

# Practice 1: Preparing the Practice Environment

## Practice Overview

This practice guides you to prepare the environment that you will use in the course practices. The practices in the course were designed using virtual machines. You will build two Linux-based virtual machines. One of them will be the main machine that you will use in most of the course practices and the other machine will be used only in a few practices.

**Note:** this practice assumes that you have the knowledge to perform the basic tasks on Oracle VirtualBox.

## Practice Environment Requirements

Following are the requirements to prepare the practice environment:

| Item                                    | Type     | Description  |
|---|----------|--|
| <b>PC machine</b>                       | hardware | A PC with Windows 7, 8 or 10 64-bit installed on it to host the virtual machines.<br>Following are the required specifications:<br>Memory: 16 GB<br>Storage free space: 100 GB |
| <b>Oracle VirtualBox, release 6.1.x</b> | software | Software to create virtual machines (called virtual appliances)  |
| <b>WinSCP</b>                           | software | A utility to copy the files to and from an Oracle VBox appliance   |
| <b>Putty</b>                            | software | A program which provides a command line prompt to connect to a Linux server from Windows   |

## Practice Environment Architecture

| Item                                  | Value |
|---------------------------------------|-------|
| <b>hostname of the first machine:</b> | srv1  |
| <b>hostname of machine:</b>           | srv2  |
| <b>DHCP enabled?</b>                  | Yes   |
| <b>Memory on each machine:</b>        | 4 GB  |
| <b>HDD on each machine:</b>           | 70 GB |

## Practice Environment Preparation Procedure

### A. Install the Software on the Hosting PC

1. Install all the software mentioned in the list above in your PC.

### B. Create an Oracle Linux 64-bit VirtualBox appliance

In the following steps, you will create an Oracle VirtualBox appliance.

**Note:** The video of this lecture was recorded on Linux 6.7. The document is updated for Linux 7.8. Linux 7 is way easier to manage than Linux 6. I recommend you to use Linux 7 as instructed in this practice section steps.

2. Create a Linux-based VirtualBox appliance with the specifications as shown in the table below. Alternatively, you can download my copy of the appliance from my website at [this link](#) (2.3 GB).

This is an Oracle VirtualBox appliance which has a fresh installation of Oracle Linux 7.8 installed on it.

| Item             | Value     |
|------------------|-----------|
| Hostname         | srv1      |
| Memory           | 4 GB      |
| Operating system | Linux 7.8 |

3. Follow the instructions in the readme file to import the vm into Oracle VirtualBox.
4. Open the Settings of the VM > in the left panel, click on **Network** > from the **Name** drop list, select the network card that matches the name of the network card in your PC.
5. Start the VM.
6. Make sure it is assigned an IP address and it is pingable from your PC.
7. Update the **Guest Additions** if need be.

### C. Create a second Oracle Linux 64-bit VirtualBox appliance

In the following steps, you will create an additional Oracle VirtualBox appliance with the following specifications:

| Item                    | Value     |
|-------------------------|-----------|
| <b>Hostname</b>         | srv2      |
| <b>Memory</b>           | 4 GB      |
| <b>Operating system</b> | Linux 7.8 |

The easiest method to create an additional vm is by cloning `srv1`. Follow the following steps to implement this method:

8. Shut down `srv1`.
9. In Oracle VirtualBox, make sure `srv1` is selected, then click on **Clone** button or press on [Ctrl+o]. Respond to the windows as follows:

| Window                       | Action   |
|------------------------------|--|
| <b>Clone Virtual Machine</b> | Name: <b>srv2</b><br>Path: your favorite path<br>MAC Address Policy: Include only NAT network Adapter MAC Address<br>Mark the check box "Keep Disk Names"<br><br>click on <b>Next</b> button |
| <b>Clone Type</b>            | Make sure "Full Clone" is selected<br><br>click on <b>Clone</b> button   |
|                              | Wait till the clone is finished.   |

10. Start `srv2` and login to it as `root`
11. Open a terminal window and submit the following command to change the hostname to `srv2`

```
hostnamectl set-hostname srv2
ping srv2
```
12. Make sure it is assigned an IP address and it is pingable from your PC.
13. Although not needed, I suggest restarting `srv1` at this stage.
14. Start `srv1`
15. I recommend making the IP addresses assigned to `srv1` and `srv2` static. Go to **Applications > System Tools > Settings > Network** > click on the **gear button** under the **Wired** panel > click on **IPv4** panel > select **Manual** > set the IP address, Netmask to 255.255.255.0, Gateway to the router in your network (a typical one 192.168.1.1) > click on **Apply** button

## D. Perform more configuration

In the following steps, you will perform more configuration to get your environment ready for the course.

16. In **both** appliances, configure the `/etc/hosts` file and make sure they can see each other.

```
vi /etc/hosts

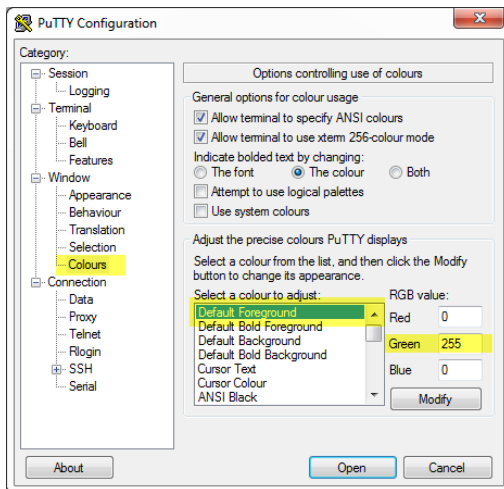
127.0.0.1    localhost localhost.localdomain
192.168.1.159 srv1.localdomain srv1
192.168.1.160 srv2.localdomain srv2
```

```
ping srv1
ping srv2
```

17. Connect to each appliance from your hosting PC using PuTTY. Save the two connections in PuTTY.

Configure the session to the `srv2` to have **green** font. The idea is to make it easy for you to distinguish between the PuTTY session windows connected to the first server and those which are connected to the second server.

The following screenshot shows you where to click to change the font color in PuTTY:



**Summary**

By end of this practice, you should have two Linux-based Oracle VirtualBox appliances: `srv1` and `srv2`.

`srv1` will be used to install the Oracle 12c release 2 CDB database and `srv2` will be used to install an Oracle non-CDB database.