

Docker Swarm Cluster Deployment with Ansible

Node1

login as: root

root@192.168.140.101's password:

Last login: Thu Jun 7 16:15:32 2018

[root@centos7 ~]# ifconfig

ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

inet 192.168.140.101 netmask 255.255.255.0 broadcast 192.168.140.255

inet6 fe80::1f35:7cec:21cc:b67d prefixlen 64 scopeid 0x20<link>

ether 00:50:56:21:ab:86 txqueuelen 1000 (Ethernet)

RX packets 12333 bytes 1851026 (1.7 MiB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 9185 bytes 15632469 (14.9 MiB)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536

inet 127.0.0.1 netmask 255.0.0.0

inet6 ::1 prefixlen 128 scopeid 0x10<host>

loop txqueuelen 1000 (Local Loopback)

RX packets 132 bytes 14436 (14.0 KiB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 132 bytes 14436 (14.0 KiB)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500

inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255

ether 52:54:00:9d:34:53 txqueuelen 1000 (Ethernet)

RX packets 0 bytes 0 (0.0 B)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 0 bytes 0 (0.0 B)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```
[root@centos7 ~]# hostnamectl set-hostname 'node1'

[root@centos7 ~]# cat /etc/hosts

127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6

[root@centos7 ~]# hostname

node1

[root@centos7 ~]# vi hostname

[root@centos7 ~]# vi /etc/hosts

[root@centos7 ~]# vi /etc/hosts

[root@centos7 ~]# cat /etc/hosts

127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
192.168.140.101 node1
192.168.140.102 node2
192.168.140.103 node3

[root@centos7 ~]# ping node2

PING node2 (192.168.140.102) 56(84) bytes of data.

64 bytes from node2 (192.168.140.102): icmp_seq=1 ttl=64 time=7.79 ms
64 bytes from node2 (192.168.140.102): icmp_seq=2 ttl=64 time=0.405 ms

^C

--- node2 ping statistics ---

2 packets transmitted, 2 received, 0% packet loss, time 1002ms

rtt min/avg/max/mdev = 0.405/4.102/7.799/3.697 ms

[root@centos7 ~]# ping node3

PING node3 (192.168.140.103) 56(84) bytes of data.

64 bytes from node3 (192.168.140.103): icmp_seq=1 ttl=64 time=0.515 ms
64 bytes from node3 (192.168.140.103): icmp_seq=2 ttl=64 time=0.410 ms

^C

--- node3 ping statistics ---

2 packets transmitted, 2 received, 0% packet loss, time 1000ms

rtt min/avg/max/mdev = 0.410/0.462/0.515/0.056 ms

[root@centos7 ~]#

[root@centos7 ~]#
```

```
[root@centos7 ~]# yum install epel-release
```

```
Loaded plugins: fastestmirror, langpacks
```

```
Loading mirror speeds from cached hostfile
```

```
* base: del-mirrors.extreme-ix.org
```

```
* extras: del-mirrors.extreme-ix.org
```

```
* updates: del-mirrors.extreme-ix.org
```

```
Resolving Dependencies
```

```
--> Running transaction check
```

```
---> Package epel-release.noarch 0:7-11 will be installed
```

```
--> Finished Dependency Resolution
```

```
Dependencies Resolved
```

=====			
Package		Arch	Version
Repository	Size		
=====			

```
Installing:
```

epel-release		noarch	7-11
extras	15 k		

```
Transaction Summary
```

```
=====
Install 1 Package
```

```
Total download size: 15 k
```

```
Installed size: 24 k
```

```
Is this ok [y/d/N]: y
```

```
Downloading packages:
```

```
warning: /var/cache/yum/x86_64/7/extras/packages/epel-release-7-11.noarch.rpm: Header V3 RSA/SHA256  
Signature, key ID f4a80eb5: NOKEYs | 0 B --:--:-- ETA
```

```
Public key for epel-release-7-11.noarch.rpm is not installed
```

```
epel-release-7-11.noarch.rpm  
| 15 kB 00:00:07
```

```
Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
```

Importing GPG key 0xF4A80EB5:

Userid : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"

Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5

Package : centos-release-7-5.1804.el7.centos.x86_64 (@anaconda)

From : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7

Is this ok [y/N]: y

Running transaction check

Running transaction test

Transaction test succeeded

Running transaction

Installing : epel-release-7-11.noarch
1/1

Verifying : epel-release-7-11.noarch
1/1

Installed:

epel-release.noarch 0:7-11

Complete!

[root@centos7 ~]# yum install ansible

Loaded plugins: fastestmirror, langpacks

Loading mirror speeds from cached hostfile

epel/x86_64/metalink
| 7.8 kB 00:00:00

* base: del-mirrors.extreme-ix.org

* epel: del-mirrors.extreme-ix.org

* extras: del-mirrors.extreme-ix.org

* updates: del-mirrors.extreme-ix.org

epel
| 4.7 kB 00:00:00

http://del-mirrors.extreme-ix.org/epel/7/x86_64/repodata/repomd.xml: [Errno -1] repomd.xml does not match metalink for epel

Trying other mirror.

epel
| 3.2 kB 00:00:00

(1/3): epel/x86_64/group_gz
| 88 kB 00:00:05

epel/x86_64/updateinfo FAILED

http://del-mirrors.extreme-ix.org/epel/7/x86_64/repodata/27e9743a088a7010975708f02385bdaa681d86c4c2b0ecdf6a2a5f65a4838ef1-updateinfo.xml.bz2: [Errno 14] HTTP Error 404 - Not Found

Trying other mirror.

To address this issue please refer to the below wiki article

<https://wiki.centos.org/yum-errors>

If above article doesn't help to resolve this issue please use <https://bugs.centos.org/>.

epel/x86_64/primary FAILED

http://del-mirrors.extreme-ix.org/epel/7/x86_64/repodata/794aa4d5e3bcc46e3722e56b04fa220313424d4de01e333addfd01afad3e99a1-primary.xml.gz: [Errno 14] HTTP Error 404 - Not Found

Trying other mirror.

epel/x86_64/primary FAILED

http://ftp.cuhk.edu.hk/pub/linux/fedora-epel/7/x86_64/repodata/794aa4d5e3bcc46e3722e56b04fa220313424d4de01e333addfd01afad3e99a1-primary.xml.gz: [Errno 14] HTTP Error 404 - Not Found

Trying other mirror.

(2/3): epel/x86_64/updateinfo
| 933 kB 00:00:07

(3/3): epel/x86_64/primary
| 3.5 MB 00:00:15

epel
12586/12586

Resolving Dependencies

--> Running transaction check

---> Package ansible.noarch 0:2.5.3-1.el7 will be installed

--> Processing Dependency: sshpass for package: ansible-2.5.3-1.el7.noarch

--> Processing Dependency: python2-jmespath for package: ansible-2.5.3-1.el7.noarch

--> Processing Dependency: python-paramiko for package: ansible-2.5.3-1.el7.noarch

--> Processing Dependency: python-keyczar for package: ansible-2.5.3-1.el7.noarch

--> Processing Dependency: python-jinja2 for package: ansible-2.5.3-1.el7.noarch

--> Processing Dependency: python-httplib2 for package: ansible-2.5.3-1.el7.noarch

--> Processing Dependency: python-crypto for package: ansible-2.5.3-1.el7.noarch

--> Running transaction check

```

---> Package python-httplib2.noarch 0:0.9.2-1.el7 will be installed
---> Package python-jinja2.noarch 0:2.7.2-2.el7 will be installed
--> Processing Dependency: python-babel >= 0.8 for package: python-jinja2-2.7.2-2.el7.noarch
--> Processing Dependency: python-markupsafe for package: python-jinja2-2.7.2-2.el7.noarch
---> Package python-keyczar.noarch 0:0.71c-2.el7 will be installed
---> Package python-paramiko.noarch 0:2.1.1-4.el7 will be installed
---> Package python2-crypto.x86_64 0:2.6.1-15.el7 will be installed
--> Processing Dependency: libtomcrypt.so.0()(64bit) for package: python2-crypto-2.6.1-15.el7.x86_64
---> Package python2-jmespath.noarch 0:0.9.0-3.el7 will be installed
---> Package sshpass.x86_64 0:1.06-2.el7 will be installed
--> Running transaction check
---> Package libtomcrypt.x86_64 0:1.17-26.el7 will be installed
--> Processing Dependency: libtommath >= 0.42.0 for package: libtomcrypt-1.17-26.el7.x86_64
--> Processing Dependency: libtommath.so.0()(64bit) for package: libtomcrypt-1.17-26.el7.x86_64
---> Package python-babel.noarch 0:0.9.6-8.el7 will be installed
---> Package python-markupsafe.x86_64 0:0.11-10.el7 will be installed
--> Running transaction check
---> Package libtommath.x86_64 0:0.42.0-6.el7 will be installed
--> Finished Dependency Resolution

```

Dependencies Resolved

=====			
Package		Arch	Version
Repository	Size		
=====			
Installing:			
ansible		noarch	2.5.3-1.el7
epel	9.0 M		
Installing for dependencies:			
libtomcrypt		x86_64	1.17-26.el7
extras	224 k		
libtommath		x86_64	0.42.0-6.el7
extras	36 k		
python-babel		noarch	0.9.6-8.el7
base	1.4 M		

python-httplib2		noarch	0.9.2-1.el7
extras	115 k		
python-jinja2		noarch	2.7.2-2.el7
base	515 k		
python-keyczar		noarch	0.71c-2.el7
epel	218 k		
python-markupsafe		x86_64	0.11-10.el7
base	25 k		
python-paramiko		noarch	2.1.1-4.el7
extras	268 k		
python2-crypto		x86_64	2.6.1-15.el7
extras	477 k		
python2-jmespath		noarch	0.9.0-3.el7
extras	39 k		
sshpas		x86_64	1.06-2.el7
extras	21 k		

Transaction Summary

Install 1 Package (+11 Dependent packages)

Total download size: 12 M

Installed size: 59 M

Is this ok [y/d/N]: y

Downloading packages:

(1/12): libtommath-0.42.0-6.el7.x86_64.rpm
| 36 kB 00:00:11

(2/12): python-babel-0.9.6-8.el7.noarch.rpm
| 1.4 MB 00:00:12

(3/12): libtomcrypt-1.17-26.el7.x86_64.rpm
| 224 kB 00:00:13

(4/12): python-httplib2-0.9.2-1.el7.noarch.rpm
| 115 kB 00:00:01

warning: /var/cache/yum/x86_64/7/epel/packages/ansible-2.5.3-1.el7.noarch.rpm: Header V3 RSA/SHA256
Signature, key ID 352c64e5: NOKEYs | 8.6 MB 00:00:02 ETA

Public key for ansible-2.5.3-1.el7.noarch.rpm is not installed

(5/12): ansible-2.5.3-1.el7.noarch.rpm
| 9.0 MB 00:00:14

(6/12): python-keyczar-0.71c-2.el7.noarch.rpm
| 218 kB 00:00:03

(7/12): python-jinja2-2.7.2-2.el7.noarch.rpm

```
| 515 kB 00:00:07

(8/12): python-markupsafe-0.11-10.el7.x86_64.rpm
| 25 kB 00:00:07

(9/12): python-paramiko-2.1.1-4.el7.noarch.rpm
| 268 kB 00:00:08

(10/12): python2-jmespath-0.9.0-3.el7.noarch.rpm
| 39 kB 00:00:00

(11/12): sshpass-1.06-2.el7.x86_64.rpm
| 21 kB 00:00:00

(12/12): python2-crypto-2.6.1-15.el7.x86_64.rpm
| 477 kB 00:00:08
```

```
-----

Total
522 kB/s | 12 MB 00:00:24
```

```
Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-7
```

```
Importing GPG key 0x352C64E5:
```

```
  Userid      : "Fedora EPEL (7) <epel@fedoraproject.org>"
```

```
  Fingerprint: 91e9 7d7c 4a5e 96f1 7f3e 888f 6a2f aea2 352c 64e5
```

```
  Package     : epel-release-7-11.noarch (@extras)
```

```
  From        : /etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-7
```

```
Is this ok [y/N]: y
```

```
Running transaction check
```

```
Running transaction test
```

```
Transaction test succeeded
```

```
Running transaction
```

```
  Installing : python-babel-0.9.6-8.el7.noarch
1/12
```

```
  Installing : python-paramiko-2.1.1-4.el7.noarch
2/12
```

```
  Installing : python-httpplib2-0.9.2-1.el7.noarch
3/12
```

```
  Installing : sshpass-1.06-2.el7.x86_64
4/12
```

```
  Installing : libtommath-0.42.0-6.el7.x86_64
5/12
```

```
  Installing : libtomcrypt-1.17-26.el7.x86_64
6/12
```

```
  Installing : python2-crypto-2.6.1-15.el7.x86_64
7/12
```

```
  Installing : python-keyczar-0.71c-2.el7.noarch
```


8/12

Installing : python2-jmespath-0.9.0-3.el7.noarch
9/12

Installing : python-markupsafe-0.11-10.el7.x86_64
10/12

Installing : python-jinja2-2.7.2-2.el7.noarch
11/12

Installing : ansible-2.5.3-1.el7.noarch
12/12

Verifying : python-keyczar-0.71c-2.el7.noarch
1/12

Verifying : python-markupsafe-0.11-10.el7.x86_64
2/12

Verifying : python-jinja2-2.7.2-2.el7.noarch
3/12

Verifying : python2-jmespath-0.9.0-3.el7.noarch
4/12

Verifying : python2-crypto-2.6.1-15.el7.x86_64
5/12

Verifying : libtommath-0.42.0-6.el7.x86_64
6/12

Verifying : sshpass-1.06-2.el7.x86_64
7/12

Verifying : python-httpplib2-0.9.2-1.el7.noarch
8/12

Verifying : python-paramiko-2.1.1-4.el7.noarch
9/12

Verifying : ansible-2.5.3-1.el7.noarch
10/12

Verifying : python-babel-0.9.6-8.el7.noarch
11/12

Verifying : libtomcrypt-1.17-26.el7.x86_64
12/12

Installed:

ansible.noarch 0:2.5.3-1.el7

Dependency Installed:

libtomcrypt.x86_64 0:1.17-26.el7 libtommath.x86_64 0:0.42.0-6.el7 python-babel.noarch
0:0.9.6-8.el7 python-httpplib2.noarch 0:0.9.2-1.el7

python-jinja2.noarch 0:2.7.2-2.el7 python-keyczar.noarch 0:0.71c-2.el7 python-markupsafe.x86_64
0:0.11-10.el7 python-paramiko.noarch 0:2.1.1-4.el7

```
python2-crypto.x86_64 0:2.6.1-15.el7 python2-jmespath.noarch 0:0.9.0-3.el7 sshpass.x86_64 0:1.06-2.el7
```

Complete!

```
[root@centos7 ~]# vi /etc/ansible/hosts
[root@centos7 ~]# vi /etc/ansible/hosts
[root@centos7 ~]# cat /etc/ansible/hosts

# This is the default ansible 'hosts' file.

#

# It should live in /etc/ansible/hosts

#

# - Comments begin with the '#' character
# - Blank lines are ignored
# - Groups of hosts are delimited by [header] elements
# - You can enter hostnames or ip addresses
# - A hostname/ip can be a member of multiple groups

# Ex 1: Ungrouped hosts, specify before any group headers.

## green.example.com
## blue.example.com
## 192.168.100.1
## 192.168.100.10

# Ex 2: A collection of hosts belonging to the 'webservers' group

## [webservers]
## alpha.example.org
## beta.example.org
## 192.168.1.100
## 192.168.1.110

# If you have multiple hosts following a pattern you can specify
# them like this:
```

```
## www[001:006].example.com
```

```
# Ex 3: A collection of database servers in the 'dbservers' group
```

```
## [dbservers]
```

```
##
```

```
## db01.intranet.mydomain.net
```

```
## db02.intranet.mydomain.net
```

```
## 10.25.1.56
```

```
## 10.25.1.57
```

```
# Here's another example of host ranges, this time there are no
```

```
# leading 0s:
```

```
## db-[99:101]-node.example.com
```

```
[servers]
```

```
192.168.140.101
```

```
192.168.140.102
```

```
192.168.140.103
```

```
[root@centos7 ~]# ssh-keygen
```

```
Generating public/private rsa key pair.
```

```
Enter file in which to save the key (/root/.ssh/id_rsa):
```

```
Enter passphrase (empty for no passphrase):
```

```
Enter same passphrase again:
```

```
Your identification has been saved in /root/.ssh/id_rsa.
```

```
Your public key has been saved in /root/.ssh/id_rsa.pub.
```

```
The key fingerprint is:
```

```
SHA256:M2z5FrbV4hHAcVmFbFrRILknS3mI+t0Sp2l9A0qzr9Y root@node1
```

```
The key's randomart image is:
```

```
+---[RSA 2048]-----+
```

```
|      .o.o=+*.|
|      .oo.= .|
|      ..B   |
|      . .. Boo |
|      S.o.+=. |
|      ..= Bo+. |
|      .=.*B.  |
|      ..+*Eo..|
|      .ooo ..|
```

+----[SHA256]-----+

```
[root@centos7 ~]# ssh-copy-id node1
```

```
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
```

```
The authenticity of host 'node1 (192.168.140.101)' can't be established.
```

```
ECDSA key fingerprint is SHA256:bK6qE+nYR0l7zWCQJnWSITKd5PdCoIo+2pa0sfJone4.
```

```
ECDSA key fingerprint is MD5:f2:78:67:d6:f4:d5:c2:7f:5f:dc:04:5e:00:7a:87:d8.
```

```
Are you sure you want to continue connecting (yes/no)? yes
```

```
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are
already installed
```

```
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install
the new keys
```

```
root@node1's password:
```

```
Number of key(s) added: 1
```

```
Now try logging into the machine, with:  "ssh 'node1'"
```

```
and check to make sure that only the key(s) you wanted were added.
```

```
[root@centos7 ~]# ssh-copy-id node2
```

```
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
```

```
The authenticity of host 'node2 (192.168.140.102)' can't be established.
```

```
ECDSA key fingerprint is SHA256:bK6qE+nYR0l7zWCQJnWSITKd5PdCoIo+2pa0sfJone4.
```

```
ECDSA key fingerprint is MD5:f2:78:67:d6:f4:d5:c2:7f:5f:dc:04:5e:00:7a:87:d8.
```

```
Are you sure you want to continue connecting (yes/no)? yes
```

```
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are
already installed
```

/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys

root@node2's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'node2'"

and check to make sure that only the key(s) you wanted were added.

[root@centos7 ~]# ssh-copy-id node3

/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/root/.ssh/id_rsa.pub"

The authenticity of host 'node3 (192.168.140.103)' can't be established.

ECDSA key fingerprint is SHA256:bK6qE+nYR0l7zWCQJnWSITKd5PdCoIo+2pa0sfJone4.

ECDSA key fingerprint is MD5:f2:78:67:d6:f4:d5:c2:7f:5f:dc:04:5e:00:7a:87:d8.

Are you sure you want to continue connecting (yes/no)? yes

/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed

/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys

root@node3's password:

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'node3'"

and check to make sure that only the key(s) you wanted were added.

[root@centos7 ~]# ssh node3

Last login: Thu Jun 7 16:39:46 2018 from 192.168.140.1

[root@node3 ~]#

[root@node3 ~]#

[root@node3 ~]# logout

Connection to node3 closed.

[root@centos7 ~]# ssh node2

Last login: Thu Jun 7 16:39:27 2018 from 192.168.140.1

[root@node2 ~]#

```
[root@node2 ~]#
[root@node2 ~]# logout
Connection to node2 closed.

[root@centos7 ~]# ansible -m ping all
192.168.140.101 | SUCCESS => {
    "changed": false,
    "ping": "pong"
}
192.168.140.103 | SUCCESS => {
    "changed": false,
    "ping": "pong"
}
192.168.140.102 | SUCCESS => {
    "changed": false,
    "ping": "pong"
}

[root@centos7 ~]# ansible --version
ansible 2.5.3

  config file = /etc/ansible/ansible.cfg

  configured module search path = [u'/root/.ansible/plugins/modules',
u'/usr/share/ansible/plugins/modules']

  ansible python module location = /usr/lib/python2.7/site-packages/ansible

  executable location = /usr/bin/ansible

  python version = 2.7.5 (default, Apr 11 2018, 07:36:10) [GCC 4.8.5 20150623 (Red Hat 4.8.5-28)]

[root@centos7 ~]#
[root@centos7 ~]#
[root@centos7 ~]# ansible servers -a "yum install -y yum-utils device-mapper-persistent-data lvm2"

[WARNING]: Consider using the yum module rather than running yum.  If you need to use command because
yum is insufficient you can add warn=False to this

command task or set command_warnings=False in ansible.cfg to get rid of this message.

192.168.140.101 | SUCCESS | rc=0 >>

Loaded plugins: fastestmirror, langpacks
```

Loading mirror speeds from cached hostfile

- * base: del-mirrors.extreme-ix.org
- * epel: del-mirrors.extreme-ix.org
- * extras: del-mirrors.extreme-ix.org
- * updates: del-mirrors.extreme-ix.org

Package yum-utils-1.1.31-45.el7.noarch already installed and latest version

Package device-mapper-persistent-data-0.7.3-3.el7.x86_64 already installed and latest version

Package 7:lvml-2.02.177-4.el7.x86_64 already installed and latest version

Nothing to do

192.168.140.102 | SUCCESS | rc=0 >>

Loaded plugins: fastestmirror, langpacks

Loading mirror speeds from cached hostfile

- * base: del-mirrors.extreme-ix.org
- * extras: del-mirrors.extreme-ix.org
- * updates: del-mirrors.extreme-ix.org

Package yum-utils-1.1.31-45.el7.noarch already installed and latest version

Package device-mapper-persistent-data-0.7.3-3.el7.x86_64 already installed and latest version

Package 7:lvml-2.02.177-4.el7.x86_64 already installed and latest version

Nothing to do

192.168.140.103 | SUCCESS | rc=0 >>

Loaded plugins: fastestmirror, langpacks

Loading mirror speeds from cached hostfile

- * base: del-mirrors.extreme-ix.org
- * extras: del-mirrors.extreme-ix.org
- * updates: del-mirrors.extreme-ix.org

Package yum-utils-1.1.31-45.el7.noarch already installed and latest version

Package device-mapper-persistent-data-0.7.3-3.el7.x86_64 already installed and latest version

Package 7:lvml-2.02.177-4.el7.x86_64 already installed and latest version

Nothing to do

```
[root@centos7 ~]# ansible servers -a "yum-config-manager --add-repo  
https://download.docker.com/linux/centos/docker-ce.repo"
```

```
192.168.140.102 | SUCCESS | rc=0 >>
```

```
Loaded plugins: fastestmirror, langpacks
```

```
adding repo from: https://download.docker.com/linux/centos/docker-ce.repo
```

```
grabbing file https://download.docker.com/linux/centos/docker-ce.repo to /etc/yum.repos.d/docker-ce.repo
```

```
repo saved to /etc/yum.repos.d/docker-ce.repo
```

```
192.168.140.101 | SUCCESS | rc=0 >>
```

```
Loaded plugins: fastestmirror, langpacks
```

```
adding repo from: https://download.docker.com/linux/centos/docker-ce.repo
```

```
grabbing file https://download.docker.com/linux/centos/docker-ce.repo to /etc/yum.repos.d/docker-ce.repo
```

```
repo saved to /etc/yum.repos.d/docker-ce.repo
```

```
192.168.140.103 | SUCCESS | rc=0 >>
```

```
Loaded plugins: fastestmirror, langpacks
```

```
adding repo from: https://download.docker.com/linux/centos/docker-ce.repo
```

```
grabbing file https://download.docker.com/linux/centos/docker-ce.repo to /etc/yum.repos.d/docker-ce.repo
```

```
repo saved to /etc/yum.repos.d/docker-ce.repo
```

```
[root@centos7 ~]# ansible servers -a "yum install -y docker-ce"
```

```
[WARNING]: Consider using the yum module rather than running yum. If you need to use command because yum is insufficient you can add warn=False to this
```

```
command task or set command_warnings=False in ansible.cfg to get rid of this message.
```

```
192.168.140.101 | SUCCESS | rc=0 >>
```

```
Loaded plugins: fastestmirror, langpacks
```

```
Loading mirror speeds from cached hostfile
```

```
* base: del-mirrors.extreme-ix.org
```

```
* epel: del-mirrors.extreme-ix.org
```

```
* extras: del-mirrors.extreme-ix.org
```

```
* updates: del-mirrors.extreme-ix.org
```

```
Resolving Dependencies
```

```
--> Running transaction check
```



```
---> Package docker-ce.x86_64 0:18.03.1.ce-1.el7.centos will be installed

--> Processing Dependency: container-selinux >= 2.9 for package: docker-ce-18.03.1.ce-1.el7.centos.x86_64

--> Processing Dependency: pigz for package: docker-ce-18.03.1.ce-1.el7.centos.x86_64

--> Running transaction check

---> Package container-selinux.noarch 2:2.55-1.el7 will be installed

---> Package pigz.x86_64 0:2.3.4-1.el7 will be installed

--> Finished Dependency Resolution
```

Dependencies Resolved

```
=====
```

Package	Arch	Version	Repository	Size
=====				
Installing:				
docker-ce	x86_64	18.03.1.ce-1.el7.centos	docker-ce-stable	35 M
Installing for dependencies:				
container-selinux	noarch	2:2.55-1.el7	extras	34 k
pigz	x86_64	2.3.4-1.el7	epel	81 k

Transaction Summary

```
=====
```

Install 1 Package (+2 Dependent packages)

Total download size: 35 M

Installed size: 151 M

Downloading packages:

Public key for docker-ce-18.03.1.ce-1.el7.centos.x86_64.rpm is not installed

```
-----
```

Total 1.9 MB/s | 35 MB 00:18

Retrieving key from <https://download.docker.com/linux/centos/gpg>

Running transaction check

Running transaction test

Transaction test succeeded

Running transaction

Installing	: pigz-2.3.4-1.el7.x86_64	1/3
Installing	: 2:container-selinux-2.55-1.el7.noarch	2/3
Installing	: docker-ce-18.03.1.ce-1.el7.centos.x86_64	3/3
Verifying	: docker-ce-18.03.1.ce-1.el7.centos.x86_64	1/3
Verifying	: 2:container-selinux-2.55-1.el7.noarch	2/3
Verifying	: pigz-2.3.4-1.el7.x86_64	3/3

Installed:

docker-ce.x86_64 0:18.03.1.ce-1.el7.centos

Dependency Installed:

container-selinux.noarch 2:2.55-1.el7 pigz.x86_64 0:2.3.4-1.el7

Complete!warning: /var/cache/yum/x86_64/7/docker-ce-stable/packages/docker-ce-18.03.1.ce-1.el7.centos.x86_64.rpm: Header V4 RSA/SHA512 Signature, key ID 621e9f35: NOKEY

Importing GPG key 0x621E9F35:

Userid : "Docker Release (CE rpm) <docker@docker.com>"

Fingerprint: 060a 61c5 1b55 8a7f 742b 77aa c52f eb6b 621e 9f35

From : <https://download.docker.com/linux/centos/gpg>

192.168.140.103 | SUCCESS | rc=0 >>

Loaded plugins: fastestmirror, langpacks

Loading mirror speeds from cached hostfile

* base: del-mirrors.extreme-ix.org
* extras: del-mirrors.extreme-ix.org
* updates: del-mirrors.extreme-ix.org

Resolving Dependencies

--> Running transaction check

---> Package docker-ce.x86_64 0:18.03.1.ce-1.el7.centos will be installed

--> Processing Dependency: container-selinux >= 2.9 for package: docker-ce-18.03.1.ce-1.el7.centos.x86_64

--> Processing Dependency: pigz for package: docker-ce-18.03.1.ce-1.el7.centos.x86_64

--> Running transaction check

--> Package container-selinux.noarch 2:2.55-1.el7 will be installed
--> Package pigz.x86_64 0:2.3.3-1.el7.centos will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====				
Package	Arch	Version	Repository	Size
=====				

Installing:

docker-ce	x86_64	18.03.1.ce-1.el7.centos	docker-ce-stable	35 M
-----------	--------	-------------------------	------------------	------

Installing for dependencies:

container-selinux	noarch	2:2.55-1.el7	extras	34 k
pigz	x86_64	2.3.3-1.el7.centos	extras	68 k

Transaction Summary

=====

Install 1 Package (+2 Dependent packages)

Total download size: 35 M

Installed size: 151 M

Downloading packages:

Public key for container-selinux-2.55-1.el7.noarch.rpm is not installed

Public key for docker-ce-18.03.1.ce-1.el7.centos.x86_64.rpm is not installed

Total 908 kB/s | 35 MB 00:39

Retrieving key from <https://download.docker.com/linux/centos/gpg>

Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7

Running transaction check

Running transaction test

Transaction test succeeded

Running transaction

Installing : pigz-2.3.3-1.el7.centos.x86_64

1/3

```
Installing : 2:container-selinux-2.55-1.el7.noarch                2/3
Installing : docker-ce-18.03.1.ce-1.el7.centos.x86_64          3/3
Verifying  : docker-ce-18.03.1.ce-1.el7.centos.x86_64          1/3
Verifying  : 2:container-selinux-2.55-1.el7.noarch              2/3
Verifying  : pigz-2.3.3-1.el7.centos.x86_64                     3/3
```

Installed:

```
docker-ce.x86_64 0:18.03.1.ce-1.el7.centos
```

Dependency Installed:

```
container-selinux.noarch 2:2.55-1.el7      pigz.x86_64 0:2.3.3-1.el7.centos
```

```
Complete!warning: /var/cache/yum/x86_64/7/extras/packages/container-selinux-2.55-1.el7.noarch.rpm:
Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY
```

```
warning: /var/cache/yum/x86_64/7/docker-ce-stable/packages/docker-ce-18.03.1.ce-
1.el7.centos.x86_64.rpm: Header V4 RSA/SHA512 Signature, key ID 621e9f35: NOKEY
```

Importing GPG key 0x621E9F35:

```
Userid      : "Docker Release (CE rpm) <docker@docker.com>"
Fingerprint: 060a 61c5 1b55 8a7f 742b 77aa c52f eb6b 621e 9f35
From        : https://download.docker.com/linux/centos/gpg
```

Importing GPG key 0xF4A80EB5:

```
Userid      : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"
Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5
Package     : centos-release-7-5.1804.el7.centos.x86_64 (@anaconda)
From        : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
```

```
192.168.140.102 | SUCCESS | rc=0 >>
```

Loaded plugins: fastestmirror, langpacks

Loading mirror speeds from cached hostfile

```
* base: del-mirrors.extreme-ix.org
* extras: del-mirrors.extreme-ix.org
* updates: del-mirrors.extreme-ix.org
```

Resolving Dependencies

--> Running transaction check

```
--> Package docker-ce.x86_64 0:18.03.1.ce-1.el7.centos will be installed

--> Processing Dependency: container-selinux >= 2.9 for package: docker-ce-18.03.1.ce-1.el7.centos.x86_64

--> Processing Dependency: pigz for package: docker-ce-18.03.1.ce-1.el7.centos.x86_64

--> Running transaction check

---> Package container-selinux.noarch 2:2.55-1.el7 will be installed

---> Package pigz.x86_64 0:2.3.3-1.el7.centos will be installed

--> Finished Dependency Resolution
```

Dependencies Resolved

=====				
Package	Arch	Version	Repository	Size
=====				
Installing:				
docker-ce	x86_64	18.03.1.ce-1.el7.centos	docker-ce-stable	35 M
Installing for dependencies:				
container-selinux	noarch	2:2.55-1.el7	extras	34 k
pigz	x86_64	2.3.3-1.el7.centos	extras	68 k

Transaction Summary

```
=====
Install 1 Package (+2 Dependent packages)
```

Total download size: 35 M

Installed size: 151 M

Downloading packages:

Public key for container-selinux-2.55-1.el7.noarch.rpm is not installed

Public key for docker-ce-18.03.1.ce-1.el7.centos.x86_64.rpm is not installed

```
-----
Total                               1.1 MB/s | 35 MB  00:30
```

Retrieving key from <https://download.docker.com/linux/centos/gpg>

Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7

Running transaction check

Running transaction test

Transaction test succeeded

Running transaction

Installing	:	pigz-2.3.3-1.el7.centos.x86_64	1/3
Installing	:	2:container-selinux-2.55-1.el7.noarch	2/3
Installing	:	docker-ce-18.03.1.ce-1.el7.centos.x86_64	3/3
Verifying	:	docker-ce-18.03.1.ce-1.el7.centos.x86_64	1/3
Verifying	:	2:container-selinux-2.55-1.el7.noarch	2/3
Verifying	:	pigz-2.3.3-1.el7.centos.x86_64	3/3

Installed:

docker-ce.x86_64 0:18.03.1.ce-1.el7.centos

Dependency Installed:

container-selinux.noarch 2:2.55-1.el7 pigz.x86_64 0:2.3.3-1.el7.centos

Complete!warning: /var/cache/yum/x86_64/7/extras/packages/container-selinux-2.55-1.el7.noarch.rpm:
Header V3 RSA/SHA256 Signature, key ID f4a80eb5: NOKEY

warning: /var/cache/yum/x86_64/7/docker-ce-stable/packages/docker-ce-18.03.1.ce-
1.el7.centos.x86_64.rpm: Header V4 RSA/SHA512 Signature, key ID 621e9f35: NOKEY

Importing GPG key 0x621E9F35:

Userid : "Docker Release (CE rpm) <docker@docker.com>"
Fingerprint: 060a 61c5 1b55 8a7f 742b 77aa c52f eb6b 621e 9f35
From : <https://download.docker.com/linux/centos/gpg>

Importing GPG key 0xF4A80EB5:

Userid : "CentOS-7 Key (CentOS 7 Official Signing Key) <security@centos.org>"
Fingerprint: 6341 ab27 53d7 8a78 a7c2 7bb1 24c6 a8a7 f4a8 0eb5
Package : centos-release-7-5.1804.el7.centos.x86_64 (@anaconda)
From : /etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7

[root@centos7 ~]# ansible servers -a "systemctl start docker"

192.168.140.103 | SUCCESS | rc=0 >>

```
192.168.140.102 | SUCCESS | rc=0 >>
```

```
192.168.140.101 | SUCCESS | rc=0 >>
```

```
[root@centos7 ~]# ansible servers -a "systemctl status docker"
```

```
192.168.140.102 | SUCCESS | rc=0 >>
```

● **docker.service - Docker Application Container Engine**

Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; vendor preset: disabled)

Active: active (running) since Thu 2018-06-07 18:12:13 IST; 7min ago

Docs: <https://docs.docker.com>

Main PID: 56586 (dockerd)

Tasks: 16

Memory: 38.6M

CGroup: /system.slice/docker.service

└─56586 /usr/bin/dockerd

└─56590 docker-containerd --config /var/run/docker/containerd/containerd.toml

```
Jun 07 18:11:13 node2 dockerd[56586]: time="2018-06-07T18:11:11+05:30" level=info msg=serving...  
address="/var/run/docker/containerd/docker-containerd.sock" module="containerd/grpc"
```

```
Jun 07 18:11:13 node2 dockerd[56586]: time="2018-06-07T18:11:11+05:30" level=info msg="containerd  
successfully booted in 4.496265s" module=containerd
```

```
Jun 07 18:11:29 node2 dockerd[56586]: time="2018-06-07T18:11:27.509607238+05:30" level=info msg="Graph  
migration to content-addressability took 0.00 seconds"
```

```
Jun 07 18:11:30 node2 dockerd[56586]: time="2018-06-07T18:11:30.285430709+05:30" level=info  
msg="Loading containers: start."
```

```
Jun 07 18:11:54 node2 dockerd[56586]: time="2018-06-07T18:11:54.194720511+05:30" level=info  
msg="Default bridge (docker0) is assigned with an IP address 172.17.0.0/16. Daemon option --bip can be  
used to set a preferred IP address"
```

```
Jun 07 18:12:10 node2 dockerd[56586]: time="2018-06-07T18:12:10.072660251+05:30" level=info  
msg="Loading containers: done."
```

```
Jun 07 18:12:13 node2 dockerd[56586]: time="2018-06-07T18:12:13.254819885+05:30" level=info msg="Docker  
daemon" commit=9ee9f40 graphdriver(s)=overlay2 version=18.03.1-ce
```

```
Jun 07 18:12:13 node2 dockerd[56586]: time="2018-06-07T18:12:13.304283079+05:30" level=info msg="Daemon  
has completed initialization"
```

```
Jun 07 18:12:13 node2 dockerd[56586]: time="2018-06-07T18:12:13.598132966+05:30" level=info msg="API  
listen on /var/run/docker.sock"
```

Jun 07 18:12:13 node2 systemd[1]: Started Docker Application Container Engine.

192.168.140.101 | SUCCESS | rc=0 >>

● docker.service - Docker Application Container Engine

Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; vendor preset: disabled)

Active: active (running) since Thu 2018-06-07 18:12:30 IST; 6min ago

Docs: <https://docs.docker.com>

Main PID: 57240 (dockerd)

Tasks: 16

Memory: 81.6M

CGroup: /system.slice/docker.service

└─57240 /usr/bin/dockerd

└─57256 docker-containerd --config /var/run/docker/containerd/containerd.toml

Jun 07 18:11:16 node1 dockerd[57240]: time="2018-06-07T18:11:14+05:30" level=info msg=serving... address="/var/run/docker/containerd/docker-containerd.sock" module="containerd/grpc"

Jun 07 18:11:19 node1 dockerd[57240]: time="2018-06-07T18:11:14+05:30" level=info msg="containerd successfully booted in 3.866453s" module=containerd

Jun 07 18:11:33 node1 dockerd[57240]: time="2018-06-07T18:11:33.252289745+05:30" level=info msg="Graph migration to content-addressability took 0.00 seconds"

Jun 07 18:11:33 node1 dockerd[57240]: time="2018-06-07T18:11:33.294967185+05:30" level=info msg="Loading containers: start."

Jun 07 18:12:14 node1 dockerd[57240]: time="2018-06-07T18:12:14.731548883+05:30" level=info msg="Default bridge (docker0) is assigned with an IP address 172.17.0.0/16. Daemon option --bip can be used to set a preferred IP address"

Jun 07 18:12:25 node1 dockerd[57240]: time="2018-06-07T18:12:25.122380197+05:30" level=info msg="Loading containers: done."

Jun 07 18:12:26 node1 dockerd[57240]: time="2018-06-07T18:12:26.926446745+05:30" level=info msg="Docker daemon" commit=9ee9f40 graphdriver(s)=overlay2 version=18.03.1-ce

Jun 07 18:12:26 node1 dockerd[57240]: time="2018-06-07T18:12:26.926914717+05:30" level=info msg="Daemon has completed initialization"

Jun 07 18:12:30 node1 systemd[1]: Started Docker Application Container Engine.

Jun 07 18:12:30 node1 dockerd[57240]: time="2018-06-07T18:12:30.072366292+05:30" level=info msg="API listen on /var/run/docker.sock"

192.168.140.103 | SUCCESS | rc=0 >>

● docker.service - Docker Application Container Engine

Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; vendor preset: disabled)

Active: active (running) since Thu 2018-06-07 18:12:02 IST; 7min ago

Docs: <https://docs.docker.com>

Main PID: 56596 (dockerd)

Tasks: 16

Memory: 39.0M

CGroup: /system.slice/docker.service

└─56596 /usr/bin/dockerd

└─56600 docker-containerd --config /var/run/docker/containerd/containerd.toml

Jun 07 18:11:11 node3 dockerd[56596]: time="2018-06-07T18:11:11+05:30" level=info msg=serving... address="/var/run/docker/containerd/docker-containerd.sock" module="containerd/grpc"

Jun 07 18:11:11 node3 dockerd[56596]: time="2018-06-07T18:11:11+05:30" level=info msg="containerd successfully booted in 3.657882s" module=containerd

Jun 07 18:11:29 node3 dockerd[56596]: time="2018-06-07T18:11:29.946757096+05:30" level=info msg="Graph migration to content-addressability took 0.00 seconds"

Jun 07 18:11:30 node3 dockerd[56596]: time="2018-06-07T18:11:30.112770747+05:30" level=info msg="Loading containers: start."

Jun 07 18:11:50 node3 dockerd[56596]: time="2018-06-07T18:11:50.090593199+05:30" level=info msg="Default bridge (docker0) is assigned with an IP address 172.17.0.0/16. Daemon option --bip can be used to set a preferred IP address"

Jun 07 18:12:00 node3 dockerd[56596]: time="2018-06-07T18:12:00.971760159+05:30" level=info msg="Loading containers: done."

Jun 07 18:12:01 node3 dockerd[56596]: time="2018-06-07T18:12:01.929119569+05:30" level=info msg="Docker daemon" commit=9ee9f40 graphdriver(s)=overlay2 version=18.03.1-ce

Jun 07 18:12:01 node3 dockerd[56596]: time="2018-06-07T18:12:01.929656262+05:30" level=info msg="Daemon has completed initialization"

Jun 07 18:12:02 node3 dockerd[56596]: time="2018-06-07T18:12:02.092322095+05:30" level=info msg="API listen on /var/run/docker.sock"

Jun 07 18:12:02 node3 systemd[1]: Started Docker Application Container Engine.

[root@centos7 ~]#

[root@centos7 ~]# ansible servers -a "docker version"

192.168.140.103 | SUCCESS | rc=0 >>

Client:

Version: 18.03.1-ce

API version: 1.37

Go version: go1.9.5

Git commit: 9ee9f40
Built: Thu Apr 26 07:20:16 2018
OS/Arch: linux/amd64
Experimental: false
Orchestrator: swarm

Server:

Engine:
Version: 18.03.1-ce
API version: 1.37 (minimum version 1.12)
Go version: go1.9.5
Git commit: 9ee9f40
Built: Thu Apr 26 07:23:58 2018
OS/Arch: linux/amd64
Experimental: false

192.168.140.102 | SUCCESS | rc=0 >>

Client:

Version: 18.03.1-ce
API version: 1.37
Go version: go1.9.5
Git commit: 9ee9f40
Built: Thu Apr 26 07:20:16 2018
OS/Arch: linux/amd64
Experimental: false
Orchestrator: swarm

Server:

Engine:
Version: 18.03.1-ce
API version: 1.37 (minimum version 1.12)
Go version: go1.9.5
Git commit: 9ee9f40

Built: Thu Apr 26 07:23:58 2018
OS/Arch: linux/amd64
Experimental: false

192.168.140.101 | SUCCESS | rc=0 >>

Client:

Version: 18.03.1-ce
API version: 1.37
Go version: go1.9.5
Git commit: 9ee9f40
Built: Thu Apr 26 07:20:16 2018
OS/Arch: linux/amd64
Experimental: false
Orchestrator: swarm

Server:

Engine:

Version: 18.03.1-ce
API version: 1.37 (minimum version 1.12)
Go version: go1.9.5
Git commit: 9ee9f40
Built: Thu Apr 26 07:23:58 2018
OS/Arch: linux/amd64
Experimental: false

```
[root@centos7 ~]# docker swarm init --advertise-addr 192.168.140.101
```

Swarm initialized: current node (5jq6pi92jn583z5rzdrkh0sac) is now a manager.

To add a worker to this swarm, run the following command:

```
docker swarm join --token SWMTKN-1-1298qiowy6g8nljkh2jrbbtls517zpi9typj4svsfedbrue0k1-01a3z2w8ls7jpb9t2gc484yh9 192.168.140.101:2377
```

To add a manager to this swarm, run 'docker swarm join-token manager' and follow the instructions.

```
[root@centos7 ~]# cat /etc/hosts
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
192.168.140.101 node1
192.168.140.102 node2
192.168.140.103 node3
```

```
[root@centos7 ~]# iptables -F
```

```
[root@centos7 ~]#
```

```
[root@centos7 ~]#
```

```
[root@centos7 ~]# docker volume create portainer_data
```

```
portainer_data
```

```
[root@centos7 ~]# docker service create \
```

```
> --name portainer \
```

```
> --publish 9000:9000 \
```

```
> --replicas=1 \
```

```
> --constraint 'node.role == manager' \
```

```
> --mount type=bind,src=/var/run/docker.sock,dst=/var/run/docker.sock \
```

```
> --mount type=volume,src=portainer_data,dst=/data \
```

```
> portainer/portainer \
```

```
> -H unix:///var/run/docker.sock
```

```
40c9j08we6liehvgfiyba5olg
```

```
overall progress: 1 out of 1 tasks
```

```
1/1: running  [=====>]
```

```
verify: Service converged
```

```
[root@centos7 ~]#
```

```
[root@centos7 ~]#
```

```
[root@centos7 ~]# docker container ls
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS
PORTS	NAMES			
80ef3ec87792	portainer/portainer:latest	"/portainer -H unix:..."	22 seconds ago	Up 18
seconds	9000/tcp	portainer.1.aknse8os2l023bikzbci76k9q		

```
[root@centos7 ~]#
```

Node2

login as: root

root@192.168.140.102's password:

Last login: Thu Jun 7 16:15:08 2018

[root@centos7 ~]# ifconfig

```
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.140.102 netmask 255.255.255.0 broadcast 192.168.140.255
    inet6 fe80::1f35:7cec:21cc:b67d prefixlen 64 scopeid 0x20<link>
    inet6 fe80::f81c:83ff:fa62:7262 prefixlen 64 scopeid 0x20<link>
    ether 00:50:56:2f:2c:17 txqueuelen 1000 (Ethernet)
    RX packets 2367 bytes 1161865 (1.1 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 360 bytes 38884 (37.9 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

```
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 132 bytes 14436 (14.0 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 132 bytes 14436 (14.0 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

```
virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255
    ether 52:54:00:9d:34:53 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

[root@centos7 ~]# hostnamectl set-hostname 'node2'

[root@centos7 ~]# ll /etc/yum.repos.d/

total 32

```
-rw-r--r--. 1 root root 1664 Apr 28 22:05 CentOS-Base.repo
-rw-r--r--. 1 root root 1309 Apr 28 22:05 CentOS-CR.repo
-rw-r--r--. 1 root root 649 Apr 28 22:05 CentOS-Debuginfo.repo
-rw-r--r--. 1 root root 314 Apr 28 22:05 CentOS-fasttrack.repo
-rw-r--r--. 1 root root 630 Apr 28 22:05 CentOS-Media.repo
```

```
-rw-r--r--. 1 root root 1331 Apr 28 22:05 CentOS-Sources.repo
-rw-r--r--. 1 root root 4768 Apr 28 22:05 CentOS-Vault.repo
[root@centos7 ~]# ll /etc/yum.repos.d/
total 36
-rw-r--r--. 1 root root 1664 Apr 28 22:05 CentOS-Base.repo
-rw-r--r--. 1 root root 1309 Apr 28 22:05 CentOS-CR.repo
-rw-r--r--. 1 root root 649 Apr 28 22:05 CentOS-Debuginfo.repo
-rw-r--r--. 1 root root 314 Apr 28 22:05 CentOS-fasttrack.repo
-rw-r--r--. 1 root root 630 Apr 28 22:05 CentOS-Media.repo
-rw-r--r--. 1 root root 1331 Apr 28 22:05 CentOS-Sources.repo
-rw-r--r--. 1 root root 4768 Apr 28 22:05 CentOS-Vault.repo
-rw-r--r--. 1 root root 2424 Jun 6 22:15 docker-ce.repo
[root@centos7 ~]#
Message from syslogd@centos7 at Jun 7 18:01:29 ...
kernel:NMI watchdog: BUG: soft lockup - CPU#0 stuck for 21s! [crond:1129]
```

You have new mail in /var/spool/mail/root

```
[root@centos7 ~]#
```

```
[root@centos7 ~]# rpm -q docker-ce
docker-ce-18.03.1.ce-1.el7.centos.x86_64
```

```
[root@centos7 ~]# cat /etc/hosts
127.0.0.1 localhost localhost.localdomain localhost4 localhost4.localdomain4
::1 localhost localhost.localdomain localhost6 localhost6.localdomain6
[root@centos7 ~]# vi /etc/hosts
[root@centos7 ~]# docker version
```

Client:

```
Version: 18.03.1-ce
API version: 1.37
Go version: go1.9.5
Git commit: 9ee9f40
Built: Thu Apr 26 07:20:16 2018
OS/Arch: linux/amd64
Experimental: false
Orchestrator: swarm
```

Server:

Engine:

```
Version: 18.03.1-ce
API version: 1.37 (minimum version 1.12)
Go version: go1.9.5
Git commit: 9ee9f40
Built: Thu Apr 26 07:23:58 2018
OS/Arch: linux/amd64
```

Experimental: false

[root@centos7 ~]#

[root@centos7 ~]# docker swarm join --token SWMTKN-1-1298qioyw6g8nljkh2jrbtbs517zpi9typj4svsfedbrue0k1-01a3z2w8ls7jpq9t2gc484yh9192.168.140.101:2377

This node joined a swarm as a worker.

[root@centos7 ~]#

Node3

login as: root

root@192.168.140.103's password:

Last login: Thu Jun 7 16:15:21 2018

[root@centos7 ~]# hostnamectl set-hostname 'node3'

[root@centos7 ~]# ifconfig

```
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.140.103 netmask 255.255.255.0 broadcast 192.168.140.255
    inet6 fe80::1f35:7cec:21cc:b67d prefixlen 64 scopeid 0x20<link>
    inet6 fe80::cf47:39ba:204c:2858 prefixlen 64 scopeid 0x20<link>
    inet6 fe80::f81c:83ff:fa62:7262 prefixlen 64 scopeid 0x20<link>
    ether 00:50:56:3b:fb:03 txqueuelen 1000 (Ethernet)
    RX packets 12186 bytes 1812526 (1.7 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 9247 bytes 16308749 (15.5 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

```
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 144 bytes 15840 (15.4 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 144 bytes 15840 (15.4 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

```
virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255
    ether 52:54:00:9d:34:53 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

[root@centos7 ~]#

Message from syslogd@centos7 at Jun 7 18:01:47 ...

kernel:NMI watchdog: BUG: soft lockup - CPU#0 stuck for 25s! [vmttoolsd:2341]

```
[root@centos7 ~]# rpm -q docker-ce
```

docker-ce-18.03.1.ce-1.el7.centos.x86_64

```
[root@centos7 ~]# vi /etc/hosts
```

```
[root@centos7 ~]# docker version
```

Client:

Version: 18.03.1-ce

API version: 1.37

Go version: go1.9.5

Git commit: 9ee9f40

Built: Thu Apr 26 07:20:16 2018

OS/Arch: linux/amd64

Experimental: false

Orchestrator: swarm

Server:

Engine:

Version: 18.03.1-ce

API version: 1.37 (minimum version 1.12)

Go version: go1.9.5

Git commit: 9ee9f40

Built: Thu Apr 26 07:23:58 2018

OS/Arch: linux/amd64

Experimental: false

```
[root@centos7 ~]# hostname
```

node3

```
[root@centos7 ~]# iptables -F
```

```
[root@centos7 ~]# docker swarm join --token SWMTKN-1-1298qioyw6g8nljkhk2jrbbtls517zpi9typj4svsfedbrue0k1-01a3z2w8ls7jpq9t2gc484yh9
192.168.140.101: 2377
```

This node joined a swarm as a worker.

```
[root@centos7 ~]#
```

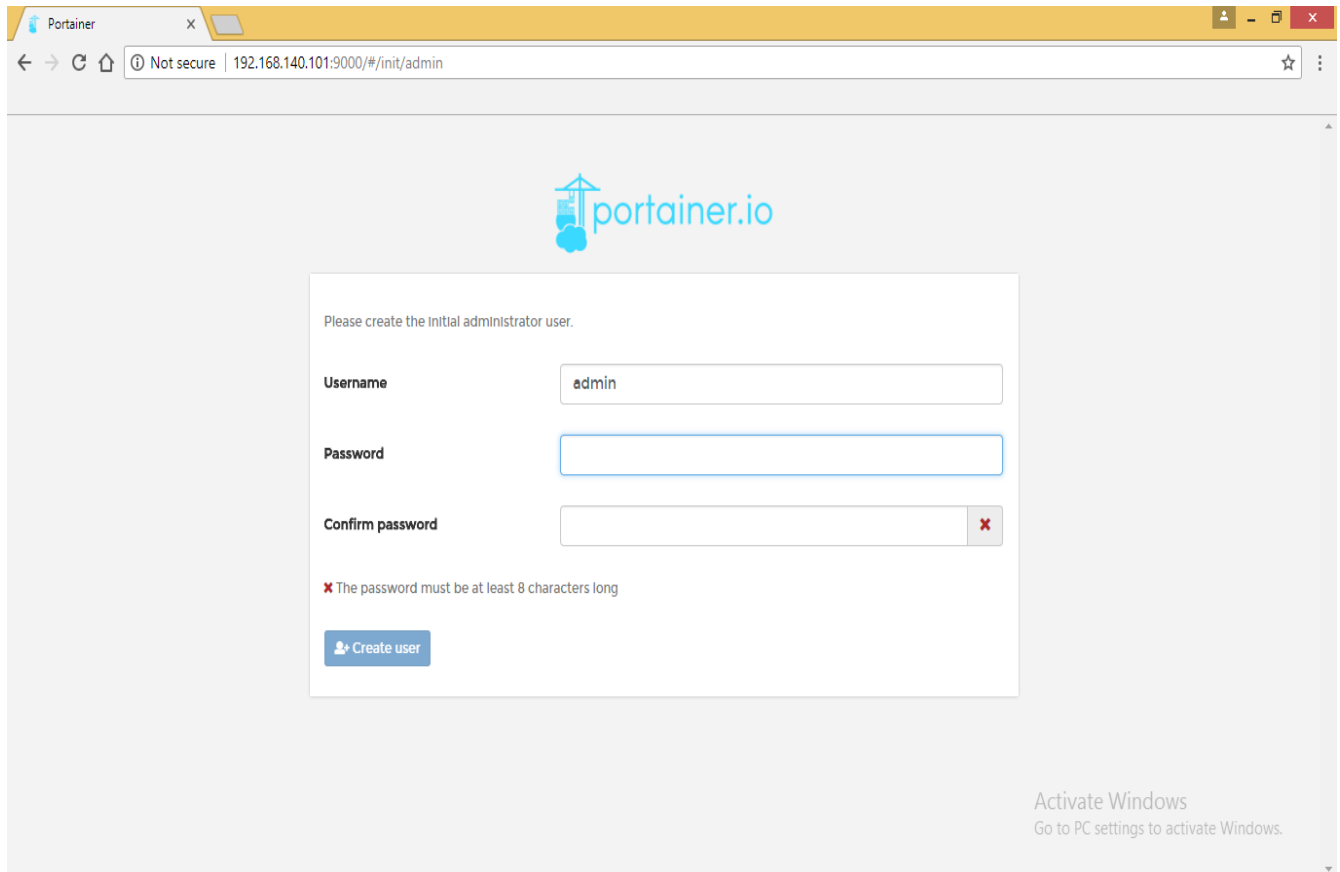



Figure : Portainer initial screen

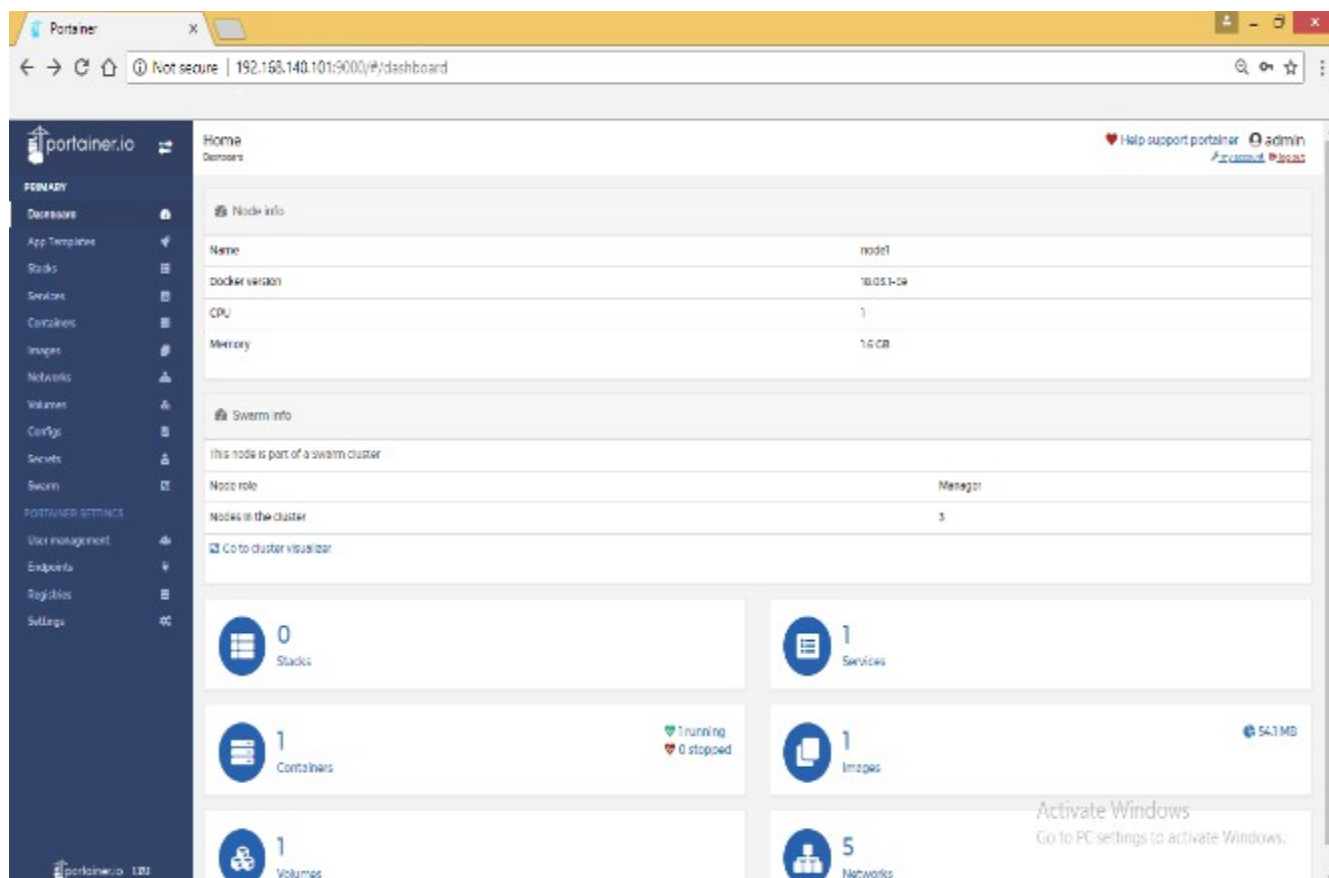


Figure : Portainer dashboard