Specification

A429, Log & Trigger ASC Logging Format

Version 1.0

English

vector

Imprint

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Contents

1 Introduction

In this chapter you will find the following information:

1.1 About This User Manual

To Find Information Quickly

This user manual provides you with the following access help:

> At the beginning of each chapter you will find a summary of the contents.
> The header shows in which chapter of the manual you are.
> The footer shows the version of the manual.

Conventions

In the two tables below you will find the notation and icon conventions used throughout the manual.

Style	Utilization
bold	Fields/blocks, user/surface interface elements, window- and dialog names of the software, special emphasis of terms. **[OK]** Push buttons in square brackets **File|Save** Notation for menus and menu entries
CANoe	Legally protected proper names and marginal notes.
`Source Code`	File and directory names, source code, class and object names, object attributes and values
Hyperlink	Hyperlinks and references.
<CTRL>+<S>	Notation for shortcuts.

Symbol	Utilization
	This icon indicates notes and tips that facilitate your work.
	This icon warns of dangers that could lead to damage.
	This icon indicates more detailed information.
	This icon indicates examples.

1.1.1 Certification

Quality Management System

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- by calling +49 (711) 80670-200
- by e-mail (support@vector.com)
- or by filling out our Problem Report form online.

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Beyond that Vector Informatik reserves the right to change the BLF or ASC data format respectively anytime without prior notification. Therefore, the compatibility of the format is not ensured.

2 Format

In this chapter you will find the following information:

2.1 Header

A log file in ASCII format starts with a header. The header contains general information about the logging file.

See also section 2.8 for an explanation of the symbols.

Format	`date <WeekDay> <Month> <Date> <FullTime> <Year>`
	`base <hex|dec> timestamps <absolute|relative>`
	`<""|no> internal events logged`

Example	`date Wed Apr 16 09:21:13.159 am 2014`
	`base hex timestamps absolute`
	`internal events logged`

- **base**: indicates the number system in which values are logged. It can be in hexadecimal or decimal notation
- **timestamps**: indicates whether the timestamps are written absolute to the start of the measurement or relative to the preceding event
- **internal events logged**: indicates whether internal events were logged or not

Note:

The <FullTime> is stored in milliseconds. This can be disabled by setting the flag ASCII_Format_Milliseconds = 0 in section [SYSTEM] of the CAN.INI file.

2.1.1 Version Number

Starting with CANalyzer/CANoe v7.0 a version number is written after the header in form of a comment.

Format since v7.0	`// version <major>.<minor>.<patch>`
Example	`// version 8.5.0`

- **<major>.<minor>**: denotes the CANalyzer/CANoe version number excluding the build number (e.g. v7.0, v7.1, etc…)
- **<patch>**: denotes changes version within a CANalyzer/CANoe main release (e.g. changes made in a service pack)

The `<major>.<minor>` numbers are generally increased with each new main release of CANalyzer/CANoe regardless whether changes have been made to the ASCII format or not. The <patch> number of the main release is always zero.

In service packs the `<patch>` number is increased if and only if changes and/or additions have been made to the ASCII format.

2.1.2 Split Information

Starting with CANalyzer/CANoe v7.1 split information is written in all subsequent files if a logging block is configured to split ASCII files. It is written as comment after the version number.

Format since v7.1	`// <time> previous log file: <filename>`
Example	`// 60.0000 previous log file: Inc_L1.asc`

- **<Time>**: last absolute time stamp of the previous log file
- **<filename>**: filename of the previous log file without path information

This time stamp is always absolute even if the events are logged with relative time stamps. With this information it is possible to restore the original time stamps of events logged with relative time stamps if a subsequent file is replayed.

2.2 Example

Example:

```
date Tue Oct 28 05:45:18.101 pm 2014
base hex  timestamps absolute
internal events logged
// version 8.5.0
Begin Triggerblock Tue Oct 28 05:45:18.101 pm 2014
   0.000000 Start of measurement
   0.000000 Start of measurement
   0.000000 A429 1 Status: Tx P 3 G 4 BR 100000 M 99000 X
101000
   0.000000 A429 2 Status: Rx P 3 G 4 BR 100000 M 99000 X
101000
   0.001000 A429 1 Error: T 0 R 0 S 1000 6 1 Line X X
   0.002622 A429 1               1 Tx   80 00 00 01 BR 100000
ER 0 EP 0 FG 0 FL 320000 MC 1 CT 0 BL 0
0.002624 A429 2               1 Rx   80 00 00 01 BR 100000 ER
1 EP 0 FG 0 FL 319859 MC 0 CT 0 BL 0
0.002982 A429 1               1 Tx   80 00 00 01 BR 100000 ER
0 EP 0 FG 40109 FL 320000 MC 1 CT 0 BL 0
0.002984 A429 2               1 Rx   80 00 00 01 BR 100000 ER
0 EP 0 FG 40094 FL 319984 MC 0 CT 0 BL 0
0.003342 A429 1               1 Tx   80 00 00 01 BR 100000 ER
0 EP 0 FG 40109 FL 320000 MC 1 CT 0 BL 0
0.003344 A429 2               1 Rx   80 00 00 01 BR 100000 ER
0 EP 0 FG 40094 FL 319984 MC 0 CT 0 BL 0
1.001961  A429 1 Statistic: Tx   BL 10 BR 100000 D 3 E 0 P 0 G
0 B 0 L 0 F 0 DF 0 W 0 C 0 I 0 LE 0 LC  1 3
1.001961  A429 2 Statistic: Rx   BL 10 BR 100000 D 3 E 1 P 0 G
1 B 0 L 0 F 0 DF 0 W 0 C 0 I 0 LE 0 LC  1 3
End TriggerBlock
```

2.3 A429 Events

The section lists all A429 events in CANoe/CANalyzer ASC logging. See section 2.8 for an explanation of the symbols.

- An A429 Message event is an event that is received or transmitted by an A429 channel.
- An A429 Statistic event is written every second and contains statistic information about an A429 channel. The Statistic event stores only delta changes from the last Statistic event.
- An A429 Status event stores the channel configuration information.
- An A429 Error event is a asynchronous event received for an A429 channel. The two numbers between Source Identifier and Error text in the Error event are the text length of the Error Text and Error attributes.

2.3.1 A429 Message Event

Format	`<Time> A429 <Channel> <Label> <Dir><Dx> <Dx> <Dx> <Dx> BR <StatNumber> ER <StatNumber> EP <StatNumber> FG <StatNumber> FL <StatNumber> MC <StatNumber> CT <StatNumber> BL <StatNumber>`
Example	`0.133700 A429 2 010o Tx 03 02 01 08 BR 100000 ER 0 EP 0 FG 567657016 FL 0 MC 320000 CT 0 BL 0`

- **BR**: Bit Rate
- **ER**: Error Reason (0 means no error)
- **EP**: Error Position
- **FG**: Frame Gap in nano seconds [ns]
- **FL**: Frame Length
- **MC**: Message Control
- **CT**: Cycle Time
- **BL**: Length of last Error Bit

2.3.2 A429 Statistic Event

Format	`<Time> A429 <Channel> Statistic: <Dir> BL <StatNumber> BR <StatNumber> D <StatNumber> E <StatNumber> P <StatNumber> G <StatNumber> B <StatNumber> L <StatNumber> F <StatNumber> DF <StatNumber> W <StatNumber> C <StatNumber> I <StatNumber> LE <StatNumber> LC <StatNumber> <StatNumber>`
Example	`0.134100 A429 1 Statistic: BL 500 BR 12500 D 20 E 4 P 1 B 1 G 1 L 1 F 1 DF 2 W 3 C 4 I 5 LE 6 LC 1A 12 F1 2 FF 1`

- **BL**: Words [%, Factor 0.01]
- **BR**: Bit Rate
- **D**: Data Total [fr]

- **E**: Error Total [fr]
- **P**: Parity Errors [fr]
- **G**: Gap Errors[fr]
- **B**: Bit Rate Errors [fr]
- **L**: Line Errors [fr]
- **F**: Format Errors [fr]
- **DF**: Duty Factor Errors [fr]
- **W**: Word Length Errors [fr]
- **C**: Coding Errors [fr]
- **I**: Idle Errors [fr]
- **LE**: Level Errors [fr]
- **LC**: Label Count [fr]

2.3.3 A429 Status Event

Format	`<Time> A429 <Channel> Status: <Dir> P <StatNumber> G <StatNumber> BR <StatNumber> M <StatNumber> X <StatNumber>`
Example	`0.000000 A429 1 Status: Rx P 1 G 4 BR 100000 M 99000 X 101000`

- **P**: Parity
- **G**: Minimum Gap [fr]
- **BR**: Bit Rate (0 = Auto Mode Rx) [Hz]
- **M**: Minimum Bit Rate [Hz]
- **X**: Maximum Bit Rate [fr]

2.3.4 A429 Error Event

Format	`<Time> A429 <Channel> Error: T <StatNumber> R <StatNumber> S <StatNumber> <StatNumber> <StatNumber> <ErrorText> <ErrorAttribute>`
Example	`0.001000 A429 1 Error: T 0 R 0 S 1000 6 1 Line X X`

- **T**: Error Type (0 = Error, 1 = Warning, 2 = Info)
- **R**: Error Reason
- **S**: Source Identifier

2.4 Log and Trigger Events

The section lists all Log and Trigger events in CANoe/CANalyzer ASC logging. See section 2.8 for an explanation of the symbols.

- In the Log Trigger Event can be additional information appended at the end of the line, e.g. “(this trigger was in post trigger time of last block)” or “(ignored)”.

- A Log Direct Start Event is written if the logging was started directly by the button in the measurement setup or by the CAPL function StartLogging().
- A Log Direct Stop Event is written if the logging was stopped directly by the buttons in the measurement setup or by the CAPL function StopLogging().
- A Begin Triggerblock Event is written when a trigger block begins.
- An End Triggerblock Event is an event that is written when a trigger block ends.

2.4.1 Log Trigger Event

Format	`<Time>  log trigger event`
Example	`2.0000  log trigger event`

2.4.2 Log Direct Start Event

Format	`<Time>  log direct start (<PreTrigger>ms)`
Example	`2.1100  log direct start (2000ms)`

2.4.3 Log Direct Stop Event

Format	<Time> `log direct stop (<PostTrigger>ms)`
Example	`2.1100  log direct stop (1000ms)`

2.4.4 Begin Triggerblock Event

Format	`Begin Triggerblock <WeekDay> <Month> <Date> <FullTime> <Year>`
Example	`Begin Triggerblock Mon Mar 7 01:21:51 pm 2005`

2.4.5 End Triggerblock Event

Format	`End TriggerBlock`
Example	`End TriggerBlock`

2.5 Environment Variables

The section lists the environment variable event in CANoe/CANalyzer ASC logging. See section 2.8 for an explanation of the symbol `<Time>`. See this chapter for an explanation of the other symbols.

The setting hex/dec affects the format of `<value>` for environment variables from type integer and data. Environment Variables Event is an event that is written if the value of an environment variable changed.

2.5.1 Environment Variables Event

Format	<Time> <evname> := <value>	
Examples	Int	2.130000 Int_Ev := 1
	Float	2.567000 Float_Ev := -1.125
	String	3.830000 String_Ev := "Radio sunshine live"
	Data	2.250000 Data_Ev := [41 41 41 41]

- **<evname>**: a string which contains the environment variable name
- **<value>**: the environment value as number, string or data bytes (depend on variable type) or a string from the value description table (if exists; only for integer variable type)

2.6 System Variables

The section lists the system variable event in CANoe/CANalyzer ASC logging. See section 2.8 for an explanation of the symbol <Time> and symbol <svtype>. See this chapter for an explanation of the other symbols.

The setting hex/dec affects the format of <value> for system variables from type integer. System Variable Event is an event that is written if the value of a system variable changed.

2.6.1 System Variables Event

Format	<Time> SV: <svtype> <flag> <flag> <path> = <value>	
Format (Arrays)	<Time> SV: <svtype> <flag> <flag> <path> = <valuetype><count> <value>	
Examples	Int	1.200000 SV: 2 0 0 ::NS1::IntVar = 4
	Float	1.370000 SV: 1 0 0 ::NS1::FloatVar = 4.1
	String	1.580000 SV: 3 0 0 ::NS1::StringVar = "Value: 4"
	Int array	1.690000 SV: 5 0 0 ::NS1::IntArray = A3 4 5 2
	Float array	2.000000 SV: 4 0 0 ::NS1::FloatArray = D3 4.1 2.9 6

- **<svtype>**: a number which represents the variable data type
- **<flag>**: two flags: Unused
- **<path>**: the full path (name with namespace) of the system variable
- **<value>**: the value as number or string (depend on variable data type).
- **<valuetype>**: (only for arrays) value type of elements: D: array of doubles, A: array of longs
- **<count>**:(only for arrays) size of array

2.7 Global Marker Events

The section lists the Global marker event in CANoe ASC logging. See section 2.8 for an explanation of the symbol <Time>.

A global marker event that is written if global marker is defined for a time stamp or for another event. If a global marker event is assigned to another event (set in Trace Window) it has to be written before that event. Global marker events can be written only during the export from Trace window.

2.7.1 Global Marker Event

Format	`<Time> <type> <background color> <foreground color> GMGroup: <group name> GMMarker: <marker name> GMDescription: <description>`
Example	`2.200804  0 16777215 0 1 GMGroup: Marker Group GMMarker: [1] GMDescription: description`

- **<type>**: the type of the commented event
- **<background color>**: background color of the marker group
- **<foreground color>**: foreground color of the marker group
- **<relocatable>**: defines whether the marker can be moved
- **<group name>**: the name of the marker group
- **<marker name>**: the name of the marker
- **<description>**: marker description

2.8 Symbols

Symbol	Width in Char	Description	Range
<Time>	>= 9	absolute or relative time in seconds **Note:** time is always stored in decimal with usually 6 decimal places	
<Channel>	1..2	Number of the A429 channel. **Note:** channel is always stored in decimal	0..31
<Label>	4	numeric identifier (octal base)	000o..377o
<Dir>	4	direction of transmission	Rx, Tx
<Dx>	> dec: 3 > hex: 2	data byte x **Note:** We always display the data contents of the	> dec: 0..255 > hex: 0x0..0xFF

Symbol	Width in Char	Description	Range
		ARINC word in the following order “d0 (bit 24-31) d1 (bit 16-23) d2 (bit 8-15) d3 (bit 0-7)”.	
<StatNumber>	1..10	the value of the statistic variable **Note:** symbol is always stored in decimal	> Integer: $0..2^{32}$ > Float: $0.0..3.40282^{38}$
<PreTrigger>	1..10	the pre trigger time in [ms] **Note:** symbol is always stored in decimal	0..1,316,134,911
<PostTrigger>	1..10	the post trigger time in [ms] **Note:** symbol is always stored in decimal	0..1.316.134.911
<WeekDay>	3	a string that represents a day of the week	Mon, Tue, Wed, Thu, Fri, Sat, Sun Different range in German version: Mon, Die, Mit, Don, Fre, Sam, Son
<Month>	3	a string that represents a month	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec Different range in German version: Jan, Feb, Mär, Apr, Mai, Jun, Jul, Aug, Sep, Okt, Nov, Dez
<Date>	1..2	a number that represents the date.	1..31
<FullTime>	15	a string that represents a time in the current format. hh:mm:ss.ms am|pm	00:00:00.000 … 12:59:59.999 Different range in German version: 00:00:00.000..23:59:59.999 In German version ‘am’ and ‘pm’ are not used. Therefore the width is only 12 chars.
<Year>	4	a string that represents a year.	
<svtype>	1	a number that represents the variable data type of	1..5

Symbol	Width in Char	Description	Range
		system variable: > 1: Float > 2: Integer > 3: String > 4: Array of Floats > 5: Array of Integers	
<filename>	5..255	a string that represents the filename	
<ErrorText>	0..512	a string that represents the error text	
<ErrorAttribute>	0..512	a semicolon-separated string that represents the attributes in detail view	
<ErrorReason>	1..2	a number that represents the error reason: > 0: no error > 1: Gap error > 2: Parity error > 4: Bit rate too low > 8: Bit rate too High > 16: Frame Format error > 32: Coding NRZ error	

3 Appendix A: Addresses

Addresses on Vector homepage

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