

TiltMeter Engineering Data

These are raw uncalibrated data that mark SPIKE and NTPSYS occurrence of .apt files and they are a product of a middleware driver. The .eng files is not something RBR generates. These .eng files only contain NTPSYNC entries and SPIKE entries. The NTPSYNC entries indicate when the tiltmeter's internal clock synchronizes to the NTP server (specified in the tiltmeter's configuration). These NTP synchronizations occur about once per minute. The SPIKE entries indicate a non-deterministic event of a large spike in the APT data.

The document describing file format of .apt files can be found at [75](#)

Oceans 3.0 API filter: dataProductCode=ENG

RBR manufacturer data sheet: <http://rbr-global.com/wp-content/uploads/2017/10/0005642revA-RBRconcerto-APT.pdf>



General file format description: <https://docs.rbr-global.com/apt>

Formats

Format is .eng, consisting of comma-separated numeric values as shown in the section below. The file names file extension .eng.

Oceans 3.0 API filter: extension=eng

Examples

A sample .eng file would look as follows:

```
10/31/2019 11:26:47.634, #NTPSYNC, 2019-10-31 11:26:47.496, 2000-01-21 16:15:50.150, 624049857346
10/31/2019 11:27:56.753, #NTPSYNC, 2019-10-31 11:27:56.697, 2000-01-21 16:16:59.350, 624049857347
10/31/2019 11:29:06.573, #NTPSYNC, 2019-10-31 11:29:06.446, 2000-01-21 16:18:09.100, 624049857346
10/31/2019 11:30:16.390, #NTPSYNC, 2019-10-31 11:30:16.197, 2000-01-21 16:19:18.850, 624049857347
10/31/2019 11:31:25.502, #NTPSYNC, 2019-10-31 11:31:25.446, 2000-01-21 16:20:28.100, 624049857346
10/31/2019 11:32:35.218, #NTPSYNC, 2019-10-31 11:32:35.096, 2000-01-21 16:21:37.750, 624049857346
10/31/2019 11:33:06.214, #SPIKE, 2019-10-31 11:33:05.446, 2000-01-21 16:22:08.100, 29732631.482183933,
30199103.914201259, 31094318.004325032, 5782788.656651974, 28667137.911543253, 5853620.592970401
10/31/2019 11:33:06.214, #SPIKE, 2019-10-31 11:33:05.496, 2000-01-21 16:22:08.150, 29732631.007209420,
30199104.594066739, 31094317.408278584, 5764074.071776122, 28667137.818410992, 5853620.599955321
```

Each line contains the following information for SPIKE events:

1	Timestamp of middleware	YYYY-MM-DD HH:MM:SS.sss format.	The timestamp that the middleware reports.
2	Event Type	SPIKE	These events are extracted from the .apt files
3	Logger time NTP time corrected	YYYY-MM-DD HH:MM:SS.sss format.	The time that the internal logger reports corrected with the latest NTP offset.
4	Logger time	YYYY-MM-DD HH:MM:SS.sss format.	The time that the internal logger reports. Drift should be ± 60 s/year.
5	Accelerometer X period (picoseconds)	Double precision (64 bit) floating point number.	The period of the X (first) channel of the triaxial accelerometer.

6	Accelerometer Y period (ps)	Double precision (64 bit) floating point number.	The period of the Y (second) channel of the triaxial accelerometer.
7	Accelerometer Z period (ps)	Double precision (64 bit) floating point number.	The period of the Z (third) channel of the triaxial accelerometer.
8	Accelerometer temperature period (ps)	Double precision (64 bit) floating point number.	The period of the temperature (fourth) channel of the triaxial accelerometer.
9	BPR pressure period (ps)	Double precision (64 bit) floating point number.	The period of the pressure (first) channel of the BPR.
10	BPR temperature period (ps)	Double precision (64 bit) floating point number.	The period of the temperature (first) channel of the BPR.

Each line contains the following information for NTPSYNC events:

1	Timestamp of middleware	YYYY-MM-DD HH:MM:SS.sss format.	The timestamp that the middleware reports.
2	Event Type	NTPSYNC	This corresponds to NTP synchronization events
3	Logger time NTP time corrected	YYYY-MM-DD HH:MM:SS.sss format.	The time that the internal logger reports corrected with the latest NTP offset.
4	Logger time	YYYY-MM-DD HH:MM:SS.sss format.	The time that the internal logger reports. Drift should be ± 60 s/year.
5	NTP offset	ms	New NTP offset in milliseconds

Sample for download: [RBRTILTMETERACCBPR63055_20181022T090159.030Z.eng](#)