Install CentOS7 Linux on Virtual Machine on Oracle VM

Step1:

Install Oracle VirtualBox

Download and install Oracle VirtualBox for windows hosts from here: <https://www.virtualbox.org/wiki/Downloads>

Step2:

Download CentOS ISO

Download the CentOS ISO image from one of the official [mirrors listed here](http://isoredirect.centos.org/centos/7/isos/x86_64/).  
Choose ***CentOS-7-x86\_64-Minimal-2003.iso*** file from the index page of the mirror you selected.

Step3:

Create Virtual Machine

* Open the Oracle VirtualBox application. Click on *‘New’* and enter the details as required and click *Next.*
* Select the RAM you prefer to allocate to the VM. I selected 3072 MB (3GB). Click *Next.*
* Select ‘*Create a virtual hard disk now’*. Click *Next*.
* In ‘*Hard disk file type’* screen, I selected VDI.
* On the next screen for ‘Storage on physical hard disk’, leave the selection as ‘Dynamically allocated’.
* On the next screen for ‘File allocation and size, I selected 40 GB. Click Create.

Step4:

Start Virtual Machine

* The VM we created in Step 3 can be found in the VirtualBox now. Select it and click *‘Settings’*.
* On the *settings*windows, go to *Storage*→ *Controller IDE* → *Empty*→ *Optical Drive* → *Choose a disk file* → Choose the iso file that we downloaded in Step 2. Then click *OK*
* Click *‘Start’* Button when you are on previous screen.
* A dialog for ‘*select startup disk’* will appear showing the iso we selected in previous step. Click ‘*Start*’  
  **Note:**This dialog appears only first time.
* VM will start booting from the selected disk.

Step5:

Install CentOS

* When the VM starts, choose *‘Install CentOs 7’* from the first boot menu by navigating with the up & down keys and press Enter key to select.
* On the next screen, set language preferences when prompted.
* On the next screen, choose Date & Time and other settings as given below:  
  Installation Source → *Local Media*  
  Software Selection → *Minimal Install*  
  Installation Destination → *Automatic Partitioning.*
* When everything is configured, the *‘Begin Installation’* button will become enabled. Click on it to start the installation.
* While it installs, click on the *‘ROOT PASSWORD’* to set the password for root.
* Click on the ‘CREATE USER’ to add new users. I created a user as shown below:
  + Full Name: User 01
  + User name: user01
  + Make this user administrator: yes
  + Require password to use this account: yes
  + Password: \*\*\*\*\*\*
* When all mandatory settings are configured, the ‘Finish Configuration’ button will be enabled. Click on it.
* When installation is completed successfully, ‘Reboot’ button will be enabled. Click it to reboot the VM.
* VM will reboot and prompt you to login. Login as the root or the user you created. In my case I login as user01.

Step6:

Create Users, Change Passwords

**Note:**If you have set the root password, created an administrator user and set password for it during installation, you may skip this step, unless you want to create some other users.

Login as *root,*and use*passwd*command to set/change the password.

Add as many users as you want using *adduser*command and set password for them using *passwd*command.  
**Syntax**: *adduser <username>*

On CentOS, the members of the wheel group get sudo privileges by default. So to grant a user the sudo access, use the *usermod*command to add that user to the wheel group.  
**Syntax**: *usermod -aG wheel <username>*  
**Note**: -a to append the user to the GROUPS mentioned by the -G option, without removing the user from other groups)

As shown above, switch to the new user using *su*command, and test the *sudo*privilege by running some commands.

Now the user02 can create other user accounts. No need to login as root. For example, to create a new user ‘user01’..  
*[user02@localhost ~]$ sudo adduser user01  
[user02@localhost ~]$ sudo passwd user01  
[user02@localhost ~]$ sudo usermod -aG wheel user01  
[user02@localhost ~]$*sudo su — user01  
*[user01@localhost ~]$*

Finally, if you want to change the hostname, issue below command.  
$ *sudo hostnamectl set-hostname <your-new-hostname>*  
Restart is required to apply the change. Issue one of the below commands.  
*$ shutdown -r  
$ init 6  
$ systemctl reboot*

Step7:

Check Internet Connectivity in VM

Use *curl*command to open some web URL. For example,  
*$* *curl*[*www.google.com*](http://www.google.com/) *curl: (6) Could not resolve host:*[*www.google.com*](http://www.google.com/)*; Unknown error*

If it shows any error as shown above, probably the network was not correctly configured during the installation (Refer to Step 5, d). Follow the below steps to configure the network now. If curl worked successfully, then you can skip the steps below.

Identify the available networks interfaces using *nmcli* command.  
*[user01@localhost ~]$ nmcli d*I found mine as enp0s3. Your’s might be different.

Open the network interface configuration file **for the device found above**. Config files are located in */etc/sysconfig/network-scripts/ directory.  
[user01@localhost ~]$ sudo vi /etc/sysconfig/network-scripts/ifcfg-enp0s3*

Update the two parameters as given below and save the file.  
*BOOTPROTO=”dhcp”  
ONBOOT=”yes”*

Restart *network*service via *systemctl*command.  
*[user01@localhost ~]$****sudo systemctl restart network***

Now test the internet connectivity again using curl command. You should be able to reach the URL now.  
*[user01@localhost ~]$* *curl*[*www.google.com*](http://www.google.com/)

Step8:

SSH connection to VM using Putty

Close the VM (*Power off*), if it is running.

By default, VM uses the NAT to attach to the host’s network. NAT is a type of internal network that allows outbound connections for browsing the Web, downloading files, and viewing email etc. You can see this in *Network Settings.*

Go to *‘Adapter 2’* tab and tick ‘*Enable Network Adapter’*. Select Attached to: *‘Host-only adapter’ from the drop-down list*. Click *OK*.

**Note:** Host-only adapter creates a virtual network interface on the host to facilitate the connectivity among virtual machines and the host.

Start the VM. After logging in, check the IP address using *ifconfig* command.

***Note:****Ifconfig might not be available in minimal installation. We can install it using:[user01@localhost ~]$ sudo yum –y install net-tools*

From the*ifconfig* command output, note down the IP address of your VM. I found mine as 192.168.56.104, as shown below.

Now open PuTTY, and add new session configuration to connect to our VM.

Note: I would presume your system has putty installed on it.

Click *‘Open’* to start a new session to our VM. Hurrah.. I am able to login.

Now we can minimize the VirtualBox window and run all commands from PuTTY terminal.

**Note**: We cannot SSH to a user account (from PuTTY or by any means) that doesn’t have a password set. This is because of the default SSH configuration which can be overridden by updating the parameter *PermitEmptyPasswords*to*“yes”* in */etc/ssh/sshd\_config* and restarting the *sshd service.*

**Tip:***When you start the VM next time, click on the small arrow at the right side of the ‘Start’ button, and select ‘Detachable Start’ . This will start the VM with a window, but you can close that window to run the VM in background. By this way we can get rid of that ‘sometimes annoying’ window while we do all the work from PuTTY terminal.*

***Normal Start:****VM starts with a window. Closing this window turns off the VM.****Detachable Start:****VM‘s window can be closed without turning off the VM. We can choose ‘continue running in background’ when closing the window.****Headless Start:****VM starts without a window. A small preview of the VM can be seen on the main window. To disable this preview, right click on the preview area and choose ‘Update disabled’.*