

Revision history

date	revision	details
2008-04-23	2	updated lap range to start at 1 instead of 0
2008-04-14	1	fixed invalid time in field data table, minor cosmetic changes
2008-04-04	0	initial document

Introduction

Different clients have different needs, therefore Chronotrack Systems does not have a single fixed file format but offers flexibility instead. The format is easy to parse however. By use of a file-format indicator available in the first 7 bytes of a file line it is easy to distinguish a Chronotrack file from other files and you will be able to determine the file format and layout. This document describes the options and available fields in Chronotrack text files.

Available Fields

The following field data is available in Chronotrack files:

field	data type	comment
file format indicator	string 7 chars fixed	describes file format field separator, line termination and line size: see syntax described below
sequence number	unsigned integer (max. 6 digits)	range: 1 - 999999
location	string max. 16 characters	invalid chars: , ; ~ <tab> <null> since they can be used as field terminator
tag	string max. 8 characters	with Chronotrack systems, tag code is same as bib number
time	string 11-12 chars	24 hour enhanced output: 0-24h: 08:19:28.84 (11 chars) 24h+: 102:12:32.37 (12 chars)
lap count	unsigned integer (max. 3 digits)	range: 1-999
reader id	hex string 6 chars fixed	NIC specific part (4-6 th octet) of MAC address from internal reader
gator number	unsigned integer (max. 2 digits)	line segment identification must be done by using a combination of reader id and gator number

File Format Indicator

The file format indicator makes it easy to automatically identify a Chronotrack file and its formatting. It is up to 3rd party software to use this formatting logic or to only implement a single file format. If only a single format is implemented it is wise to implement the default format (CT01_13) which uses variable width lines, comma delimited field separators and <Cr><Lf> windows-style line termination.

Syntax:

CT<2 digit format number>_<2 digit format setting>

Example:

CT01_13

Comment:

This document describes format number 01. In the future other formats might become available if new technologies or functionalities become available. Format setting 13 is the default setting in Chronotrack software and means the file format is variable width, having comma separated field values and <Cr><Lf> terminated lines.

The 2 digit format setting can be used by a file parser to identify field termination, line termination and fixed or variable line width. It contains two nibbles (0-F) where the first (highest) nibble defines the field separator and the second nibble the line termination and width-mode.

The following field separator options are available:

nibble value	separator	comment
0	<none>	no separator (only available in fixed width mode)
1	,	comma
2	;	semicolon
3	~	tilde, also used as separator in the socket protocol
4		pipe
5	<tab>	
6	<space>	only available in fixed width mode

The second nibble can be calculated from the following bit options:

bit	option
1	<Cr>
2	<Lf>
3	<null>
4	Fixed width mode

Using the bit-option table the following nibble values can be calculated:

nibble value	terminator	width-mode	comment
0	-	-	not available
1	<Cr>	variable	carriage return \r Mac OS 9 style line termination
2	<Lf>	variable	line feed \n Unix / BSD style line termination
3	<Cr><Lf>	variable	carriage return + line feed \r\n MS Windows style line termination and preferred line termination used for internet protocols
4	<null>	variable	null character \0 C style string termination
5	<Cr><null>	variable	
6	<Lf><null>	variable	
7	<Cr><Lf><null>	variable	
8	<none>	fixed	no line terminators. calculate fields and lines by size of fixed width fields and, if used, the amount of field separators.
9	<Cr>	fixed	
A	<Lf>	fixed	
B	<Cr><Lf>	fixed	
C	<null>	fixed	
D	<Cr><null>	fixed	
E	<Lf><null>	fixed	
F	<Cr><Lf><null>	fixed	

Examples:

Format description:

CT01_13 = Variable width, comma delimited, carriage return + line feed terminated

Example:

```
CT01_13,1,start,12,06:08:32.02,1,0FA22E,4<Cr><Lf>
```

```
CT01_13,2,start,69,06:38:31.86,1,04BE82,2<Cr><Lf>
```

Format description:

CT01_0C = Fixed width, no field delimiter, null terminated

Example:

```
CT01_0C      1start                12 06:08:32.02  10FA22E 4<null>
```

```
CT01_0C      2start                69 06:38:31.86  104BE82 2<null>
```

Fixed width size considerations:

A default line without field separators and without line terminator is 60 characters wide. If a field separator is used the size increases by 7 (field count -1) to 67 characters. Line termination adds 1 to 3 bytes depending on the termination used. This allows us to have the following line sizes

format settings	line size	comment
CT01_08	60	no field separators no line terminators
CT01_09 CT01_0A CT01_0C	61	no field separators single byte line terminators
CT01_0B CT01_0D CT01_0E	62	no field separators double byte line terminators
CT01_0F	63	no field separators triple byte line terminators
CT01_18 - CT01_68	67	field separators no line terminators
CT01_19 – CT01_69 CT01_1A – CT01_6A CT01_1C - CT01_6C	68	field separators single byte line terminators
CT01_1B - CT01_6B CT01_1D - CT01_6D CT01_1E - CT01_6E	69	field separators double byte line terminators
CT01_1F - CT01_6F	70	field separators triple byte line terminators