

# SQM-LE Perl logging and plotting script

## Description

The SQM-LE Perl logging and plotting script has been tested under Linux and Windows.

This script gathers readings from one or more SQM-LE devices once per execution or at a programmable interval and stores them into daily log files.

After each reading, a GIF plot file is generated of the last 24 hours. This file is suitable to be displayed in a web browser.

The current readings and best in 24 hours can be displayed on the plot image.

## Windows installation

Two special programs are required to make this script work:

1. Perl, a free open source and free programming language
2. Gnuplot, a free open source plotting system

## Check connection

Before installing any program, confirm that your computer has access to the SQM-LE from a DOS window, by using the ping command.

1. Using the SQM-LE manual, determine the IP address that your SQM-LE was installed to.
2. Open a DOS command windows and type:
3. `ping IP` (*where IP is the IP address that you determined in the previous step*)
4. You should get a response indicating a "Reply from ..."
5. If the computer complains about the ping command not being found, it is usually located in `C:\WINDOWS\System32`

## Perl installation

Install the latest version of Strawberry Perl from this site:

<http://strawberryperl.com/>

Strawberry Perl is a distribution of Perl that seems to work best for the requirements of the SQM-LE Perl script. Strawberry Perl comes complete with a working version of CPAN (required for other modules).

From the START menu, select:

Programs

Strawberry Perl

Select CPAN and then type in the terminal box:

```
install DateTime
```

If you encounter "make test" errors, the PATH to Perl may be wrong, reboot or check the "test" error and ensure the DOS PATH environment variable contains the correct entry.

In some cases, the above installation might fail. In the case of a failure, try the following:

```
install DateTime::Locale
```

```
install DateTime::TimeZone
```

During the installation, if asked, answer `yes` to installing the few other supporting packages.

When done, type:

```
quit
```

## ***Gnuplot installation***

Install the Graphics plotting installation:

You can find details at:

<http://www.gnuplot.info/>

or directly download from here:

<http://sourceforge.net/projects/gnuplot/files/>

Download `gp426win32.zip` or newer

Extract files to `C:\gnuplot`

Go to `C:\gnuplot\bin`

```
copy wgnuplot.exe gnuplot.exe
```

add Gnuplot to the DOS path as follows:

START

SETTINGS

CONTROL\_PANEL

SYSTEM

ADVANCED

ENVIRONMENT VARIABLES

SYSTEM VARIABLES: PATH: EDIT

add the following to the end of the edited path:

```
;C:\gnuplot\bin
```

Click OK/ACCEPT until that Control panel is closed.

## Configuration

1. The end of the `sqmlelp.txt` file is where your configuration should start. Edit this file to suit your logging and plotting needs. The beginning of the file is documented with examples.

## Test operation

From a DOS terminal window, type:

```
perl sqmlelp.pl -v -n1
```

You should see one line of response from your SQM-LE, then be returned back to then DOS prompt.

Get a directory listing to ensure that a new sub-directory was created to contain your log files. This subdirectory will have the name that was defined in the `Host` section of the `sqmlelp.txt` file.

Also a graphics file `sqmleg.gif` should be available. Use a web browser to inspect this plot.

## Startup

To make sure that the script starts when you computer starts up, put a shortcut to the startup batch file in the startup folder. This file should contain one command to start the script:

```
start perl sqmlelp.pl -n0
```

Make sure that the batch file is started from the directory that the Perl script file `sqmlelp.pl` was installed.

## Linux Installation

The Linux installation is similar to Windows installation described above.

Also, a `cron` entry can be made to execute the logging/plotting script at regular intervals.

## Troubleshooting

The Perl script file creates temporary files which are left in place and can be examined afterwards to determine if the commands are being interpreted as you expected. These files are:

| Filename                 | Description  |
|--------------------------|--|
| <code>tmpdata.txt</code> | The file containing all points to be plotted                 |
| <code>tmpplot.txt</code> | The file containing the gnuplot commands for plotting.       |
| <code>tmpftp.txt</code>  | FTP command file created for transferring plot to a web site |

Also, the Perl script file `sqmlelp.pl` can be viewed and edited with a simple text editor.