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# **docs-buildvirtualnetworklab Documentation**

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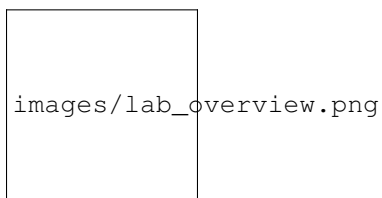
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## Introduction

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### UNDER CONSTRUCTION

Want to experiment with OpenFlow SDN, but don't have any switches? No problem. You can build a simple, but powerful, lab within a virtualised environment. These instructions should hopefully save you a lot of time figuring out the more obtuse features. VirtualBox is used as the hypervisor. Here is a logical diagram of the lab we're going to build:



The lab is mainly Ubuntu guests, but also uses a FreeBSD guest. That is the advantage of using a full hypervisor for the lab over containers - you can implement guests with different operating systems.

### 1.1 Pre-Requisites

- VirtualBox (<https://www.virtualbox.org/>) installed on a suitable host machine
- Host must have sufficient RAM (test PC was Windows 7 with 8GB RAM)





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## Base Ubuntu VM Build

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### UNDER CONSTRUCTION

We start by building a base Ubuntu VM image, from which we can clone other guests.

First, download a suitable supported Ubuntu desktop distribution.

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In VirtualBox, create a new Ubuntu guest with 1024MB of RAM and 12GB of storage (or other values as appropriate). Consider creating the hard disk as fixed size to improve performance.

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Go into the guest settings to configure it to boot off the ISO. Under Storage, click on the Controller: IDE row and then click on the Add CD/DVD Device Icon, “Choose disk” and browse to the ISO:

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Do the same process to add the ISO for the Guest Additions. On Windows it is located in C:\Program Files\Oracle\VirtualBox\VirtualBoxGuestAdditions.iso

As above, there should now be two ISO files associated.

Start the VM and install Ubuntu as per the defaults (or your own preferences!)

## 2.1 Install VirtualBox Additions

Once the build is completed and the guest is running, log in and start a terminal window (CTRL+ALT+T). Install the VirtualBox additions for improved host-guest integration:

```
cd /media
```

Look for the appropriate subdirectories that contain the correct additions version. Example:



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## Indices and tables

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- `genindex`
- `modindex`
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