

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

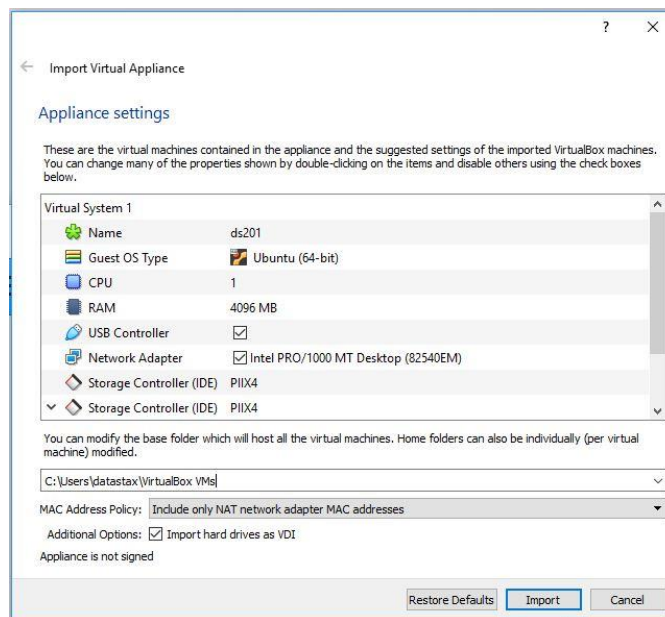
Memory – 6GB or more

Operating System – Windows / Mac OSX / Linux

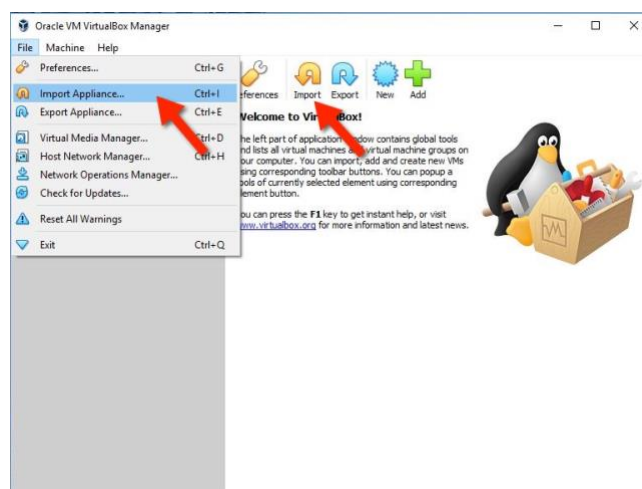
You'll also need to have Intel Virtualization Technology (VT-x) or AMD Virtualization (AMD-V) enabled in your BIOS or UEFI settings. See [this article](#) for more details.

Instructions

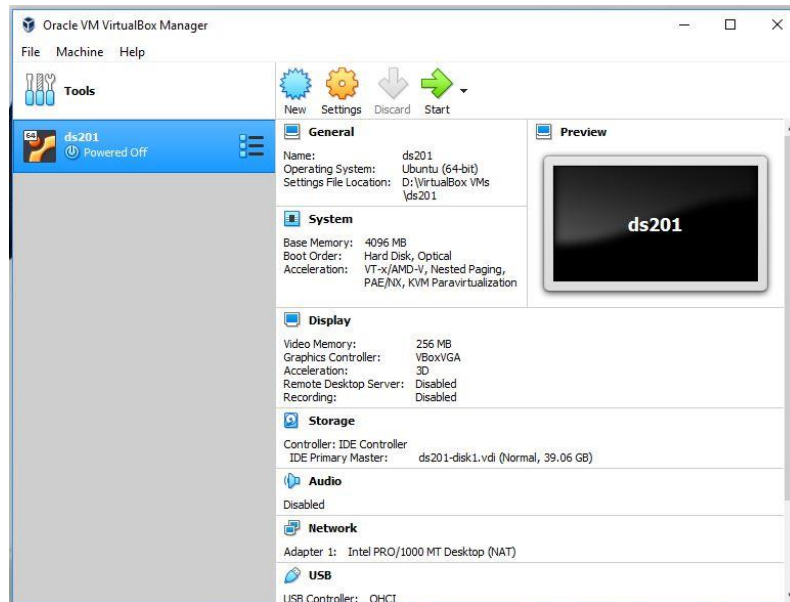
1. Download the VM file, listed in the [DS201 Course Assets](#) as **DS201: Virtual Machine**.
2. On your computer, double-click the file DS201-VM-6.0.ova. Follow the instructions to import the virtual machine.



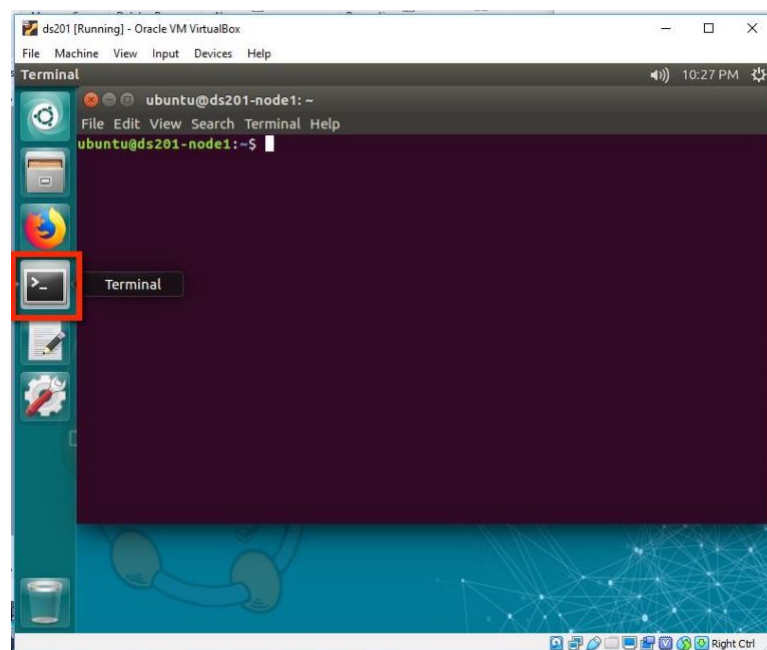
You can also open VirtualBox and click on the import button, or select the option *File > Import Appliance* from the menu. Afterwards, select the **DS201-VM-6.0.ova** file.



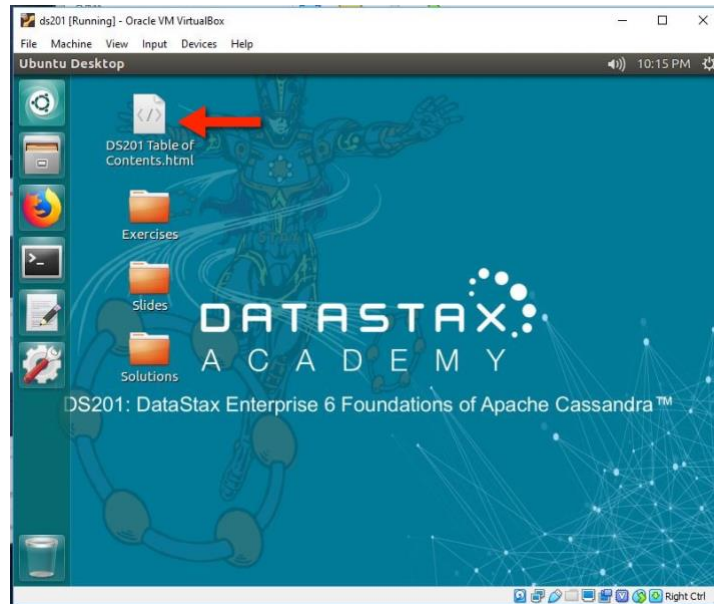
3. Start the DS201 virtual machine by double-clicking **ds201** from the Oracle VM VirtualBox Manager.



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.

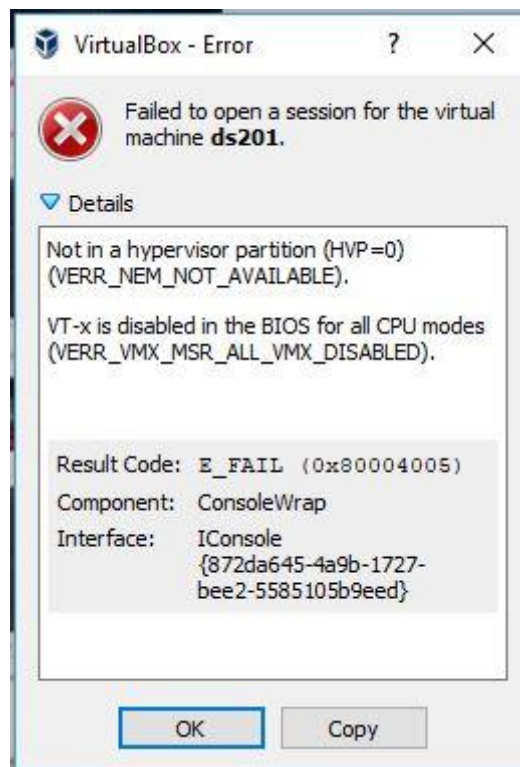


Troubleshooting

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) .

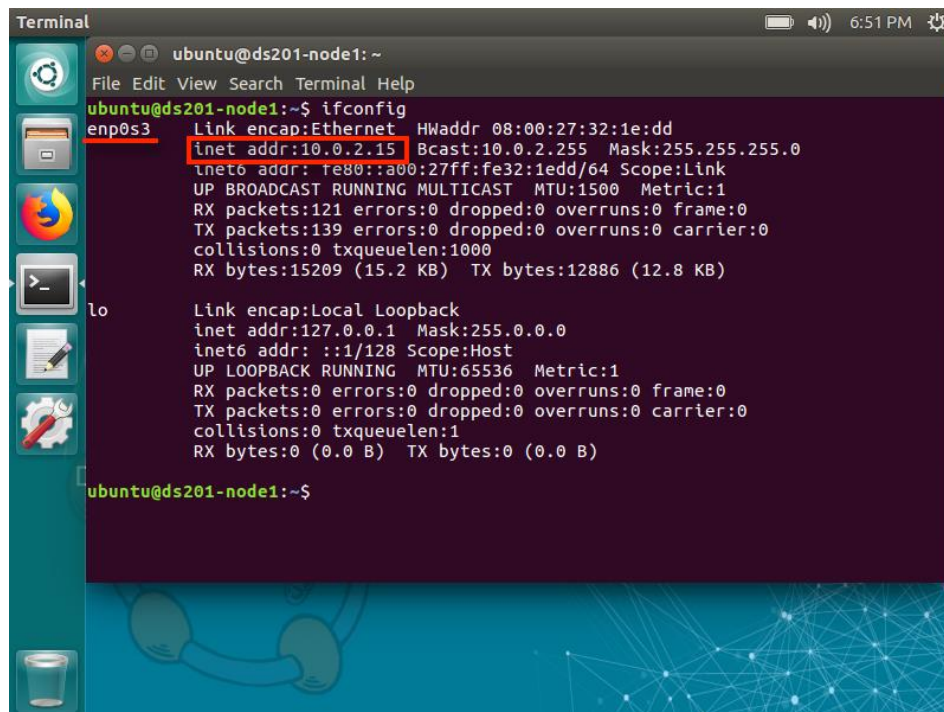


Please check out [this article](#) for possible solutions to resolve this error.

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 screenshot of a terminal window titled 'Terminal' with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (6:51 PM). The prompt is 'ubuntu@ds201-node1: ~'. The command 'ifconfig' has been executed. The output for 'enp0s3' is highlighted with a red box, showing 'inet addr:10.0.2.15'. The output for 'lo' is also visible below it.

```
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