

Instructions for setting and running DASHbed framework

Requirements:

- **Hypervisor:** virtualbox, vmware, hyper-v (windows) or kvm (linux)
- Vagrant

Installation time: 1 hour

Required free space on disk: 10GB

On your host machine download and install Vagrant

(<https://www.vagrantup.com/downloads.html>)

Download a hypervisor (e.g., VirtualBox, <https://www.virtualbox.org/wiki/Downloads>)

Note: We use version Vagrant version 2.2.4 for setting testbed

We will use a shared folder for transferring files between VMs and host machine

Instructions for host machine:

- Create folder (e.g., *dashbed_framework*): `mkdir ~/dashbed_framework`
- Copy Vagrantfile and bootstrap.sh to *dashbed_framework* folder
- Download and unzip dashc-updated-algorithms to *dashbed_framework* folder (<http://cs1dev.ucc.ie/misl/dashbed/dashc-updated-algorithms.zip>)
- Download and unzip dashbed-testbed to *dashbed_framework* folder (<http://cs1dev.ucc.ie/misl/dashbed/dashbed-testbed.zip>)
- Copy caddy web server to *dashbed_framework* folder
- Download get_your_movies script to *dashbed_framework* folder
- `cd ~/dashbed_framework`
- Run vagrant: `vagrant up`
- After setup of VMs is done download video clip: `./get_your_movies.sh`
This will download Sintel movie from
https://www.ucc.ie/en/misl/research/datasets/ivid_uhd_dataset/
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Vagrantfile has a configuration for setting two VMs (client and server) and private network between them. Also, it will install the necessary libraries.

We use “relativkreativ/ubuntu-18-minimal” as our main box.

(<https://www.vagrantup.com/docs/boxes.html>)

Private network configuration sets two IP addresses: 192.0.0.10 and 192.0.0.11. If there is conflict during starting vagrant change addresses in Vagrantfile configuration. Search for lines:

```
server.vm.network :private_network, ip: "192.0.0.10"
client.vm.network :private_network, ip: "192.0.0.11"
```

Running the previous command will download ubuntu 18.04 image and set up VMs
Our two VMs are sharing dashbed_framework folder.

Note: Everything in dashbed_framework can be found in /vagrant folder on each VM

Instructions for host machine:

CLIENT SETUP

- ssh to client VM: *vagrant ssh client*

Note: there are times depending on the version of VirtualBox, where once you ssh into client/server, the vagrant home folder is empty (i.e., the shared folder did not load - you see no content when you run 'ls'). If this occurs, stop the VMs (vagrant halt). And run the following in terminal on the host machine:

- *vagrant plugin install vagrant-vbguest*

Once complete, restart the machine, and call:

- *vagrant up*

The VMs will reload, and the shared folders will load. Now follow the remainder of the build steps for *dashc*:

- build dashc player
- *cd /vagrant/dashc-updated-algorithms/*
- *./configure*
- Log out (ctrl-d) and log in (*vagrant ssh client*)
- *cd /vagrant/dashc-updated-algorithms/*
- *make*

You should get dashc.exe executable in */vagrant/dashc-updated-algorithms/*

SERVER SETUP

- open second terminal (in dashbed_framework folder)
- *vagrant ssh server*
- *cd /vagrant*
- start web server
- *./caddy -host 10.0.0.10 -port 8080 -root ./ &*
- *cd /vagrant/dashc_testbed*
- run experiment
- *sudo ./run_script.sh*

Note: Testbed is set up with the current configuration. If you change some parameters (e.g., IP address, you need to update configuration files)

In `dashc_testbed/dashc_4K_DP/config_files/`, `config.cfg` holds the IP address of client and movie url. Update this information if necessary.

Note: Source code has been tested on Ubuntu 18.04.02