HW1

This homework will all you to practice with basic virtualization technology and familiarize you with building node CLI programs.

You will start with a starter code base and modify it to fulfill the homework criteria.

Setup

Please do the following before you start the homework.

Prepare your GitHub Repo.

Sign into NCSU's GitHub.

1. Create a *private* repo called HW1-DevOps.
2. Go to Settings, Collaborators and Teams, and add the TAs and instructor as a collaborator (using their unity id).

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Do not create any content, yet

Clone and set-url

Clone the following repo. Then modify the remote so that it now will point to your HW1-DevOps repo.

```
git clone http://github.com/CSC-DevOps/V
cd V
git remote -v
git remote set-url origin https://github.ncsu.edu/<unity>/HW1-DevOps
```

Install and test

Install the npm packages, then create a symlink for running your program.

```
npm install
npm link
```

Try it out.

```
v up
```

It is expected to see some errors, as the program is not complete.

```
Executing VBoxManage import "/Users/cjparnin/.bakerx/.persist/images/bionic/box.ovf"
--vsys 0 --vmname V--Users-cjparnin-classes-519-V
Executing VBoxManage modifyvm "V--Users-cjparnin-classes-519-V" --memory 1024 --cpus
1
Executing VBoxManage modifyvm V--Users-cjparnin-classes-519-V  --uart1 0x3f8 4 --
uartmode1 disconnected
Running VM customizations...
Executing VBoxManage startvm V--Users-cjparnin-classes-519-V --type emergencystop
Executing VBoxManage startvm V--Users-cjparnin-classes-519-V --type headless
Waiting 60000ms for machine to boot.
```

Base Requirements

VM setup (40 points)

Add the following required components to your project by editing the `customize(name)` function inside commands/up.js. You will want to take advantage of the `VBoxManage.execute` wrapper to execute VirtualBox commands.

- Add a NIC with NAT networking.
- Add a port forward from 2800 => 22 for guestssh.
- Add a port forward from 8080 => 9000 for a node application.

Post-Configuration (25 points)

Add the following required components to your project by editing the `postconfiguration(name)` function inside the commands/up.js. You will want to take advantage of the ssh command wrapper to send commands to the VM.

- Install nodejs, npm, git
- Clone https://github.com/CSC-DevOps/App
- Install the npm packages

SSH and App (25 points)

Add a new command by creating a ssh.js inside the commands directory. When running `v ssh` it should ssh into your VM (25 points).

- Implement and demonstrate running `v ssh`.
- Manually run `node main.js start 9000`.
- Demonstrate you can visit `localhost:8080` to see your running App.

Extra Requirements

You can complete some or all of the following activities for extra credit by modifying your code.

- Create a second NIC with either host-only or bridged networking enabled. Demonstrate that you can use your IP address to visit `<address>:9000` to see your running App. (5 points)
- Create a shared sync folder. This is fairly involved, only attempt if experienced--- limited help will be provided from teaching staff. (10 points)

Screencast (10)

Create a screencast of your assignment:

- Demonstrate running your code to provision the VM (`v up`), running your customization and post-configuration steps, and ssh (`v ssh`) and a starting your App. Demonstrate your app running on your browser. Demonstrate any extra requirements fulfilled.

For guidelines, software, and recommendations see Screencasts.

Evaluation

- Compete VM setup (40)
- Post-Configuration (25)
- SSH/APP (25)
- Screencast (10)
- Extra requirements (+5/+10)
- Answer a question (+5)

Max possible score: 120/100.

Submission

Please a submit a link to your repo here.

In your repository, have your code, link to a screencast.

The assignment is due Friday, Jan 31st before midnight.