Download/Get Started With Mininet

The easiest way to get started is to download a pre-packaged Mininet/Ubuntu VM. This VM includes Mininet itself, all OpenFlow binaries and tools pre-installed, and tweaks to the kernel configuration to support larger Mininet networks.

Option 1: Mininet VM Installation (easy, recommended)

VM installation is the easiest and most foolproof way of installing Mininet, so it’s what we recommend to start with.

Follow these steps for a VM install:

1. Download the [Mininet VM image](https://github.com/mininet/mininet/wiki/Mininet-VM-Images).
2. Download and install a virtualization system. We recommend [VirtualBox](http://www.virtualbox.org/wiki/Downloads) (free, GPL) because it is free and works on OS X, Windows, and Linux (though it’s slightly slower than VMware in our tests.) You can also use [Qemu](http://qemu.org/) for any platform, [VMware Workstation](http://www.vmware.com/products/workstation/) for Windows or Linux, [VMware Fusion](http://www.vmware.com/products/fusion) for Mac, or [KVM](http://www.linux-kvm.org/) (free, GPL) for Linux.
3. Sign up for the [mininet-discuss mailing list](https://mailman.stanford.edu/mailman/listinfo/mininet-discuss). This is the source for Mininet support and discussion with the friendly Mininet community. ;-)
4. Run through the [VM Setup Notes](http://mininet.org/vm-setup-notes) to log in to the VM and customize it as desired.
5. Follow the [Walkthrough](http://mininet.org/walkthrough) to get familiar with Mininet commands and typical usage.

(In addition to the above resources, we’ve prepared a helpful Mininet [FAQ](http://mininet.org/faq) as well as [Documentation](http://mininet.org/docs) which you can refer to at any time!)

Once you’ve completed the [Walkthrough](http://mininet.org/walkthrough), you should have a clear idea for what Mininet is and what you might use it for. If you are interested in OpenFlow and Software-Defined Networking, you will want to complete the [OpenFlow tutorial](https://github.com/mininet/openflow-tutorial/wiki) as well. Good luck, and have fun!

Option 2: Native Installation from Source

This option works well for local VM, remote EC2, and native installation. It assumes the starting point of a fresh Ubuntu (or, experimentally, Fedora) installation. (*If you are upgrading from an older Mininet and/or OVS, see notes on removing old versions, below*.)

We strongly recommend more recent Ubuntu releases, because they support newer versions of Open vSwitch. (Fedora also supports recent OVS releases)

To install natively from source, first you need to get the source code:

git clone git://github.com/mininet/mininet

Note that the above git command will check out the latest and greatest Mininet (which we recommend!) If you want to run the last tagged/released version of Mininet - or any other version - you may check that version out explicitly:

cd mininet

git tag # list available versions

git checkout -b 2.2.1 2.2.1 # or whatever version you wish to install

cd ..

Once you have the source tree, the command to install Mininet is:

mininet/util/install.sh [options]

Typical install.sh options include:

* -a: install everything that is included in the Mininet VM, including dependencies like Open vSwitch as well the additions like the OpenFlow wireshark dissector and POX. By default these tools will be built in directories created in your home directory.
* -nfv: install Mininet, the OpenFlow reference switch, and Open vSwitch
* -s mydir: use this option before other options to place source/build trees in a specified directory rather than in your home directory.

So, you will probably wish to use one (and only one) of the following commands:

To install everything (using your home directory): install.sh -a

To install everything (using another directory for build): install.sh -s mydir -a

To install Mininet + user switch + OVS (using your home dir): install.sh -nfv

To install Mininet + user switch + OVS (using another dir:) install.sh -s mydir -nfv

You can find out about other useful options (e.g. installing the OpenFlow wireshark dissector, if it’s not already included in your version of wireshark) using

install.sh -h

After the installation has completed, test the basic Mininet functionality:

sudo mn --test pingall

Then continue with steps 3-5, above. If you run into errors, first consult the [FAQ](http://mininet.org/faq), [Documentation](http://mininet.org/docs), and [mailing list archives](https://mailman.stanford.edu/pipermail/mininet-discuss/) to see if anything resembling your problem has been seen before and if there might be a possible solution. If those things don’t help and you still have problems that you cannot solve on your own (or with some help from [Google](http://google.com/) :) ), you can request help on the friendly [mininet-discuss](https://mailman.stanford.edu/mailman/listinfo/mininet-discuss) mailing list.

Option 3: Installation from Packages

If you’re running a recent Ubuntu release, you can install the Mininet packages. Note that this may give you an older version of Mininet, but it can be a very convenient way to get started.

First, if you are upgrading or have upgraded from an earlier installation of Mininet (like 1.0) or a version of Open vSwitch which might have been compiled and stored in /usr/local, make sure you *remove any traces of earlier versions of Mininet and Open vSwitch from /usr/local/*:

sudo rm -rf /usr/local/bin/mn /usr/local/bin/mnexec \

/usr/local/lib/python\*/\*/\*mininet\* \

/usr/local/bin/ovs-\* /usr/local/sbin/ovs-\*

Then, to confirm which OS version you are running, run the command

lsb\_release -a

Next, install the base Mininet package by entering only one of the following commands, corresponding to the distribution you are running:

Mininet 2.1.0 on Ubuntu 14.10: sudo apt-get install mininet

Mininet 2.1.0 on Ubuntu 14.04: sudo apt-get install mininet

Mininet 2.0.0 on Ubuntu 12.04: sudo apt-get install mininet/precise-backports

After this completes, you should deactivate openvswitch-controller if it is installed and/or running:

sudo service openvswitch-controller stop

sudo update-rc.d openvswitch-controller disable

Then you can test Mininet:

sudo mn --test pingall

If Mininet complains that Open vSwitch isn’t working, you may need to rebuild its kernel module:

sudo dpkg-reconfigure openvswitch-datapath-dkms

sudo service openflow-switch restart

If you wish to go through the Mininet walkthrough, you will want to install additional software. The following commands

git clone git://github.com/mininet/mininet

mininet/util/install.sh -fw

will install the OpenFlow reference switch, reference controller and Wireshark dissector.

Option 4. Upgrading an existing Mininet Installation

There are many ways to do this. If you haven’t made any changes to Mininet, you can usually

cd mininet

git fetch

git checkout master # Or a specific version like 2.2.1

git pull

sudo make install

As an alternative to sudo make install you can also do sudo make develop, which will create symbolic links from /usr/python/... to your source tree.

Note that this will only upgrade Mininet itself - any other components such as Open vSwitch, etc. can be upgraded separately as desired.