Troubleshooting during Installing Ubuntu Enterprise Cloud

Supplement (3) to

"Guidelines for Building a Private Cloud Infrastructure"

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Summary

This document provides supplemental material to the book "Guidelines for building a private cloud infrastructure". This document describes the issues that can be expected during the different phases of the setup and installation of Ubuntu Enterprise Cloud. This document also contains some useful practical information concerning the technologies involved.

For getting support with Ubuntu[1] and Eucalyptus[2], please refer to the respective on-line forums.

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[1] http://ubuntuforums.org
[2] http://open.eucalyptus.com/forums/eucalyptus-support-0

Contents

Issues related to

General

Different / non-US keyboards
When writing Linux commands, some special characters could be needed, and that particular character could maybe not be reached if one has non-US keyboard. I.e. in our case, we used Danish keyboard, where characters like "@" and "~" are typed using "Alt Gr" key.

To address the issue:
- Use US keyboard
- Use SSH terminal to access the machines from a machine where you can type the characters
- "~" can be typed in using Fx keys (F6 – F12).

Copy / paste issues
Copying and pasting text with different coding (i.e. from Windows format to Linux, or from a national language to US English) would eventually cause that some characters are not pasted, or pasted wrong.

I.e. when pasting commands from a word or .pdf document, hyphens (-) could be substituted with dots (.), causing the execution of the command to fail.

To mitigate the issue:
- Use the same coding
- Type the commands in manually.

Screen resolution
If you during the installation get "Undefined video mode number: 314" error, your screen is probably running in unrecognized mode.

Mitigation:
- press SPACE or
- just wait 30 seconds to continue with the installation.

Installation process – screen resolution
If at any point during the installation you want to change an option, or start for another step, just press ESC key, and the menu with options available will show up. This is though true only for installing the 11.04 version – older version of installer, such as for 10.04, does not support this function.

Installation process – other components not detected during the installation
If the installation of CC complains that it cannot find a CLC or WS3, or installation of a NC complains that there are no CCs, it is due to an issue with the network.

Mitigation:
- check the networking, and before going on with installation, make sure that the cloud servers hosting different components can see each other

APT-GET error "unable to locate package"
When trying to install a package, error "unable to locate package" could appear.

Mitigation:
- Run **sudo apt-get update**

Command "sudo /etc/init.d/networking restart" gives deprecation warning
When restarting networking, a warning message appears that this command is deprecated, since it might not bring all of the network interfaces up. That is because it only brings those network interfaces marked with "auto" in their configuration; all those interfaces that were eventually started manually would not be brought up.

Mitigation:
- Since all out network interfaces are marked "auto", no action needed
- "start" and "stop" could be used instead of "restart", but then one should be on the console (and NOT connected through an SSH session, since the connection would be lost)

Bind9 name server

First check if you set up the server right[3].

By default BIND listen DNS queries on port 53. So make sure port 53 is open and listing user requests.

See if you can telnet to port 53 from remote computer:
telnet remote-server-ip 53

If you cannot connect make sure firewall is not blocking your requests.

Use netstat command to list open and listing port 53 on the server:
netstat -tulpn | grep :53
or
netstat -atve

Make sure that iptables firewall is not blocking request on server:
iptables -L -n
or
iptables -L -n | less

Check local configuration:
sudo vi /etc/bind/named.conf.local

Check forwarders:

---

[3] http://ubuntuforums.org/showthread.php?t=236093

```
sudo vi /etc/bind/named.conf.options
```
it should look something like this:
```
forwarders {
      # Replace the address below with the address of your provider's DNS server
      130.225.127.213;
};
```

Testing BIND/DNS with utilities

You can use **host** and **dig** utilties to test your bind configuration.

host: host is a simple utility for performing DNS lookups. It is normally used to convert names to IP addresses and vice versa.

```
host pantic.dk
```

dig: dig (domain information groper) is a flexible tool for interrogating DNS name servers. It performs DNS lookups and displays the answers that are returned from the name server(s) that were queried.

```
dig pantic.dk
dig 192.168.1.50
```

Eucalyptus

Issues with upgrading the Eucalyptus

If Eucalyptus update (**sudo apt-get upgrade eucalyptus**) hangs and doesn't go further than:

eucalyptus start/running, process 6431

Stop the process using CTRL + Z

Trying to upgrade Eucalyptus again:
sudo apt-get upgrade eucalyptus

You'll get:
```
E: Could not get lock /var/lib/dpkg/lock - open (11: Resource temporarily
unavailable)
E: Unable to lock the administration directory (/var/lib/dpkg/), is another
process using it?
```

Remove the lock:
sudo rm /var/lib/dpkg/lock

If you try to run upgrade of Eucalyptus again:
sudo apt-get upgrade eucalyptus

You'll get:
```
E: dpkg was interrupted, you must manually run 'sudo dpkg --configure -a' to
correct the problem.
```

Run:
sudo dpkg --configure -a

After this has been run, you can finish Eucalyptus upgrade running:
sudo apt-get upgrade eucalyptus

Verifying Eucalyptus cloud installation

There is a row of verifying steps that could be performed to make sure that the cloud components were registered correctly. As of Ubuntu 10.04 LTS, all component registration should be automatic:
- Public SSH keys have been exchanged properly;
- The services are configured properly;
- The services are publishing their existence;
- The appropriate uec-component-listener is running;
- Verify Registration.

The steps mentioned above are needed if "Package Install" method is used. Since we are using "CD Install"[4] method, we can perform a check to make sure if things are as they should be.

1. Exchange Public SSH Keys
   The Cloud Controller's eucalyptus user needs to have SSH access to the Walrus Controller, Cluster Controller, and Storage Controller as the eucalyptus user. Install the Cloud Controller's eucalyptus user's public ssh key by:
   - On the target controller, temporarily set a password for the eucalyptus user:
     sudo passwd eucalyptus
   - On the Cloud Controller:
     sudo -u eucalyptus ssh-copy-id -i /var/lib/eucalyptus/.ssh/id_rsa.pub eucalyptus@<IP_OF_NODE>
   - Remove the password of the eucalyptus account on the target controller:
     sudo passwd -d eucalyptus

   To check that no extra keys were added, make SSH connection to the controller (**ssh eucalyptus@controller_address**) and check the file "**authorized_keys**" found in "**~/.ssh**" ("**/var/lib/eucalyptus/.ssh**").

2. Configure the Services
   a. On the Cloud Controller:
      i. For the Cluster Controller Registration:
         1. Define the shell variable CC_NAME in **/etc/eucalyptus/eucalyptus-cc.conf**
         2. Define the shell variable CC_IP_ADDR in **/etc/eucalyptus/eucalyptus-ipaddr.conf**, as a space separated list of one or more IP addresses.
      ii. For the Walrus Controller Registration:
         1. Define the shell variable WALRUS_IP_ADDR in **/etc/eucalyptus/eucalyptus-ipaddr.conf**, as a single IP address.
   b. On the Cluster Controller:
      i. For Storage Controller Registration:
         1. Define the cluster name in the shell variable CC_NAME in **/etc/eucalyptus/eucalyptus-cc.conf**
         2. Define the shell variable SC_IP_ADDR in **/etc/eucalyptus/eucalyptus-ipaddr.conf**, as a space separated list of one or more IP addresses.
3. Publishing the services
   Start the publication services:
   Walrus Controller: **sudo start eucalyptus-walrus-publication**
   Cluster Controller: **sudo start eucalyptus-cc-publication**
   Storage Controller: **sudo start eucalyptus-sc-publication**
   Node Controller: **sudo start eucalyptus-nc-publication**
4. Start the Listener
   On the Cloud Controller and the Cluster Controller(s), run: **sudo start uec-component-listener**
5. Verify Registration
   cat /var/log/eucalyptus/registration.log

To validate that everything is working correctly, get the local cluster availability details (make sure that you downloaded and extracted the credentials first):
. ~/.euca/eucarc
euca-describe-availability-zones verbose

---

[4] https://help.ubuntu.com/community/UEC/CDInstall

That should produce:

```
AVAILABILITYZONE        UECcluster01    192.168.1.98
AVAILABILITYZONE        |- vm types     free / max   cpu   ram  disk
AVAILABILITYZONE        |- m1.small     0002 / 0002   1    192    2
AVAILABILITYZONE        |- c1.medium    0002 / 0002   1    256    5
AVAILABILITYZONE        |- m1.large     0001 / 0001   2    512   10
AVAILABILITYZONE        |- m1.xlarge    0001 / 0001   2   1024   20
AVAILABILITYZONE        |- c1.xlarge    0000 / 0000   4   2048   20
```
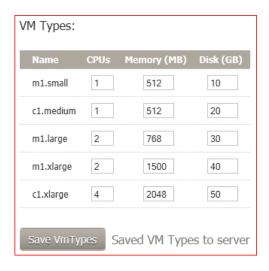

Virtual machine instance terminates without starting

If your machine goes from "pending" to "terminated" status without "running", then it might be that there are no resources enough to run the machine, like i.e.:

```
[001521][EUCAFATAL ] error: insufficient disk capacity remaining (2043MB) in VM
Type of instance i-52E30A06 for component disk
```

Information like this is to be found in the log file: /var/log/eucalyptus/nc.log

Since images from the store (clouds web interface) are quite bit, it helps to increase disk and memory for VM types. Go to the web GUI, and under Configure tab, edit the VM types to be i.e. like this:

That should help to bring the image up and running.

Logs

General Eucalyptus logs: ***/var/log/eucalyptus$***

Node Controller log: ***/var/log/eucalyptus/nc.log***

Useful things

Eucalyptus commands

Configuration info:

Log files: **/var/log/eucalyptus**

Configuration files: **/etc/eucalyptus**

Database: **/var/lib/eucalyptus/db**

Keys: **/var/lib/eucalyptus**
/var/lib/eucalyptus/.ssh

Notes:

Don't forget to source your **~/.euca/eucarc** before running the client tools

To run an instance:
euca-run-instances -k <your_key_pair> -t <$EMI>

Alternative method:
euca-run-instances <$EMI> -a <access_key> -s <secret_key> -U
http://<CC_IP_address>:8773/services/Eucalyptus

If you forget what is your keypair called, run: **euca-describe-keypairs**

To monitor the state of the instance, run:
watch -n5 euca-describe-instances

To determine which IP address the instance got:
IPADDR=$(euca-describe-instances | grep $EMI | grep running | tail -n1 | awk '{print $4}')

Connect to your instance:
ssh -i ~/.euca/admin admin@$IPADDR

To determine instance ID:
INSTANCEID=$(euca-describe-instances | grep $EMI | grep running | tail -n1 | awk '{print $2}')

To terminate an instance:
euca-terminate-instances $INSTANCEID

Controlling eucalyptus services:
- On CLC/WS3/CC/SC: *sudo service eucalyptus [start|stop|restart]*
- On NC: *sudo service eucalyptus-nc [start|stop|restart]*

Listing the nodes: *sudo euca_conf --list-nodes*
Listing the clusters: **euca-describe-availability-zones**

Linux commands

Commands for checking:
- Time: **date**
- Current user we are logged on as: **whoami**
- Host that we are logged on: **hostname**
- Working directory: **pwd**

Clearing the screen: **clear**

Copying a file from a remote server to the local machine:
ssh ueccloud@10.0.0.1 "gzip -c /var/^C*" > local_file_logs1.gz

Listing all files and folders, even hidden:
ls –a

Paths

Hybridfox

If the configuration in Firefox's Hybridfox gets cluttered, check "prefs.js" and clean things up there.

On a windows machine, the file is to be found:
C:\Users\Zoran\AppData\Roaming\Mozilla\Firefox\Profiles\mp2qd0h8.default\prefs.js

On-line resources

Eucalyptus:

Videos: http://www.eucalyptus.com/video
Whitepapers: http://www.eucalyptus.com/whitepapers

Support forums: http://open.eucalyptus.com/forums/eucalyptus-support-0

CD Install: https://help.ubuntu.com/community/UEC/CDInstall

Ubuntu:

Ubuntu forums: http://ubuntuforums.org

Enabling UEC Power Management: https://help.ubuntu.com/community/UEC/PowerManagement

Acknowledgement