Amsterdam University of Applied Sciences

Rover Rescue System

Manual - Rover

Author:	*Student Number:*
Christiaan van Arum	500778983
Raphaël Bunck	500774349
Nino van Galen	500790589
Martijn Vegter	500775388

January 13, 2019

Contents

1 Introduction

TODO

2 Requirements

Before installing the Rover software, make sure you have the following software up and running:

- A RaspberryPi B2 (RPI) with newest version of Raspbian.
- An Active internet connection on the RPI.
- An open SSH, see setup below.

3 Installation Guide

This chapter gives a step by step tutorial to get the RSS up and running. After completing the installation, continue reading the usage guide.

3.1 Headless setup procedure

- Step 1: Create an empty file. You can use Notepad on Windows or TextEdit to do so by creating a new file. Just name the file ssh. Save that empty file and dump it into boot partition (microSD).
- Step 2: Create another file name **wpa_supplicant.conf**. This time you need to write a few lines of text for this file. For this file, you need to use the **FULL VERSION** of wpa_supplicant.conf. Meaning you must have the 3 lines of data namely country, **ctrl_interface** and **update_config**.

```
country="Your country"
ctrl_interface=DIR=/var/run/wpa_supplicant GROUP=netdev
update_config=1

network={
    ssid="your_real_wifi_ssid"
    scan_ssid=1
    psk="your_real_password"
    key_mgmt=WPA-PSK
}
```

3.2 Installation

To install Rover and its dependencies from your RPI shell prompt, use the following command:

```
$ wget -q https://git.io/fx0ko -O /tmp/rover && bash /tmp/rover
```

3.3 Manual Installation

Update your system package list:

```
$ sudo apt-get -update -y
```

Upgrade all you installed packages to their latest version:

```
$ sudo apt-get dist-upgrade -y
```

To download and install newest version of Node.js, use the following command:

```
$ curl -sL https://deb.nodesource.com/setup_8.x | sudo -E bash -
```

Now install it by running:

```
$ sudo apt-get install nodejs -y
```

To compile and install native addons from npm you also need to install build tools:

```
$ sudo apt-get install build-essential -y
```

To download the Rover code you need to install git:

```
$ sudo apt-get install git -y
```

Clone 'Scriptor' using git:

```
$ git clone https://github.com/RescueOnWheels/Scriptor.git
```

Clone 'Rover' using git:

```
$ git clone https://github.com/RescueOnWheels/Rover.git --recursive
```

Open the 'Scriptor' folder and start using the Rover:

```
$ cd Scriptor && ./start.sh all
```

3.4 UV4L

The UV4L software suit consists of a series of highly configurable drivers, an optional Streaming Server module providing a RESTful API for custom development and various extensions for the server that cooperate together. The Streaming Server also provides the basic web UI for the end-users to try or use all the key functionalities directly. For maximum efficiency, each instance of UV4L runs as a single, independent system process which exploits the underlying hardware natively (whenever possible).

If you are running Raspbian Stretch instead, type:

```
$ curl http://www.linux-projects.org/listing/uv4l_repo/lpkey.asc |
   sudo apt-key add -
```

and add the following line to the file /etc/apt/sources.list:

```
$ deb http://www.linux-projects.org/listing/uv4l_repo/raspbian/
   stretch stretch main
```

Finally, we are ready to update the system and to fetch and install the packages:

```
$ sudo apt-get update
$ sudo apt-get install uv4l uv4l-raspicam
```

Apart from the driver for the Raspberry Pi Camera Board, the following Streaming Server front-end and drivers can be optionally installed:

```
$ sudo apt-get install uv4l-server uv4l-uvc uv4l-xscreen uv4l-
   mjpegstream uv4l-dummy uv4l-raspidisp
```

4 Usage Guide

TODO