VM Changelog

202122.2

Date: January 29, 2022

Updated existing software:

```
sudo apt update
sudo apt upgrade
sudo apt autoremove
```

Installed mininet:

```
cd /tmp
wget https://github.com/mininet/mininet/archive/refs/tags/2.3.0.tar.gz
tar xvzf 2.3.0.tar.gz
mv mininet-2.3.0/ mininet
sudo PYTHON=python3 mininet/util/install.sh -nfv
```

Installed Ryu:

```
sudo apt install libssl-dev libxml2-dev libxslt1-dev
cd /opt
sudo git clone https://github.com/faucetsdn/ryu.git
cd ryu
sudo pip3 install .
```

202122.1

Date: January 7, 2022

This is a new Ubuntu 20.04 image built from scratch. The initial image was created following this Ubuntu tutorial. After that, we performed the setup described below.

Updated sources and packages:

```
sudo apt update
sudo apt upgrade
```

Disable unattended upgrades:

```
sudo apt-get remove unattended-upgrades
```

Additionally, manually disabled automatic check for upgrades (prevents Ubuntu from asking students if they want to upgrade any software)

Installed VirtualBox Guest Additions (VirtualBox "Devices" menu → Insert Guest Additions CD image)
Installed most of the software that was present in the 16.04 version of the VM image:

```bash
sudo apt install -y git mc openssh-server texinfo qemu texlive graphviz libgraphviz-dev libffi7 libffi-dev traceroute cmake libyaml-0-2 libyaml-dev libtool libncurses5-dev libncursesw5-dev clang clang-format protobuf-compiler protobuf-c-compiler libprotoc-dev libprotobuf-c-dev python3-pip python3-dev
```

```bash
sudo -H pip3 install pytest-json pytest-html pandas numpy scipy matplotlib jupyter ipython emoji tabulate twitter cairocffi pygraphviz networkx pydot_ng pydot sklearn pylint setuptools pip click pyyaml pycryptodome
```

Installed Visual Studio Code:

```bash
sudo snap install code --classic
```

The Criterion test framework doesn't have an 20.04 package, but the 18.04 one appears to work fine:

```bash
wget http://ppa.launchpad.net/snaipewastaken/ppa/ubuntu/pool/main/c/criterion/criterion_2.3.2-6-ubuntu1-bionic1_amd64.deb
wget http://ppa.launchpad.net/snaipewastaken/ppa/ubuntu/pool/main/c/criterion/criterion-dev_2.3.2-6-ubuntu1-bionic1_amd64.deb
dsudopkg -i criterion_2.3.2-6-ubuntu1-bionic1_amd64.deb
dsudopkg -i criterion-dev_2.3.2-6-ubuntu1-bionic1_amd64.deb
```

Added the `clean-vm.sh` script.

### 201920.3

**Date:** April 16, 2020

Updated existing software:

```bash
sudo apt update
sudo apt dist-upgrade -u
sudo apt autoremove
sudo snap refresh
update-cs-software
```

Installed Visual Studio Code:

```bash
sudo snap install code --classic
```

Installed latest version of CMake:

```bash
wget -O - https://apt.kitware.com/keys/kitware-archive-latest.asc 2>/dev/null | sudo apt-key add -
sudo apt-add-repository 'deb https://apt.kitware.com/ubuntu/ xenial main'
```
sudo apt-get update
sudo apt-get install -y cmake

Installed missing libraries needed by CMSC 22000:

sudo apt-get install -y libyaml-0-2 libyaml-dev libncurses5-dev libncursesw5-dev

Updated VM cleaning script (the latest version of this file can now be found on the wiki)

**201920.2**

**Date:** September 24, 2019

Updated pyyaml and installed pycryptodome:

```
sudo -H pip3 install pyyaml pycryptodome --upgrade
```

Removed leftover hello.py file in the student home directory.

**201920.1**

**Date:** September 24, 2019

Updated click and the CS setup script:

```
sudo -H pip3 install click uchicago_cs_setup_script --upgrade
```

**201920.1-rc1**

**Date:** September 23, 2019

Updated existing software:

```
sudo apt update
sudo apt dist-upgrade -u
sudo apt autoremove
```

Updated VirtualBox Guest Additions to version 5.2.18 (VirtualBox "Devices" menu → Insert Guest Additions CD image)

Updated pip and setuptools:

```
sudo -H pip3 install setuptools pip --upgrade
```

Updated chisubmit:

Updated software used in CMSC 12100:

```
sudo -H pip3 install chisubmit --upgrade
```

```
sudo -H pip3 install --upgrade pandas numpy scipy matplotlib jupyter ipython emoji tabulate twitter cairocffi pygraphviz networkx pydot_ng pydot sklearn pylint
```

### 201819.2

**Date:** January 5, 2019

Remove imagemagick package, which usually causes issues in CS 121 (because of its import command):

```
sudo apt remove imagemagick
```

Install CMake and traceroute:

```
sudo apt install cmake traceroute
```

Install clang:

```
wget -O - https://apt.llvm.org/llvm-snapshot.gpg.key | sudo apt-key add -
sudo apt-add-repository "deb http://apt.llvm.org/xenial/ llvm-toolchain-
xenial-7 main"
sudo apt update
sudo apt install clang-7 clang-format-7 clang-tidy-7
```

### 201819.1

**Date:** September 26, 2018

Upgrade the UChicago CS Setup Script:

```
sudo -H pip3 install uchicago-cs-setup-script --upgrade
```

Removed user-local Python packages and executables that seemed to have been installed a long time ago, and which would likely conflict with system-wide packages.

```
rm -rf .local/lib/python3.5/
rm -rf .local/bin/
```

### 201819.1-rc2

**Date:** September 24, 2018

```
Removed Sublime Text 2:

```bash
rm -rf /home/student/Software/
rm -rf /home/student/bin/
rm -rf /home/student/.config/sublime-text-2
# Removed subl alias from .bashrc_cs
```

Added Sublime Text 3:

```bash
wget -qO - https://download.sublimetext.com/sublimehq-pub.gpg | sudo apt-key add -
sudo apt-get install apt-transport-https
echo "deb https://download.sublimetext.com/ apt/stable/" | sudo tee /etc/apt/sources.list.d/sublime-text.list
sudo apt-get update
sudo apt-get install sublime-text
# Add 'rm -rf ~student/.config/sublime-text-3' to /root/clean-vm.sh
```

Added PyCharm:

```bash
sudo snap install pycharm-community --classic
```

Installed pylint:

```bash
sudo pip3 install pylint
```

Added the following to clean-vm.sh to clear caches and reduce VM image size:

```bash
echo "Clearing caches..."
apt clean
rm -rf ~student/.cache
rm -rf /root/.cache
```

201819.1-rc1

**Date:** September 19, 2018

Added xenial-updates package sources:

```bash
deb http://us.archive.ubuntu.com/ubuntu xenial-updates main restricted
deb http://us.archive.ubuntu.com/ubuntu xenial-updates universe
deb http://us.archive.ubuntu.com/ubuntu xenial-updates multiverse
```

Updated existing software:

```bash
sudo apt update
sudo apt dist-upgrade -u
sudo apt autoremove
```
Updated VirtualBox Guest Additions to version 5.2.18 (VirtualBox "Devices" menu → Insert Guest Additions CS)

Updated pip and setuptools:

```
sudo -H pip2 install setuptools pip --upgrade
sudo -H pip3 install setuptools pip --upgrade
```

Updated chisubmit to 2.0:

```
sudo -H pip2 uninstall chisubmit
sudo -H pip3 install chisubmit
```

Updated `/usr/local/bin/update-cs-software` to update chisubmit with pip3 instead of pip2

Updated software used in CMSC 12100:

```
sudo -H pip3 install --upgrade pandas numpy matplotlib jupyter
sudo -H pip3 install --upgrade emoji tabulate twitter
```

Added packages needed by CMSC 12100:

```
sudo apt install graphviz graphviz-dev libffi6 libffi-dev
sudo -H pip3 install cairocffi pygraphviz networkx pydot_ng pydot sklearn
```

**201718.3**

**Date:** January 2, 2018

Updated existing software:

```
sudo apt update
sudo apt dist-upgrade -u
sudo apt autoremove
```

Added Python packages needed by CMSC 23300:

```
sudo -H pip3 install pytest-json pytest-html
sudo -H pip2 install ipaddress --upgrade
```

Added packages needed by CMSC 23300:

```
sudo apt install libtool protobuf-compiler protobuf-c-compiler libprotobuf-dev
mininet
sudo apt-get install criterion-dev
```
201718.2

**Date:** September 20, 2017

Updated the Guest OS tools (select Devices → "Install Guest Additions CD image"; run)

Disabled automatic updates (Settings → Software & Updates → Updates; unchecked "updates from..." boxes; set "Automatically check for updates" to Never; set "Notify me of a new Ubuntu version" to Never)

Added multiverse and universe sources to apt

201718.1

**Date:** September 18, 2017

No changes. Version update only to indicate this is no longer a release candidate.

201718.1-rc3

**Date:** August 31, 2017

Updated existing software:

```
sudo apt-get update
sudo apt-get dist-upgrade -u
```

Added Python packages needed by CMSC 12100:

```
sudo -H pip3 install emoji pandas tabulate twitter
```

Added alias to `~student/.bashrc_cs`

```
alias subl=sublime_text
```

Modified `/root/clean-vm.sh` to remove the Sublime Text history:

```
rm ~student/.config/sublime-text-2/Settings/Session.sublime_session
```

201718.1-rc2

**Date:** August 25, 2017

Changed default Java version to 1.8.0_131 (instead of Java 9)

Updated to chisubmit 1.3.0 (ran `update-cs-software`)
Installed additional packages:

```
apt-get install mono-runtime mono-mcs php7.0-cli
```

Installed Pintos following these instructions.

Modified `/root/clean-vm.sh` to do additional cleanup, and to add `mit.cs.uchicago.edu` to trusted SSH hosts:

```
rm -rf /tmp/*
rm -rf ~student/.vim
rm -rf ~student/.emacs.d
rm -rf ~student/.gitconfig
ssh-keyscan -H mit.cs.uchicago.edu > ~student/.ssh/known_hosts
ssh-keyscan -H $(dig +short mit.cs.uchicago.edu) >>
~student/.ssh/known_hosts
chown -R student.student ~student/.ssh
```

201718.1-rc1

**Date:** August 23, 2017

Changed hostname to "cs-vm" (updated `/etc/hostname` and `/etc/hosts`)

Manually updated applications on Ubuntu launcher

Disabled unattended upgrades:

```
sudo apt-get remove unattended-upgrades
```

Manually disabled automatic check for upgrades (prevents Ubuntu from asking students if they want to upgrade any software)

Updated existing software:

```
sudo apt-get update
sudo apt-get dist-upgrade -u
sudo apt-get autoremove
```

Added new packages:

```
sudo apt-get install eclipse eclipse-cdt mc texinfo qemu texlive
```

Updated pip:

```
sudo -H pip2 install pip --upgrade
sudo -H pip3 install pip --upgrade
```
Installed chisubmit and uchicagocs-setup-script:

```
sudo -H pip2 install chisubmit --upgrade
sudo -H pip3 install uchicago-cs-setup-script ipython --upgrade
```

Added .chisubmitconf file in /home/student:

```
api-url: https://chisubmit-backend.cs.uchicago.edu/api/v1/
```

Updated certificates:

```
wget http://crt.incommon-rsa.org/InCommonRSAServerCA_2.crt -O - | sudo openssl x509 -inform DER -outform PEM -out /usr/local/share/ca-certificates/InCommonRSAServerCA_2.crt
sudo update-ca-certificates
```

Added /usr/local/bin/update-cs-software:

```
#!/bin/bash
sudo -H pip2 install chisubmit --upgrade
sudo -H pip3 install uchicago-cs-setup-script --upgrade
sudo chmod a+x /usr/local/bin/update-cs-software
```

Removed root-owned files in /home/student

Added /root/clean-vm.sh to clean VM before producing a golden image:

```
#!/bin/bash

echo "Cleaning logs..."
# Stop logging service
service rsyslog stop
# Clear logs
logrotate -f /etc/logrotate.conf
rm /var/log/*.gz /var/log/*.1
echo "Cleaning /var/tmp..."
rm -rf /var/tmp/*
echo "Removing SSH keys..."
rm -rf ~student/.ssh
rm -rf ~root/.ssh

echo "Removing configuration files and histories..."
rm -rf ~root/.bash_history
rm -rf ~student/.bash_history
rm -rf ~student/.mozilla/firefox
```

This was a base Ubuntu 16.04 image created by Techstaff.