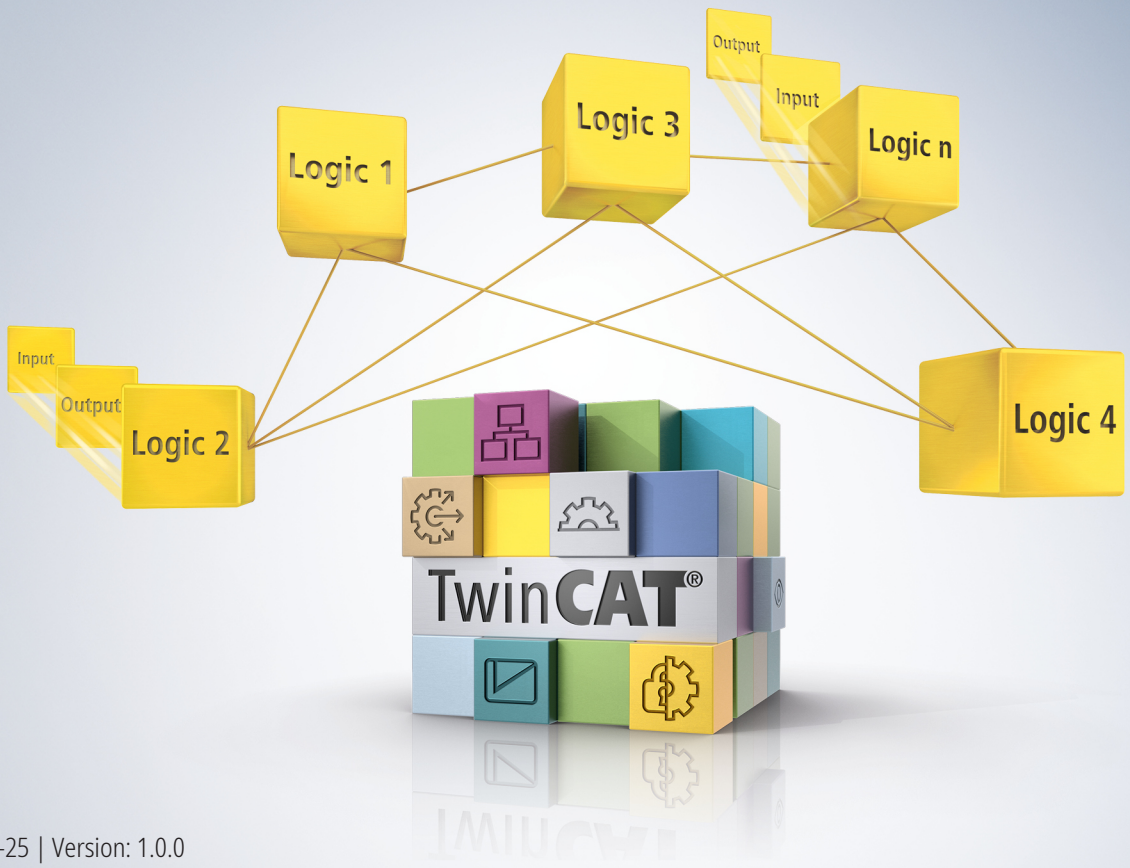
BECKHOFF New Automation Technology

TwinSAFE Tutorial 17 | EN

TwinSAFE Loader

Customizing



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1 Introduction 5
1.1 Version numbers 5
1.2 Requirements 5
1.3 Starting point 5
1.4 Demo system 6
1.4.1 Hardware 6
1.4.2 Desired functionality 6
2 Demonstration 7
2.1 Prepare Safety project 7
2.1.1 Determine CRC 7
2.1.2 Determine EtherCAT address 8
2.1.3 Export Safety project 8
2.2 Customizing 10

1 Introduction

TwinSAFE includes several innovations that bring more functionality and performance to your safety controller. A major innovation is that the functionality of the safety controller is integrated in each TwinSAFE component. This means that you can, for example, use a TwinSAFE input component both as an input component and the safety control integrated on it to use application-specific pre-processing.

This is tutorial 17 of a tutorial series.

The aim of this tutorial series is to familiarize you with the TwinSAFE innovations using individual examples.

This tutorial is about a permanent deactivation of a running TwinSAFE group via the TwinSAFE Loader.

1.1 Version numbers

Version	Comment
1.0.0	• First released version
0.0.1	• First draft

1.2 Requirements

Meet the following requirements for this tutorial:

- TwinCAT 3 version ≥ 3.x
- TwinSAFE Loader = p7
- Tutorial 16

1.3 Starting point

At the starting point of the tutorial

- a TwinCAT 3 solution exists.

1.4 Demo system

1.4.1 Hardware

The demo system of this tutorial consists of the following hardware:

- CX for EtherCAT communication and the standard PLC controller
- EL6910 as master TwinSAFE Logic
- EL1918 with safe inputs for reading light barrier signals
- Light barrier
- AX8000-x2xx
- Engineering system connected via Ethernet

1.4.2 Desired functionality

This tutorial describes the realization of the following functionality:

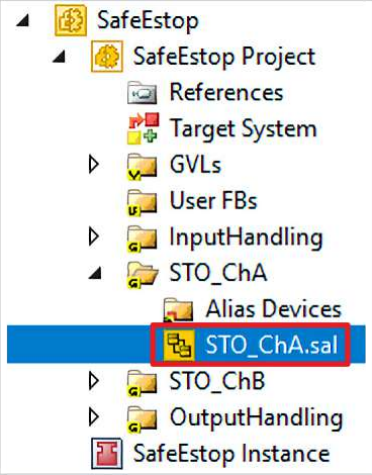
- Permanent deactivation of a TwinSAFE group with the help of customization settings in the TwinSAFE Loader.

2 Demonstration

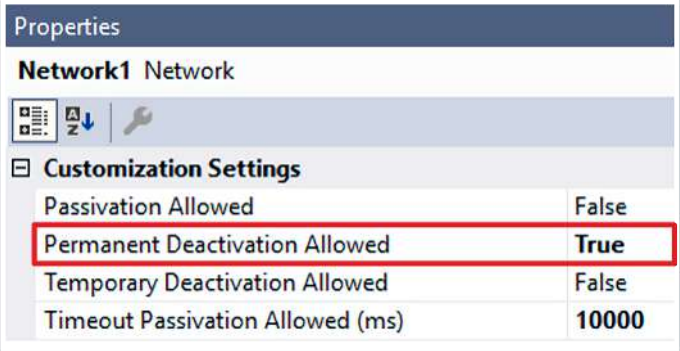
2.1 Prepare Safety project

2.1.1 Determine CRC

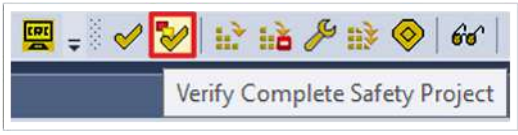
In this application, a TwinCAT 3 solution already exists with a Safety project for the demo system.



1. Open STO_ChA



You can see in the Customization Settings of the STO functionality for ChA that a permanent deactivation of the functionality is already allowed.



2. Click on “Verify Complete Safety Project” in the menu bar to verify the Safety project

3. Note CRC

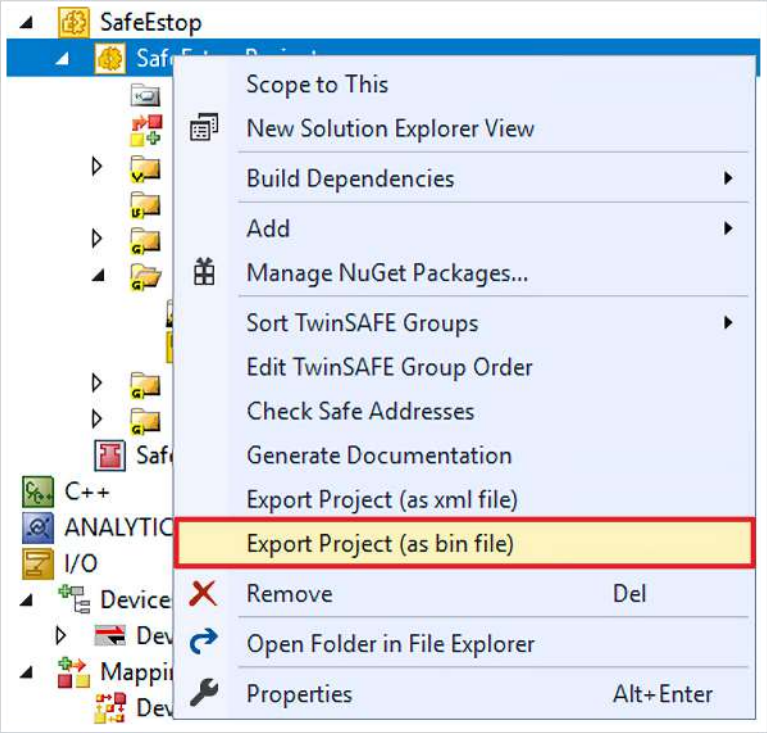
2.1.2 Determine EtherCAT address

1. Open Device 1

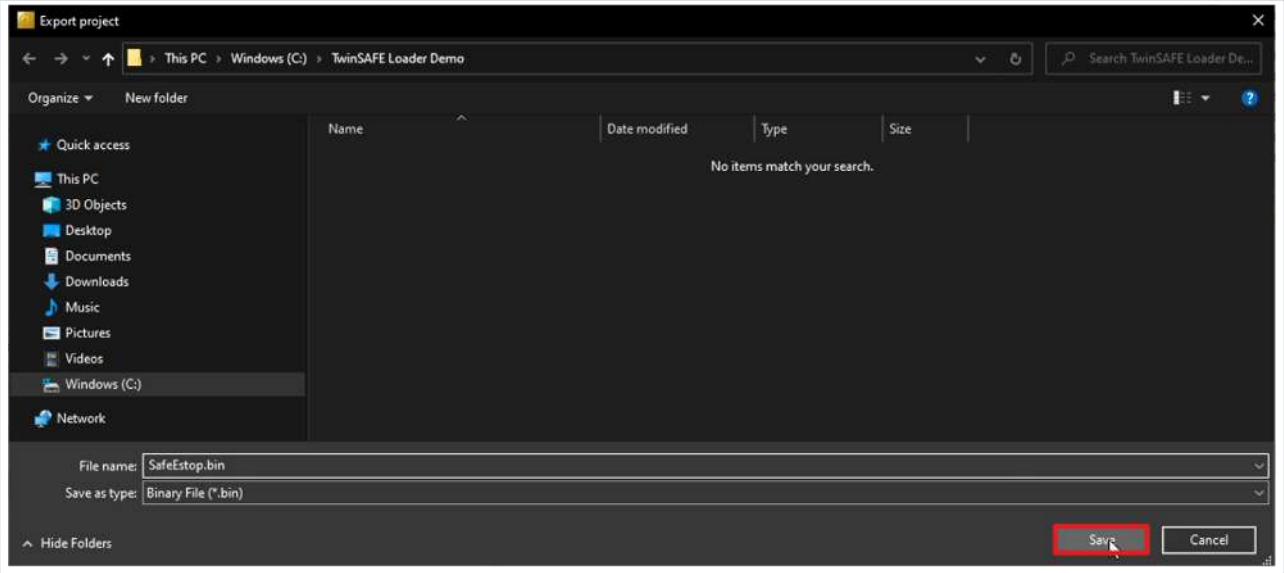
Number	Box Name	Address	Type	In Size	Out Size	E-Bus (m...
1	Term 1 (EK1200)		EK1200			
2	Term 2 (EL1918)	1001	EL1918	9.0	8.0	1835
3	Term 3 (EL6910)	1002	EL6910	15.0	17.0	1645
4	Term 4 (EK1122)	1003	EK1122			1425
5	Term 5 (AX8620-0000-01...	1004	AX8620-0000-0103	2.0		
6	Drive 6 (AX8206-0210-01...	1005	AX8206-0210-0104	32.0	32.0	1425
7	Term 7 (EL9011)		EL9011			

2. Note EtherCAT address of the EL6910

2.1.3 Export Safety project



1. Right click on the Safety project
2. Click on “Export Project (as bin file)”



3. Select location on the hard disk
4. Confirm location with “Save”

2.2 Customizing

1. Open command line

You can also start the command line via HMI or a batch file.

```
C:\TwinSAFE Loader Demo>TwinSAFE_Loader.exe --gw 192.168.100.254 --slave 1002 --list conf.csv
```

2. Download the Safety project via the command
3. Call up the TwinSAFE Loader and enter the following information
   - Gateway configuration
     ```
     --gw 192.168.100.254
     ```
   - Slave address
     ```
     --slave 1002
     ```
   - Parameter list
     ```
     --list conf.csv
     ```
4. Confirm with the enter button

```
C:\TwinSAFE Loader Demo>notepad conf.csv
```

5. Use the command shown to open the parameter list in notepad
6. Confirm with the enter button

In the notepad, you can the customizing settings for each of the 4 TwinSAFE groups. At the first group you can see for example at „A;D;D;D“, that the group is activated and no further settings for passivation or deactivation can be made.

Since you have previously allowed a permanent deactivation for the second TwinSAFE group in the properties, you can make the corresponding settings in the notepad. Proceed as follows:

7. Change “A;D;D;E“ to “E;D;D;A“
8. Save the change via Ctrl + S or via the context menu
9. Close notepad
10. Reopen the command line

```
C:\TwinSAFE Loader Demo>TwinSAFE_Loader.exe --gw 192.168.100.254 --user Administrator --pass
TwinSAFE --slave 1002 --customize conf.csv
```

11. Call up the TwinSAFE Loader via the shown command and enter the following information
    - Gateway configuration
      ```
      --gw 192.168.100.254
      ```
    - Username for the target system
      ```
      --user Administrator
      ```
    - Password for the target system

```
--pass TwinSAFE
```

- Slave address

```
--slave 1002
```

- Customize list

```
--customize conf.csv
```

12. Confirm with the enter button

The customizing settings are passed to the target system.

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