



Cornell University College of Veterinary Medicine
Student Training Simulation Project

Simulation Manager Configuration Guide

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Version 1.9

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History

2017-Aug-18 – V 1.0 -- Original Release.

2017-Aug-22 – V 1.1 – Various corrections.

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Update Section 2.8
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2018-May 31 – V1.7 - Added OBS setup

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**2018-Oct 1 – V1.9 - Changes due Ubuntu upgrades
Removed “NUC” references**

Cornell University College of Veterinary Medicine Student Training Simulation Project Simulation Manager Configuration

1. Introduction and Overview

This document will describe the Simulation Manager (SimMgr) Configuration for the Cornell University College of Veterinary Medicine Student Training Simulation Project.

The SimMgr is the main processing unit for the simulator. It handles the functionality for controlling the mannequin, serving the instructor interface web interface, and logging of events.

The SimMgr Software can be installed on any Linux PC. I-Town Design typically uses and Intel NUC (Next Unit of Computing) mini PC. The NUC can be purchased with a variety of processor, memory and storage options. These instructions were tested using an Intel model **NUC7i5BNH**.

It is assumed the user has reviewed the documentation pertaining to system and software block diagrams, and the user has a basic understanding of Ubuntu.

2. SimMgr Configuration

2.1 Install Ubuntu

We recommend you start with a clean Ubuntu installation, even if the computer you are using has an installed system.

Download an ISO image of the latest Ubuntu LTS 16.04 release onto a USB flash drive. The downloads can be found here:

<https://www.ubuntu.com/download/alternative-downloads>

Select the “Ubuntu 16.04.05 Desktop (64-bit)” for download.

Note: The “current” LTS release of Ubuntu is 18.04. Do not use this version.

The utility Rufus can be used to create the ISO image on a flash drive. It can be found here:

<https://rufus.akeo.ie/>

Install the USB flash drive and power up the PC. Click the F10 key until the boot menu is displayed. Select the USB flash drive and follow the directions to install a complete copy of Ubuntu. Remember the username and login. After installation, be sure to remove the USB flash drive.

During the installation the PC will attempt to establish a network connection either as a wired connection or over Wi-Fi.

NOTE: A network connection with public access is required to complete this installation.

After the installation is completed, reboot the PC and login using the credentials for the account created during the installation process.

2.2 Install git and sim-mgr repository

After rebooting the PC and logging in perform the following steps.

Open a terminal:

> **CTRL-ALT-T**

Run as root

> **sudo -s** (enter the account password when prompted).

Install git to download github repositories:

> **apt-get update**

> **apt-get install git-core**

Clone the repository for sim-mgr:

> **git clone https://github.com/tkelleher/sim-mgr.git**

2.3 Install Apache Server, MySQL Server and PHP 7

Navigate to the scripts directory:

> **cd /home/vet/sim-mgr/scripts/**

Run the following script:

> **./bash1.sh**

When prompted to configure MySQL answer:

Y

Then enter a password for the root account and verify.

The message **PHP is RUNNING!!** should be echoed at the terminal.

2.4 Install phpMyAdmin

Run the second bash script:

> **./bash2.sh**

You will be asked to reconfigure apache2...select and click OK.

You will then be asked to reconfigure the database...click Yes

You will then be asked for a MySQL password. **Remember this password for phpMyAdmin login.**

2.5 Install g++ Compiler, Libraries and simmgr User

Run the third bash script:

```
> ./bash3.sh
```

Set password to 'simmgr'. Enter and confirm the password for the simmgr user.

2.6 Installing the Web Based SIM Instructor Interface

Run the fourth bash script:

```
> ./bash4.sh
```

2.7 Application User Setup and Instructor Interface Test

Open a browser and go to the following URL:

Add database vet and table Users

1. Login to <http://localhost/phpmyadmin> using the account 'root' and the password assigned in Sec 2.4
2. Create a new database 'vet' with default options
3. Click on 'Import'. Navigate to ~/sim-mgr/Users.sql
4. Import file
5. You should see a new table 'Users'.

Add user vetsim:

1. Click on Privileges
2. Click add user
3. Enter 'vetsim' for name
4. Enter 'vet\$im' for password
5. Click on all database privileges
6. Save

Test Instructor Interface:

1. Open a browser
2. Go to URL localhost/sim-ii
3. Login using User: admin, Password: admin
4. You should see the instructor interface open with the scenario default ready to start.

2.8 Install Chrome, Misc Tools and 'vitals' User

Run the misc bash script:

```
> ./misc.sh
```

Enter and confirm the password for the 'vitals' user.

2.9 Set up Auto Login

In the graphic interface follow these steps:

1. Click on the setup icon in the right hand corner of the screen (⚙)
2. Click on System Settings
3. Select 'User Accounts'
4. Select account 'vitals'
5. Unlock account
6. Set Autologin to 'ON'

2.10 Set Up Default Password Keyring

A non-password protected keyring needs to be created:

Login to the 'vitals' account.

Note: When "vitals" is logged in as the first GUI login, it automatically opens the Vitals Monitor in Full Screen mode. It will not do this if you left the prior login session active. When the Browser is in full screen mode, you can return to the GUI panel by clicking on the F11 key(Toggle Full Screen).

1. Under search type in the keyword 'key'. The utility 'Password and Keys' should appear.
2. Open the utility.
3. Click the green 'plus' to add a new key
4. Select 'Password Keyring'.
5. Click 'Continue'
6. Name the new keyring 'Default'
7. Leave the password blank and confirm that the password is not set and save the keyring.
8. Right click the new keyring and set as 'Default'.

2.11 SimMgr Reboot

Reboot the SimMgr. The simulated vital sign monitor should be displayed.

2.12 Open Broadcaster Setup

The application Open Broadcaster has been installed as part of the automated setup. This application is used for recording audio and video during simulations which can then be played synched to a log file for review and critiques.

The video and audio sources must be configured for proper recording. There are three components for recording: audio, video cameras, and the vitals screen. The directory for saving the recording, OBS hotkeys, and the video format must also be configured.

2.12.1 Audio Setup

1. Reboot the SimMgr. The simulated vital sign monitor should be displayed.
2. Type the F11 key. The vital sign monitor should minimize allowing access to the desktop.
3. Connect all webcams that will be used for recording the simulations.
4. In the upper left hand corner of the display click the search icon and type in "obs". The Open Broadcaster icon should be displayed. Click on the icon to open the application.
5. Under "Sources" click the plus sign ("+").
6. Select "Audio Input Capture (Pulseaudio)", then "Create New" and click "OK".
7. Select the audio source from the dropdown presented and click "OK". The audio source should now be listed in the Sources window.

2.12.2 Webcam Setup

1. Under "Sources" click the plus sign ("+").
2. Select "Video Capture Device (V4L2)" and then "Create New" and click "OK".
3. Select the video source and click "Ok". The video source should appear in the sources list and the video feed will appear in the live window.
4. Repeat steps for each video camera.

2.12.3 Vitals Screen Record Setup

1. Under "Sources" click the plus sign ("+").
2. Select "Window Capture" and then "Create New" and click "OK".
3. Select the window "Vet School Simulator – Mozilla Firefox" and click "Ok". The screen should appear in the sources list and the video feed will appear in the live window.

2.12.4 Video Recording Format and Path Setting

1. Click “Settings” then “Output”.
2. Set “Recording Path” to “/var/www/html/simlogs/video”.
3. Set video “Recording Format” to “mp4”.

2.12.5 Hot Keys

The hot keys are used to programmatically start and stop the recording of Open Broadcaster.

1. Click “Settings” then “Hotkeys”.
2. In “Start Recording” click CONTROL A (hold down Ctrl and type ‘a’).
3. In “Stop Recording” click CONTROL B (hold down Ctrl and type ‘b’).