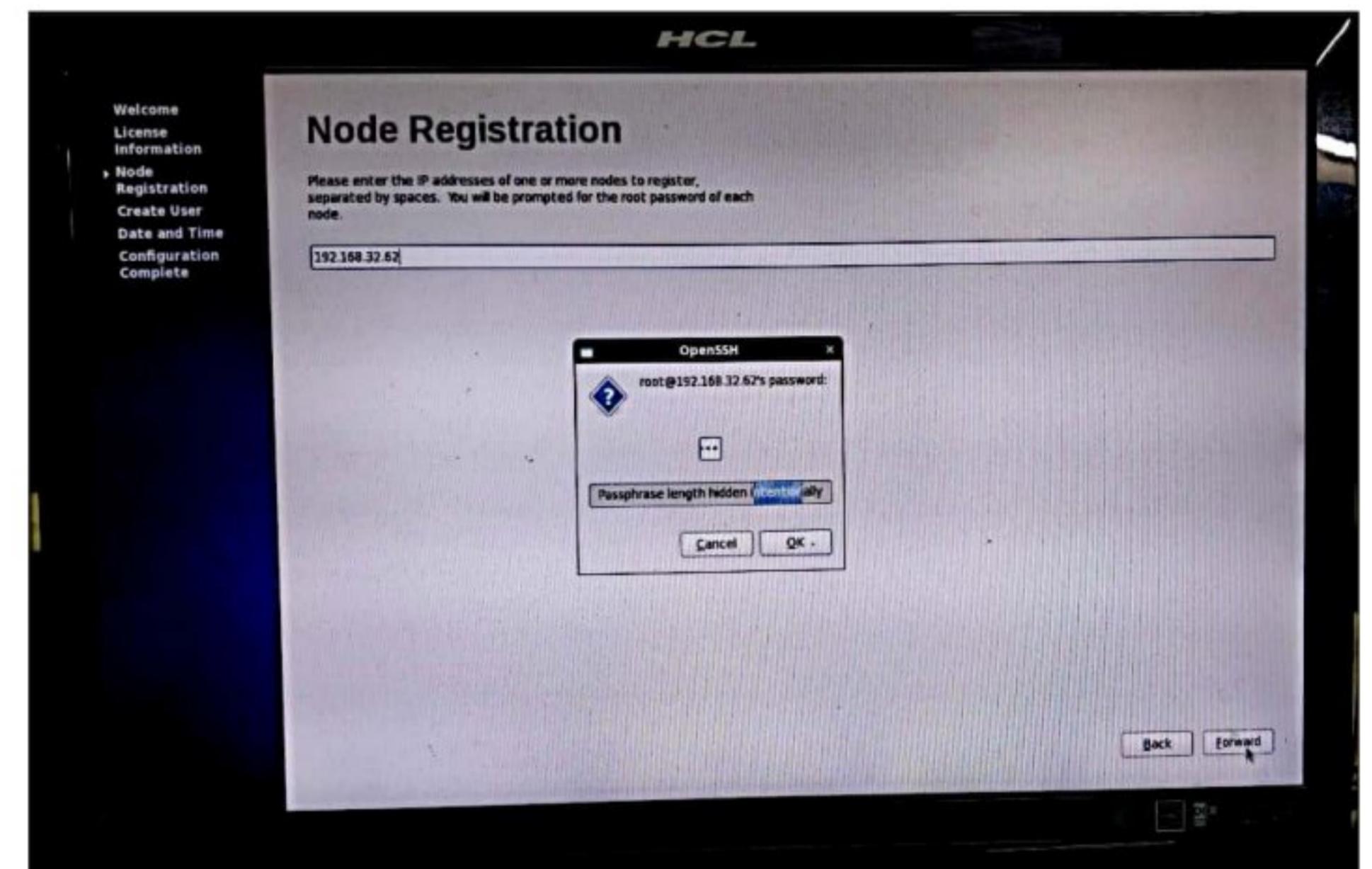
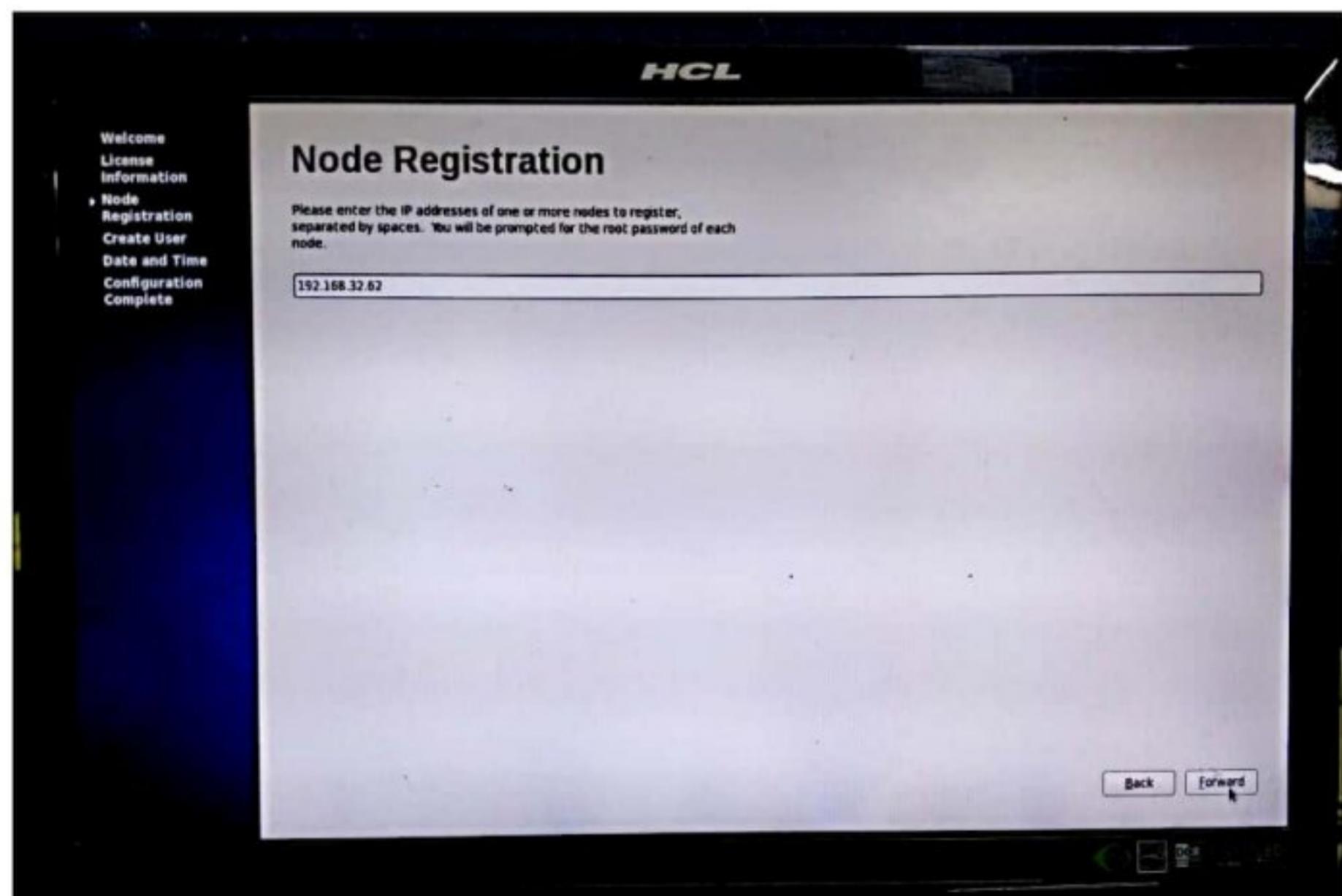
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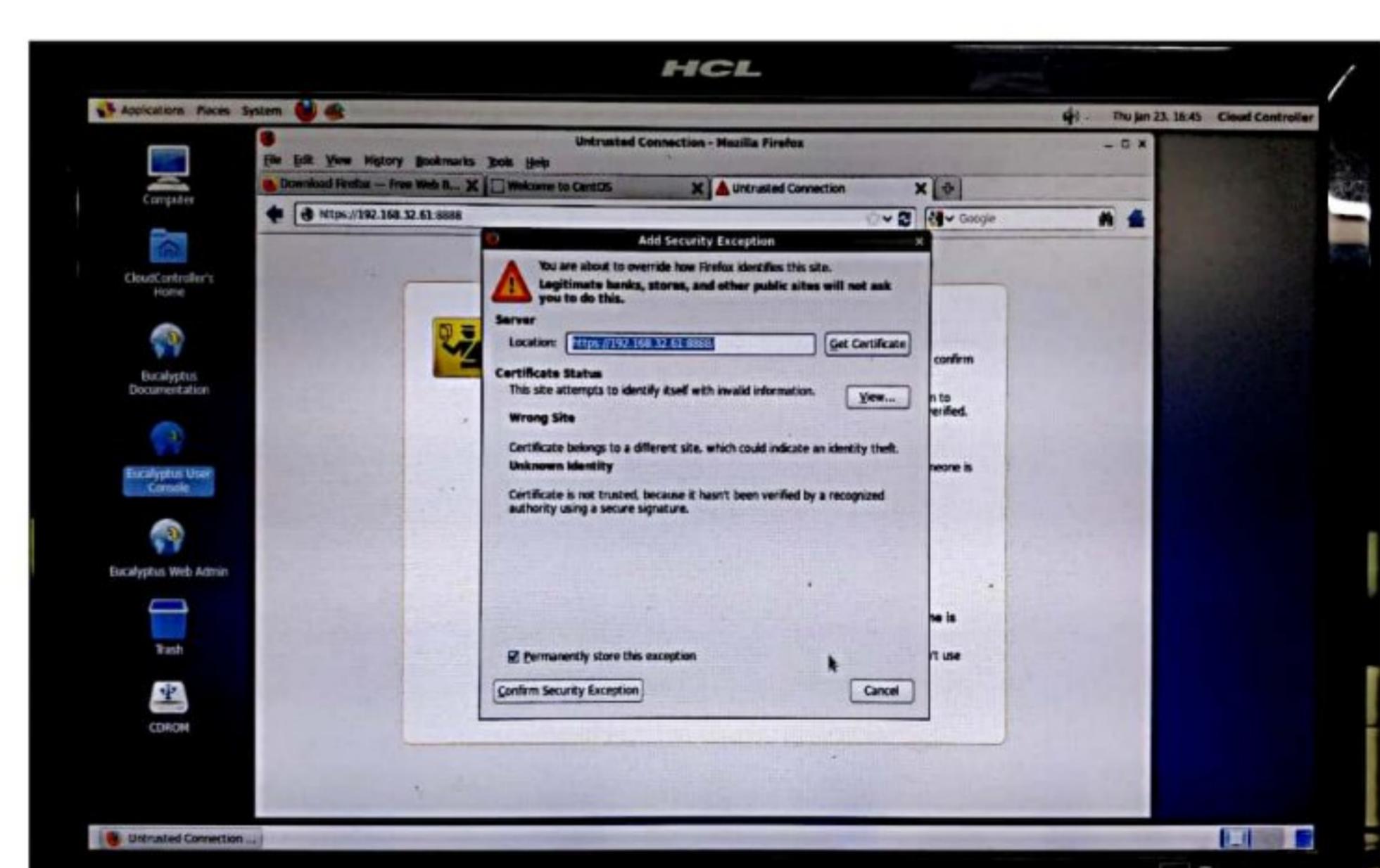
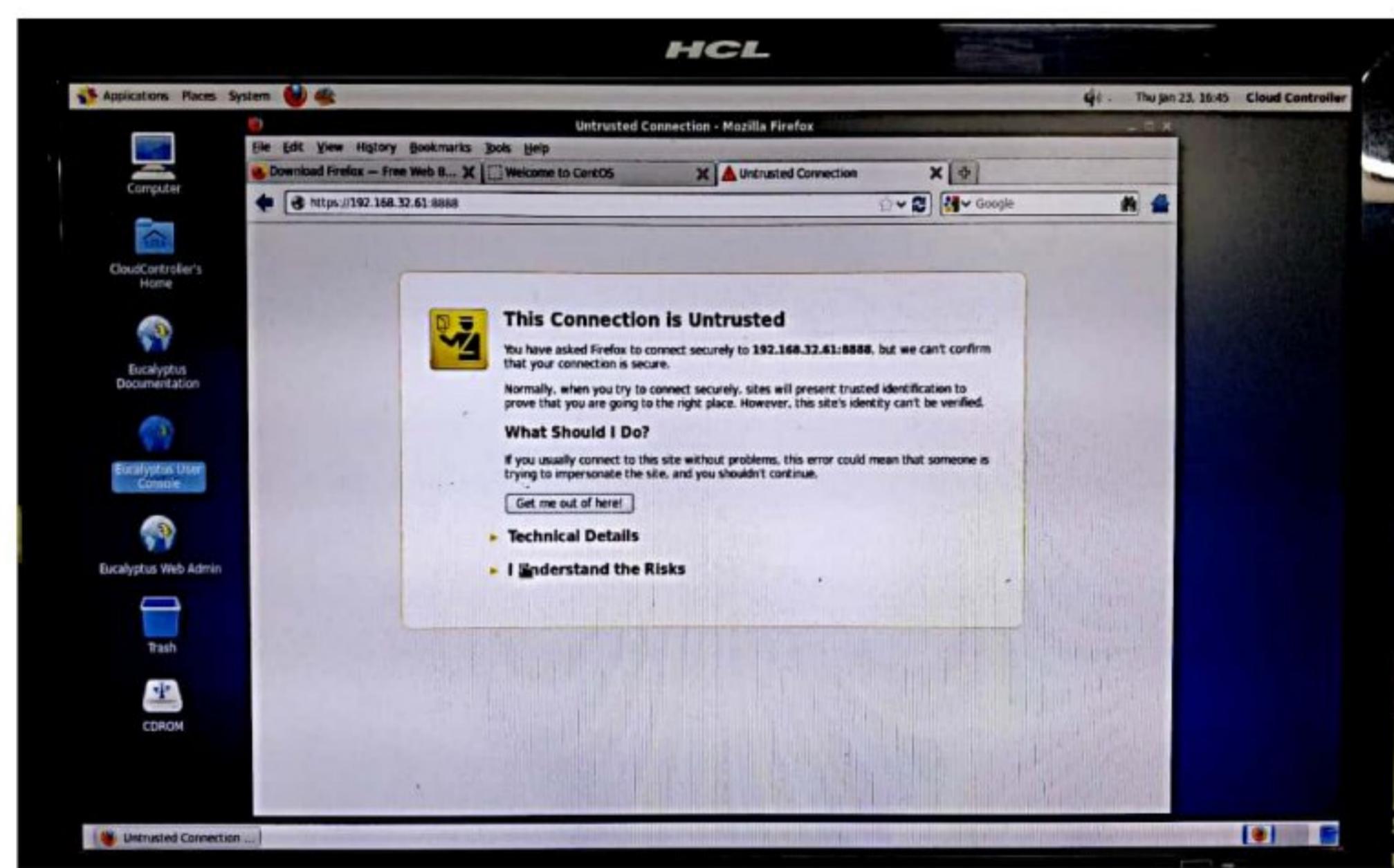
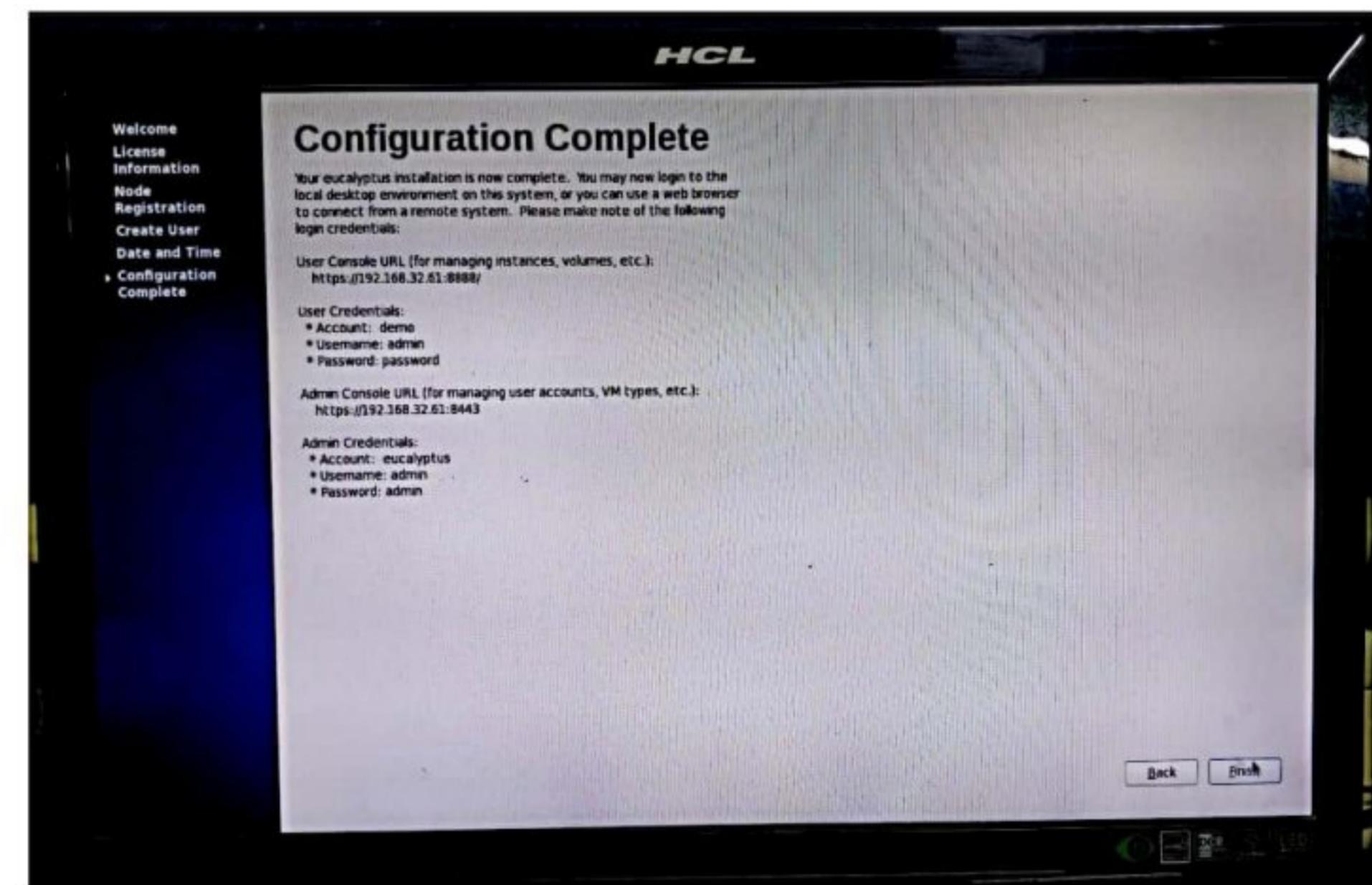
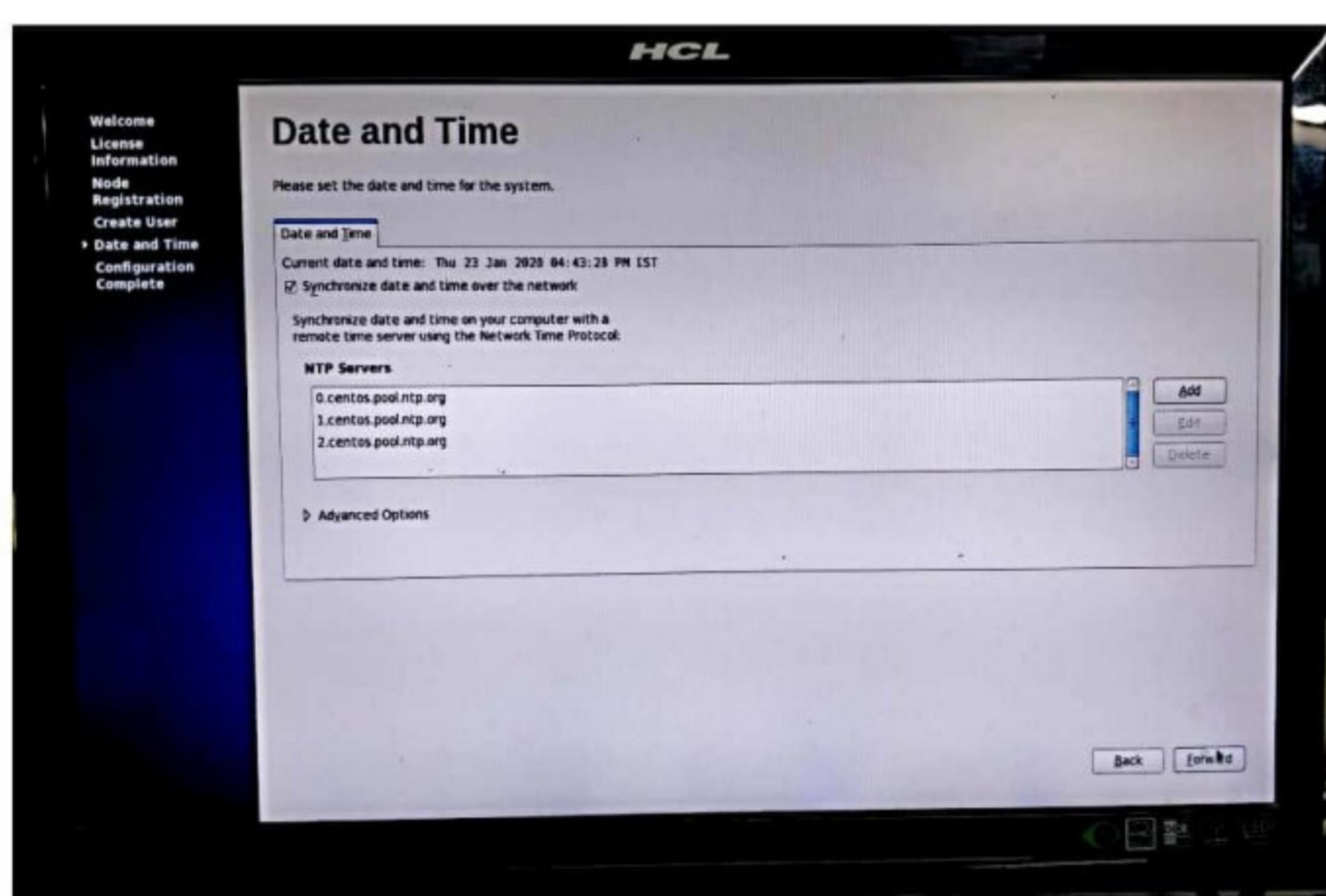
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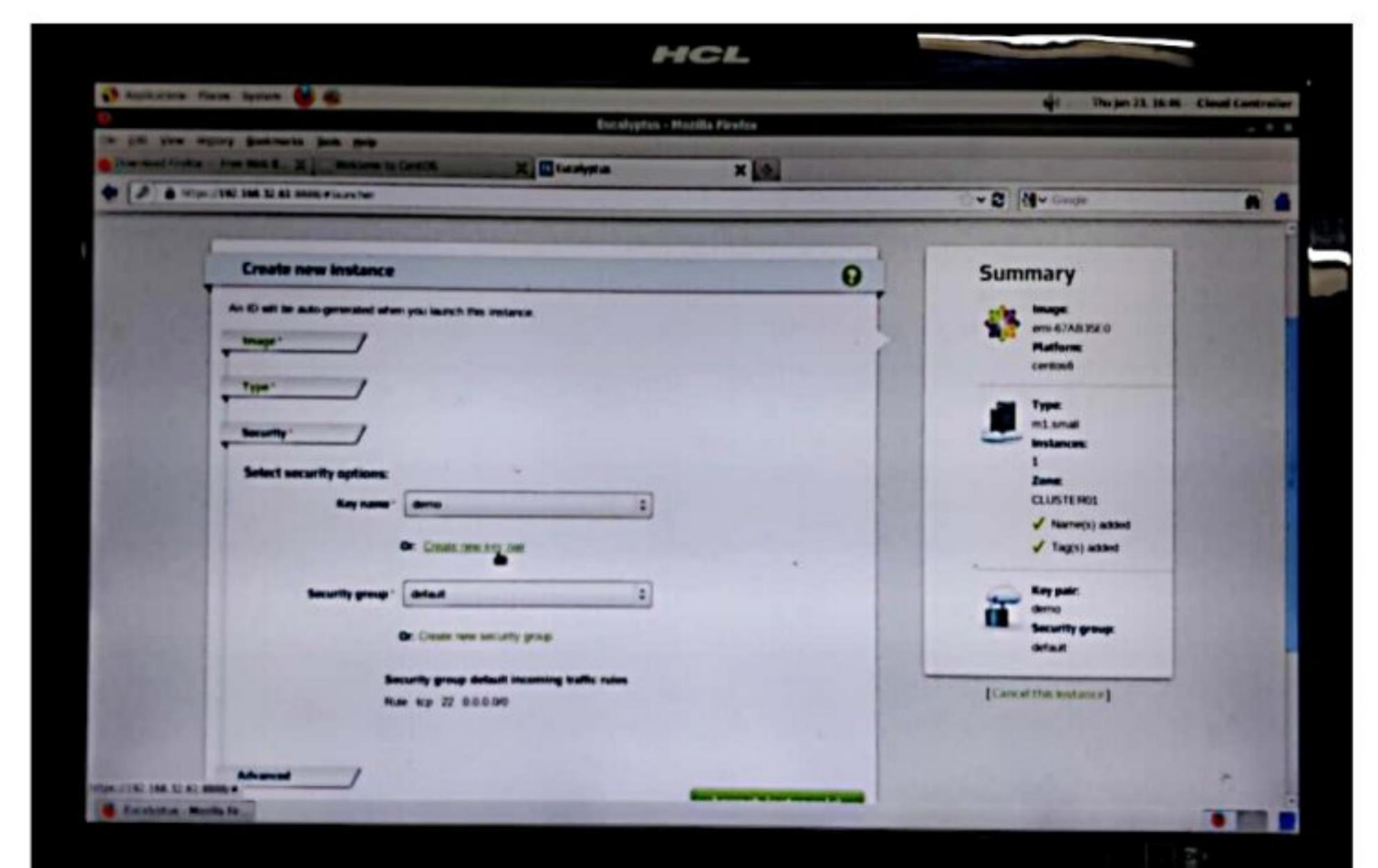
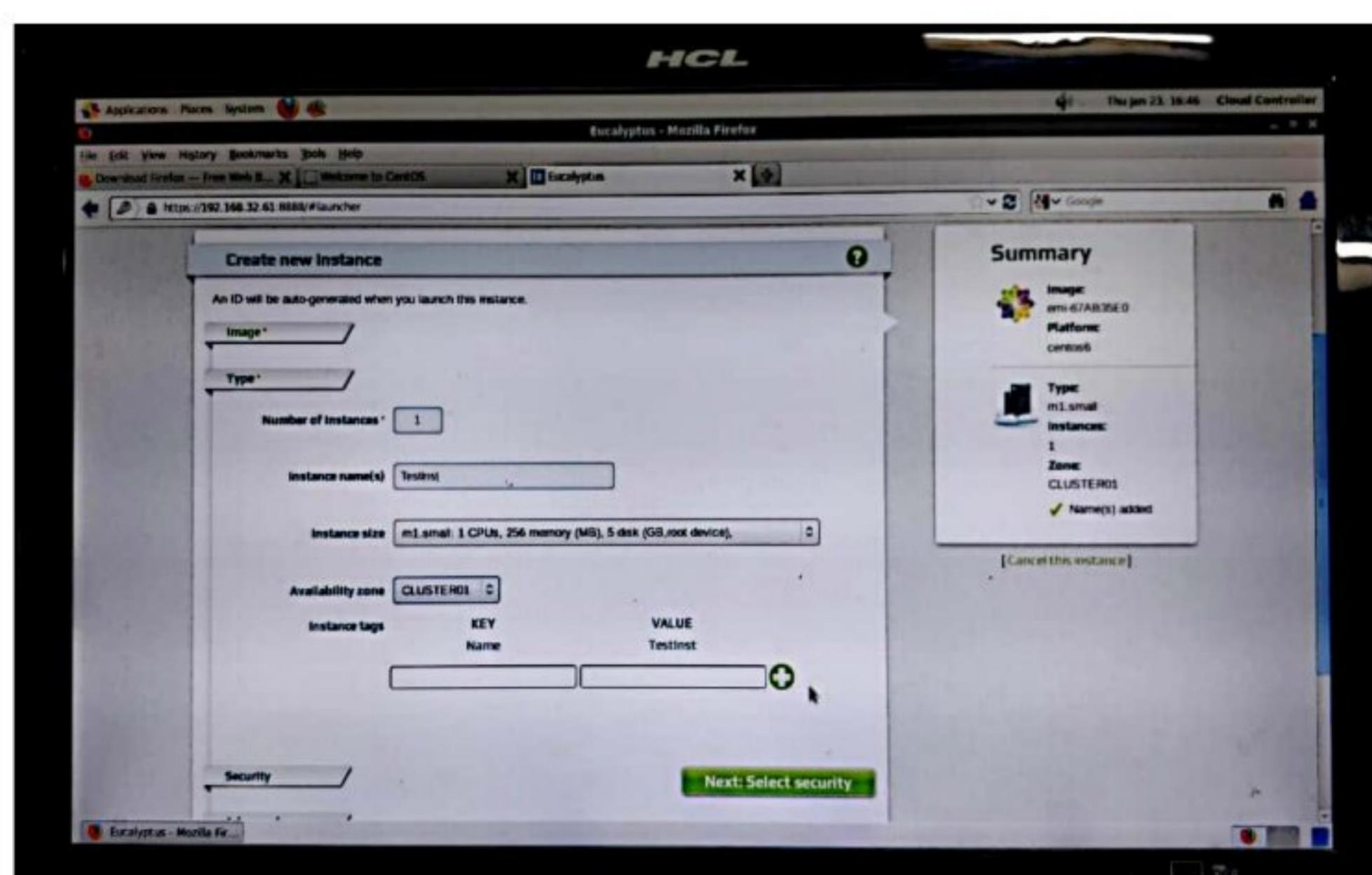
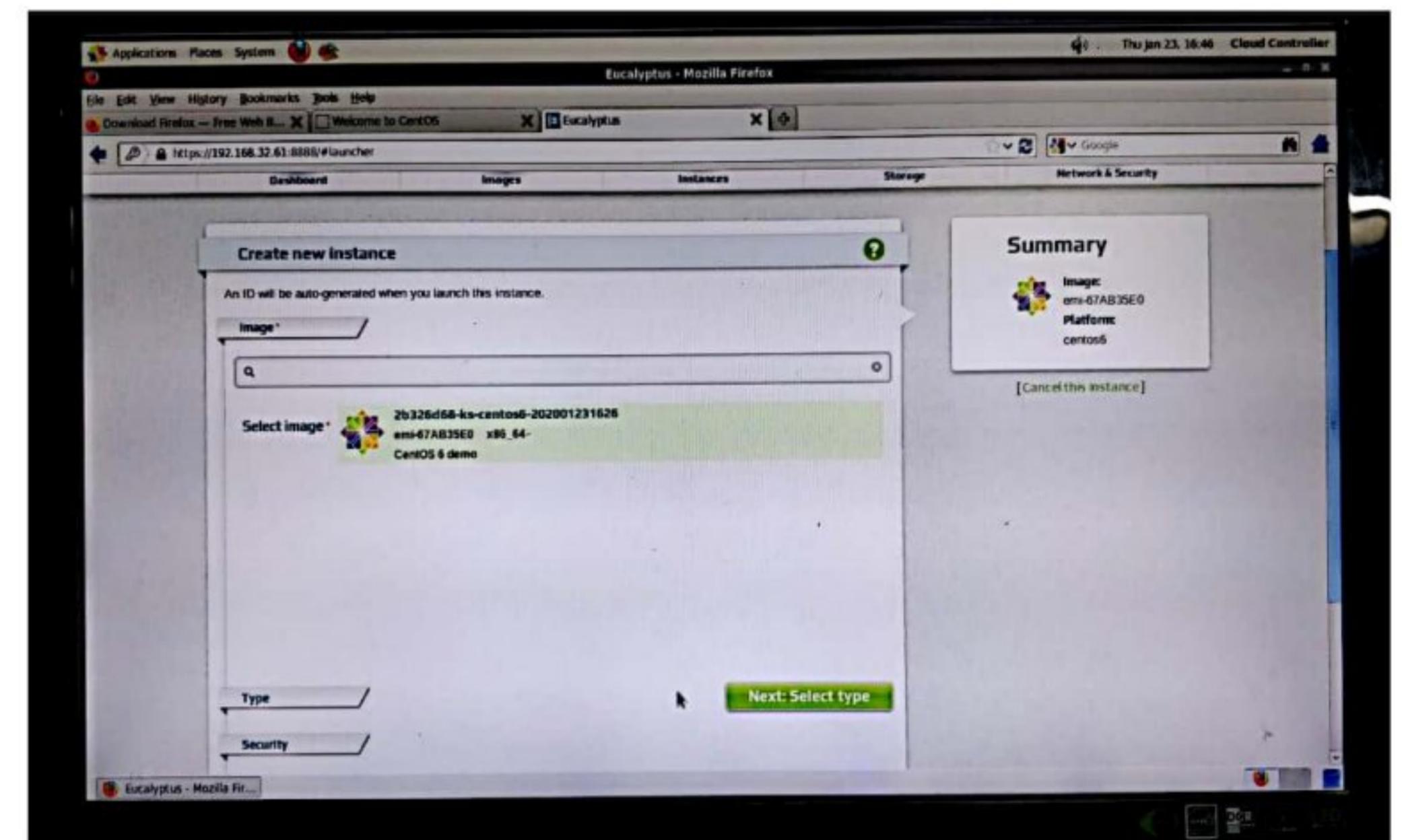
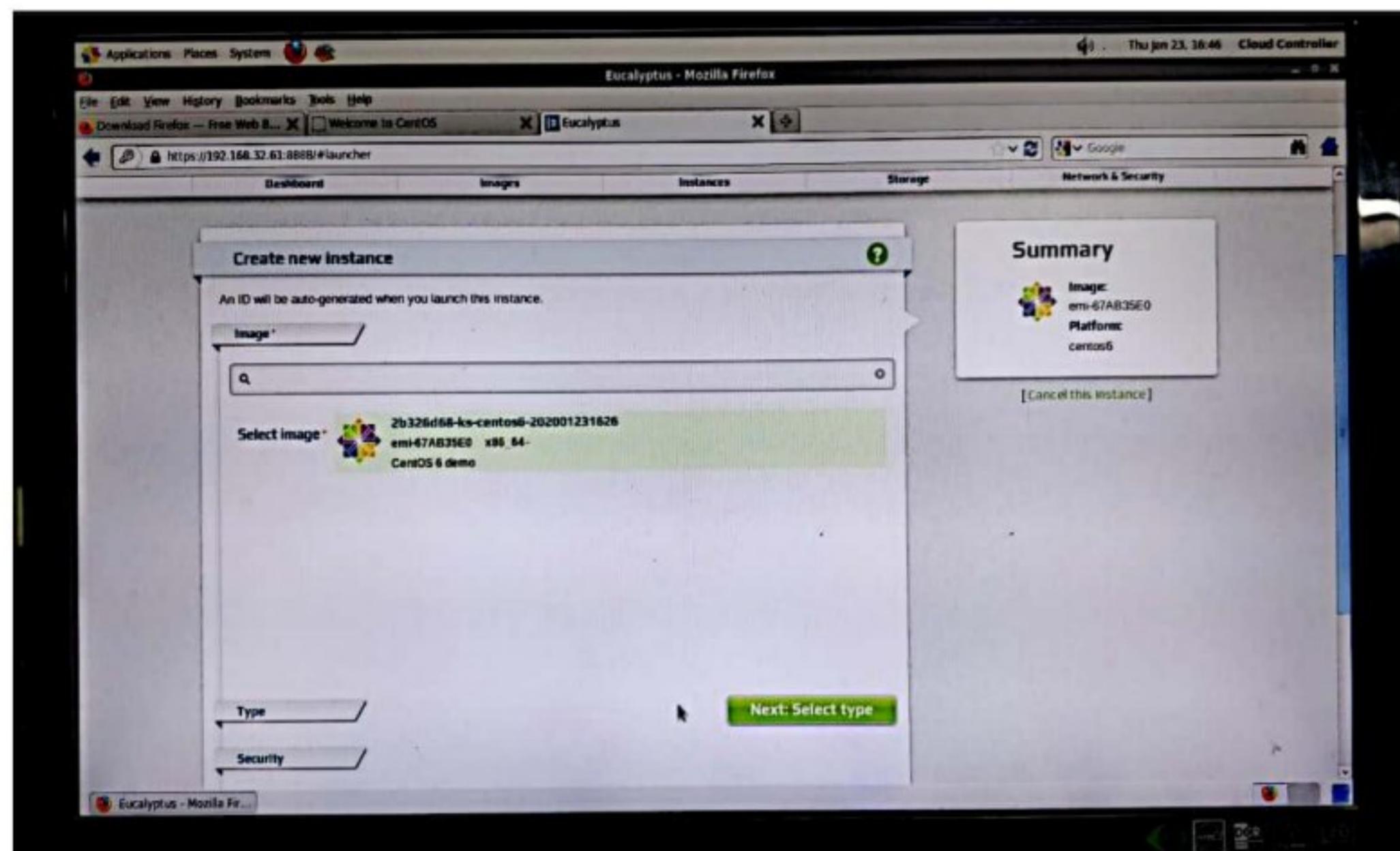
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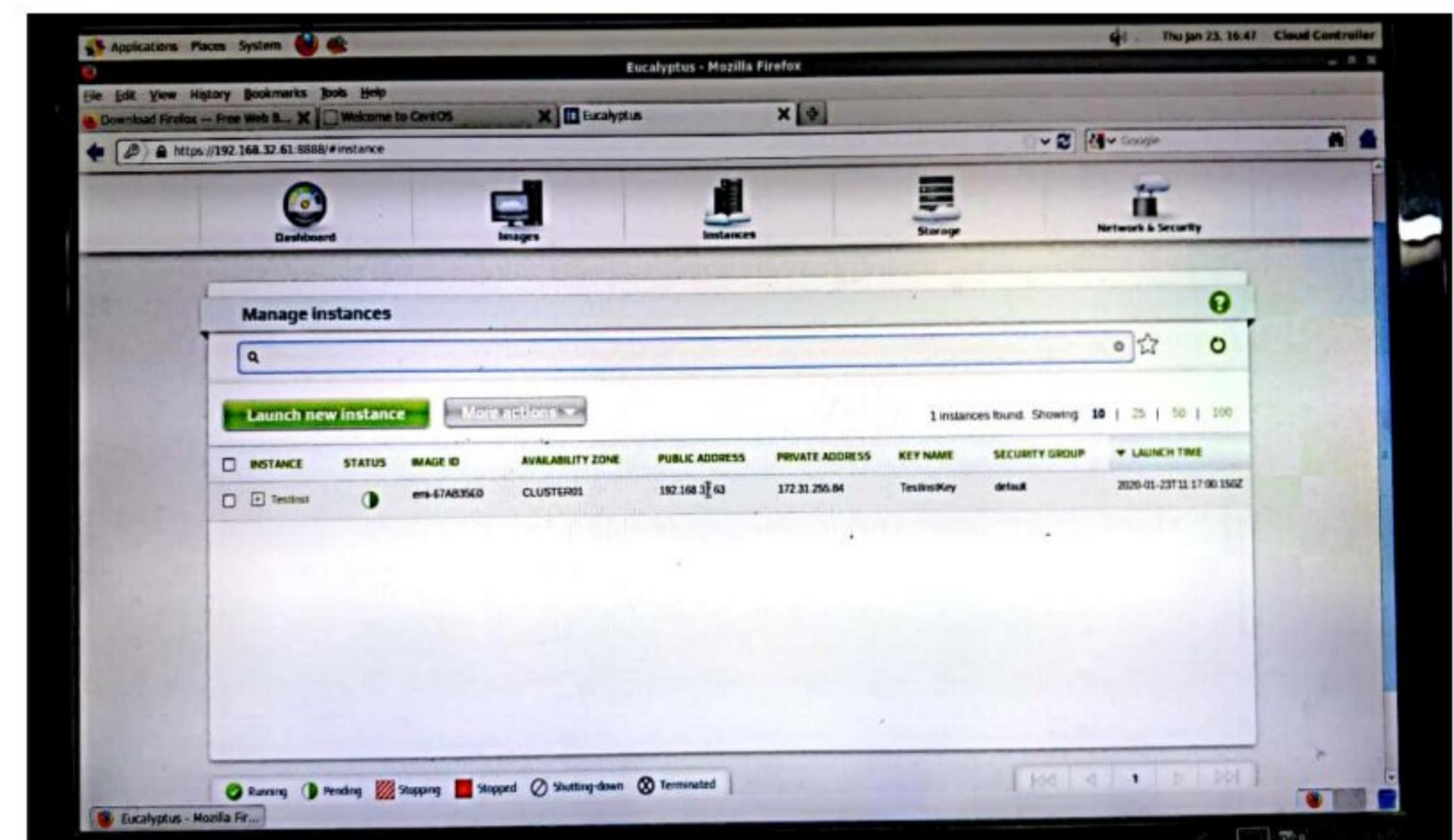
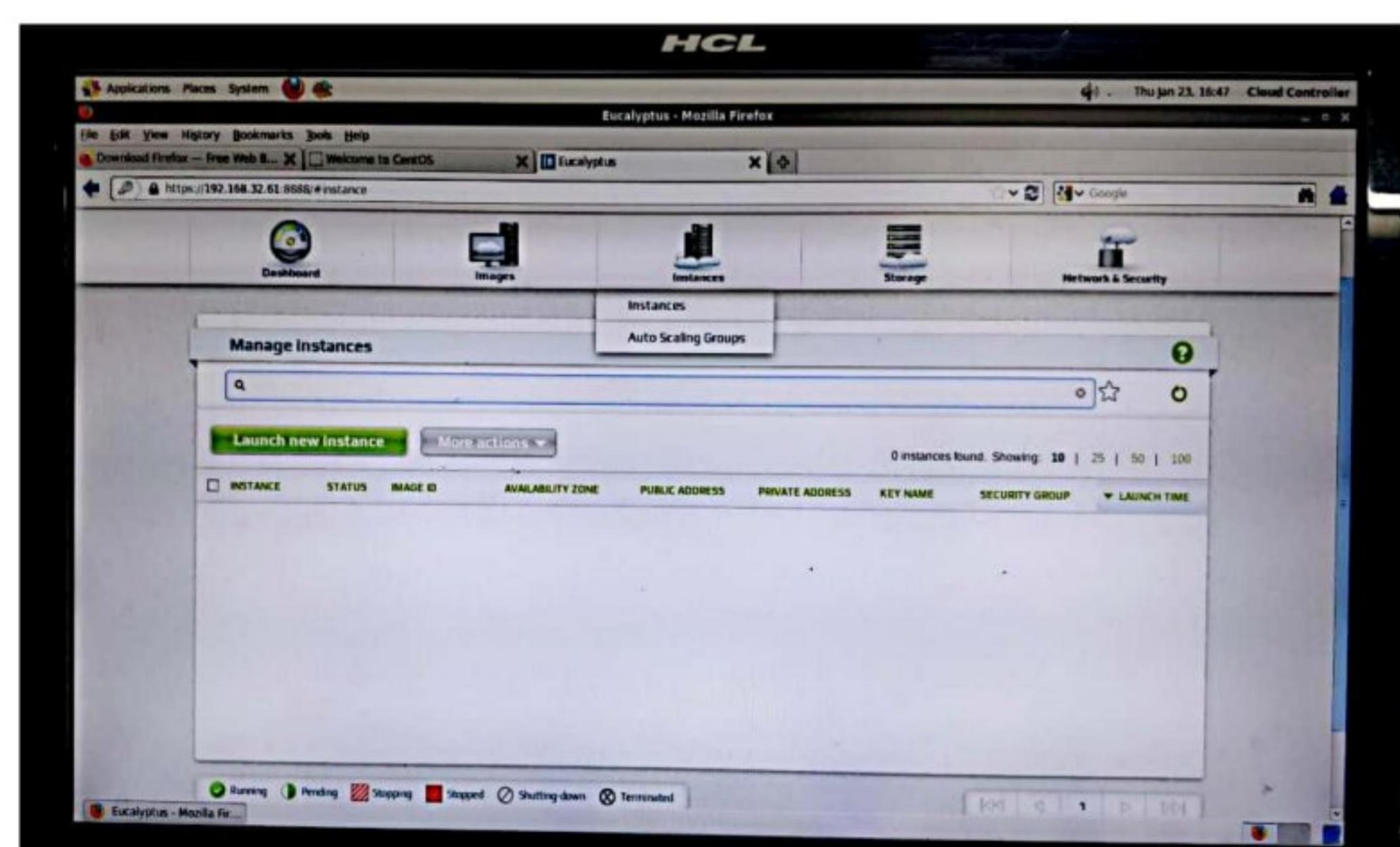
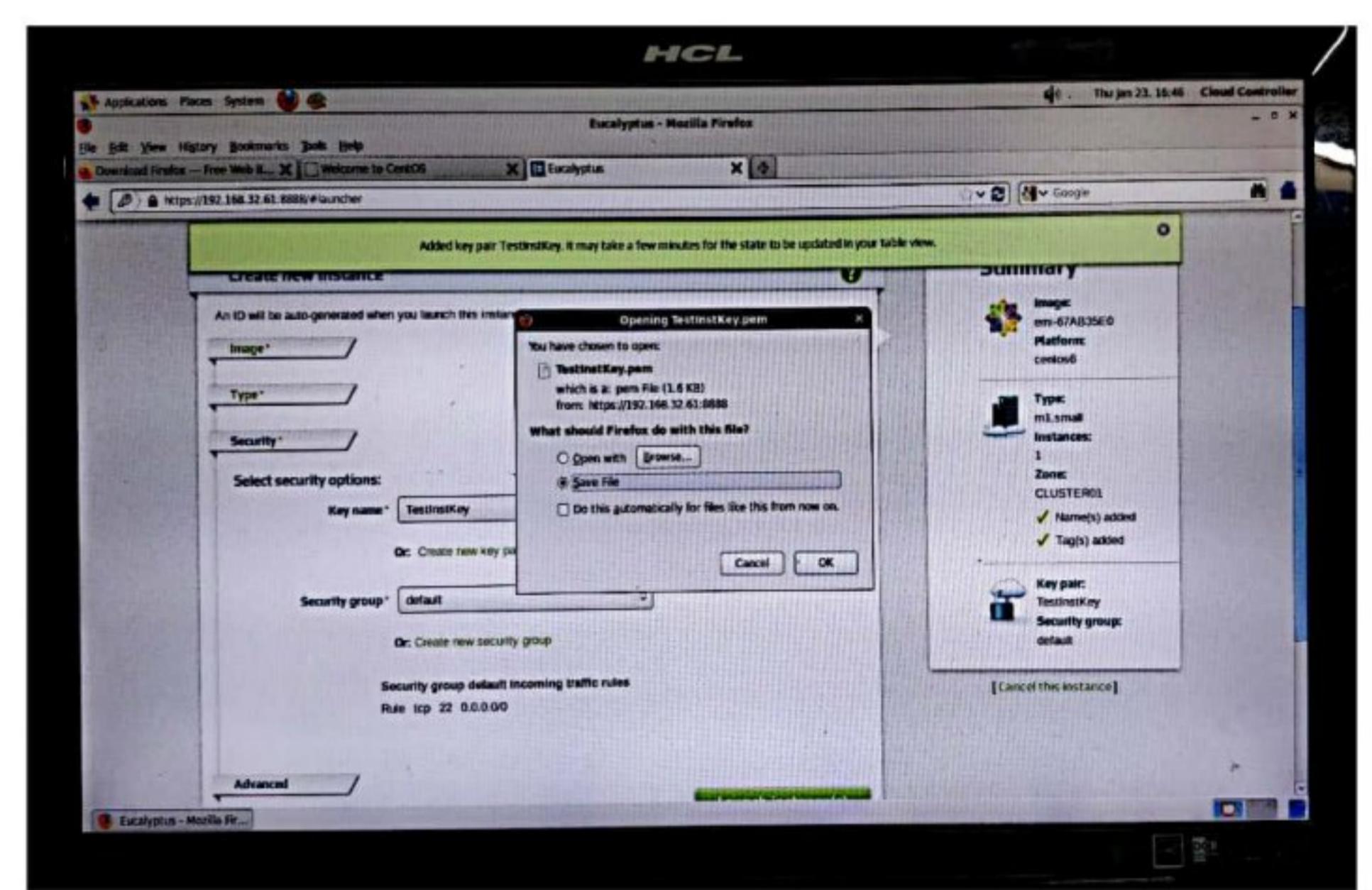
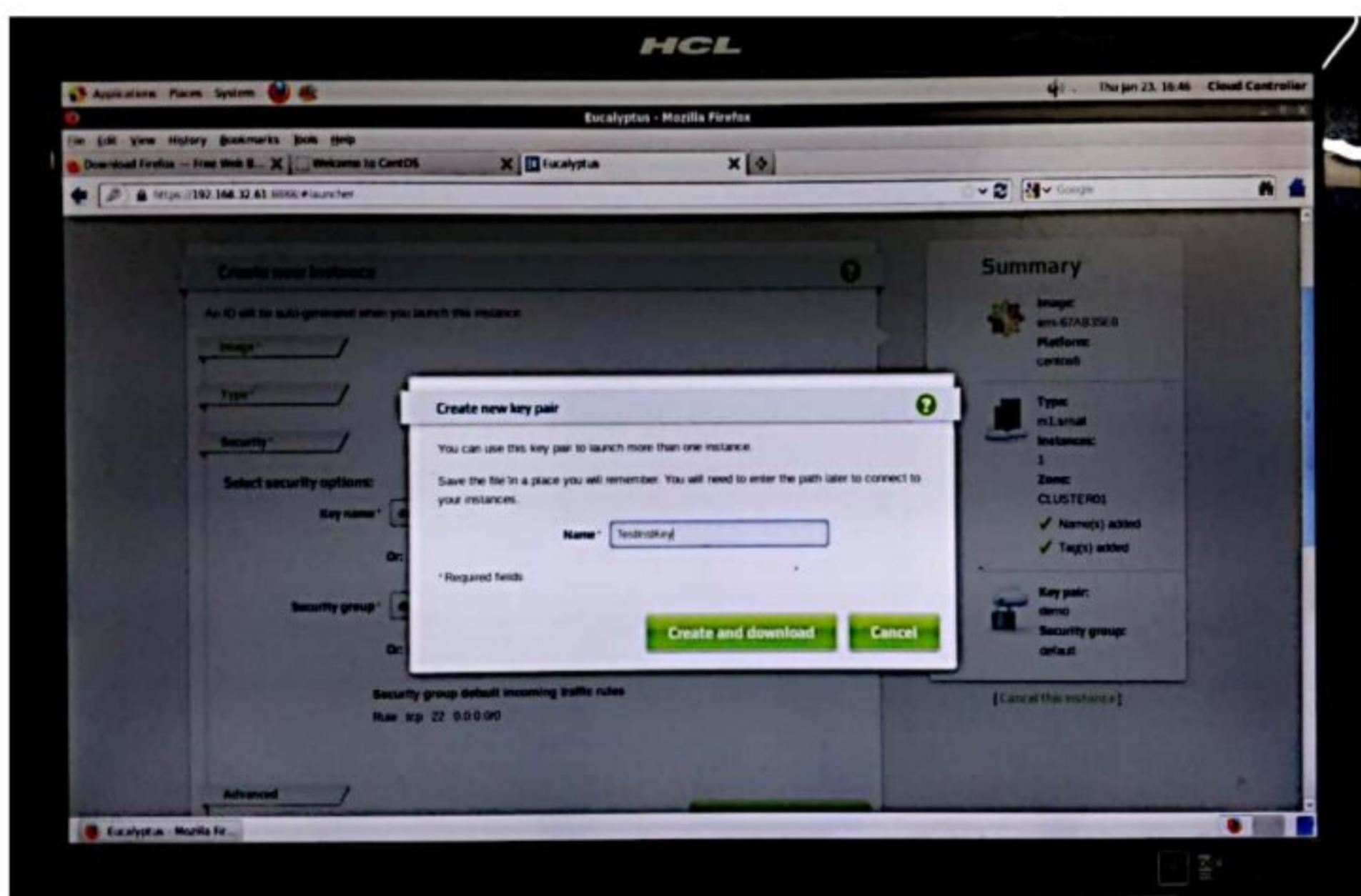
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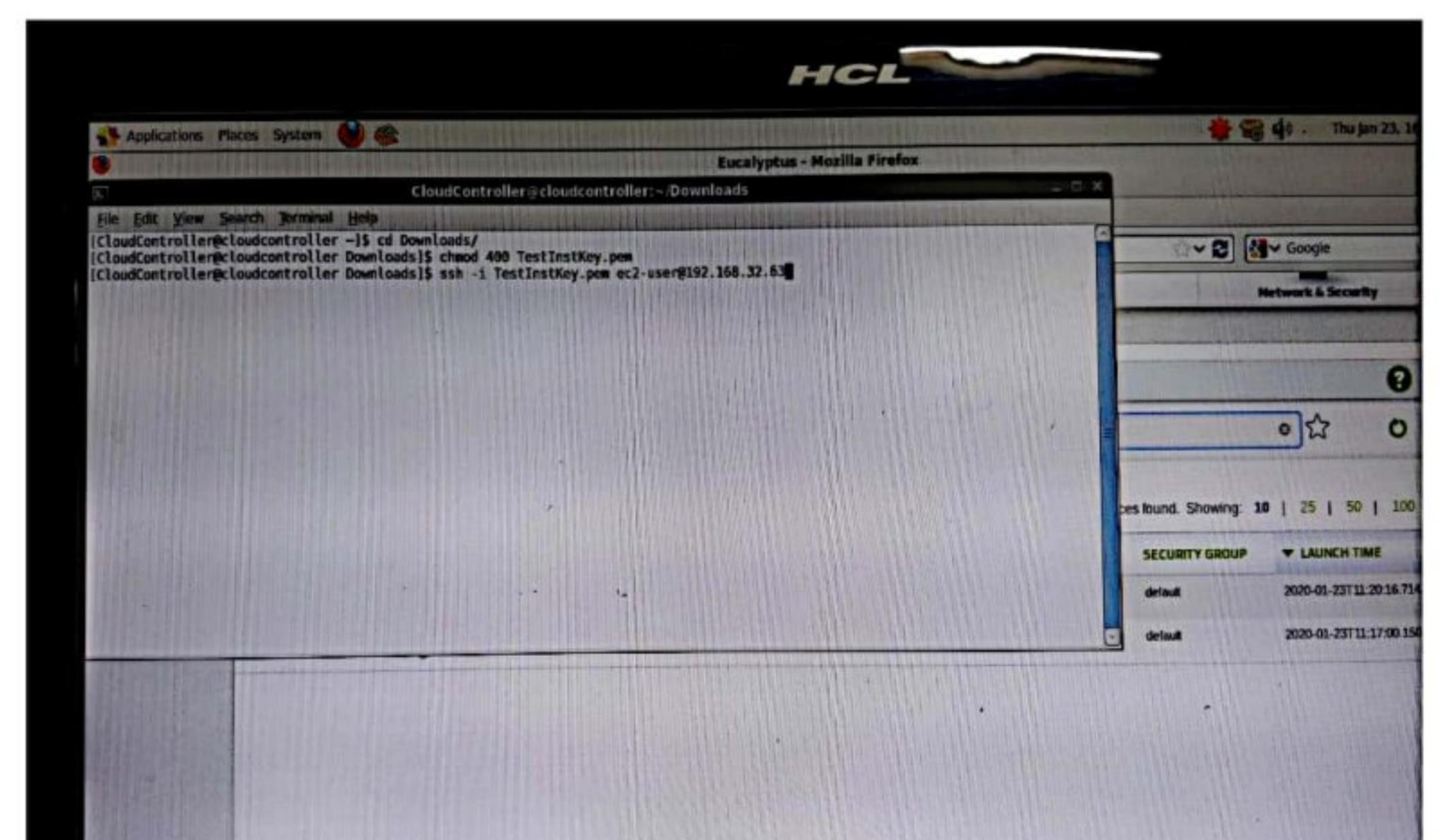
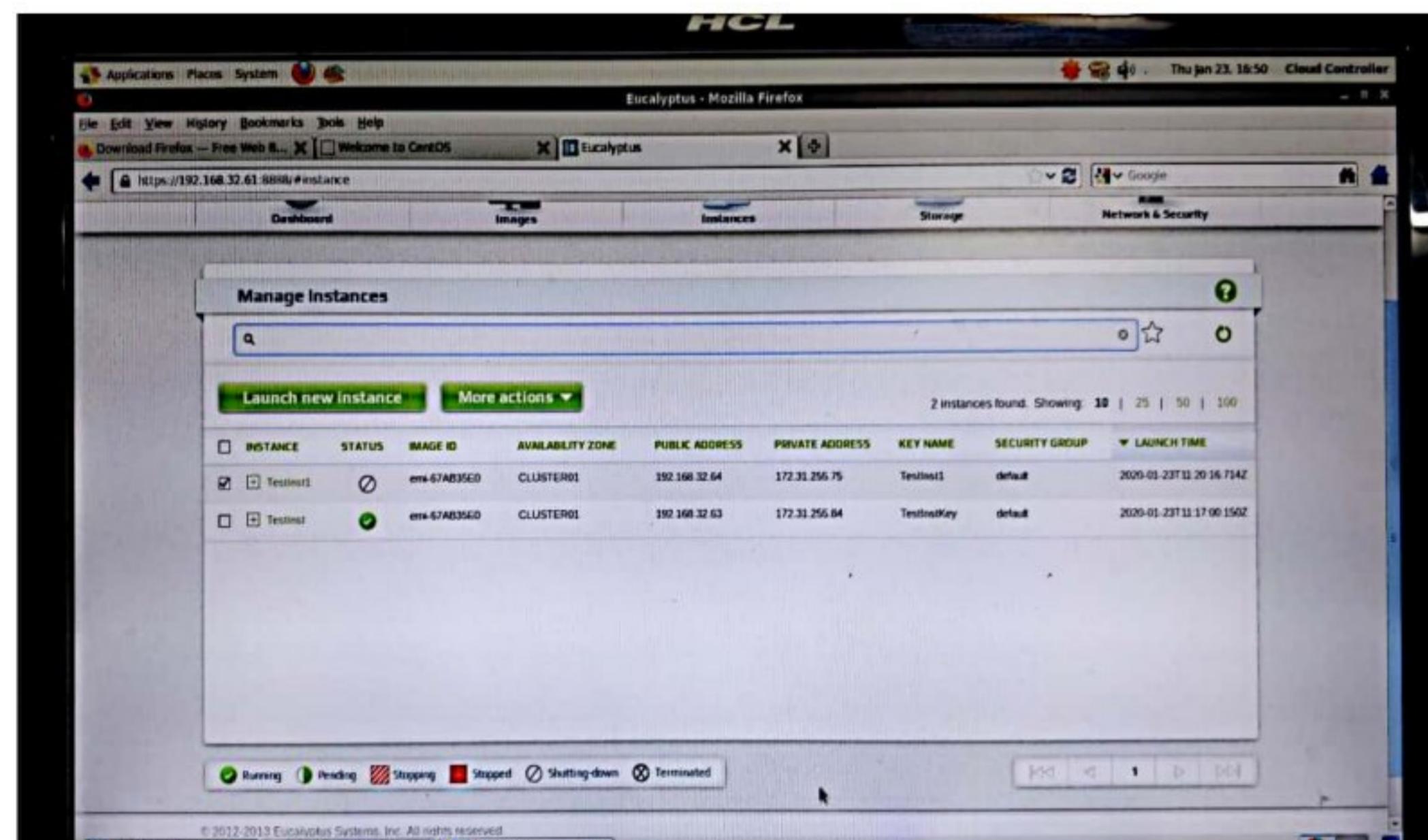
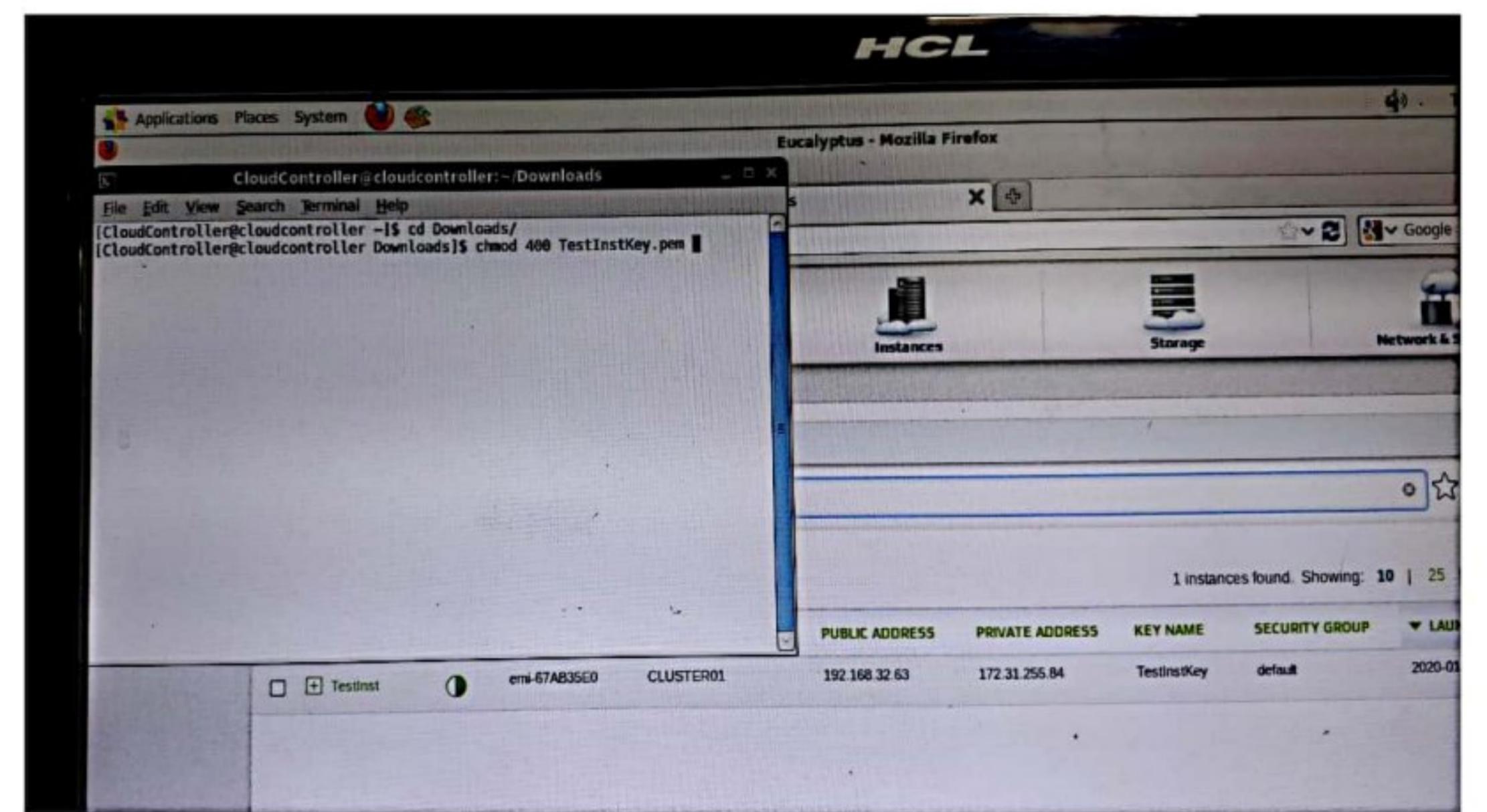
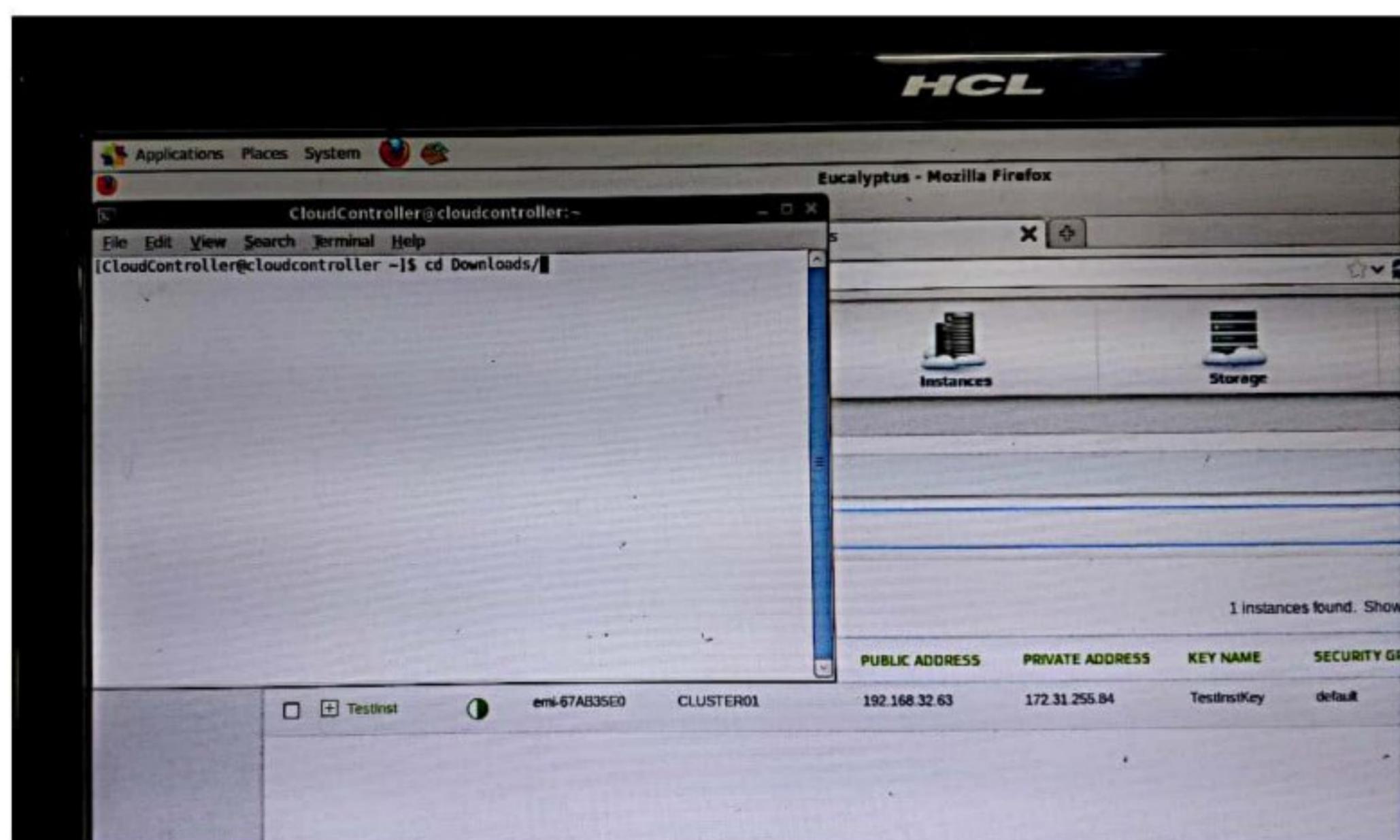
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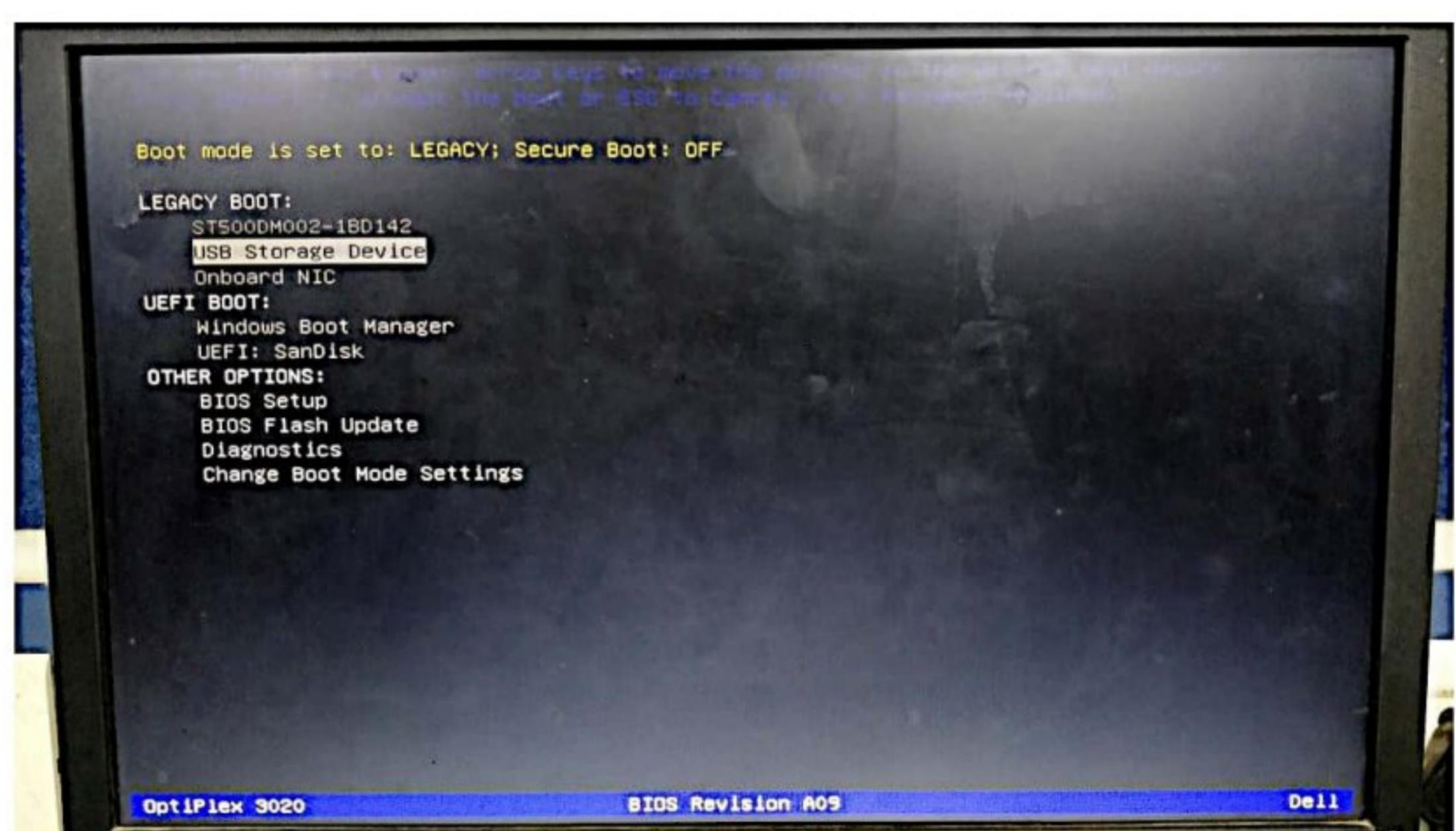
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File Edit View Search Terminal Help
[CloudController@cloudcontroller ~]$ cd Downloads/
[CloudController@cloudcontroller Downloads]$ chmod 400 TestInstKey.pem
[CloudController@cloudcontroller Downloads]$ ssh -i TestInstKey.pem ec2-user@192.168.32.63
The authenticity of host '192.168.32.63 (192.168.32.63)' can't be established.
RSA key fingerprint is f8:95:42:48:b8:70:98:db:48:a1:74:c8:bf:a5:47:b8.
Are you sure you want to continue connecting (yes/no)? yes

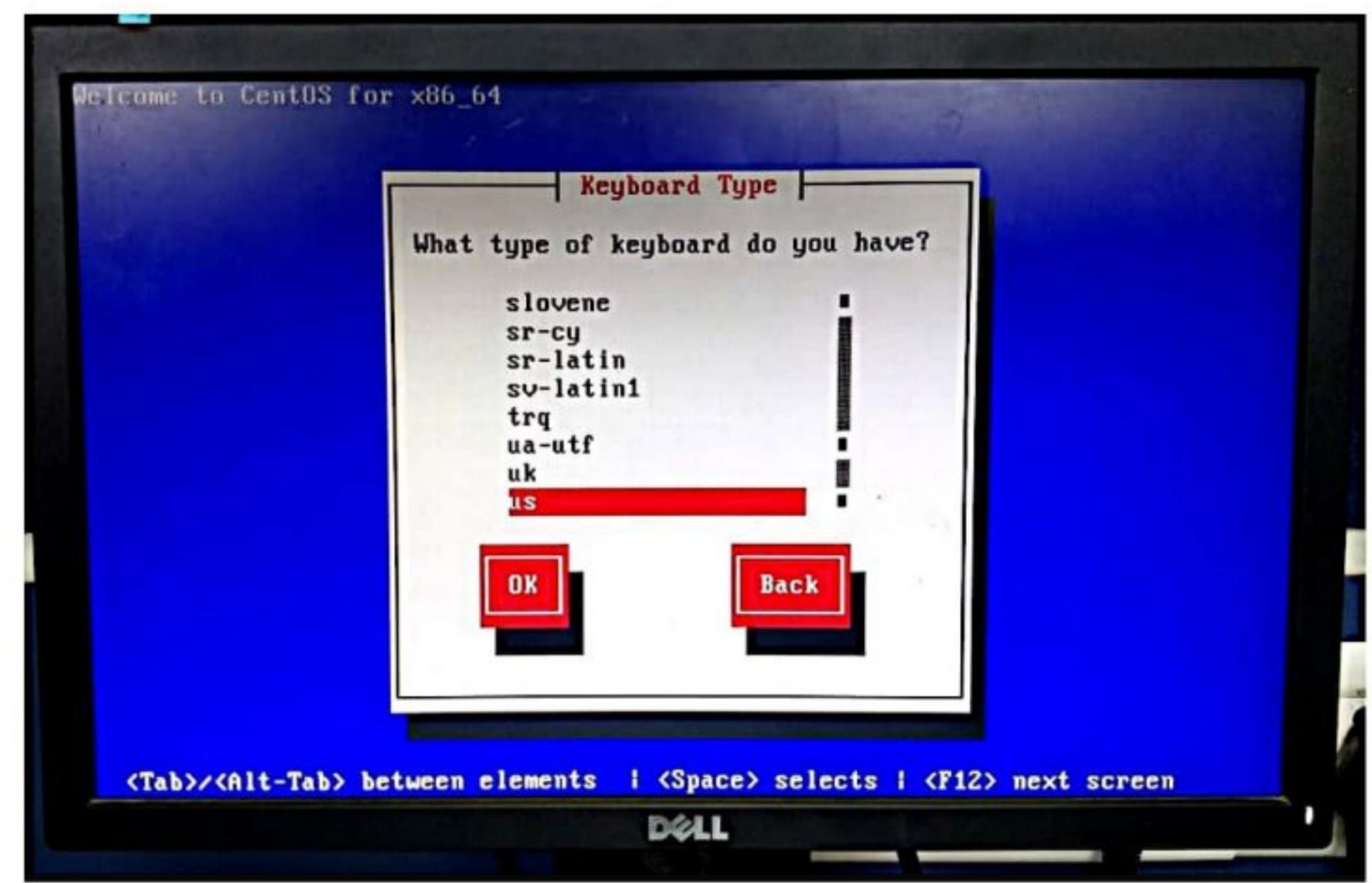
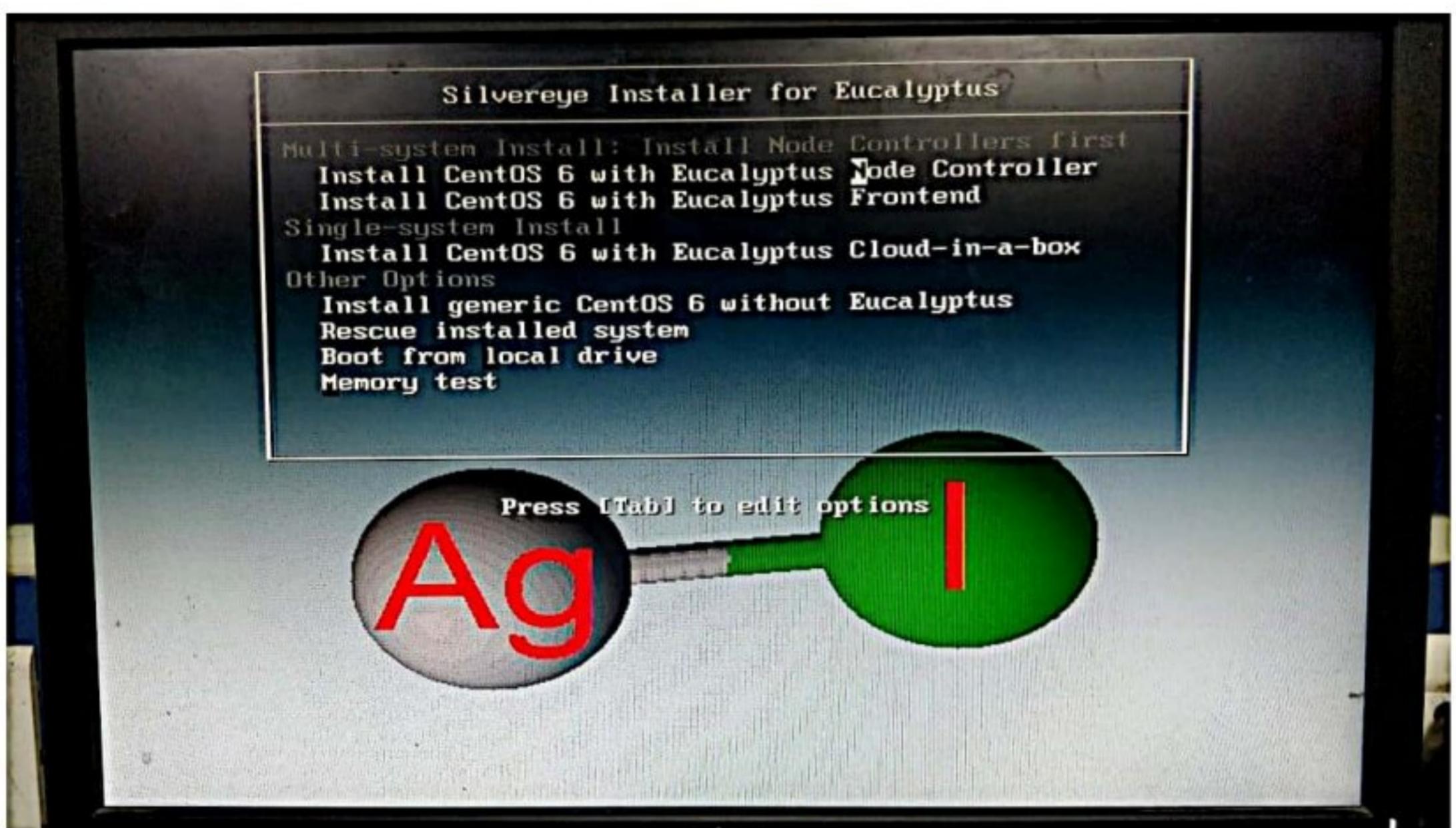
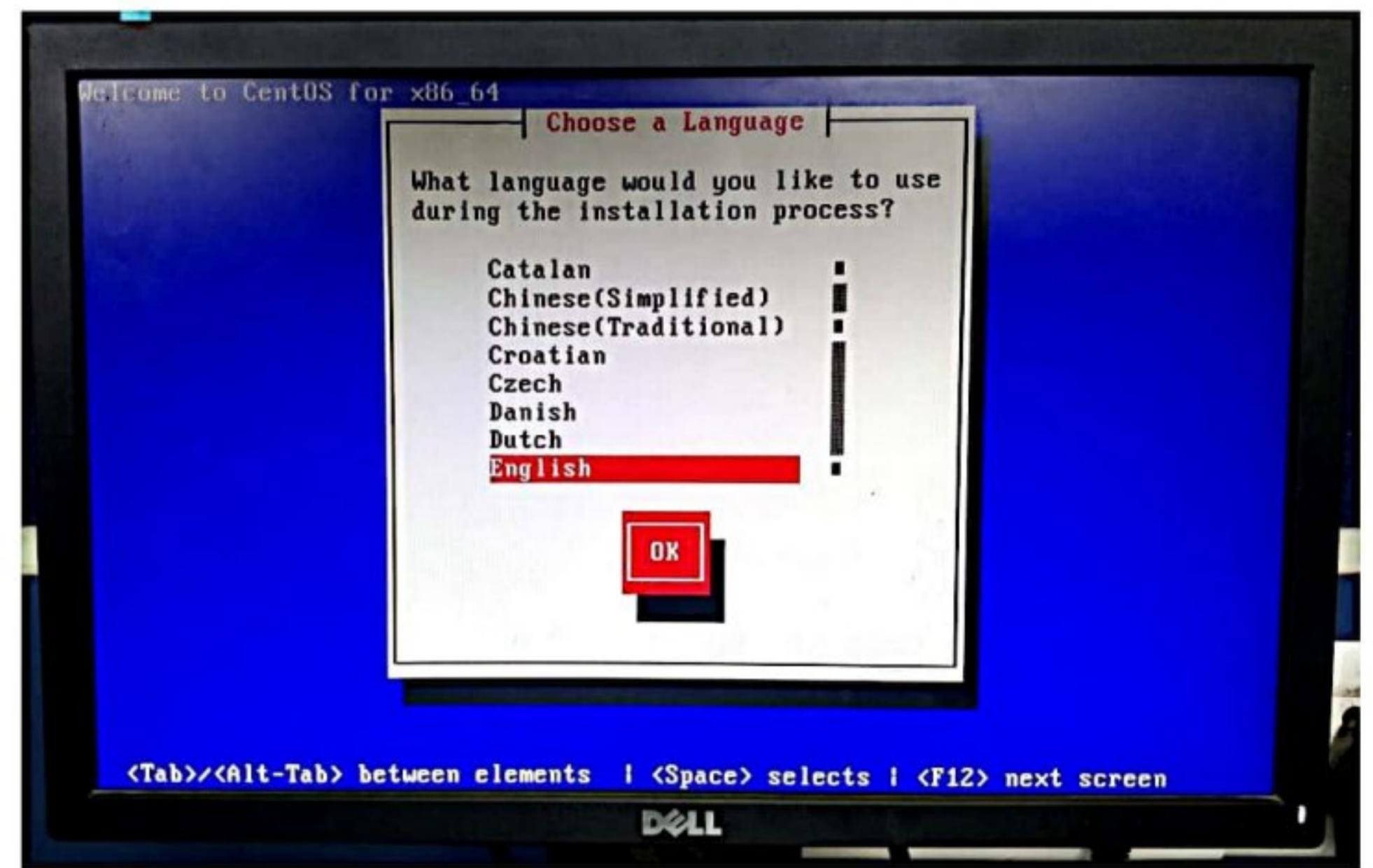
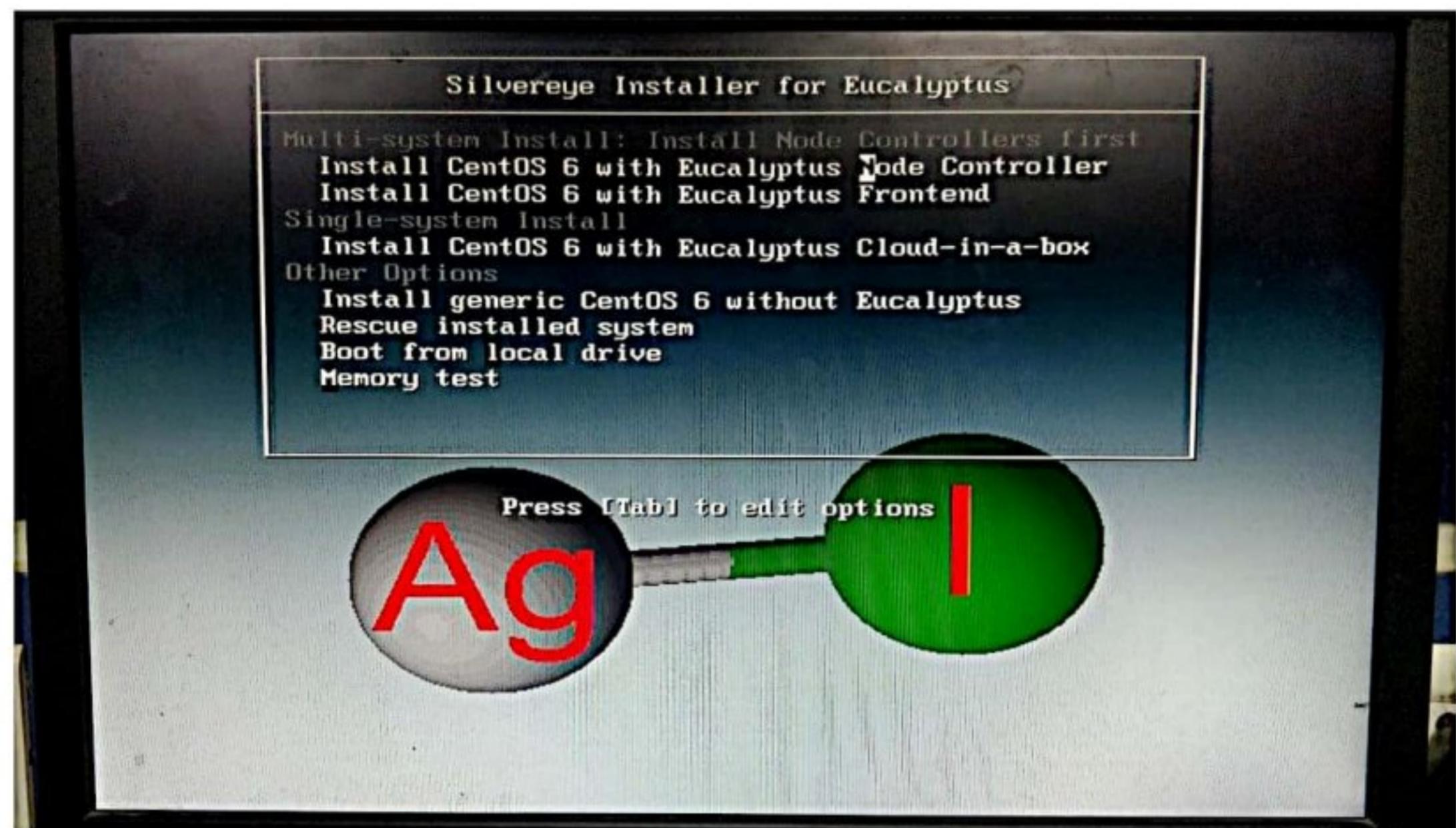
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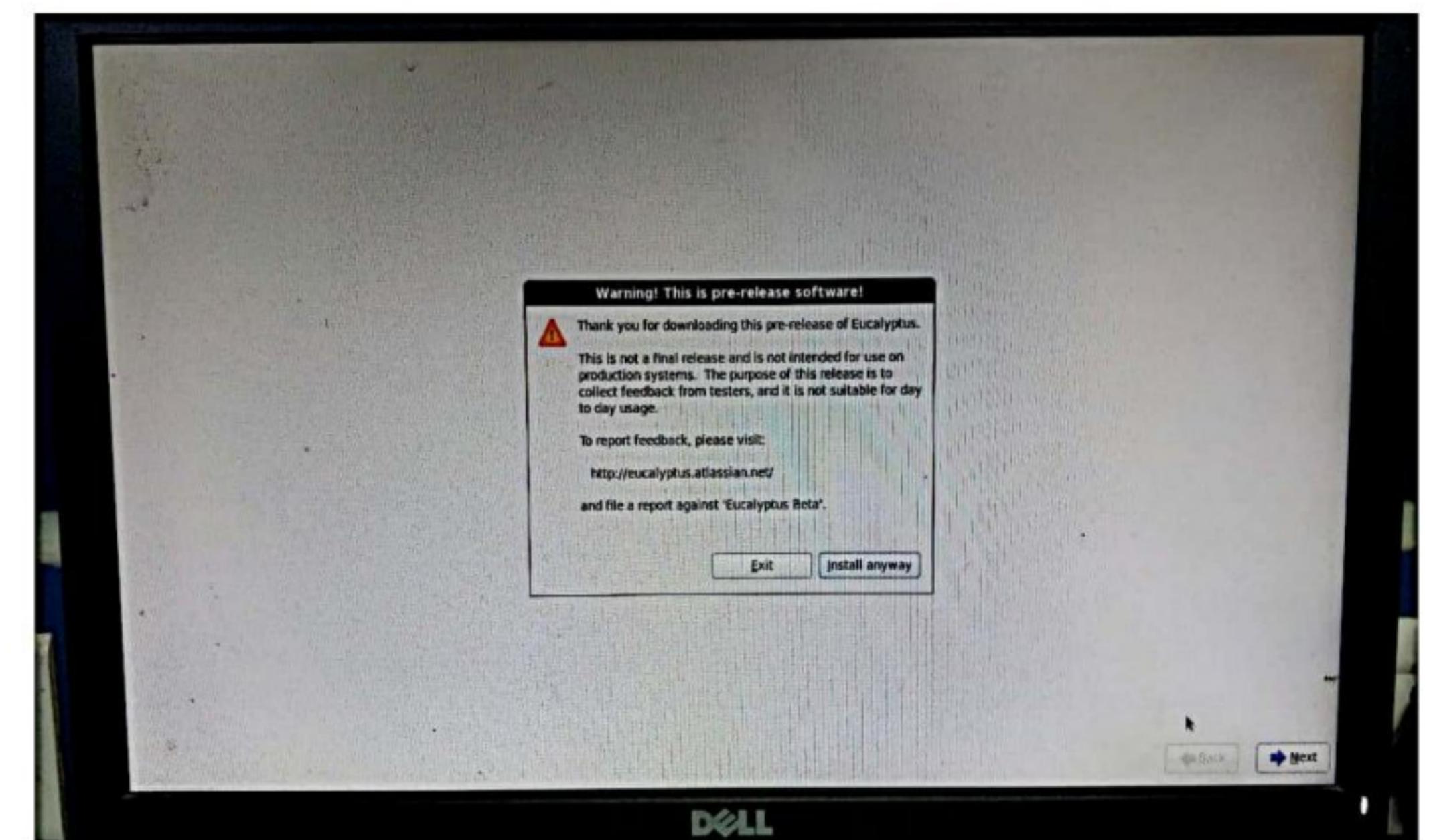
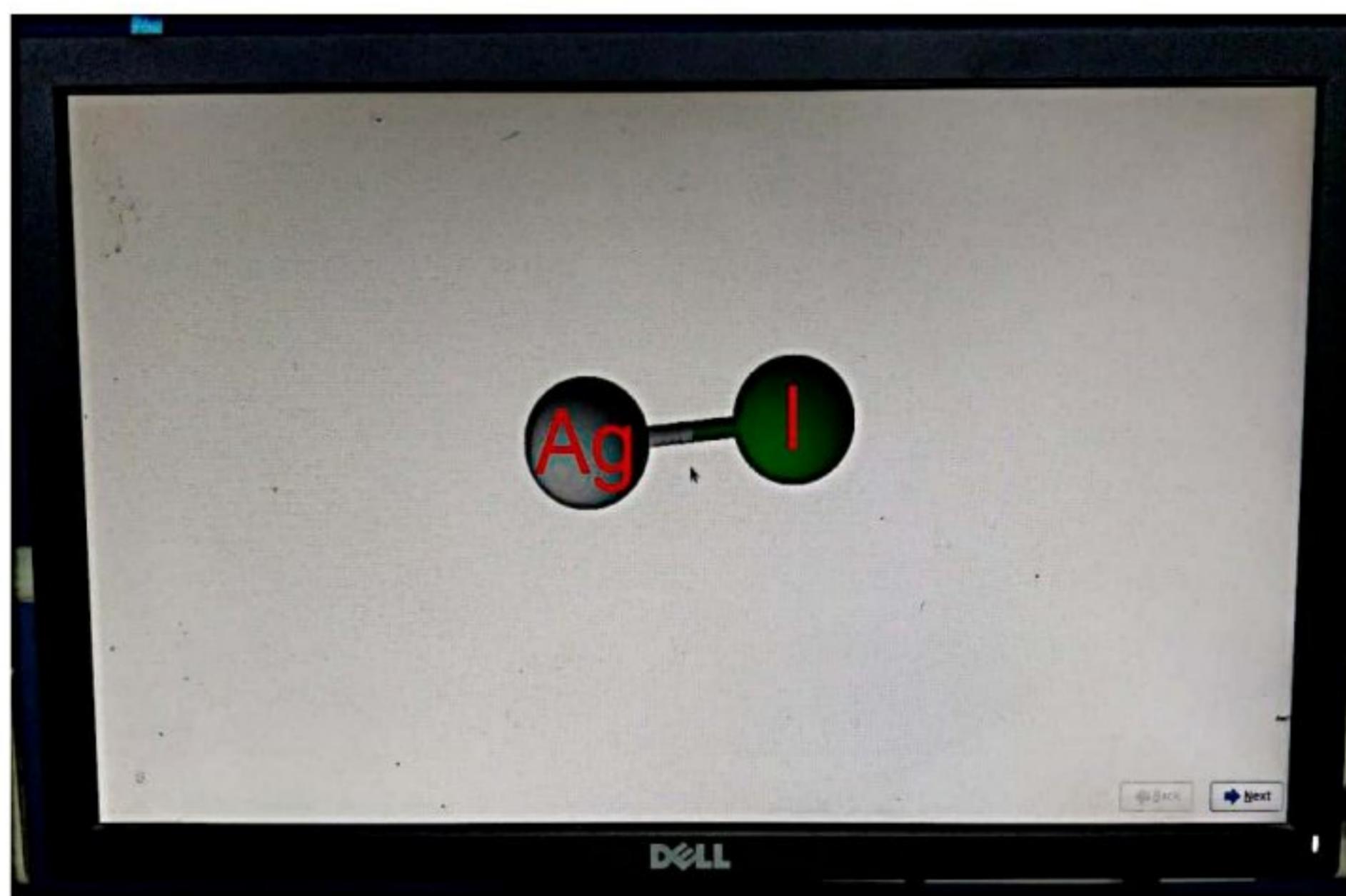
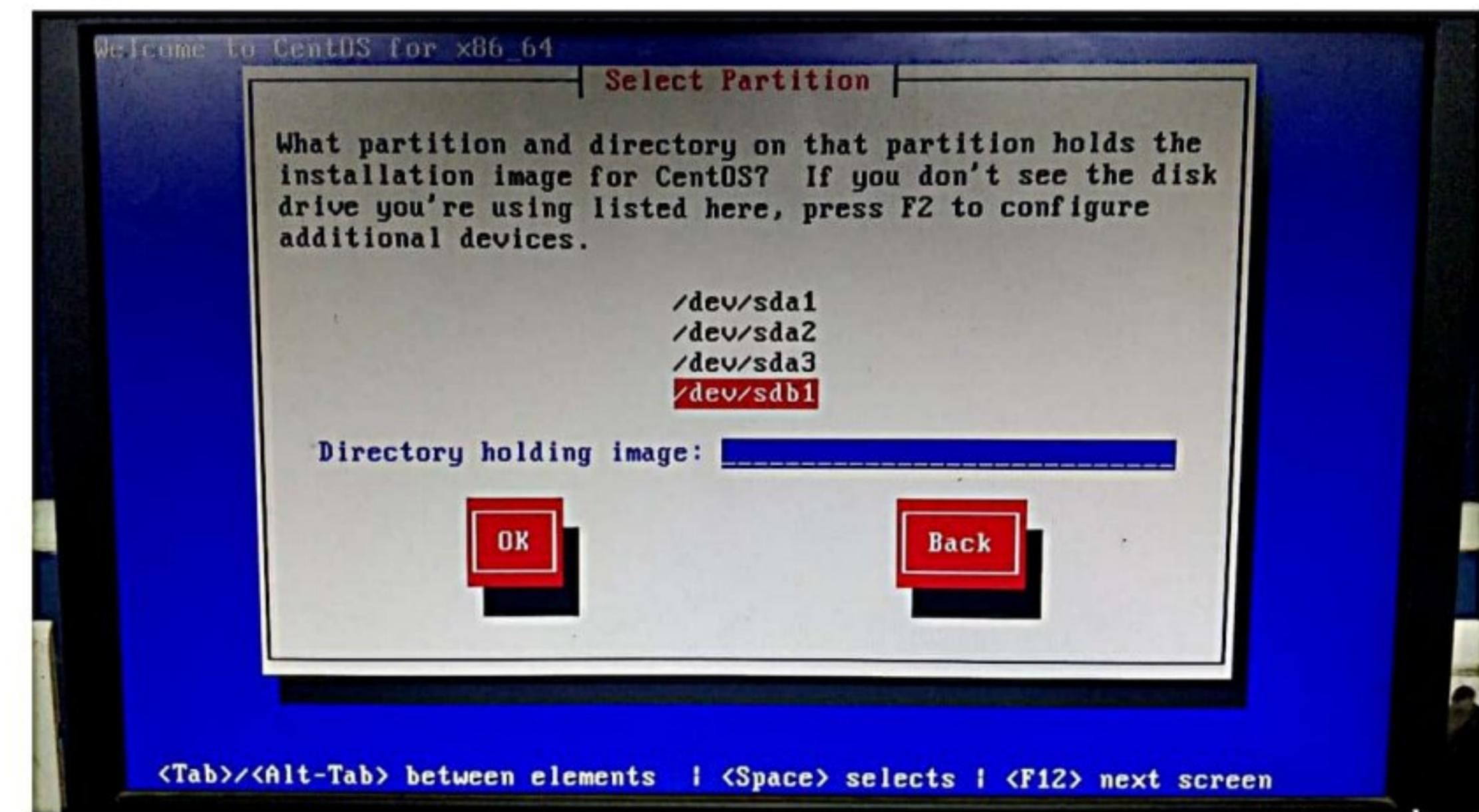
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File Edit View Search Terminal Help
[CloudController@cloudcontroller ~]$ cd Downloads/
[CloudController@cloudcontroller Downloads]$ chmod 400 TestInstKey.pem
[CloudController@cloudcontroller Downloads]$ ssh -i TestInstKey.pem ec2-user@192.168.32.63
The authenticity of host '192.168.32.63 (192.168.32.63)' can't be established.
RSA key fingerprint is f8:95:42:48:b8:70:98:db:48:a1:74:c8:bf:a5:47:b8.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.32.63' (RSA) to the list of known hosts.
[ec2-user@ip-172-31-255-84 ~]
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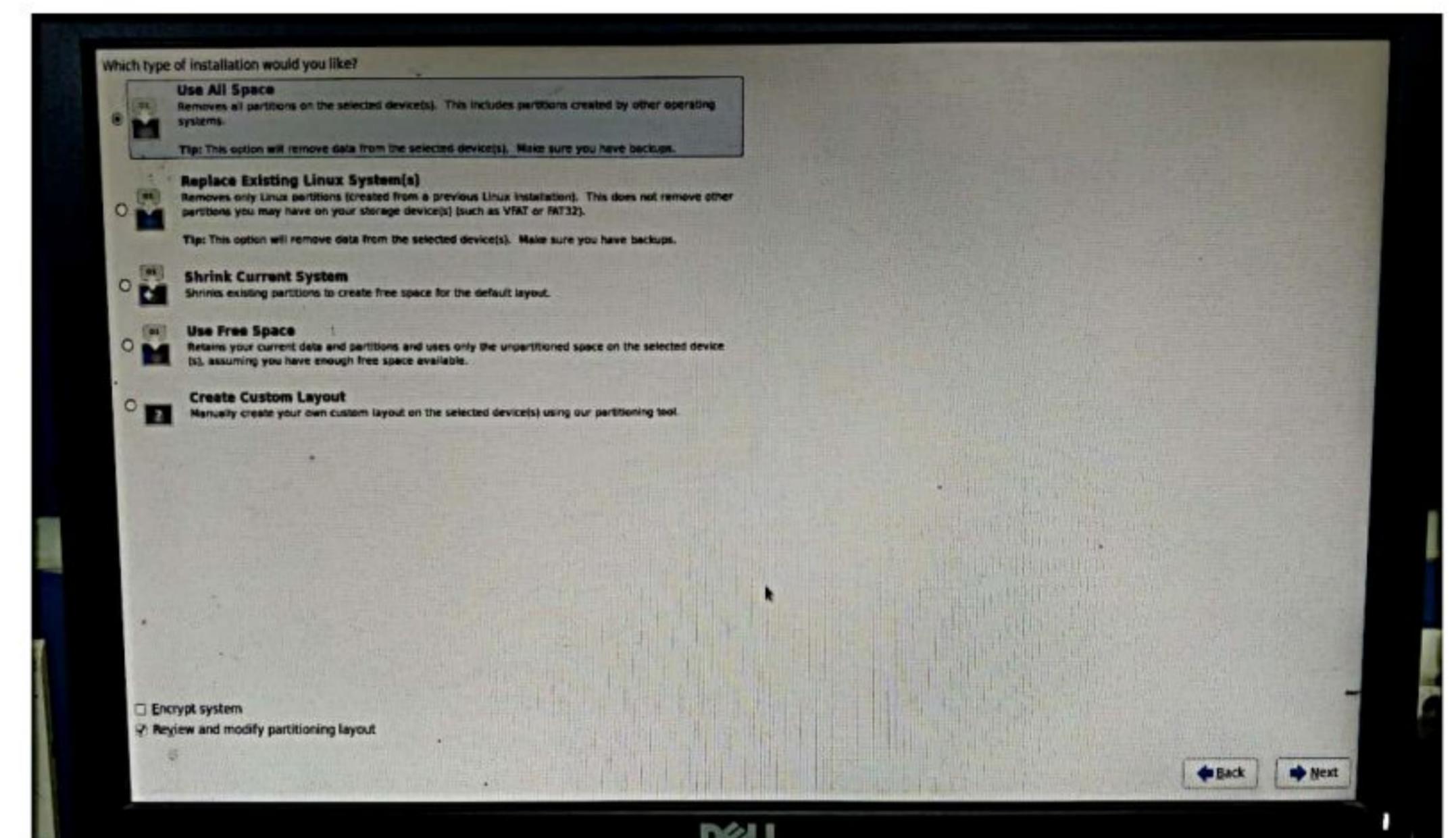
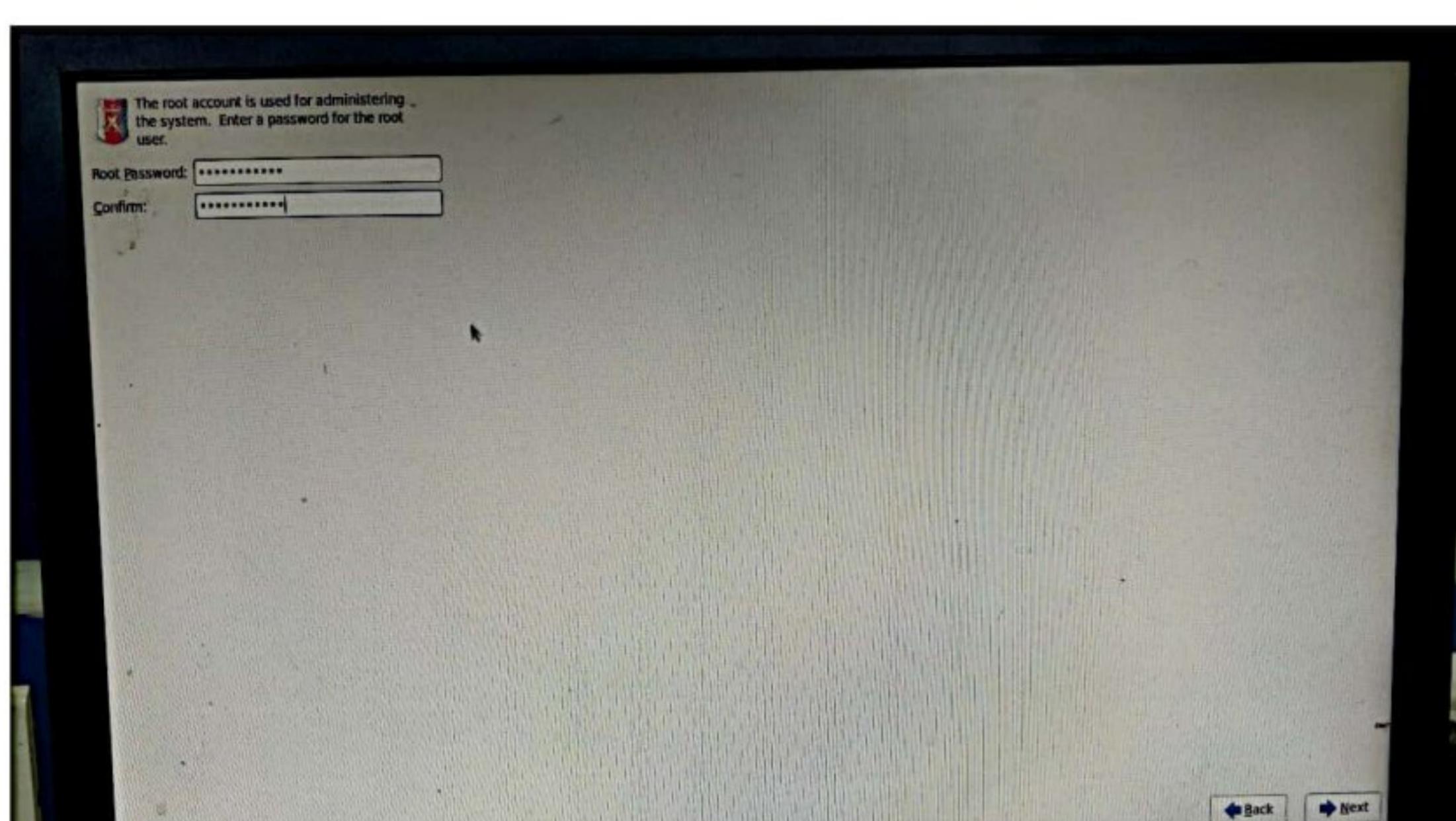
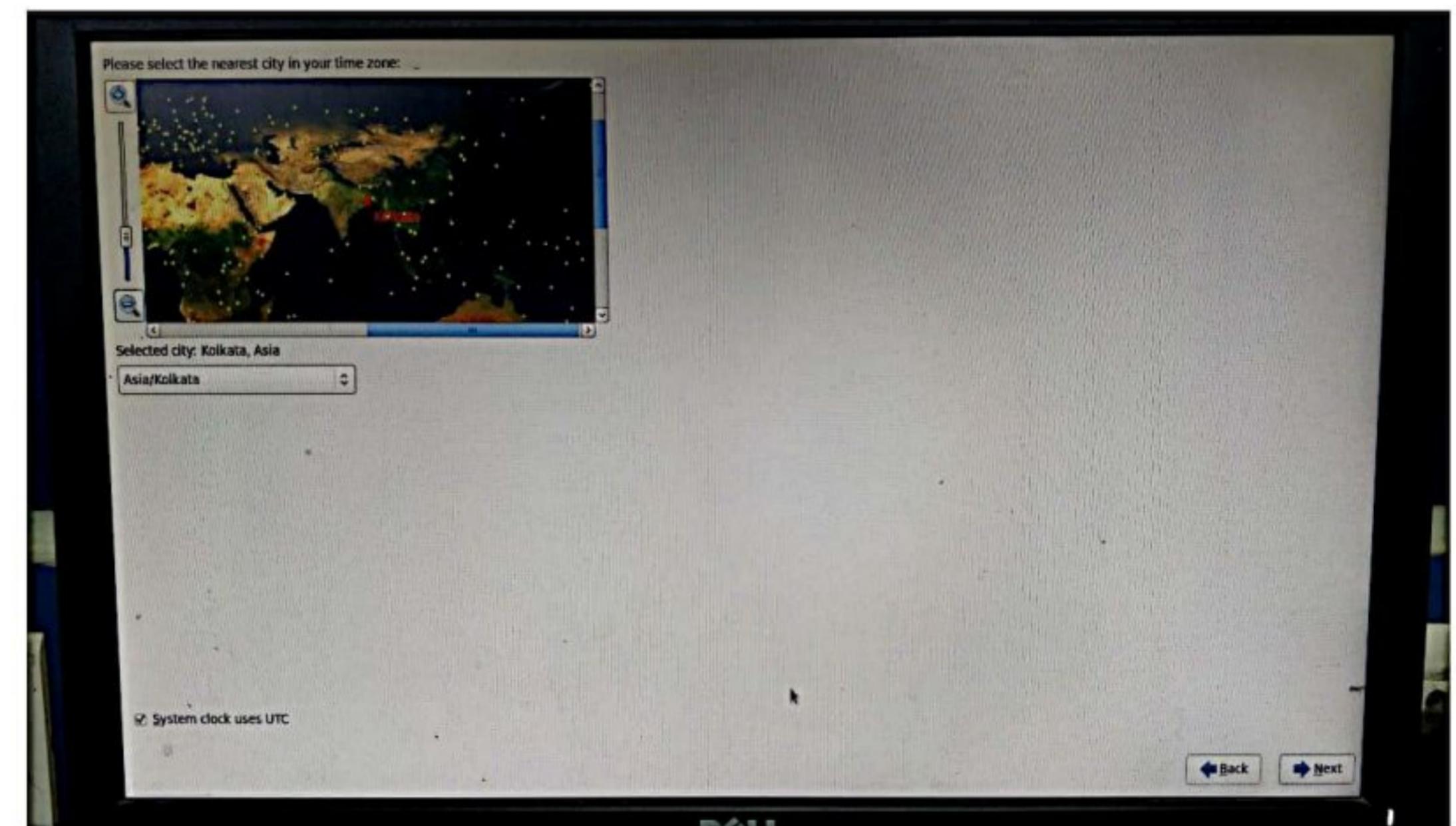
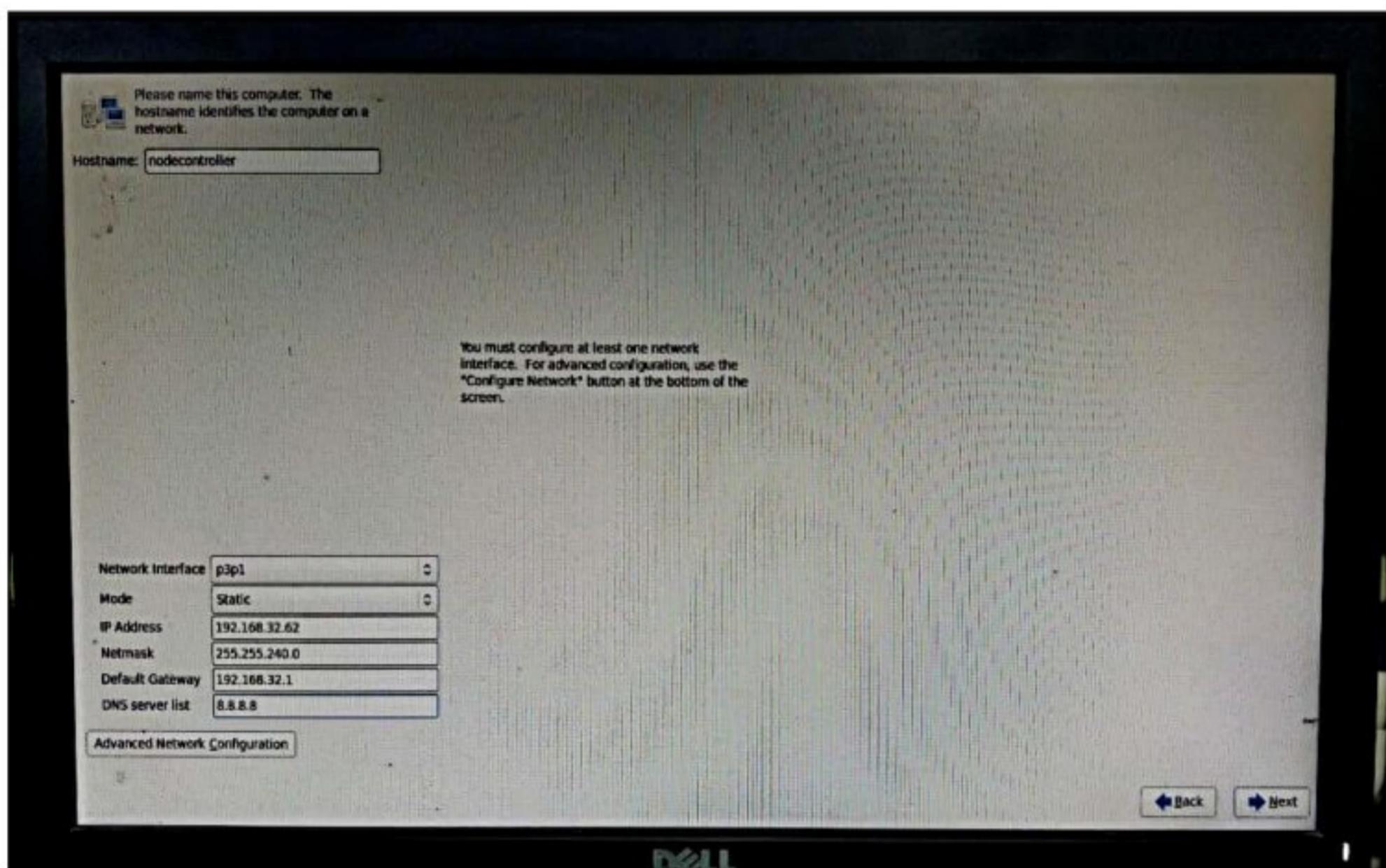


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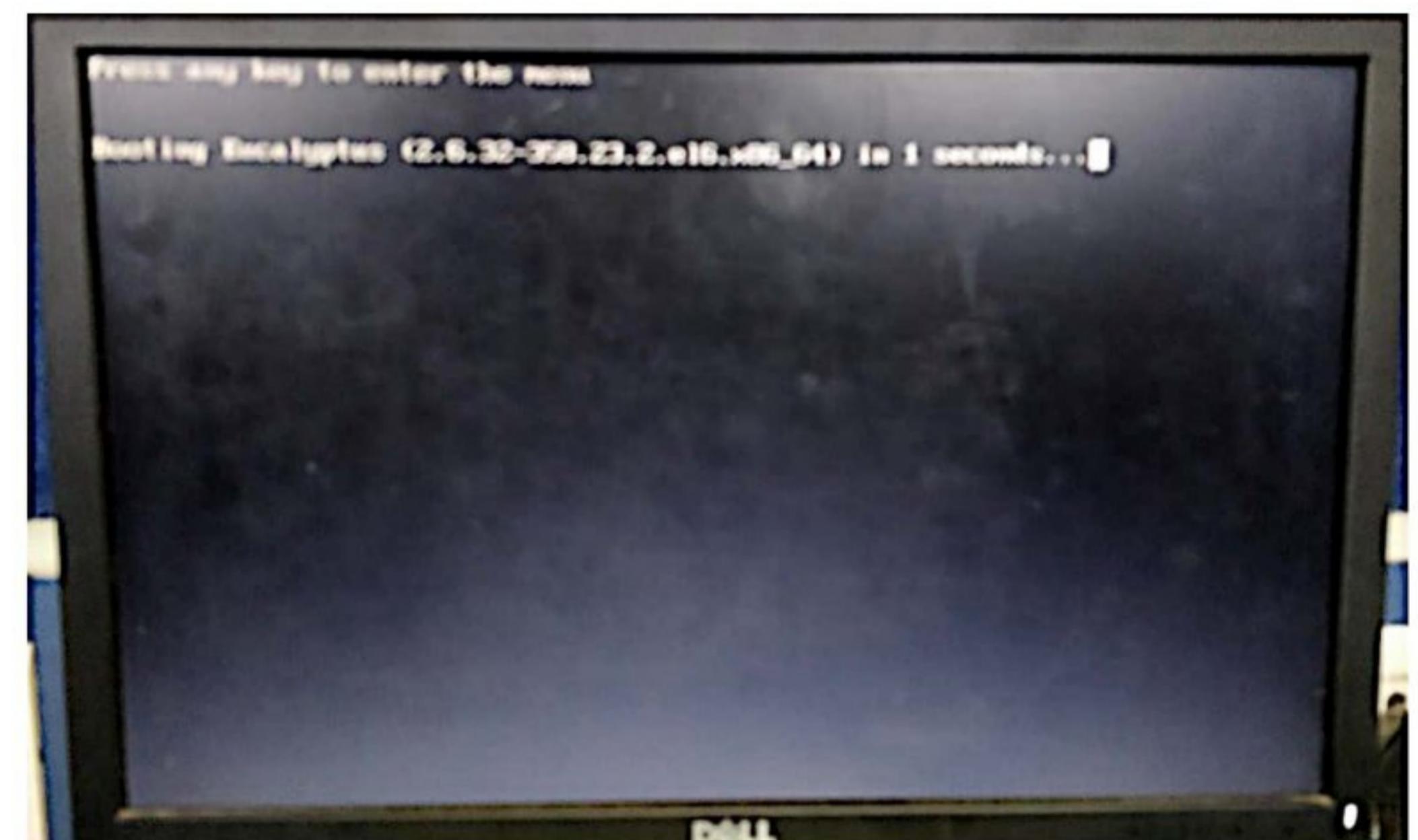
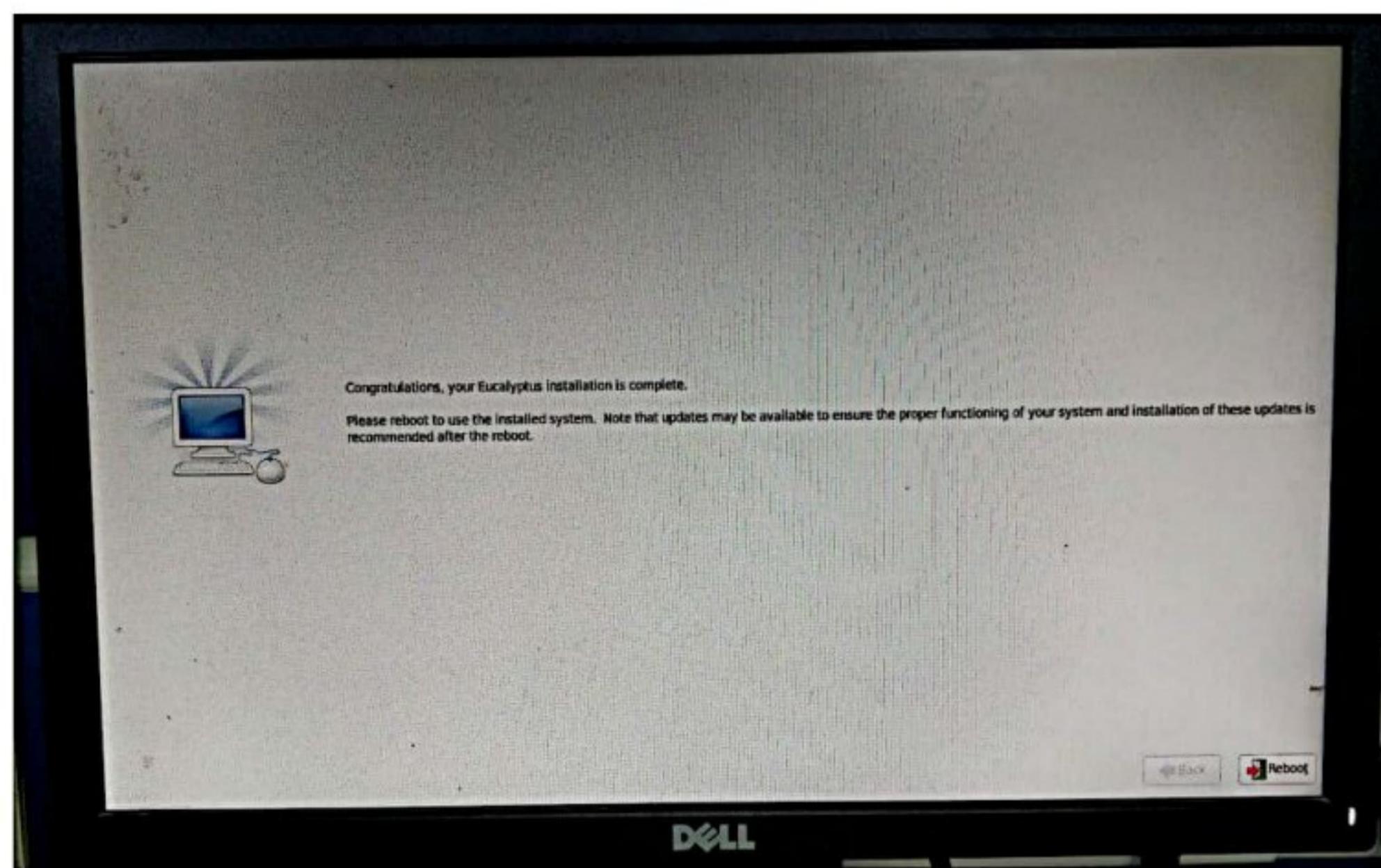
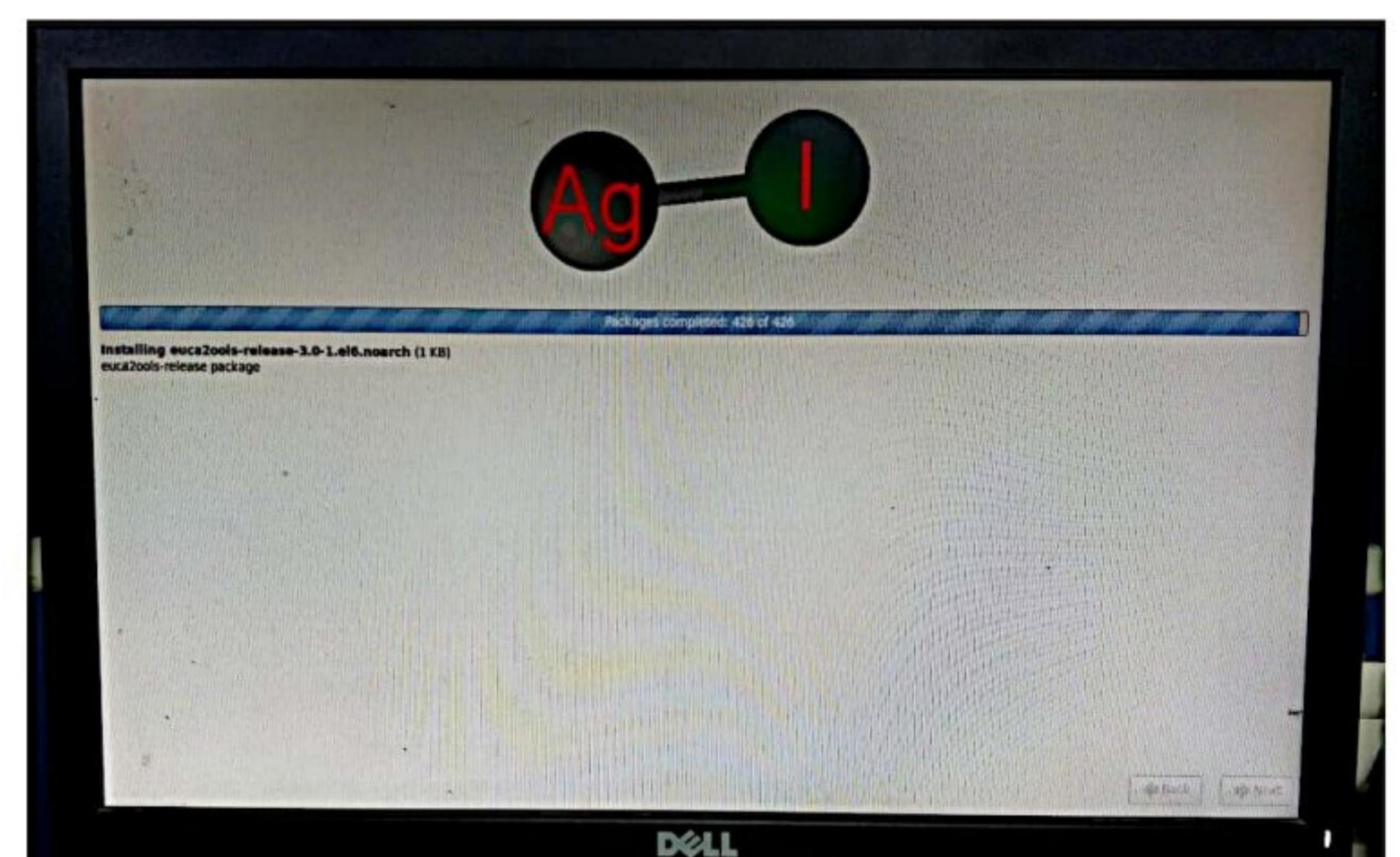
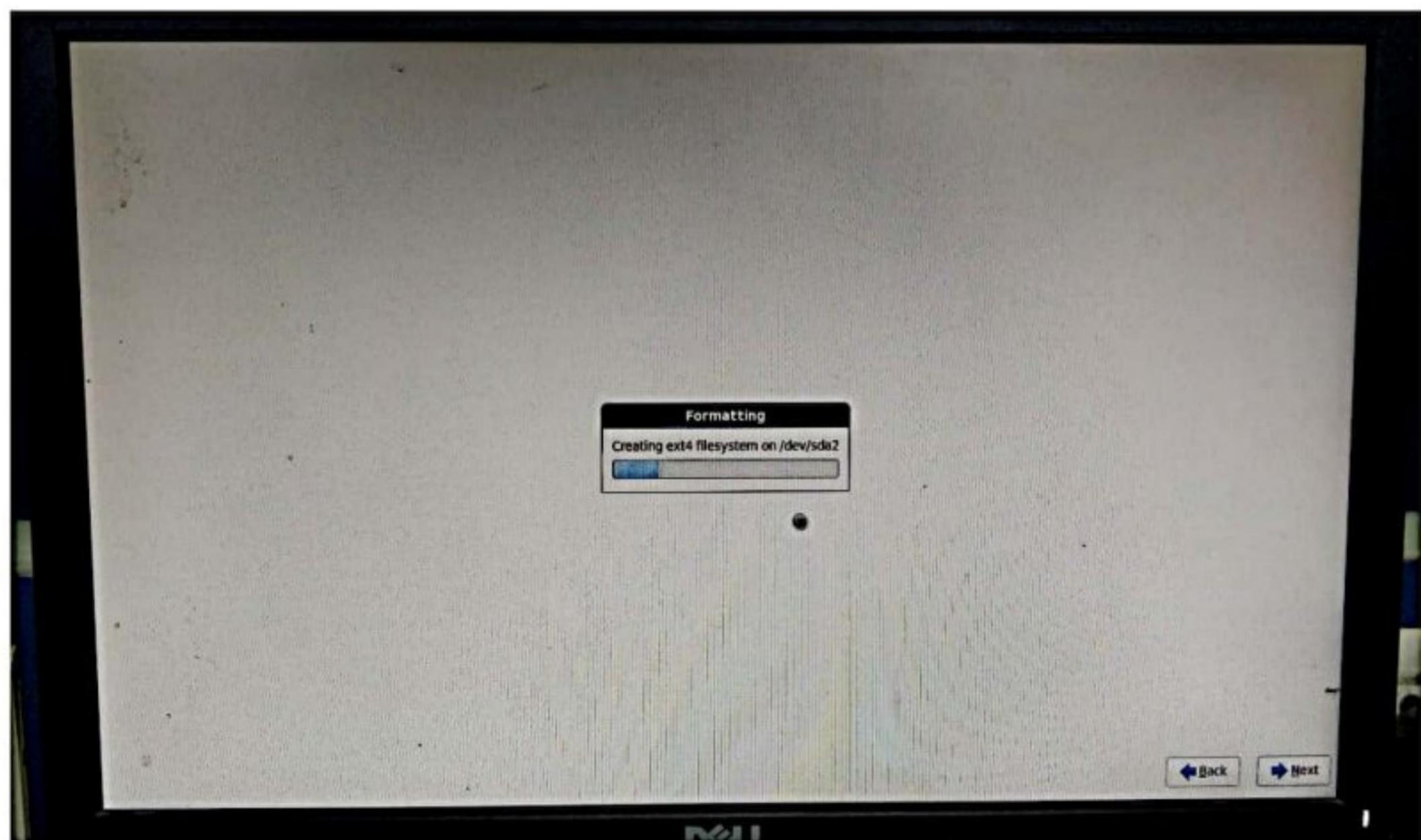






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```
CentOS release 6.4 (Final)
Kernel 2.6.32-358.23.2.el6.x86_64 on an x86_64

nodecontroller login: root
Password:

Welcome to the Eucalyptus node controller configuration script.

We need some network information

The NC public ethernet interface (connected to Frontend private network) [p3p1]
```

```
Password:
Welcome to the Eucalyptus node controller configuration script.

We need some network information

The NC public ethernet interface (connected to Frontend private network) [p3p1]
Thu Jan 23 16:05:02 IST 2008 - Creating bridge br0 on p3p1
Shutting down interface p3p1: bridge br0 does not exist! [ OK ]
Shutting down loopback interface: [ OK ]
Bringing up loopback interface: [ OK ]
Bringing up interface p3p1: [ OK ]
Bringing up interface br0: [ OK ]
ping: unknown host nodecontroller [ OK ]

This machine is ready and running as a Node Controller.

You can re-run this configuration script later by executing
/usr/local/sbin/eucalyptus-nc-config.sh as root.

After all Node Controllers are installed and configured, install and configure
your Frontend server.

[root@nodecontroller ~]# _
```