
oxitopdump Documentation

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oxitopdump is a small suite of utilities for extracting data from an OxiTop data logger via a serial (RS-232) port and dumping it to a specified file in various formats. Options are provided for controlling the output, and for listing the content of the device.

Contents

1.1 Installation

oxitopdump is distributed in several formats. The following sections detail installation on a variety of platforms.

1.1.1 Pre-requisites

oxitopdump depends primarily on [pyserial](#). If you wish to use the GUI you will also need [PyQt4](#) installed.

Additional optional dependencies are:

- [xlwt](#) - required for Excel writing support
- [matplotlib](#) - required for graphing support

1.1.2 Ubuntu Linux

For Ubuntu Linux it is simplest to install from the PPA as follows:

```
$ sudo add-apt-repository ppa://waveform/ppa
$ sudo apt-get update
$ sudo apt-get install oxitopdump
```

Development

If you wish to develop oxitopdump, you can install the pre-requisites, construct a virtualenv sandbox, and check out the source code from subversion with the following command lines:

```
# Install the pre-requisites
$ sudo apt-get install python-matplotlib python-xlwt python-qt4 python-virtualenv python-sphinx m

# Construct and activate a sandbox with access to the packages we just
# installed
$ virtualenv --system-site-packages sandbox
$ source sandbox/bin/activate

# Check out the source code and install it in the sandbox for development and testing
$ git clone https://github.com/waveform80/oxitopdump.git
$ cd oxitopdump
$ make develop
```

1.1.3 Microsoft Windows

On Windows, it is probably simplest to install one of the pre-built Python distributions that includes matplotlib like the [Enthought Python Distribution](#) or [Python \(x,y\)](#) (both of these include matplotlib and PyQt4), then start a command window from within the environment and use the following command:

```
$ pip install oxitopdump
```

1.1.4 Apple Mac OS X

XXX To be written

1.1.5 Other Platforms

If your platform is *not* covered by one of the sections above, oxitopdump is available from PyPI and can therefore be installed with the distribute `pip` tool:

```
$ pip install oxitopdump
```

Theoretically this should install pre-requisites, but certain things like PyQt4 require installation steps not supported by the pip installer and might therefore require manual installation steps beforehand.

1.2 oxi toplist

This utility lists the sample results stored on a connected OxiTop Data Logger. If bottle-serial values are specified, the details of those bottles and all heads attached to them will be displayed, otherwise a list of all available bottle serials provided. The bottle-serial values may include *, ?, and [] wildcards.

1.2.1 Synopsis

```
$ oxi toplist [options] [bottle-serial]...
```

1.2.2 Description

--version

show program's version number and exit

-h, --help

show this help message and exit

-q, --quiet

produce less console output

-v, --verbose

produce more console output

-l LOGFILE, --log-file=LOGFILE

log messages to the specified file

-D, --debug

enables debug mode (runs under PDB)

-p PORT, --port=PORT

specify the port which the OxiTop Data Logger is connected to. This will be something like /dev/ttyUSB0 on Linux or COM1 on Windows

- r, --readings**
if specified, output readings for each head after displaying bottle details
- a, --absolute**
if specified with `--readings`, output absolute pressure values instead of deltas against the first value
- m POINTS, --moving-average=POINTS**
if specified with `--readings`, output a moving average over the specified number of points instead of actual readings

1.2.3 Examples

The basic usage of `oxitoplist` is to dump a list of the bottles stored on the connected device:

```
$ oxitoplist -p /dev/ttyUSB0
```

Serial	ID	Started	Finished	Complete	Mode	Heads
110222-06	999	2011-02-22	2011-03-08	Yes	Pressure 14d	1
121119-03	3	2012-11-19	2012-11-22	Yes	Pressure 3d	1
120323-01	1	2012-03-23	2012-04-20	Yes	Pressure 28d	2

3 results returned

If one or more *bottle-serial* numbers are listed on the command line (which may include wildcards), the details of the bottles listed are output instead:

```
$ oxitoplist -p /dev/ttyUSB0 12*
```

Serial	121119-03
ID	3
Started	2012-11-19 13:53:04
Finished	2012-11-19 13:53:04
Readings Interval	0:12:00
Completed	Yes
Mode	Pressure 3d
Bottle Volume	510.0ml
Sample Volume	432.0ml
Dilution	1+0
Desired no. of Values	360
Actual no. of Values	0
Heads	1
Serial	120323-01
ID	1
Started	2012-03-23 17:32:23
Finished	2012-03-23 17:32:23
Readings Interval	1:52:00
Completed	Yes
Mode	Pressure 28d
Bottle Volume	510.0ml
Sample Volume	432.0ml
Dilution	1+0
Desired no. of Values	360
Actual no. of Values	361
Heads	2

The `-r` option can be used to include the readings from selected bottles. These are excluded by default as it's probably more useful to use `oxitopdump` for those purposes:

```
$ oxitoplist -p /dev/ttyUSB0 -r 110222-06
```

Serial	110222-06
ID	999

```

Started                2011-02-22 16:54:55
Finished               2011-02-22 16:54:55
Readings Interval      0:56:00
Completed              Yes
Mode                   Pressure 14d
Bottle Volume          510.0ml
Sample Volume          432.0ml
Dilution              1+0
Desired no. of Values  360
Actual no. of Values   361
Heads                  1

```

```

                                Head
Timestamp                     60108
-----
2011-02-22 16:54:55 0.0
2011-02-22 17:50:55 -5.0
2011-02-22 18:46:55 -5.0
2011-02-22 19:42:55 -5.0
2011-02-22 20:38:55 -5.0
2011-02-22 21:34:55 -5.0
2011-02-22 22:30:55 -6.0
2011-02-22 23:26:55 -5.0
2011-02-23 00:22:55 -5.0
...
2011-03-08 11:18:55 -8.0
2011-03-08 12:14:55 -8.0
2011-03-08 13:10:55 -8.0
2011-03-08 14:06:55 -8.0
2011-03-08 15:02:55 -8.0
2011-03-08 15:58:55 -9.0
2011-03-08 16:54:55 -8.0

```

Readings are always given in chronological order and are delta readings by default. If you want the absolute pressure readings, use the `-a` option.

1.3 oxitopdump

This utility dumps the sample readings stored on a connected OxiTop Data Logger to files in CSV or Excel format. If bottle-serial values are specified, the details of those bottles and all heads attached to them will be exported, otherwise a list of all available bottles is exported. The bottle-serial values may include `*`, `?`, and `[]` wildcards. The filename value may include references to bottle attributes like `{bottle.serial}` or `{bottle.id}`.

1.3.1 Synopsis

```
$ oxitopdump [options] [bottle-serial]... filename
```

1.3.2 Description

```

--version
    show program's version number and exit

-h, --help
    show this help message and exit

-q, --quiet
    produce less console output

```

- v, --verbose**
produce more console output
- l LOGFILE, --log-file=LOGFILE**
log messages to the specified file
- D, --debug**
enables debug mode (runs under PDB)
- p PORT, --port=PORT**
specify the port which the OxiTop Data Logger is connected to. This will be something like /dev/ttyUSB0 on Linux or COM1 on Windows
- a, --absolute**
if specified, export absolute pressure values instead of deltas against the first value
- m POINTS, --moving-average=POINTS**
if specified, export a moving average over the specified number of points instead of actual readings
- H, --header**
if specified, a header row will be written in the output file
- R, --row-colors**
if specified, alternate row coloring will be used in the output file (.xls only)
- C DELIMITER, --column-delimiter=DELIMITER**
specifies the column delimiter in the output file. Defaults to , (.csv only)
- L LINETERMINATOR, --line-terminator=LINETERMINATOR**
specifies the line terminator in the output file. Defaults to dos (.csv only)
- Q QUOTECHAR, --quote-char=QUOTECHAR**
specifies the character used for quoting strings in the output file. Defaults to " (.csv only)
- U QUOTING, --quoting=QUOTING**
specifies the quoting behaviour used in the output file. Defaults to minimal (.csv only). Can be none, all, minimal, or nonnumeric
- T TIMESTAMP_FORMAT, --timestamp-format=TIMESTAMP_FORMAT**
specifies the formatting of timestamps in the output file. Defaults to %Y-%m-%d %H:%M:%S (.csv only)

1.3.3 Examples

When *oxitopdump* is invoked without specifying a *bottle-serial* the list of bottles will be exported to the specified filename. Typically you will want to use *oxitoplist* to discover the content of the connected device before exporting the readings for a specific bottle like so:

```
$ oxioplist -p /dev/ttyUSB0
Serial  ID  Started    Finished    Complete Mode           Heads
-----  -  -
110222-06 999 2011-02-22 2011-03-08 Yes      Pressure 14d 1
121119-03 3    2012-11-19 2012-11-22 Yes      Pressure 3d 1
120323-01 1    2012-03-23 2012-04-20 Yes      Pressure 28d 2

3 results returned
$ oxiopdump -p /dev/ttyUSB0 120323-01 readings.csv
$ cat readings.csv
0,2012-03-23 17:32:23,0:00:00,0.0,0.0
1,2012-03-23 19:24:23,1:52:00,-12.0,-5.0
2,2012-03-23 21:16:23,3:44:00,-13.0,-5.0
3,2012-03-23 23:08:23,5:36:00,-13.0,-5.0
4,2012-03-24 01:00:23,7:28:00,-13.0,-5.0
...
357,2012-04-20 11:56:23,"27 days, 18:24:00",-16.0,-8.0
358,2012-04-20 13:48:23,"27 days, 20:16:00",-17.0,-8.0
```

```
359,2012-04-20 15:40:23,"27 days, 22:08:00",-17.0,-9.0
360,2012-04-20 17:32:23,"28 days, 0:00:00",-16.0,-8.0
```

If you specify multiple *bottle-serials* or if you specify a *bottle-serial* with wildcards which matches multiple bottles, you will need to specify a filename containing a substitution template like `{bottle.serial}` so that each bottle is output to a unique file. For example:

```
$ oxitopdump -p /dev/ttyUSB0 12* readings_{bottle.serial}.xls
$ ls *.xls
readings_120323-01.xls  readings_121119-03.xls
```

Various options are provided for customizing the output of the formats available. For example, to include a header row and force space separation:

```
$ oxitopdump -p /dev/ttyUSB0 -H -D " " 11* test.csv
$ head test.csv
No. Timestamp Offset "Head 60108"
0 "2011-02-22 16:54:55" 0:00:00 0.0
1 "2011-02-22 17:50:55" 0:56:00 -5.0
2 "2011-02-22 18:46:55" 1:52:00 -5.0
3 "2011-02-22 19:42:55" 2:48:00 -5.0
4 "2011-02-22 20:38:55" 3:44:00 -5.0
5 "2011-02-22 21:34:55" 4:40:00 -5.0
6 "2011-02-22 22:30:55" 5:36:00 -6.0
7 "2011-02-22 23:26:55" 6:32:00 -5.0
8 "2011-02-23 00:22:55" 7:28:00 -5.0
```

1.4 License

This file is part of oxitopdump.

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Indices and tables

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