



Specification Extended Telemotive Trace File

XTMT

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Change index

Version	Date	Modification	Author
1.0	16.12.2011	First version	Mvp
1.1	19.12.2011	Added internal TMT version	mvp
1.1.0	26.07.2012	Corrected scribal error	mvp
1.1.1	06.06.2013	Modified XTMT file content description	mvp
1.1.2	29.01.2014	FW Release v1.9.1, Modified version of referenced tmt specification	StBu

Summary

1	Introduction	4
1.1	Target.....	4
1.2	Scope.....	4
1.3	Definitions and Abbreviation.....	4
1.4	Reference.....	4
2	Details	5
2.1	XTMT file composition.....	5
2.2	XTMT file contents.....	5
3	Format of the TraceFileMetaInfoMessage	6
3.1.1	Meta message – time span (Type 0x00).....	6
3.1.2	Meta message – time zone (Type 0x01).....	6
3.1.3	Meta message – mainboard number (Type 0x02).....	6
3.1.4	Meta message – configuration backup (Type 0x03).....	7
3.1.5	Meta message – Cascading (Type 0x04).....	7
3.1.6	Meta message – channel information (Type 0x05).....	7
3.1.7	Meta message – Event (Type 0x06).....	8
3.1.8	Meta message – data mix mode (Type 0x02).....	8

1 Introduction

1.1 Target

This document describes the composition of a XTMT file (Extended Telemotive Trace File).

1.2 Scope

Public

1.3 Definitions and Abbreviation

xtmt Extended Telemotive Trace

1.4 Reference

[1]	Telemotive Trace (TMT) File Format 3.6.0.pdf	
[2]		
[3]		

2 Details

The XTMT file is a trace file written from the blue PiraT 2 Client software. There are a few differences to the logger's origin TMT file. Those differences will be described in this section.

2.1 XTMT file composition

The basic file composition is described by the table below.

	Description	Length
Header	File identifier „TelemotiveLogFileX“	32 Byte
	XTMT file version x.y.z.a	4 Byte
	Internal TMT version	4 Byte
	Byte offset to meta data block	8 Byte
	FileTimeMessage	22 Byte
	SYS CONFIG block (optional)	n Byte
	SeparatorMessage	
	Trace data	m Byte
	Meta data block	x Byte
	Eof message	18 Byte

Table 1: basic XTMT file composition

The file identifier is “**TelemotiveLogFileX**” filled up with spaces up to 32 byte.

The first two digits of the **XTMT file version** refer to the valid specification document. The third digit points to bugfixes that don't require an update of the specification (internal use). The fourth digit is not used currently and always set to '0'.

The following 4 bytes contain the **TMT version** of included trace data. The TMT version depends on the firmware version used for capturing the trace data.

The special thing about XTMT files is the meta data block at the end of the file. After the 4 byte TMT version an 8 byte field follows that contains the byte offset within the file to the meta data block for quick access of the meta data. The offset value applies always from the absolute beginning of the file and NOT from the offset field itself.

All data following the offset field is represented by the Telemotive message format described in [1].

2.2 XTMT file contents

The logger's trace capturing is managed in several processes each writing the trace data of a number of logger interfaces to its own data stream and stored in TMT files. This leads to files containing only a subset of the loggers' interfaces' data.

For a faster and more comfortable processing of the trace data, the XTMT files include a meta data block at the end of each file. This block is also composed of several consecutive messages of type “TraceFileMetaInfoMessage” (message ID 0x0094). The different types of those messages and what kind of information they imply are described in the next chapter.

3 Format of the TraceFileMetaInfoMessage

Meta data messages are only included in XTMT files. They hold information about the file's trace data. This information is supposed to be evaluated by future blue PiraT 2 Client versions in that way that those clients are able to handle XTMT files independently from their peripheral configuration and sqlite data base files. Current client versions are not capable of doing this yet.

Description	Length
Type	1 Byte
0x00 – TimeSpan	
0x01 – TimeZone	
0x02 – MainboardNr	
0x03 – ConfigBackup	
0x04 – Cascading	
0x05 – Channel	
0x06 – Event	
0x07 – DataMixMode	
Payload, depends on type (see next section)	

Table 2: Format of a TraceFileMetaInfoMessage

3.1.1 Meta message – time span (Type 0x00)

A metadata message of type “TimeSpan” contains the start and end times of the file's trace data.

Description	Length
Start time, absolute UTC time (µs since 01.01.1970)	64 Bit
End time, absolute UTC time (µs since 01.01.1970)	64 Bit

Table 3: Meta message “TimeSpan“

3.1.2 Meta message – time zone (Type 0x01)

A metadata message of type “TimeZone” contains the logger's time zone that was configured at the moment of recording.

Description	Length
Length n of following TimeZone string	1 Byte
Time zone (string)	n Byte

Table 4: Meta message “TimeZone“

The time zone string is of following format:

WEuropeStandardTime-1YYY-2,M3.5.0/2:0:0,M10.5.0/3:0:0

A detailed description of this format is specified here:

http://www.opengroup.org/onlinepubs/9699919799/basedefs/V1_chap08.html

3.1.3 Meta message – mainboard number (Type 0x02)

A metadata message of type “MainboardNr” contains the mainboard number of the logger from which the data was downloaded.

Description	Length
mainboard number	32 Bit

Table 5: Meta message “MainboardNr“

3.1.4 Meta message – configuration backup (Type 0x03)

A metadata message from type “ConfigBackup” contains the name of the configuration backup file that contains the logger’s configuration from the date of recording.

Description	Length
Length n of the following file name	1 Byte
Backup file name	n Byte

Table 6: Meta message “ConfigBackup“

3.1.5 Meta message – Cascading (Type 0x04)

A metadata message of type “Cascading” contains information about the cascading mode of the logger at date of recording.

Description	Length
Cascading mode of logger 0 – UNDEF 1 – MASTER 2 – SLAVE 3 – MERGED	1 Byte
Time offset for slave devices	64 Bit

Table 7: Meta message “Cascading“

A time offset is only available if the logger was the slave device at time of recording. This time offset (in μ s) has to be added to the messages’ time stamp.

If type is “MERGED” this file contains data of both master and slave device, merged by the client software. Currently there is not yet a possibility of merging master and slave data with the client.

3.1.6 Meta message – channel information (Type 0x05)

A metadata message of type “Channel” indicates a logger interface from which traces are included in this file. If there is data from several interfaces in a file, several meta messages of this type succeeds.

Description	Length
Bus type 0x01 – CAN 0x02 – SERIAL 0x03 – MOST25 0x04 – FLEXRAY 0x05 – LIN 0x06 – ETHERNET 0x07 – CAMERA 0x08 – MOST150 0x09 – MOST50 0x0A – ANALOG 0x0B – CCPXCP 0x0C – GPIO	1 Byte

Channel index, starting at 0	1 Byte
sub type 0x00 - UNDEF 0x01 – CTRL, MOST control 0x02 – SYNC, MOST synchronous 0x03 – MDP, MOST Data Packet 0x04 – MEP, MOST Ethernet Packet 0x05 – HIGHSPEED, CAN high speed 0x06 – LOWSPEED, CAN low speed 0x07 – IN, Analog/GPIO Direction 0x08 – OUT, Analog/GPIO Direction	1 Byte
Data available [true/false]	1 Byte
Length (n) of the following channel name	1 Byte
Channel name	n Byte

Table 8: Meta message “Channel“

3.1.7 Meta message – Event (Type 0x06)

A metadata message of type “Event” contains information about the events included in this file.

Description	Length
Event type 0x00 – UNDEF 0x01 – STARTUP 0x02 – SHUTDOWN 0x03 – MARKER 0x04 – MARKER_CLEAR (marker counter was reset) 0x05 – INFO 0x06 – SLAVE_OFFSET (time stamp offset in μ s for data of this section in relation to the master’s data. 0x07 – SLAVE_TO_MASTER (mode change when master disappears 0x08 – DATA_DELETED (all data wasdeleted) 0x09 – TIME_SET (time was set) 0x0A – NEW_TIME (always after TIME_SET) 0x0B – SUDDEN_DEATH (power off)	1 Byte
The event’s time stamp	64 Bit
The event’s index (only used for marker)	32 Bit
Length (n) of the following comment	1 Byte
Comment (string)	n Byte

Table 9: Meta message “Event“

3.1.8 Meta message – data mix mode (Type 0x02)

A metadata message of type “DataMixMode” indicates which amount of data the file includes

Description	Length
Type 0x00 – ALL_DATA (all data, that was recorded by a logger in the trace file’s time span 0x01 – FILTERED_DATA (a sub set of all trace data that was recorded in the trace file’s time span.	1 Byte

Table 10: Meta message “DataMixMode“