

There are several environments available to do exercises for DS201:



Oracle VirtualBox
(Recommended!)



Amazon AWS



Your own computer

You only need to choose and follow the instructions for one of the above options to setup your environment.

Oracle VirtualBox

Prerequisite Software

Install the software [Oracle VirtualBox](#) (Windows/Mac OSX/Linux).

Note: VMware Workstation should also work with the provided virtual machine; however, we do not officially support it.

Requirements

CPU – Multi-core 64-bit CPU

Disk Size – 10GB free space

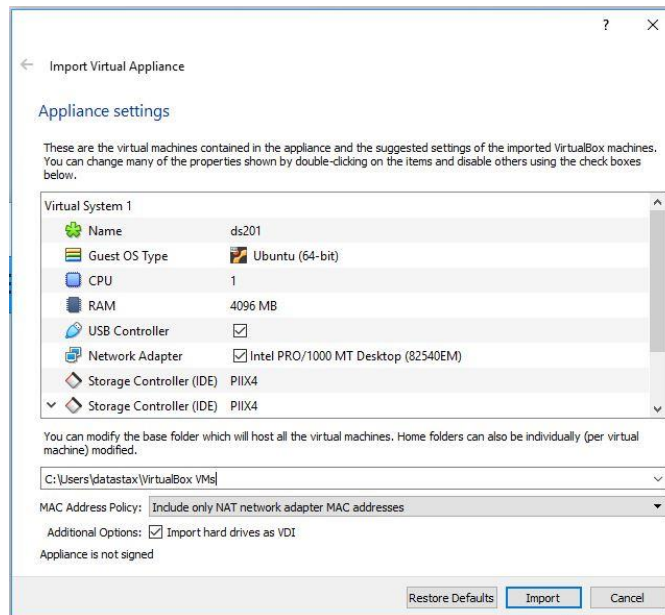
Memory – 6GB or more

Operating System – Windows / Mac OSX / Linux

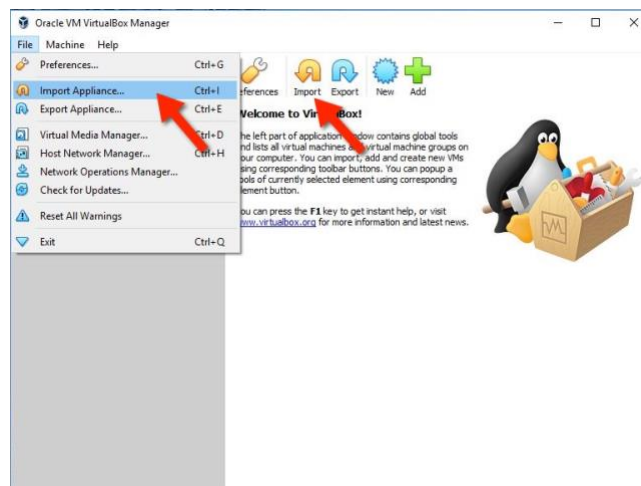
You'll also need to have Intel Virtualization Technology (VT-x) or AMD Virtualization (AMD-V) enabled in your BIOS or UEFI settings. See [this article](#) for more details.

Instructions

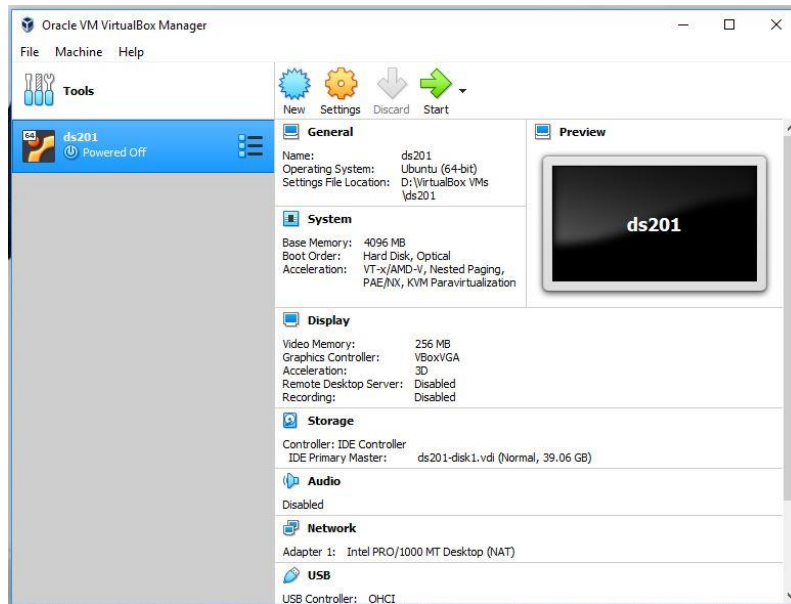
1. Download the VM file, listed in the [DS201 Course Assets](#) as **DS201: Virtual Machine**.
2. On your computer, double-click the file DS201-VM-6.0.ova. Follow the instructions to import the virtual machine.



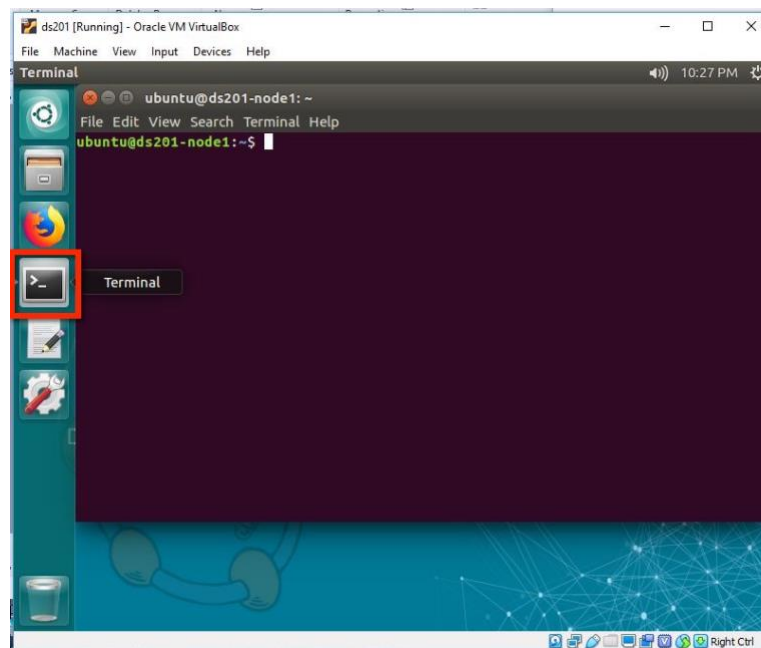
You can also open VirtualBox and click on the import button, or select the option *File > Import Appliance* from the menu. Afterwards, select the **DS201-VM-6.0.ova** file.



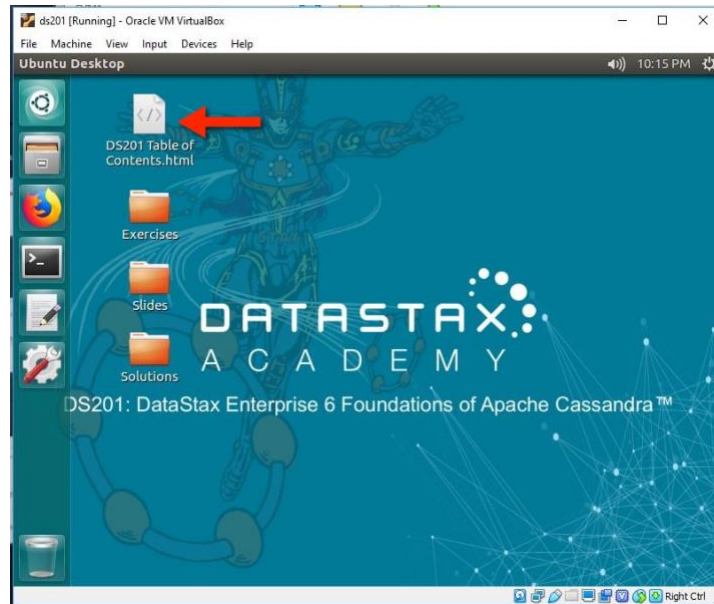
3. Start the DS201 virtual machine by double-clicking **ds201** from the Oracle VM VirtualBox Manager.



4. Once the virtual machine has started, click on the Terminal icon from the launcher to open a terminal session. This is where you should start wherever exercises tell you to SSH to a cloud instance.



The slides, exercise instructions, and exercise solutions are available on the desktop. Double-click on the **DS201 Table of Contents** file to browse.

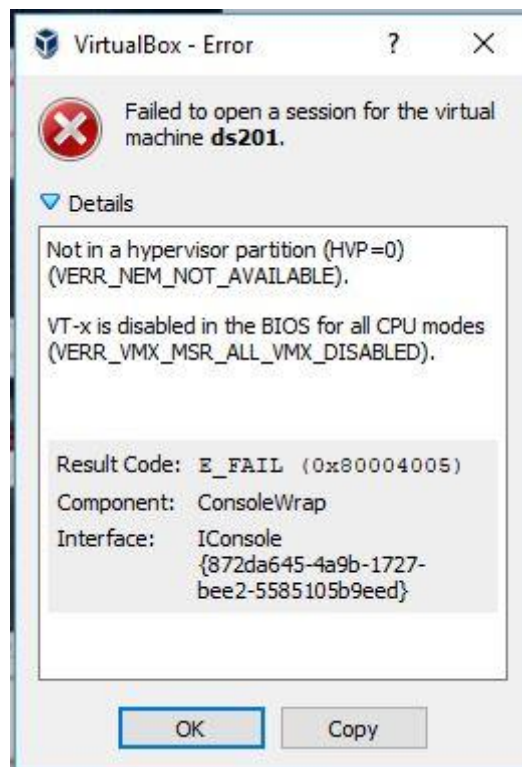


Troubleshooting

Hardware virtualization is not enabled

You may run into this error message when starting up the virtual machine:

VT-x is disabled in the BIOS for all CPU modes (VERR_VMX_MSR_ALL_VMX_DISABLED).



Please check out [this article](#) for possible solutions to resolve this error.

Login Credentials

There may be situations when using the virtual machine where you are redirected to a login prompt and need to enter user credentials to proceed.

The default account used by the DS201 virtual machine uses the following credentials:

User: ubuntu

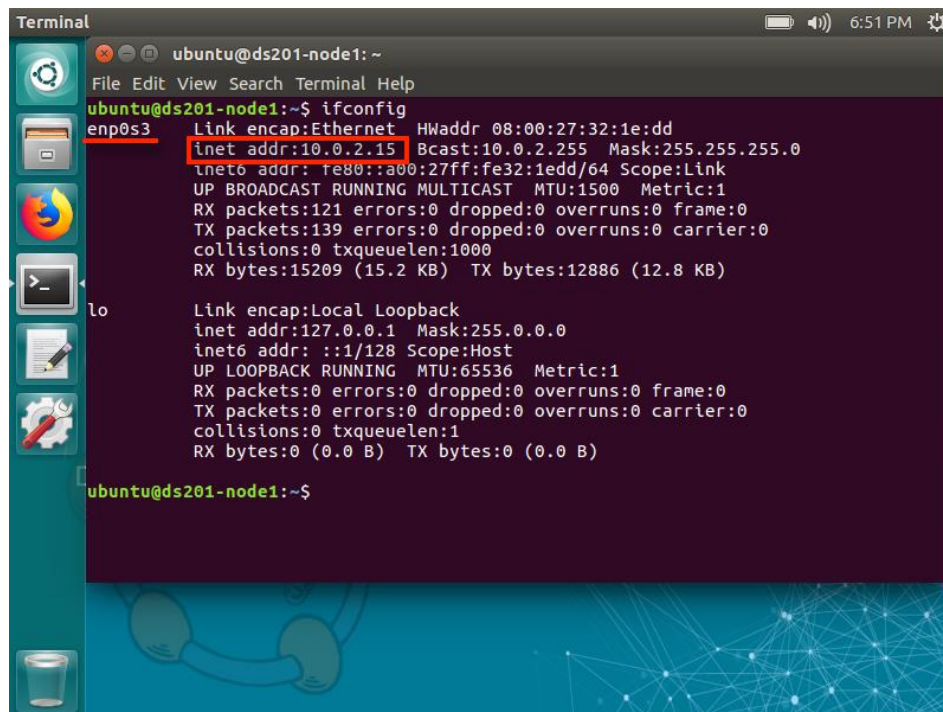
Password: datastax

Note that there is no root account set up, but you can use the **sudo** command to obtain root privileges if needed.

No Internet connection

You do not need the Internet to run exercises in the virtual machine, however it should be set up automatically.

In some cases, you may find that you are not able to access any webpages, or if you run the command **ifconfig**, you may find that there is no IP address assigned for the `enp0s3` network device.

A terminal window titled 'Terminal' showing the output of the 'ifconfig' command. The terminal prompt is 'ubuntu@ds201-node1: ~'. The output for the 'enp0s3' interface is highlighted in red, showing 'inet addr:10.0.2.15'. The output for the 'lo' interface is also visible, showing 'inet addr:127.0.0.1'.

```
Terminal
ubuntu@ds201-node1: ~
File Edit View Search Terminal Help
ubuntu@ds201-node1:~$ ifconfig
enp0s3  Link encap:Ethernet  HWaddr 08:00:27:32:1e:dd
        inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255.0
        inet6 addr: fe80::a00:27ff:fe32:1edd/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:121 errors:0 dropped:0 overruns:0 frame:0
        TX packets:139 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:15209 (15.2 KB)  TX bytes:12886 (12.8 KB)

lo      Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        inet6 addr: ::1/128 Scope:Host
        UP LOOPBACK RUNNING  MTU:65536  Metric:1
        RX packets:0 errors:0 dropped:0 overruns:0 frame:0
        TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1
        RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

ubuntu@ds201-node1:~$
```

You should be able to see an IP address assigned here

This issue is usually resolved by restarting the virtual machine.

End of Oracle VirtualBox setup

Amazon AWS

We suggest choosing this option **only** if you are familiar with AWS and have an account. Charges do apply to start up and run instances.

Requirements

DS201 requires one EC2 instance with at least 4GB of memory to run exercises. The suggested instance type is **t3.medium**.

AMI List

AMI ID	Region
ami-0fd73880857057301	N. Virginia (us-east-1)
ami-06ea4342bfa8cf61e	Ohio (us-east-2)
ami-0b770f4f62a520868	N. California (us-west-1)
ami-045ed85e71dba341a	Oregon (us-west-2)
ami-0f8913c4b81de4a63	Ireland (eu-west-1)
ami-07b1569148c5e5107	Sydney (ap-southeast-2)

Ports

The DS201 instance will need the following ports open:

Port Number	Application
22	SSH

Instructions

1. Start an instance in the region closest to you, using the AMI list above.
2. SSH to the instance.

More details can be found in the [Amazon AWS Instructions](#) and [SSH Instructions](#), if needed.

End of Amazon AWS setup

Your Own Computer

This option is provided for users that really prefer to run exercises outside of a virtual machine or cloud instance.

However due to the variety of different computing environments, no other support is provided outside of this document. We recommend using one of the other exercise environment options instead to avoid setup issues.

Prerequisite Software

Java 8 – [OpenJDK 8](#) or [Oracle Java SE 8](#) (1.8.0_151 minimum)

Python 2.7.x – <https://www.python.org/downloads/>

DataStax Python driver – <https://github.com/datastax/python-driver>

Requirements

CPU – Multi-core 64-bit CPU

Disk Size – 10GB free space

Memory – 6GB or more

Operating System – Mac OSX / Linux

Instructions

1. Download the DataStax Enterprise 6.0 tarball, available from the [DataStax website](#).
2. Download **DS201: Data Files and Scripts** from the [DS201 Course Assets page](#) and extract the resulting zip file.
3. The extracted files include a script, **labwork/config_node**, which assumes that you will be installing DSE in the location **/home/ubuntu**. Edit the script to match the location you will be doing the exercises from.
4. Open a terminal window to start the DS201 exercises.

End of Your Own Computer setup