



Diagnosing EtherCAT Issues - Advanced

How to trace TwinCAT3 EtherCAT issues using the System Manager Advanced features

 Difficulty **Hard**

 Duration **10 minute(s)**

Contents

Introduction

Step 1 - Show Online Topology

Step 2 - Set Up Advance CRC Checking

Step 3 - TwinSAFE problems

Comments

Introduction

There are many tools available to help trace EtherCAT faults. This document describes some more advanced features that can help pinpoint an intermittent or hard to find issue. You will need a good working knowledge of the machine and the basis of EtherCAT networking

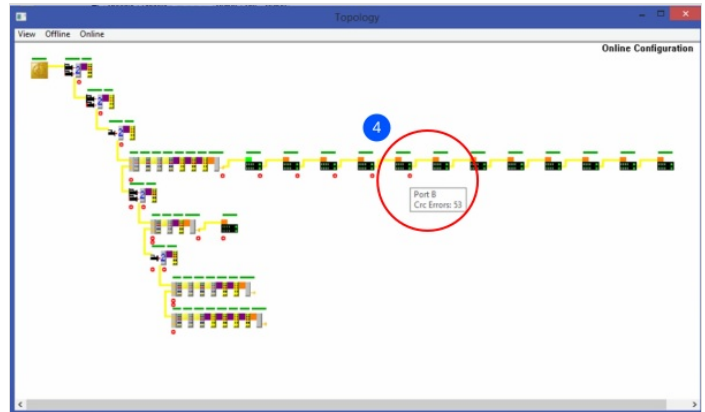
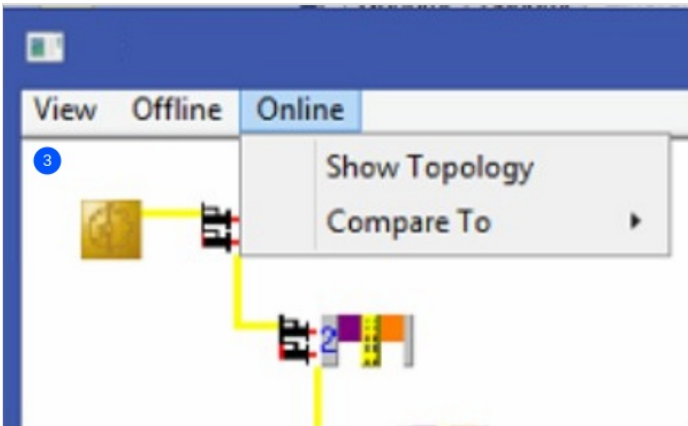
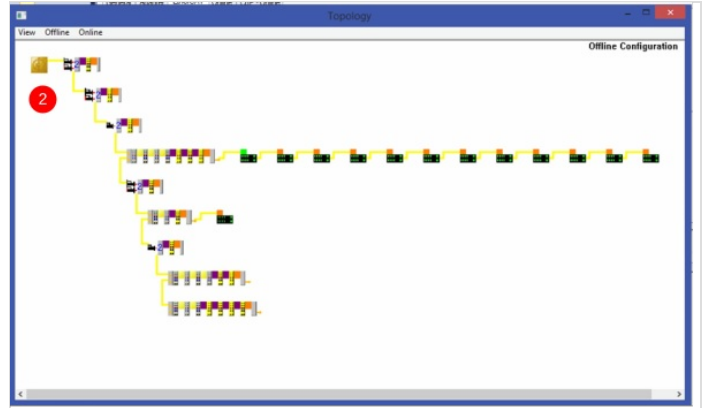
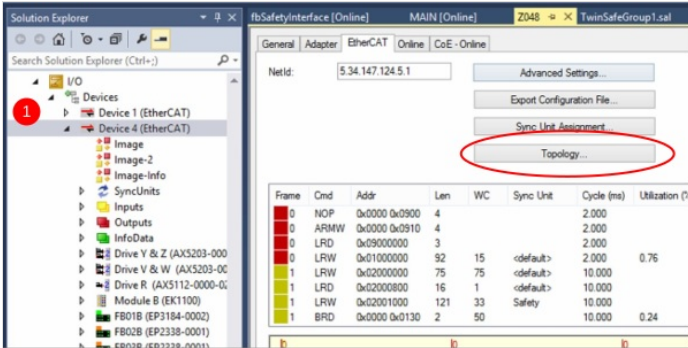
See Also [TwinCat Connection Faults](#)

Step 1 - Show Online Topology

This switches on a graphical view of the EtherCAT network and can help identify problems

1. Select Topology view for the Device you want to interrogate
2. This opens the offline view - the view of how the setup expects the network to look
3. Select Online->Show Topology
4. Hover around the topology to display any messages

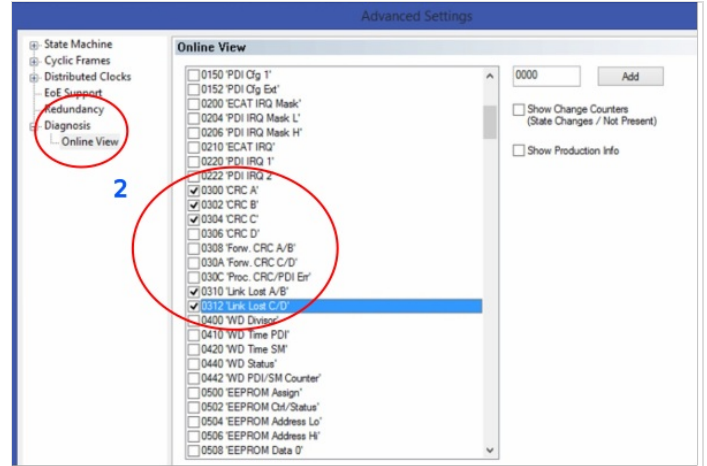
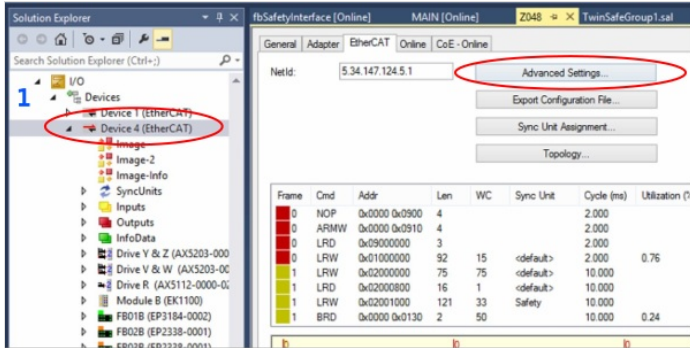
In this case, the red dots show problems, the dot shown shows that there are 69 CRC errors on this node - this means the network link has been broken at this point 69 times since you connected to it. (Probably a loose connection)



Step 2 - Set Up Advance CRC Checking

1. Choose the device network to interrogate and press the Advanced button
2. Expand to the Diagnostics-Online View and select the CRC checks 0300-0304 and Link Lost 0310-0312. Click ok to exit
3. On the online view, the system now records more detail about the CRC errors or link lost problems.

In the case in the pictures, FB015B has recorded 69 errors on issue 0310, which is "Link Lost A/B". There are CRC errors on the output of FB016B and the input of FB015B. This tells me that the link between FB016B and FB015B is not reliable. Could be a loose connection on the etherCAT and / or power cable



No	Addr	Name	State	CRC	Reg 0300	Reg 0302	Reg 0304	Reg 0310	Reg 0312
16	1016	FB028 (EP2338-0001)	OP	0,7	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)
17	1017	FB038 (EP2338-0001)	OP	0,7	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)
18	1018	FB048 (EP2338-0001)	OP	0,7	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)
19	1019	FB016B (EP2338-0001)	OP	0,52	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)
20	1020	FB015B (EP2338-0001)	OP	69,0	0x0000 (0)	0x0000 (0)	0x0000 (0)	69,0045 (B)	0x0000 (0)
21	1021	FB0148 (EP2338-0001)	OP	0,0	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)
22	1022	FB0138 (EP2338-0001)	OP	0,0	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)
23	1023	FB0128 (EP2338-0001)	OP	0,0	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)
24	1024	FB0118 (EP2338-0001)	OP	0,0	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)
25	1025	FB0188 (EP2338-0001)	OP	0,0	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)
26	1026	FB0178 (EP2338-0001)	OP	0	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)	0x0000 (0)

Step 3 - TwinSAFE problems

If this is a twinSAFE system uses the yellow slices), and etherCAST issue will lead to an Estop problem. See Diagnosing TwinSAFE Issues - Advanced for help in diagnosing these issues

