

Manual

Monitoring and Evaluating Safety Events



Keeps you ahead in automated welding

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1 Program Description

Program monitors Safety Messages from *dbHmiSafetyMessages_1095*. If some message has positive edge, actual status of machine is saved. Saved data are from *dbContext_71* and *dbMailbox_102*.

Main program is saved in folder *EventsLogging*. There are functions and data blocks.



Figure 1 – Main folder

dbStatusBlock

Here are array of structure *StatusBlock* with length 100. In one element of structure there are saved data about activated message (name, priority, time) and data about Machine. One element is considered as one log.

fbEventsLogging

Here program checks and identifies Messages, then assigns priority and call *fbWrite* for saving data.

Variable *bEraseDbStatusBlock* erases data from *dbStatusBlock* and Logs will be saved from beginning.

fbWrite

Here is creating one log. Data are read from their data block and put to one element of *StatusBlock*. Also data can be cleared here.

fbEventsStats

Here is code for statistics about frequency of priorities and age of logs.

fbWebServer

Every functional element on website has own PLC variable. Function react if some element was pressed – variable was changed. This function manages buttons *UPDATE*, *NEXT*, *PREVIOUS* and *Drop menu*.

fbWorkWithCsv

This function manages buttons from website *CREATE* and *DELETE*. Here are functions for creating and deleting *DataLogs* – csv file. Also function writes data to the *DataLog*.

2 Work with program

For access to web page or to csv file it is necessary go to webserver. Write IP address of PLC, log in.

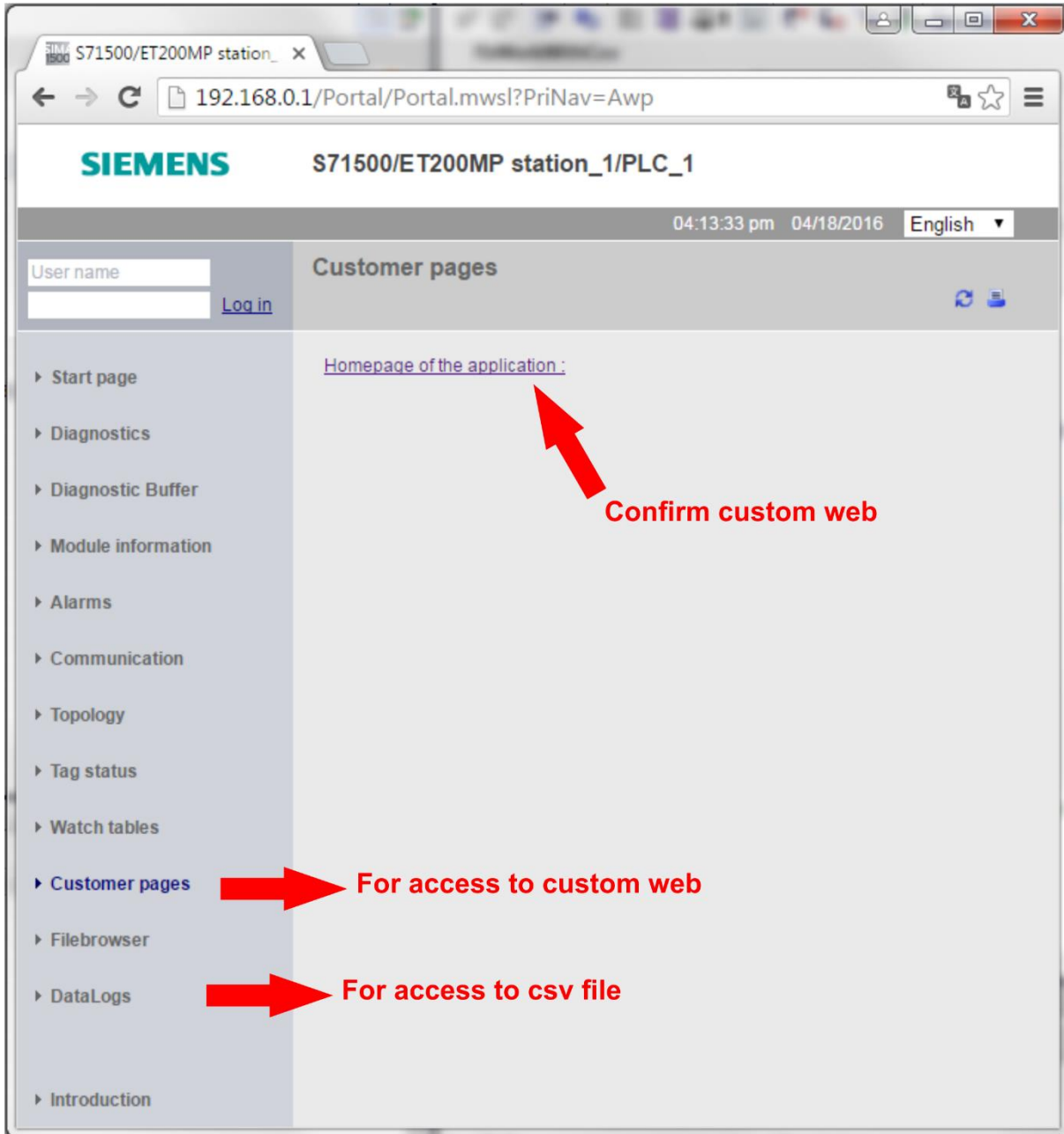


Figure 2 – Webserver

By click on name *EventsLog.csv* it will be saved to computer.

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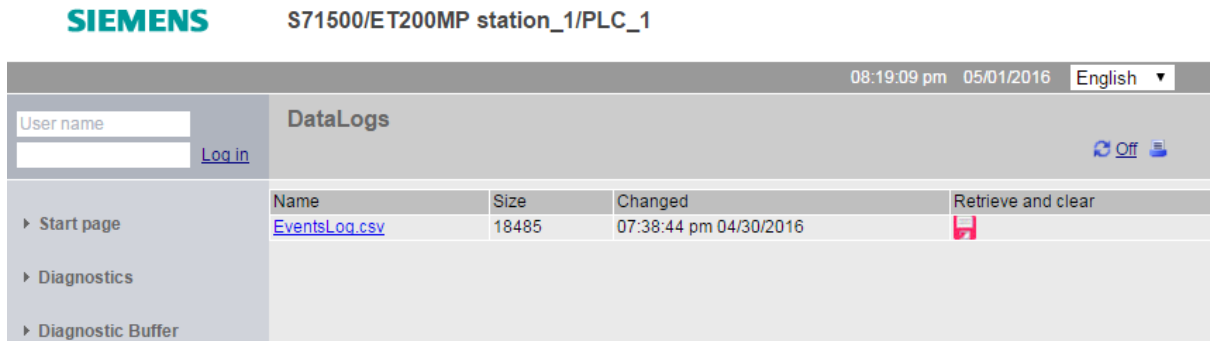


Figure 3 – cvs file on webserver

2.1 Web page

On origin web page click on button Safety Logs.

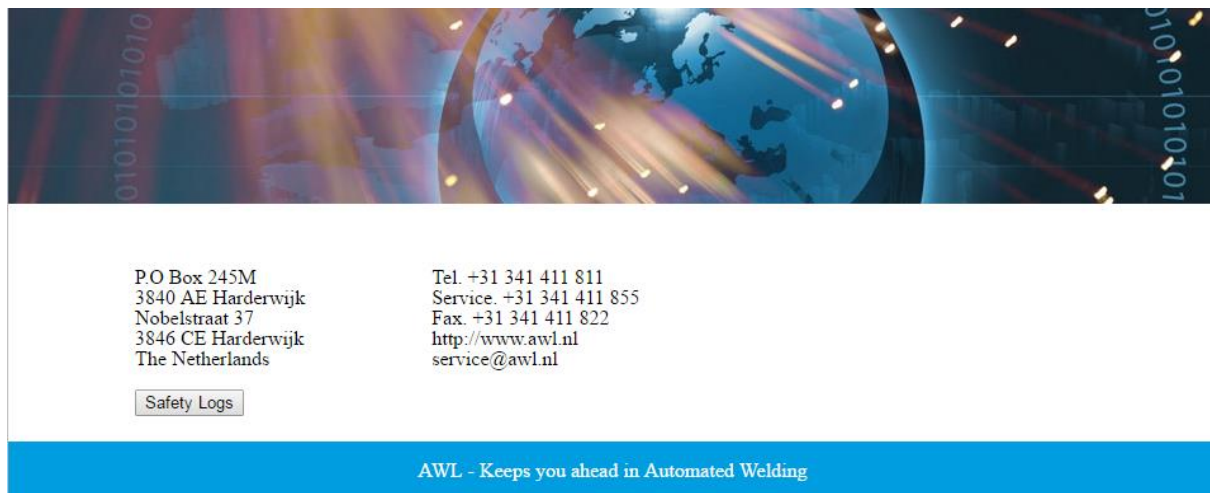


Figure 4 – Origin web page

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Safety Events Logs

EVENT INFO

Event: 1 of 5

Name: bMsgOperatorPos1HorizontalFloorAreaErrorDiscFault

Time: 2016-05-02-10:32:16.60

Priority: 3

CSV FILE

DELETE
CREATE

Age of events

1 Day	1 Week	1 Month	6 Months	1 Year	Older
5	0	0	0	0	0

Number of priorities

Priority 1	Priority 2	Priority 3
0	0	5

STATISTICS

UPDATE

MACHINE STATUS

Machine Status
bStop
bReset
bStart
bService
bAuto
bDelayedStop
bDelayedReset
bDelayedStart
bDelayedService

MAILBOXES

Mailbox	Owner	Order	Status
1: Jig at pos 1	takeout/inlay pos 1	odJigLoadProducts	stProcessing
2: Jig at pos 2	process station side	odNone	stReady
3: Jig at pos 3	onNone	odNone	stNotInitialized
4: Jig at pos 4	onNone	odNone	stNotInitialized
5: Robot controller 1	process station side	odRobotWeld	stProcessing
6: Robot controller 2	process station side	odRobotWeld	stProcessing
7: Robot controller 3	onNone	odNone	stNotInitialized
8: Robot unit 1	onNone	odNone	stReady
9: Robot unit 2	onNone	odNone	stReady

Figure 5 – Safety Events Logs page

Page is divided to 4 blocks:

Event Info

There is showing number of current log and number of all logs, Event name, time and priority.

CSV File

CREATE button will create csv file and fill it with all existing logs.

DELETE button will delete csv file.

If csv file is exist and button *CREATE* is pressed, old csv will be overwritten by new csv.

If csv file in not exist and button *DELETE* is pressed, command is ignored.

Statistics

There are tables with statistic about number of priorities and age of logs.

UPDATE button will start update variables in tables.

Machine status

In table are data from *dbContext_71*. Data are *bool* type. If variable is *true* background is green. If variable is *false* background is red. *Integer* variable is shown with number.

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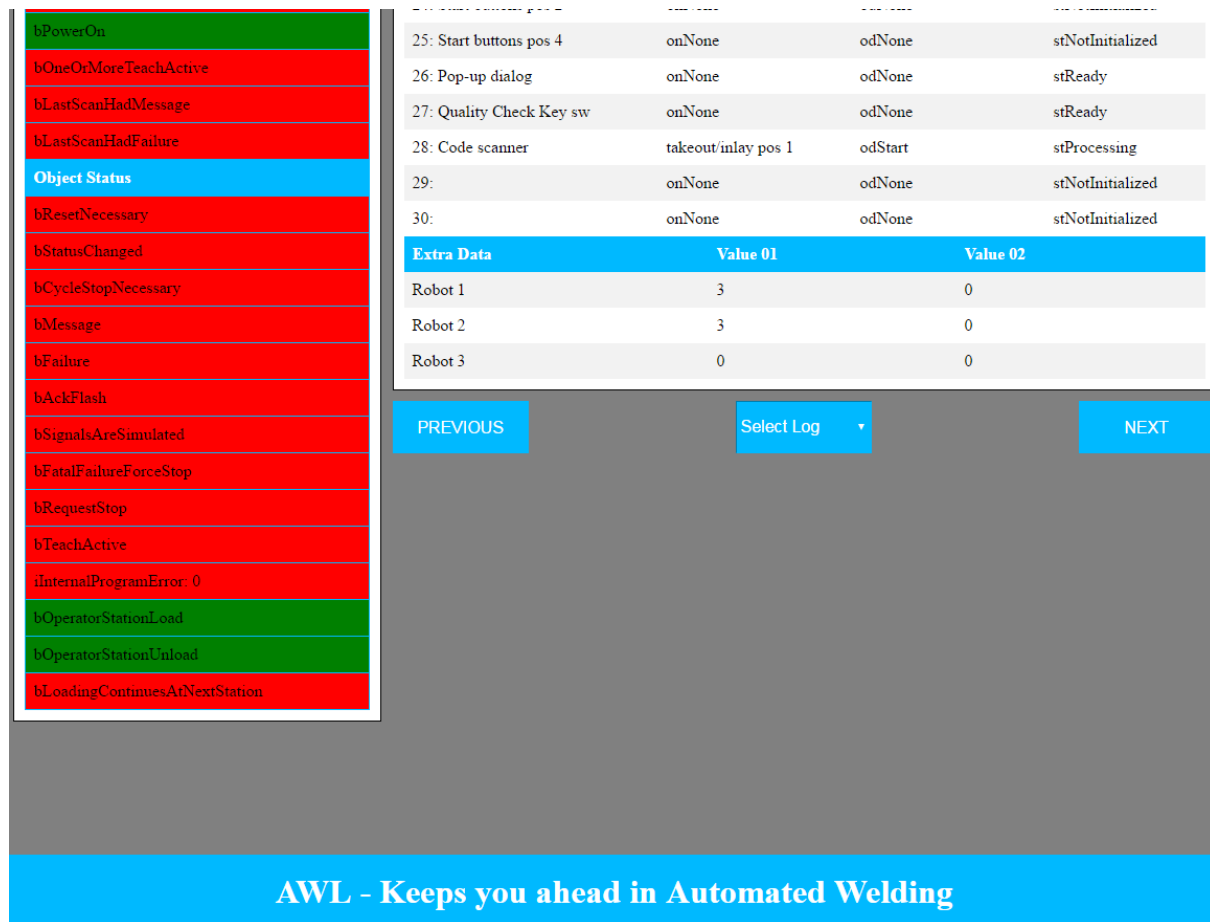
Mailboxes

In tables are data from *dbMailbox_102*. There are name of mailbox, Owner, Order and Status. There are no numbers but strings. In second table are extra data for robots 1, 2 and 3.

PREVIOUS button will show previous log from *StatusBlock*.

NEXT button will show next log from *StatusBlock*.

Select Log menu offers go to a specific log.



bPowerOn	25: Start buttons pos 4	onNone	odNone	stNotInitialized
bOneOrMoreTeachActive	26: Pop-up dialog	onNone	odNone	stReady
bLastScanHadMessage	27: Quality Check Key sw	onNone	odNone	stReady
bLastScanHadFailure	28: Code scanner	takeout/inlay pos 1	odStart	stProcessing
Object Status	29:	onNone	odNone	stNotInitialized
bResetNecessary	30:	onNone	odNone	stNotInitialized
bStatusChanged	Extra Data	Value 01	Value 02	
bCycleStopNecessary	Robot 1	3	0	
bMessage	Robot 2	3	0	
bFailure	Robot 3	0	0	
bAckFlash				
bSignalsAreSimulated				
bFatalFailureForceStop				
bRequestStop				
bTeachActive				
iInternalProgramError_0				
bOperatorStationLoad				
bOperatorStationUnload				
bLoadingContinuesAtNextStation				

Figure 6 – Safety Events Logs page 2

Website is designed to show log one by one. For a better overview of variables

2.2 CSV file

Csv file is designed to show all logs at ones.

In one column is saved one variable. One row is one log with all variables.

	A	B	C	D	E	F	G	H	I
1	SeqNo	Type of Event	Time	Priority	MS-bStop	MS-breset	MS-bStart	MS-Servic	MS-bAuto
2	1	bMsgOperatorPos1HorizontalFloorAreaErrorDiscFault	2016-05-02 10:32:16.605_747_199	3	0	0	0	0	1
3	2	bMsgButtonEmStopPressedRB3	2016-05-02 10:36:55.956_479_902	3	0	1	0	0	0
4	3	bMsgFeedbackMC_Indextable_CCW	2016-05-02 10:36:55.956_738_995	3	0	1	0	0	0
5	4	bMsgFeedbackMC_Indextable_CCW_CHA	2016-05-02 10:36:58.306_203_279	3	0	1	0	0	0
6	5	bMsgFeedbackTooling4	2016-05-02 10:41:09.239_103_995	3	0	0	0	0	1
7	//END								

Figure 7 – csv file

3 Integration

1. From folder *Program blocks* copy folder *SafetyLogging* to folder *Program blocks* into your project.

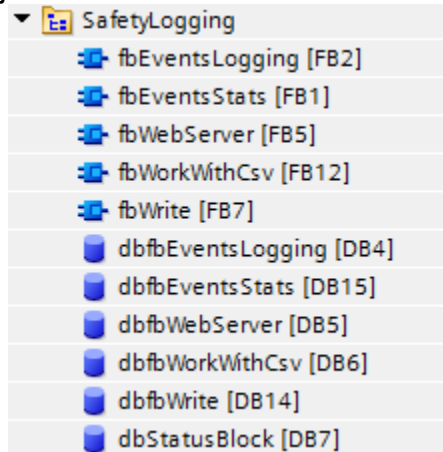


Figure 8 – Integration - SafetyLogging

2. Copy content of folder *Program resources* to the same folder in your project.

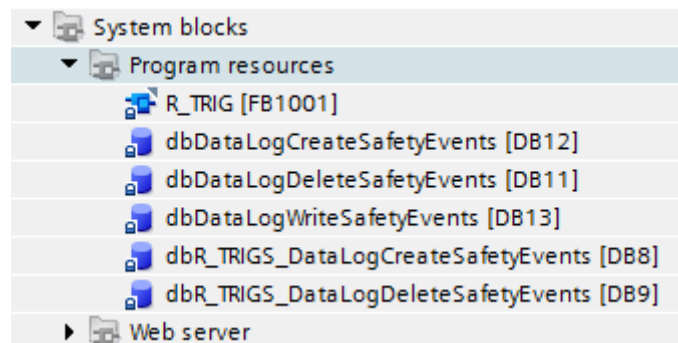


Figure 9 - Integration – Program resources

3. From folder *PLC data types* copy folder *SafetyLogging* to folder *PLC data types* into your project.

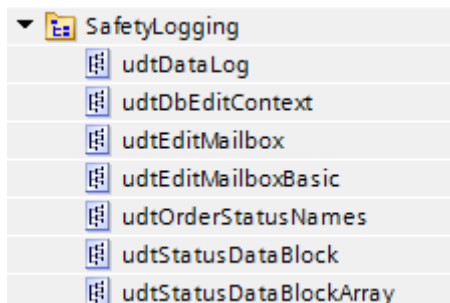


Figure 10 – Integration – PLC data types

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4. To the *Main* OB block put *fbEventsLogging*.

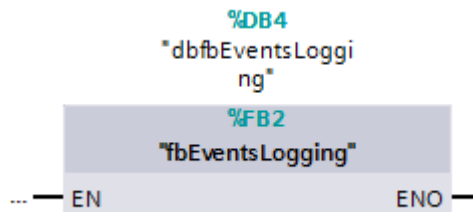


Figure 11 – Integration – Main

5. Add new number to data and functions block in *SafetyLogging* folder.

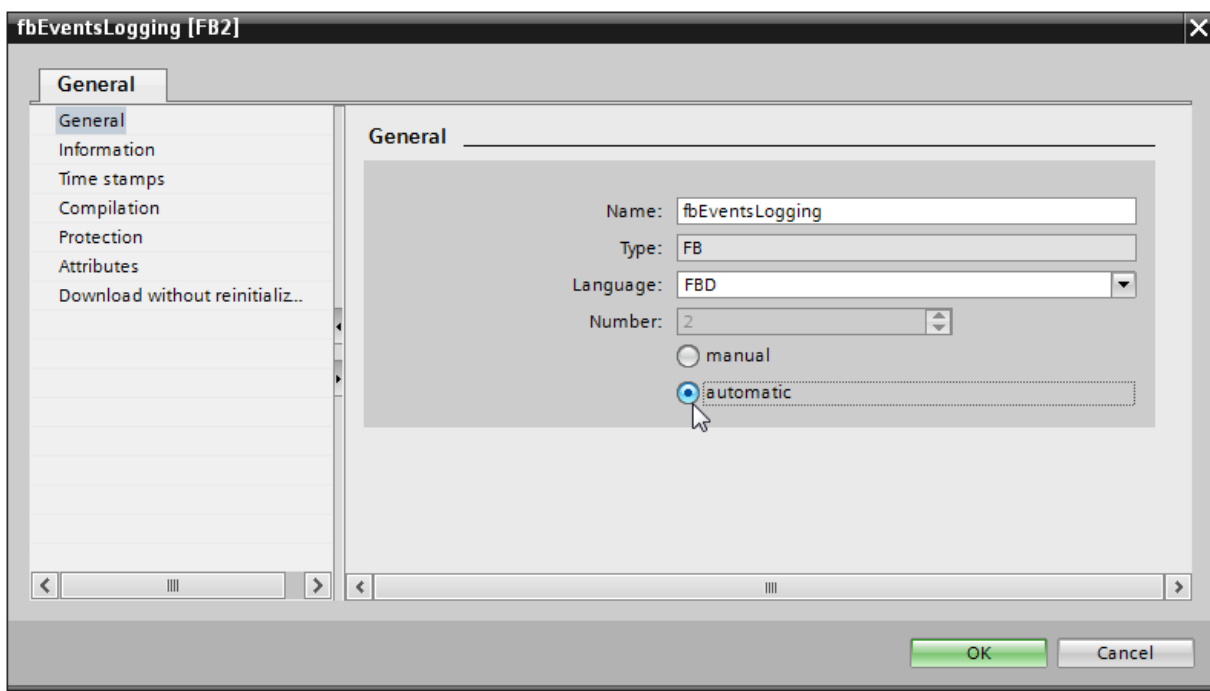


Figure 12 – Integration – Adding new number to blocks

6. Choose folder *Web2PLC Initial WithSafetyLogs* from server as User-defined Web Pages in PLC Web server.
7. For browsing logs in csv file its necessary switch list separator and Decimal symbol in Windows -> Control panel -> Region and Language -> Additional settings -> List separator ',' Decimal symbol ';'.