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 every 6 minutes 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. Copy the sample configuration file (`sqmlp.cnf.sample`) to `sqmlp.cnf`
2. Edit `sqmlp.cnf` to suit your logging and plotting needs. The file is documented with examples. The end of the file is where your configuration should start.

Test operation

From a DOS terminal window, type:
```
perl sqmlp.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 endure that a new sub-directory was created to contain your log files.

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 just contains one command to start the script:

```
start perl sqmlp.pl
```

Linux Installation

Similar to Windows installation.

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
`tmpdata.txt`	The file containing all points to be plotted
`tmpplot.txt`	The file containing the gnuplot commands for plotting.
`tmpftp.txt`	FTP command file created for transferring plot to a web site

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