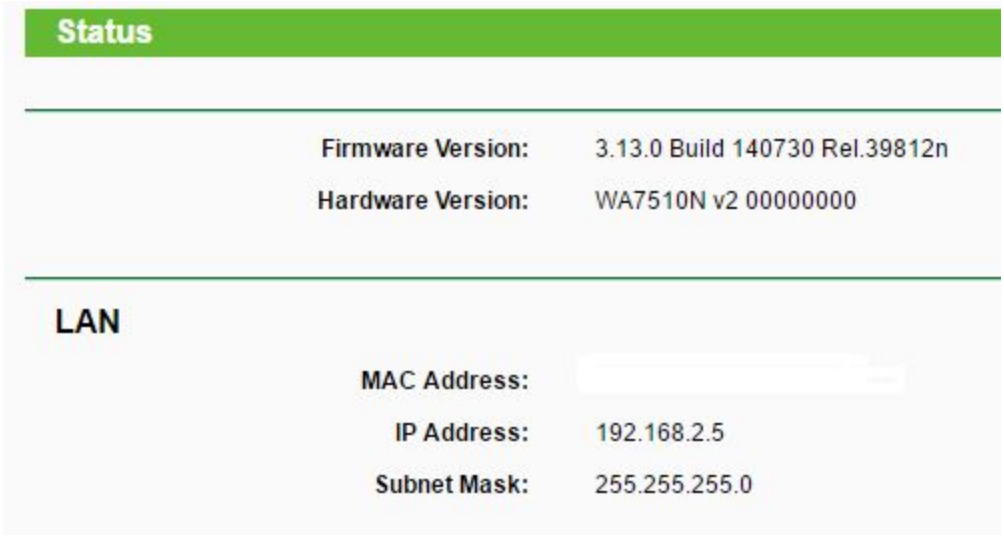
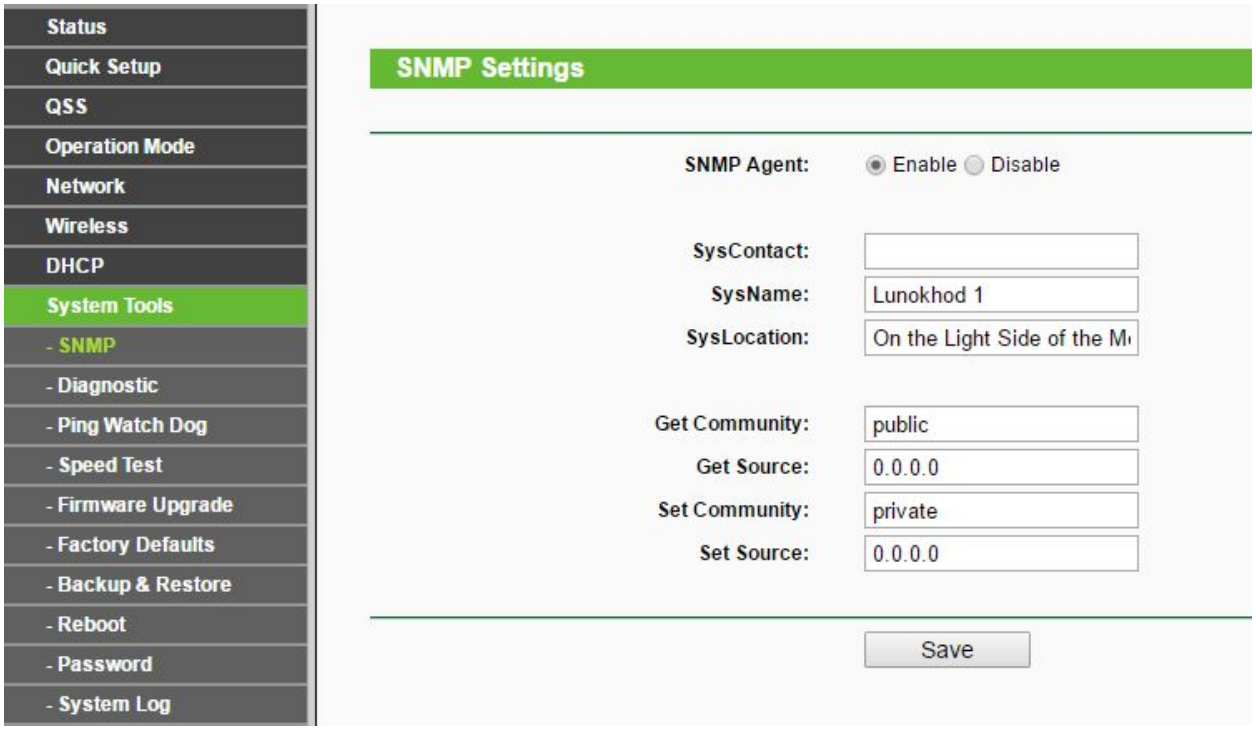
Prerequisites:

Wi-Fi Radios: 2 x TP-LINK WA7510 v2

- Both radios must be on the 192.168.2.0/24 subnet and accessable
- The provider side radio must have an IP address of 192.168.2.5
- The client side radio must have an IP address of 192.168.2.6



- Both radios must have SNMP enabled.



LMS Server Operating System: Raspbian Jessie running on a Raspberry Pi

LMS Server Network

- Same subnet as the Wi-Fi radios
- LMS is not intended to be run on a publicly accessible machine. It should be installed on a machine in a private network.

Automatic Installation

Automatic installation should be used on a new installation of Raspbian.

Install Git

```
sudo apt-get update
sudo apt-get install git
```

Clone the Repository

```
sudo mkdir /183LMS
sudo chown pi:pi /183LMS # Where pi is your username
cd /
git clone https://github.com/183LMS/183LMS
```

Run the Installer

```
cd /183LMS
./install.sh
```

If prompted for the MySQL root user password, enter “rootpass”

Run the Server

To start a rails server daemon, run the following:

```
cd /183LMS/website
rails server -d
```

The application is now bound to port 3000 on the LMS server.

Wait 5 minutes to allow the LMS to collect statistics.

To verify the website is running, visit http://[192.168.2.x]:3000/ with a web browser, where 192.168.2.x is the IP address of the LMS server.

Manual Installation

Clone the Repository

```
sudo mkdir /183LMS
sudo chown pi:pi /183LMS # Where pi is your username
cd /
git clone https://github.com/183LMS/183LMS
```

Install Required Packages

The NMS server requires the following packages:

- mysql-server
- ruby-rails
- snmp
- snmpd
- python-mysqldb
- git
- libmysqlclient-dev

To install the packages, run the following on the NMS server:

```
sudo apt-get update
sudo apt-get install mysql-server ruby-rails snmp \
snmpd python-mysqldb git libmysqlclient-dev
```

When prompted for the MySQL root user password, enter “rootpass”

Set Up Database

To create database tables, run the following:

```
mysql -u root -prootpass < /183LMS/setup_db.sql
```

Set Up Cron Jobs

To setup the cron jobs that grab statistics from the Wi-Fi radios, open /etc/crontab as root with a text editor, and add the following lines to the crontab:

```
*  *    * * *   root    /183LMS/lms_ping.pl
*  *    * * *   root    /183LMS/lms_asnmp.pl && /cs183/update_cumulative.py atable
*  *    * * *   root    /183LMS/lms_bsnmp.pl && /cs183/update_cumulative.py btable
```

Start Up Ruby On Rails App

To install the required Ruby gems, run the following:

```
cd /183LMS/website
bundle install
```

To start a rails server daemon, run the following:

```
cd /183LMS/website
rails server -d
```

The application is now bound to port 3000 on the LMS server.

Wait 5 minutes to allow the LMS to collect statistics.

To verify the website is running, visit http://[192.168.2.x]:3000/ with a web browser, where 192.168.2.x is the IP address of the LMS server.