

Banner Safety Controller CoE Fault Log

9/14/2022

This document covers the installation and use of a function block for Beckhoff's TwinCAT software package. This function block handles acyclic CoE (Can over EtherCAT) commands to and from a Banner XS26 Safety Controller.

Components

Banner_CoE_Read_Fault_Log (PLCopenXML format)

Items Packaged in Fault Log

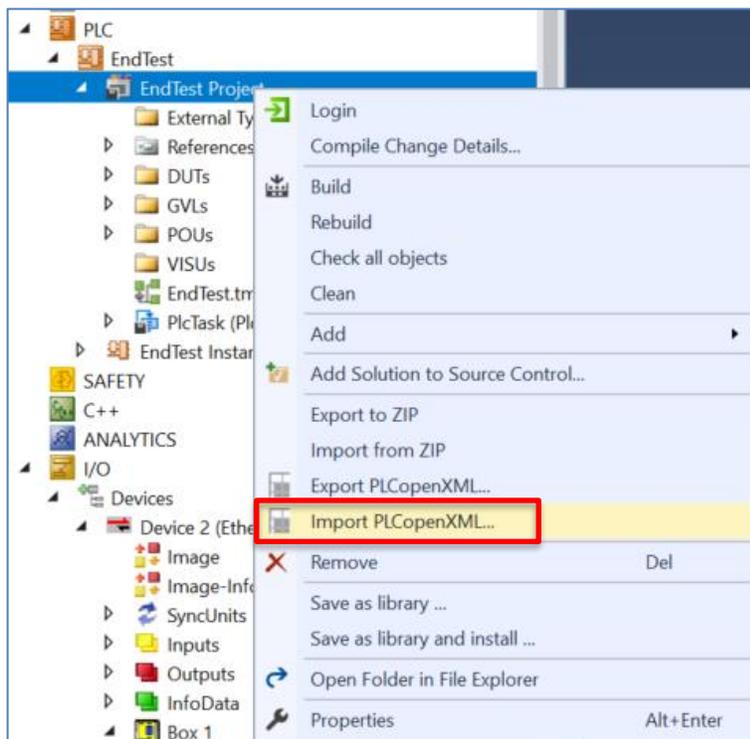
Banner_Read_Fault_Log (FB)

COE_Read (FB)

Banner_Fault_Log (STRUCT)

Installation Instructions

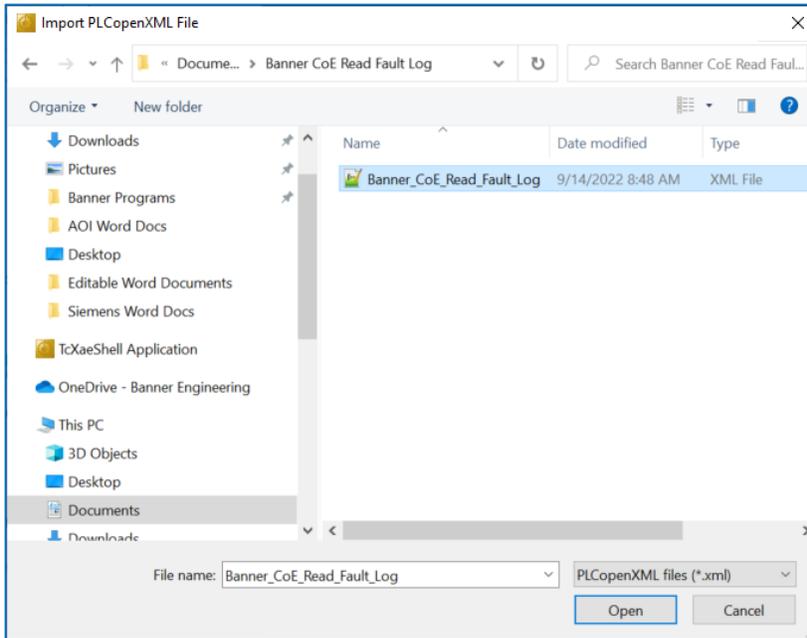
1. Open a project.
2. Right click under PLC. Look for the Import PLCopenXML option. Select this option and a new window will open.



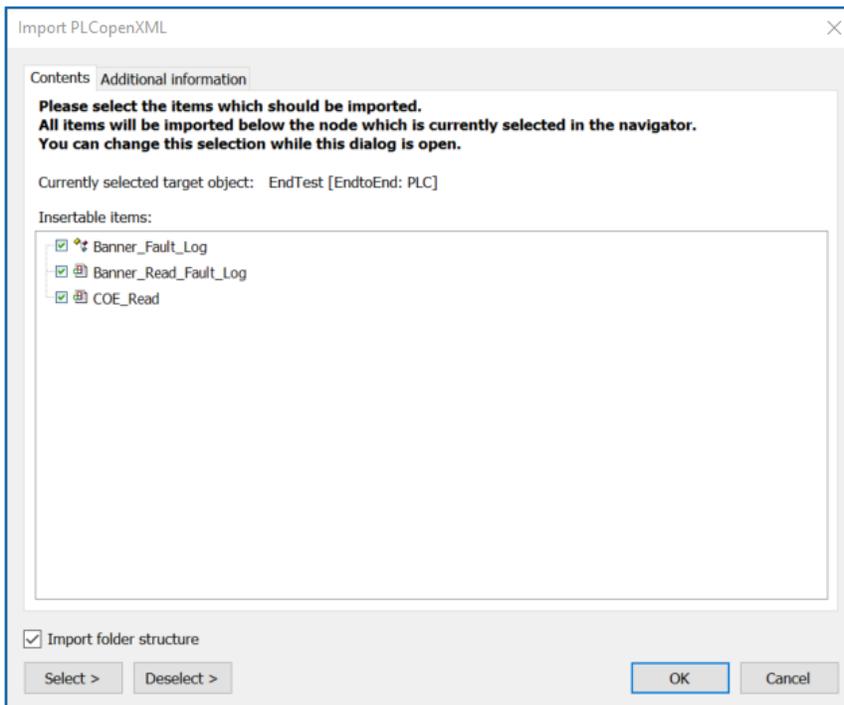
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3. Navigate to the location that the file was stored in. Select the Banner_CoE_Fault_Log. This is an XML file.



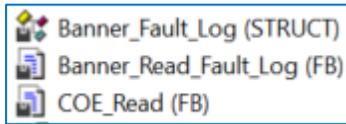
4. A window will pop up stating what files will be imported. There should be three files. Two of them are Function Blocks while the last one is UDT.



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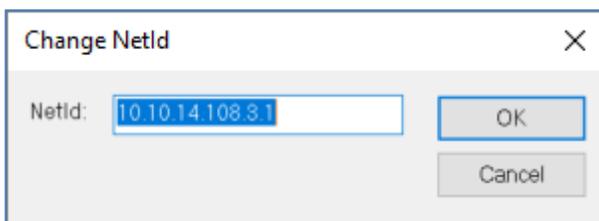
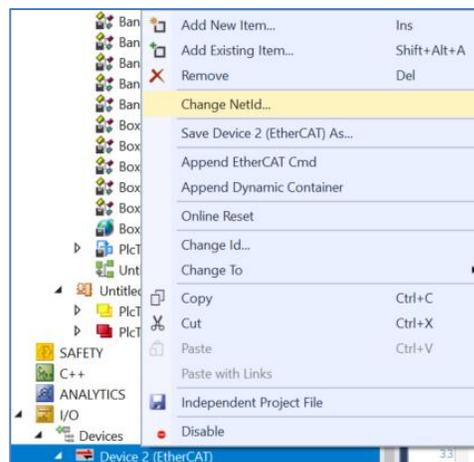
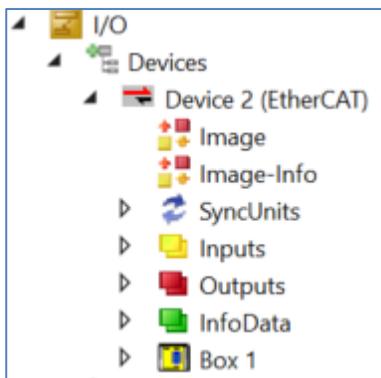
- Three items have now been added to the PLC section in Solution Explorer.



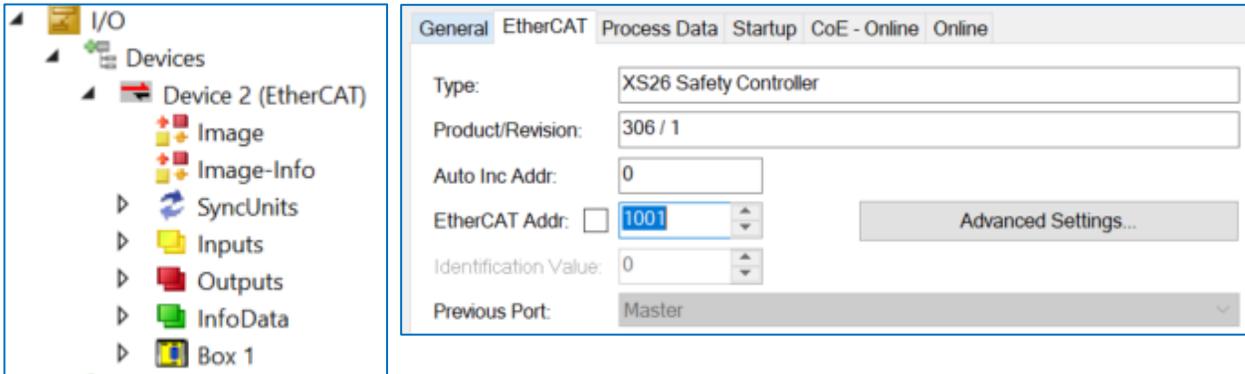
- Move the items to the necessary location in the project (optional: make a folder for them).
- Enable the reference library Tc2_EtherCAT. See Appendix A for instruction.
- Export the Tags from the Safety Controller if that has yet to be done (see relevant document for this process).
- Next step is to create a variable of the type of Banner_Read_Fault_Log in the program the function block will be called in. Also create a variable that will activate the Fault log read with a type of BOOL. In this example the names fbXS26 and bReadNow are used.

```
VAR  
    fbXS26      : Banner_Read_Fault_Log;  
    bReadNow    : BOOL;
```

- Now the NetID for the path to the Banner Safety Controller needs to be found. Find the device that safety controller relates to. In this example, the Device is Device 2. Right Click on Device 2 (EtherCAT) and select Change NetID. A box will pop up with the current value. Write this value down due to the function block needing this number.



11. Next the EtherCAT Addr for the Safety Controller needs to be determined. Double left click on the Banner Safety Controller in the I/O list. In this example it is called Box 1. Change to the EtherCAT tab. Write down the EtherCAT Addr for later use.



12. Finally add some structured text code into the program. The code should look like what is shown below. The NetID and Addr found in the previous steps are used here to point the function block to the Banner Safety Controller. When bReadNow is set to TRUE the function block will read the current Fault Log data for the Safety Controller via CoE (Can over EtherCAT).

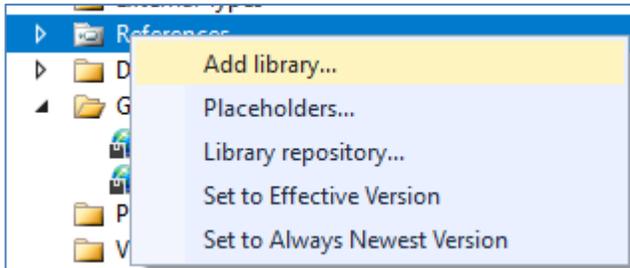
```
//Safety Controller Fault Log Read Code
IF bReadNow THEN
    fbXS26(NetID := '10.10.14.108.3.1',
           SlaveAddr := 1001);
    bReadNow := FALSE;
END_IF
```

13. The fault log data is stored in a tag related to the function block. The tag created for the function block has an element called Data (example: fbXS26.Data[x], x is 1 to 10). This Data has a type of "ARRAY[1..10] OF Banner_Fault_Log". The fault log has ten entries, and the array has a size of 10. Each array element will give the necessary information for one of the ten faults.

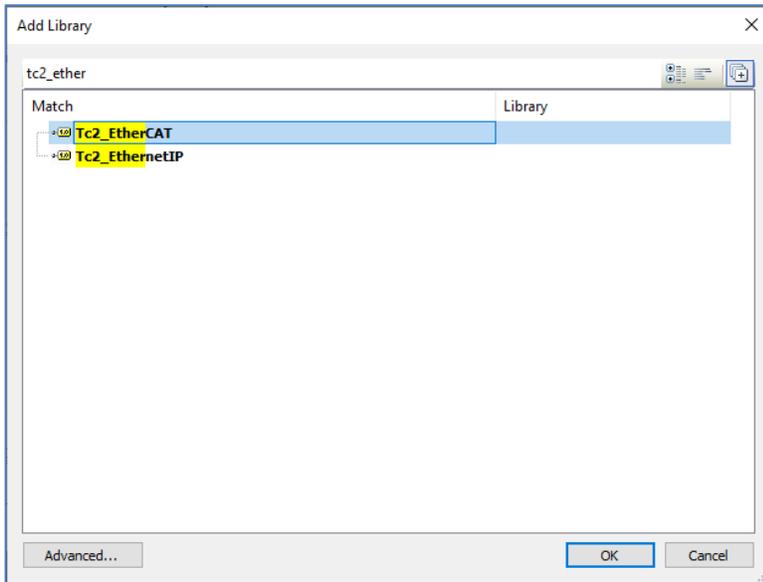
14. Setup complete.

Appendix A Tc2_EtherCAT Reference Library

1. Look at the project tree and find the References folder.
2. Right click on this folder and a window will appear. Select the “Add library” option.



3. Another window will pop up with the various libraries that are available.
4. Enter tc2_ethernet in the search box.



5. Select the Tc2_EtherCAT library and press the OK button.
6. Library has now been added to the project.

