UCS Director Multi-Node Deployment on VMware

The purpose of this document is to illustrate the steps to install UCS Director 5.2 in a Multi-Node deployment. Instead of a single standalone UCS Director Appliance, we will build a Primary Node, Inventory Database Node, Monitoring Database Node and one or more Service Nodes.

Besides the basic Multi-Node installation, this document also provides steps for configuring other, optional but recommended, management options such as License Installation, Mail Setup, Self Service Policy, NTP, enable root access, change root password, change shelladmin password, change hostname, update hosts file, and changing the time zone. This document should take you to the point where you are ready to start configuring workflows.

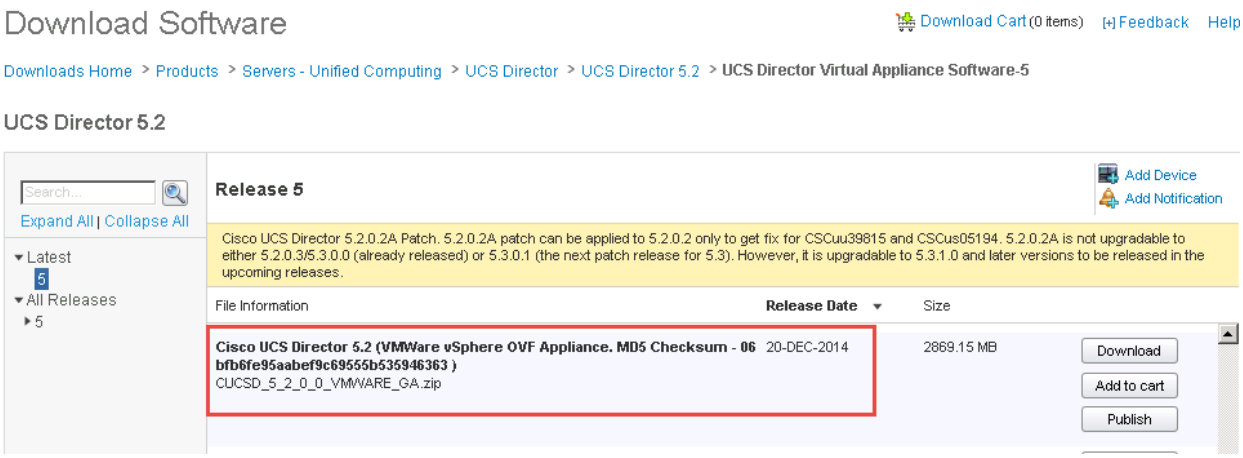
Useful Documents:

Cisco UCS Director Installation and Upgrade on VMware vSphere, Release 5.2

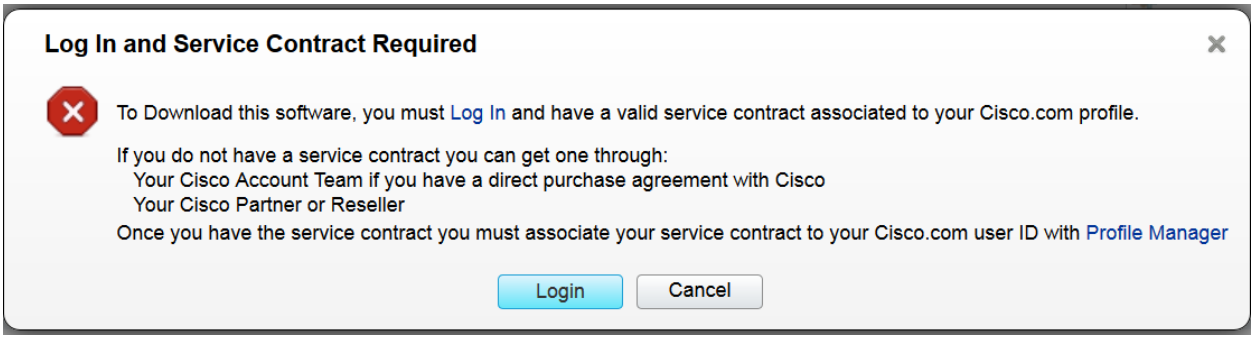
Table of Contents

1. Download UCS Director 5.2 software from Cisco.com

Go to Cisco.com Downloads and navigate to UCS Director 5.2.



Login using your CCO account.



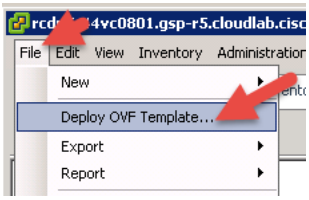
Accept the license agreement.

2. Create the Inventory Database Node

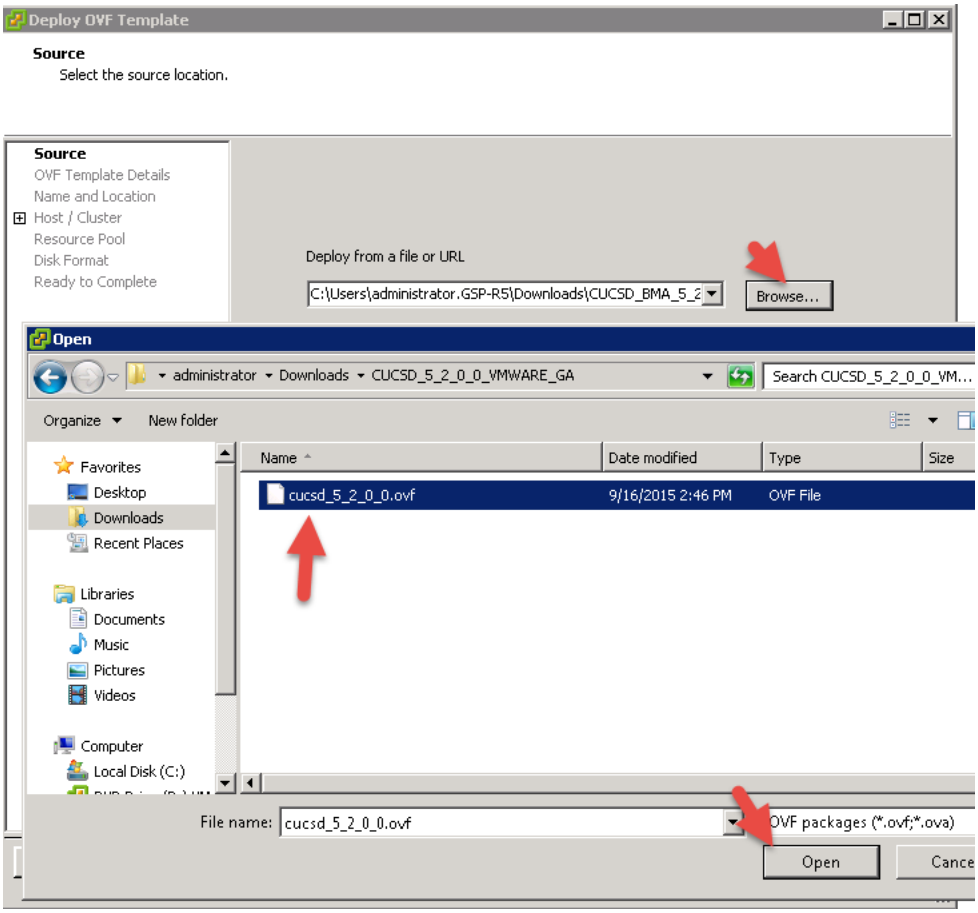
2.1. Create Inventory Database VM

Unzip the CUCSD_5_2_0_0 file that was downloaded from Cisco.com to your local machine.

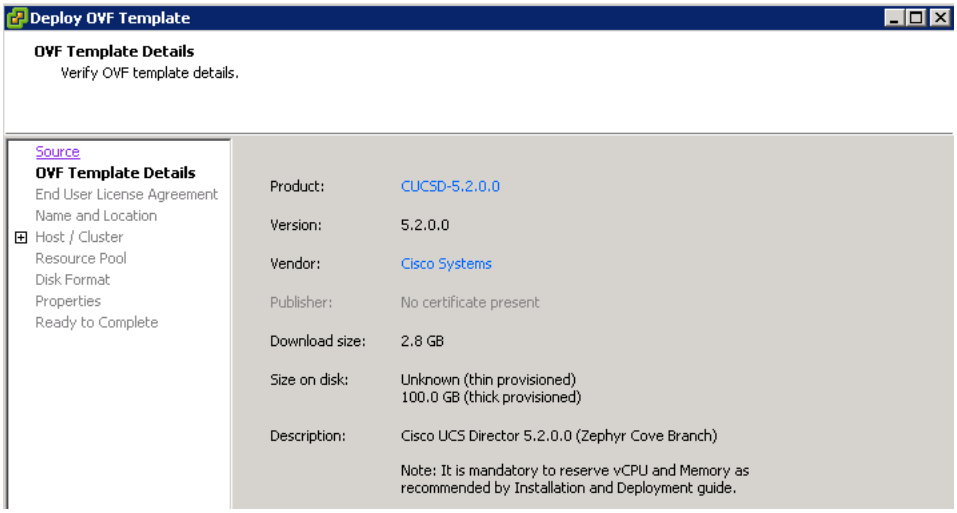
Log into vCenter and Select File -> Deploy OVF Template.



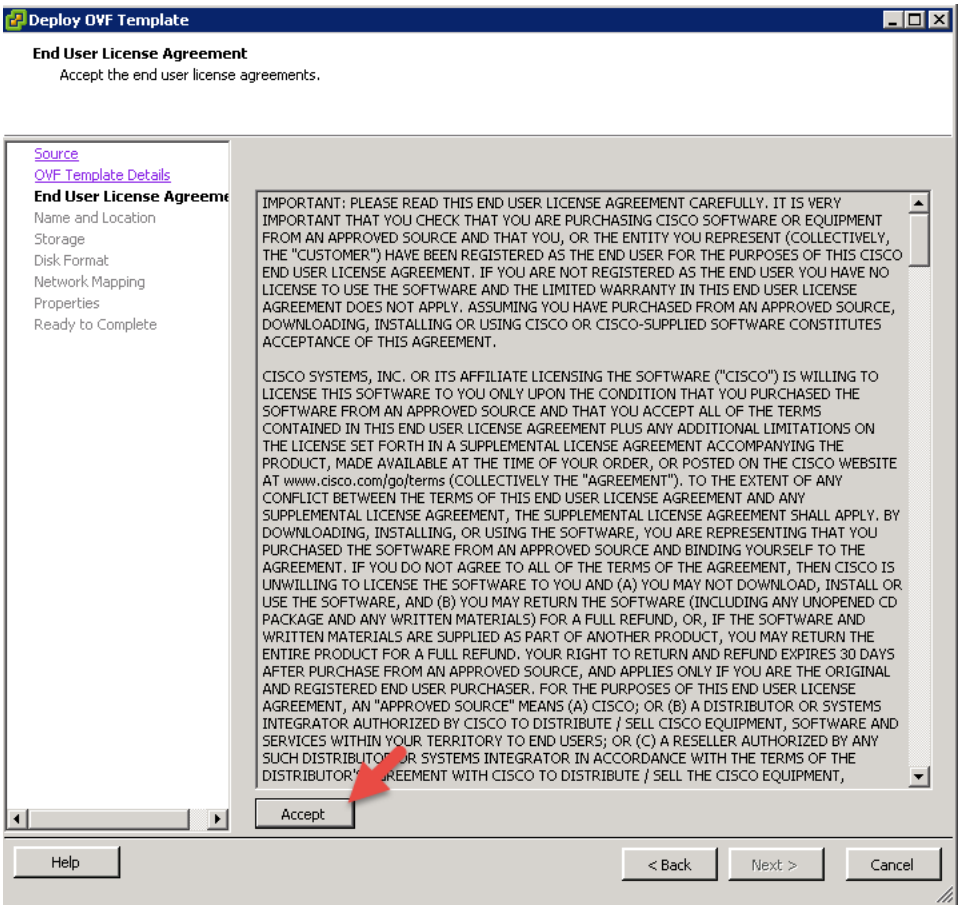
Browse to the UCSD_5_2_0_0 and select it for deployment then click Next.



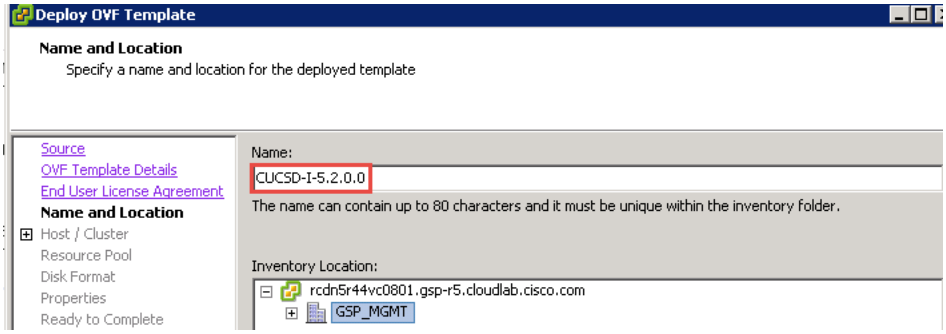
Verify details then click Next.



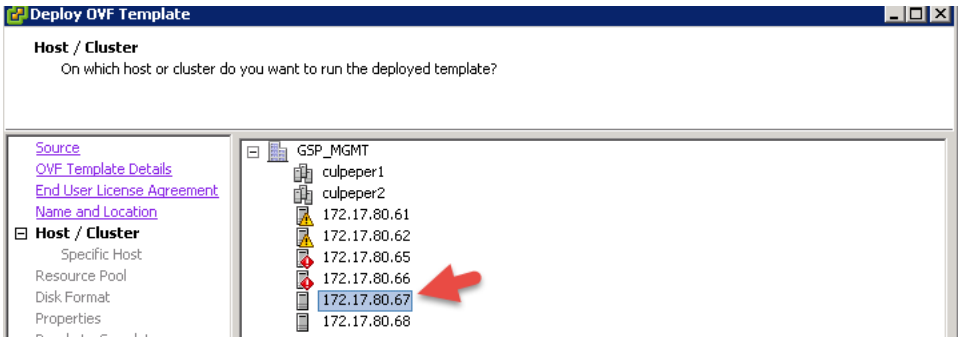
Accept the license agreement and Click Next.



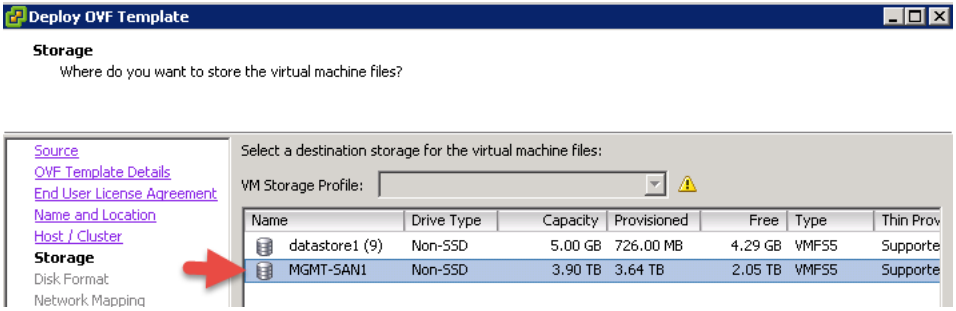
Name the VM and click Next.



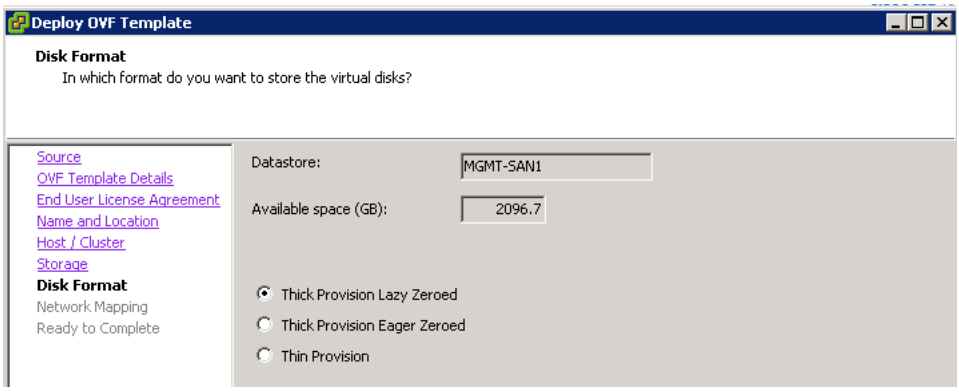
Select a Host and click Next.



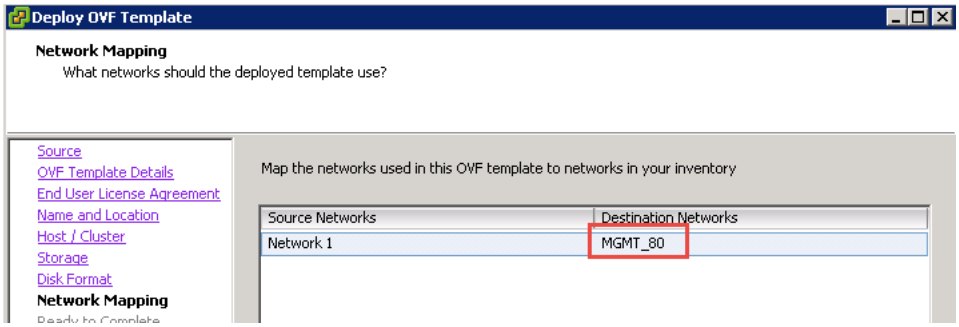
Select a storage location to install the VM and click Next.



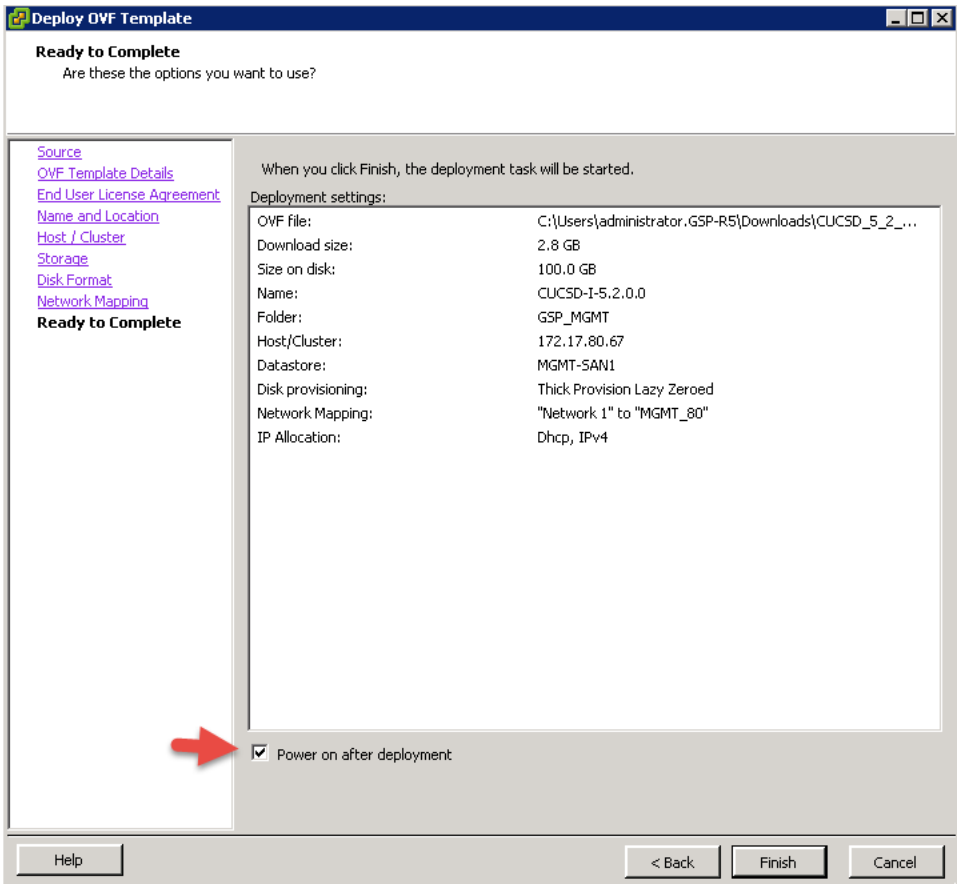
Leave the default settings for the Disk Format and click Next.



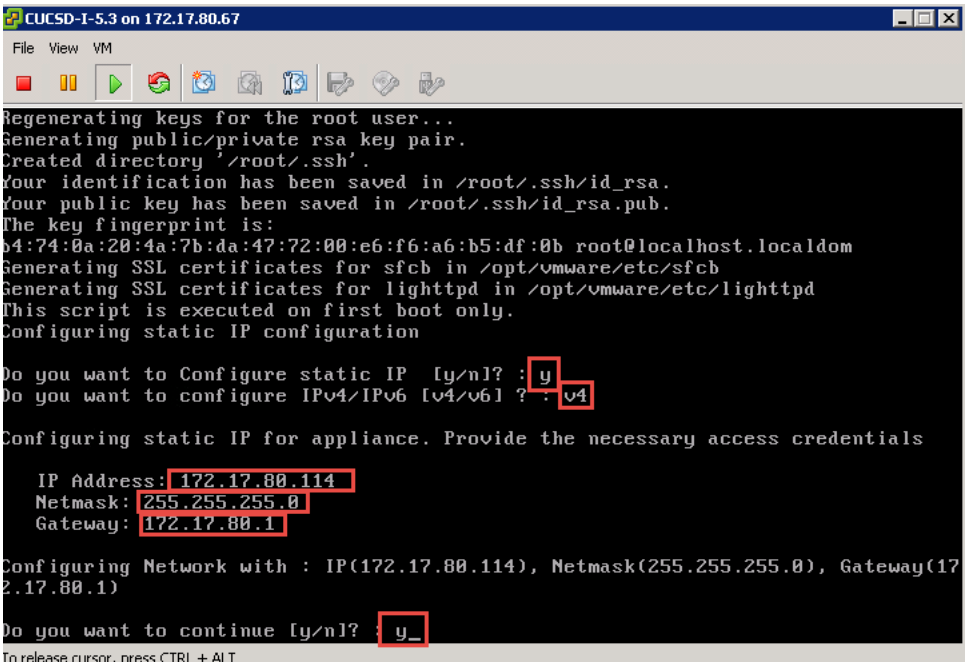
Select the Network to put this VM on and click Next.



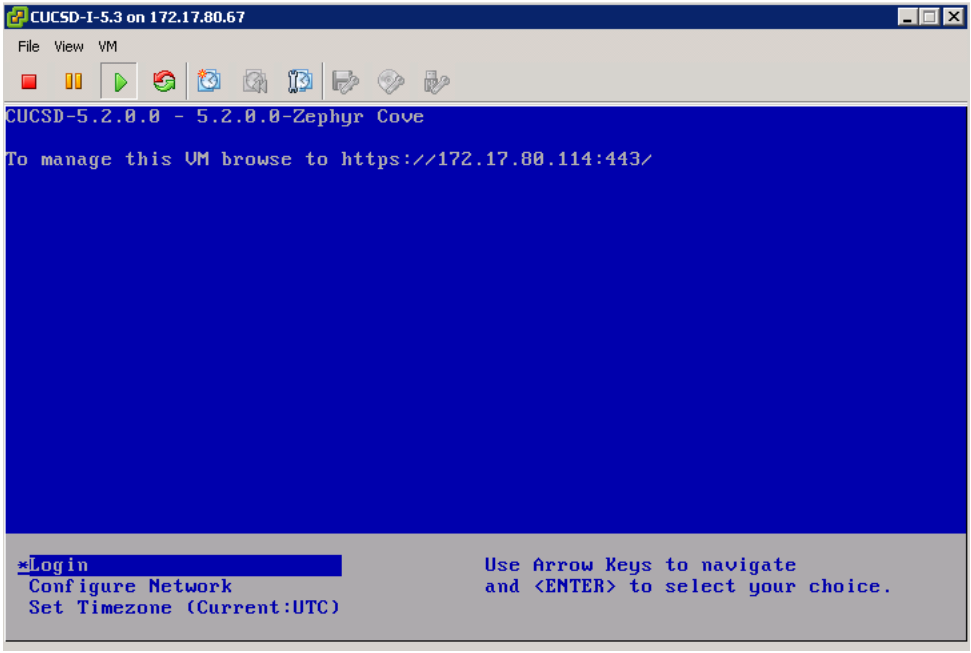
Select Power on after deployment and click Finish.



In my case, I don't have DHCP enabled on the network so I must manually configure an IP Address from the Console. In vCenter, open the console of the Inventory Database Node. Enter the following and wait for the Build to complete. This process could take a while so be patient.

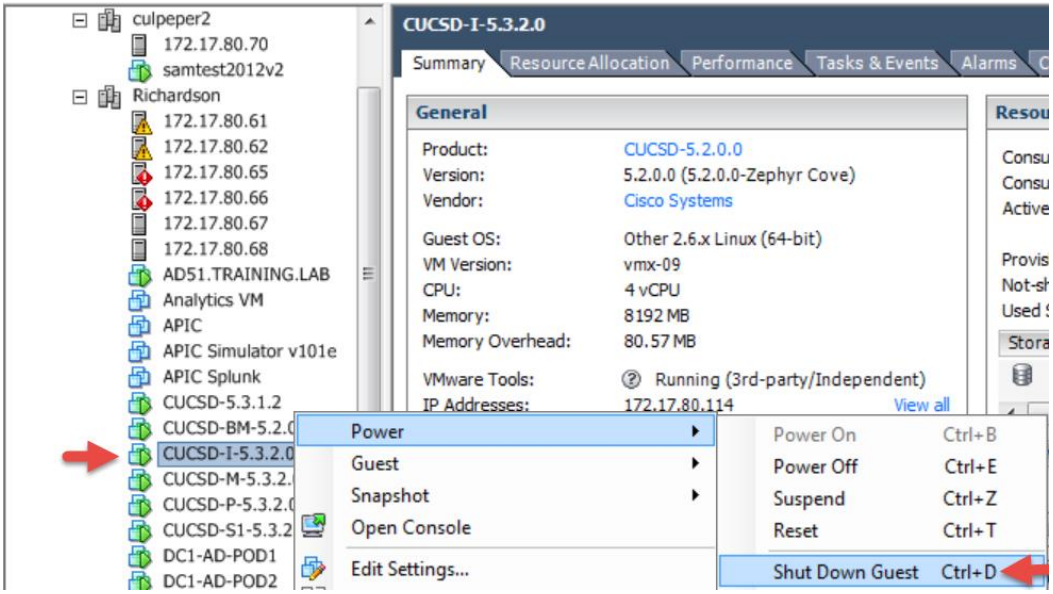


After the installation is complete, you should see a screen that looks like this.

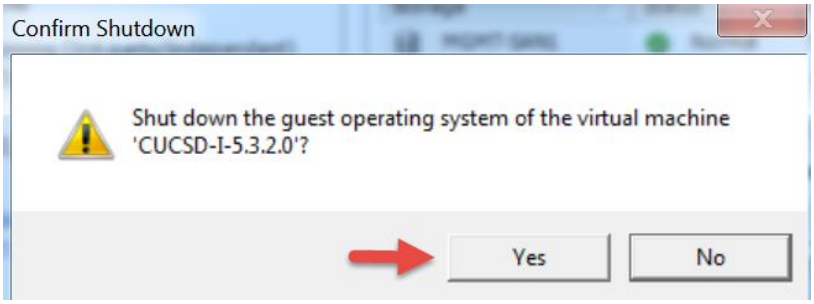


2.2. Install/Update VMWare tools & VM Version

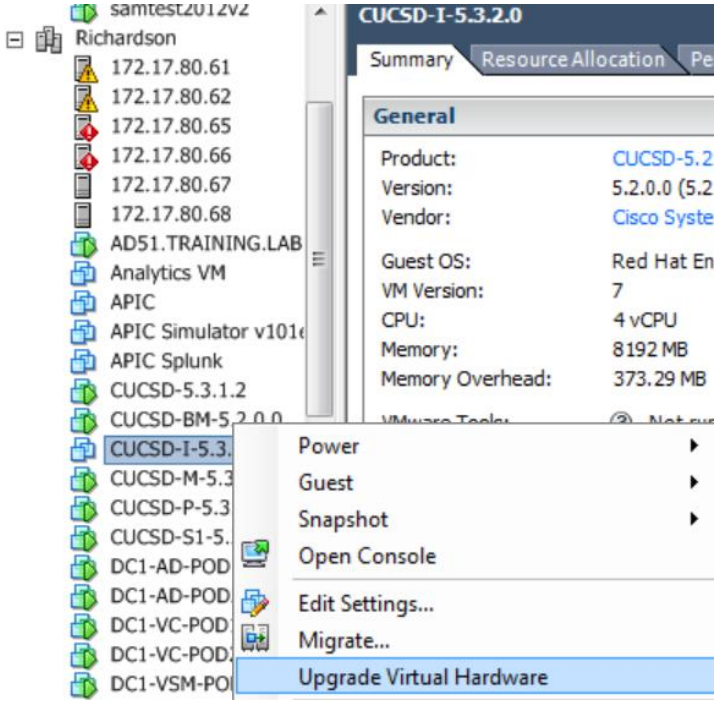
Log into vCenter, navigate to your Inventory Database VM, select ‘Shutdown Guest.



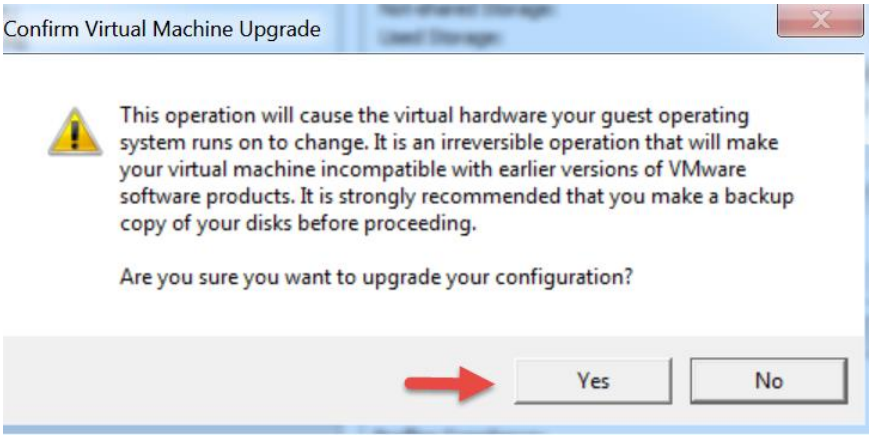
Select Yes.



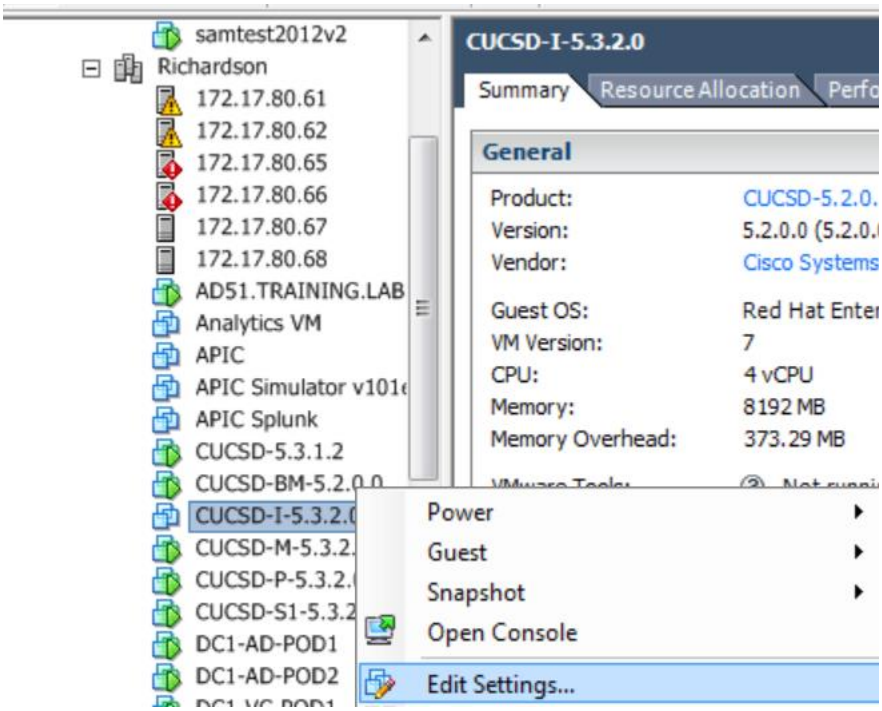
Wait for the VM to completely shut down then right click on the VM and select ‘Upgrade Virtual Hardware’.



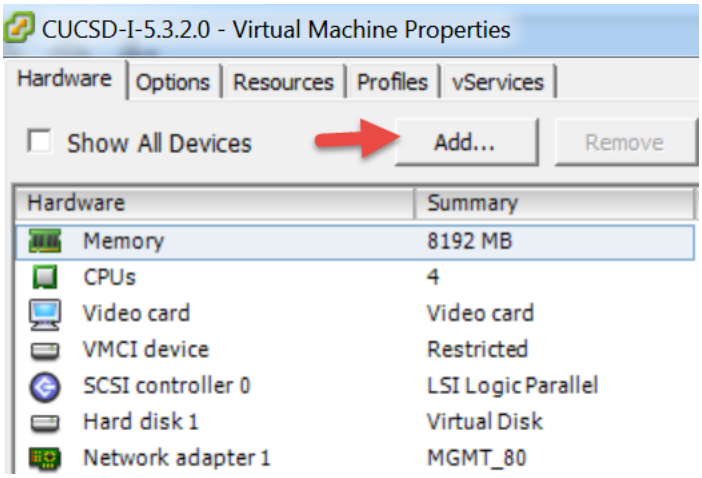
Select Yes.



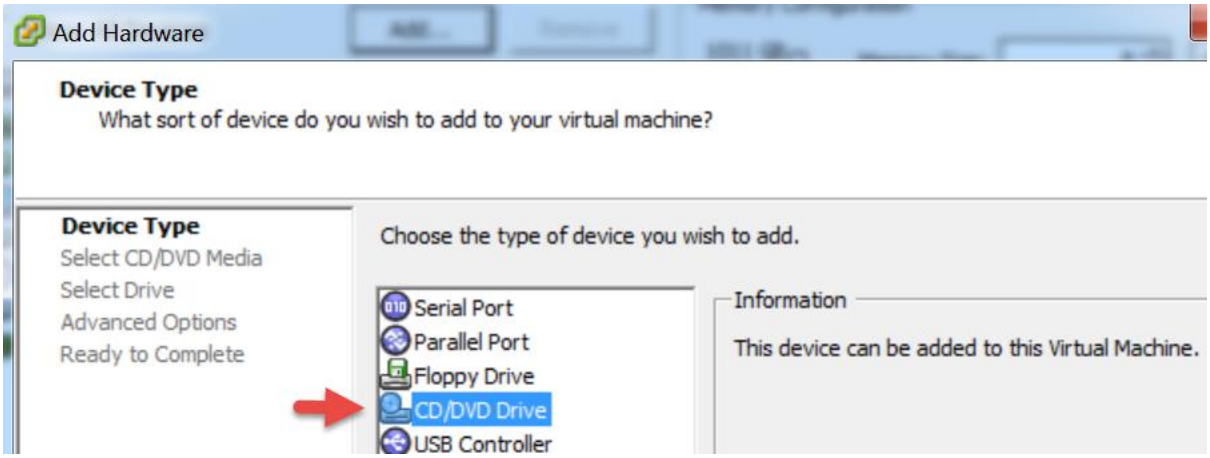
Right click on the VM and Select 'Edit Settings'



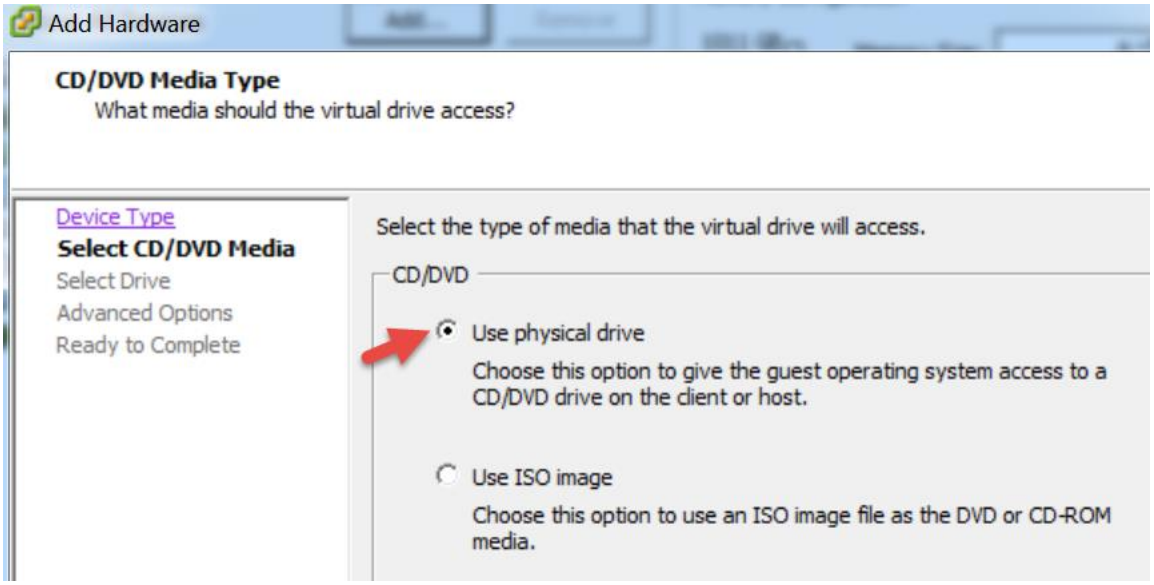
Select Add.



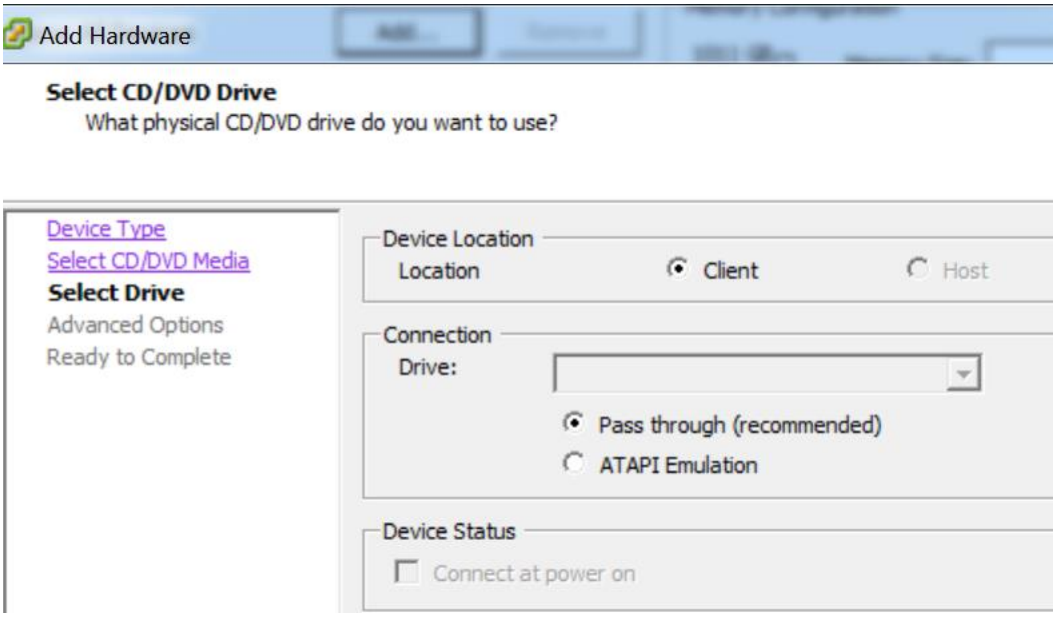
Select ‘CD/DVD Drive’ and click Next.



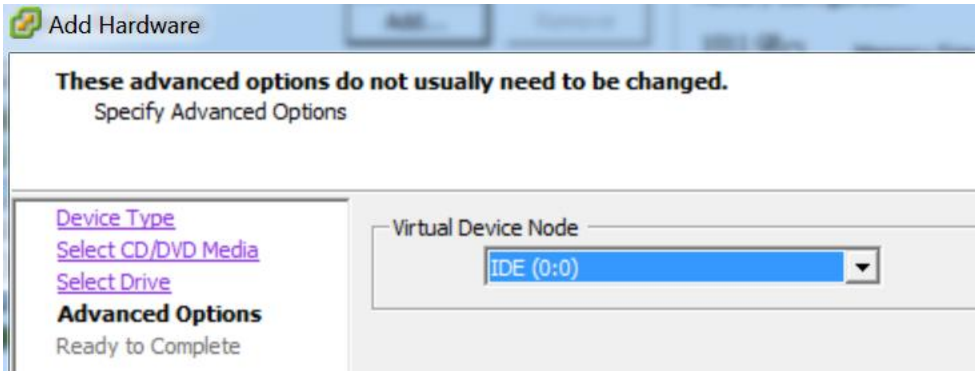
Leave default ‘Use physical drive’ and click Next.



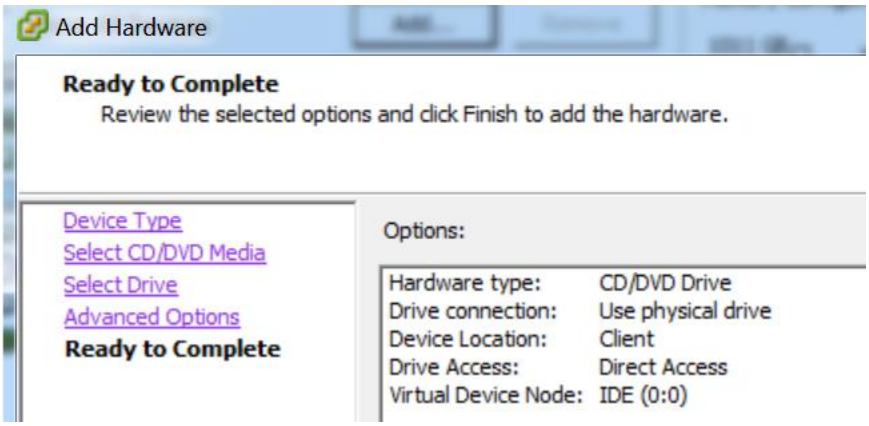
Leave default and click Next.



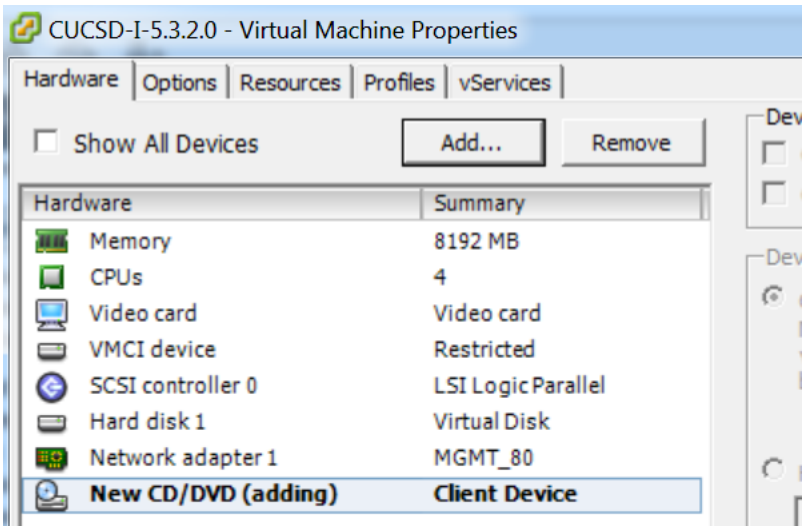
Leave default and click Next.



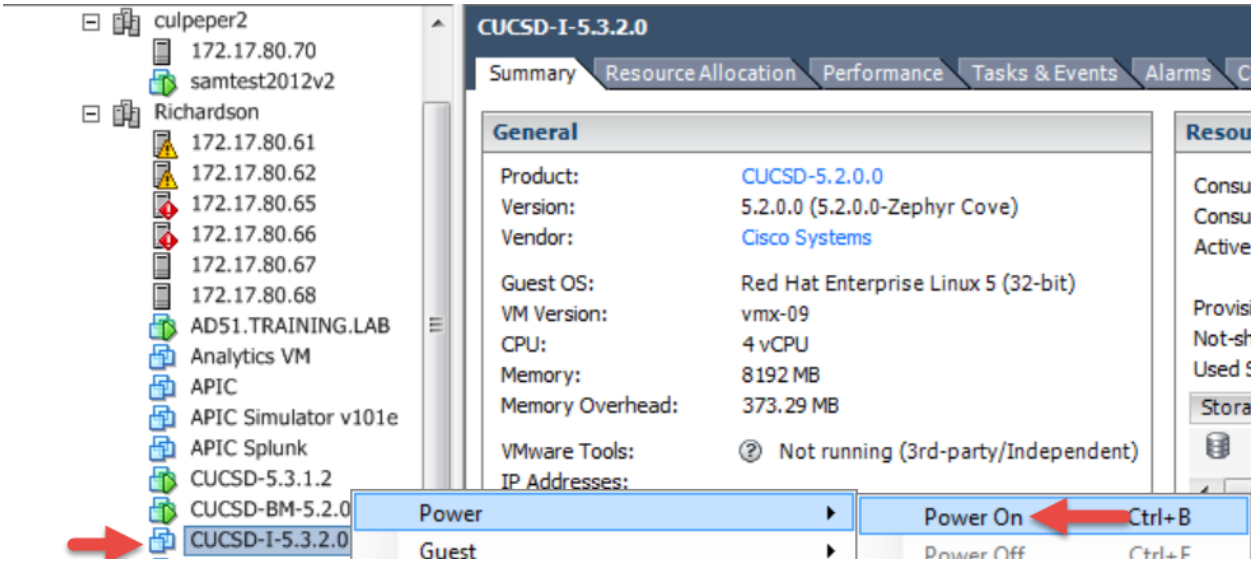
Review and click Finish.



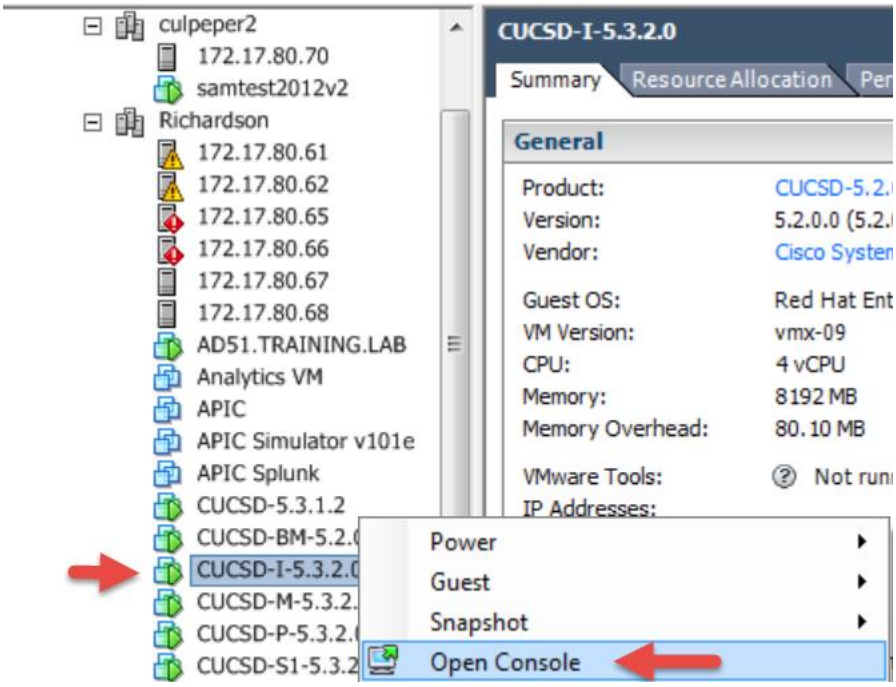
Review and click OK.



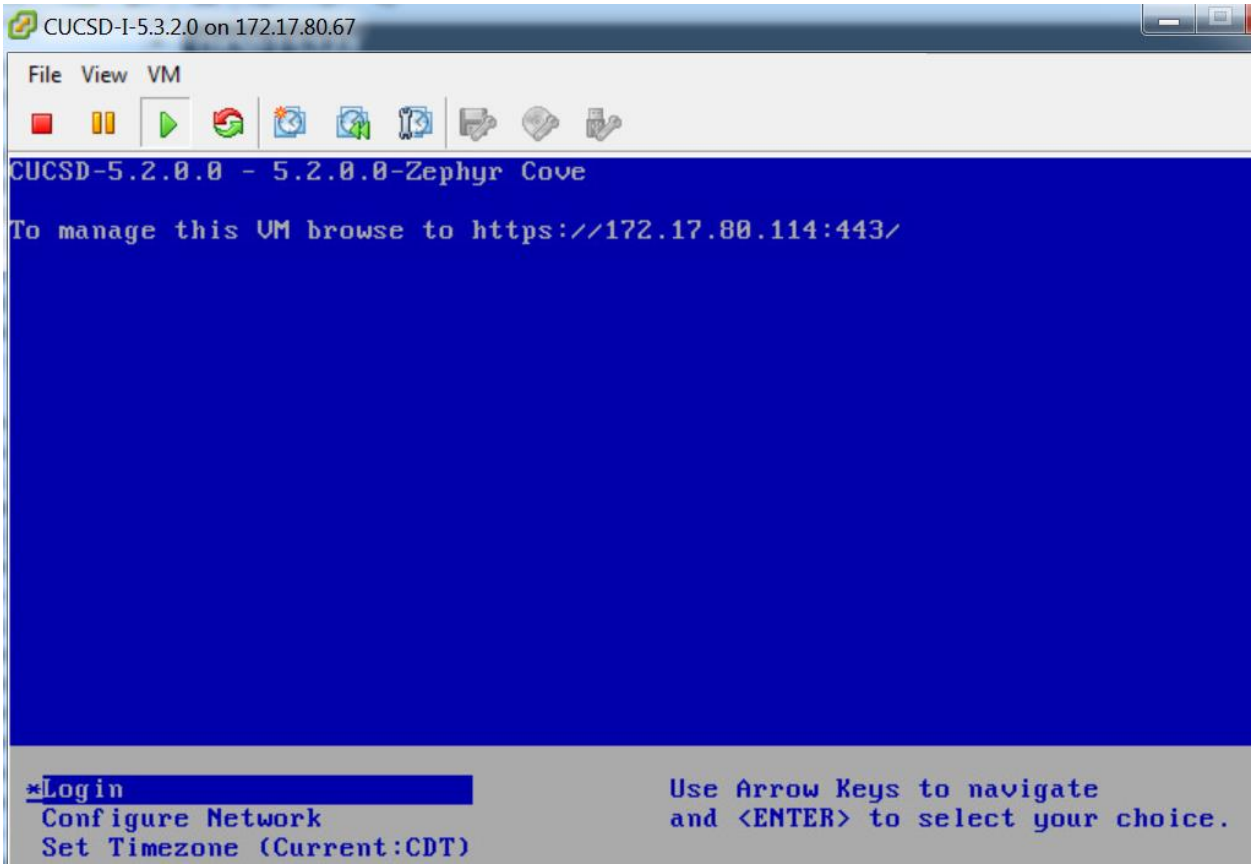
Power the VM On, right click on the VM and select ‘Power On’.



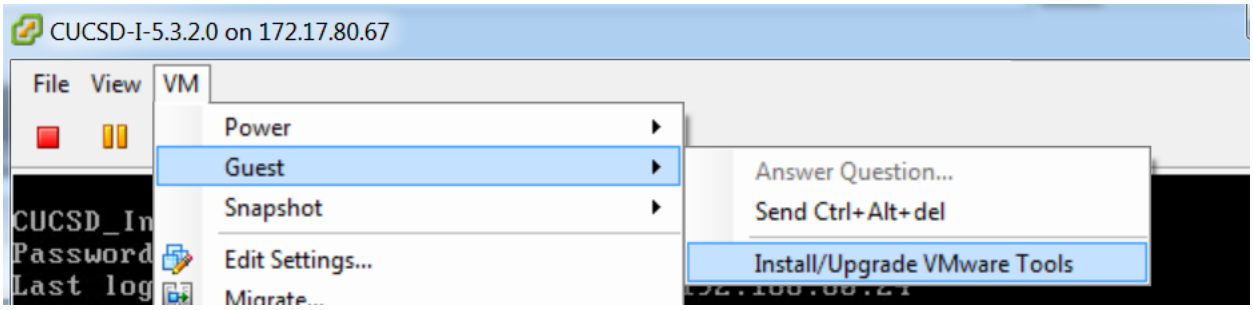
Open the VM Console to watch the VM Boot.



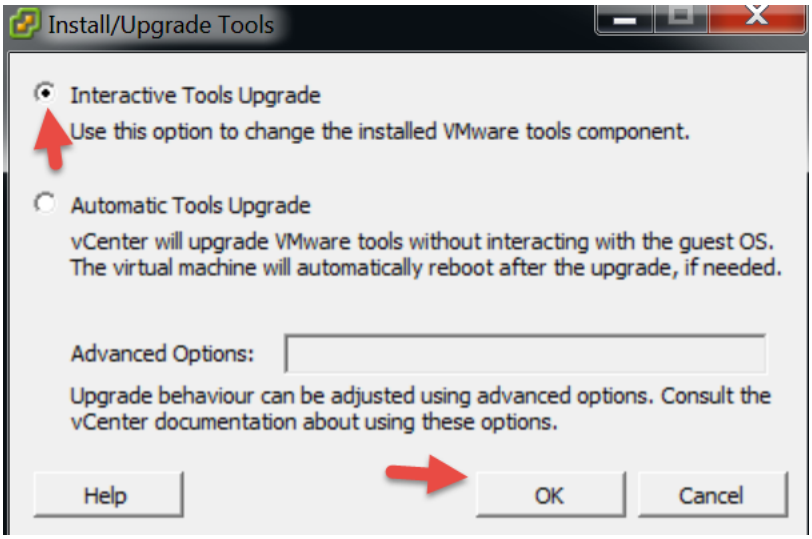
Once the VM is completely up, you should see the login screen similar to below.



From the console, select 'Install/Upgrade VMware Tools'



Select 'Interactive Tools Upgrade' and click OK.



SSH to the Inventory Database Node.

- Make a dir for cdrom: 'mkdir /mnt/cdrom'
- Mount the cdrom: 'mount /dev/cdrom /mnt/cdrom'
- Copy vmware install to /tmp: 'cp /mnt/cdrom/VMwareTools-**5.0.0-<xxxx>.**tar.gz /tmp' **Note**: tab out the VMware tools part so you don't have to figure out the correct name.
- Unzip the files in /tmp: 'tar zxf /tmp/VMwareTools-**5.0.0-<xxxx>.**tar.gz' **Note**: tab out the VMware tools part so you don't have to figure out the correct name.
- Change directory: 'cd vmware-tools-distrib'
- Run the install: './vmware-install.pl'

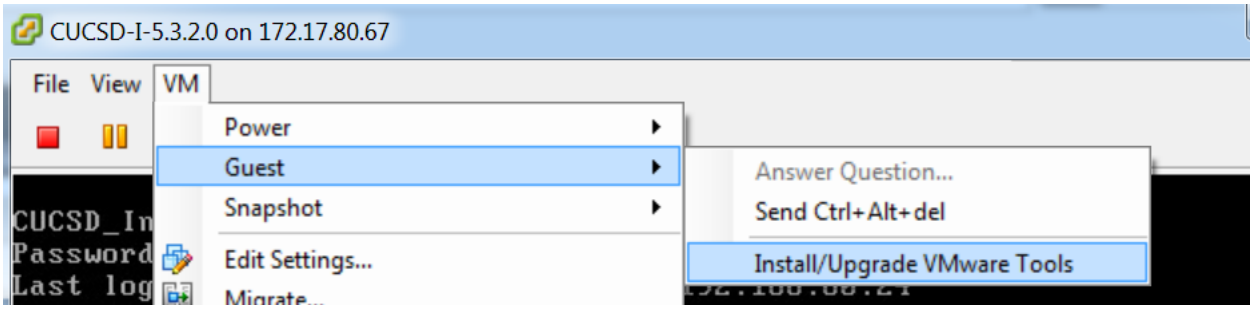
  Note: You will probably get the following message.

  VMware Tools cannot be installed, since they have already been installed using a package-based mechanism (rpm or deb) on this system. If you wish to continue, you must first remove the currently installed VMware Tools using the appropriate packaged-based mechanism, and then restart this installer
  Execution aborted.
  Found VMware Tools CDROM mounted at /mnt/cdrom. Ejecting device /dev/cdrom ... No eject (or equivilant) command could be located. Eject Failed: If possible manually eject the Tools installer from the guest cdrom mounted at /mnt/cdrom before canceling tools install on the host.
- If you get this message, we need to Delete the VMware tools directory: 'rm -rf /usr/lib/vmware-tools/'
- Change directory: 'cd vmware-tools-distrib/'
- Re-Run the install: './vmware-install.pl'
- Enter Yes to the 'Would you like to remove the install DB?' You will probably get a Failure and Execution aborted.
- Re-Run the install: './vmware-install.pl'
- Accept all the defaults by Pressing Enter for all the options.

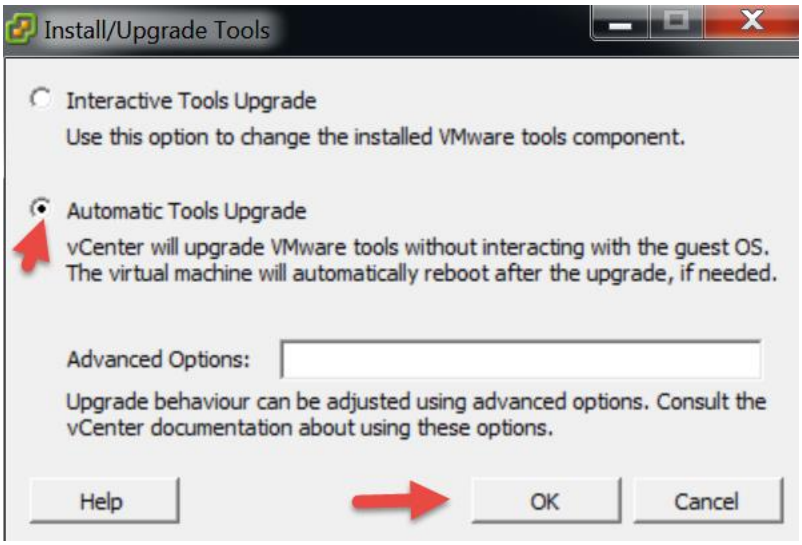
```
[root@CUCSD_Inventory ~]# rm -rf /usr/lib/vmware-tools/
[root@CUCSD_Inventory ~]#
[root@CUCSD_Inventory ~]# cd vmware-tools-distrib/
[root@CUCSD_Inventory vmware-tools-distrib]#
[root@CUCSD_Inventory vmware-tools-distrib]# ./vmware-install.pl
A previous installation of VMware Tools has been detected.

Uninstallation of previous install failed. Would you like to remove the install
DB? [no] yes

Removing installer DB, please re-run the installer.

Failure

Execution aborted.

[root@CUCSD_Inventory vmware-tools-distrib]# ./vmware-install.pl
Creating a new VMware Tools installer database using the tar4 format.

Installing VMware Tools.

The file /etc/vmware-tools/poweron-vm-default that this program was about to
install already exists. Overwrite? [yes]

The file /etc/vmware-tools/suspend-vm-default that this program was about to
install already exists. Overwrite? [yes]

The file /etc/vmware-tools/poweroff-vm-default that this program was about to
install already exists. Overwrite? [yes]

The file /etc/vmware-tools/resume-vm-default that this program was about to
install already exists. Overwrite? [yes]

In which directory do you want to install the binary files?
[/usr/bin]

The file /usr/bin/vm-support that this program was about to install already
exists. Overwrite? [yes]

What is the directory that contains the init directories (rc0.d/ to rc6.d/)?
[/etc/rc.d]

What is the directory that contains the init scripts?
[/etc/rc.d/init.d]

The file /etc/rc.d/init.d/vmware-tools that this program was about to install
already exists. Overwrite? [yes]

In which directory do you want to install the daemon files?
[/usr/sbin]

In which directory do you want to install the library files?
[/usr/lib/vmware-tools]

The path "/usr/lib/vmware-tools" does not exist currently. This program is
going to create it, including needed parent directories. Is this what you want?
[yes]

The file /sbin/mount.vmhgfs that this program was about to install already
exists. Overwrite? [yes]

In which directory do you want to install the documentation files?
[/usr/share/doc/vmware-tools]

The file /usr/share/doc/vmware-tools/open_source_licenses.txt that this program
was about to install already exists. Overwrite? [yes]
```

```
The file /usr/share/doc/vmware-tools/README that this program was about to
install already exists. Overwrite? [yes]

The file /usr/share/doc/vmware-tools/INSTALL that this program was about to
install already exists. Overwrite? [yes]

The installation of VMware Tools 9.0.0 build-782409 for Linux completed
successfully. You can decide to remove this software from your system at any
time by invoking the following command: "/usr/bin/vmware-uninstall-tools.pl".

Before running VMware Tools for the first time, you need to configure it by
invoking the following command: "/usr/bin/vmware-config-tools.pl". Do you want
this program to invoke the command for you now? [yes]

The file /usr/sbin/vmware-checkvm that this program was about to install
already exists.  Overwrite? [yes]

The file /usr/sbin/vmware-rpctool that this program was about to install
already exists.  Overwrite? [yes]

The file /usr/bin/vmware-hgfsclient that this program was about to install
already exists.  Overwrite? [yes]

The file /usr/bin/vmware-xferlogs that this program was about to install
already exists.  Overwrite? [yes]

Initializing...

The file /etc/vmware-tools/icu that this program was about to install already
exists.  Overwrite? [yes]


Making sure services for VMware Tools are stopped.

Stopping VMware Tools services in the virtual machine:
   Guest operating system daemon:[  OK  ]
   Unmounting HGFS shares:[  OK  ]
   Guest filesystem driver:[  OK  ]


The VMware FileSystem Sync Driver (vmsync) allows external third-party backup
software that is integrated with vSphere to create backups of the virtual
machine. Do you wish to enable this feature? [no]

Found a compatible pre-built module for vmci.  Installing it...


Found a compatible pre-built module for vsock.  Installing it...


Found a compatible pre-built module for vmxnet3.  Installing it...


Found a compatible pre-built module for pvscsi.  Installing it...


Found a compatible pre-built module for vmmemctl.  Installing it...


The VMware Host-Guest Filesystem allows for shared folders between the host OS
and the guest OS in a Fusion or Workstation virtual environment.  Do you wish
to enable this feature? [no]

Found a compatible pre-built module for vmxnet.  Installing it...



The vmblock enables dragging or copying files between host and guest in a
Fusion or Workstation virtual environment.  Do you wish to enable this feature?
[no]

!!! [EXPERIMENTAL] !!!
VMware automatic kernel modules enables automatic building and installation of
VMware kernel modules at boot that are not already present.  By selecting yes,
you will be enabling this experimental feature.  You can always disable this
feature by re-running vmware-config-tools.pl.

Would you like to enable VMware automatic kernel modules?
[no]

No X install found.

Creating a new initrd boot image for the kernel.
   Checking acpi hot plug[  OK  ]
Starting VMware Tools services in the virtual machine:
   Switching to guest configuration:[  OK  ]
   Paravirtual SCSI module:[  OK  ]
   Guest memory manager:[  OK  ]
   Guest vmxnet fast network device:[  OK  ]
   VM communication interface:[  OK  ]
   VM communication interface socket family:[  OK  ]
   Guest operating system daemon:[  OK  ]
The configuration of VMware Tools 9.0.0 build-782409 for Linux for this running
kernel completed successfully.

You must restart your X session before any mouse or graphics changes take
effect.

You can now run VMware Tools by invoking "/usr/bin/vmware-toolbox-cmd" from the
command line.

To enable advanced X features (e.g., guest resolution fit, drag and drop, and
file and text copy/paste), you will need to do one (or more) of the following:
1. Manually start /usr/bin/vmware-user
2. Log out and log back into your desktop session; and,
3. Restart your X session.

To use the vmxnet driver, restart networking using the following commands:
/etc/init.d/network stop
rmmod pcnet32
rmmod vmxnet
modprobe vmxnet
/etc/init.d/network start

Enjoy,

--the VMware team

[root@CUCSD_Inventory vmware-tools-distrib]#
```

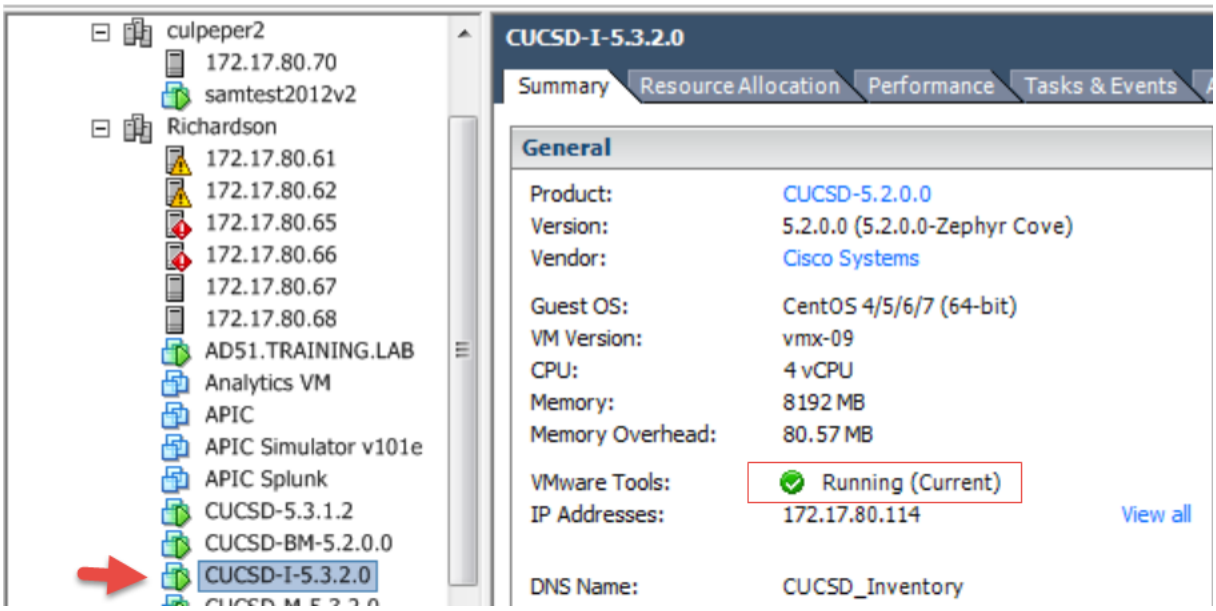
From the console, select ‘Install/Upgrade VMware Tools’



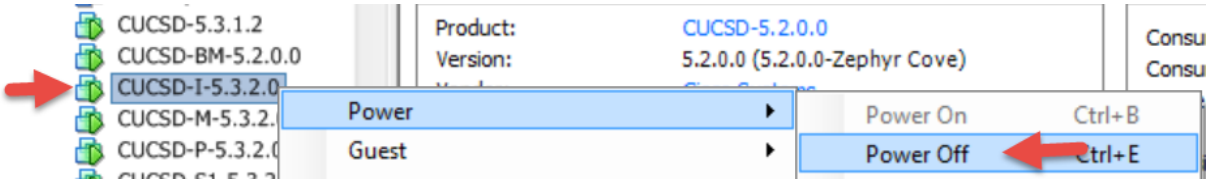
Select ‘Automatic Tools Upgrade’ and click OK.



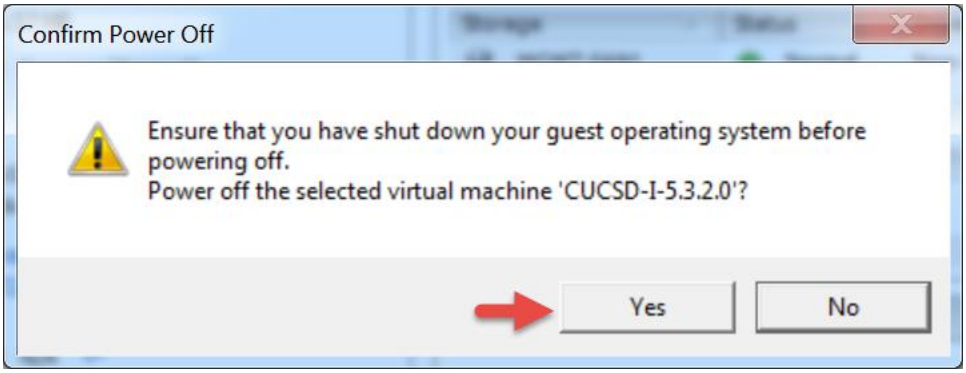
Verify Tools have been installed and currently Running as shown below.



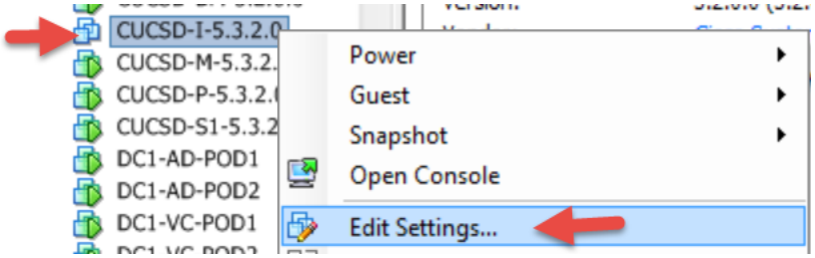
Power off the VM, select ‘Power Off’.



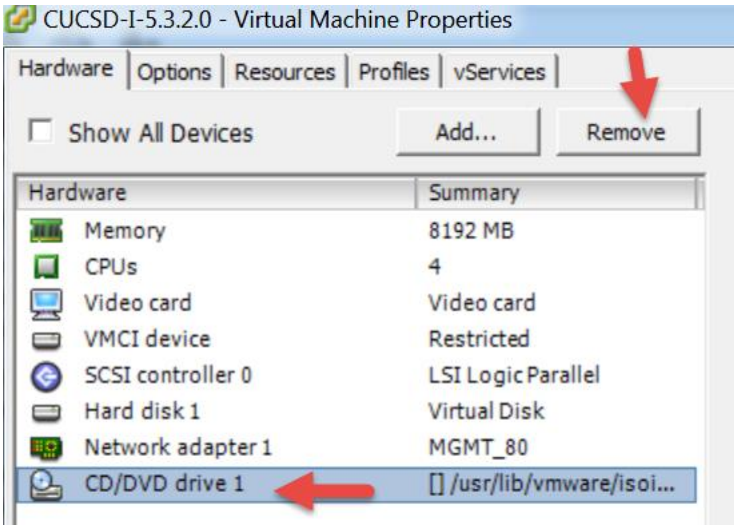
Select Yes.



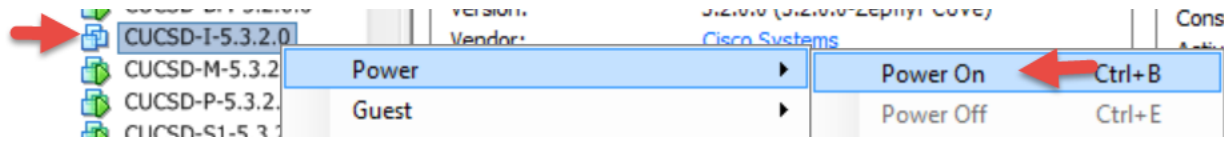
Edit Settings.



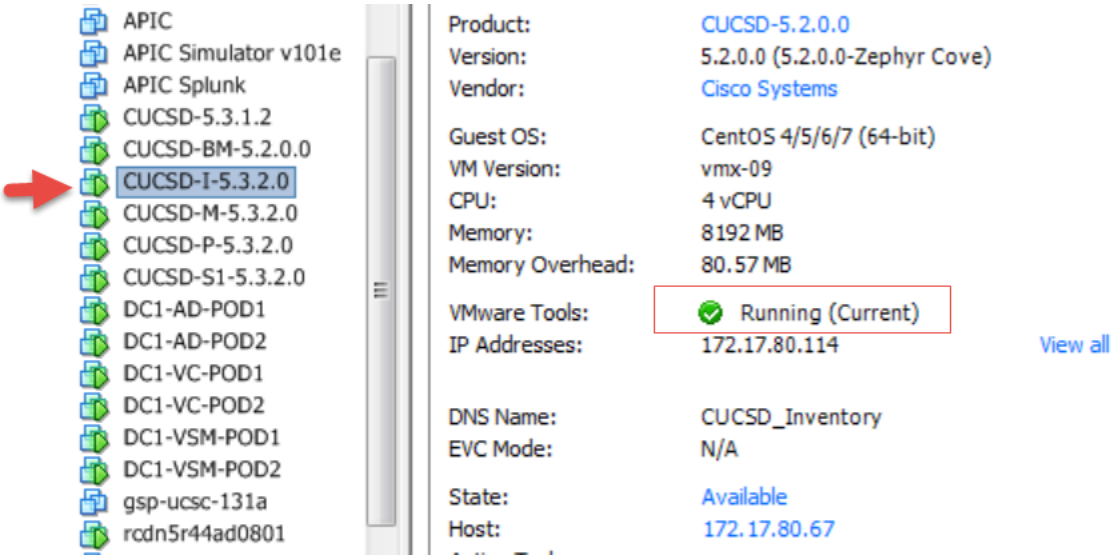
Remove CD/DVD drive then click OK.



Power on the VM.



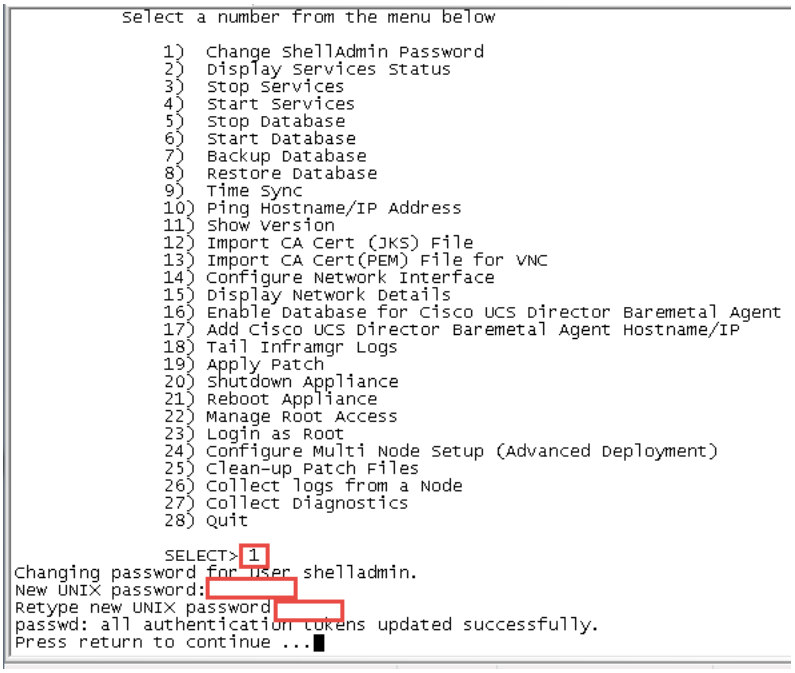
Verify the tools are installed, running and current.



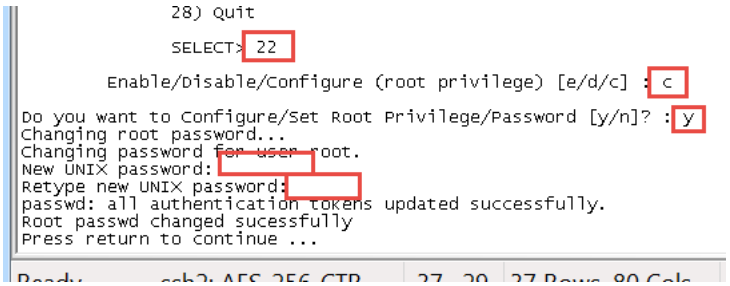
2.3. Configure Inventory Database

SSH to the Inventory Database Node using the shelladmin account and the default password of changeme.

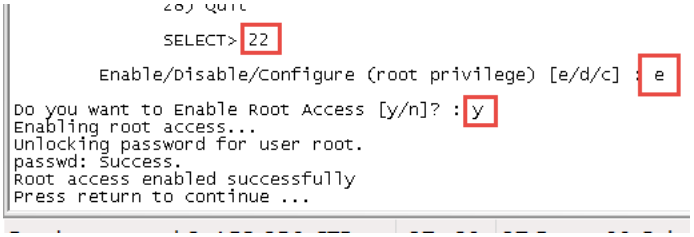
Change the shelladmin password.



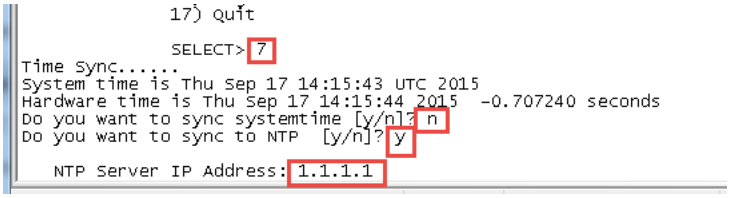
Configure and change the root password.



Enable root access.



Configure NTP Server. Replace the 1.1.1.1 with your NTP Server.



From the menu, choose ‘Configure Multi Node Setup (Advanced Deployment)’ and press Enter. When prompted, press 1 to configure the current node. Then press y and then select the option to configure the node as the inventory database node. From the menu, choose ‘Configure Inventory Database ‘ and press Enter. When prompted, press Enter to Continue. When prompted to logout, enter y and press enter then log back into the Inventory Database Node via SSH.

```
              28) Quit

              SELECT> 24
********************************************************************************
            This wizard helps to do Multi Node setup
********************************************************************************
 Configuration Options :
 Current Node --> Select '1'
 Remote Node  --> Select '2'
 exit         --> Select '3'

Please enter an option:  1
********************************************************************************************
***
Cisco UCS Director Multi Node Setup requires multiple instances of UCS Director
OVF deployed with different configurations. Following are the required configura
tions:

* UCS Director Primary Node (1 Instance) . This node also acts as a front end UI
 node
* UCS Director Service Node (1 or more instances ). Service node can be reconfig
ured as Primary Node when necessary.
* UCS Director Inventory DB Node (1 Instance)
* UCS Director Monitoring DB Node (1 Instance)

Refer to UCS Director documentation for additional details on Multi Node Setup.
********************************************************************************************
***

This is a Standalone Node

Do you want to configure multi node setup [y/n]? y

          Select a option from the menu below

              a)  Configure as Primary Node
              b)  Configure as Service Node
              c)  Configure as Inventory DB
              d)  Configure as Monitoring DB
              x)  Exit

Enter: [a/b/c/d/x]? c
Do you want to configure this node as Inventory Database [y/n]? y
Configuring Inventory DB
This will reinitialize database and you will lose all your data. Do you still want to con
tinue? [y/n]?y
user selected 'y' reinitialize database
Checking DB Status
 3427 ?        00:00:00 mysqld_safe
 3848 ?        00:06:27 mysqld
Stopping Services
Disabling UCS Director services at startup
Enabling Remote Database access to Primary Node and Service Node
Re-initializing Database
Configured Inventory Database Successfully
In order for changes to take effect logout and login back
Do you want to logout [y/n]?y
```

To verify the services for the inventory database are up and running, choose ‘Display Service Status’ and press Enter. You should see the lines in the red box below. Note: After you return to the shelladmin, the menu options change to those available for an inventory database node.

```
               Cisco UCS Director Shell Menu

                      Inventory Database

         Select a number from the menu below

              1)  Change ShellAdmin Password
              2)  Display Services Status
              3)  Stop Database
              4)  Start Database
              5)  Backup Database
              6)  Restore Database
              7)  Time Sync
              8)  Ping Hostname/IP Address
              9)  Configure Network Interface
              10) Display Network Details
              11) Enable Database for Cisco UCS Director Baremetal Agent
              12) Add Cisco UCS Director Baremetal Agent Hostname/IP
              13) Shutdown Appliance
              14) Reboot Appliance
              15) Manage Root Access
              16) Login as Root
              17) Quit

              SELECT> 2
 3427 ?        00:00:00 mysqld_safe
 3848 ?        00:08:04 mysqld
Press return to continue ...
```

Edit the /etc/hosts file to update the name and IP address of the host. SSH to the Inventory Database Node using the root account.

- vi /etc/hosts
- shift a
- press return
- enter your host details
- when done: press esc
- enter :wq
- cat /etc/hosts

```
~
"/etc/hosts" 5L, 168C written
[root@localhost ~]# cat /etc/hosts
127.0.0.1   localhost.localdom localhost localhost
172.17.80.114 CUCSD_Inventory
172.17.80.115 CUCSD_Monitoring
172.17.80.116 CUCSD_Service1
172.17.80.113 CUCSD_Primary
[root@localhost ~]#
```

Edit the /etc/resolv.conf to update the DNS servers

- vi /etc/resolv.conf
- press ‘i’ for insert
- enter ‘search localhost *your domain name’*, **Note**: Sometime search localhost is already there
- enter dns server ip address after nameserver, **Note**: if you have multiple DNS servers, enter on separate lines
- when done: press esc
- enter :wq

```
[root@CUCSD_Inventory ~]# vi /etc/resolv.conf
search localhost gsp-r5.cloudlab.cisco.com
nameserver 172.17.80.104
```

- cat /etc/resolv.conf

```
[root@CUCSD_Inventory ~]# cat /etc/resolv.conf
search localhost gsp-r5.cloudlab.cisco.com
nameserver 172.17.80.104
[root@CUCSD_Inventory ~]#
```

Edit the hostname in /etc/sysconfig/network

- vi /etc/sysconfig/network
- Move cursor to the beginning of localhost where it is on the l and enter cw (change word)
- Enter the Host name for the Inventory Database Node.
- when done: press esc
- enter :wq
- cat /etc/sysconfig/network

```
[root@localhost ~]# cat /etc/sysconfig/network
NETWORKING=yes
NETWORKING_IPV6=yes
HOSTNAME=CUCSD_Inventory
DOMAINNAME=localdom
[root@localhost ~]#
```

Change the hostname

```
[root@localhost ~]# hostname CUCSD_Inventory
[root@localhost ~]# hostname
CUCSD_Inventory
[root@localhost ~]#
```

Log out and log back into the Inventory Database and you will see the new hostname.

```
[root@CUCSD_Inventory ~]#
```

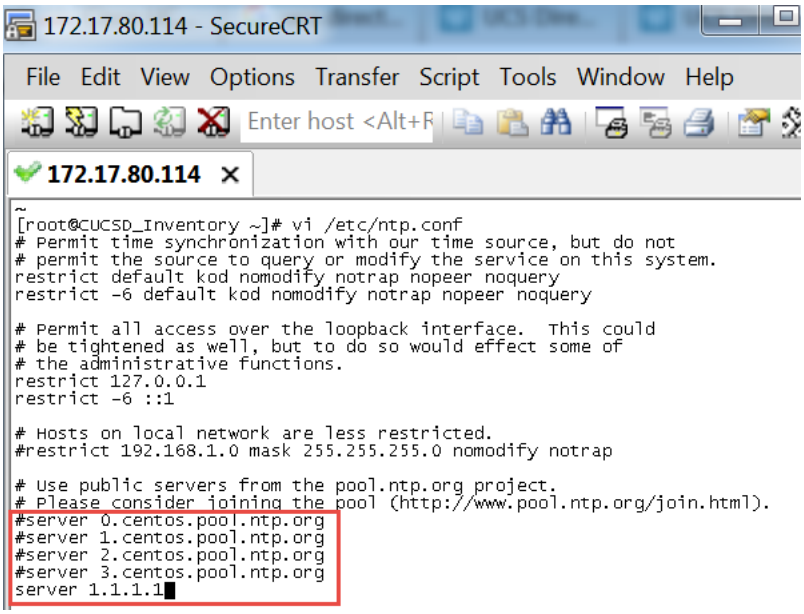
Configure NTP servers for Inventory Database Node. SSH into Inventory Database Node using root account.

Create ntp user

```
[root@CUCSD_Inventory ~]# useradd ntp
[root@CUCSD_Inventory ~]# service ntpd restart
Shutting down ntpd: [FAILED]
Starting ntpd: [  OK  ]
[root@CUCSD_Inventory ~]# ntpq -p
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
 time-b.timefreq .INIT.          16 u    -   64    0    0.000    0.000   0.000
 173.44.32.10    .INIT.          16 u    -   64    0    0.000    0.000   0.000
 resolver2.level .INIT.          16 u    -   64    0    0.000    0.000   0.000
 blue.c1f.net    .INIT.          16 u    -   64    0    0.000    0.000   0.000
 LOCAL(0)        .LOCL.          10 l    -   64    0    0.000    0.000   0.001
[root@CUCSD_Inventory ~]#
```

Edit the ntp.conf file to include your NTP server. You can simple comment out the existing NTP servers by placing a # infront of them.

- vi /etc/ntp.conf
- cursor down to the first NTP server line
- press i for insert
- enter # then move your cursor down to each of the other NTP servers and enter #
- create a new line for your NTP server by pressing enter after the last NTP server
- enter server and the ip address of your NTP server. Replace 1.1.1.1 with your ntp server
- press esc, then enter :wq to quit and write the info



Restart the nptd service and check the NTP synchronization. It may take a while but when the clock is synced with the NTP server there will be a * to the left of the IP address.

```
[root@CUCSD_Inventory ~]# service ntpd restart
Shutting down ntpd: [  OK  ]
Starting ntpd: [  OK  ]
[root@CUCSD_Inventory ~]# ntpq -p
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
*72.37.202.75   LOCAL(1)         5 u   11   64    1    1.354  -29.804   0.001
 LOCAL(0)        .LOCL.          10 l   10   64    1    0.000    0.000   0.001
```

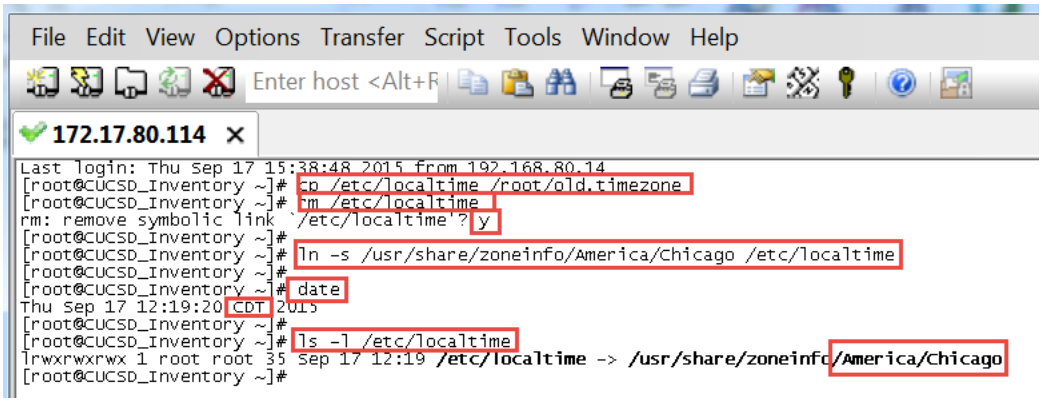
Change the time zone to the local timezone where the Primary Node, Inventory Database and the Monitoring Database reside. Use this timezone for all the service Nodes as well even though they may not reside in this timezone. This will ensure the logs will match everywhere.

- Determine the current timezone by entering 'ls –l /etc/localtime'
- To determine your timezone, 'cd /usr/share/zoneinfo/America/'

```
[root@CUCSD_Inventory ~]#
[root@CUCSD_Inventory ~]#
[root@CUCSD_Inventory ~]# ls -l /etc/localtime
lrwxrwxrwx 1 root root 27 Dec 20  2014 /etc/localtime -> /usr/share/zoneinfo/Etc
/UTC
[root@CUCSD_Inventory ~]# cd /usr/share/zoneinfo/
[root@CUCSD_Inventory zoneinfo]# ls
Africa      Brazil      Egypt       GB          Hongkong    Jamaica     MST         Portugal    ROK         WET
America     Canada      Eire        GB-Eire     HST         Japan       MST7MDT     posix       Singapore   W-SU
Antarctica  CET         EST         GMT         Iceland     Kwajalein   Navajo      posixrules  Turkey      zone.tab
Arctic      Chile       EST5EDT     GMT0        Indian      Libya       NZ          PRC         UCT         Zulu
Asia        CST6CDT     Etc         GMT-0       Iran        MET         NZ-CHAT     PST8PDT     Universal
Atlantic    Cuba        Europe      GMT+0       iso3166.tab Mexico      Pacific     right       US
Australia   EET         Factory     Greenwich   Israel      Mideast     Poland      ROC         UTC
[root@CUCSD_Inventory zoneinfo]# cd America/
[root@CUCSD_Inventory America]# ls
Adak            Cambridge_Bay   Dominica        Indiana         Mendoza         Phoenix         St_Barthelemy
Anchorage       Campo_Grande    Edmonton        Indianapolis    Menominee       Port-au-Prince  St_Johns
Anguilla        Cancun          Eirunepe        Inuvik          Merida          Porto_Acre      St_Kitts
Antigua         Caracas         El_Salvador     Iqaluit         Mexico_City     Port_of_Spain   St_Lucia
Araguaina       Catamarca       Ensenada        Jamaica         Miquelon        Porto_Velho     St_Thomas
Argentina       Cayenne         Fortaleza       Jujuy           Moncton         Puerto_Rico     St_Vincent
Aruba           Cayman          Fort_Wayne      Juneau          Monterrey       Rainy_River     Swift_Current
Asuncion        Chicago         Glace_Bay       Kentucky        Montevideo      Rankin_Inlet    Tegucigalpa
Atikokan        Chihuahua       Godthab         Knox_IN         Montreal        Recife          Thule
Atka            Coral_Harbour   Goose_Bay       La_Paz          Montserrat      Regina          Thunder_Bay
Bahia           Cordoba         Grand_Turk      Lima            Nassau          Resolute        Tijuana
Barbados        Costa_Rica      Grenada         Los_Angeles     New_York        Rio_Branco      Toronto
Belem           Cuiaba          Guadeloupe      Louisville      Nipigon         Rosario         Tortola
Belize          Curacao         Guatemala       Maceio          Nome            Santarem        Vancouver
Blanc-Sablon    Danmarkshavn    Guayaquil       Managua         Noronha         Santiago        Virgin
Boa_Vista       Dawson          Guyana          Manaus          North_Dakota    Santo_Domingo   Whitehorse
Bogota          Dawson_Creek    Halifax         Marigot         Panama          Sao_Paulo       Winnipeg
Boise           Denver          Havana          Martinique      Pangnirtung     Scoresbysund    Yakutat
Buenos_Aires    Detroit         Hermosillo      Mazatlan        Paramaribo      Shiprock        Yellowknife
[root@CUCSD_Inventory America]#
```

Change the timezone and verify. I have chosen the Central Time Zone for my location.

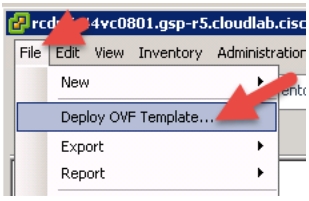
- Copy the localtime to new file named old.timezone: 'cp /etc/localtime /root/old.timezone'
- Remove the localtime file: 'rm /etc/localtime'
- Create the new localtime file: 'ln -s /usr/share/zoneinfo/America/Chicago /etc/localtime'
- Verify the timzone is what you set it to: 'date'
- Verify the link: 'ls -l /etc/localtime'



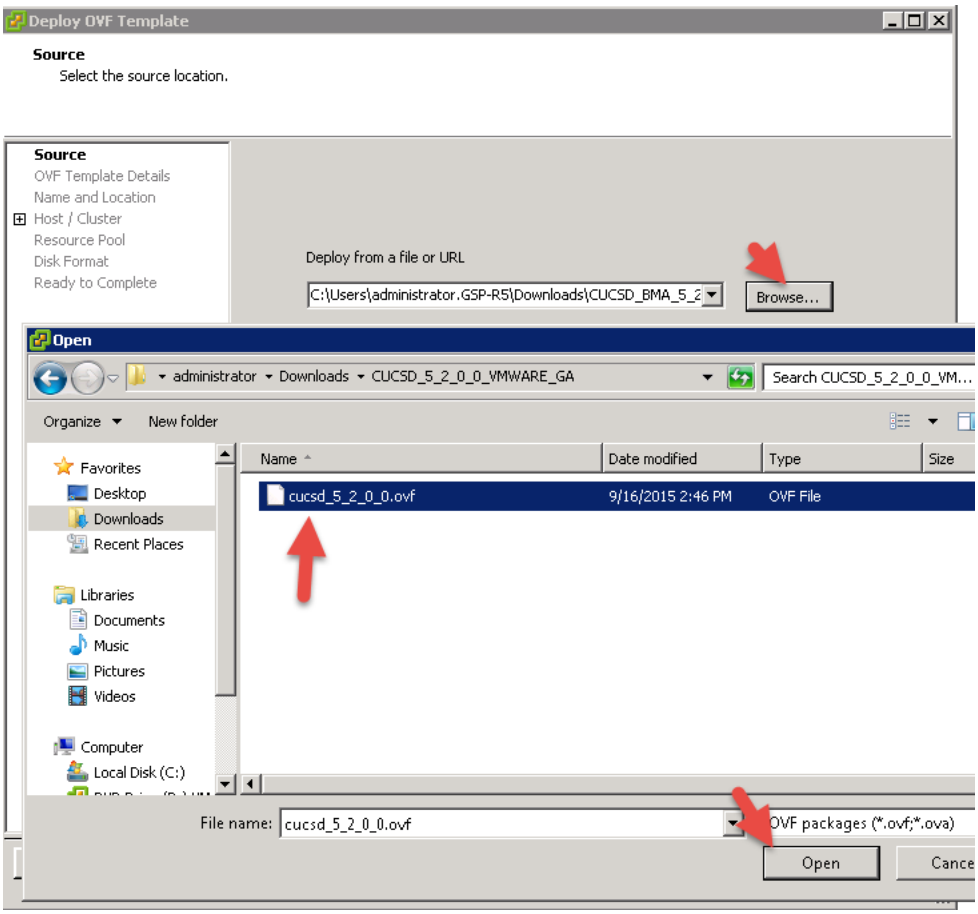
3. Create the Monitoring Database Node

3.1. Create Monitoring Database VM

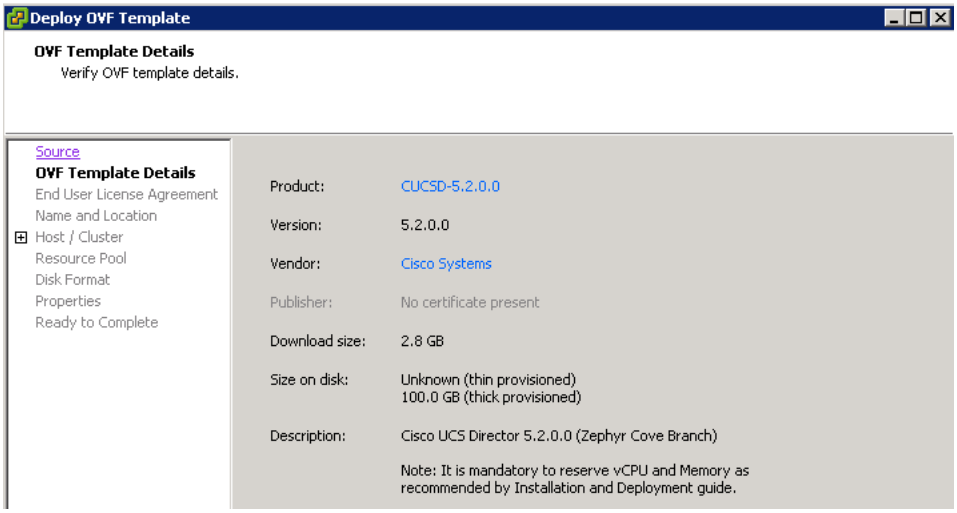
Log into vCenter and Select File -> Deploy OVF Template.



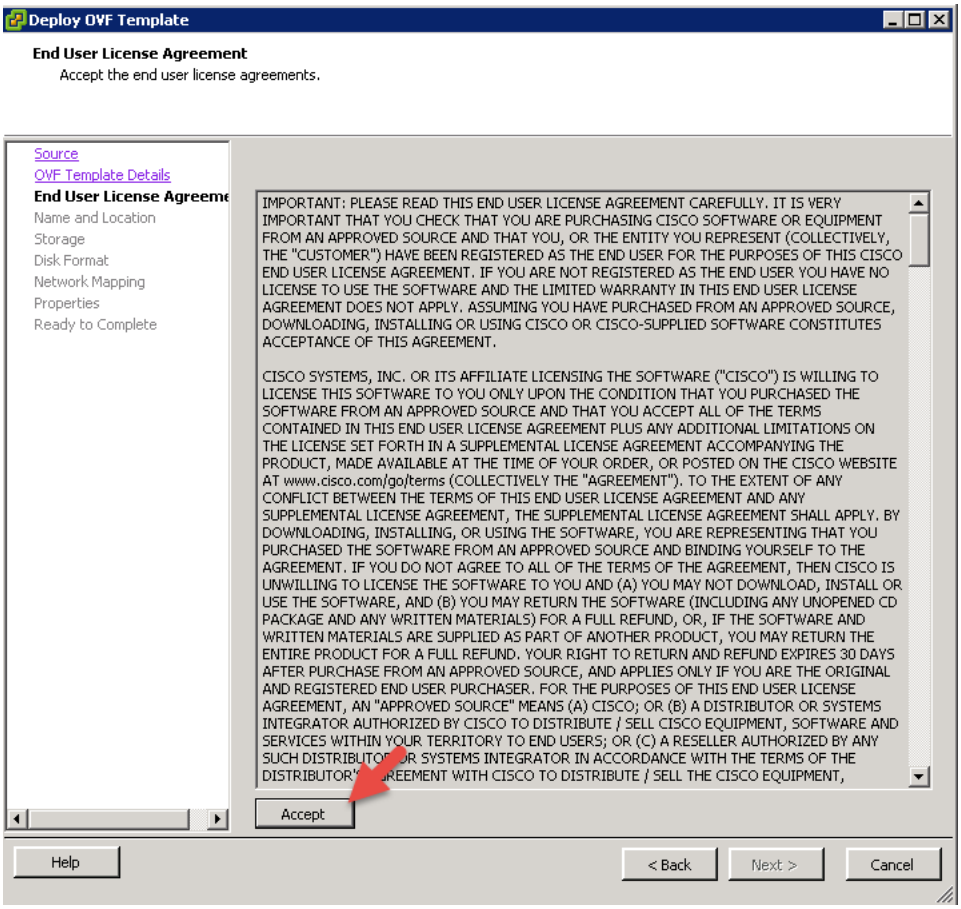
Browse to the UCSD_5_2_0_0 and select it for deployment then click Next.



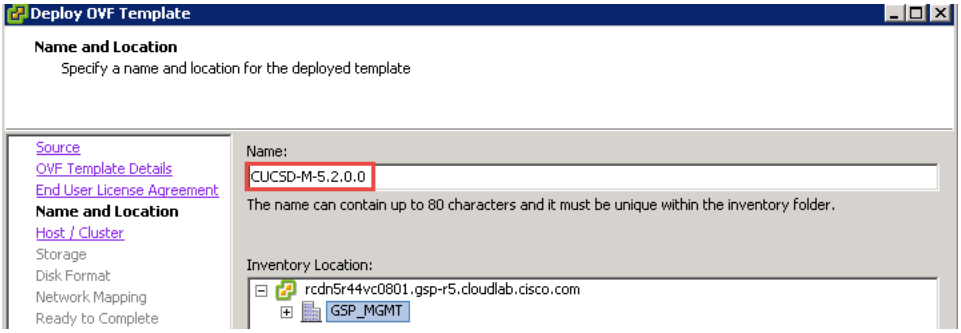
Verify details then click Next.



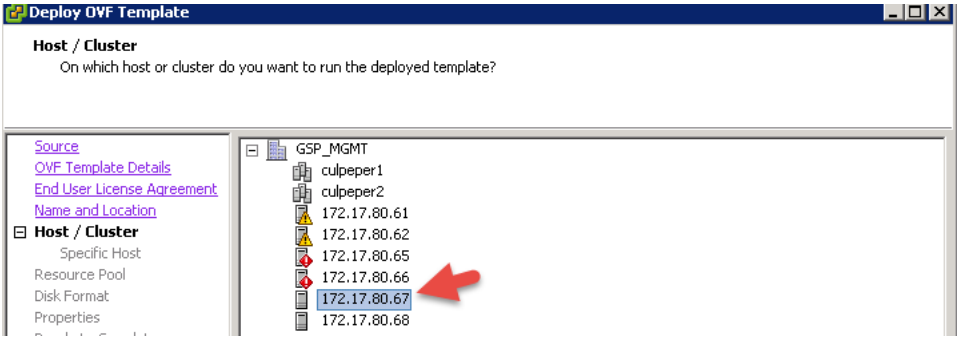
Accept the license agreement and Click Next.



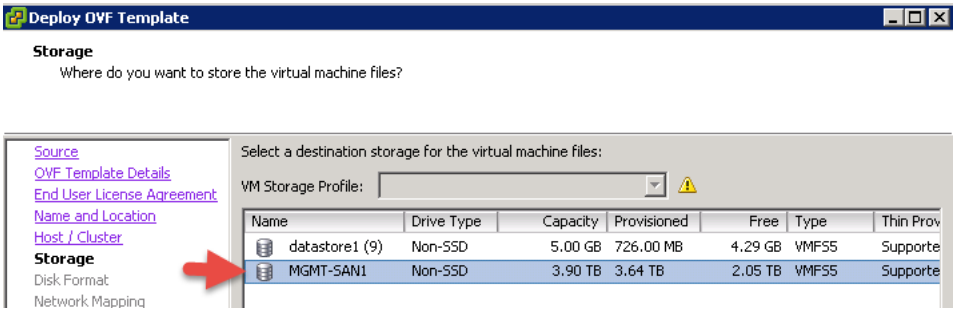
Name the VM and click Next.



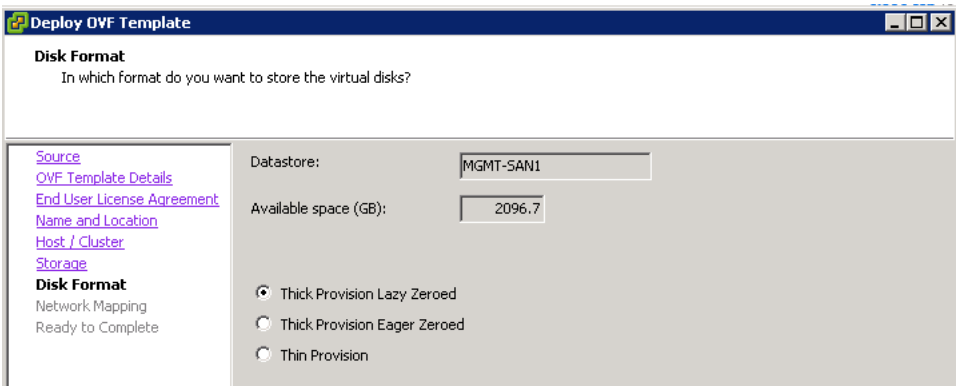
Select a Host and click Next.



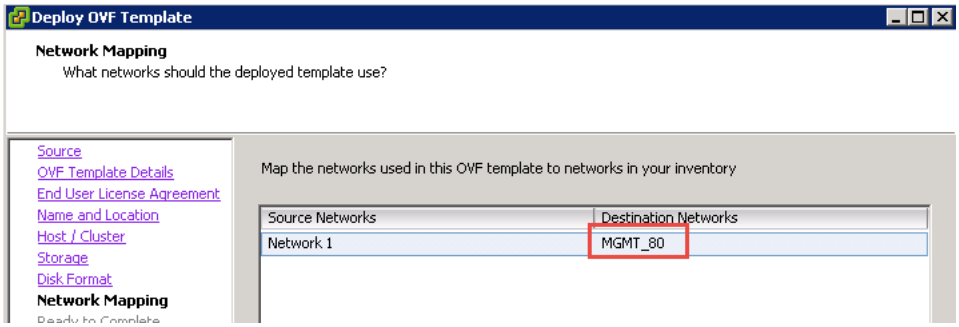
Select a storage location to install the VM and click Next.



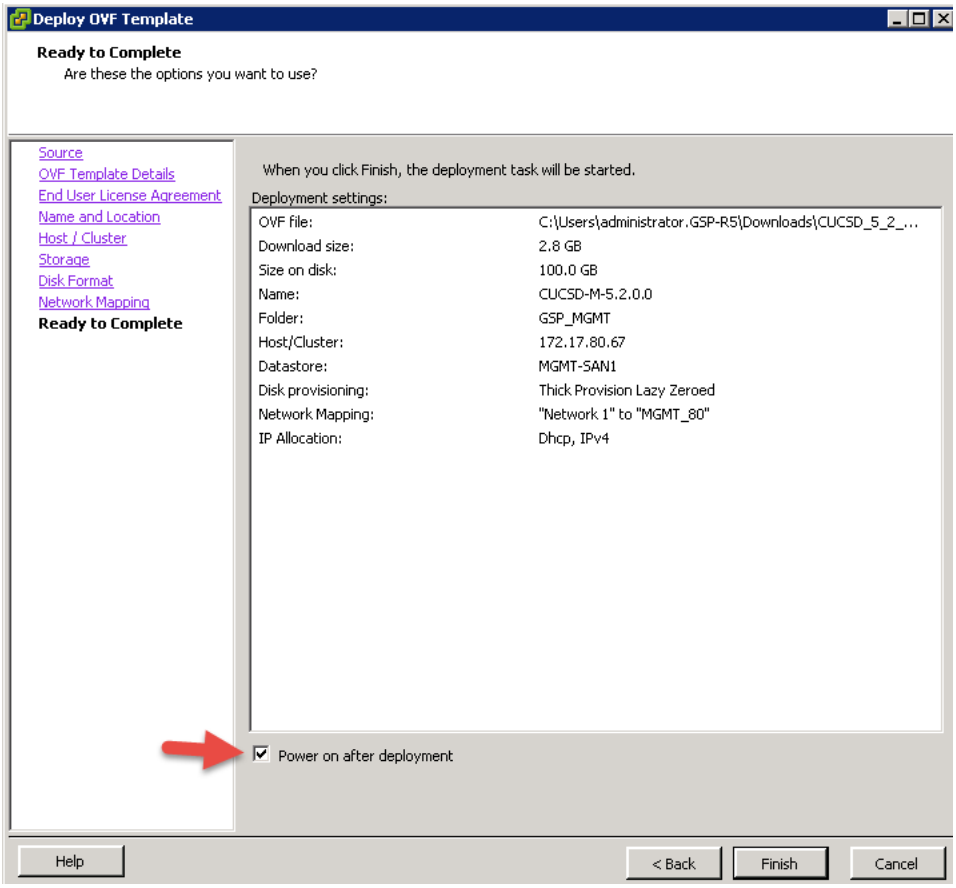
Leave the default settings for the Disk Format and click Next.



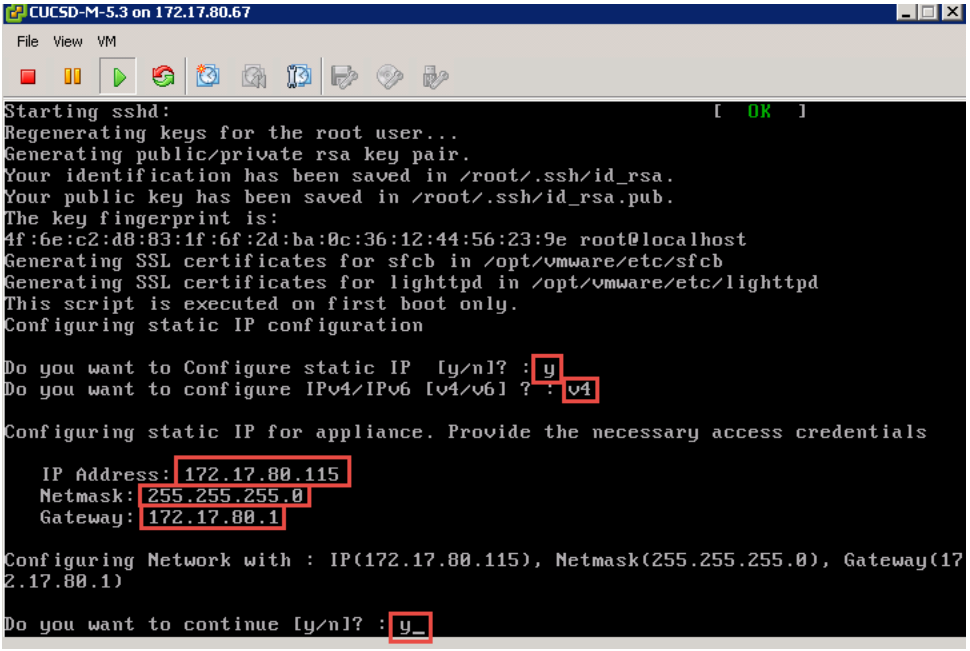
Select the Network to put this VM on and click Next.



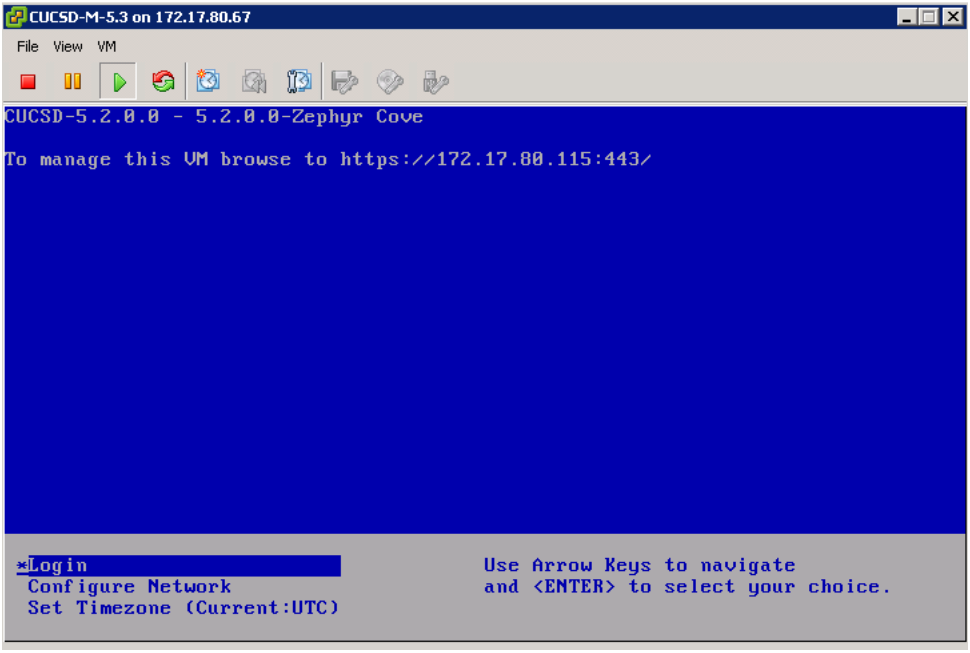
Select Power on after deployment and click Finish.



In my case, I don't have DHCP enabled on the network so I must manually configure an IP Address from the Console. In vCenter, open the console of the Monitoring Database Node. Enter the following and wait for the Build to complete. This process could take a while so be patient.

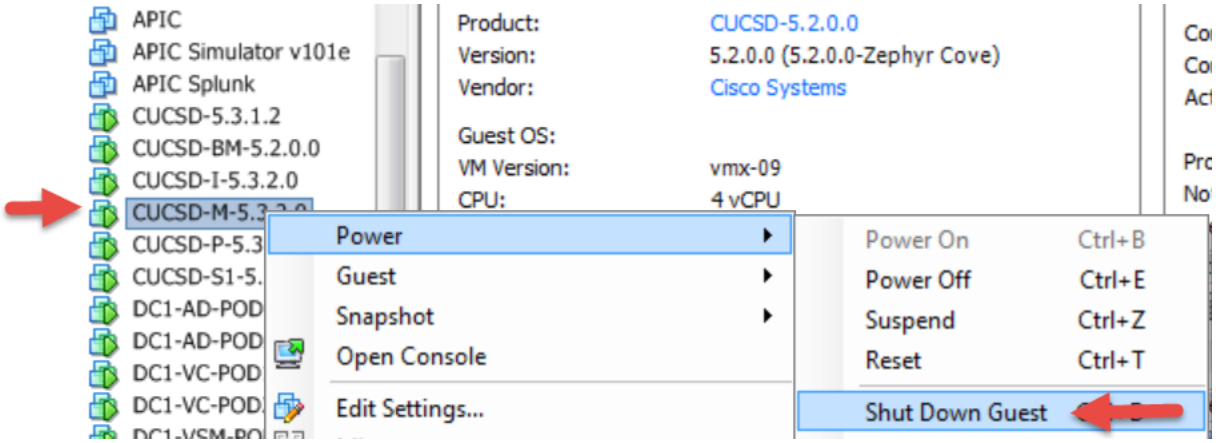


After the installation is complete, you should see a screen that looks like this.

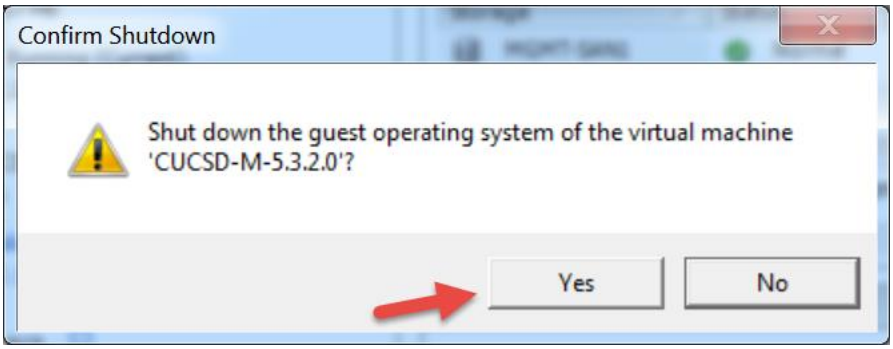


3.2. Install/Update VMWare tools & VM Version

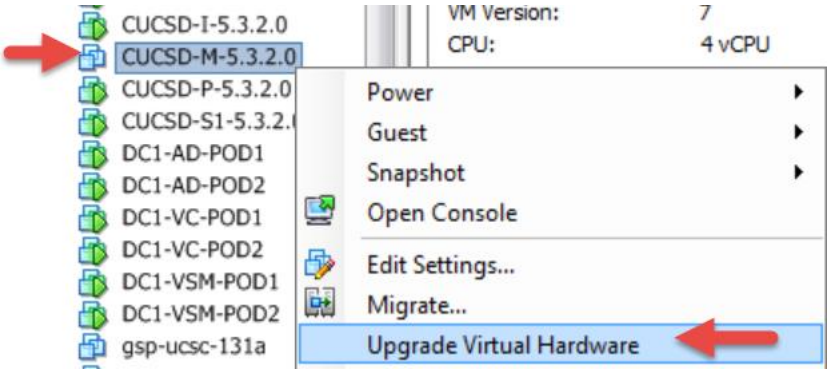
Log into vCenter, navigate to your Monitoring Database VM, select ‘Shutdown Guest.



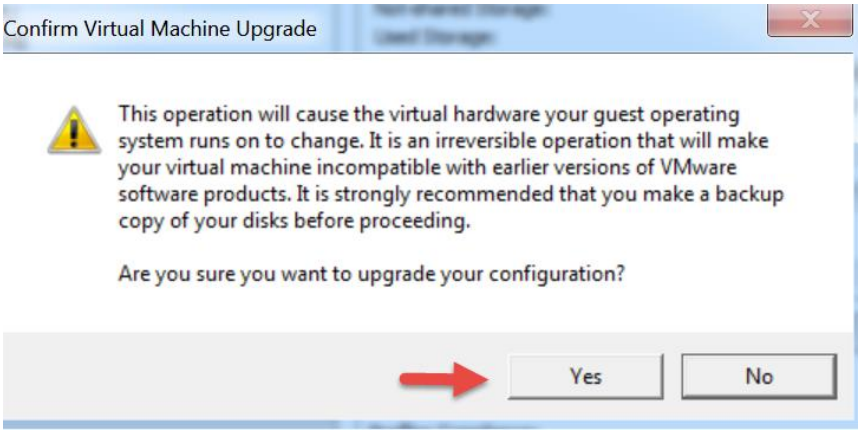
Select Yes.



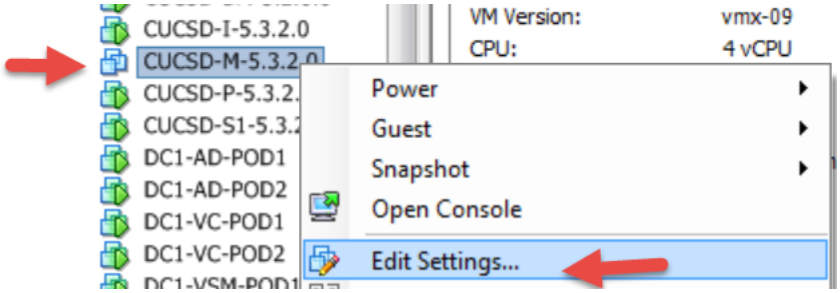
Wait for the VM to completely shut down then right click on the VM and select ‘Upgrade Virtual Hardware’.



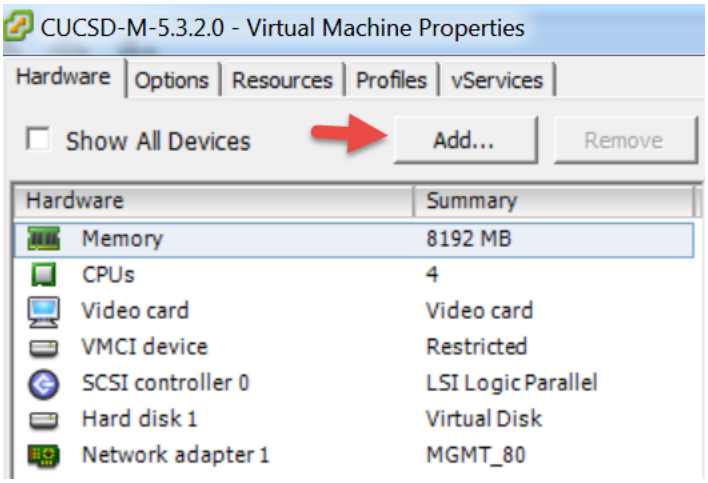
Select Yes.



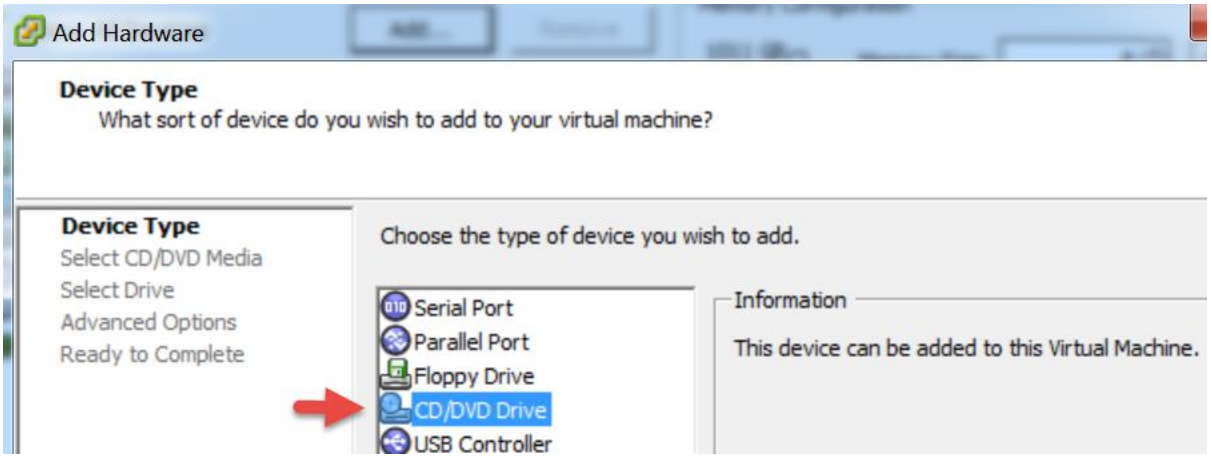
Right click on the VM and Select 'Edit Settings'



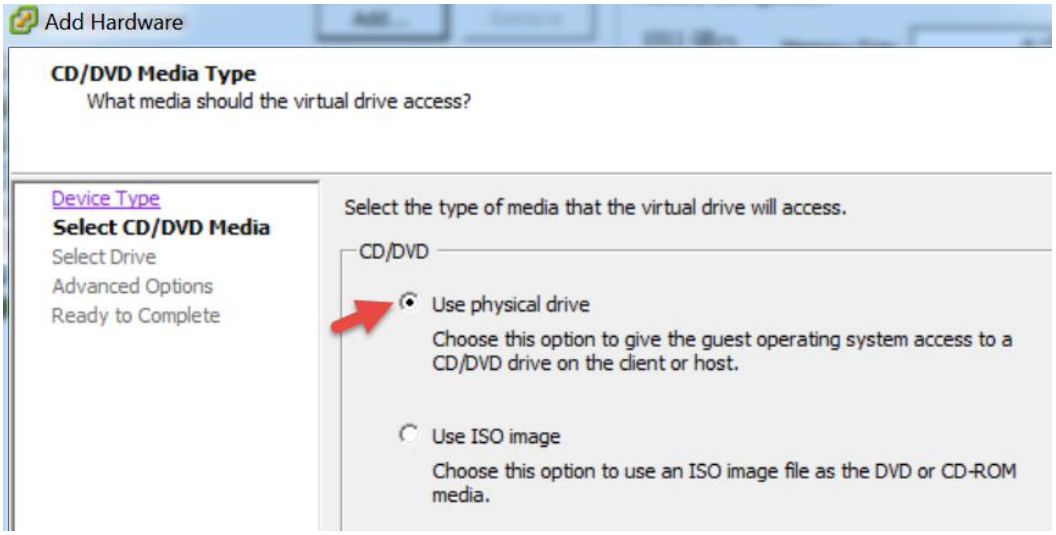
Select Add.



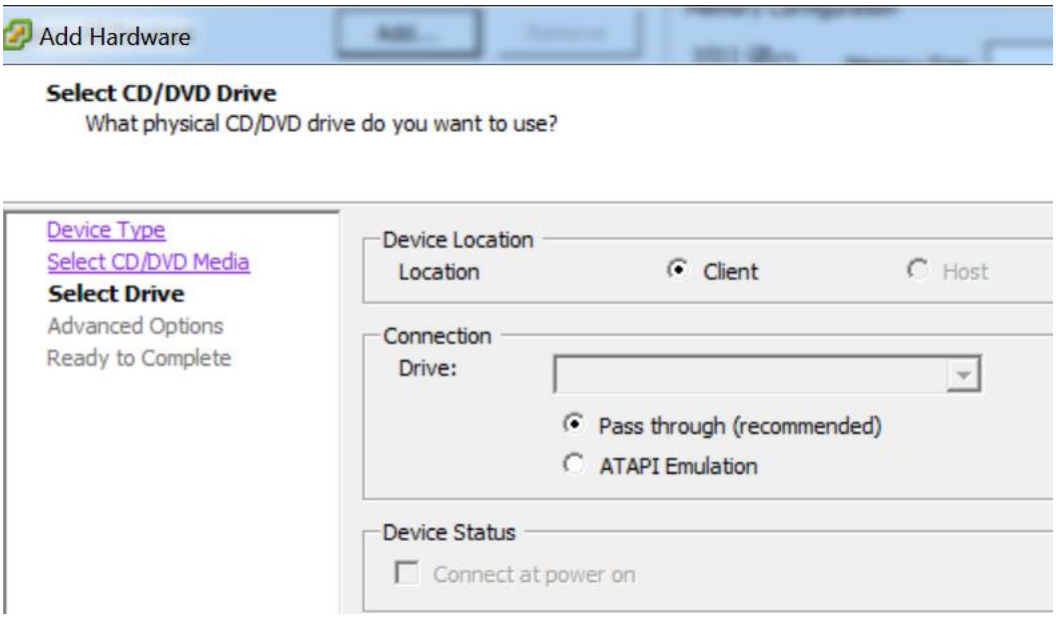
Select 'CD/DVD Drive' and click Next.



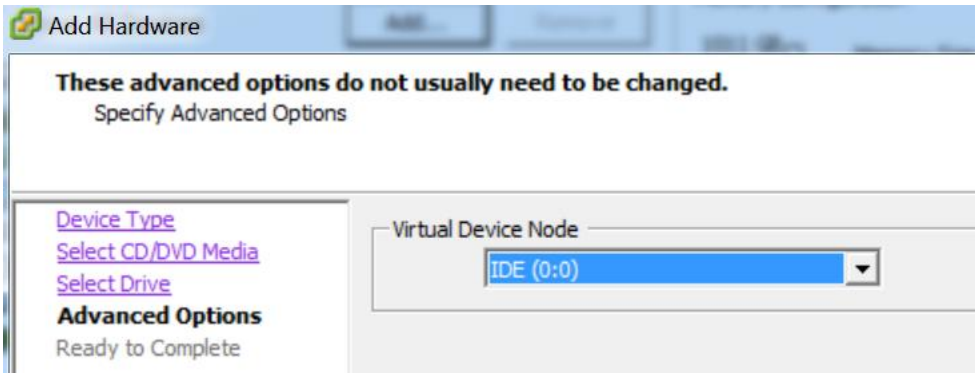
Leave default ‘Use physical drive’ and click Next.



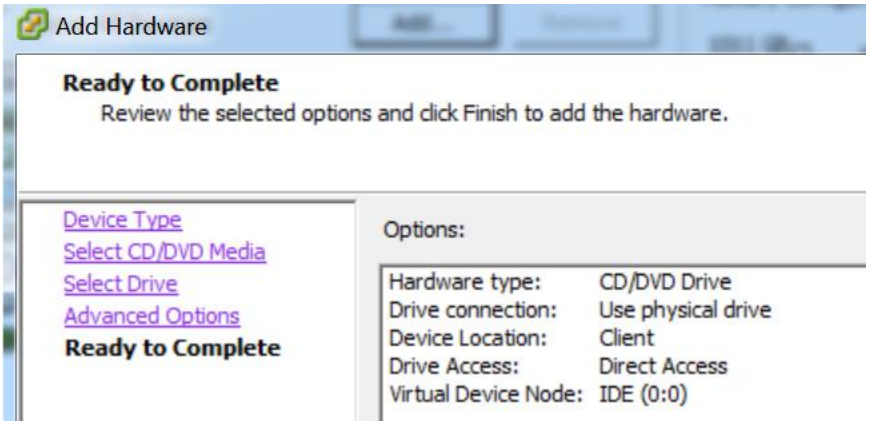
Leave default and click Next.



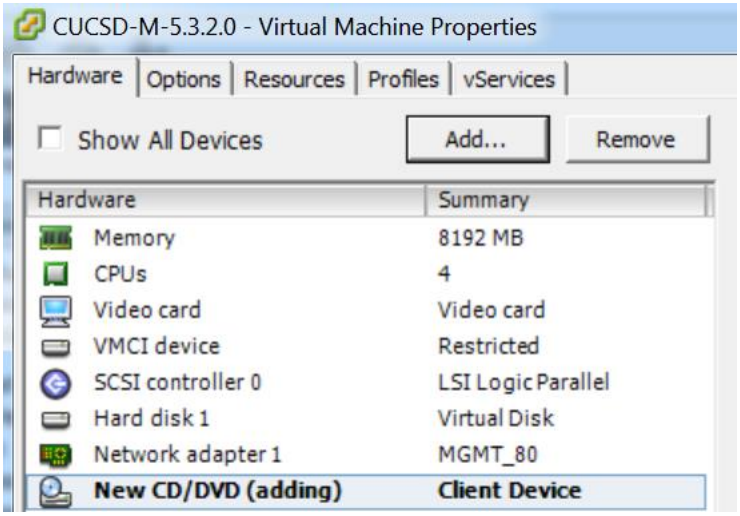
Leave default and click Next.



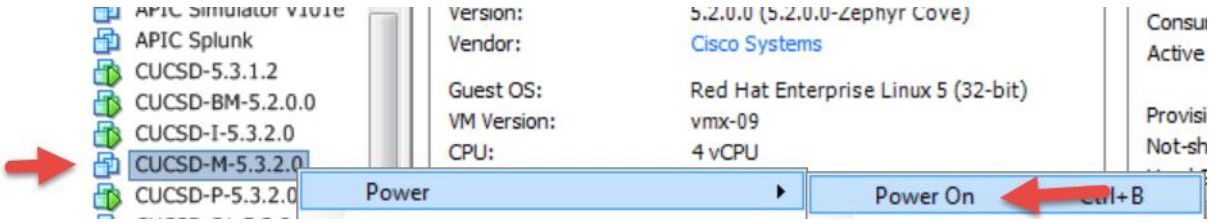
Review and click Finish.



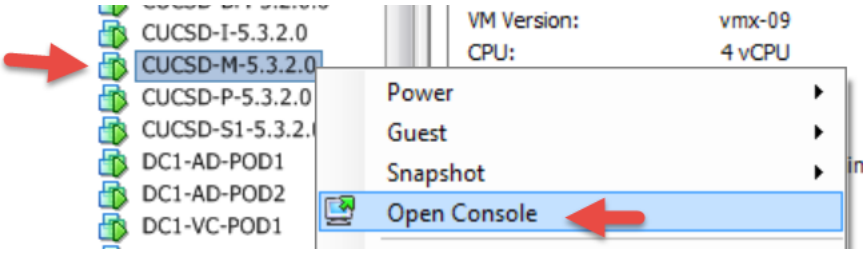
Review and click OK.



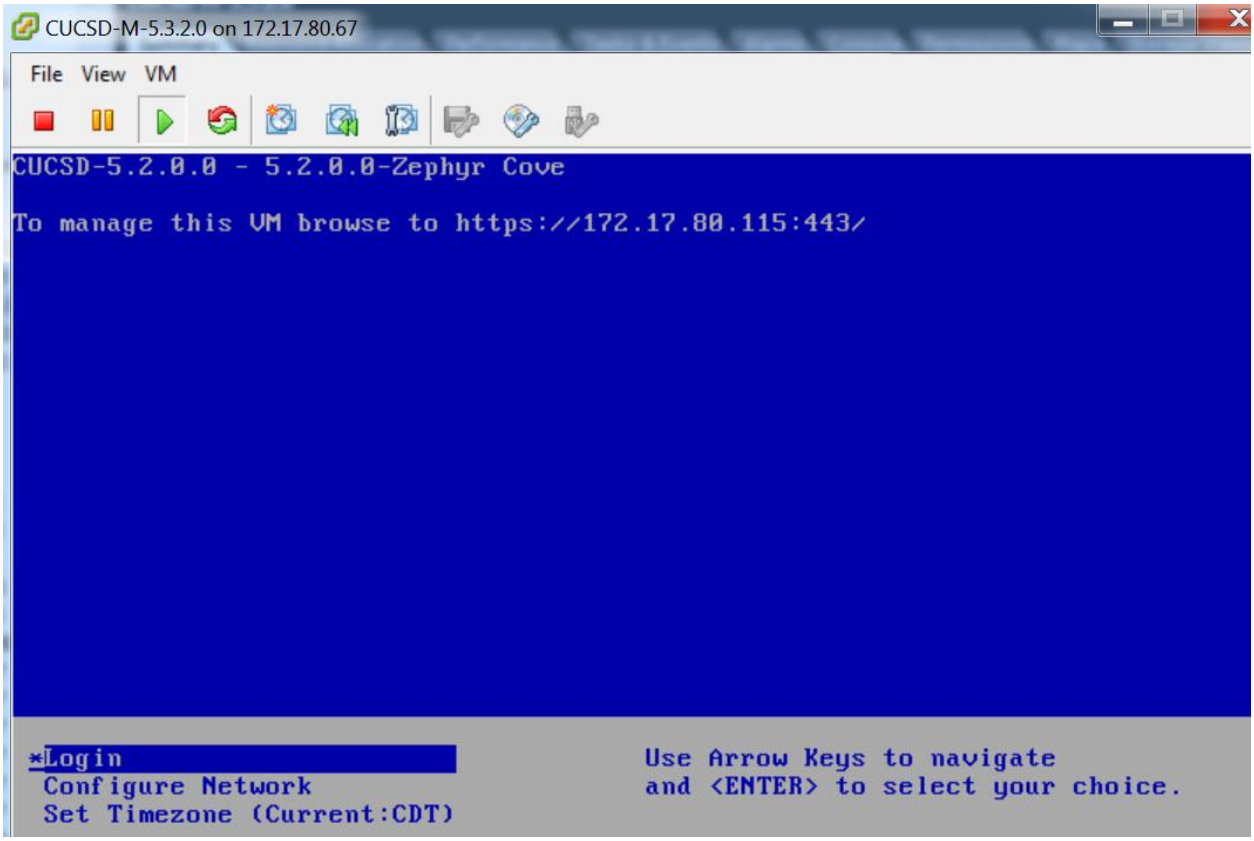
Power the VM On, right click on the VM and select 'Power On'.



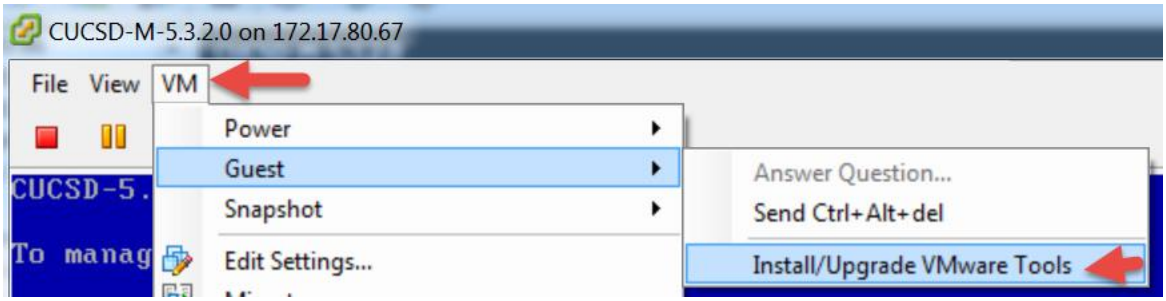
Open the VM Console to watch the VM Boot.



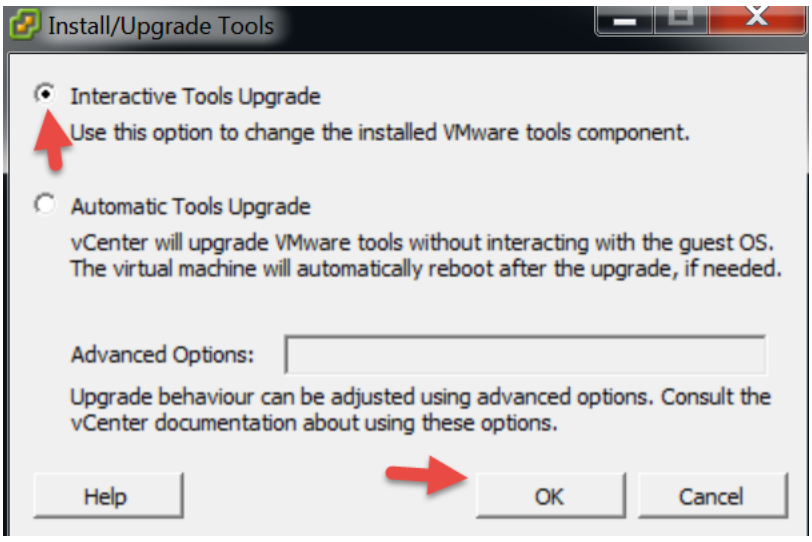
Once the VM is completely up, you should see the login screen similar to below.



From the console, select 'Install/Upgrade VMware Tools'



Select 'Interactive Tools Upgrade' and click OK.



SSH to the Monitoring Database Node.

- Make a dir for cdrom: 'mkdir /mnt/cdrom'
- Mount the cdrom: 'mount /dev/cdrom /mnt/cdrom'
- Copy vmware install to /tmp: 'cp /mnt/cdrom/VMwareTools-**5.0.0-<xxxx>.**tar.gz /tmp' **Note**: tab out the VMware tools part so you don't have to figure out the correct name.
- Unzip the files in /tmp: 'tar zxf /tmp/VMwareTools-**5.0.0-<xxxx>.**tar.gz' **Note**: tab out the VMware tools part so you don't have to figure out the correct name.
- Change directory: 'cd vmware-tools-distrib'
- Run the install: './vmware-install.pl'

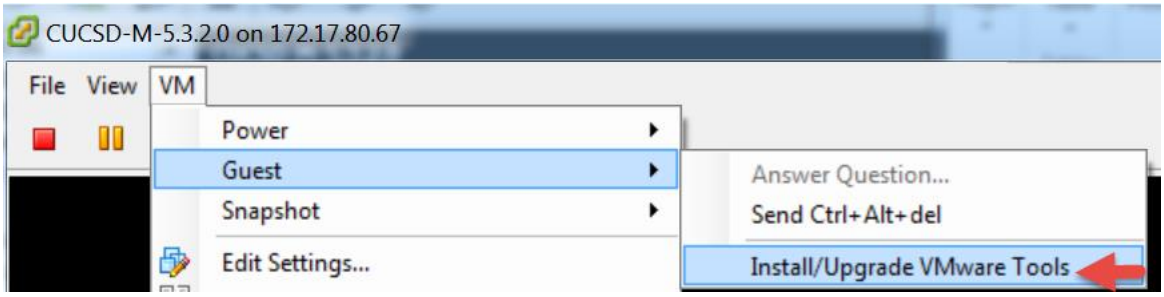
  Note: You will probably get the following message.

  VMware Tools cannot be installed, since they have already been installed using a package-based mechanism (rpm or deb) on this system. If you wish to continue, you must first remove the currently installed VMware Tools using the appropriate packaged-based mechanism, and then restart this installer
  Execution aborted.
  Found VMware Tools CDROM mounted at /mnt/cdrom. Ejecting device /dev/cdrom ... No eject (or equivilant) command could be located. Eject Failed: If possible manually eject the Tools installer from the guest cdrom mounted at /mnt/cdrom before canceling tools install on the host.
- If you get this message, we need to Delete the VMware tools directory: 'rm -rf /usr/lib/vmware-tools/'
- Change directory: 'cd vmware-tools-distrib/'
- Re-Run the install: './vmware-install.pl'
- Enter Yes to the 'Would you like to remove the install DB?' You will probably get a Failure and Execution aborted.
- Re-Run the install: './vmware-install.pl'
- Accept all the defaults by Pressing Enter for all the options.

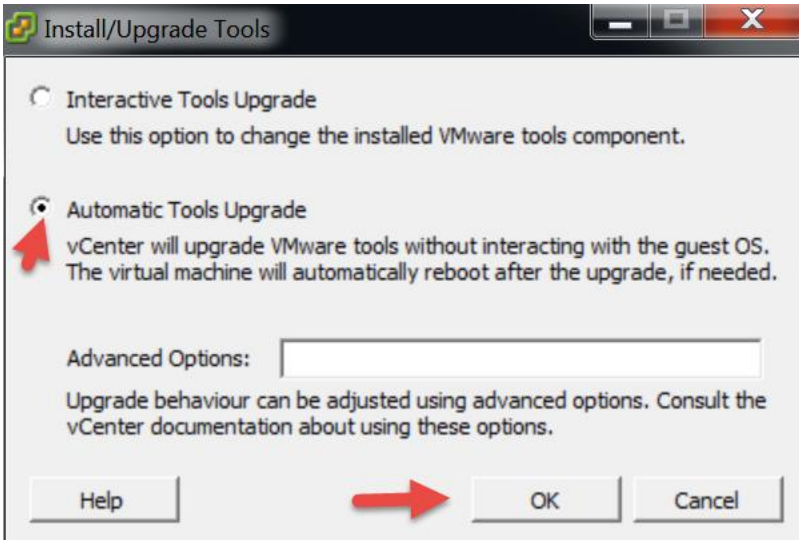
```
[root@CUCSD_Monitoring vmware-tools-distrib]# rm -rf /usr/lib/vmware-tools/
[root@CUCSD_Monitoring vmware-tools-distrib]# ./vmware-install.pl
A previous installation of VMware Tools has been detected.

Uninstallation of previous install failed. Would you like to remove the install
DB? [no] yes

Removing installer DB, please re-run the installer.

Failure

Execution aborted.

[root@CUCSD_Monitoring vmware-tools-distrib]# ./vmware-install.pl
Creating a new VMware Tools installer database using the tar4 format.

Installing VMware Tools.

The file /etc/vmware-tools/poweron-vm-default that this program was about to
install already exists. Overwrite? [yes]

The file /etc/vmware-tools/suspend-vm-default that this program was about to
install already exists. Overwrite? [yes]

The file /etc/vmware-tools/poweroff-vm-default that this program was about to
install already exists. Overwrite? [yes]

The file /etc/vmware-tools/resume-vm-default that this program was about to
install already exists. Overwrite? [yes]

In which directory do you want to install the binary files?
[/usr/bin]

The file /usr/bin/vm-support that this program was about to install already
exists. Overwrite? [yes]

What is the directory that contains the init directories (rc0.d/ to rc6.d/)?
[/etc/rc.d]

What is the directory that contains the init scripts?
[/etc/rc.d/init.d]

The file /etc/rc.d/init.d/vmware-tools that this program was about to install
already exists. Overwrite? [yes]

In which directory do you want to install the daemon files?
[/usr/sbin]

In which directory do you want to install the library files?
[/usr/lib/vmware-tools]

The path "/usr/lib/vmware-tools" does not exist currently. This program is
going to create it, including needed parent directories. Is this what you want?
[yes]

The file /sbin/mount.vmhgfs that this program was about to install already
exists. Overwrite? [yes]

In which directory do you want to install the documentation files?
[/usr/share/doc/vmware-tools]

The file /usr/share/doc/vmware-tools/open_source_licenses.txt that this program
was about to install already exists. Overwrite? [yes]
```

```
The file /usr/share/doc/vmware-tools/README that this program was about to
install already exists. Overwrite? [yes]

The file /usr/share/doc/vmware-tools/INSTALL that this program was about to
install already exists. Overwrite? [yes]

The installation of VMware Tools 9.0.0 build-782409 for Linux completed
successfully. You can decide to remove this software from your system at any
time by invoking the following command: "/usr/bin/vmware-uninstall-tools.pl".

Before running VMware Tools for the first time, you need to configure it by
invoking the following command: "/usr/bin/vmware-config-tools.pl". Do you want
this program to invoke the command for you now? [yes]

The file /usr/sbin/vmware-checkvm that this program was about to install
already exists.  Overwrite? [yes]

The file /usr/sbin/vmware-rpctool that this program was about to install
already exists.  Overwrite? [yes]

The file /usr/bin/vmware-hgfsclient that this program was about to install
already exists.  Overwrite? [yes]

The file /usr/bin/vmware-xferlogs that this program was about to install
already exists.  Overwrite? [yes]

Initializing...

The file /etc/vmware-tools/icu that this program was about to install already
exists.  Overwrite? [yes]


Making sure services for VMware Tools are stopped.

Stopping VMware Tools services in the virtual machine:
   Guest operating system daemon:[  OK  ]
   Unmounting HGFS shares:[  OK  ]
   Guest filesystem driver:[  OK  ]


The VMware FileSystem Sync Driver (vmsync) allows external third-party backup
software that is integrated with vSphere to create backups of the virtual
machine. Do you wish to enable this feature? [no]

Found a compatible pre-built module for vmci.  Installing it...


Found a compatible pre-built module for vsock.  Installing it...


Found a compatible pre-built module for vmxnet3.  Installing it...


Found a compatible pre-built module for pvscsi.  Installing it...


Found a compatible pre-built module for vmmemctl.  Installing it...


The VMware Host-Guest Filesystem allows for shared folders between the host OS
and the guest OS in a Fusion or Workstation virtual environment.  Do you wish
to enable this feature? [no]

Found a compatible pre-built module for vmxnet.  Installing it...



The vmblock enables dragging or copying files between host and guest in a
Fusion or Workstation virtual environment.  Do you wish to enable this feature?
[no]

!!! [EXPERIMENTAL] !!!
VMware automatic kernel modules enables automatic building and installation of
VMware kernel modules at boot that are not already present.  By selecting yes,
you will be enabling this experimental feature.  You can always disable this
feature by re-running vmware-config-tools.pl.

Would you like to enable VMware automatic kernel modules?
[no]

No X install found.

Creating a new initrd boot image for the kernel.
   Checking acpi hot plug[  OK  ]
Starting VMware Tools services in the virtual machine:
   Switching to guest configuration:[  OK  ]
   Paravirtual SCSI module:[  OK  ]
   Guest memory manager:[  OK  ]
   Guest vmxnet fast network device:[  OK  ]
   VM communication interface:[  OK  ]
   VM communication interface socket family:[  OK  ]
   Guest operating system daemon:[  OK  ]
The configuration of VMware Tools 9.0.0 build-782409 for Linux for this running
kernel completed successfully.

You must restart your X session before any mouse or graphics changes take
effect.

You can now run VMware Tools by invoking "/usr/bin/vmware-toolbox-cmd" from the
command line.

To enable advanced X features (e.g., guest resolution fit, drag and drop, and
file and text copy/paste), you will need to do one (or more) of the following:
1. Manually start /usr/bin/vmware-user
2. Log out and log back into your desktop session; and,
3. Restart your X session.

To use the vmxnet driver, restart networking using the following commands:
/etc/init.d/network stop
rmmod pcnet32
rmmod vmxnet
modprobe vmxnet
/etc/init.d/network start

Enjoy,

--the VMware team


[root@CUCSD_Monitoring vmware-tools-distrib]#
[root@CUCSD_Monitoring vmware-tools-distrib]#
```

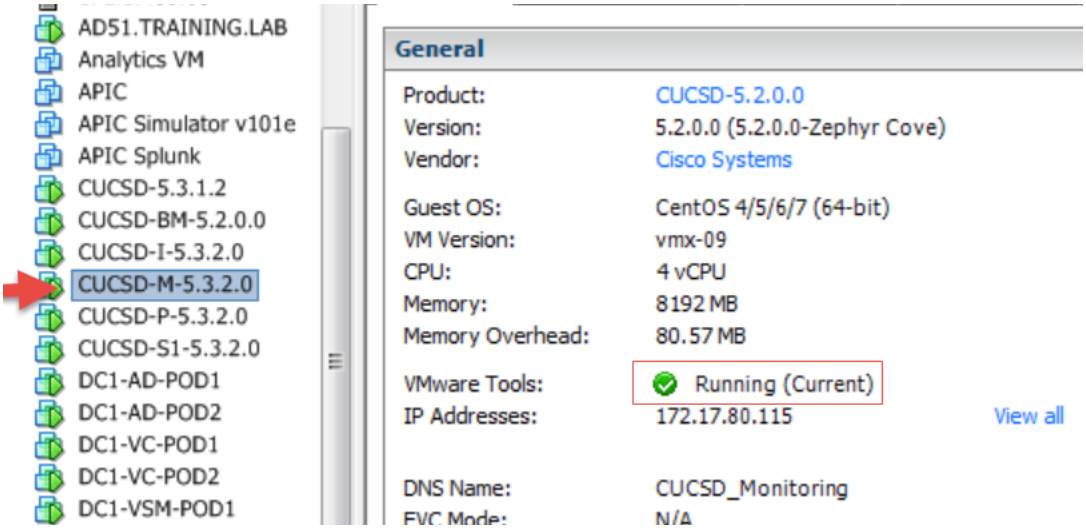
From the console, select ‘Install/Upgrade VMware Tools’



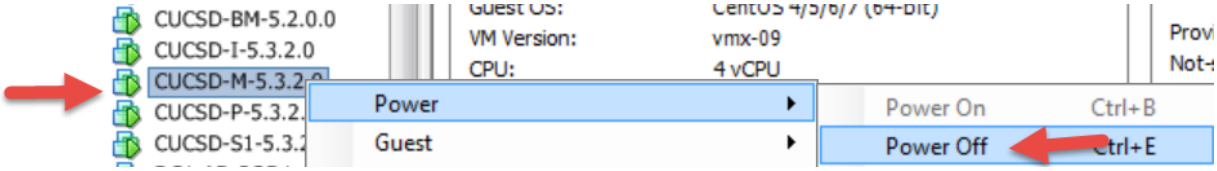
Select ‘Automatic Tools Upgrade’ and click OK.



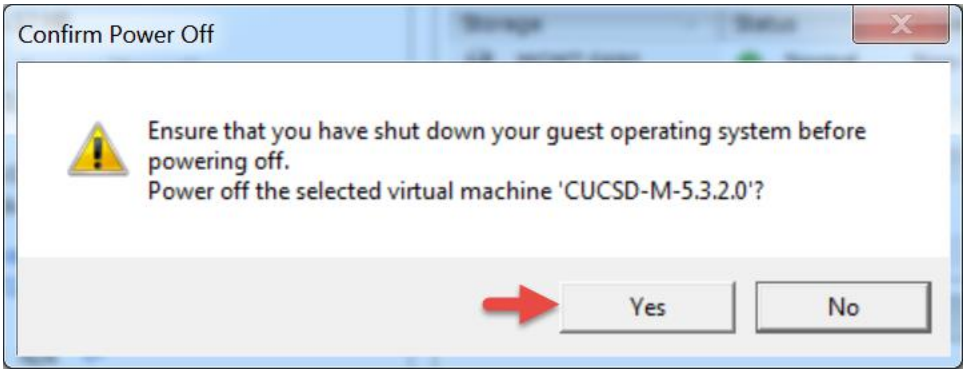
Verify Tools have been installed and currently Running as shown below.



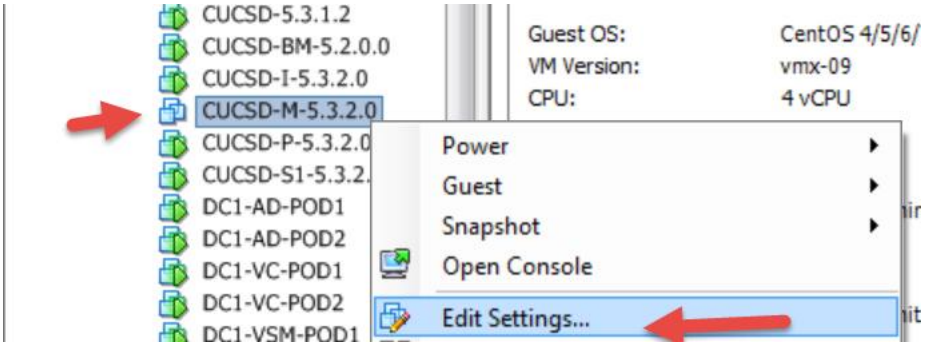
Power off the VM, select ‘Power Off’.



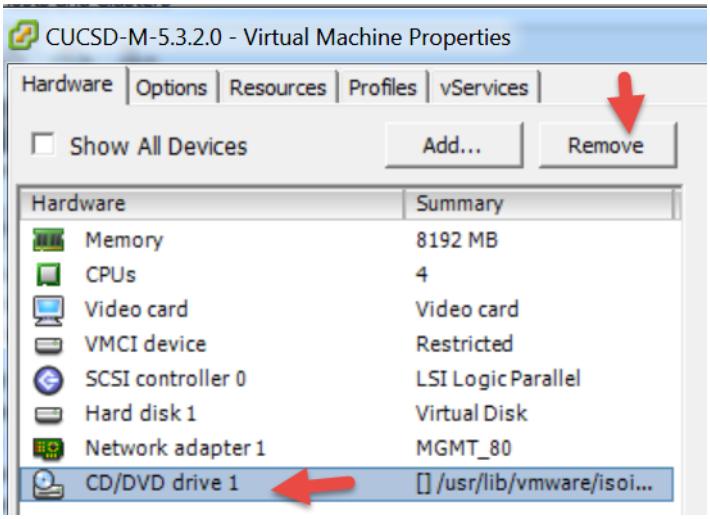
Select Yes.



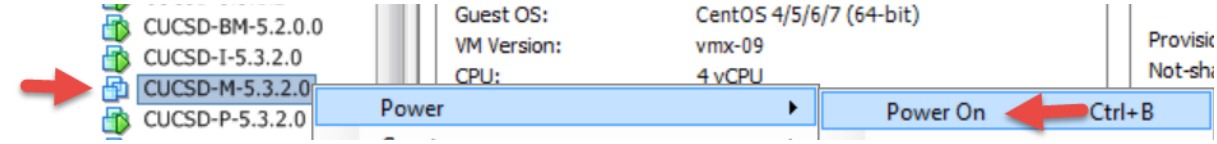
Edit Settings.



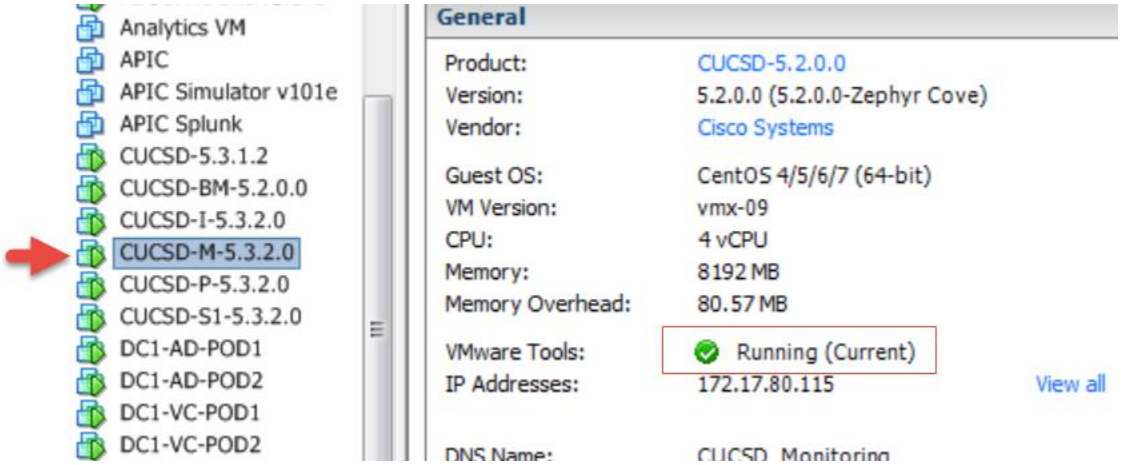
Remove CD/DVD drive then click OK.



Power on the VM.



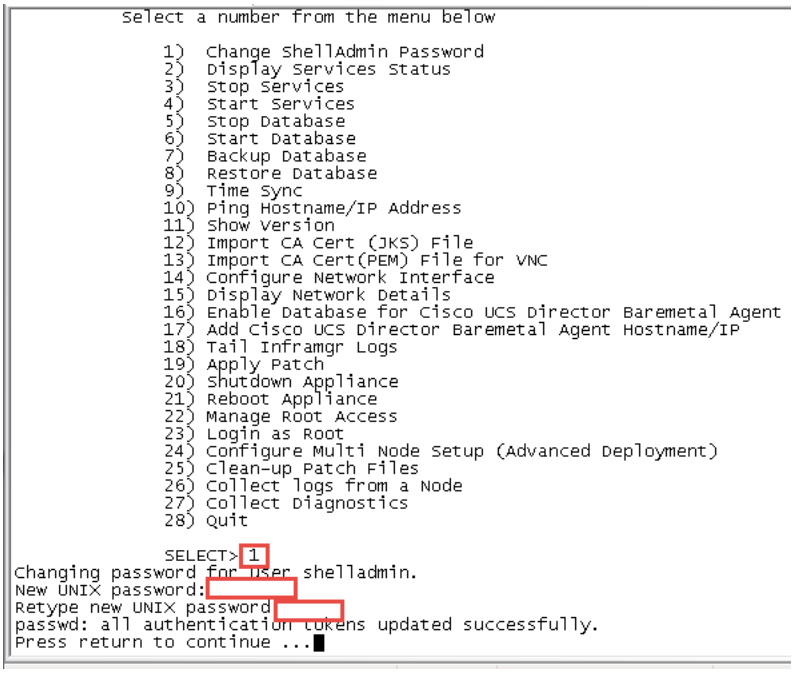
Verify the tools are installed, running and current.



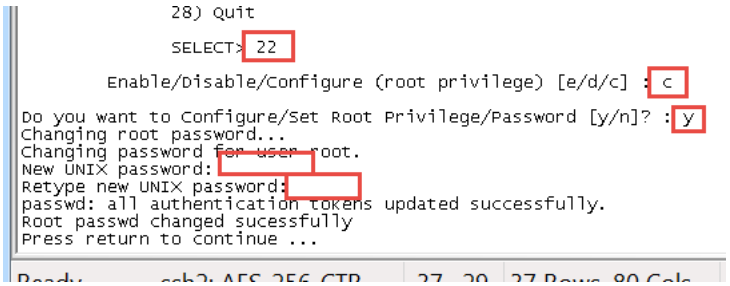
3.3. Configure Monitoring Database

SSH to the Monitoring Database Node using the shelladmin account and the default password of changeme.

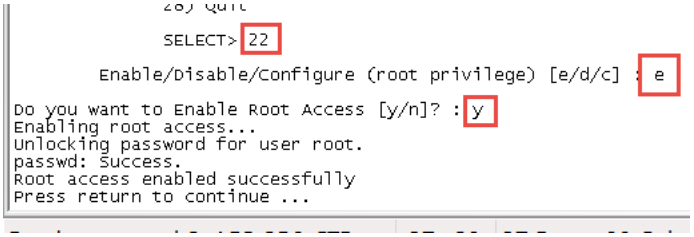
Change the shelladmin password.



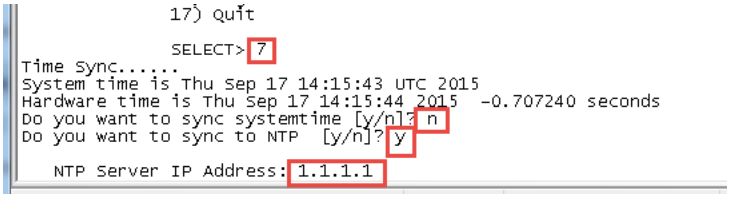
Configure and change the root password.



Enable root access.



Configure NTP Server. Replace the 1.1.1.1 with your NTP Server.



From the menu, choose ‘Configure Multi Node Setup (Advanced Deployment)’ and press Enter. When prompted, press 1 to configure the current node. Then press y and then select the option to configure the node as the monitoring database node. From the menu, choose ‘Configure Monitoring Database ‘ and press Enter. When prompted, press Enter to Continue. When prompted to logout, enter y and press enter then log back into the Monitoring Database Node via SSH.

```
              28) Quit

              SELECT> 24
********************************************************************************
          This wizard helps to do Multi Node setup
********************************************************************************
 Configuration Options :
 Current Node --> Select '1'
 Remote Node  --> Select '2'
 exit         --> Select '3'

Please enter an option:  1
********************************************************************************************
Cisco UCS Director Multi Node Setup requires multiple instances of UCS Director OVF deployed with diffe
ent configurations. Following are the required configurations:

* UCS Director Primary Node (1 Instance) . This node also acts as a front end UI node
* UCS Director Service Node (1 or more instances ). Service node can be reconfigured as Primary Node wh
n necessary.
* UCS Director Inventory DB Node (1 Instance)
* UCS Director Monitoring DB Node (1 Instance)

Refer to UCS Director documentation for additional details on Multi Node Setup.
********************************************************************************************

This is a Standalone Node

Do you want to configure multi node setup [y/n]? y

          Select a option from the menu below

              a)  Configure as Primary Node
              b)  Configure as Service Node
              c)  Configure as Inventory DB
              d)  Configure as Monitoring DB
              x)  Exit

Enter: [a/b/c/d/x]? d
Do you want to configure this node as Monitoring Database [y/n]? y
Configuring Monitoring DB
This will reinitialize database and you will lose all your data. Do you still want to continue? [y/n]?y
user selected 'y' reinitialize database
Checking DB Status
 3430 ?        00:00:00 mysqld_safe
 3851 ?        00:06:43 mysqld
Stopping Services
Disabling UCS Director services at startup
Enabling Remote Database access to Primary Node and Service Node
Re-initializing Database
Configured Monitoring Database Successfully
In order for changes to take effect logout and login back
Do you want to logout [y/n]?y
```

To verify the services for the monitoring database are up and running, choose ‘Display Service Status’ and press Enter. You should see the lines in the red box below. Note: After you return to the shelladmin, the menu options change to those available for an inventory database node.

```
               Cisco UCS Director Shell Menu

                      Monitoring Database

          Select a number from the menu below

              1)  Change ShellAdmin Password
              2)  Display Services Status
              3)  Stop Database
              4)  Start Database
              5)  Backup Database
              6)  Restore Database
              7)  Time Sync
              8)  Ping Hostname/IP Address
              9)  Configure Network Interface
              10) Display Network Details
              11) Enable Database for Cisco UCS Director Baremetal Agent
              12) Add Cisco UCS Director Baremetal Agent Hostname/IP
              13) Shutdown Appliance
              14) Reboot Appliance
              15) Manage Root Access
              16) Login as Root
              17) Quit

              SELECT> 2
 3430 ?        00:00:00 mysqld_safe
 3851 ?        00:06:47 mysqld
Press return to continue ...
```

Edit the /etc/hosts file to update the name and IP address of the host. SSH to the Inventory Database Node using the root account.

- vi /etc/hosts
- shift a
- press return
- enter your host details
- when done: press esc
- enter :wq
- cat /etc/hosts

```
"/etc/hosts" 5L, 168C written
[root@localhost ~]# cat /etc/hosts
127.0.0.1   localhost.localdom localhost localhost
172.17.80.114 CUCSD_Inventory
172.17.80.115 CUCSD_Monitoring
172.17.80.116 CUCSD_Service1
172.17.80.113 CUCSD_Primary
[root@localhost ~]#
```

Edit the /etc/resolv.conf to update the DNS servers

- vi /etc/resolv.conf
- press 'i' for insert
- enter 'search localhost *your domain name'*, **Note**: Sometime search localhost is already there
- enter dns server ip address after nameserver, **Note**: if you have multiple DNS servers, enter on separate lines
- when done: press esc
- enter :wq

```
[root@CUCSD_Monitoring ~]# vi /etc/resolv.conf
search localhost gsp-r5.cloudlab.cisco.com
nameserver 172.17.80.104
```

- cat /etc/resolv.conf

```
[root@CUCSD_Monitoring ~]# cat /etc/resolv.conf
search localhost gsp-r5.cloudlab.cisco.com
nameserver 172.17.80.104
[root@CUCSD_Monitoring ~]#
```

Edit the hostname in /etc/sysconfig/network

- vi /etc/sysconfig/network
- Move cursor to the beginning of localhost where it is on the l and enter cw (change word)
- Enter the Host name for the Inventory Database Node.
- when done: press esc
- enter :wq
- cat /etc/sysconfig/network

```
"/etc/sysconfig/network" 4L, 81C written
[root@localhost ~]# cat /etc/sysconfig/network
NETWORKING=yes
NETWORKING_IPV6=yes
HOSTNAME=CUCSD_Monitoring
DOMAINNAME=localdom
[root@localhost ~]#
```

Change the hostname

```
[root@localhost ~]# hostname CUCSD_Inventory
[root@localhost ~]# hostname
CUCSD_Inventory
[root@localhost ~]#
```

Log out and log back into the Inventory Database and you will see the new hostname.

```
[root@CUCSD_Monitoring ~]#
```

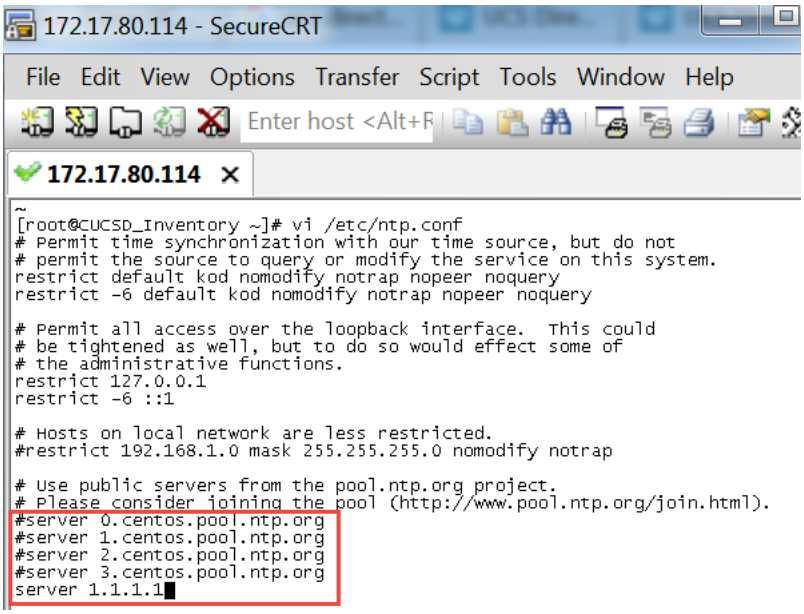
Configure NTP servers for Inventory Database Node. SSH into Inventory Database Node using root account.

Create ntp user

```
[root@CUCSD_Inventory ~]# useradd ntp
[root@CUCSD_Inventory ~]# service ntpd restart
Shutting down ntpd: [FAILED]
Starting ntpd: [  OK  ]
[root@CUCSD_Inventory ~]# ntpq -p
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
 time-b.timefreq .INIT.          16 u    -   64    0    0.000    0.000   0.000
 173.44.32.10    .INIT.          16 u    -   64    0    0.000    0.000   0.000
 resolver2.level .INIT.          16 u    -   64    0    0.000    0.000   0.000
 blue.c1f.net    .INIT.          16 u    -   64    0    0.000    0.000   0.000
 LOCAL(0)        .LOCL.          10 l    -   64    0    0.000    0.000   0.001
[root@CUCSD_Inventory ~]#
```

Edit the ntp.conf file to include your NTP server. You can simple comment out the existing NTP servers by placing a # infront of them.

- vi /etc/ntp.conf
- cursor down to the first NTP server line
- press i for insert
- enter # then move your cursor down to each of the other NTP servers and enter #
- create a new line for your NTP server by pressing enter after the last NTP server
- enter server and the ip address of your NTP server. Replace 1.1.1.1 with your ntp server
- press esc, then enter :wq to quit and write the info



Restart the nptd service and check the NTP synchronization. It may take a while but when the clock is synced with the NTP server there will be a * to the left of the IP address.

```
[root@CUCSD_Monitoring ~]# service ntpd restart
Shutting down ntpd: [  OK  ]
Starting ntpd: [  OK  ]
[root@CUCSD_Monitoring ~]# ntpq -p
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
 1[illegible]4  LOCAL(1)         5 u    4   64    1    1.407  284.617   0.001
 LOCAL(0)        .LOCL.          10 l    3   64    1    0.000    0.000   0.001
```

Change the time zone to the local timezone where the Primary Node, Inventory Database and the Monitoring Database reside. Use this timezone for all the service Nodes as well even though they may not reside in this timezone. This will ensure the logs will match everywhere.

- Determine the current timezone by entering 'ls –l /etc/localtime'
- To determine your timezone, 'cd /usr/share/zoneinfo/America/'

```
[root@CUCSD_Monitoring ~]# ls -l /etc/localtime
lrwxrwxrwx 1 root root 27 Dec 20  2014 /etc/localtime -> /usr/share/zoneinfo/Etc/UTC
[root@CUCSD_Monitoring ~]#
[root@CUCSD_Monitoring ~]# cd /usr/share/zoneinfo/America/
[root@CUCSD_Monitoring America]#
[root@CUCSD_Monitoring America]# ls
Adak            Catamarca       Godthab         Louisville      Panama          St_Johns
Anchorage       Cayenne         Goose_Bay       Maceio          Pangnirtung     St_Kitts
Anguilla        Cayman          Grand_Turk      Managua         Paramaribo      St_Lucia
Antigua         Chicago         Grenada         Manaus          Phoenix         St_Thomas
Araguaina       Chihuahua       Guadeloupe      Marigot         Port-au-Prince  St_Vincent
Argentina       Coral_Harbour   Guatemala       Martinique      Porto_Acre      Swift_Current
Aruba           Cordoba         Guayaquil       Mazatlan        Port_of_Spain   Tegucigalpa
Asuncion        Costa_Rica      Guyana          Mendoza         Porto_Velho     Thule
Atikokan        Cuiaba          Halifax         Menominee       Puerto_Rico     Thunder_Bay
Atka            Curacao         Havana          Merida          Rainy_River     Tijuana
Bahia           Danmarkshavn    Hermosillo      Mexico_City     Rankin_Inlet    Toronto
Barbados        Dawson          Indiana         Miquelon        Recife          Tortola
Belem           Dawson_Creek    Indianapolis    Moncton         Regina          Vancouver
Belize          Denver          Inuvik          Monterrey       Resolute        Virgin
Blanc-Sablon    Detroit         Iqaluit         Montevideo      Rio_Branco      Whitehorse
Boa_Vista       Dominica        Jamaica         Montreal        Rosario         Winnipeg
Bogota          Edmonton        Jujuy           Montserrat      Santarem        Yakutat
Boise           Eirunepe        Juneau          Nassau          Santiago        Yellowknife
Buenos_Aires    El_Salvador     Kentucky        New_York        Santo_Domingo
Cambridge_Bay   Ensenada        Knox_IN         Nipigon         Sao_Paulo
Campo_Grande    Fortaleza       La_Paz          Nome            Scoresbysund
Cancun          Fort_Wayne      Lima            Noronha         Shiprock
Caracas         Glace_Bay       Los_Angeles     North_Dakota    St_Barthelemy
[root@CUCSD_Monitoring America]#
```

Change the timezone and verify. I have chosen the Central Time Zone for my location.

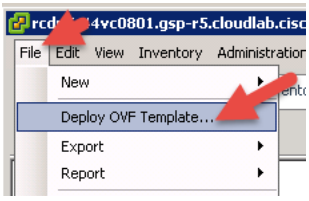
- Copy the localtime to new file named old.timezone: 'cp /etc/localtime /root/old.timezone'
- Remove the localtime file: 'rm /etc/localtime'
- Create the new localtime file: 'ln -s /usr/share/zoneinfo/America/Chicago /etc/localtime'
- Verify the timzone is what you set it to: 'date'
- Verify the link: 'ls -l /etc/localtime'

```
[root@CUCSD_Monitoring ~]# cp /etc/localtime /root/old.timezone
[root@CUCSD_Monitoring ~]# rm /etc/localtime
rm: remove symbolic link `/etc/localtime'? y
[root@CUCSD_Monitoring ~]#
[root@CUCSD_Monitoring ~]# ln -s /usr/share/zoneinfo/America/Chicago /etc/localtime
[root@CUCSD_Monitoring ~]#
[root@CUCSD_Monitoring ~]# date
Thu Sep 17 12:48:28 CDT 2015
[root@CUCSD_Monitoring ~]#
[root@CUCSD_Monitoring ~]# ls -l /etc/localtime
lrwxrwxrwx 1 root root 35 Sep 17 12:48 /etc/localtime -> /usr/share/zoneinfo/America/Chicago
[root@CUCSD_Monitoring ~]#
```

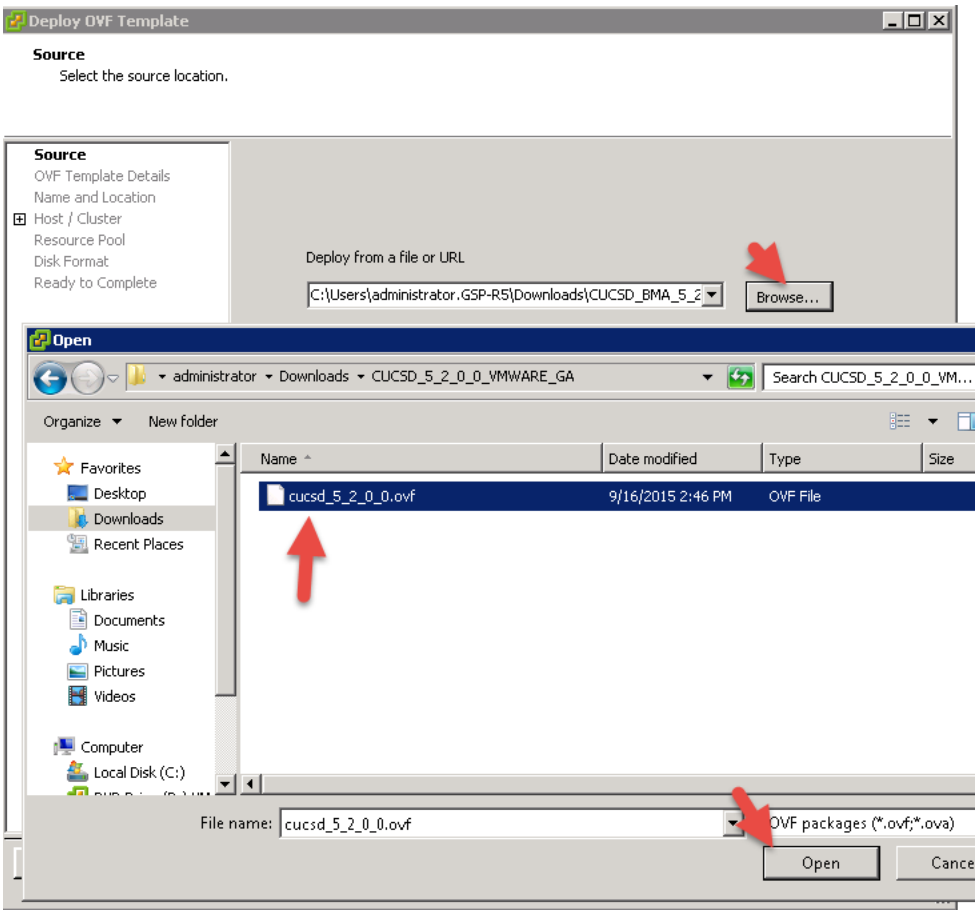
4. Create the Primary Node

4.1. Create Primary Node VM

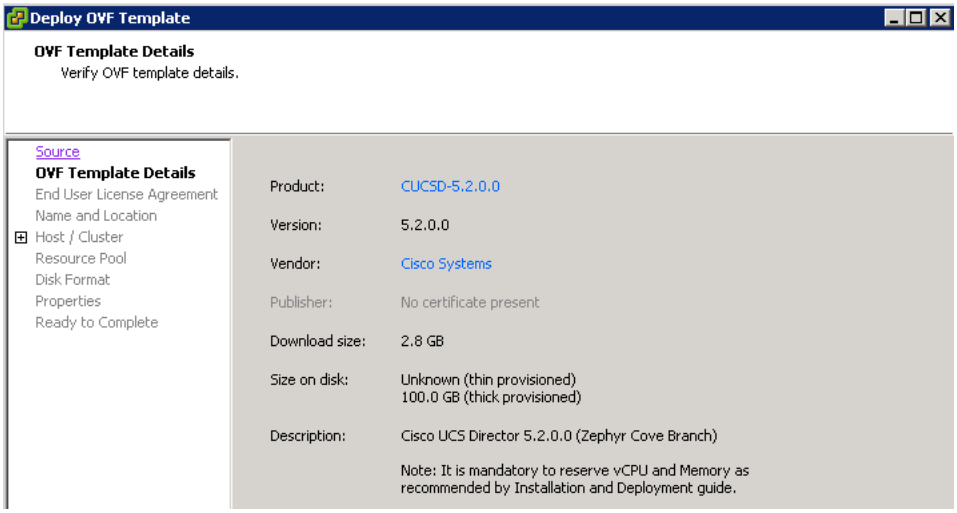
Log into vCenter and Select File -> Deploy OVF Template.



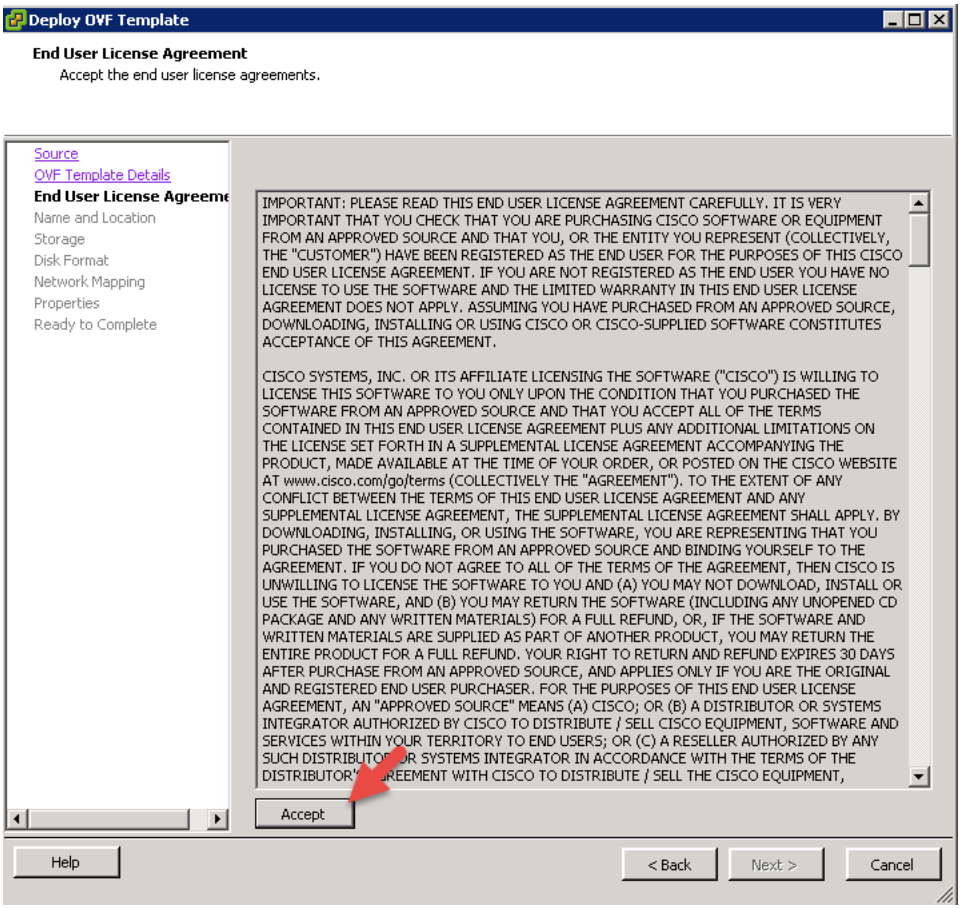
Browse to the UCSD_5_2_0_0 and select it for deployment then click Next.



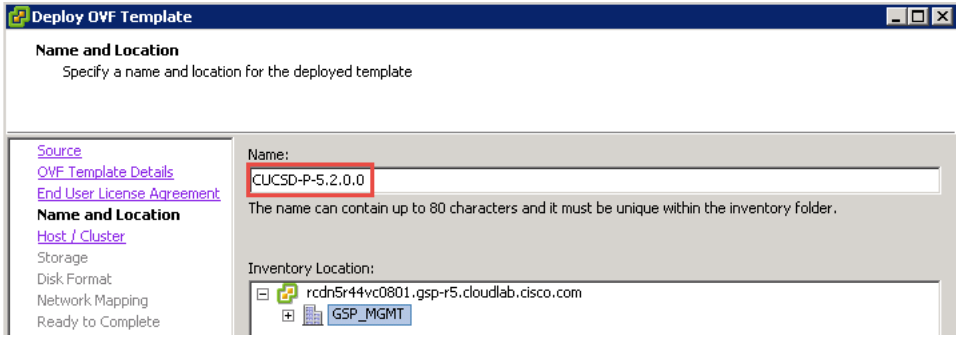
Verify details then click Next.



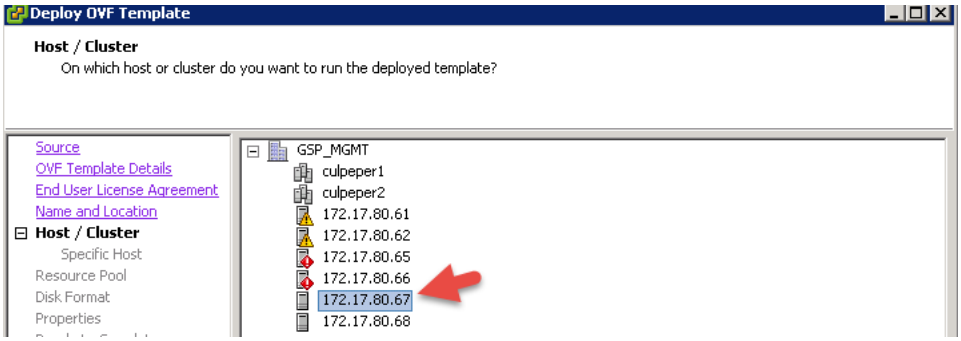
Accept the license agreement and Click Next.



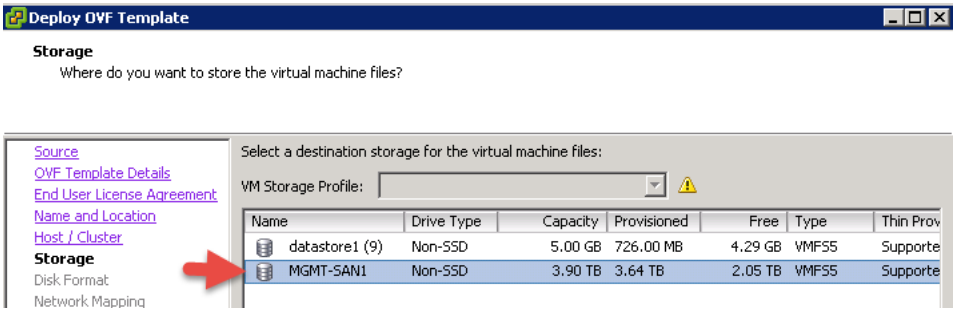
Name the VM and click Next.



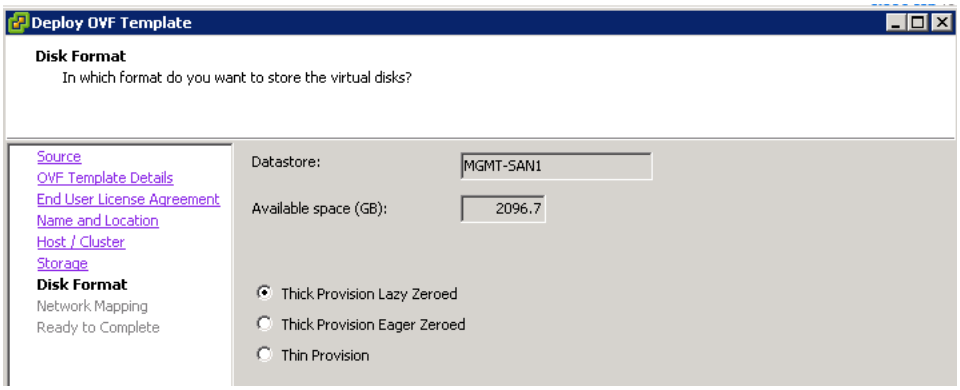
Select a Host and click Next.



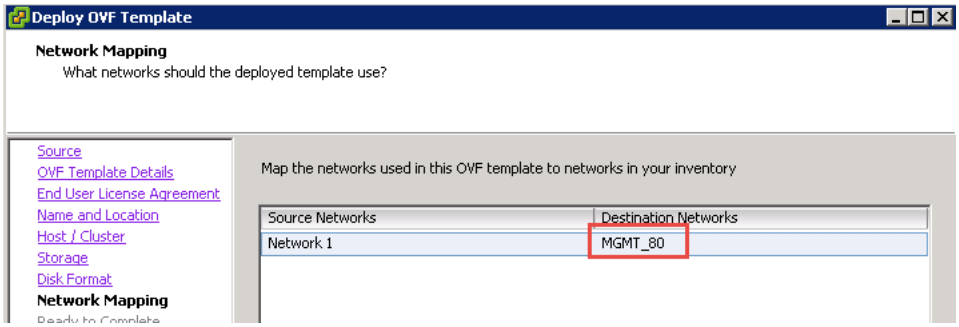
Select a storage location to install the VM and click Next.



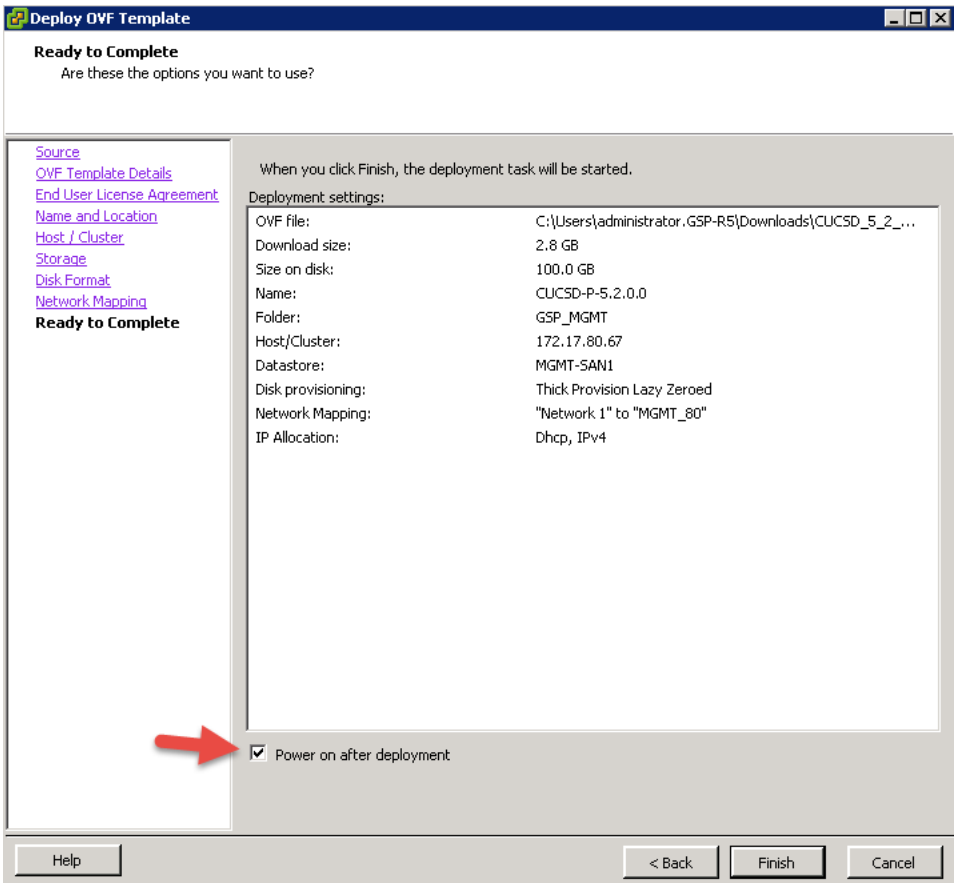
Leave the default settings for the Disk Format and click Next.



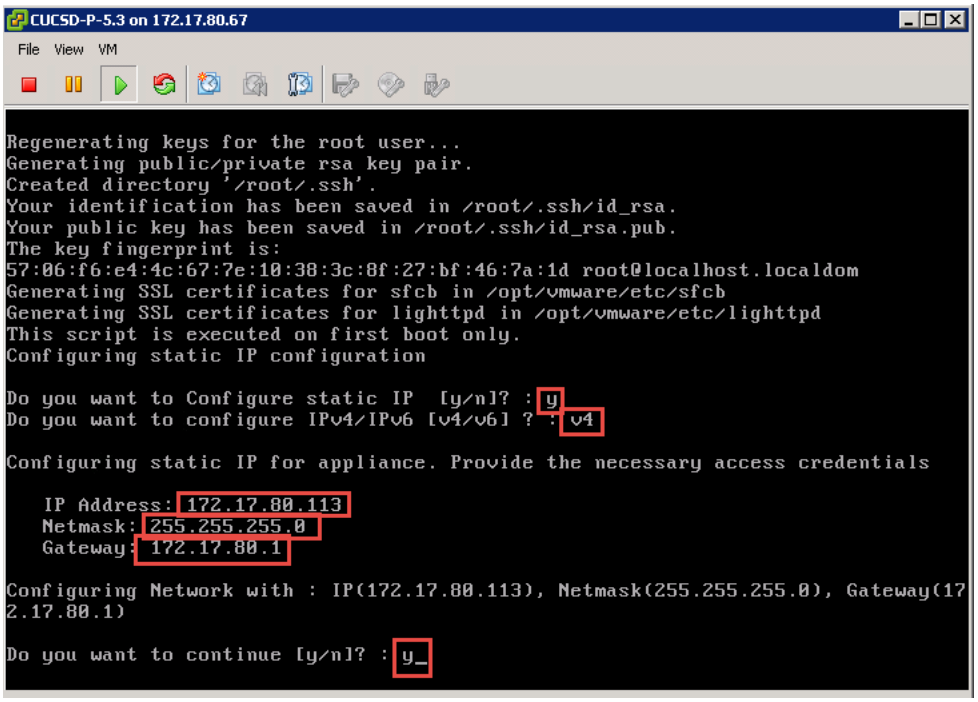
Select the Network to put this VM on and click Next.



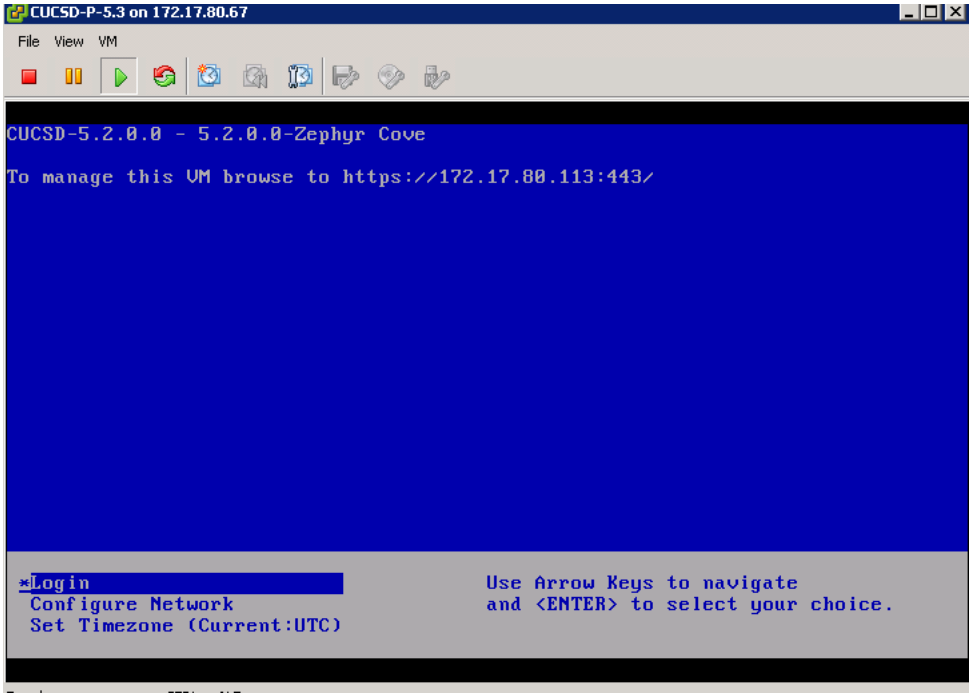
Select Power on after deployment and click Finish.



In my case, I don't have DHCP enabled on the network so I must manually configure an IP Address from the Console. In vCenter, open the console of the Primary Node. Enter the following and wait for the Build to complete. This process could take a while so be patient.

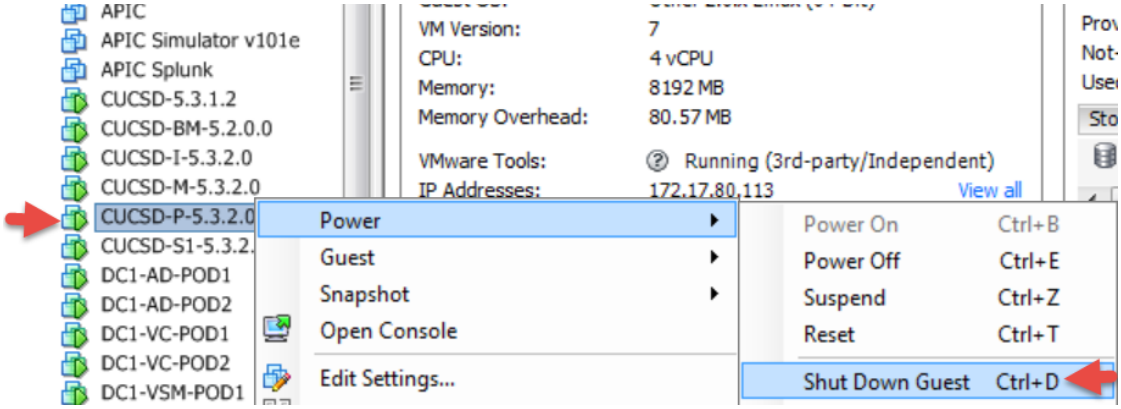


After the installation is complete, you should see a screen that looks like this.

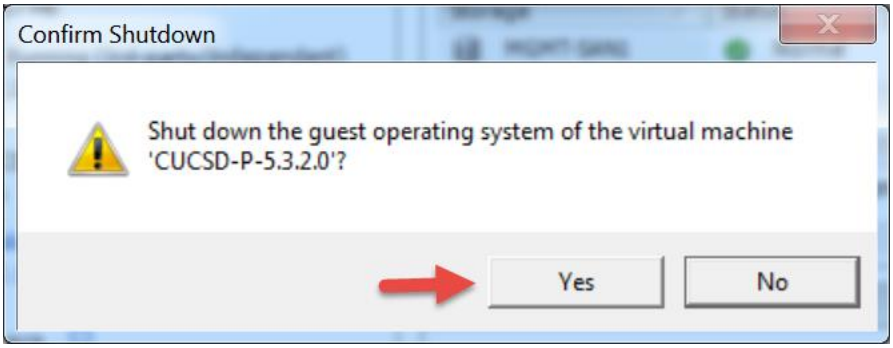


4.2. Install/Update VMWare tools & VM Version

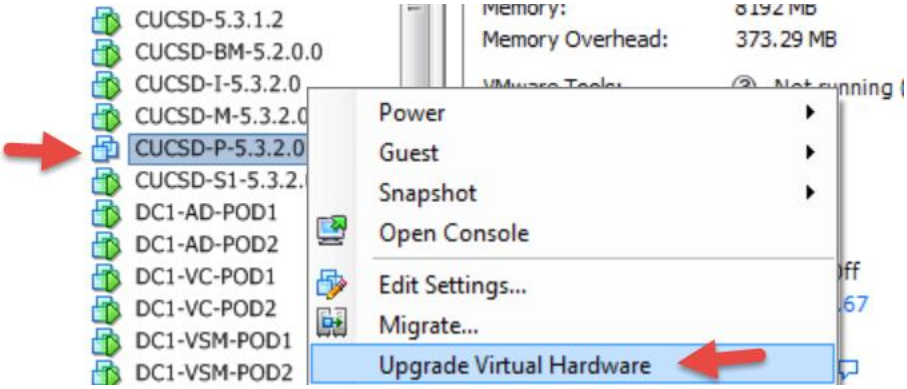
Log into vCenter, navigate to your Primary Node VM, select 'Shutdown Guest.



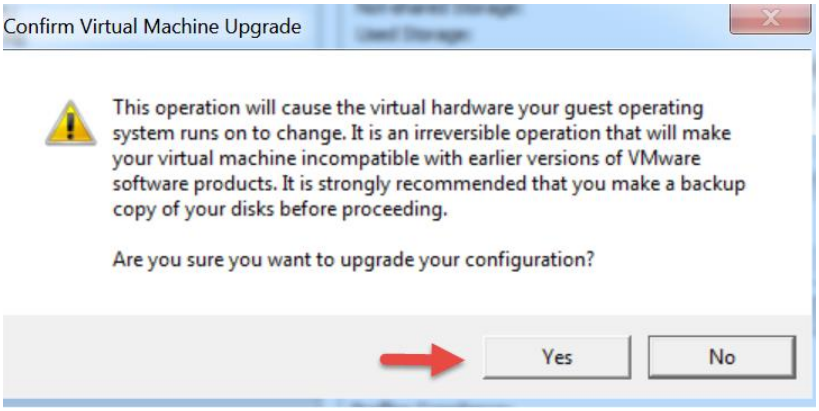
Select Yes.



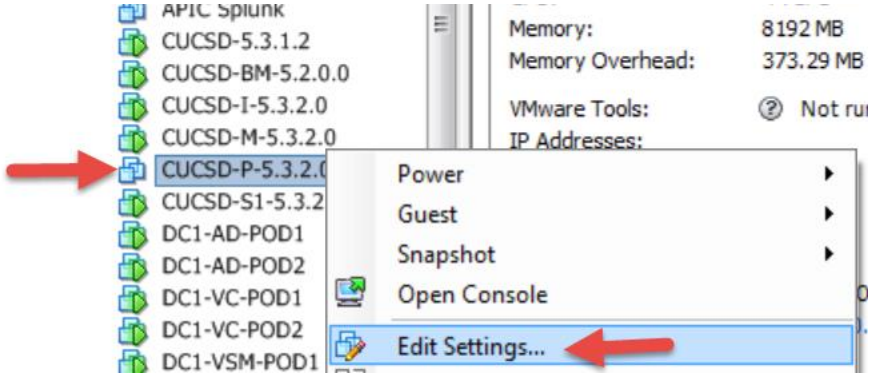
Wait for the VM to completely shut down then right click on the VM and select 'Upgrade Virtual Hardware'.



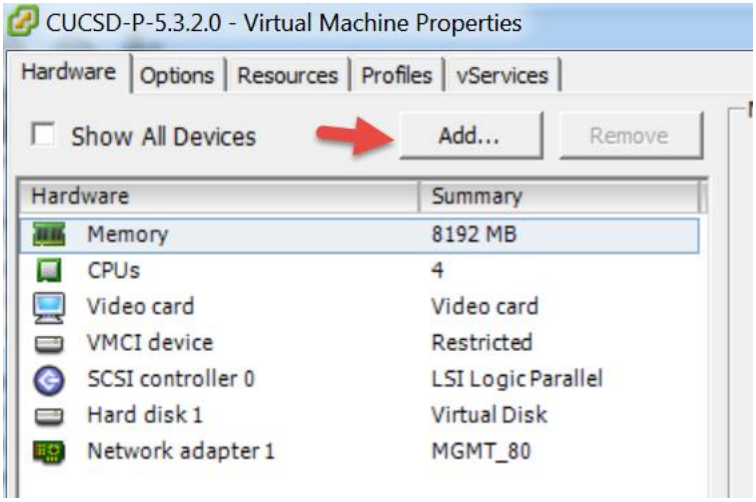
Select Yes.



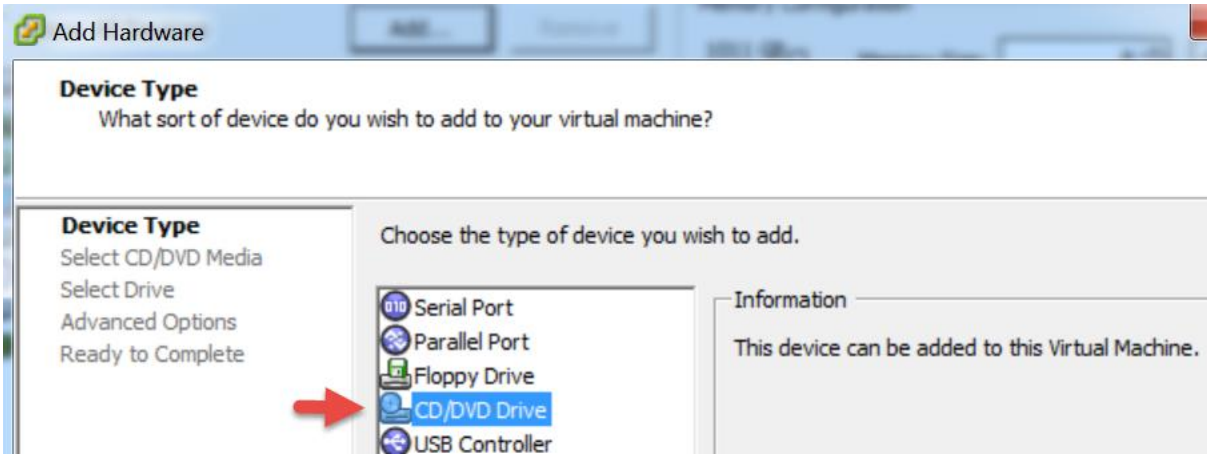
Right click on the VM and Select ‘Edit Settings’



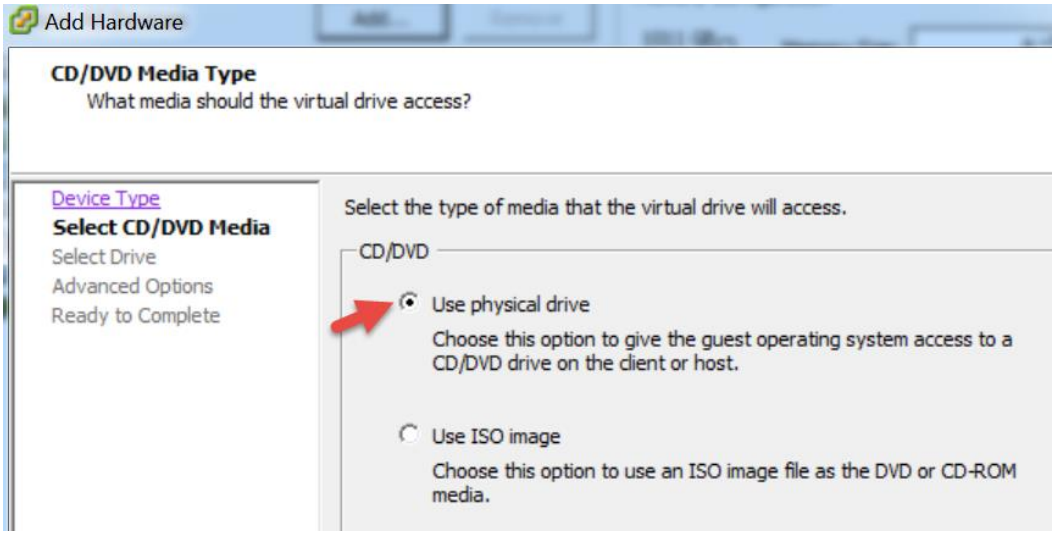
Select Add.



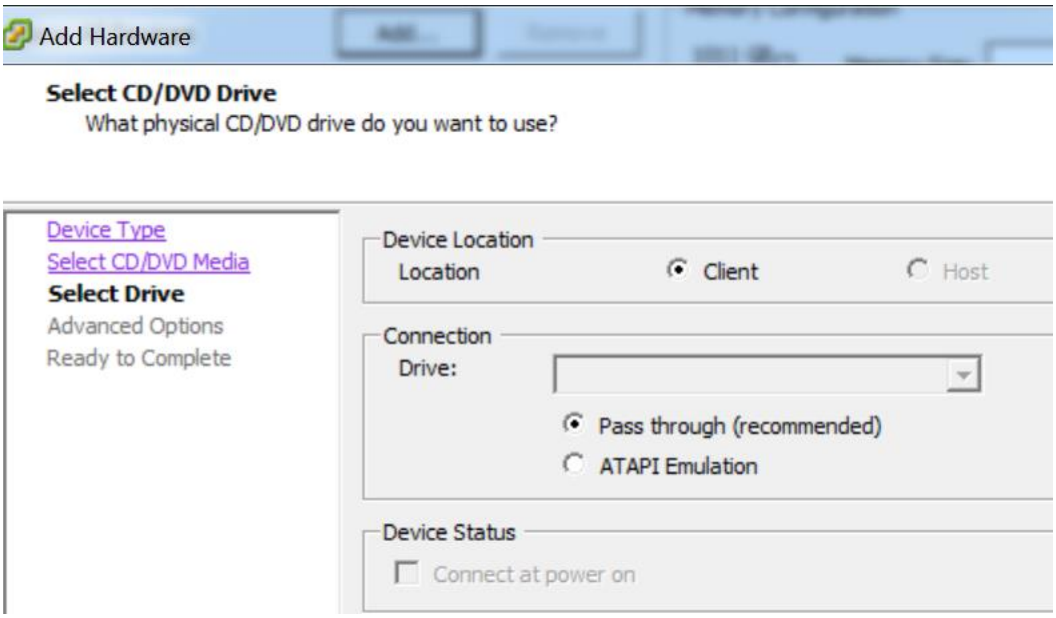
Select ‘CD/DVD Drive’ and click Next.



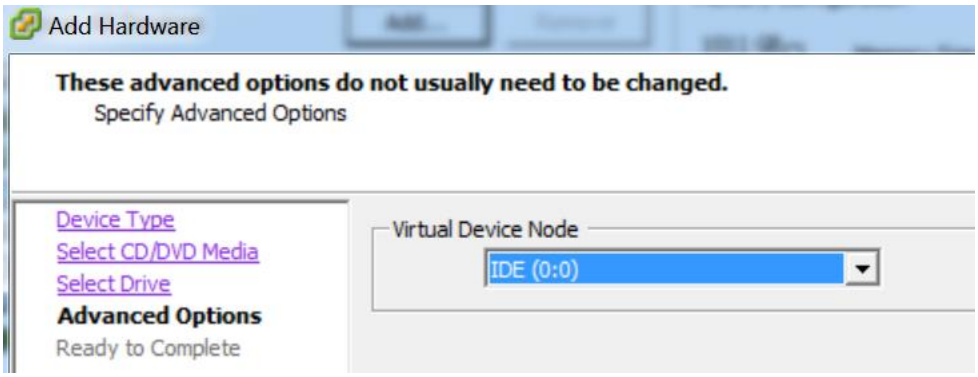
Leave default ‘Use physical drive’ and click Next.



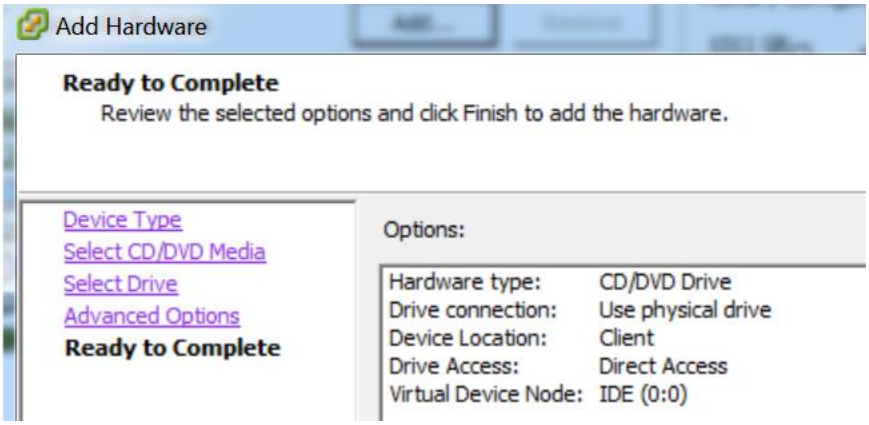
Leave default and click Next.



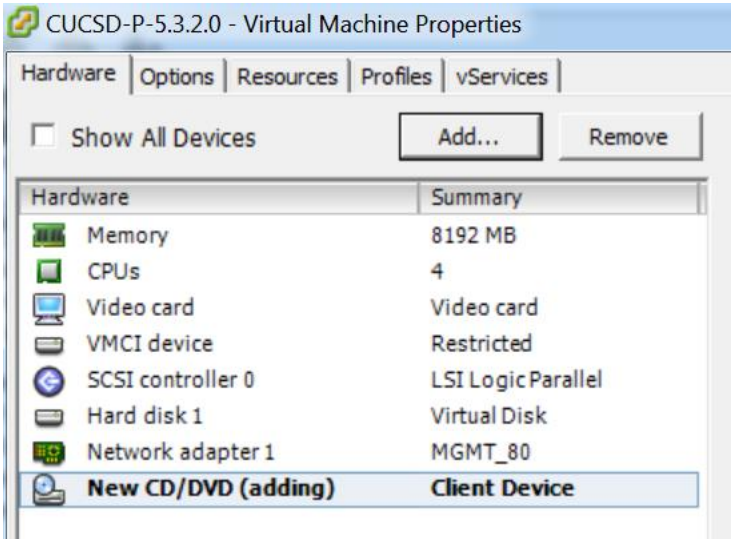
Leave default and click Next.



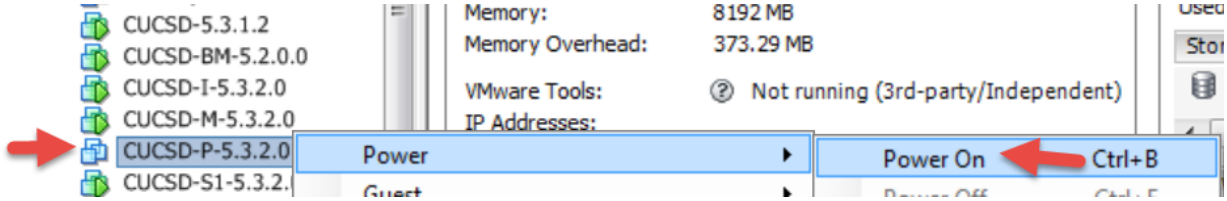
Review and click Finish.



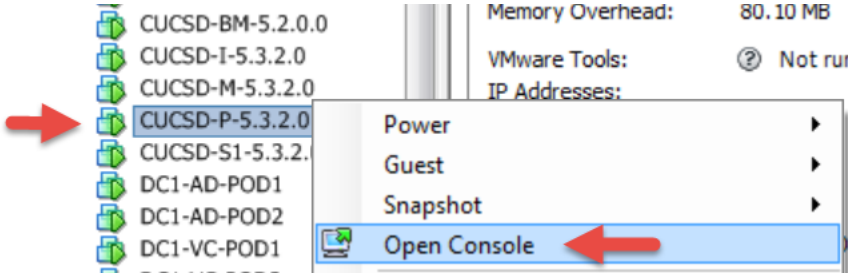
Review and click OK.



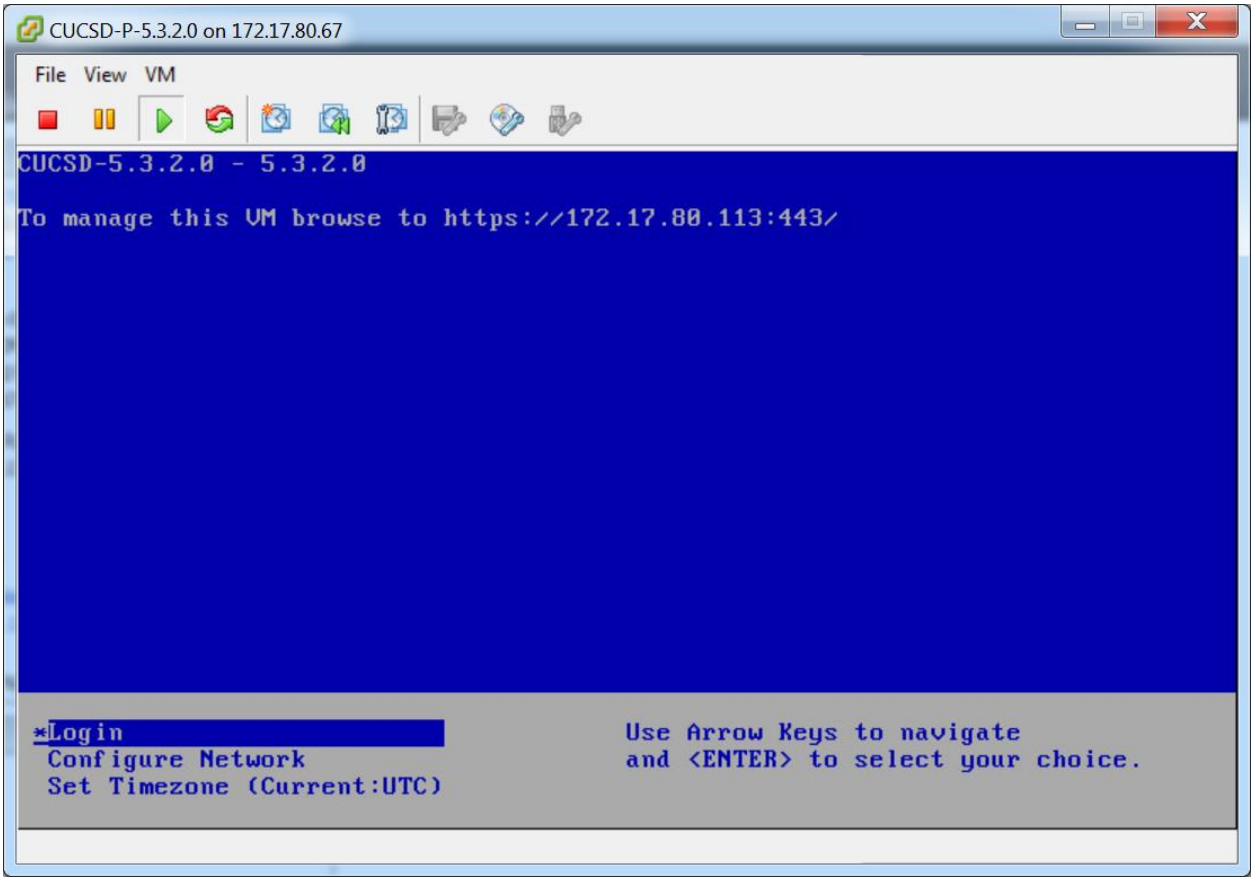
Power the VM On, right click on the VM and select 'Power On'.



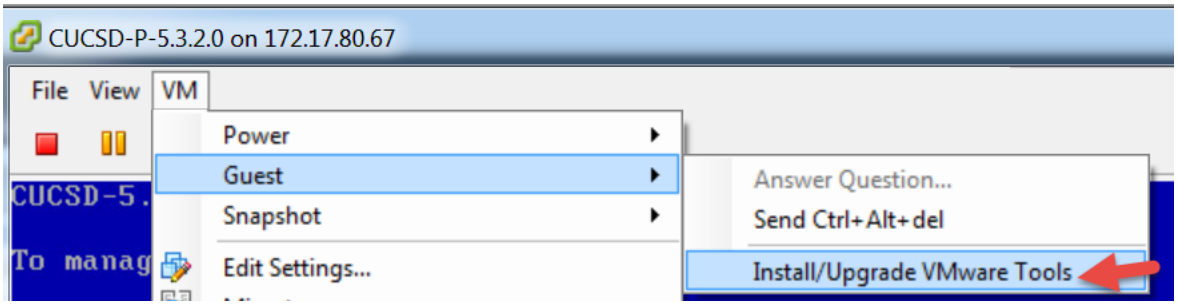
Open the VM Console to watch the VM Boot.



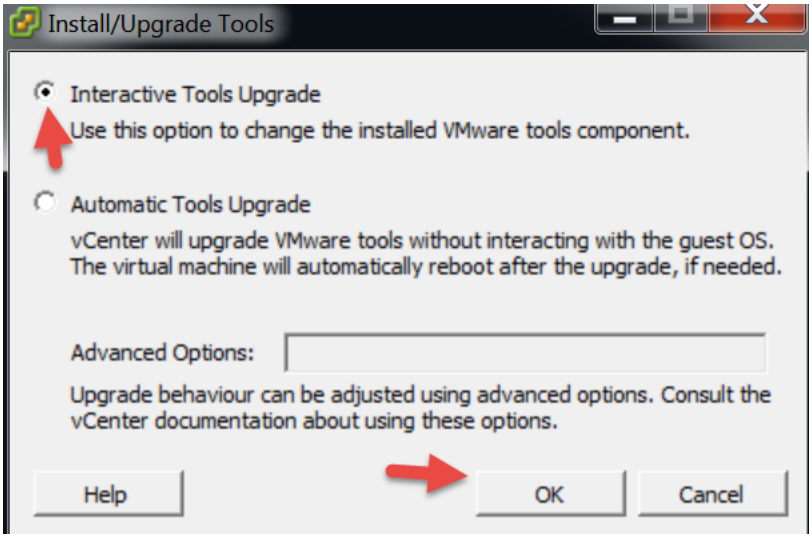
Once the VM is completely up, you should see the login screen similar to below.



From the console, select 'Install/Upgrade VMware Tools'



Select 'Interactive Tools Upgrade' and click OK.



SSH to the Primary Node.

- Make a dir for cdrom: ‘mkdir /mnt/cdrom’
- Mount the cdrom: ‘mount /dev/cdrom /mnt/cdrom’
- Copy vmware install to /tmp: ‘cp /mnt/cdrom/VMwareTools-**5.0.0-<xxxx>.**tar.gz /tmp’ **Note**: tab out the VMware tools part so you don’t have to figure out the correct name.
- Unzip the files in /tmp: ‘tar zxf /tmp/VMwareTools-**5.0.0-<xxxx>.**tar.gz’ **Note**: tab out the VMware tools part so you don’t have to figure out the correct name.
- Change directory: ‘cd vmware-tools-distrib’
- Run the install: ‘./vmware-install.pl’

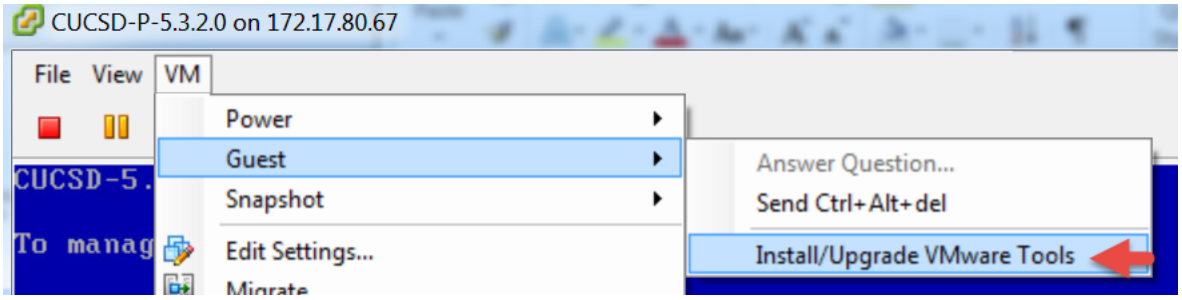
  Note: You will probably get the following message.

  VMware Tools cannot be installed, since they have already been installed using a package-based mechanism (rpm or deb) on this system. If you wish to continue, you must first remove the currently installed VMware Tools using the appropriate packaged-based mechanism, and then restart this installer
  Execution aborted.
  Found VMware Tools CDROM mounted at /mnt/cdrom. Ejecting device /dev/cdrom ... No eject (or equivilant) command could be located. Eject Failed: If possible manually eject the Tools installer from the guest cdrom mounted at /mnt/cdrom before canceling tools install on the host.
- If you get this message, we need to Delete the VMware tools directory: ‘rm -rf /usr/lib/vmware-tools/’
- Change directory: ‘cd vmware-tools-distrib/’
- Re-Run the install: ‘./vmware-install.pl’
- Enter Yes to the ‘Would you like to remove the install DB?’ You will probably get a Failure and Execution aborted.
- Re-Run the install: ‘./vmware-install.pl’
- Accept all the defaults by Pressing Enter for all the options.

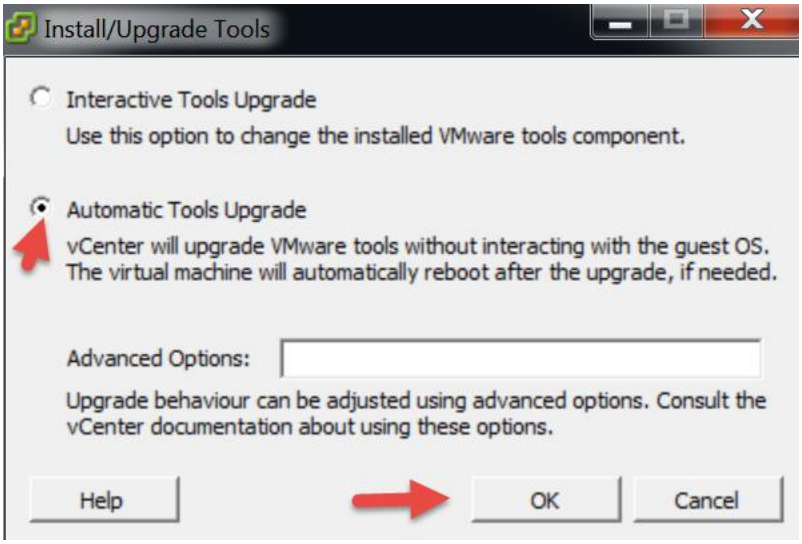
```
[root@CUCSD_Primary vmware-tools-distrib]#
[root@CUCSD_Primary vmware-tools-distrib]# rm -rf /usr/lib/vmware-tools/
[root@CUCSD_Primary vmware-tools-distrib]#
[root@CUCSD_Primary vmware-tools-distrib]# ./vmware-install.pl
A previous installation of VMware Tools has been detected.

Uninstallation of previous install failed. Would you like to remove the install
DB? [no] yes

Removing installer DB, please re-run the installer.

Failure

Execution aborted.

[root@CUCSD_Primary vmware-tools-distrib]# ./vmware-install.pl
Creating a new VMware Tools installer database using the tar4 format.

Installing VMware Tools.

The file /etc/vmware-tools/poweron-vm-default that this program was about to
install already exists. Overwrite? [yes]

The file /etc/vmware-tools/suspend-vm-default that this program was about to
install already exists. Overwrite? [yes]

The file /etc/vmware-tools/poweroff-vm-default that this program was about to
install already exists. Overwrite? [yes]

The file /etc/vmware-tools/resume-vm-default that this program was about to
install already exists. Overwrite? [yes]

In which directory do you want to install the binary files?
[/usr/bin]

The file /usr/bin/vm-support that this program was about to install already
exists. Overwrite? [yes]

What is the directory that contains the init directories (rc0.d/ to rc6.d/)?
[/etc/rc.d]

What is the directory that contains the init scripts?
[/etc/rc.d/init.d]

The file /etc/rc.d/init.d/vmware-tools that this program was about to install
already exists. Overwrite? [yes]

In which directory do you want to install the daemon files?
[/usr/sbin]

In which directory do you want to install the library files?
[/usr/lib/vmware-tools]

The path "/usr/lib/vmware-tools" does not exist currently. This program is
going to create it, including needed parent directories. Is this what you want?
[yes]

The file /sbin/mount.vmhgfs that this program was about to install already
exists. Overwrite? [yes]

In which directory do you want to install the documentation files?
[/usr/share/doc/vmware-tools]

The file /usr/share/doc/vmware-tools/open_source_licenses.txt that this program
was about to install already exists. Overwrite? [yes]
```

```
The file /usr/share/doc/vmware-tools/README that this program was about to
install already exists. Overwrite? [yes]

The file /usr/share/doc/vmware-tools/INSTALL that this program was about to
install already exists. Overwrite? [yes]

The installation of VMware Tools 9.0.0 build-782409 for Linux completed
successfully. You can decide to remove this software from your system at any
time by invoking the following command: "/usr/bin/vmware-uninstall-tools.pl".

Before running VMware Tools for the first time, you need to configure it by
invoking the following command: "/usr/bin/vmware-config-tools.pl". Do you want
this program to invoke the command for you now? [yes]

The file /usr/sbin/vmware-checkvm that this program was about to install
already exists.  Overwrite? [yes]

The file /usr/sbin/vmware-rpctool that this program was about to install
already exists.  Overwrite? [yes]

The file /usr/bin/vmware-hgfsclient that this program was about to install
already exists.  Overwrite? [yes]

The file /usr/bin/vmware-xferlogs that this program was about to install
already exists.  Overwrite? [yes]

Initializing...

The file /etc/vmware-tools/icu that this program was about to install already
exists.  Overwrite? [yes]


Making sure services for VMware Tools are stopped.

Stopping VMware Tools services in the virtual machine:
   Guest operating system daemon:[  OK  ]
   Unmounting HGFS shares:[  OK  ]
   Guest filesystem driver:[  OK  ]


The VMware FileSystem Sync Driver (vmsync) allows external third-party backup
software that is integrated with vSphere to create backups of the virtual
machine. Do you wish to enable this feature? [no]

Found a compatible pre-built module for vmci.  Installing it...


Found a compatible pre-built module for vsock.  Installing it...


Found a compatible pre-built module for vmxnet3.  Installing it...


Found a compatible pre-built module for pvscsi.  Installing it...


Found a compatible pre-built module for vmmemctl.  Installing it...


The VMware Host-Guest Filesystem allows for shared folders between the host OS
and the guest OS in a Fusion or Workstation virtual environment.  Do you wish
to enable this feature? [no]

Found a compatible pre-built module for vmxnet.  Installing it...



The vmblock enables dragging or copying files between host and guest in a
Fusion or Workstation virtual environment.  Do you wish to enable this feature?
[no]

!!! [EXPERIMENTAL] !!!
VMware automatic kernel modules enables automatic building and installation of
VMware kernel modules at boot that are not already present.  By selecting yes,
you will be enabling this experimental feature.  You can always disable this
feature by re-running vmware-config-tools.pl.

Would you like to enable VMware automatic kernel modules?
[no]

No X install found.

Creating a new initrd boot image for the kernel.
   Checking acpi hot plug[  OK  ]
Starting VMware Tools services in the virtual machine:
   Switching to guest configuration:[  OK  ]
   Paravirtual SCSI module:[  OK  ]
   Guest memory manager:[  OK  ]
   Guest vmxnet fast network device:[  OK  ]
   VM communication interface:[  OK  ]
   VM communication interface socket family:[  OK  ]
   Guest operating system daemon:[  OK  ]
The configuration of VMware Tools 9.0.0 build-782409 for Linux for this running
kernel completed successfully.

You must restart your X session before any mouse or graphics changes take
effect.

You can now run VMware Tools by invoking "/usr/bin/vmware-toolbox-cmd" from the
command line.

To enable advanced X features (e.g., guest resolution fit, drag and drop, and
file and text copy/paste), you will need to do one (or more) of the following:
1. Manually start /usr/bin/vmware-user
2. Log out and log back into your desktop session; and,
3. Restart your X session.

To use the vmxnet driver, restart networking using the following commands:
/etc/init.d/network stop
rmmod pcnet32
rmmod vmxnet
modprobe vmxnet
/etc/init.d/network start

Enjoy,

--the VMware team

[root@CUCSD_Primary vmware-tools-distrib]#
```

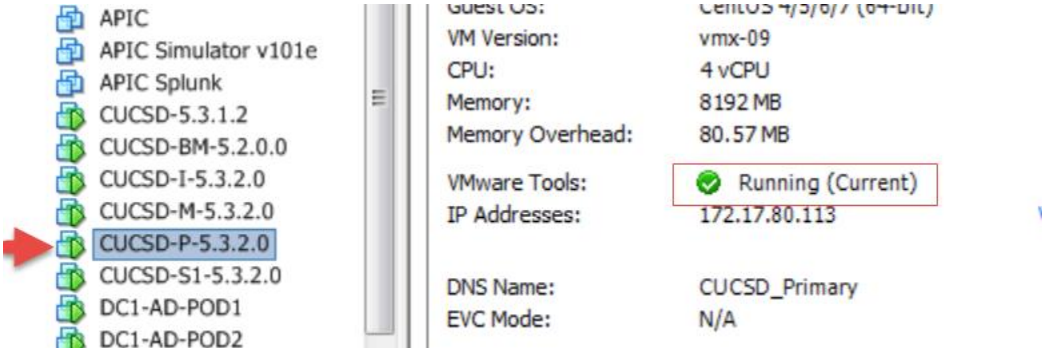
From the console, select ‘Install/Upgrade VMware Tools’



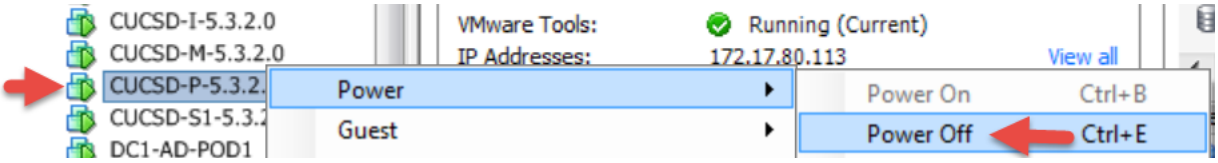
Select ‘Automatic Tools Upgrade’ and click OK.



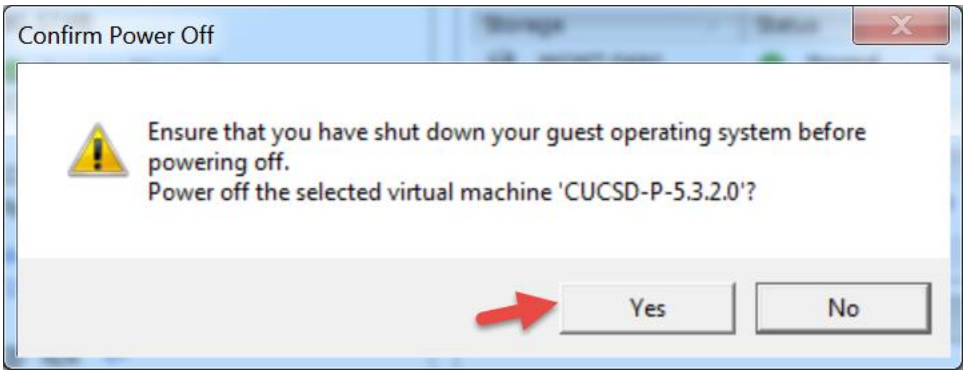
Verify Tools have been installed and currently Running as shown below.



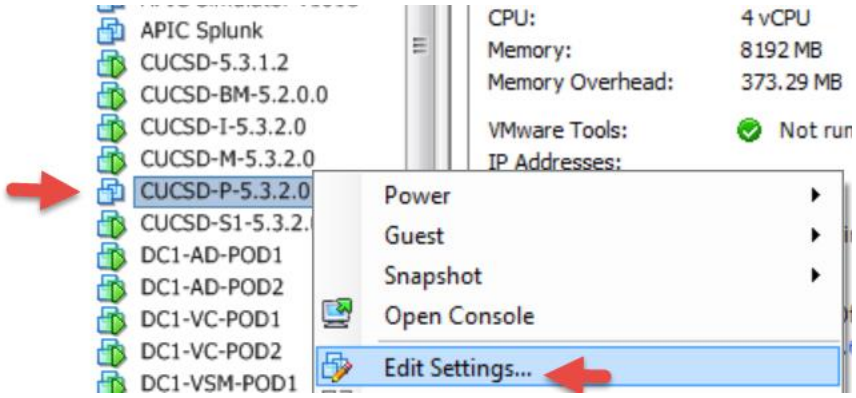
Power off the VM, select ‘Power Off’.



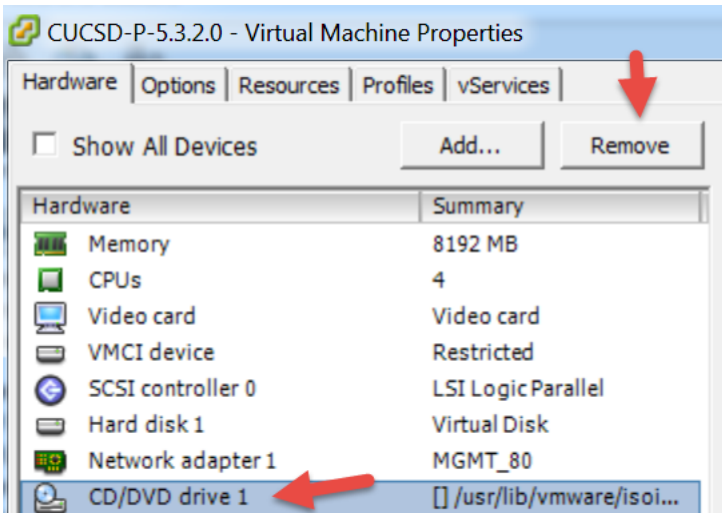
Select Yes.



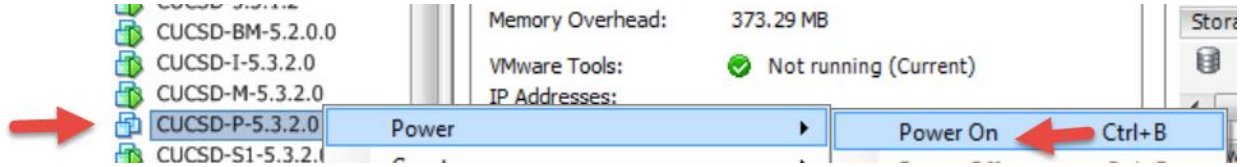
Edit Settings.



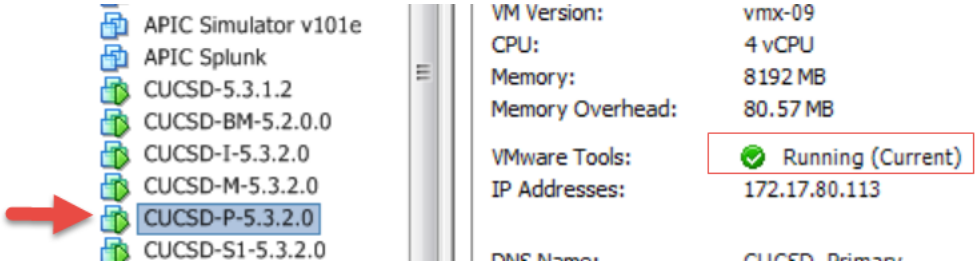
Remove CD/DVD drive then click OK.



Power on the VM.



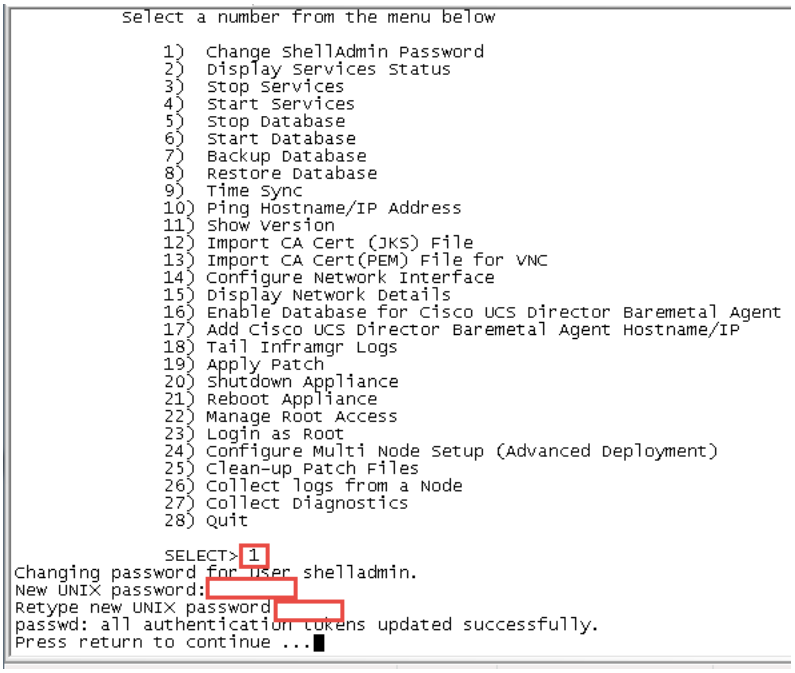
Verify the tools are installed, running and current.



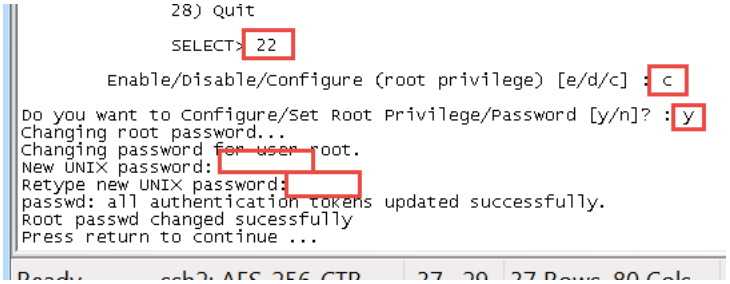
4.3. Configure Primary Node

SSH to the Primary Node using the shelladmin account and the default password of changeme.

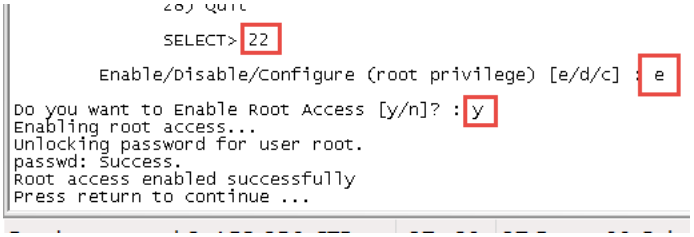
Change the shelladmin password.



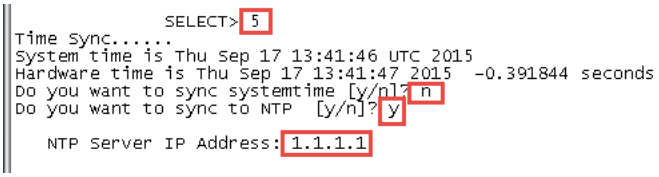
Configure and change the root password.



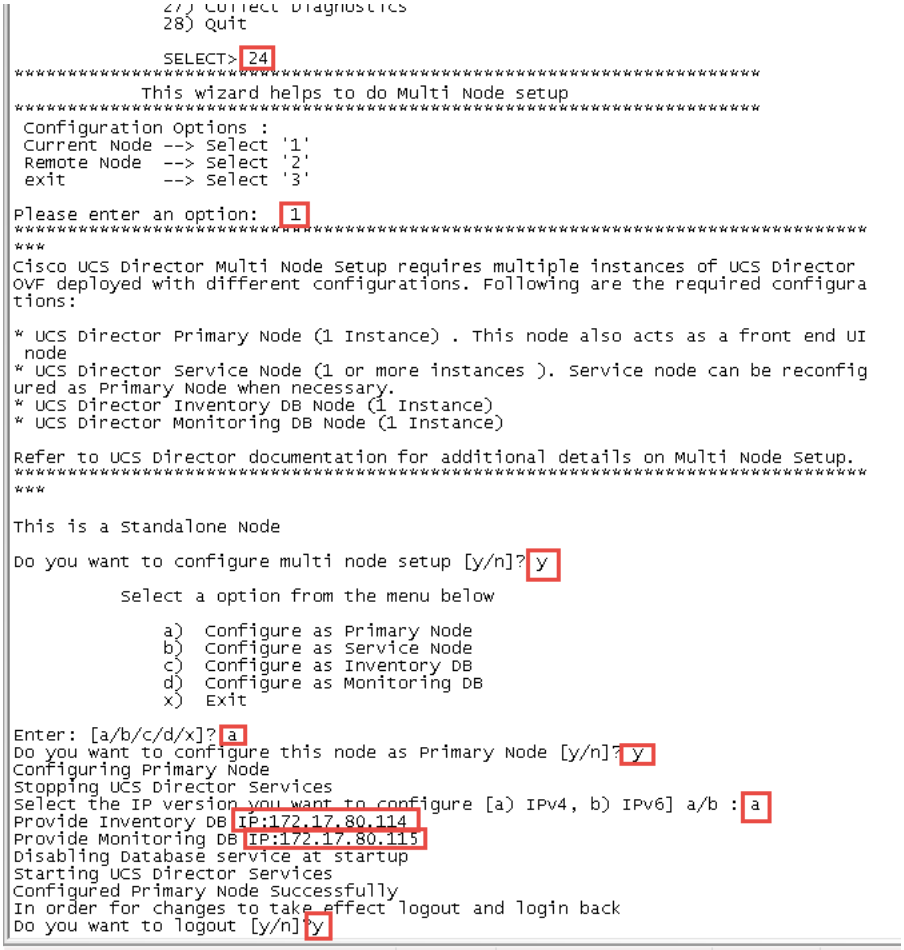
Enable root access.



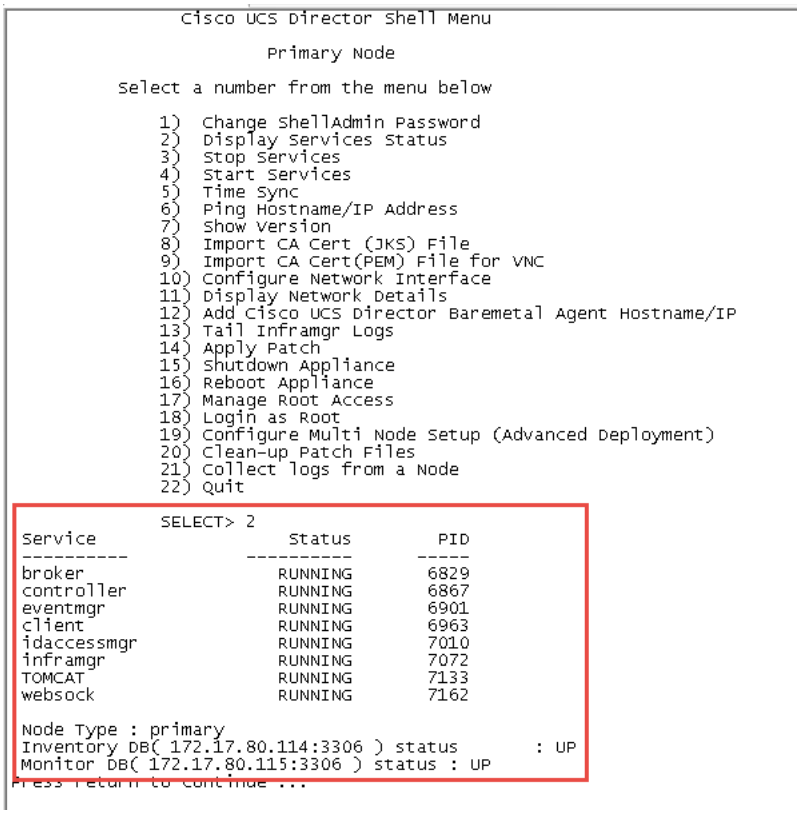
Configure NTP Server. Replace the 1.1.1.1 with your NTP Server.



From the menu, choose ‘Configure Multi Node Setup (Advanced Deployment)’ and press Enter. When prompted, press 1 to configure the current node. Then press y and then select the option to configure the node as the Primary node. From the menu, choose ‘Configure Primary Node‘ and press Enter. At the Provide Inventory DB IP prompt, enter the IP address assigned to the Cisco UCS Director VM for the inventory database. This step registers the VM as a primary node with the inventory database. At the Provide Monitoring DB IP Prompt, enter the IP address assigned to the Cisco UCS Director VM for the monitoring database. This step registers the VM as a primary node with the monitoring database. When prompted, press Enter to Continue. When prompted to logout, enter y and press enter then log back into the Primary Node via SSH.



To verify the services for the monitoring database are up and running, choose ‘Display Service Status’ and press Enter. You should see the lines in the red box below. Note: After you return to the shelladmin, the menu options change to those available for an inventory database node.



Edit the /etc/hosts file to update the name and IP address of the host. SSH to the Inventory Database Node using the root account.

- vi /etc/hosts
- shift a
- press return
- enter your host details
- when done: press esc
- enter :wq
- cat /etc/hosts

```
"/etc/hosts" 5L, 168C written
[root@localhost ~]# cat /etc/hosts
127.0.0.1   localhost.localdom localhost localhost
172.17.80.114 CUCSD_Inventory
172.17.80.115 CUCSD_Monitoring
172.17.80.116 CUCSD_Service1
172.17.80.113 CUCSD_Primary
[root@localhost ~]#
```

Edit the /etc/resolv.conf to update the DNS servers

- vi /etc/resolv.conf
- press ‘i’ for insert
- enter ‘search localhost *your domain name’*, **Note**: Sometime search localhost is already there
- enter dns server ip address after nameserver, **Note**: if you have multiple DNS servers, enter on separate lines
- when done: press esc
- enter :wq

```
[root@CUCSD_Primary ~]# vi /etc/resolv.conf
search localhost gsp-r5.cloudlab.cisco.com
nameserver 172.17.80.104
```

- cat /etc/resolv.conf

```
[root@CUCSD_Primary ~]# cat /etc/resolv.conf
search localhost gsp-r5.cloudlab.cisco.com
nameserver 172.17.80.104
[root@CUCSD_Primary ~]#
```

Edit the hostname in /etc/sysconfig/network

- vi /etc/sysconfig/network
- Move cursor to the beginning of localhost where it is on the l and enter cw (change word)
- Enter the Host name for the Inventory Database Node.
- when done: press esc
- enter :wq
- cat /etc/sysconfig/network

```
[root@localhost ~]# cat /etc/sysconfig/network
NETWORKING=yes
NETWORKING_IPV6=yes
HOSTNAME=CUCSD_Primary
DOMAINNAME=localdom
[root@localhost ~]#
```

Change the hostname

```
[root@localhost ~]# hostname CUCSD_Primary
[root@localhost ~]# hostname
CUCSD_Primary
[root@localhost ~]#
```

Log out and log back into the Primary and you will see the new hostname.

```
[root@CUCSD_Primary ~]#
```

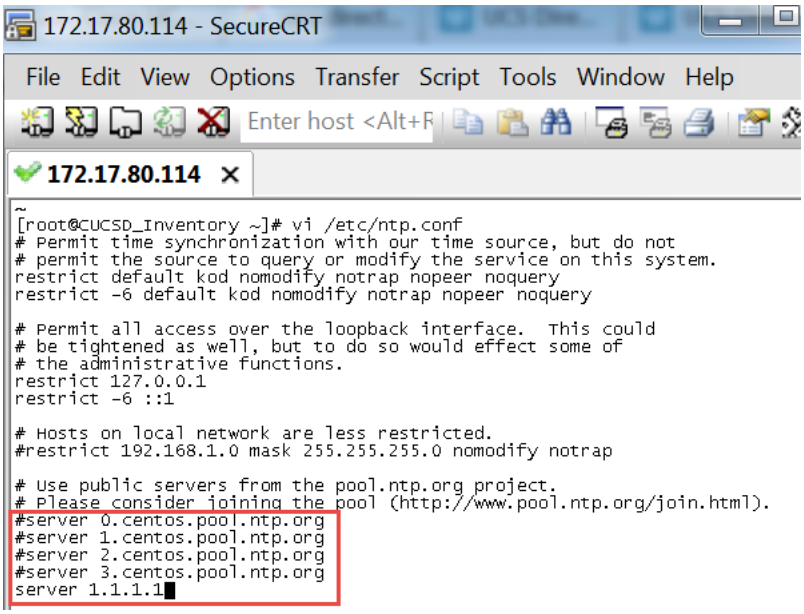
Configure NTP servers for the Primary Node. SSH into Primary Node using root account.

Create ntp user

```
[root@CUCSD_Inventory ~]# useradd ntp
[root@CUCSD_Inventory ~]# service ntpd restart
Shutting down ntpd: [FAILED]
Starting ntpd: [  OK  ]
[root@CUCSD_Inventory ~]# ntpq -p
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
 time-b.timefreq .INIT.          16 u    -   64    0    0.000    0.000   0.000
 173.44.32.10    .INIT.          16 u    -   64    0    0.000    0.000   0.000
 resolver2.level .INIT.          16 u    -   64    0    0.000    0.000   0.000
 blue.c1f.net    .INIT.          16 u    -   64    0    0.000    0.000   0.000
 LOCAL(0)        .LOCL.          10 l    -   64    0    0.000    0.000   0.001
[root@CUCSD_Inventory ~]#
```

Edit the ntp.conf file to include your NTP server. You can simple comment out the existing NTP servers by placing a # infront of them.

- vi /etc/ntp.conf
- cursor down to the first NTP server line
- press i for insert
- enter # then move your cursor down to each of the other NTP servers and enter #
- create a new line for your NTP server by pressing enter after the last NTP server
- enter server and the ip address of your NTP server. Replace 1.1.1.1 with your ntp server
- press esc, then enter :wq to quit and write the info



Restart the nptd service and check the NTP synchronization. It may take a while but when the clock is synced with the NTP server there will be a * to the left of the IP address.

```
[root@CUCSD_Primary ~]# service ntpd restart
Shutting down ntpd: [  OK  ]
Starting ntpd: [  OK  ]
[root@CUCSD_Primary ~]# ntpq -p
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
 [redacted]  LOCAL(1)         5 u    2   64    1    1.148  297.593   0.001
 LOCAL(0)        .LOCL.          10 l    1   64    1    0.000    0.000   0.001
```

Change the time zone to the local timezone where the Primary Node, Inventory Database and the Monitoring Database reside. Use this timezone for all the service Nodes as well even though they may not reside in this timezone. This will ensure the logs will match everywhere.

- Determine the current timezone by entering 'ls –l /etc/localtime'
- To determine your timezone, 'cd /usr/share/zoneinfo/America/'

```
[root@CUCSD_Primary ~]# ls -l /etc/localtime
lrwxrwxrwx 1 root root 27 Dec 20  2014 /etc/localtime -> /usr/share/zoneinfo/Etc/UTC
[root@CUCSD_Primary ~]#
[root@CUCSD_Primary ~]# cd /usr/share/zoneinfo/America/
[root@CUCSD_Primary America]#
[root@CUCSD_Primary America]# ls
Adak            Catamarca       Godthab         Louisville      Panama          St_Johns
Anchorage       Cayenne         Goose_Bay       Maceio          Pangnirtung     St_Kitts
Anguilla        Cayman          Grand_Turk      Managua         Paramaribo      St_Lucia
Antigua         Chicago         Grenada         Manaus          Phoenix         St_Thomas
Araguaina       Chihuahua       Guadeloupe      Marigot         Port-au-Prince  St_Vincent
Argentina       Coral_Harbour   Guatemala       Martinique      Porto_Acre      Swift_Current
Aruba           Cordoba         Guayaquil       Mazatlan        Port_of_Spain   Tegucigalpa
Asuncion        Costa_Rica      Guyana          Mendoza         Porto_Velho     Thule
Atikokan        Cuiaba          Halifax         Menominee       Puerto_Rico     Thunder_Bay
Atka            Curacao         Havana          Merida          Rainy_River     Tijuana
Bahia           Danmarkshavn    Hermosillo      Mexico_City     Rankin_Inlet    Toronto
Barbados        Dawson          Indiana         Miquelon        Recife          Tortola
Belem           Dawson_Creek    Indianapolis    Moncton         Regina          Vancouver
Belize          Denver          Inuvik          Monterrey       Resolute        Virgin
Blanc-Sablon    Detroit         Iqaluit         Montevideo      Rio_Branco      Whitehorse
Boa_Vista       Dominica        Jamaica         Montreal        Rosario         Winnipeg
Bogota          Edmonton        Jujuy           Montserrat      Santarem        Yakutat
Boise           Eirunepe        Juneau          Nassau          Santiago        Yellowknife
Buenos_Aires    El_Salvador     Kentucky        New_York        Santo_Domingo
Cambridge_Bay   Ensenada        Knox_IN         Nipigon         Sao_Paulo
Campo_Grande    Fortaleza       La_Paz          Nome            Scoresbysund
Cancun          Fort_Wayne      Lima            Noronha         Shiprock
Caracas         Glace_Bay       Los_Angeles     North_Dakota    St_Barthelemy
[root@CUCSD_Primary America]#
```

Change the timezone and verify. I have chosen the Central Time Zone for my location.

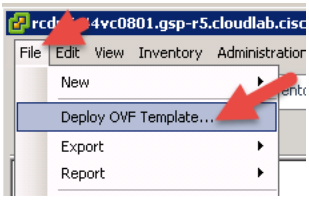
- Copy the localtime to new file named old.timezone: 'cp /etc/localtime /root/old.timezone'
- Remove the localtime file: 'rm /etc/localtime'
- Create the new localtime file: 'ln -s /usr/share/zoneinfo/America/Chicago /etc/localtime'
- Verify the timzone is what you set it to: 'date'
- Verify the link: 'ls -l /etc/localtime'

```
[root@CUCSD_Primary ~]# cp /etc/localtime /root/old.timezone
[root@CUCSD_Primary ~]#
[root@CUCSD_Primary ~]# rm /etc/localtime
rm: remove regular file '/etc/localtime'? y
[root@CUCSD_Primary ~]#
[root@CUCSD_Primary ~]# ln -s /usr/share/zoneinfo/America/Chicago /etc/localtime
[root@CUCSD_Primary ~]#
[root@CUCSD_Primary ~]# date
Thu Sep 17 13:05:35 CDT 2015
[root@CUCSD_Primary ~]#
[root@CUCSD_Primary ~]# ls -l /etc/localtime
lrwxrwxrwx 1 root root 35 Sep 17 13:05 /etc/localtime -> /usr/share/zoneinfo/America/Chicago
[root@CUCSD_Primary ~]#
```

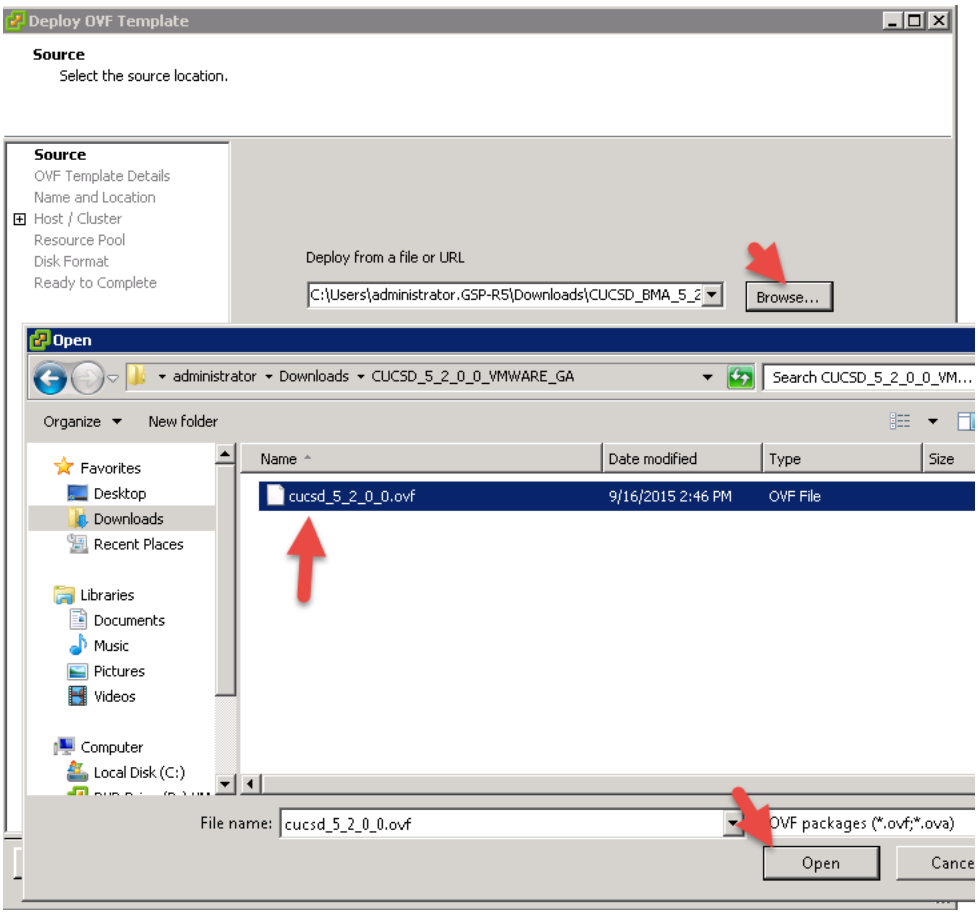
5. Create the Service Node

5.1. Create Service Node VM

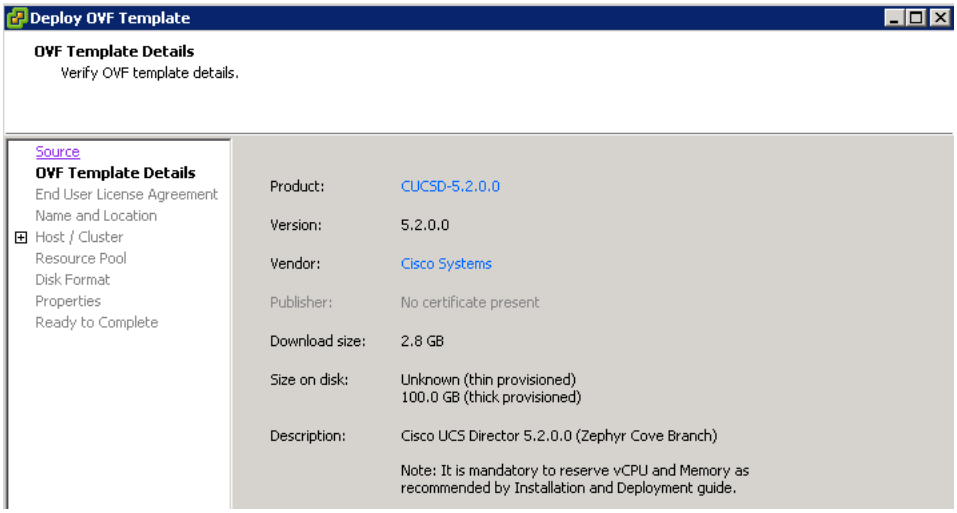
Log into vCenter and Select File -> Deploy OVF Template.



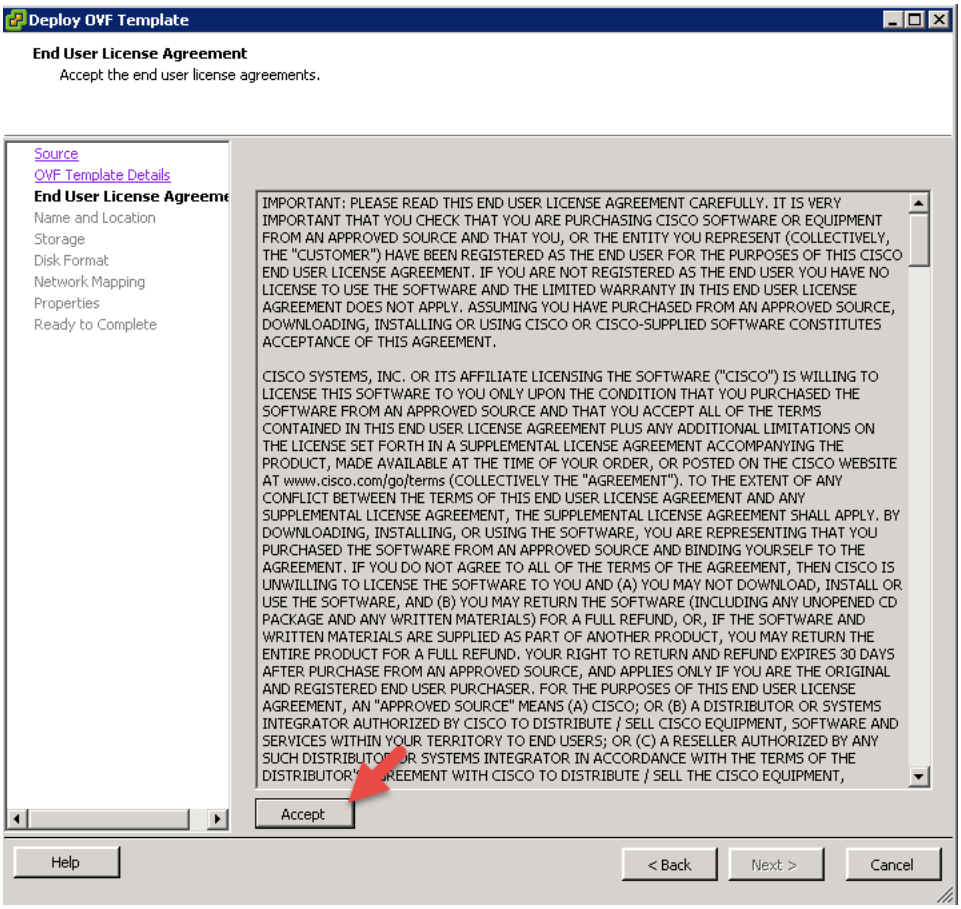
Browse to the UCSD_5_2_0_0 and select it for deployment then click Next.



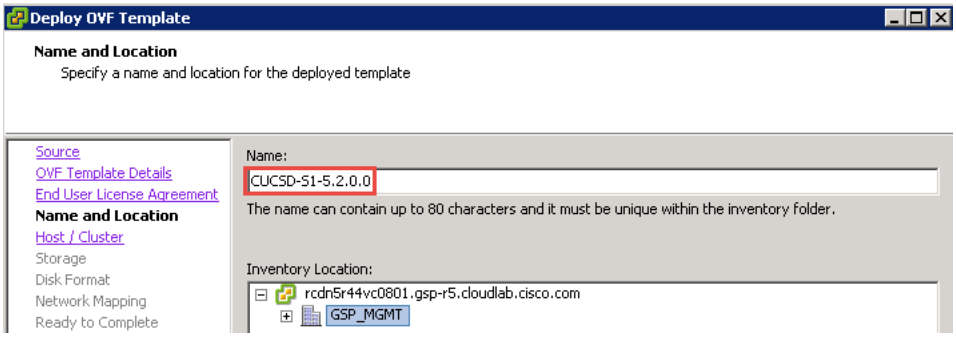
Verify details then click Next.



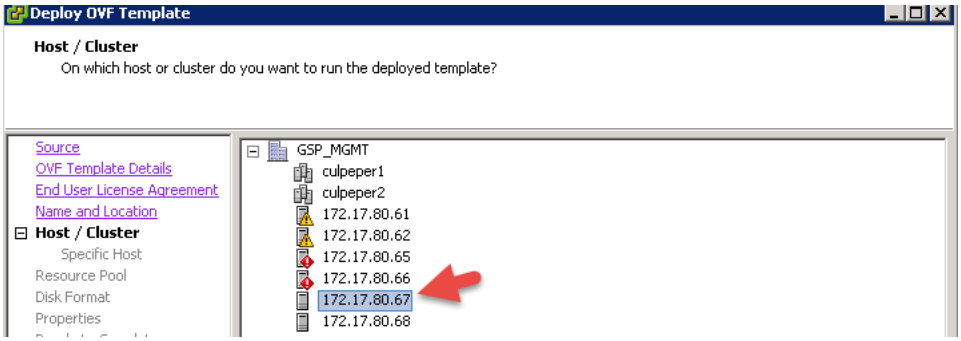
Accept the license agreement and Click Next.



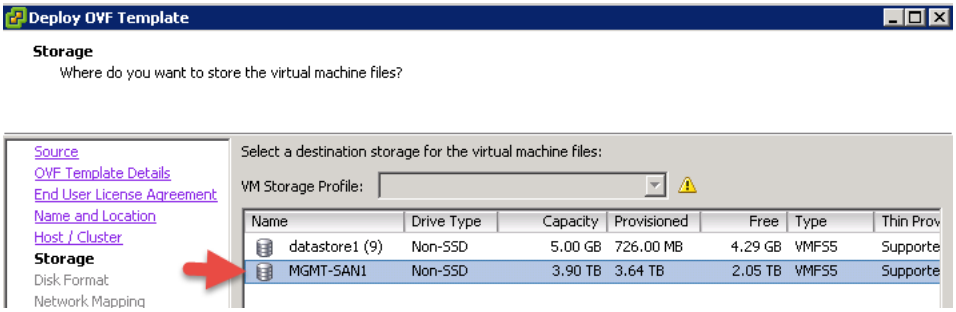
Name the VM and click Next.



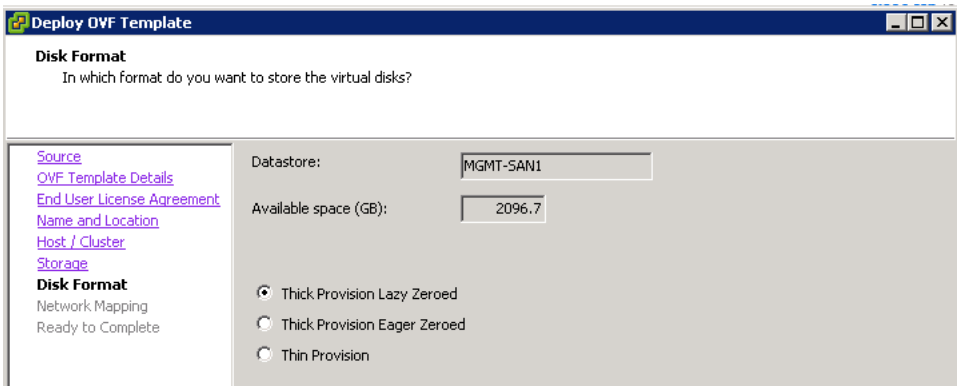
Select a Host and click Next.



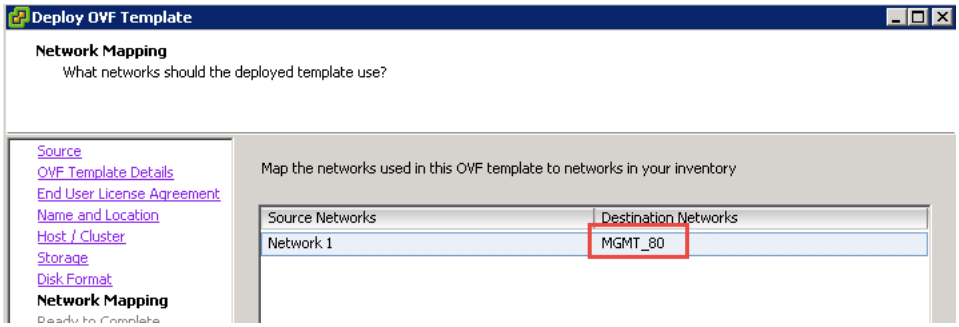
Select a storage location to install the VM and click Next.



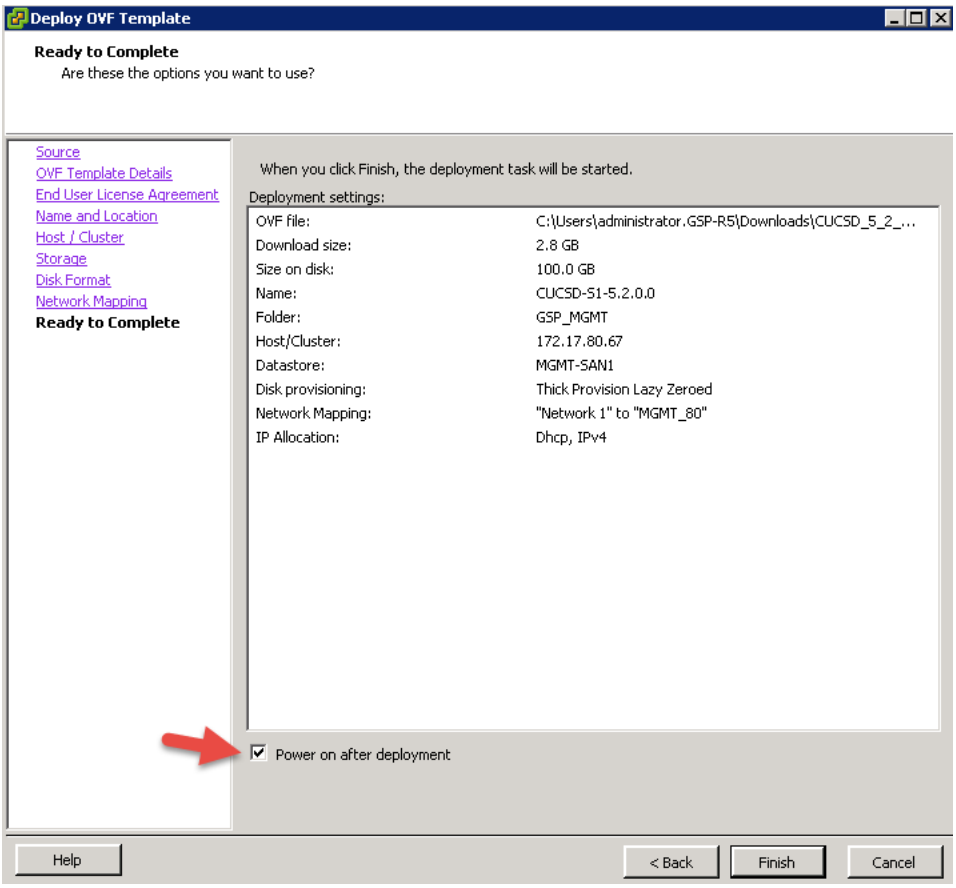
Leave the default settings for the Disk Format and click Next.



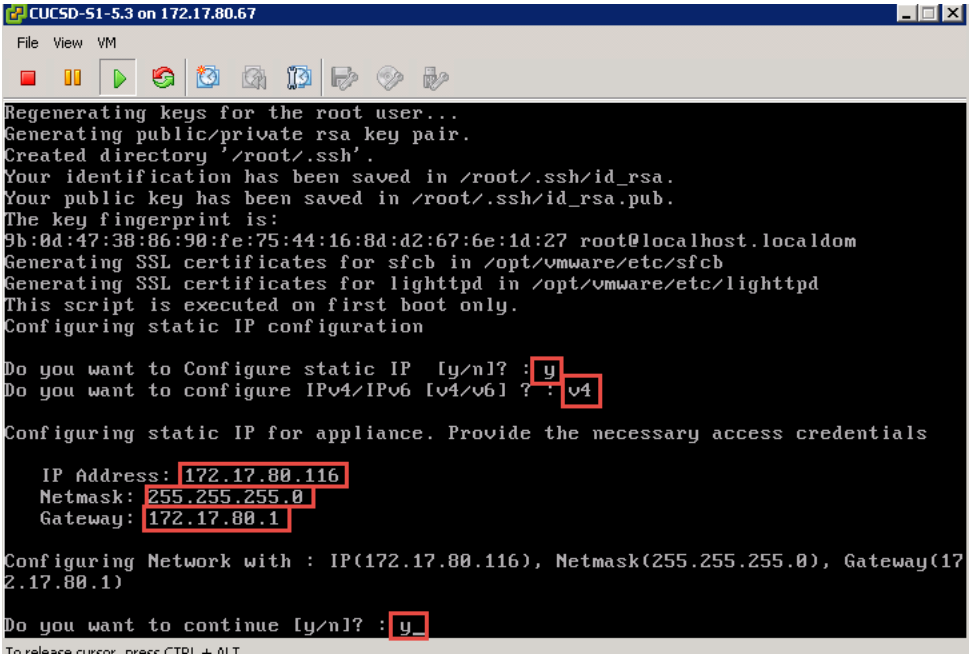
Select the Network to put this VM on and click Next.



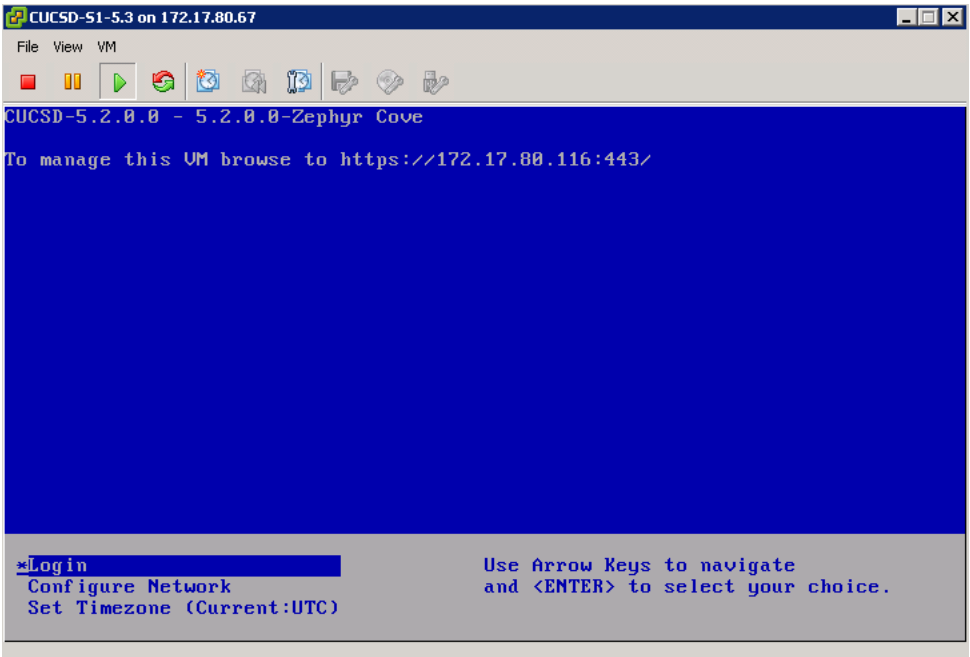
Select Power on after deployment and click Finish.



In my case, I don't have DHCP enabled on the network so I must manually configure an IP Address from the Console. In vCenter, open the console of the Service Node. Enter the following and wait for the Build to complete. This process could take a while so be patient.

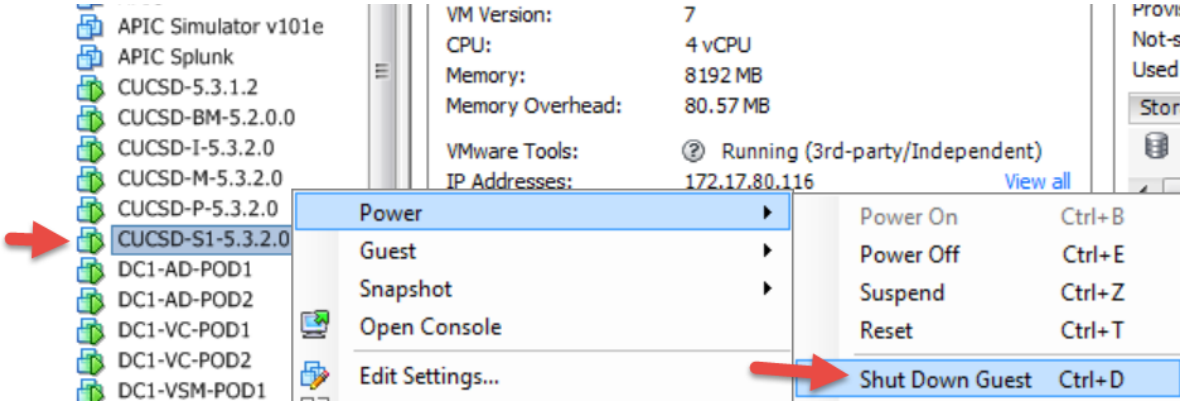


After the installation is complete, you should see a screen that looks like this.

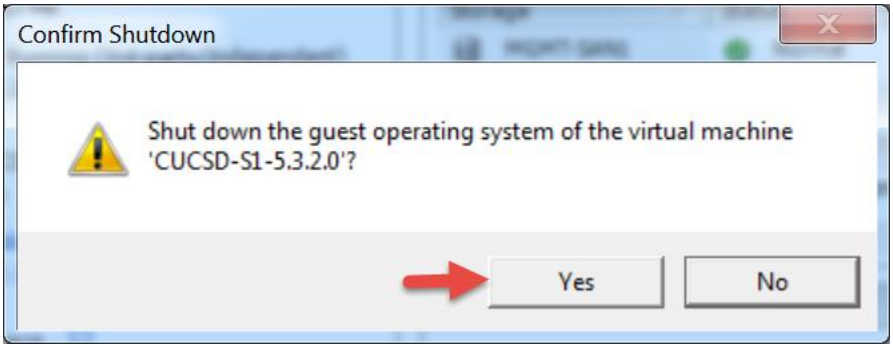


5.2. Install/Update VMWare tools & VM Version

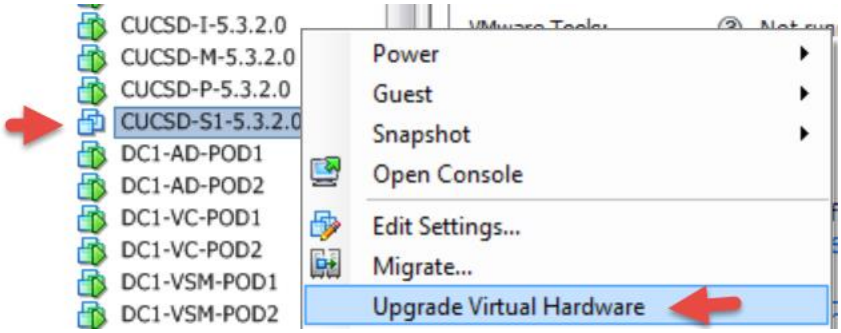
Log into vCenter, navigate to your Service Node VM, select ‘Shutdown Guest.



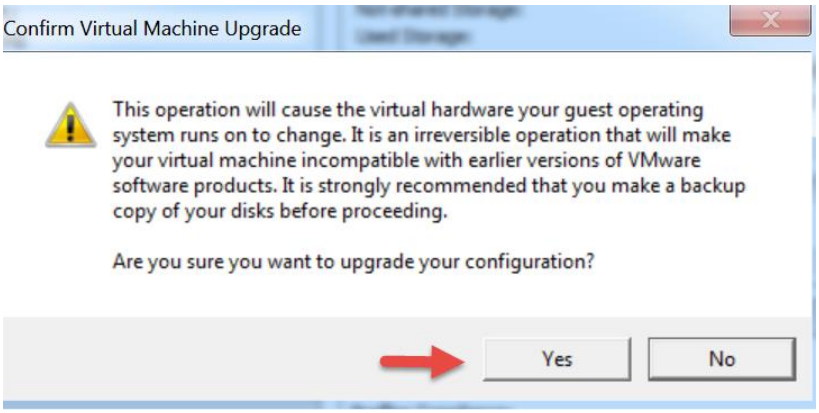
Select Yes.



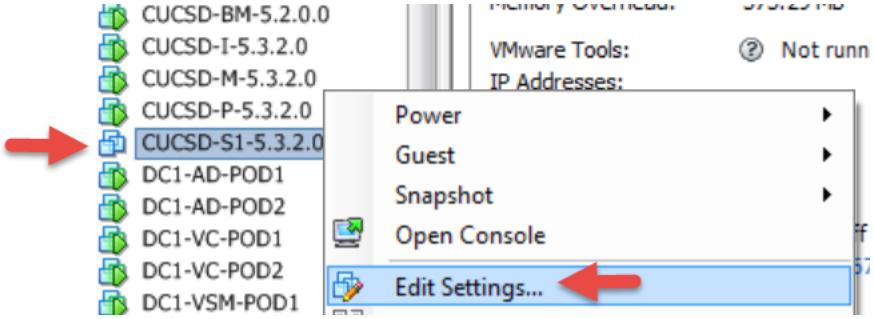
Wait for the VM to completely shut down then right click on the VM and select ‘Upgrade Virtual Hardware’.



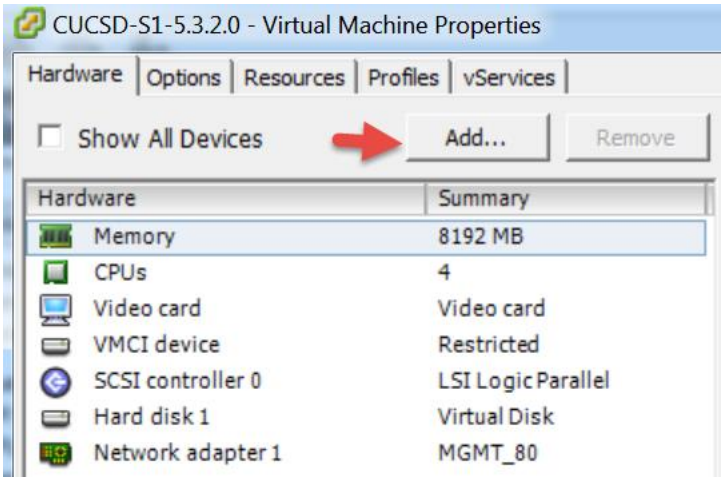
Select Yes.



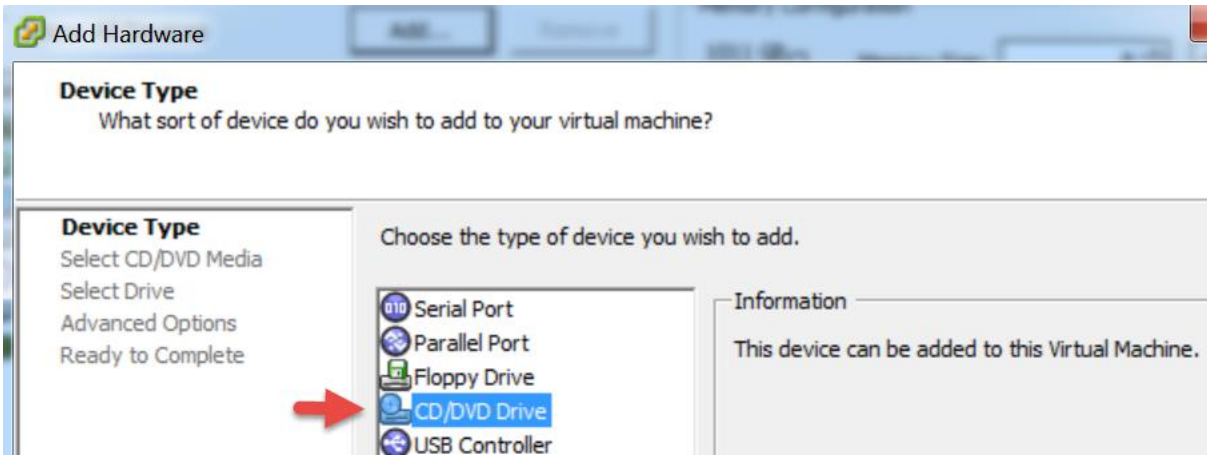
Right click on the VM and Select ‘Edit Settings’



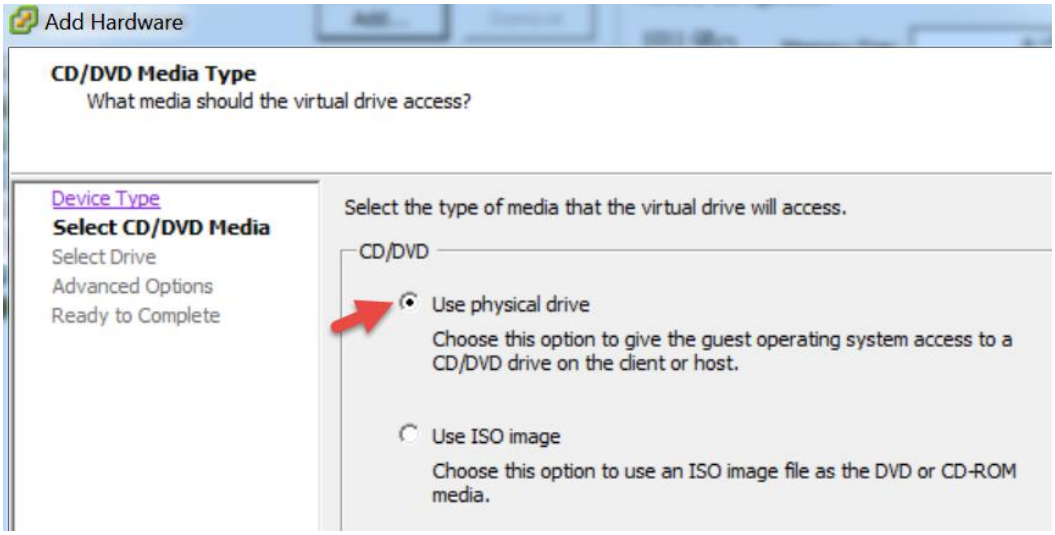
Select Add.



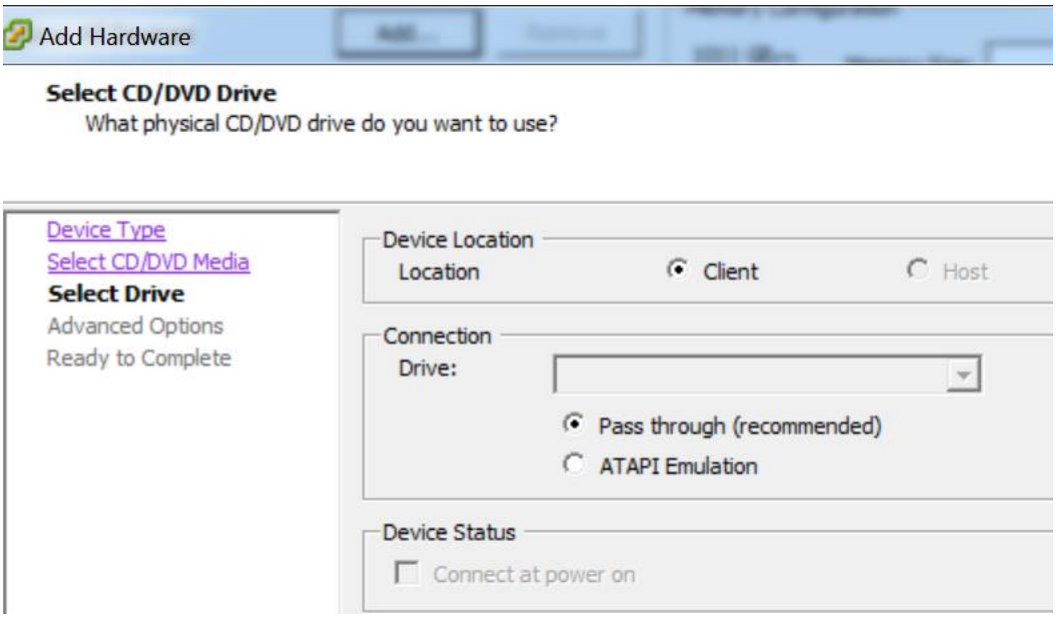
Select ‘CD/DVD Drive’ and click Next.



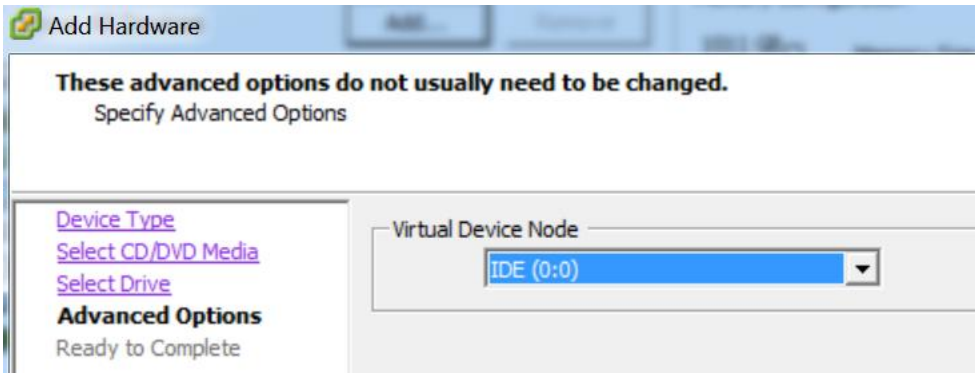
Leave default ‘Use physical drive’ and click Next.



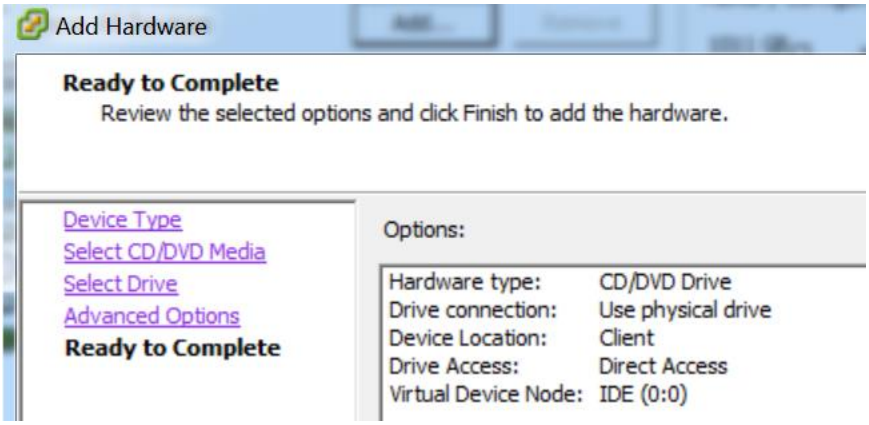
Leave default and click Next.



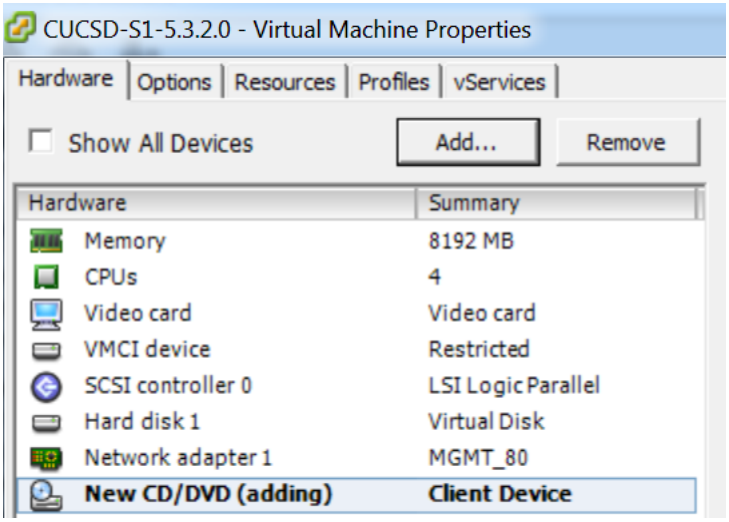
Leave default and click Next.



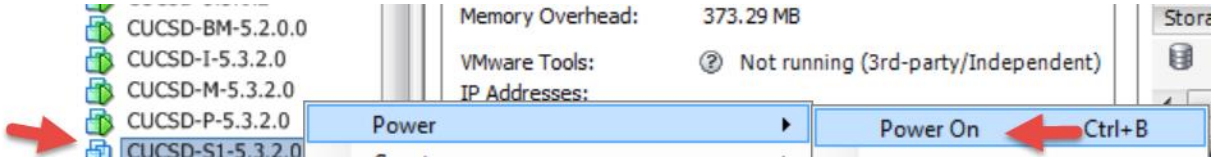
Review and click Finish.



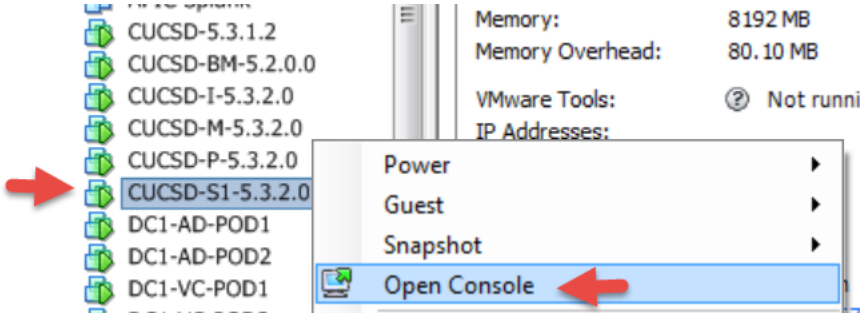
Review and click OK.



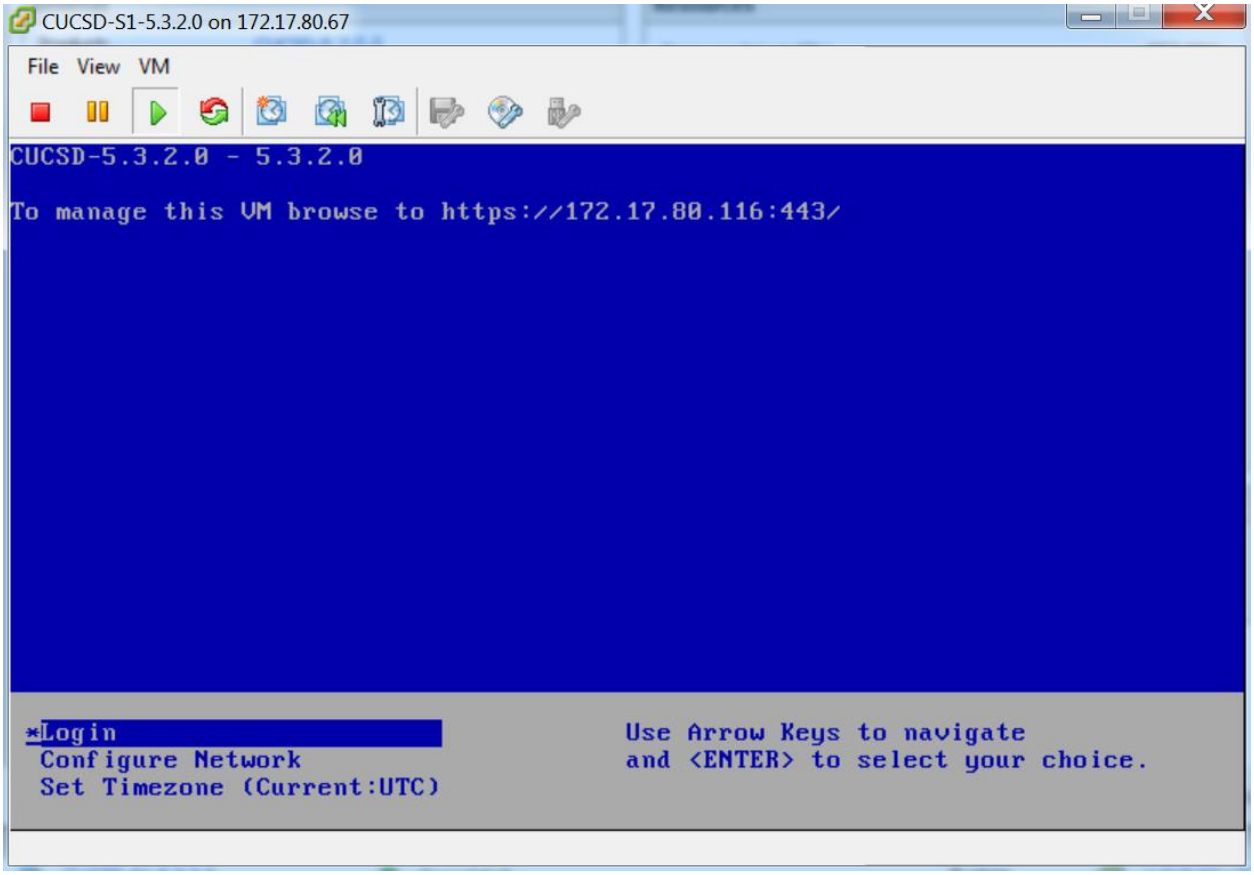
Power the VM On, right click on the VM and select 'Power On'.



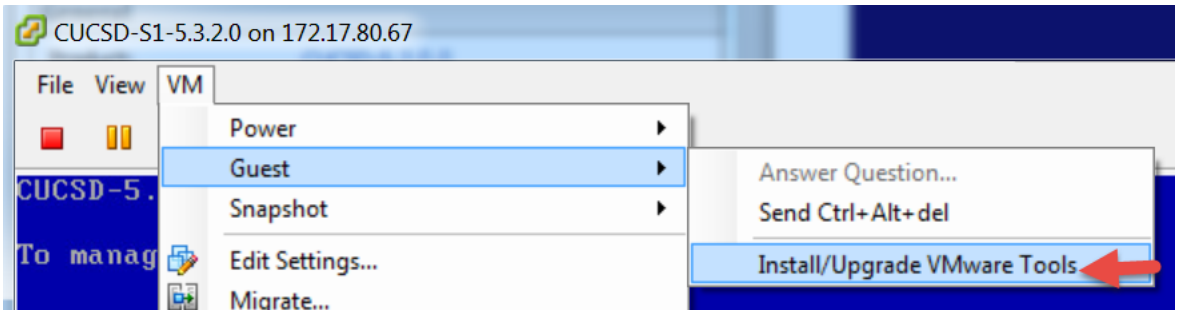
Open the VM Console to watch the VM Boot.



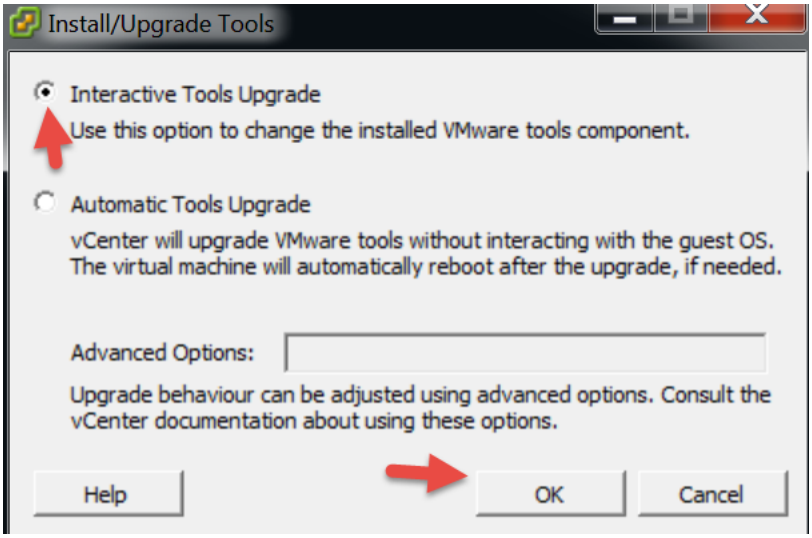
Once the VM is completely up, you should see the login screen similar to below.



From the console, select 'Install/Upgrade VMware Tools'



Select 'Interactive Tools Upgrade' and click OK.



SSH to the Primary Node.

- Make a dir for cdrom: ‘mkdir /mnt/cdrom’
- Mount the cdrom: ‘mount /dev/cdrom /mnt/cdrom’
- Copy vmware install to /tmp: ‘cp /mnt/cdrom/VMwareTools-**5.0.0-<xxxx>.**tar.gz /tmp’ **Note**: tab out the VMware tools part so you don’t have to figure out the correct name.
- Unzip the files in /tmp: ‘tar zxf /tmp/VMwareTools-**5.0.0-<xxxx>.**tar.gz’ **Note**: tab out the VMware tools part so you don’t have to figure out the correct name.
- Change directory: ‘cd vmware-tools-distrib’
- Run the install: ‘./vmware-install.pl’

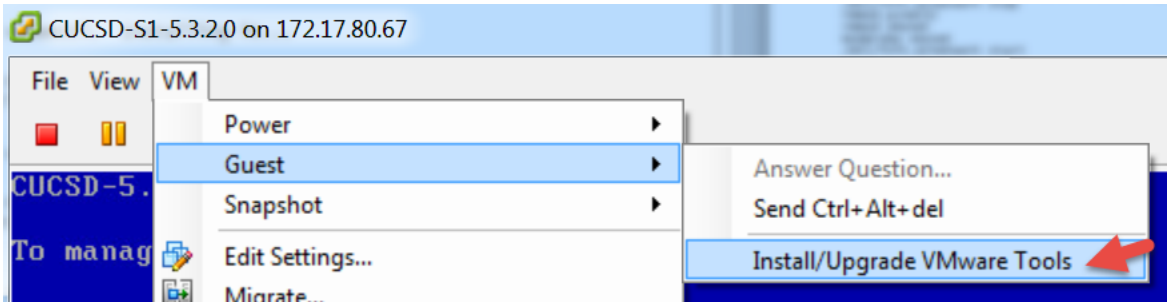
  Note: You will probably get the following message.

  VMware Tools cannot be installed, since they have already been installed using a package-based mechanism (rpm or deb) on this system. If you wish to continue, you must first remove the currently installed VMware Tools using the appropriate packaged-based mechanism, and then restart this installer
  Execution aborted.
  Found VMware Tools CDROM mounted at /mnt/cdrom. Ejecting device /dev/cdrom ... No eject (or equivilant) command could be located. Eject Failed: If possible manually eject the Tools installer from the guest cdrom mounted at /mnt/cdrom before canceling tools install on the host.
- If you get this message, we need to Delete the VMware tools directory: ‘rm -rf /usr/lib/vmware-tools/’
- Change directory: ‘cd vmware-tools-distrib/’
- Re-Run the install: ‘./vmware-install.pl’
- Enter Yes to the ‘Would you like to remove the install DB?’ You will probably get a Failure and Execution aborted.
- Re-Run the install: ‘./vmware-install.pl’
- Accept all the defaults by Pressing Enter for all the options.

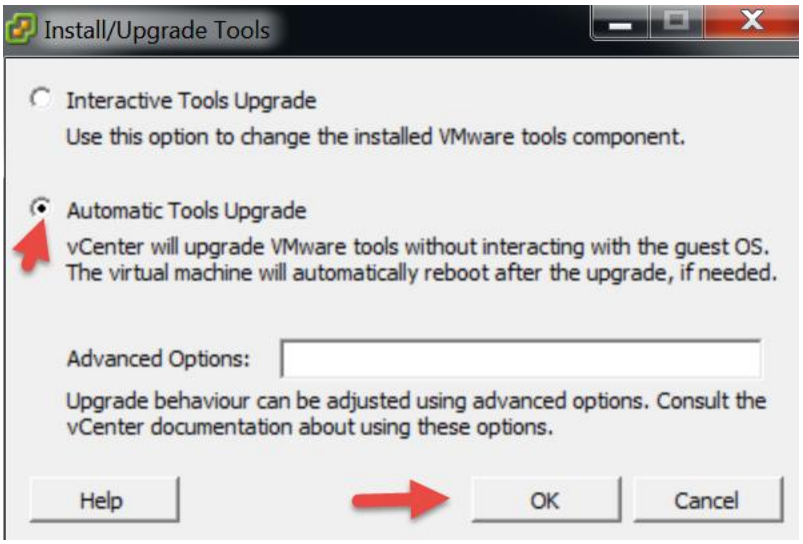
```
[root@CUCSD_Service1 vmware-tools-distrib]# rm -rf /usr/lib/vmware-tools/
[root@CUCSD_Service1 vmware-tools-distrib]#
[root@CUCSD_Service1 vmware-tools-distrib]# ./vmware-install.pl
A previous installation of VMware Tools has been detected.

Uninstallation of previous install failed. Would you like to remove the install
DB? [no] yes

Removing installer DB, please re-run the installer.

Failure

Execution aborted.

[root@CUCSD_Service1 vmware-tools-distrib]# ./vmware-install.pl
Creating a new VMware Tools installer database using the tar4 format.

Installing VMware Tools.

The file /etc/vmware-tools/poweron-vm-default that this program was about to
install already exists. Overwrite? [yes]

The file /etc/vmware-tools/suspend-vm-default that this program was about to
install already exists. Overwrite? [yes]

The file /etc/vmware-tools/poweroff-vm-default that this program was about to
install already exists. Overwrite? [yes]

The file /etc/vmware-tools/resume-vm-default that this program was about to
install already exists. Overwrite? [yes]

In which directory do you want to install the binary files?
[/usr/bin]

The file /usr/bin/vm-support that this program was about to install already
exists. Overwrite? [yes]

What is the directory that contains the init directories (rc0.d/ to rc6.d/)?
[/etc/rc.d]

What is the directory that contains the init scripts?
[/etc/rc.d/init.d]

The file /etc/rc.d/init.d/vmware-tools that this program was about to install
already exists. Overwrite? [yes]

In which directory do you want to install the daemon files?
[/usr/sbin]

In which directory do you want to install the library files?
[/usr/lib/vmware-tools]

The path "/usr/lib/vmware-tools" does not exist currently. This program is
going to create it, including needed parent directories. Is this what you want?
[yes]

The file /sbin/mount.vmhgfs that this program was about to install already
exists. Overwrite? [yes]

In which directory do you want to install the documentation files?
[/usr/share/doc/vmware-tools]

The file /usr/share/doc/vmware-tools/open_source_licenses.txt that this program
was about to install already exists. Overwrite? [yes]
```

```
The file /usr/share/doc/vmware-tools/README that this program was about to
install already exists. Overwrite? [yes]

The file /usr/share/doc/vmware-tools/INSTALL that this program was about to
install already exists. Overwrite? [yes]

The installation of VMware Tools 9.0.0 build-782409 for Linux completed
successfully. You can decide to remove this software from your system at any
time by invoking the following command: "/usr/bin/vmware-uninstall-tools.pl".

Before running VMware Tools for the first time, you need to configure it by
invoking the following command: "/usr/bin/vmware-config-tools.pl". Do you want
this program to invoke the command for you now? [yes]

The file /usr/sbin/vmware-checkvm that this program was about to install
already exists.  Overwrite? [yes]

The file /usr/sbin/vmware-rpctool that this program was about to install
already exists.  Overwrite? [yes]

The file /usr/bin/vmware-hgfsclient that this program was about to install
already exists.  Overwrite? [yes]

The file /usr/bin/vmware-xferlogs that this program was about to install
already exists.  Overwrite? [yes]

Initializing...

The file /etc/vmware-tools/icu that this program was about to install already
exists.  Overwrite? [yes]


Making sure services for VMware Tools are stopped.

Stopping VMware Tools services in the virtual machine:
   Guest operating system daemon:[  OK  ]
   Unmounting HGFS shares:[  OK  ]
   Guest filesystem driver:[  OK  ]


The VMware FileSystem Sync Driver (vmsync) allows external third-party backup
software that is integrated with vSphere to create backups of the virtual
machine. Do you wish to enable this feature? [no]

Found a compatible pre-built module for vmci.  Installing it...


Found a compatible pre-built module for vsock.  Installing it...


Found a compatible pre-built module for vmxnet3.  Installing it...


Found a compatible pre-built module for pvscsi.  Installing it...


Found a compatible pre-built module for vmmemctl.  Installing it...


The VMware Host-Guest Filesystem allows for shared folders between the host OS
and the guest OS in a Fusion or Workstation virtual environment.  Do you wish
to enable this feature? [no]

Found a compatible pre-built module for vmxnet.  Installing it...



The vmblock enables dragging or copying files between host and guest in a
Fusion or Workstation virtual environment.  Do you wish to enable this feature?
[no]

!!! [EXPERIMENTAL] !!!
VMware automatic kernel modules enables automatic building and installation of
VMware kernel modules at boot that are not already present.  By selecting yes,
you will be enabling this experimental feature.  You can always disable this
feature by re-running vmware-config-tools.pl.

Would you like to enable VMware automatic kernel modules?
[no]

No X install found.

Creating a new initrd boot image for the kernel.
   Checking acpi hot plug[  OK  ]
Starting VMware Tools services in the virtual machine:
   Switching to guest configuration:[  OK  ]
   Paravirtual SCSI module:[  OK  ]
   Guest memory manager:[  OK  ]
   Guest vmxnet fast network device:[  OK  ]
   VM communication interface:[  OK  ]
   VM communication interface socket family:[  OK  ]
   Guest operating system daemon:[  OK  ]
The configuration of VMware Tools 9.0.0 build-782409 for Linux for this running
kernel completed successfully.

You must restart your X session before any mouse or graphics changes take
effect.

You can now run VMware Tools by invoking "/usr/bin/vmware-toolbox-cmd" from the
command line.

To enable advanced X features (e.g., guest resolution fit, drag and drop, and
file and text copy/paste), you will need to do one (or more) of the following:
1. Manually start /usr/bin/vmware-user
2. Log out and log back into your desktop session; and,
3. Restart your X session.

To use the vmxnet driver, restart networking using the following commands:
/etc/init.d/network stop
rmmod pcnet32
rmmod vmxnet
modprobe vmxnet
/etc/init.d/network start

Enjoy,

--the VMware team

[root@CUCSD_Service1 vmware-tools-distrib]#
```

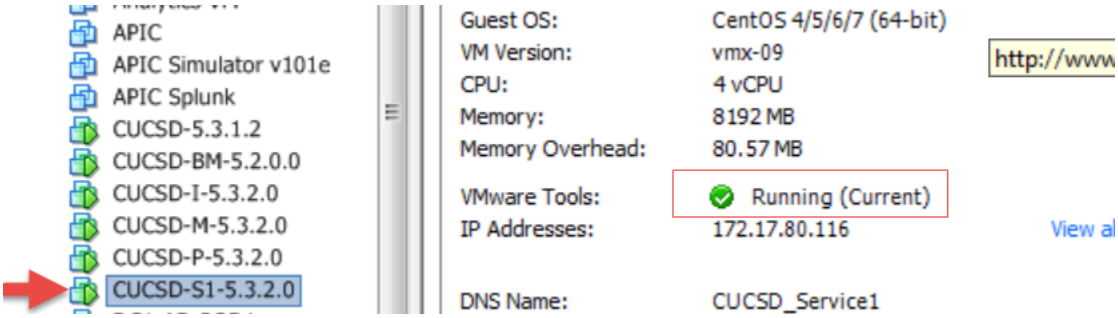
From the console, select ‘Install/Upgrade VMware Tools’



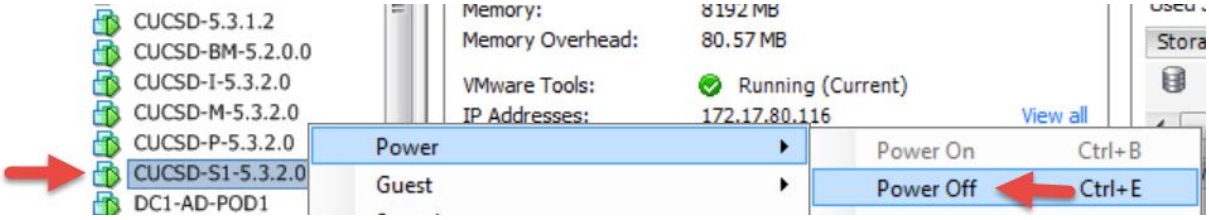
Select ‘Automatic Tools Upgrade’ and click OK.



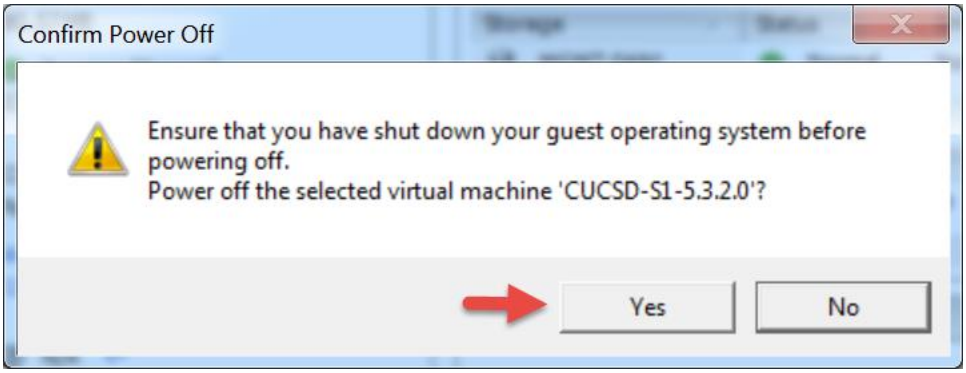
Verify Tools have been installed and currently Running as shown below.



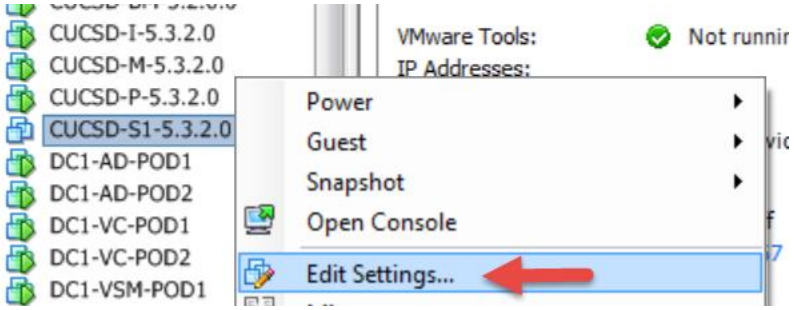
Power off the VM, select ‘Power Off’.



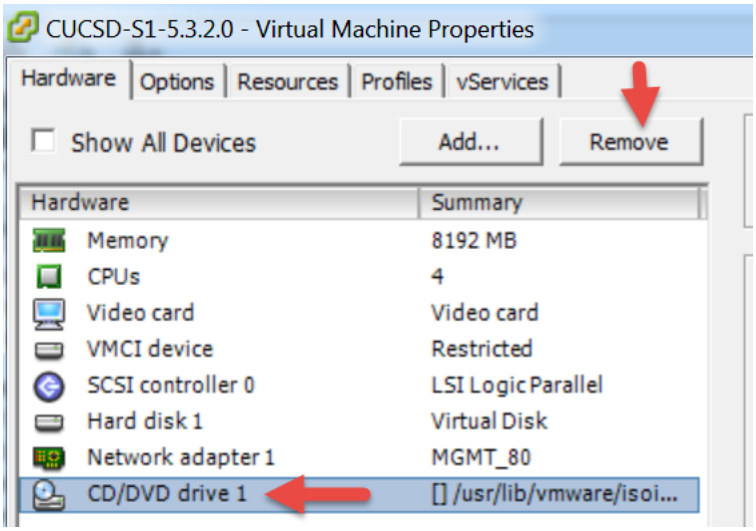
Select Yes.



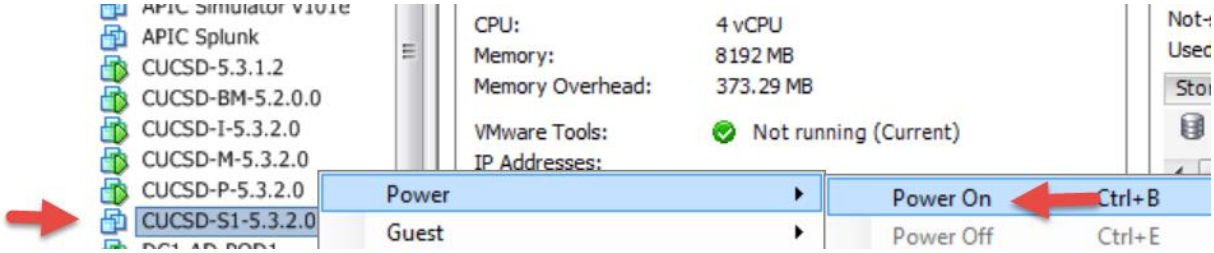
Edit Settings.



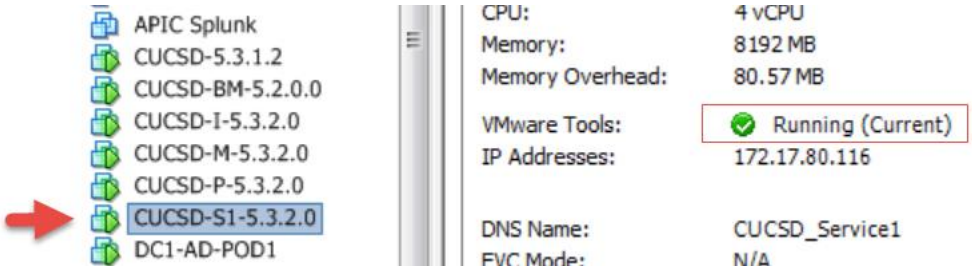
Remove CD/DVD drive then click OK.



Power on the VM.



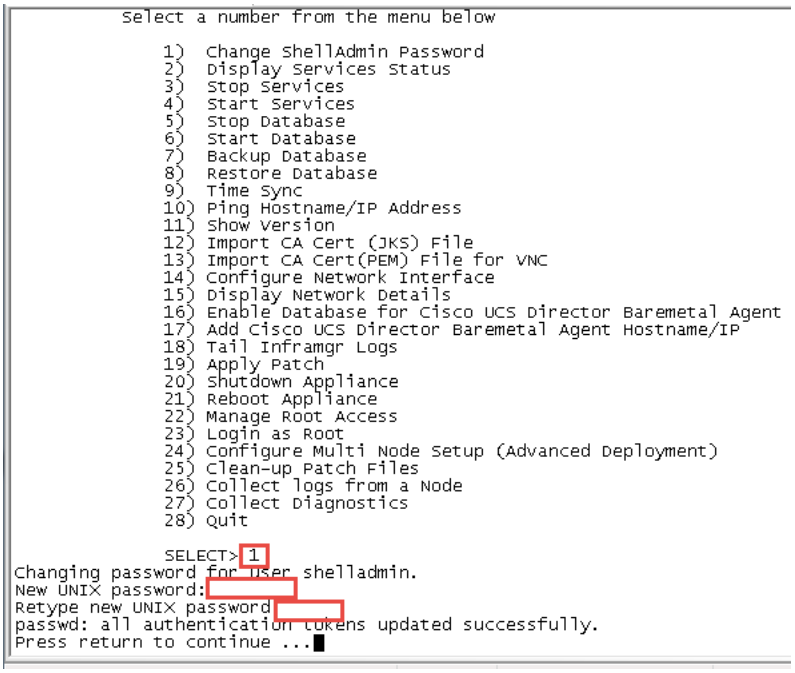
Verify the tools are installed, running and current.



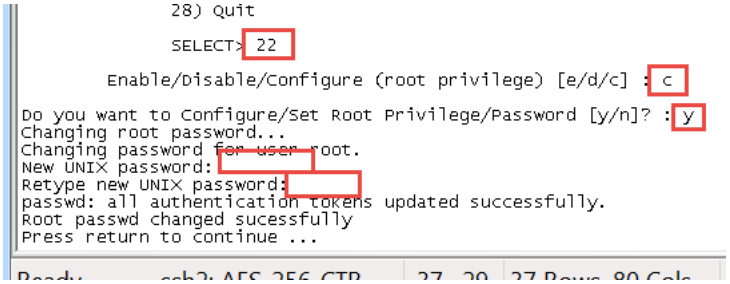
5.3. Configure Service Node

SSH to the Service Node using the shelladmin account and the default password of changeme.

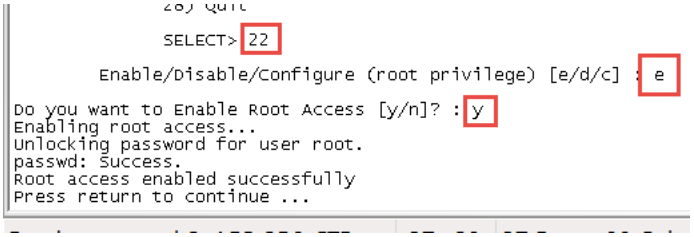
Change the shelladmin password.



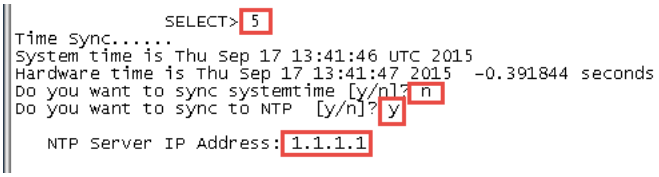
Configure and change the root password.



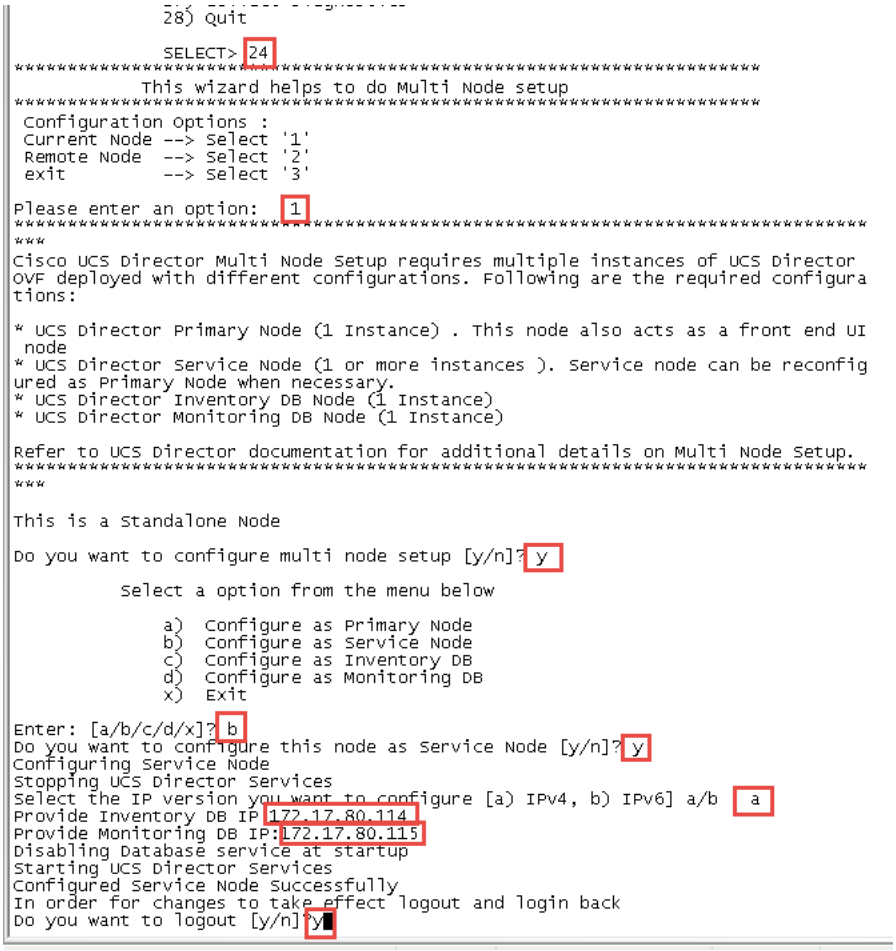
Enable root access.



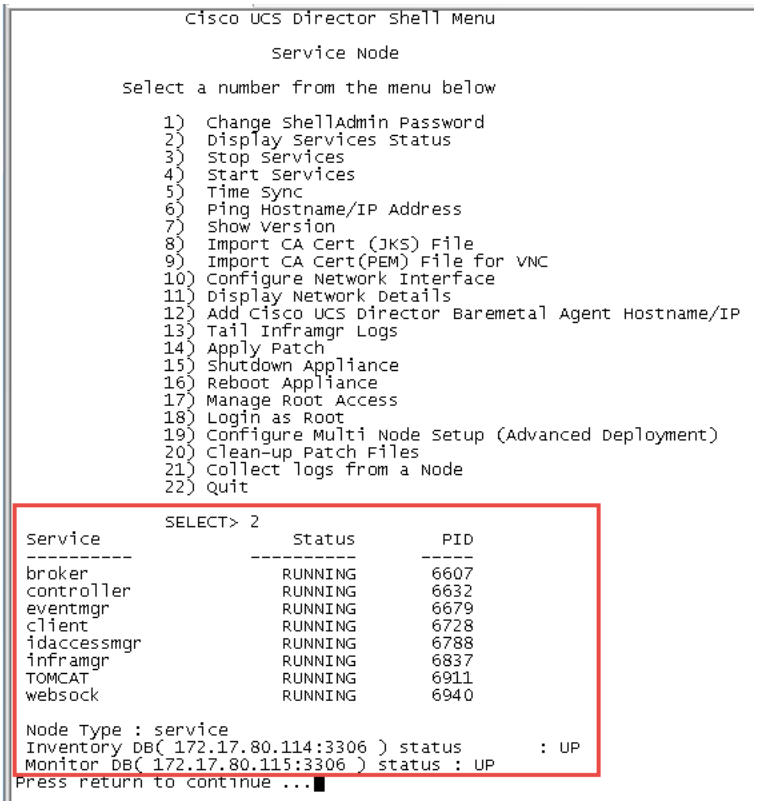
Configure NTP Server. Replace the 1.1.1.1 with your NTP Server.



From the menu, choose ‘Configure Multi Node Setup (Advanced Deployment)’ and press Enter. When prompted, press 1 to configure the current node. Then press y and then select the option to configure the node as the Service node. From the menu, choose ‘Configure Service Node‘ and press Enter. At the Provide Inventory DB IP prompt, enter the IP address assigned to the Cisco UCS Director VM for the inventory database. This step registers the VM as a primary node with the inventory database. At the Provide Monitoring DB IP Prompt, enter the IP address assigned to the Cisco UCS Director VM for the monitoring database. This step registers the VM as a primary node with the monitoring database. When prompted, press Enter to Continue. When prompted to logout, enter y and press enter then log back into the Primary Node via SSH.



To verify the services for the monitoring database are up and running, choose ‘Display Service Status’ and press Enter. You should see the lines in the red box below. Note: After you return to the shelladmin, the menu options change to those available for an inventory database node.



Edit the /etc/hosts file to update the name and IP address of the host. SSH to the Inventory Database Node using the root account.

- vi /etc/hosts
- shift a
- press return
- enter your host details
- when done: press esc
- enter :wq
- cat /etc/hosts

```
[root@localhost ~]# cat /etc/hosts
127.0.0.1   localhost.localdom localhost localhost
172.17.80.114 CUCSD_Inventory
172.17.80.115 CUCSD_Monitoring
172.17.80.116 CUCSD_Service1
172.17.80.113 CUCSD_Primary
[root@localhost ~]#
```

Edit the /etc/resolv.conf to update the DNS servers

- vi /etc/resolv.conf
- press 'i' for insert
- enter 'search localhost *your domain name'*, **Note**: Sometime search localhost is already there
- enter dns server ip address after nameserver, **Note**: if you have multiple DNS servers, enter on separate lines
- when done: press esc
- enter :wq

```
[root@CUCSD_Service1 ~]# vi /etc/resolv.conf
search localhost gsp-r5.cloudlab.cisco.com
nameserver 172.17.80.104
```

- cat /etc/resolv.conf

```
[root@CUCSD_Service1 ~]# cat /etc/resolv.conf
search localhost gsp-r5.cloudlab.cisco.com
nameserver 172.17.80.104
[root@CUCSD_Service1 ~]#
```

Edit the hostname in /etc/sysconfig/network

- vi /etc/sysconfig/network
- Move cursor to the beginning of localhost where it is on the l and enter cw (change word)
- Enter the Host name for the Inventory Database Node.
- when done: press esc
- enter :wq
- cat /etc/sysconfig/network

```
[root@localhost ~]# cat /etc/sysconfig/network
NETWORKING=yes
NETWORKING_IPV6=yes
HOSTNAME=CUCSD_Service1
DOMAINNAME=localdom
[root@localhost ~]#
```

Change the hostname

```
[root@localhost ~]# hostname CUCSD_Service1
[root@localhost ~]#
[root@localhost ~]# hostname
CUCSD_Service1
[root@localhost ~]#
```

Log out and log back into the Service Node and you will see the new hostname.

```
[root@CUCSD_Service1 ~]#
```

Configure NTP servers for Service Node. SSH into Service Node using root account.

Create ntp user

```
[root@CUCSD_Service1 ~]# useradd ntp
[root@CUCSD_Service1 ~]#
[root@CUCSD_Service1 ~]# service ntpd restart
Shutting down ntpd: [FAILED]
Starting ntpd: [  OK  ]
[root@CUCSD_Service1 ~]# ntpq -p
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
 y.ns.gin.ntt.ne .INIT.          16 u    -   64    0    0.000    0.000   0.000
 pegasus.latt.ne .INIT.          16 u    -   64    0    0.000    0.000   0.000
 time-b.nist.gov .INIT.          16 u    -   64    0    0.000    0.000   0.000
 utcnist2.colora .INIT.          16 u    -   64    0    0.000    0.000   0.000
 LOCAL(0)        .LOCL.          10 l    2   64    1    0.000    0.000   0.001
[root@CUCSD_Service1 ~]#
```

Edit the ntp.conf file to include your NTP server. You can simple comment out the existing NTP servers by placing a # infront of them.

- vi /etc/ntp.conf
- cursor down to the first NTP server line
- press i for insert
- enter # then move your cursor down to each of the other NTP servers and enter #
- create a new line for your NTP server by pressing enter after the last NTP server
- enter server and the ip address of your NTP server. Replace 1.1.1.1 with your ntp server
- press esc, then enter :wq to quit and write the info

```
[root@CUCSD_Service1 ~]# vi /etc/ntp.conf
# Permit time synchronization with our time source, but do not
# permit the source to query or modify the service on this system.
restrict default kod nomodify notrap nopeer noquery
restrict -6 default kod nomodify notrap nopeer noquery

# Permit all access over the loopback interface.  This could
# be tightened as well, but to do so would effect some of
# the administrative functions.
restrict 127.0.0.1
restrict -6 ::1

# Hosts on local network are less restricted.
#restrict 192.168.1.0 mask 255.255.255.0 nomodify notrap

# Use public servers from the pool.ntp.org project.
# Please consider joining the pool (http://www.pool.ntp.org/join.html).
#server 0.centos.pool.ntp.org
#server 1.centos.pool.ntp.org
#server 2.centos.pool.ntp.org
#server 3.centos.pool.ntp.org
server 1.1.1.1
```

Restart the nptd service and check the NTP synchronization. It may take a while but when the clock is synced with the NTP server there will be a * to the left of the IP address.

```
[root@CUCSD_Service1 ~]# service ntpd restart
Shutting down ntpd: [  OK  ]
Starting ntpd: [  OK  ]
[root@CUCSD_Service1 ~]# ntpq -p
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
*[redacted]  LOCAL(1)         5 u    8   64    1    1.401  314.182   0.001
 LOCAL(0)        .LOCL.          10 l    7   64    1    0.000    0.000   0.001
[root@CUCSD_Service1 ~]#
```

Change the time zone to the local timezone where the Primary Node, Inventory Database and the Monitoring Database reside. Use this timezone for all the service Nodes as well even though they may not reside in this timezone. This will ensure the logs will match everywhere.

- Determine the current timezone by entering 'ls –l /etc/localtime'
- To determine your timezone, 'cd /usr/share/zoneinfo/America/'

```
[root@CUCSD_Service1 ~]# ls -l /etc/localtime
lrwxrwxrwx 1 root root 27 Dec 20  2014 /etc/localtime -> /usr/share/zoneinfo/Etc/UTC
[root@CUCSD_Service1 ~]#
[root@CUCSD_Service1 ~]# ls /usr/share/zoneinfo/America/
Adak            Catamarca       Godthab         Louisville      Panama          St_Johns
Anchorage       Cayenne         Goose_Bay       Maceio          Pangnirtung     St_Kitts
Anguilla        Cayman          Grand_Turk      Managua         Paramaribo      St_Lucia
Antigua         Chicago         Grenada         Manaus          Phoenix         St_Thomas
Araguaina       Chihuahua       Guadeloupe      Marigot         Port-au-Prince  St_Vincent
Argentina       Coral_Harbour   Guatemala       Martinique      Porto_Acre      Swift_Current
Aruba           Cordoba         Guayaquil       Mazatlan        Port_of_Spain   Tegucigalpa
Asuncion        Costa_Rica      Guyana          Mendoza         Porto_Velho     Thule
Atikokan        Cuiaba          Halifax         Menominee       Puerto_Rico     Thunder_Bay
Atka            Curacao         Havana          Merida          Rainy_River     Tijuana
Bahia           Danmarkshavn    Hermosillo      Mexico_City     Rankin_Inlet    Toronto
Barbados        Dawson          Indiana         Miquelon        Recife          Tortola
Belem           Dawson_Creek    Indianapolis    Moncton         Regina          Vancouver
Belize          Denver          Inuvik          Monterrey       Resolute        Virgin
Blanc-Sablon    Detroit         Iqaluit         Montevideo      Rio_Branco      Whitehorse
Boa_Vista       Dominica        Jamaica         Montreal        Rosario         Winnipeg
Bogota          Edmonton        Jujuy           Montserrat      Santarem        Yakutat
Boise           Eirunepe        Juneau          Nassau          Santiago        Yellowknife
Buenos_Aires    El_Salvador     Kentucky        New_York        Santo_Domingo
Cambridge_Bay   Ensenada        Knox_IN         Nipigon         Sao_Paulo
Campo_Grande    Fortaleza       La_Paz          Nome            Scoresbysund
Cancun          Fort_Wayne      Lima            Noronha         Shiprock
Caracas         Glace_Bay       Los_Angeles     North_Dakota    St_Barthelemy
[root@CUCSD_Service1 ~]#
```

Change the timezone and verify. I have chosen the Central Time Zone for my location.

- Copy the localtime to new file named old.timezone: 'cp /etc/localtime /root/old.timezone'
- Remove the localtime file: 'rm /etc/localtime'
- Create the new localtime file: 'ln -s /usr/share/zoneinfo/America/Chicago /etc/localtime'
- Verify the timzone is what you set it to: 'date'
- Verify the link: 'ls -l /etc/localtime'

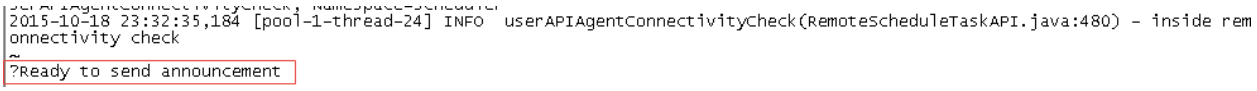
```
[root@CUCSD_Service1 ~]# cp /etc/localtime /root/old.timezone
[root@CUCSD_Service1 ~]#
[root@CUCSD_Service1 ~]# rm /etc/localtime
rm: remove symbolic link `/etc/localtime'? y
[root@CUCSD_Service1 ~]#
[root@CUCSD_Service1 ~]# ln -s /usr/share/zoneinfo/America/Chicago /etc/localtime
[root@CUCSD_Service1 ~]#
[root@CUCSD_Service1 ~]# date
Thu Sep 17 13:23:18 CDT 2015
[root@CUCSD_Service1 ~]#
[root@CUCSD_Service1 ~]# ls -l /etc/localtime
lrwxrwxrwx 1 root root 35 Sep 17 13:23 /etc/localtime -> /usr/share/zoneinfo/America/Chicago
[root@CUCSD_Service1 ~]#
```

Example of NTP Time Synced: Notice the * in front of the NTP Server IP Address.

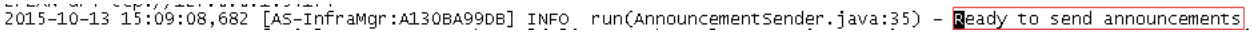
```
[root@CUCSD_Service1 ~]# ntpq -p
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
*[illegible]  LOCAL(1)         5 u   26   64   77    1.137  315.245   0.699
 LOCAL(0)        .LOCL.          10 l   30   64   77    0.000    0.000   0.001
[root@CUCSD_Service1 ~]#
```

Verify the Service Node is completely up before moving on to the next section. Do not move on until you see the
From the Service Node CLI, 'vi /opt/infra/inframgr/logfile.txt'

- Go to the end/bottom of the log file: press shift + g
- Look for 'Ready to send announcement' starting from the bottom: enter '?Ready to send announcement'



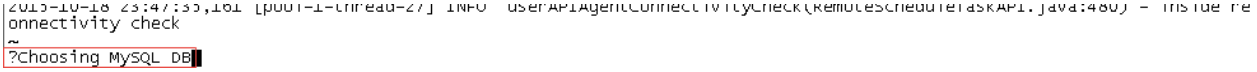
- Press enter/return



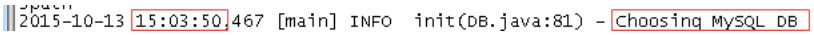
- Type ':q!' to exit vi editor

Optional: Determine how long it took for the Service Node to come up.
From the Service Node CLI, 'vi /opt/infra/inframgr/logfile.txt'

- Go to the end/bottom of the log file: press shift + g
- Look for 'Ready to send announcement' starting from the bottom: enter '?Choosing MySQL DB'



- Press enter/return

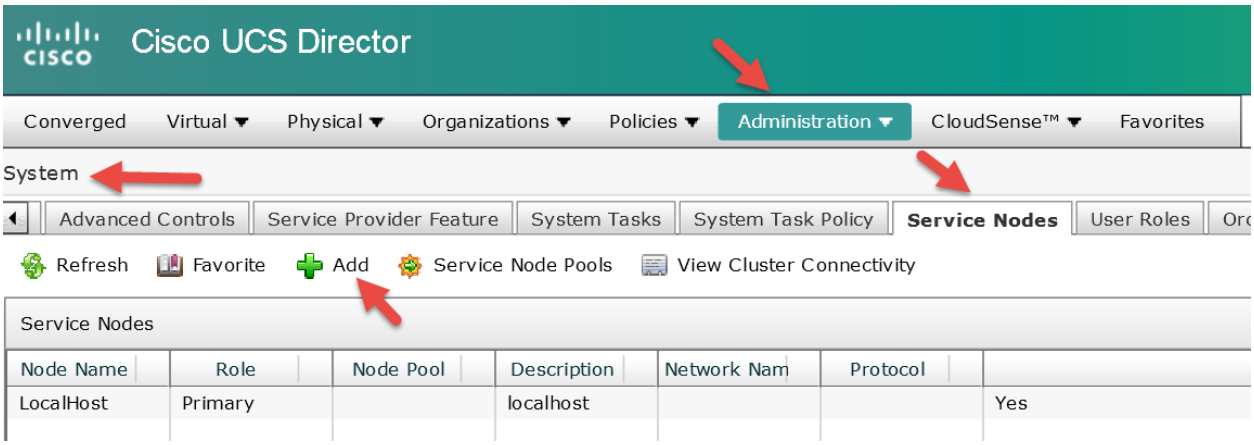


Type ':q!' to exit vi editor

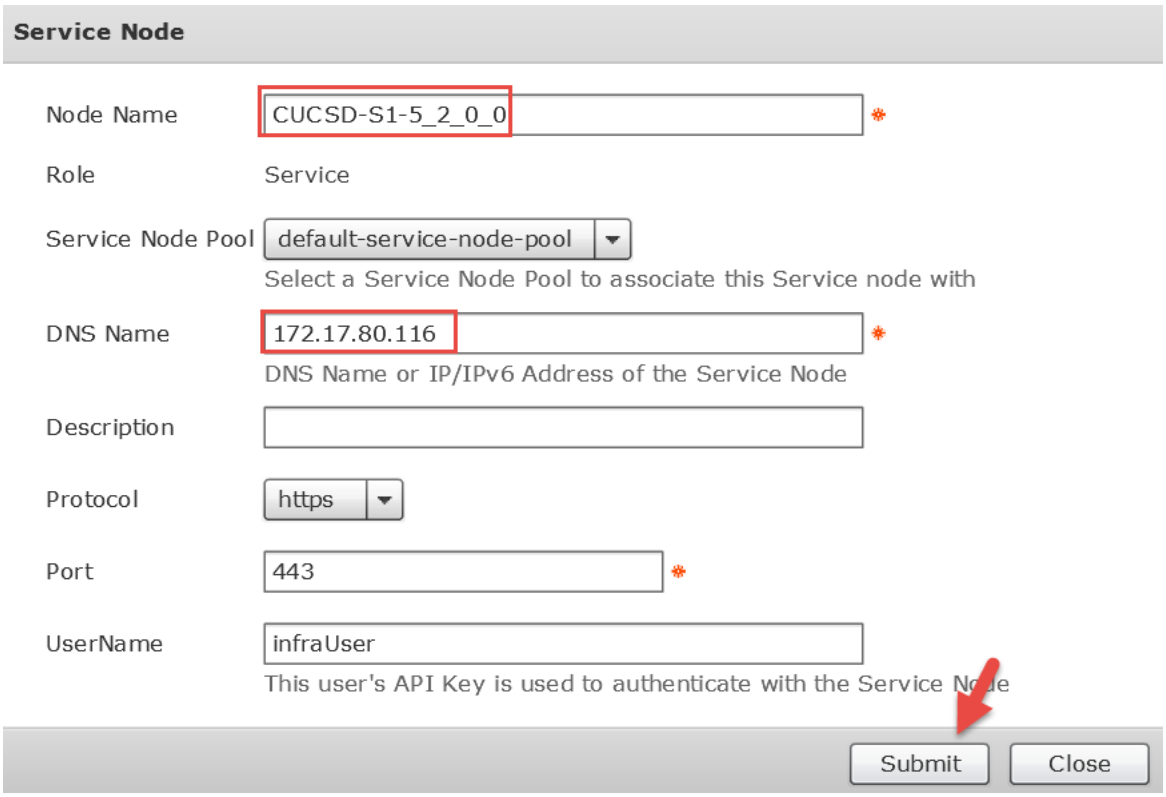
Using the time from 'Choosing MySQL DB' of 15:03 subtract the from the time 'Ready to send announcement' of 15:09 and the result is the time it took for the Node to come completely up.

6. Setup Service Node in UCS Director GUI

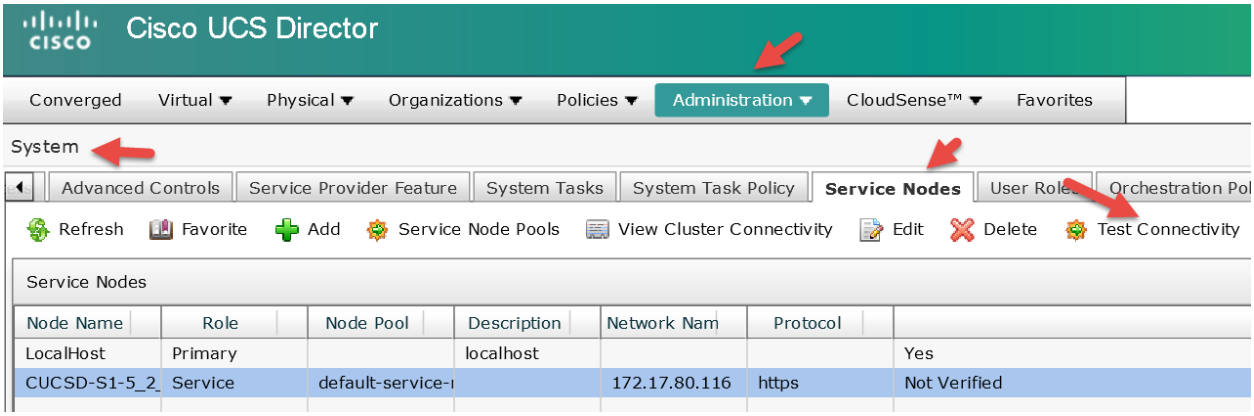
Log into UCS Director GUI using the Primary Node IP address and go to Administration -> System -> Service Nodes -> Add. In my case it is 172.17.80.113.



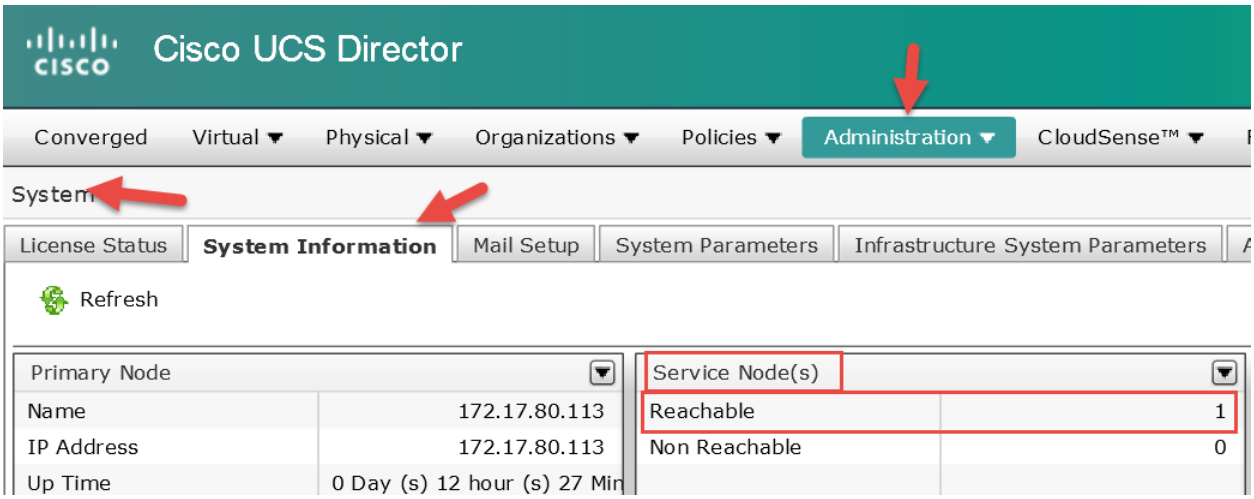
Enter the following details and click Submit.



Test Service Node Connectivity.

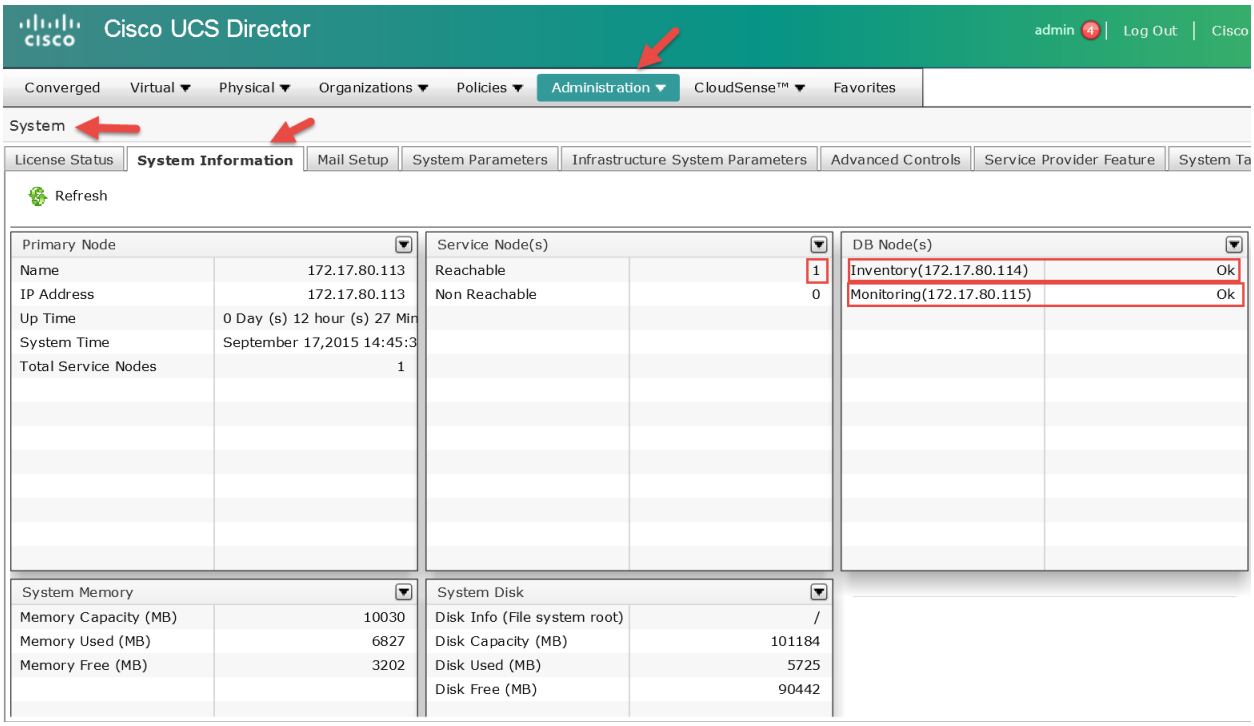


Verify Service Node is in sync with UCS Director.



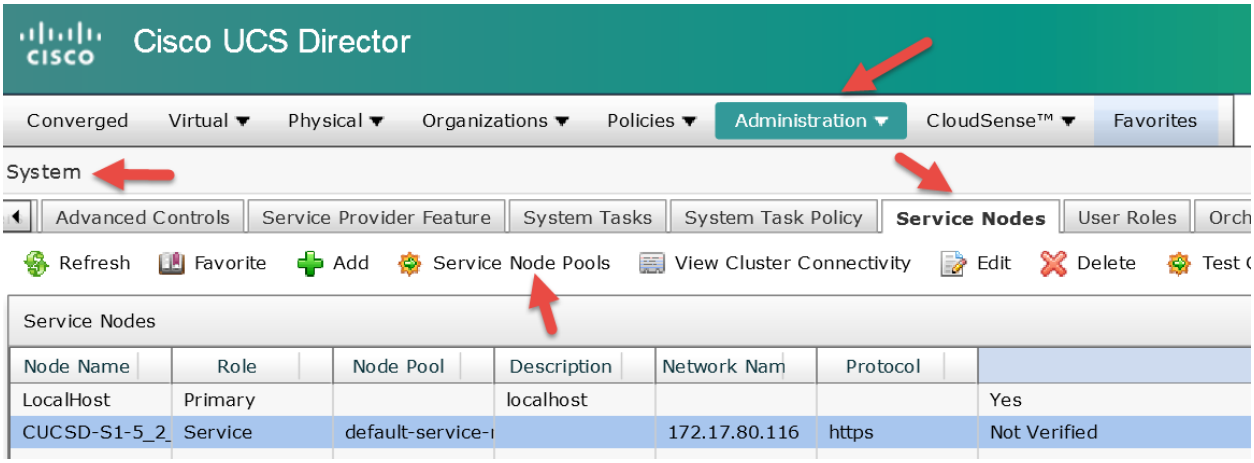
7. Test and Verification

Verify UCS Director is fully integrated with the Service Node(s), Inventory Database Node and the Monitoring Database Node.

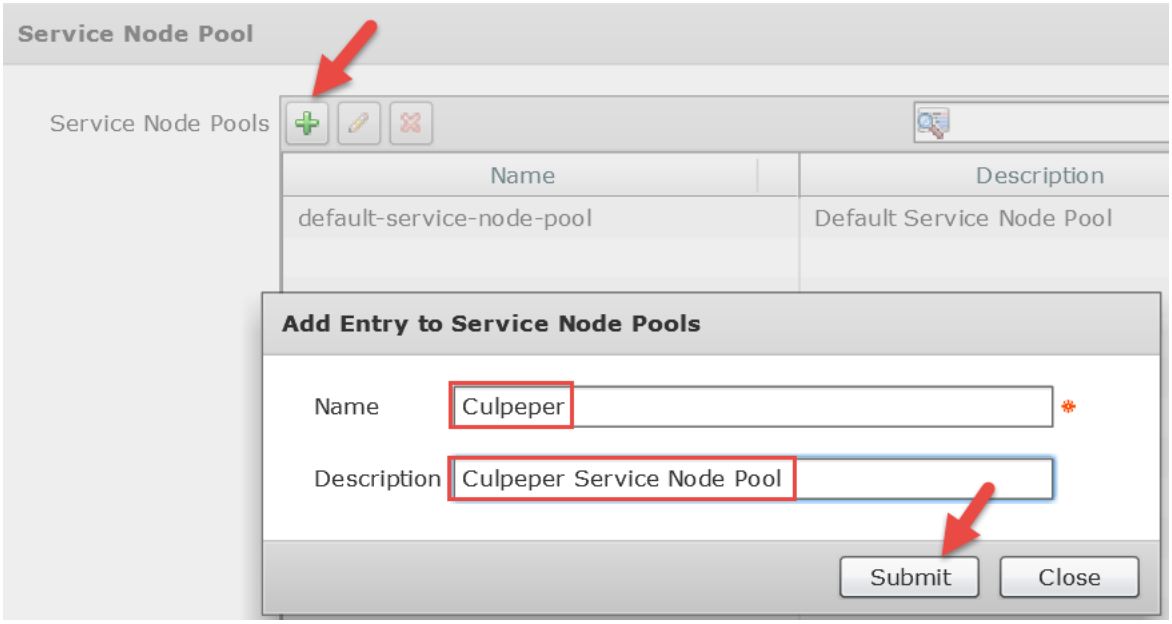


8. Create and assign System Task to a Service Node

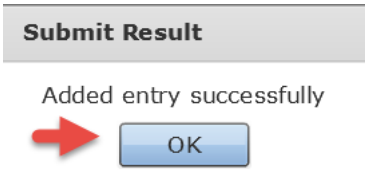
Create a Service Node Pool.



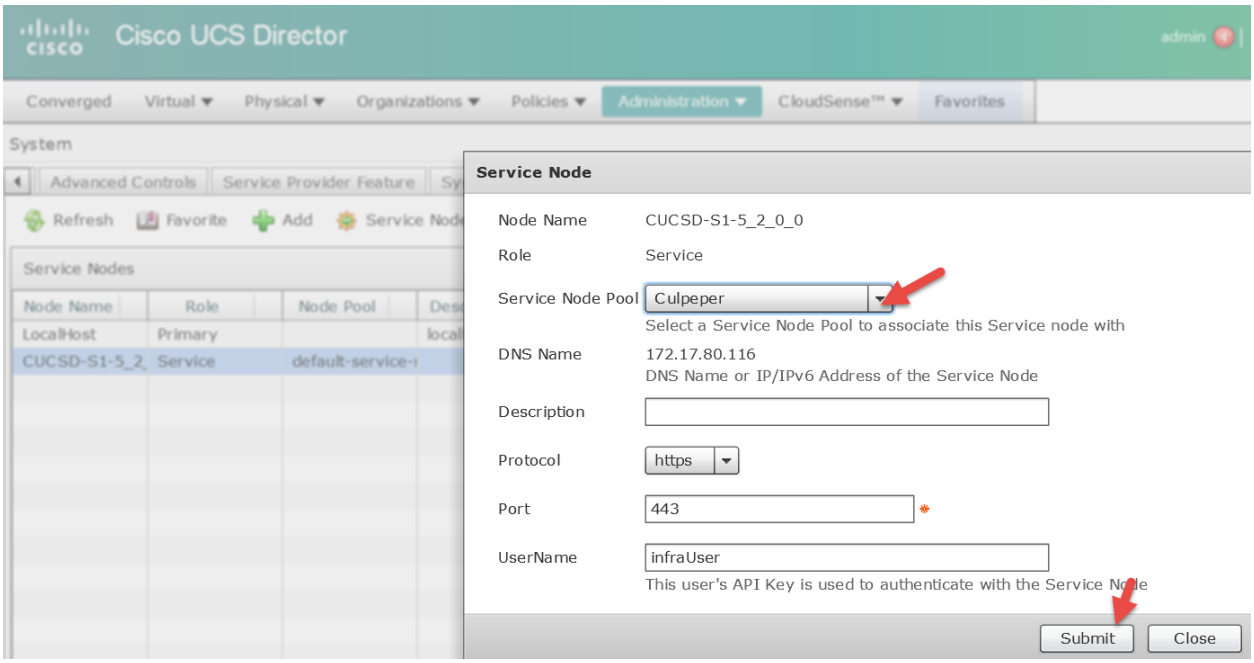
Click the + to Add a Service Node Pool, then fill in the details below and click Submit.



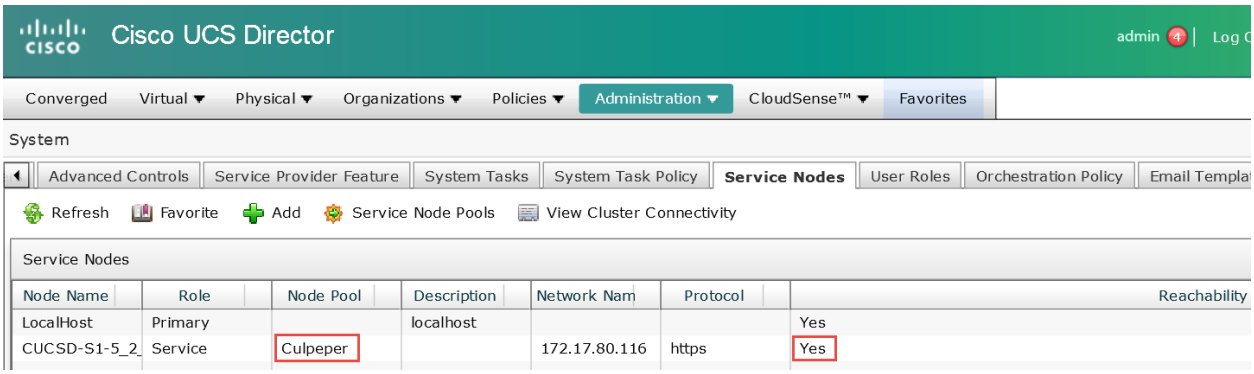
When prompted, click OK and finally click Close to close the Service Node Pool window.



Move your service not from the Default Service Node Pool to the newly created Culpeper Service Node Pool. Select the service Node and select Edit then change the service node pool in the drop down. Click OK when prompted.



Verify Service Node Pool and Reachability.



9. Troubleshooting Service Node Connectivity

If your Primary Node is across the US or just has a lot of latency, you may need to adjust the NodeHttpConnectivity timeout on the Primary Node located in the service properties. This timeout needs to be set to 3000. **Note**: You may have to repeat this process after you upgrade/path the system. You should check after upgrades/patches.

- Log into the Primary Node as root
- cd /opt/infra/inframgr
- grep -i http *.properties
- cat service.properties
- vi service.properties
- Cursor down to the beginning of line 'systemTask.NodeHttpConnectivity.timeout=30' and press i for insert
- Comment out the line by entering # at the beginning of that line and copy the entire line without the #
- Cursor down to the next line and press enter to create a new line
- Cursor back up and paste the copied line and change the 30 to 3000
- When done, press esc then :wq to write and quit the vi session

```
[root@CUCSD_Primary ~]# cd /opt/infra/inframgr/
[root@CUCSD_Primary inframgr]#


[root@CUCSD_Primary inframgr]# vi service.properties


#systemTask.NodeHttpConnectivity.timeout=30
systemTask.NodeHttpConnectivity.timeout=3000


[root@CUCSD_Primary inframgr]# grep -i http *.properties
service.properties:#systemTask.NodeHttpConnectivity.timeout=30
service.properties:systemTask.NodeHttpConnectivity.timeout=3000
service.properties:# Primary URL to which the HTTP requests will be redirected to.
[root@CUCSD_Primary inframgr]#
```

Reboot the Primary Node. Log in as shelladmin and select option 16.

```
              SELECT> 16

Do you want to Reboot appliance  [y/n]? : y
Rebooting the Cisco UCS Director Appliance...

Broadcast message from root (pts/0) (Thu Sep 17 20:07:34 2015):

The system is going down for reboot NOW!
Rebooting sucessful
Press return to continue ...
```

Ping the Service Node from the Primary Node. If you are using the fully qualified domain name instead of an IP address for the Service Node configuration then you should test a ping to it instead of the IP Address. If it doesn't resolve the name you should verify your hosts files on all nodes and your DNS server. You could also change the Service Node configuration to use the IP Address.

```
[root@CUCSD_Primary ~]# ping 172.17.80.116
PING 172.17.80.116 (172.17.80.116) 56(84) bytes of data.
64 bytes from 172.17.80.116: icmp_seq=1 ttl=64 time=0.269 ms
64 bytes from 172.17.80.116: icmp_seq=2 ttl=64 time=0.257 ms
64 bytes from 172.17.80.116: icmp_seq=3 ttl=64 time=0.258 ms

--- 172.17.80.116 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 1998ms
rtt min/avg/max/mdev = 0.257/0.261/0.269/0.014 ms
[root@CUCSD_Primary ~]#
```

Tail the logfile.txt file on the Primary Node and then test connectivity to the Service Node.

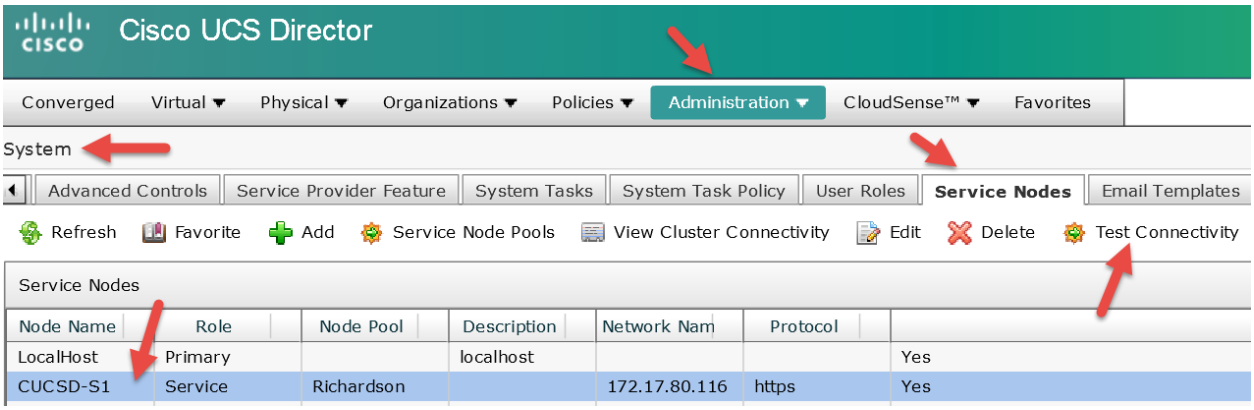
- SSH to the Primary node using the root account
- tail -f /opt/infra/inframgr/logfile.txt

```
[root@CUCSD_Primary ~]# tail -f /opt/infra/inframgr/logfile.txt
2015-09-19 02:12:10,369 [pool-35-thread-27] INFO  getBestAgent(AgentAllocator.java:109) - Node pool default-servic
2015-09-19 02:12:10,372 [pool-35-thread-27] INFO  getBestAgent(SystemTaskExecutor.java:317) - No Agent available f
 VMwareEventCollector:MGMT-VCENTER
2015-09-19 02:12:10,373 [pool-35-thread-27] INFO  updateStatus(SystemTaskStatusProvider.java:181) - Task: task.VMw
lector:MGMT-VCENTER changed state to OK
2015-09-19 02:12:10,380 [pool-35-thread-27] INFO  executeLocally(SystemTaskExecutor.java:142) - Executing task loc
eEventCollector:MGMT-VCENTER
2015-09-19 02:12:10,380 [pool-35-thread-27] INFO  getClusterLeaf(ClusterPersistenceUtil.java:81) - Leaf name Local
2015-09-19 02:12:10,385 [pool-35-thread-27] INFO  updateStatus(SystemTaskStatusProvider.java:181) - Task: task.VMw
lector:MGMT-VCENTER changed state to In Progress
2015-09-19 02:12:10,391 [pool-35-thread-27] INFO  executeLocally(SystemTaskExecutor.java:158) - Start executing ta
```

- Launch a second SSH session to the Primary Node
- Test the connection to the Service Node: telnet 172.17.80.116 443
- If your output shows connected as show below then the connection was successful
- **Note**: The 443 at the end of the telnet command is port number 443 for https

```
[root@CUCSD_Primary ~]# telnet 172.17.80.116 443
Trying 172.17.80.116...
Connected to 172.17.80.116.
Escape character is '^]'.
```

- Monitor the logging in the other session to see if you see any signs for the connection failing.
- Log into the UCS Director GUI and Test Connectivity



- Monitor the logging on the Primary Node to see if you see any signs for the connection failing.

SSH to the Primary node and issue telnet 172.17.80.116 443 to initiate a connection to the Service Node and quickly move to the next step. You only have 30 seconds or so to see the connection. Longer than that, you will need to run the telnet command again to re-establish the session.

```
[root@CUCSD_Primary ~]# telnet 172.17.80.116 443
Trying 172.17.80.116...
Connected to 172.17.80.116.
Escape character is '^]'.
```

Run the following command on the Service Node: 'netstat -n | grep 172.17.80.113' The output in the screen shot below shows ESTABLISHED which is a good sign the connectivity is working properly.

```
[root@CUCSD_Service1 ~]# netstat -n | grep 172.17.80.113
tcp        0      0 ::ffff:172.17.80.116:443    ::ffff:172.17.80.113:49379  ESTABLISHED
[root@CUCSD_Service1 ~]#
```

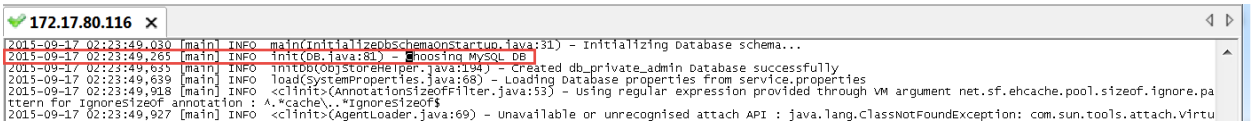
Verify the connection performance to the datastore using the following command. 25MB/s is the recommended minimum performance but it's not uncommon to get speeds as low as 4.0 MB/s. The slower the speed, the longer the node will take to completely come online. If possible, use a storage array that will get you to the optimal performance. It may take a few minutes to process this command before you see the output.

- Command: 'dd if=/dev/zero of=/tmp/test1 bs=4096 count=262144 oflag=direct'

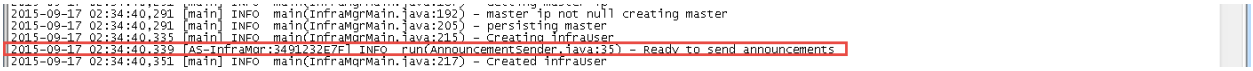
```
[root@CUCSD_Service1 ~]# dd if=/dev/zero of=/tmp/test1 bs=4096 count=262144 oflag=direct
262144+0 records in
262144+0 records out
1073741824 bytes (1.1 GB) copied, 252.307 seconds, 4.3 MB/s
[root@CUCSD_Service1 ~]#
```

Determine if the Service Node is completely up.

- Change Directory to inframgr: 'cd /opt/infra/inframgr/
- You can look at the logfile: 'tail –f logfile.txt'
- Exit the logfile: press 'ctrl + c'
- Open the logfile with vi so you can search it: 'vi logfile.txt'
- Search the logfile for Choosing MySQL DB: enter '/Choosing', press return
    - Document the time stamp for this entry: 2015-09-17 02:23:49

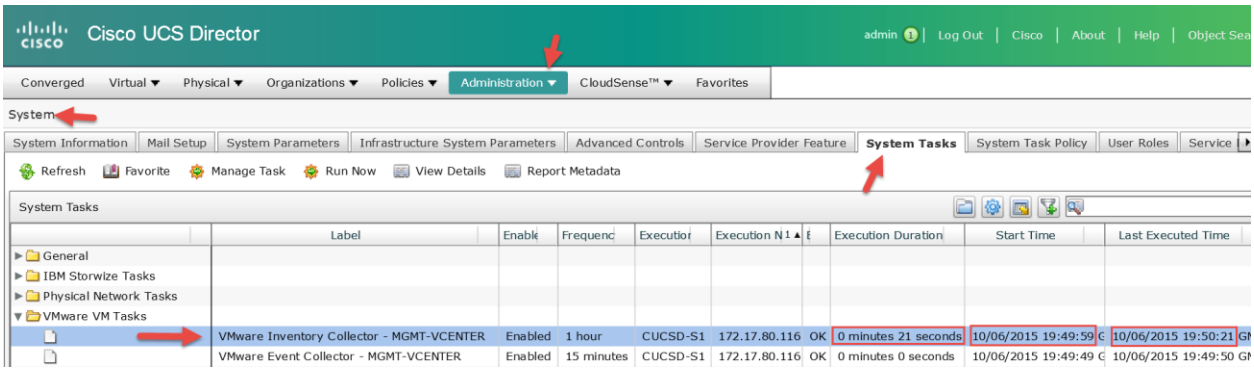


- Serarch the logfile for Ready to send announcements: enter '/Ready', press return
    - Document the time stamp for this entry: 2015-09-17 02:34:40
    - **Note**: If you do not see this entry, then the node isn't completely up yet. Wait until you see this entry.

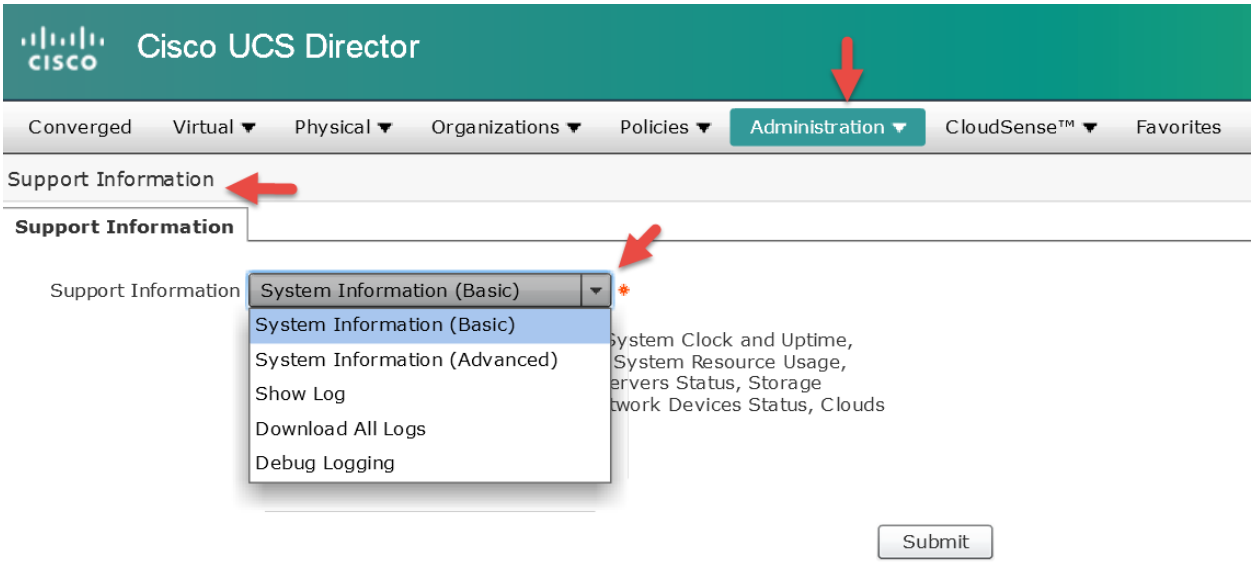


- The difference between 'Choosing MySQL DB' and 'Ready to send announcements' is the time it took for the node to come up. In this case, it took approximately 11 minutes.
- Exit vi without saving: enter ':quit'

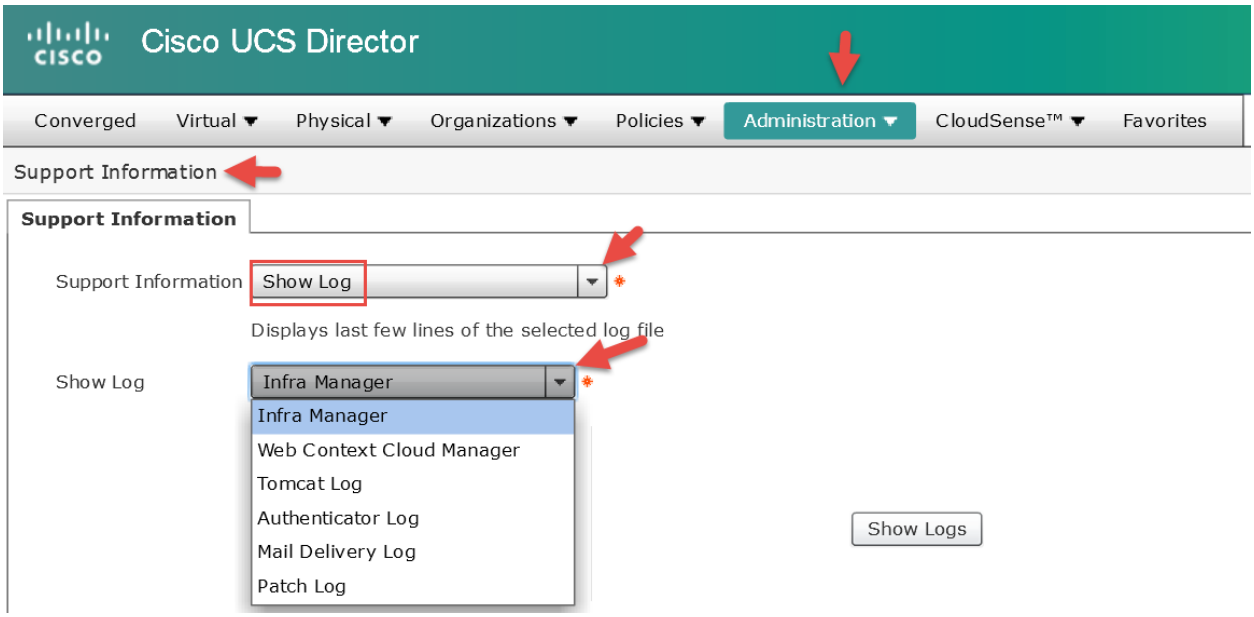
Verify the task does not take longer to complete than the frequency of the task. In this case the 'VMware Inventory Collector – MGMT-VCENTER' took 21 seconds to complete and the frequency is 1 hour so this is not a problem. If the task took longer than the frequency, this would be a problem.



If you need to view or download the logs from UCS Director, you can find them here. Administration -> Support Information and select the logs you want to see or download. If you open a TAC case, they will most likely request you to upload these logs to the TAC Case.



Useful logs to view from the GUI.

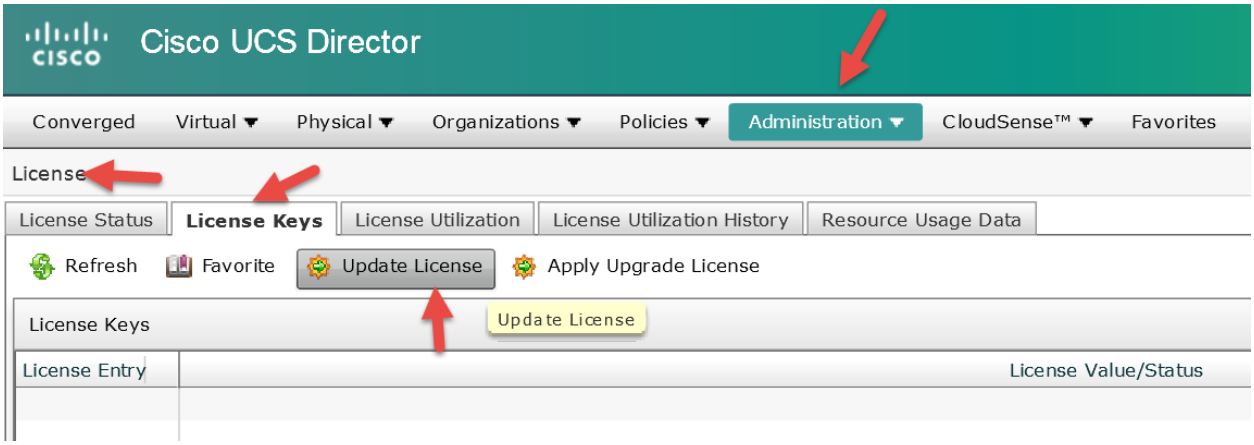


Last resort: Reboot the Primary Node and see if this fixes the connectivity issue between the Primary Node and the Services Node. If that doesn't fix the issue, then reboot the Service Node. You can reboot these Nodes via root account using the reboot command or shelladmin account and select the menu item to reboot appliance.

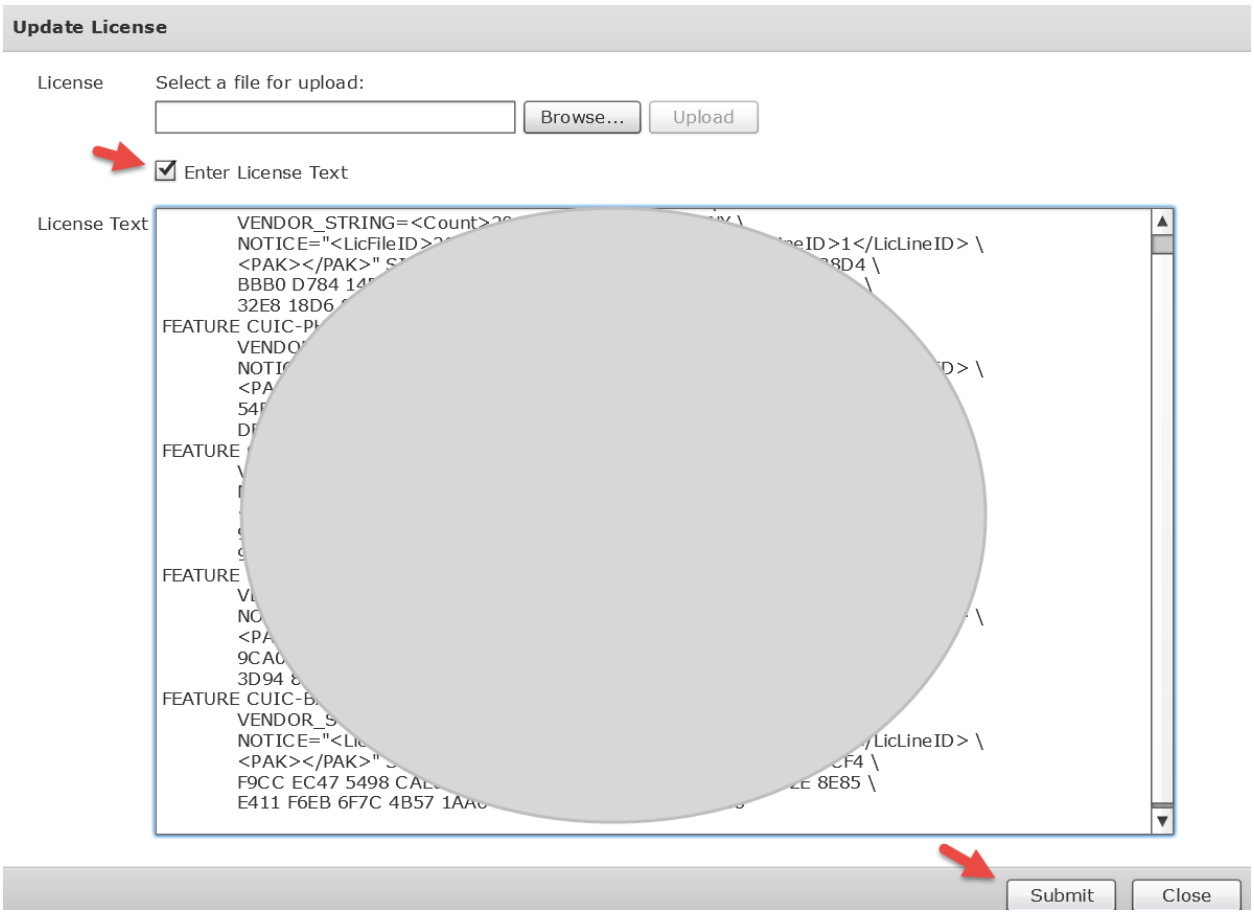
If all else fails, Open a TAC Case ;-)

10. Add Licenses to UCS Director

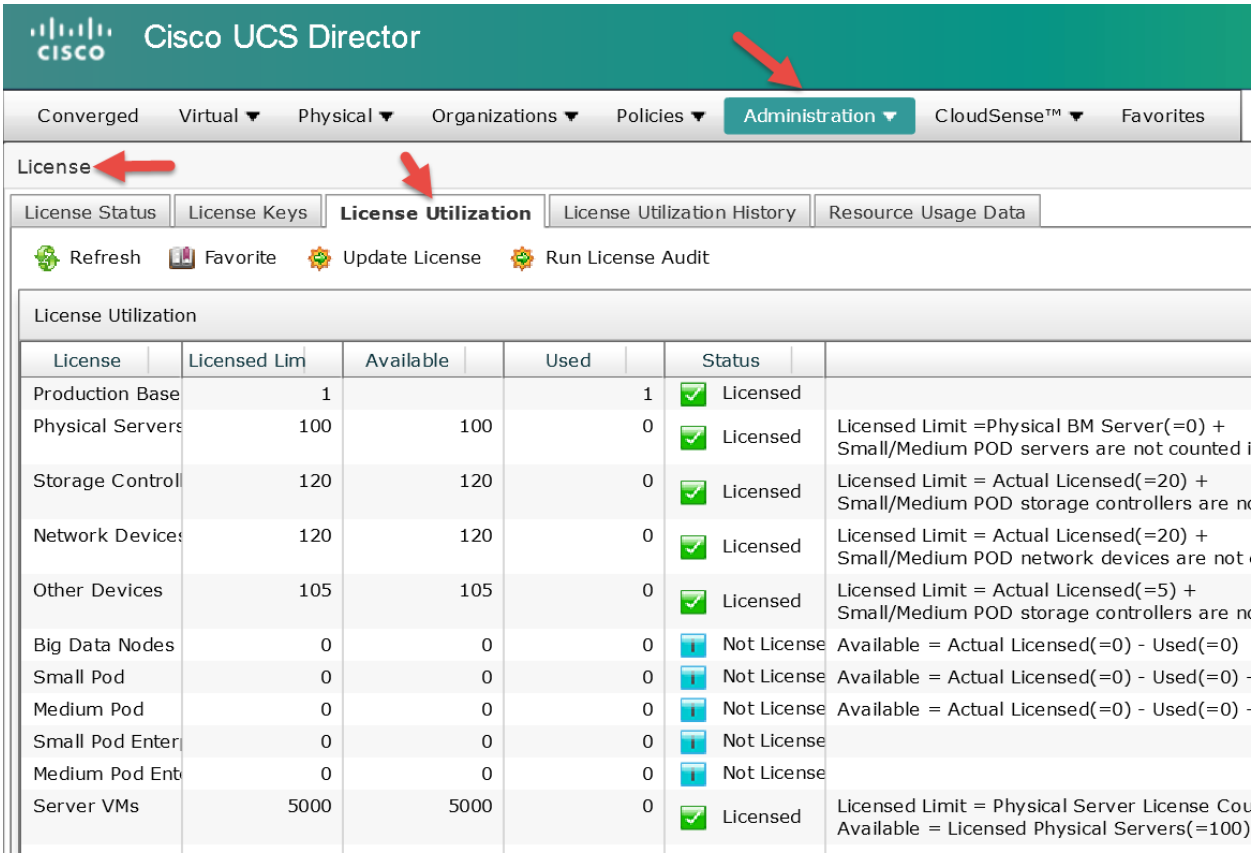
Go to Administrator -> License -> License Keys -> and select Update License.



You have the option to browse to the license file or Enter License Text. to enter the license text, simply copy the license and paste it into the screen then click Submit

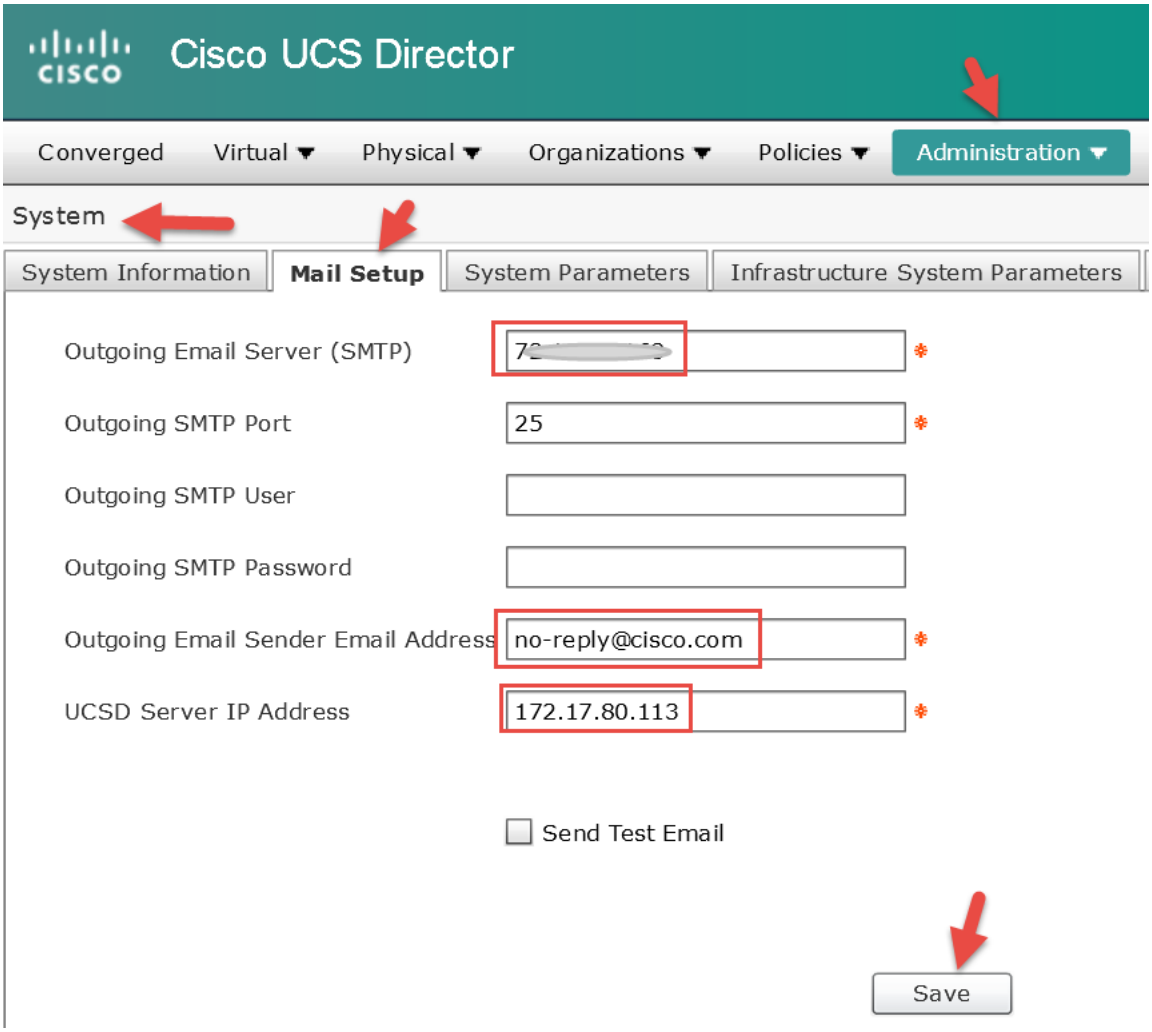


Verify License Utilization.

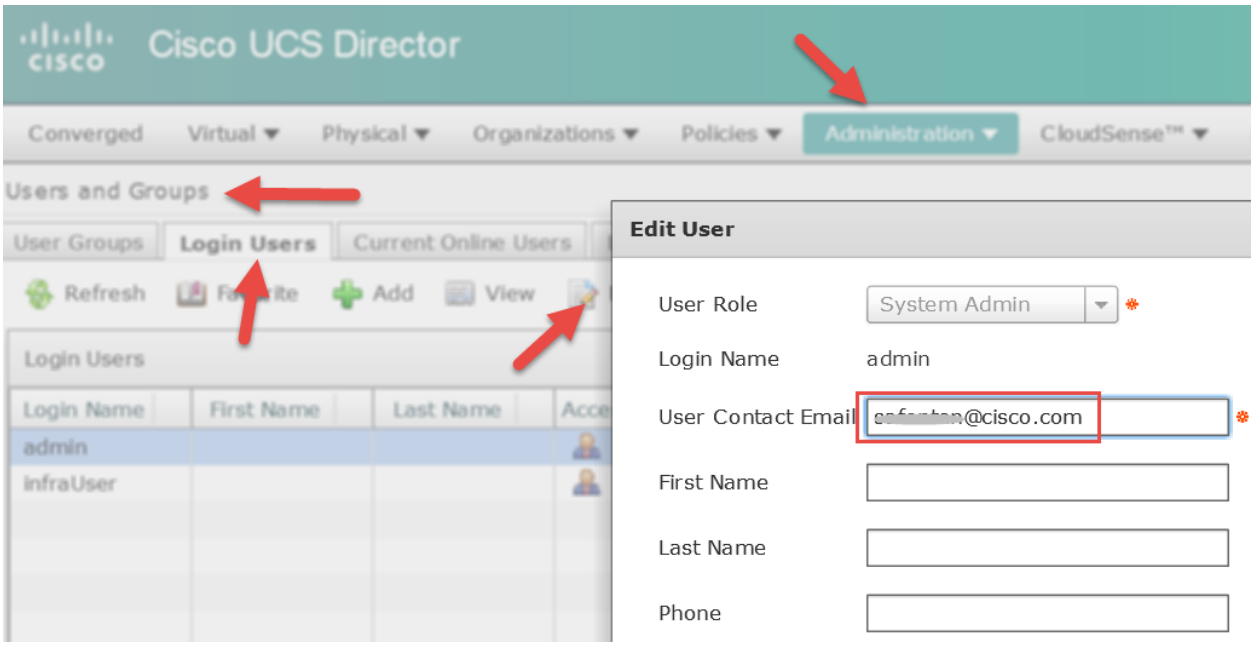


11. Mail Setup (Required)

Go to Administrator -> System -> Mail Setup



Add user ‘admin’ contact e-mail.

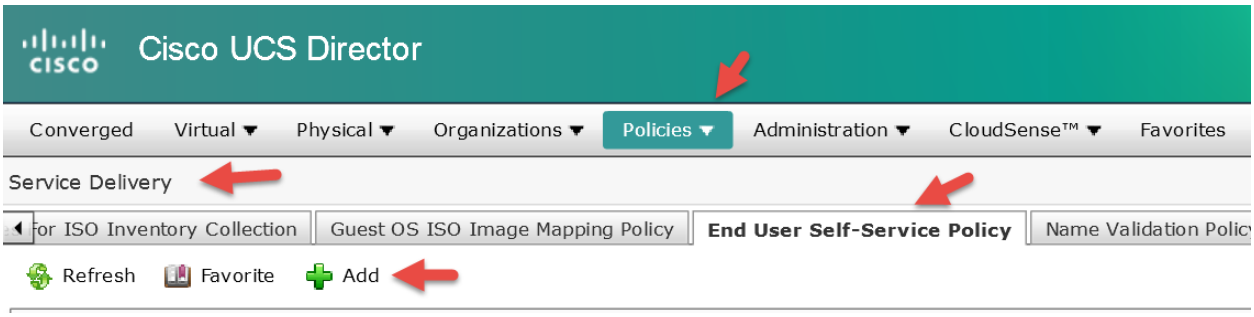


12. Create Self Service Policy

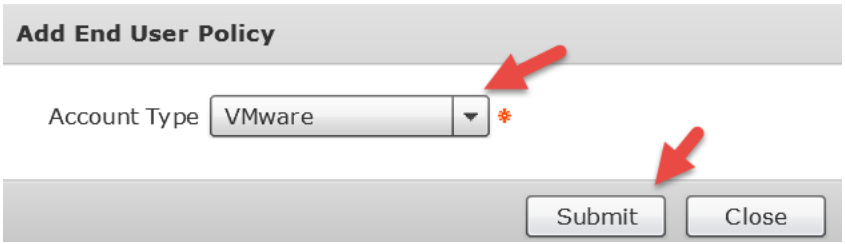
An End User Self-Service Policy controls the actions or tasks that a user can perform on a vDC. The starting point for creating this policy is to specify an Account Type, for example VMware. After you specify an account type, you can continue with creating the policy. After you create the policy, you must assign the policy to a vDC that is created with the same account type. For example, if you have created an end user policy for VMware, then you can specify this policy when you create a VMware vDC. You cannot view or assign policies that have been created for other account types.

Assigning a policy to a vDC is the only method through which you can control the tasks that a user can perform on the vDC. In prior versions, you enabled or disabled tasks on a vDC while creating it. If you have upgraded to the current release, those previously set permissions and options are automatically grouped as an end user policy, with the name of the vDC, and assigned to the vDC.

Create an 'End User Self-Service Policy'. Policies -> Service Delivery -> End User Self-Service Policy -> Add



Select Account Type.



Name the Policy and Select all options.