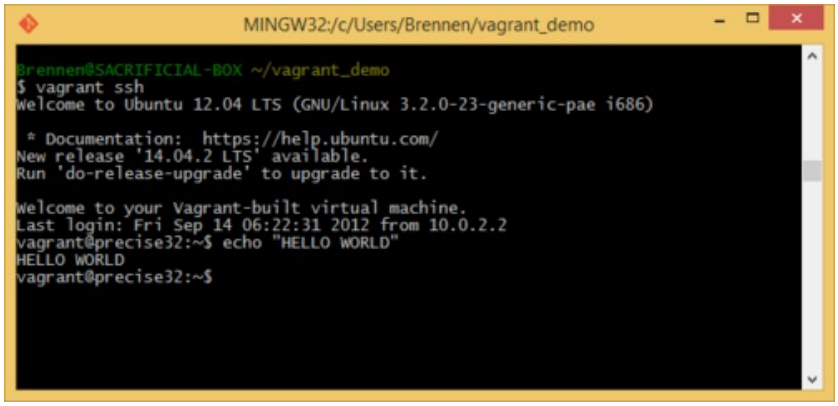
adafruit learning system

A Quick Linux VM on Windows with Vagrant

Created by Brennen Bearnes



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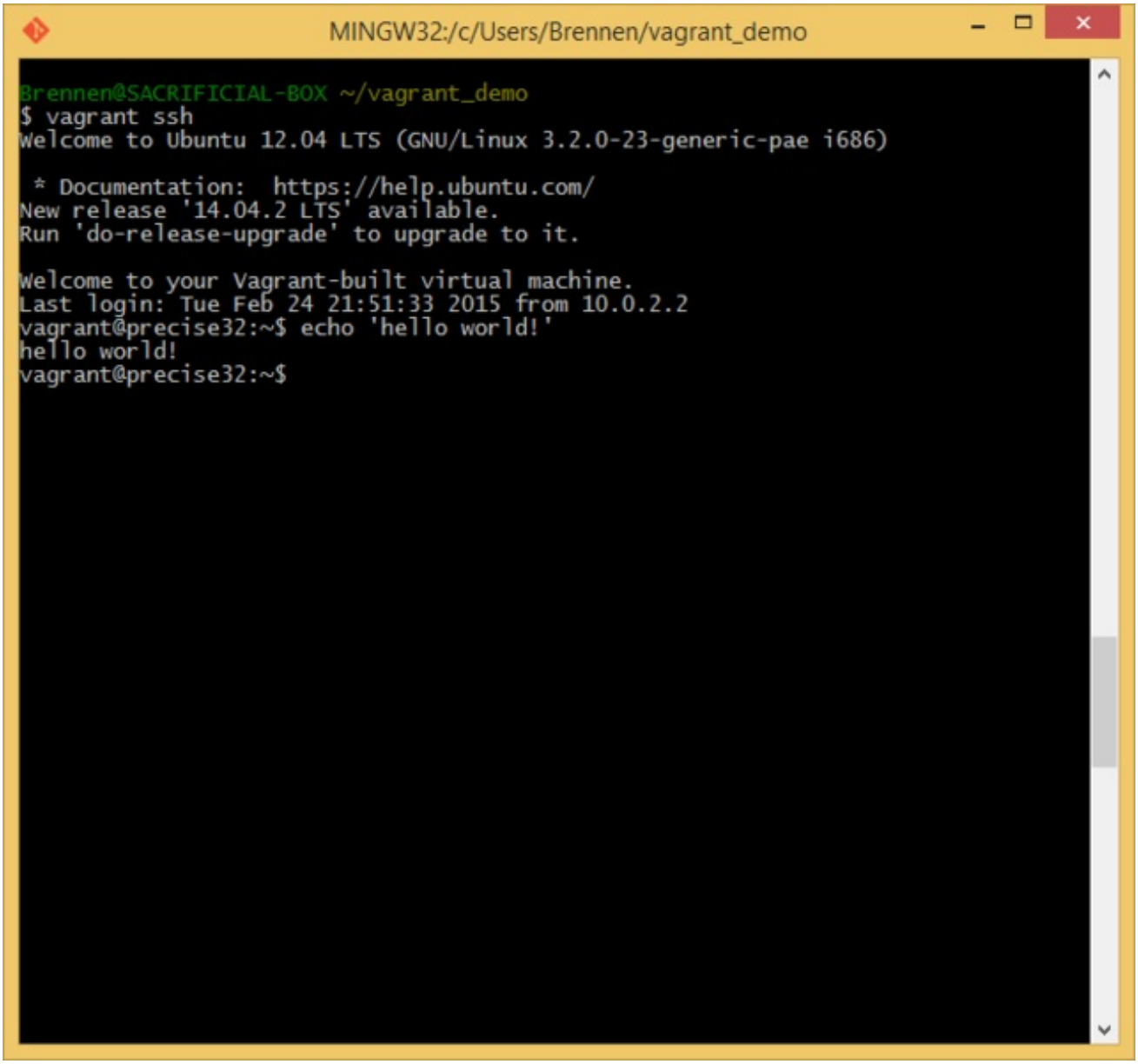
Guide Contents

Overview

In What is this "Linux", anyhow? (http://adafru.it/eBw) we mention using Vagrant as a way to quickly configure a Linux **virtual machine**, and the Raspberry Pi Kernel-o-Matic (http://adafru.it/eBx) uses Vagrant to set up a VM for cross-compiling a custom Raspberry Pi kernel.

Vagrant is a software package designed to let you easily create disposable VMs from a library of freely-downloadable images and connect to them, all with a few simple commands in a terminal. The idea is that you can continue to run your desktop OS like Mac OS X or Windows 7 or whatever, but then make a tiny new Linux computer in a window that you can connect to whenever you need to run Linux software

Unfortunately this isn't quite as seamless on Windows machines as on GNU/Linux or OS X systems, but with a few minutes of effort you should be able to do this any time you feel like it:

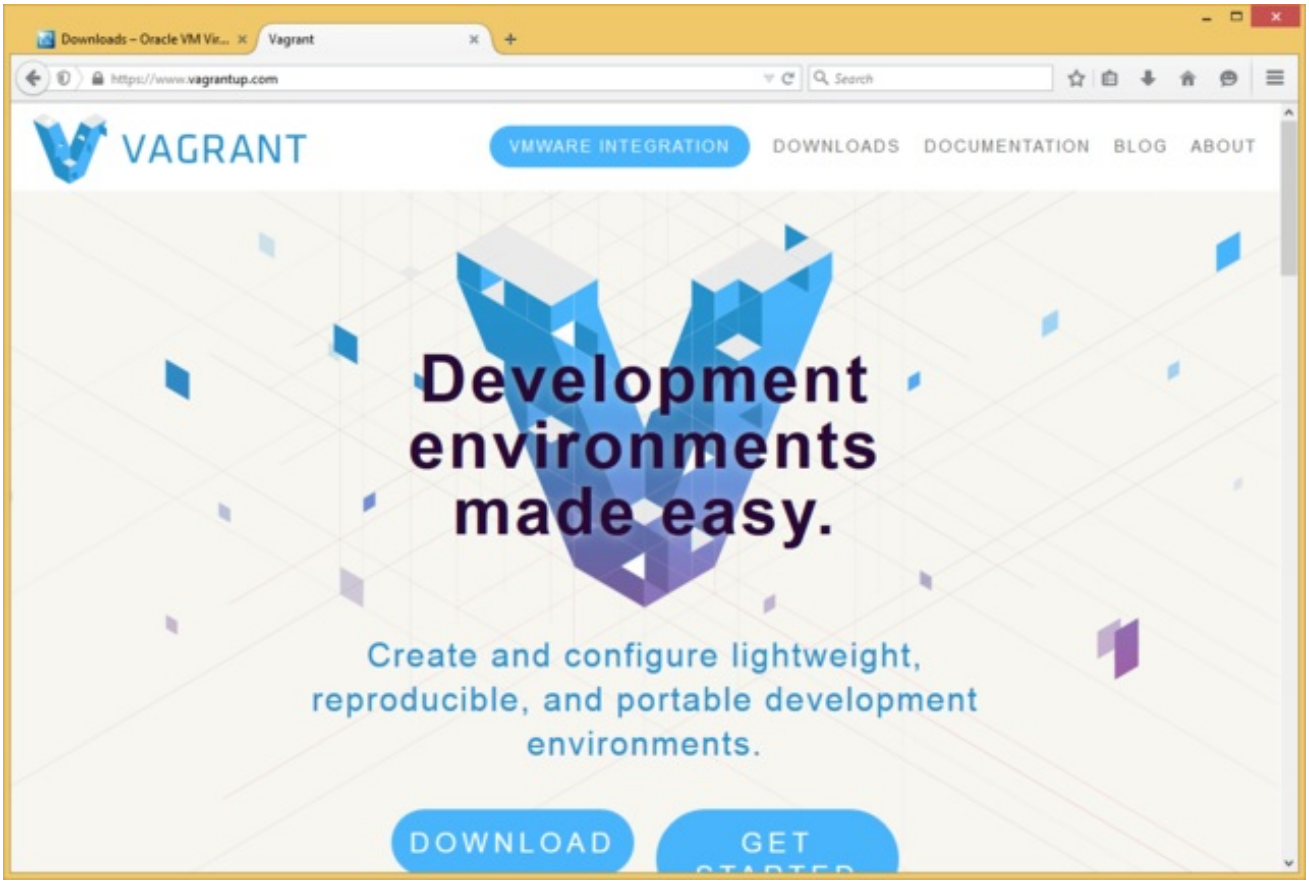


This is a brief guide to installing the three moving pieces needed to make this work well on a Windows machine:

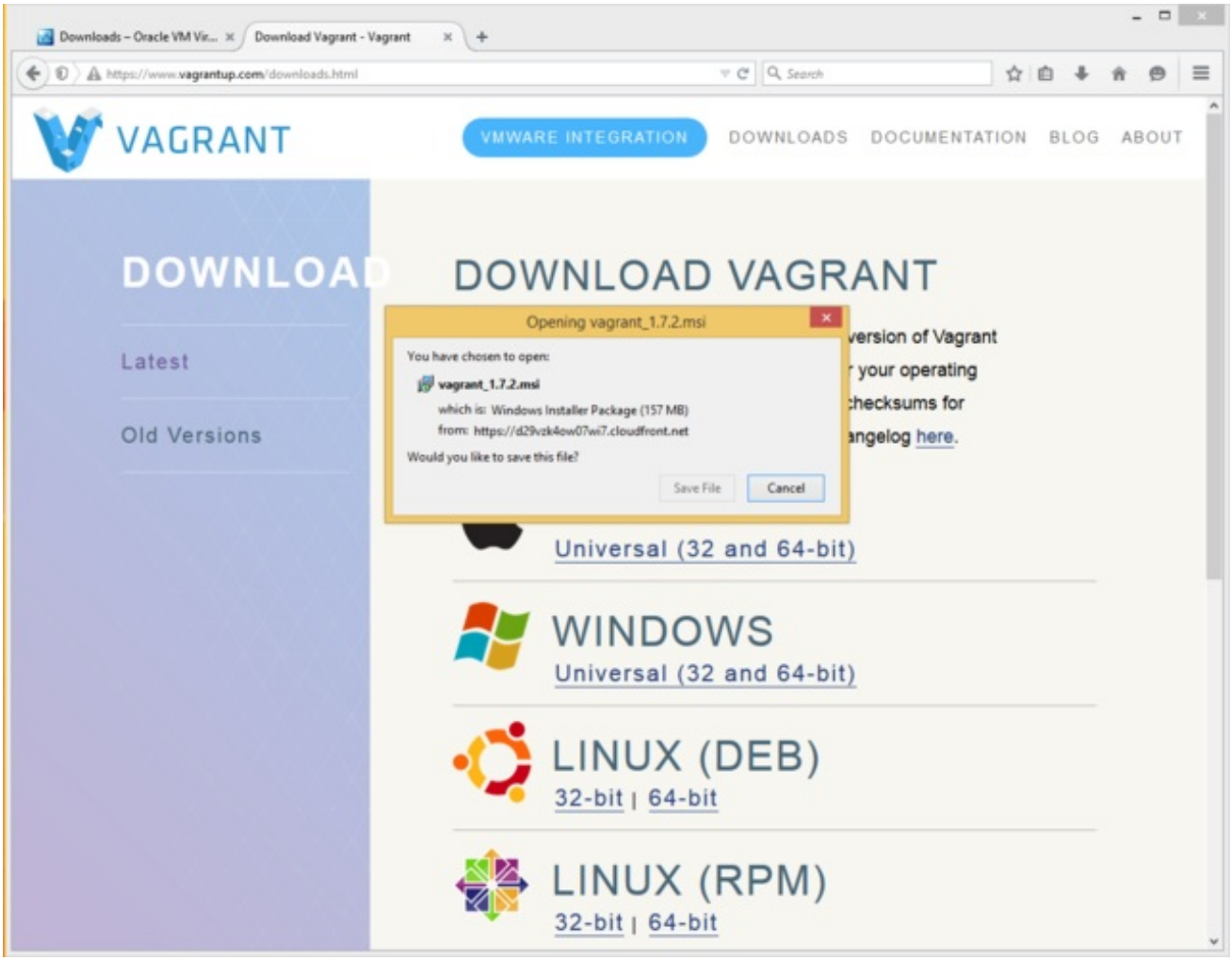
1. Vagrant itself
2. VirtualBox to run virtual machines
3. msysGit, a Windows distribution of Git and some other Unix tools, for cloning git repositories containing Vagrant configurations and connecting to your new VM with SSH

Install Vagrant

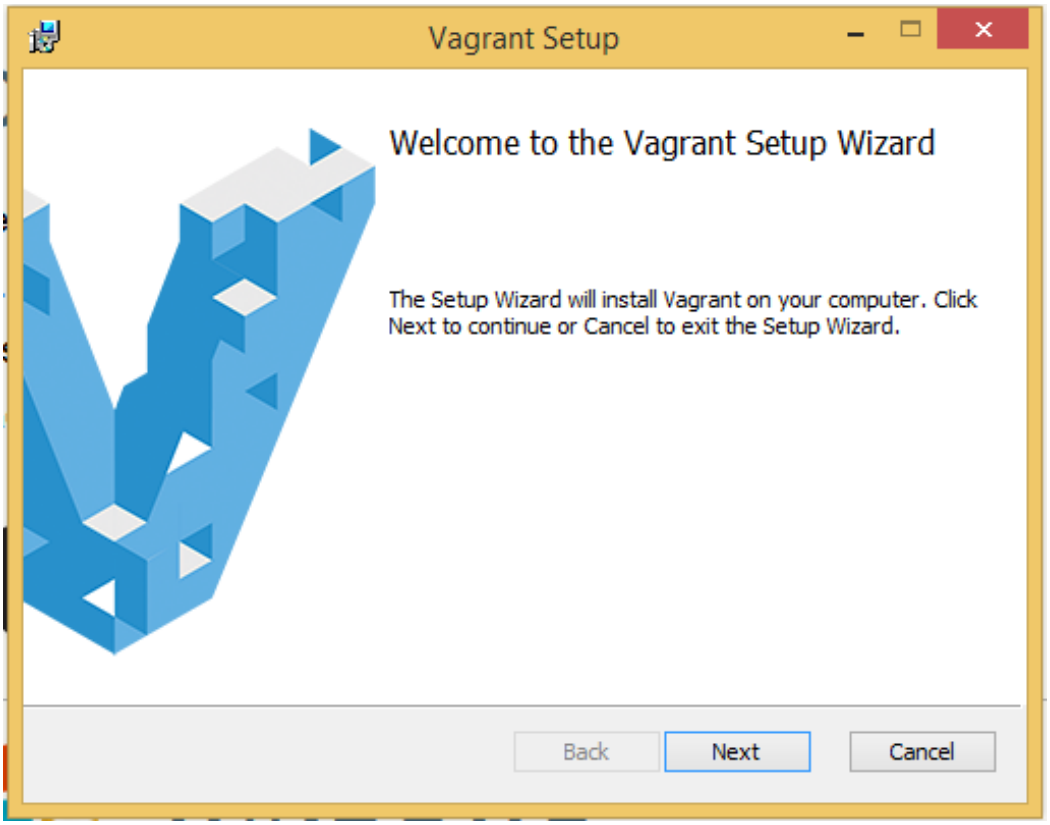
First, hit the Vagrant site (http://adafru.it/epl) and look for a "DOWNLOAD" button.

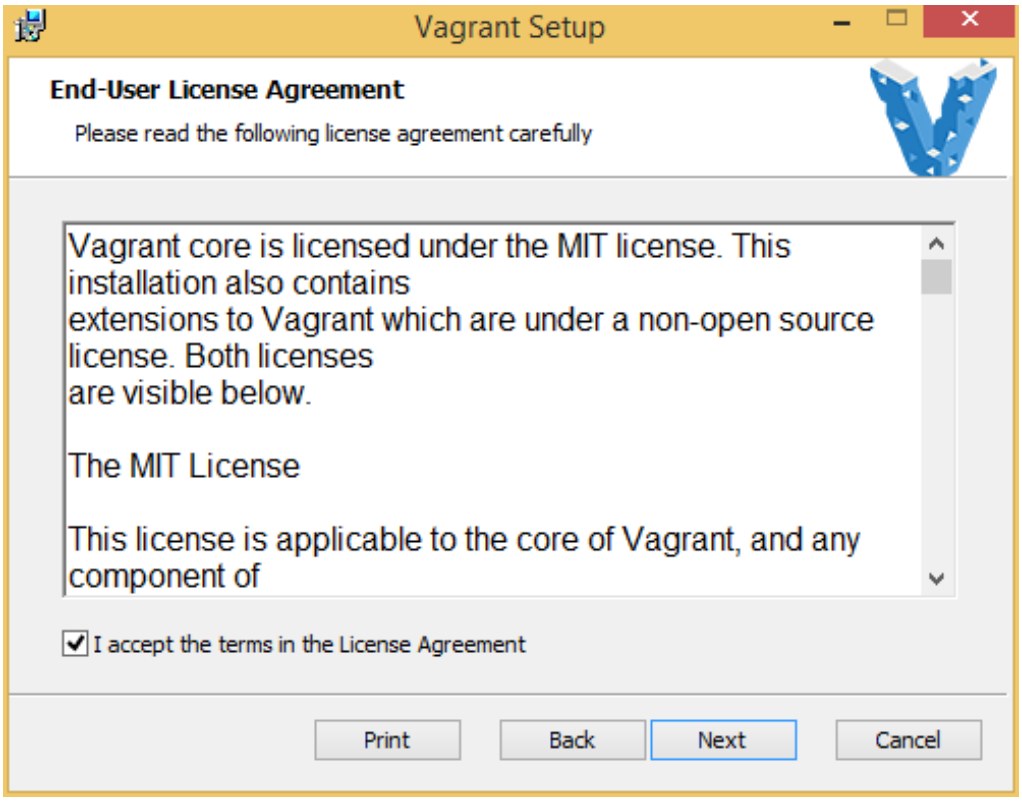


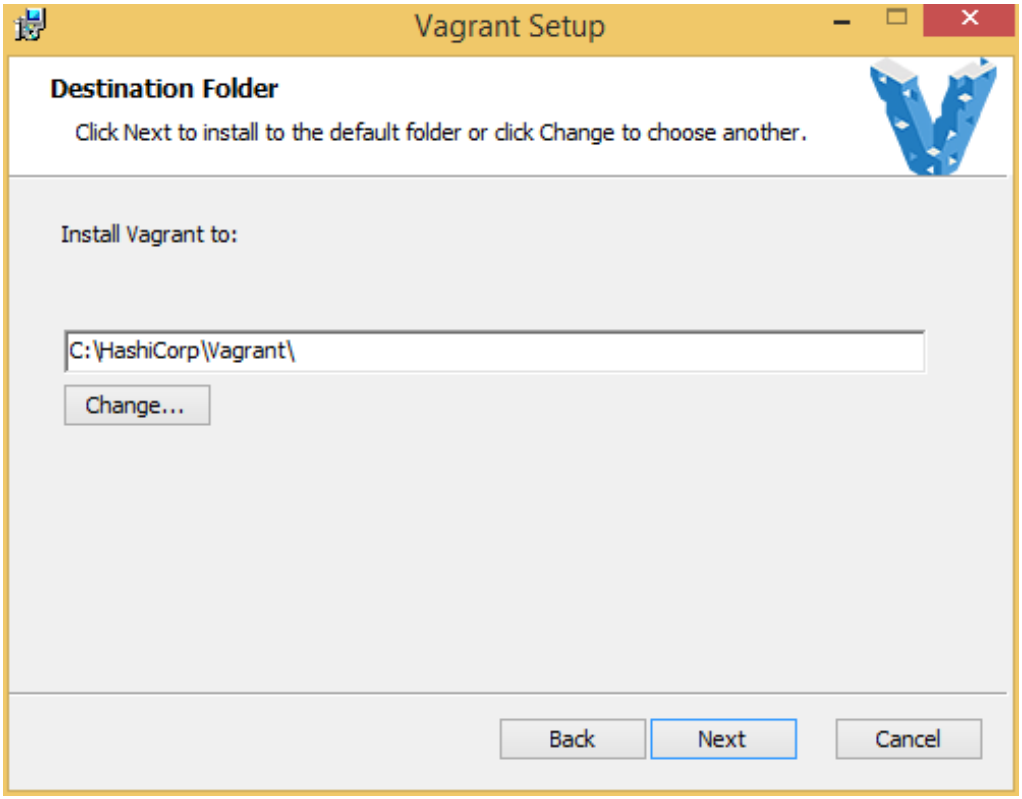
Click on the Windows installer link, and save the installer:

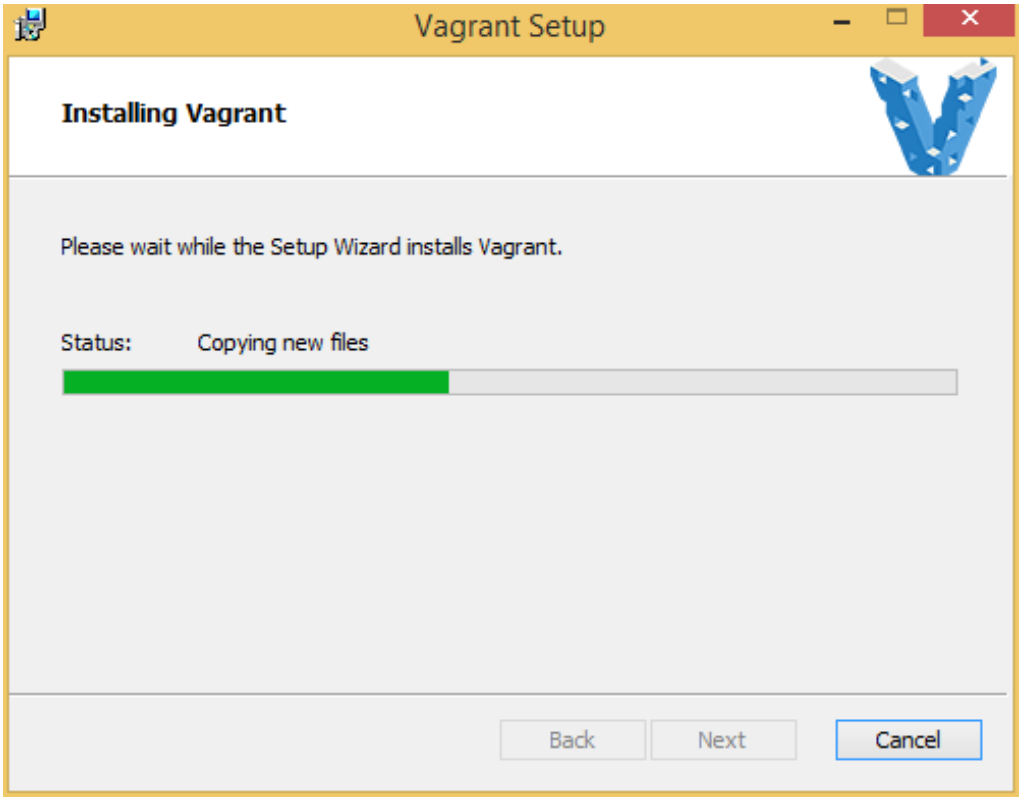


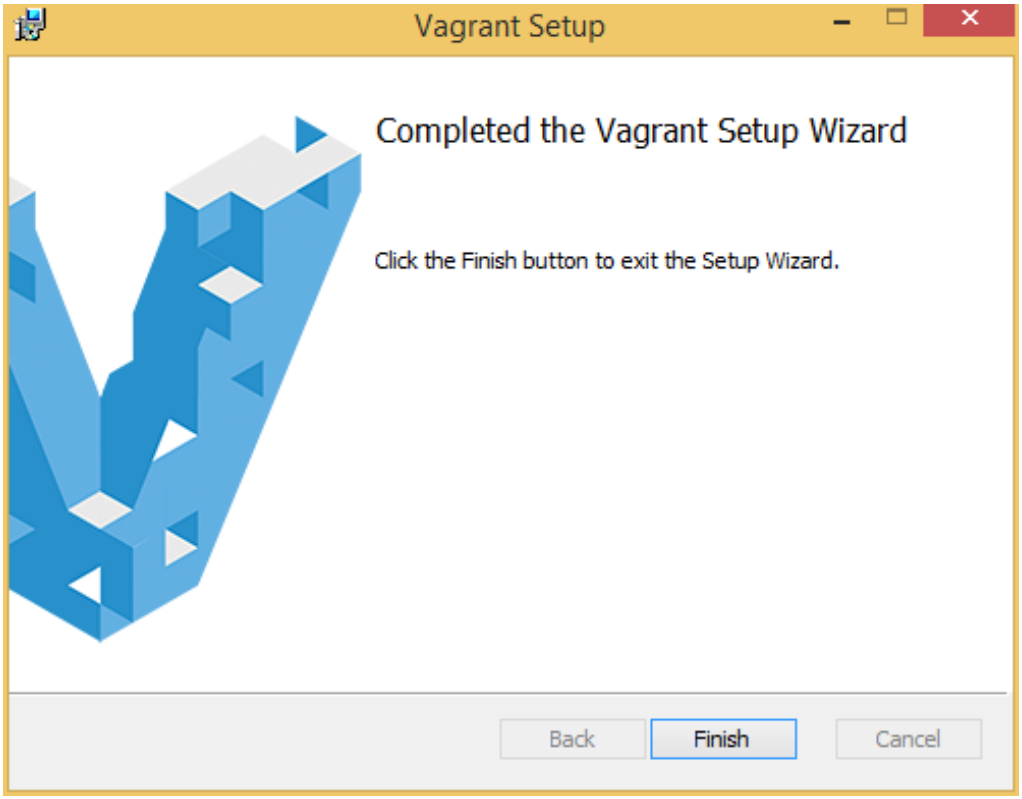
Then run the installer. Default choices should be fine.


Vagrant Setup
Welcome to the Vagrant Setup Wizard
The Setup Wizard will install Vagrant on your computer. Click Next to continue or Cancel to exit the Setup Wizard.
Back
Next
Cancel


Vagrant Setup
End-User License Agreement
Please read the following license agreement carefully
Vagrant core is licensed under the MIT license. This installation also contains
extensions to Vagrant which are under a non-open source license. Both licenses
are visible below.
The MIT License
This license is applicable to the core of Vagrant, and any component of
I accept the terms in the License Agreement
Print
Back
Next
Cancel


Vagrant Setup
Destination Folder
Click Next to install to the default folder or click Change to choose another.
Install Vagrant to:
C:\HashiCorp\Vagrant\
Change...
Back
Next
Cancel


Vagrant Setup
Installing Vagrant
Please wait while the Setup Wizard installs Vagrant.
Status:
Copying new files
Back
Next
Cancel

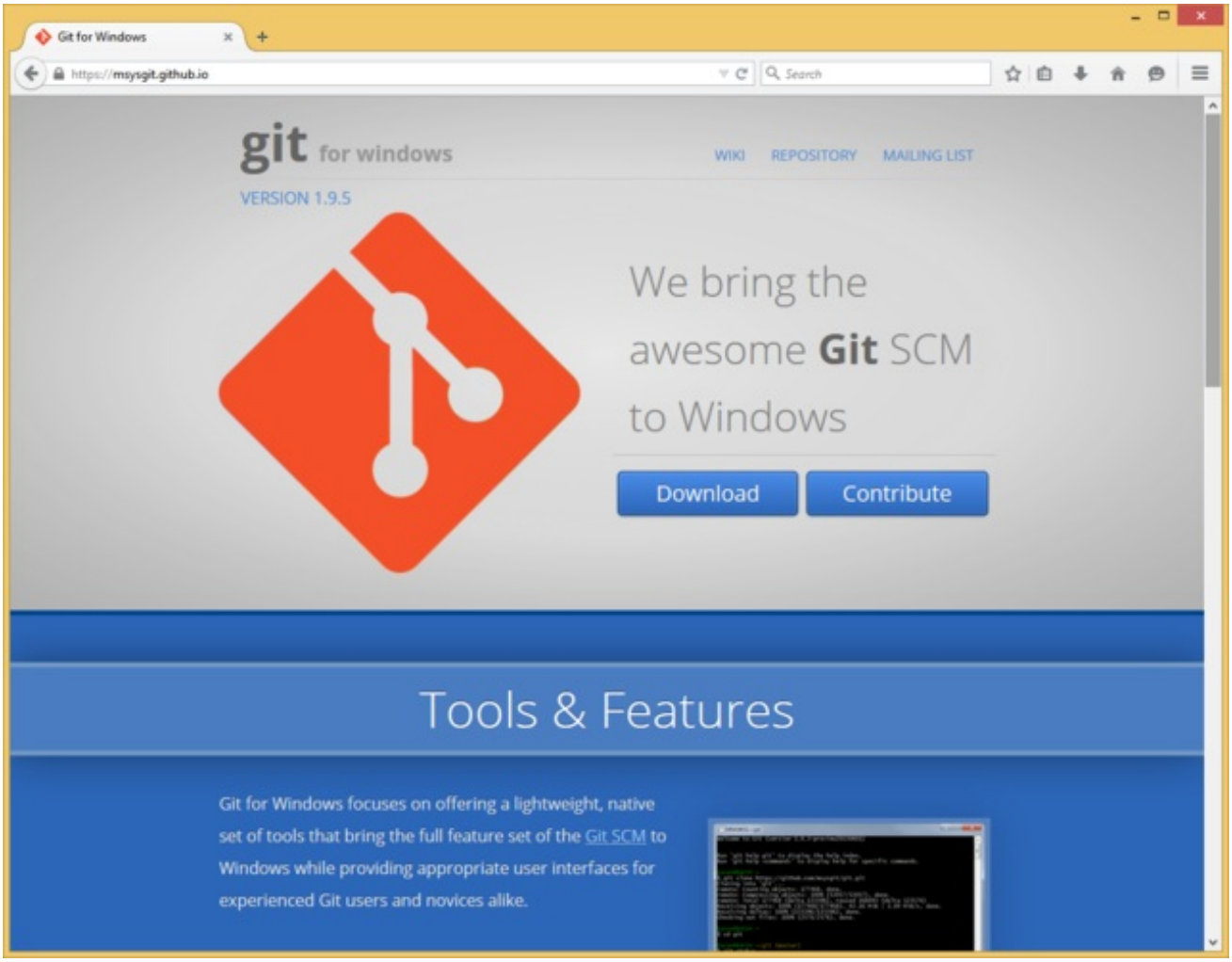

Vagrant Setup
Completed the Vagrant Setup Wizard
Click the Finish button to exit the Setup Wizard.
Back
Finish
Cancel

Install msysGit

Next, we'll install **msysGit**, which is a distribution of the git version control system (http://adafru.it/cFT). Git isn't strictly necessary for working with Vagrant, but it provides a version of the Bash shell, SSH, and other tools we'll find helpful. Later on, if you have Git installed, you can use it to keep up to date with things like the Kernel-o-Matic (http://adafru.it/epp).

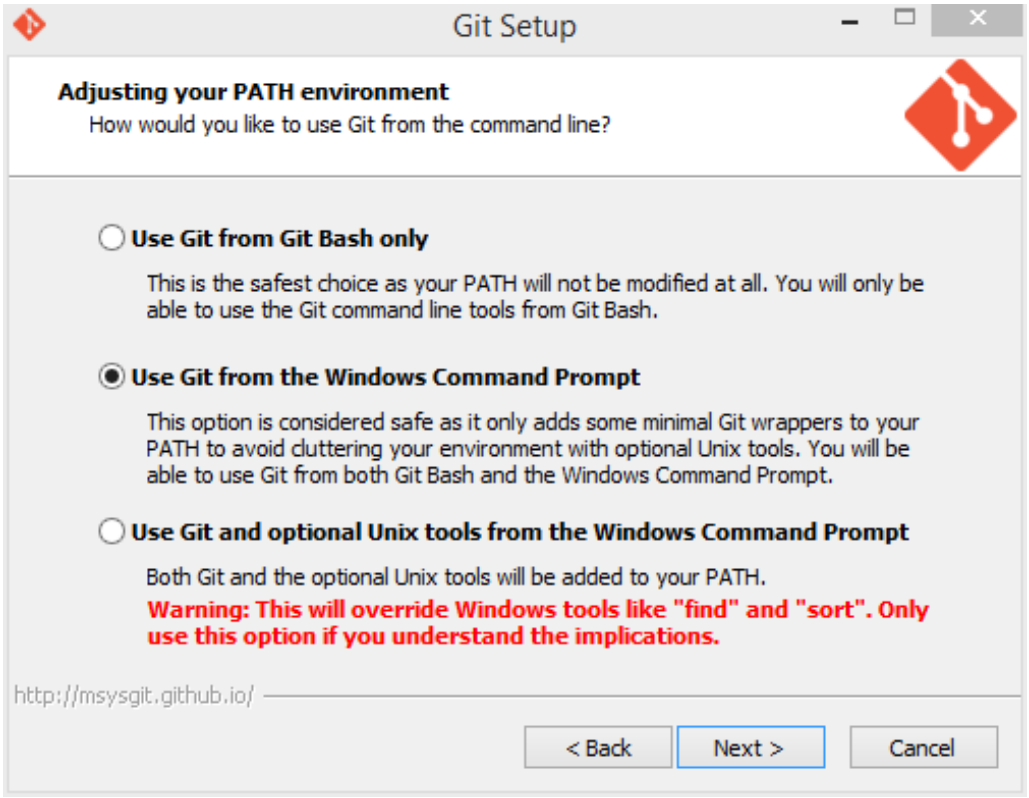
If you already have msysGit or the Cygwin tools installed, you can likely skip this step.

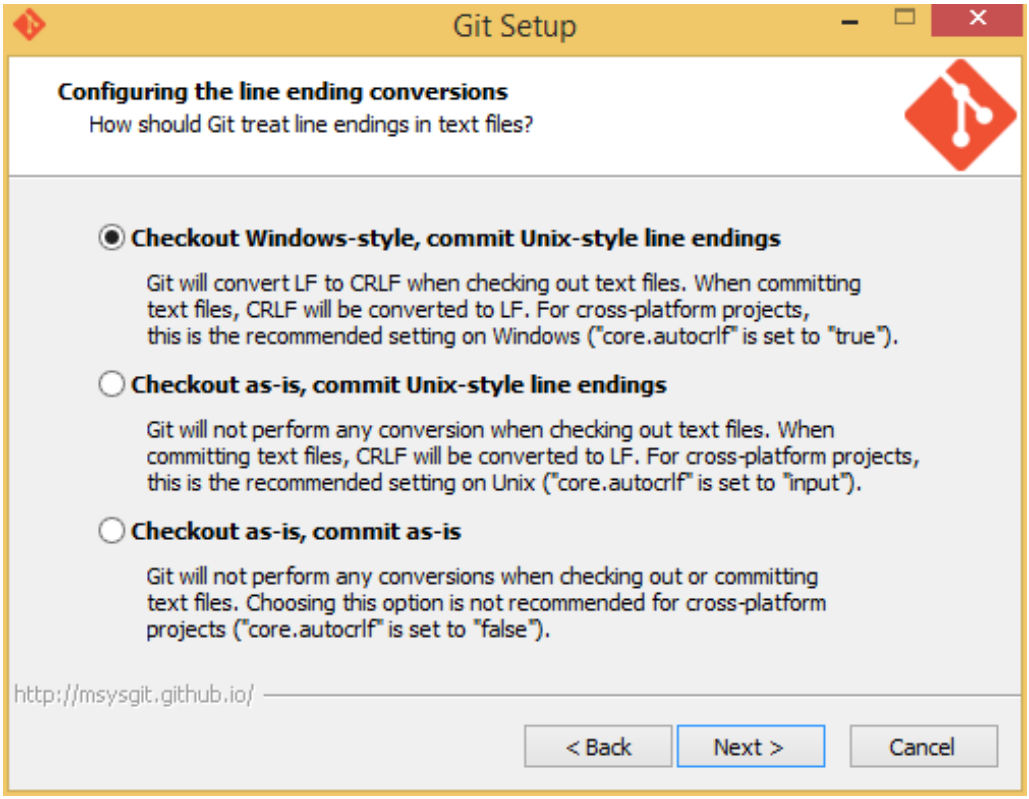
Again, visit the msysGit site (http://adafru.it/eBy) and look for a "Download" button.



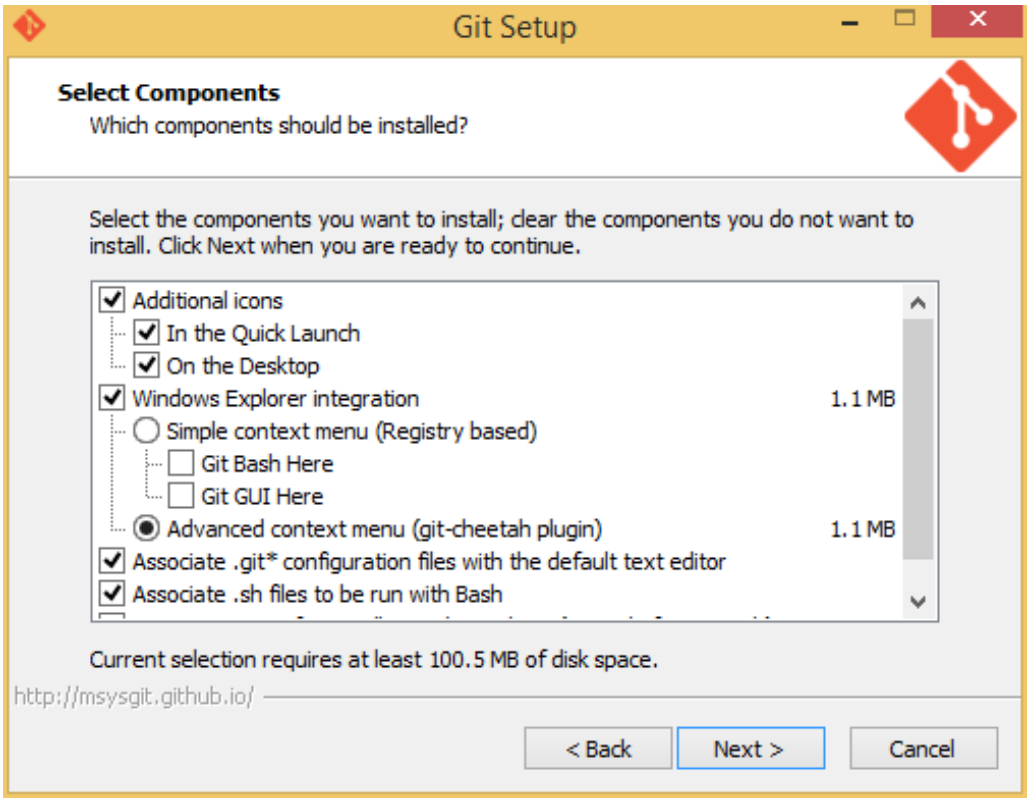
Run the installer. Windows will likely ask you several times if you'd like to allow the installer to run and modify your system.

For most options, the defaults should be acceptable. You may want to select "Use Git from the Windows Command Prompt", but it shouldn't make any real difference for our purposes.



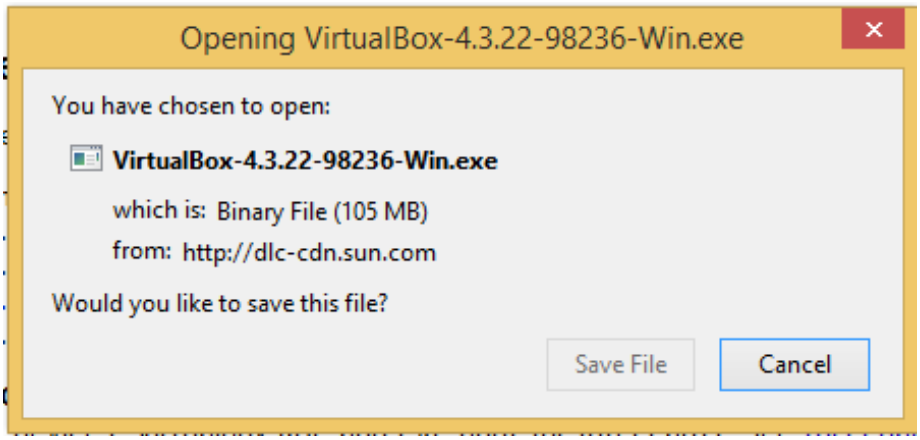


For convenience, you might want to choose "In the Quick Launch" and "On the Desktop" under "Additional icons".



Install VirtualBox

Lastly, we need VirtualBox to actually *run* the virtual machine we're going to configure. Head to virtualbox.org (http://adafru.it/eiS) and look for the Downloads (http://adafru.it/cBK) link, then find the Windows installer.

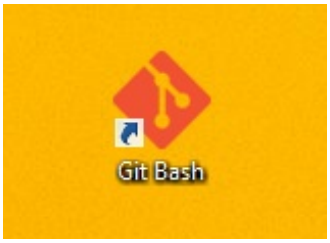


As with Vagrant and msysGit, run the installer, and click through options. Defaults should be fine.

If all has gone well, you should be ready to start up a Vagrant box.

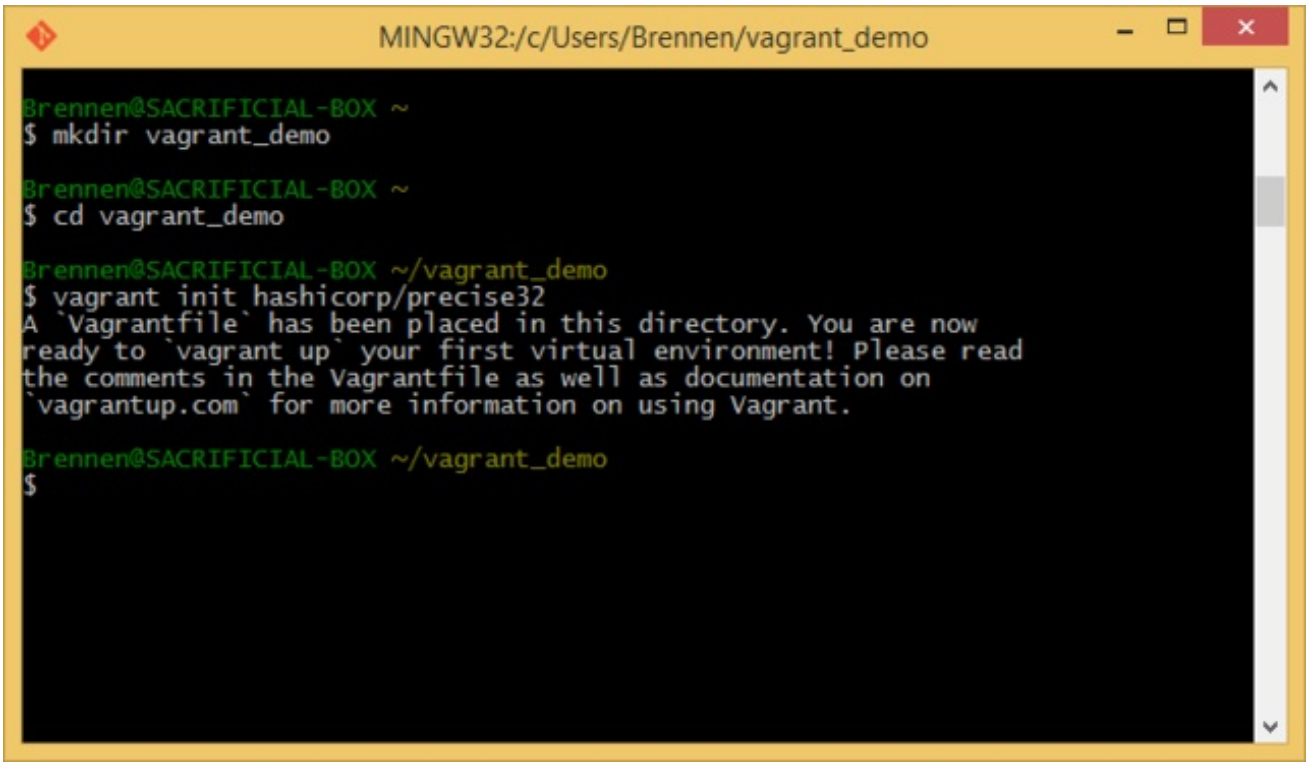
Run Bash and Fire up a New Vagrant Box

First, look for the Git Bash prompt provided by msysGit. It's probably on your desktop, but if you can't find it there, have a look in the Start Menu.



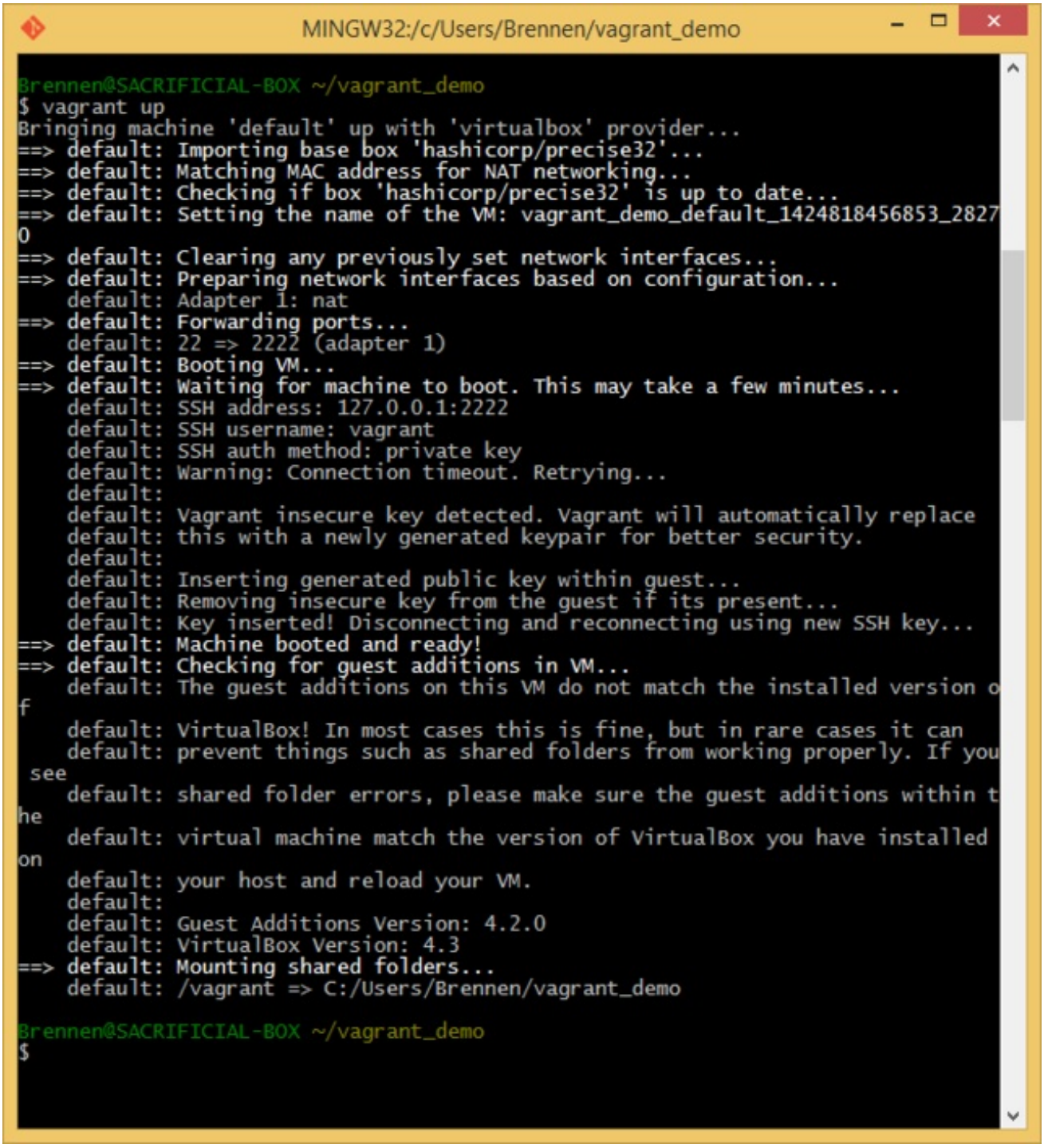
This is a version of Bash, which is a standard shell on GNU/Linux systems (for shell basics, start here (http://adafru.it/eBz)). Fire it up and enter the following commands:

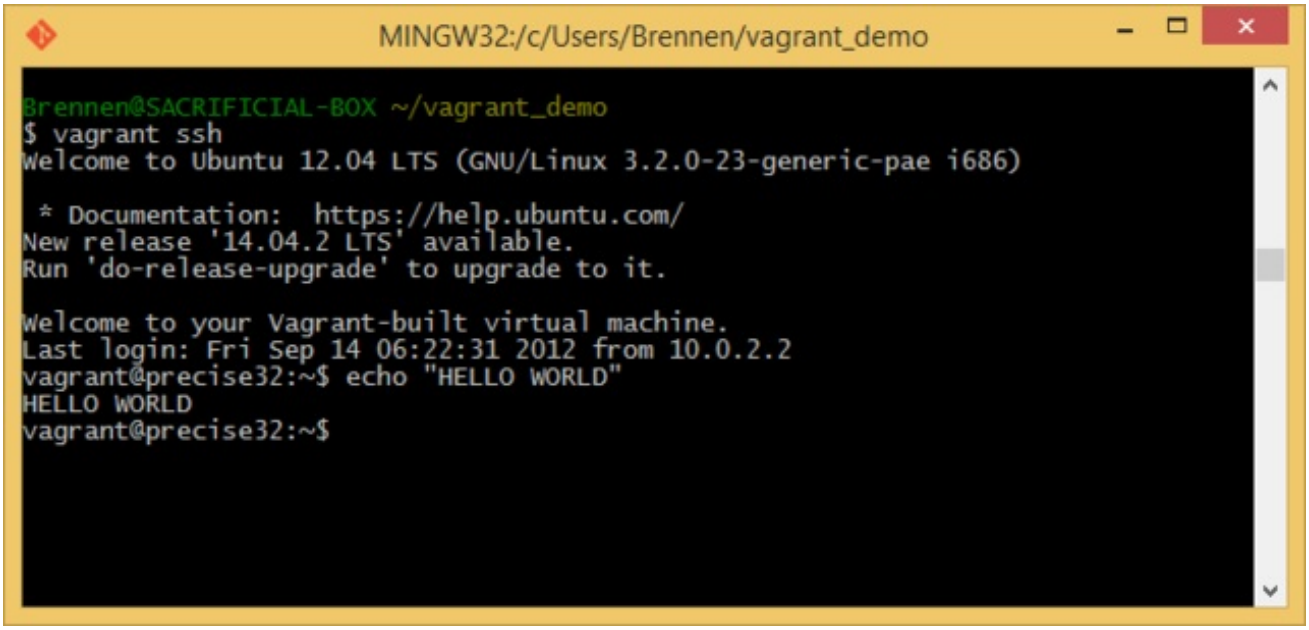
```
mkdir vagrant_demo
cd vagrant_demo
vagrant init hashicorp/precise32
```



You should now have a folder containing a basic `Vagrantfile`. (There's a lot of documentation (http://adafru.it/eBA) on Vagrantfiles.)

Next, do `vagrant up`, which should download an image, set it up, and start a virtual machine running in VirtualBox. This will probably take a while.


MINGW32:/c/Users/Brennen/vagrant_demo
Brennen@SACRIFICIAL-BOX ~/vagrant_demo
$ vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Importing base box 'hashicorp/precise32'...
==> default: Matching MAC address for NAT networking...
==> default: Checking if box 'hashicorp/precise32' is up to date...
==> default: Setting the name of the VM: vagrant_demo_default_1424818456853_2827
0
==> default: Clearing any previously set network interfaces...
==> default: Preparing network interfaces based on configuration...
default: Adapter 1: nat
==> default: Forwarding ports...
default: 22 => 2222 (adapter 1)
==> default: Booting VM...
==> default: Waiting for machine to boot. This may take a few minutes...
default: SSH address: 127.0.0.1:2222
default: SSH username: vagrant
default: SSH auth method: private key
default: Warning: Connection timeout. Retrying...
default:
default: Vagrant insecure key detected. Vagrant will automatically replace
default: this with a newly generated keypair for better security.
default:
default: Inserting generated public key within guest...
default: Removing insecure key from the guest if its present...
default: Key inserted! Disconnecting and reconnecting using new SSH key...
==> default: Machine booted and ready!
==> default: Checking for guest additions in VM...
default: The guest additions on this VM do not match the installed version o
f
default: VirtualBox! In most cases this is fine, but in rare cases it can
default: prevent things such as shared folders from working properly. If you
see
default: shared folder errors, please make sure the guest additions within t
he
default: virtual machine match the version of VirtualBox you have installed
on
default: your host and reload your VM.
default:
default: Guest Additions Version: 4.2.0
default: VirtualBox Version: 4.3
==> default: Mounting shared folders...
default: /vagrant => C:/Users/Brennen/vagrant_demo
Brennen@SACRIFICIAL-BOX ~/vagrant_demo
$



There you have it: A working Linux VM. What now? Well, you can:

- Continue with the Getting Started section (http://adafru.it/epm) of the official Vagrant manual.
- Check out our ongoing series of introductory Linux tutorials:
    - What is this "Linux", anyhow? (http://adafru.it/ekt)
    - What is the Command Line? (http://adafru.it/eBz)
    - An Illustrated Shell Command Primer (http://adafru.it/ekr)
    - An Illustrated Guide to Shell Magic: Standard I/O & Redirection (http://adafru.it/ey3)
    - An Illustrated Guide to Shell Magic: Typing Less & Doing More (http://adafru.it/eBB)

Once you're done with a machine, you can remove it with `vagrant destroy`.

If you're interested in trying other operating systems and configurations, read the manual on boxes (http://adafru.it/eBM), then have a look at the list of available boxes from HashiCorp (http://adafru.it/eBN) - you're not limited to these, but it's a good place to start.