acontis technologies GmbH

EC-EAP

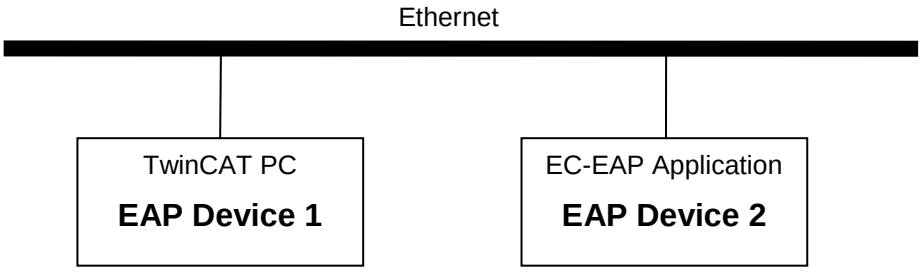
EtherCAT® Automation Protocol Stack

Version 0.8.1

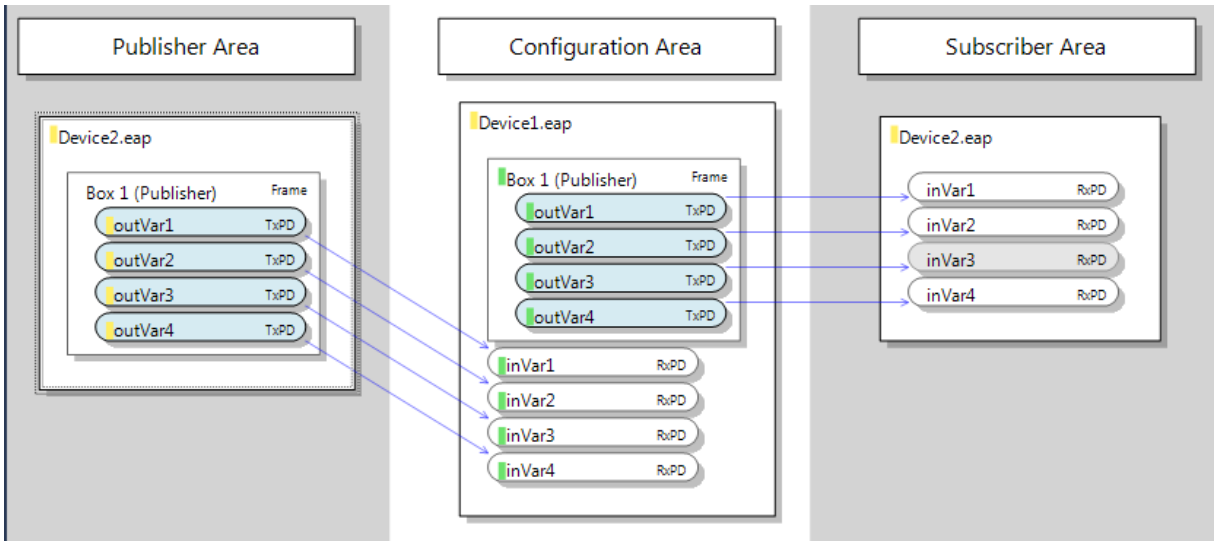
Quick Start Guide

1 Demo overview

The demo shows a use case of data communication between a TwinCAT PC (EAP “Device 1”) and as application built with EC-EAP Stack.



The TwinCAT project contains some input and output variables of different types. They will be sent resp. received as process data over EAP.



The logic is straightforward: The EAP variables **outVar1** to **outVar4** (of type WORD, 16 Bits) are incremented each cycle (see *Main*), in the same time the input variables **inVar4** to **inVar4** (of type WORD, 16 Bits) will be incremented on the EC-EAP application side and can be watched online in TwinCAT project.

2 How to run the demo

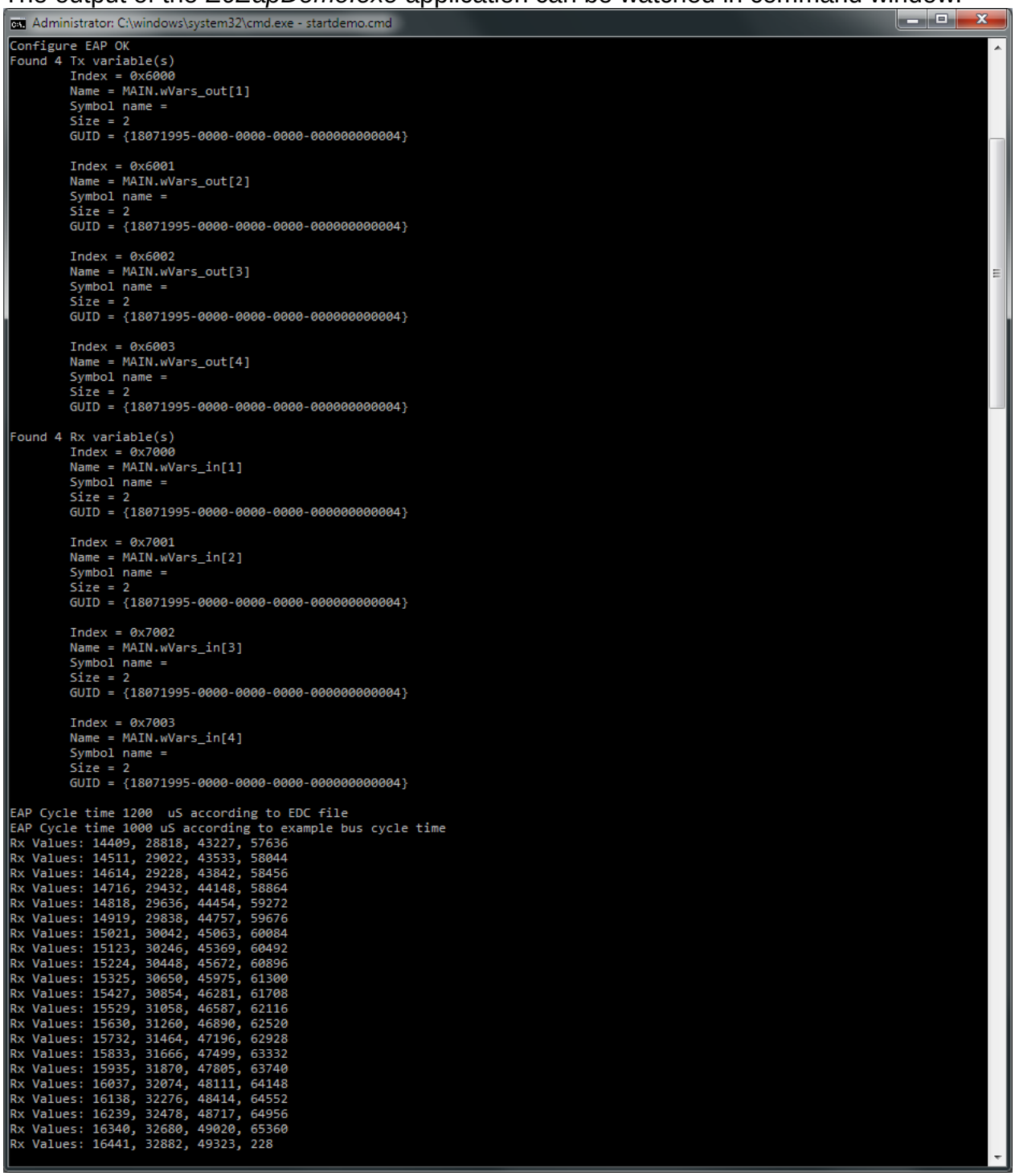
1. Unpack and load TwinCAT project **“EAP Test1”**, it located in the “TwinCAT Demo Project” folder.
2. Build the TwinCAT solution and run main program.
3. Load the EAP configuration into Device 1 (TwinCAT).
4. Export the EAP configuration of Device 2 into an EDC file; copy it into a known and accessible folder to be used with the **“EcEapDemo”** project. Alternatively a file *EDC_Device2.xml* from *Examples\EcEapDemo* can be taken.
5. Optional. Open and build the **“EcEapDemo”** project.
6. Set up and run .\Bin\Windows\EcEapDemoStart.cmd, the following parameters has to be changed

   - *“- f <EDC file with full path>”,* configuration file, in our case *EDC_Device2.xml* from the *Examples\EcEapDemo* folder
   - *“-log eap”,* the logfile prefix
   - *“-winpcap XXX.XXX.XXX.XXX 1”*, XXX.XXX.XXX.XXX is the IP-address of the Ethernet interface used. Note: a link layer DLL *emllPcap.dll* needed.
   - *“-ip XXX.XXX.XXX.XXX”,* XXX.XXX.XXX.XXX is the IP-address of the EAP stack, needed for UDP protocol.

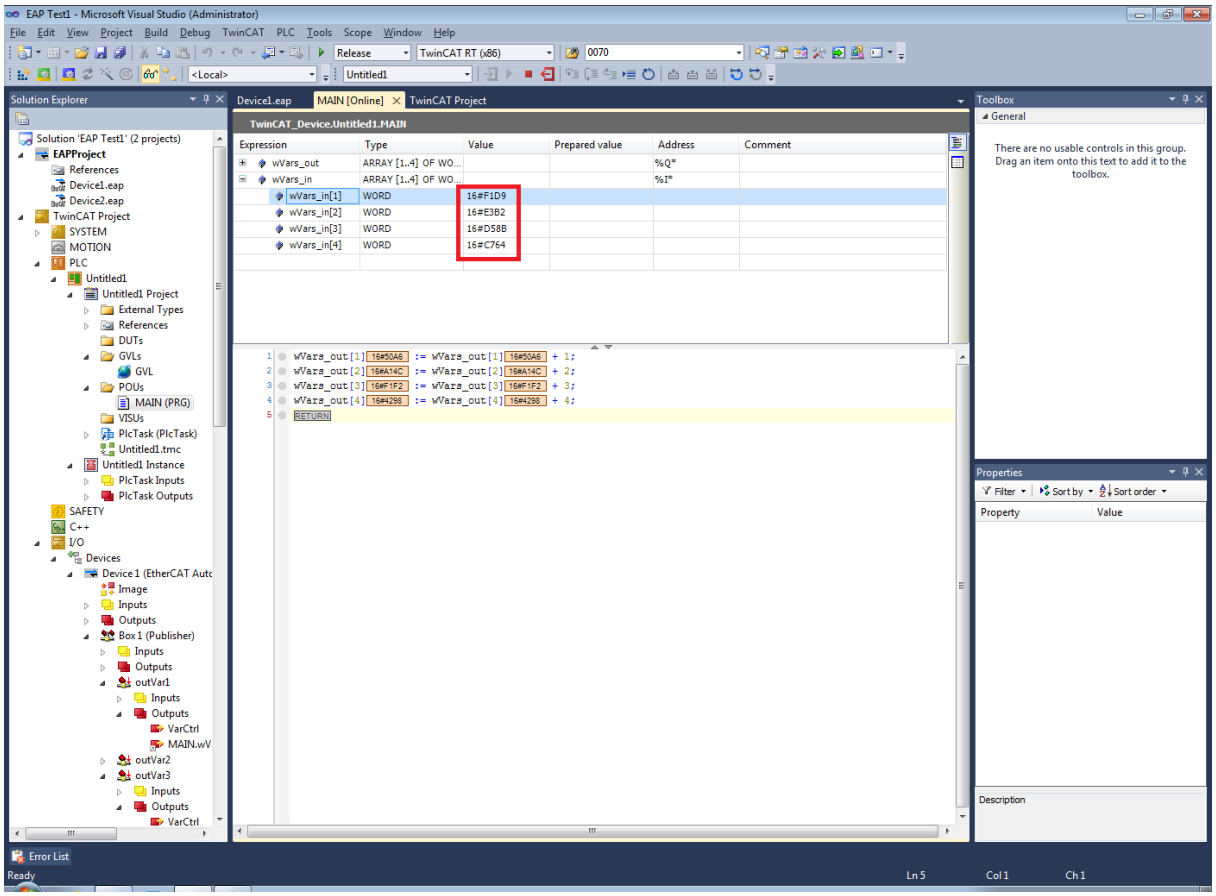
   Other parameters are optional, use them according application needs.

3 Demo output

The output of the *EcEapDemo.exe* application can be watched in command window:

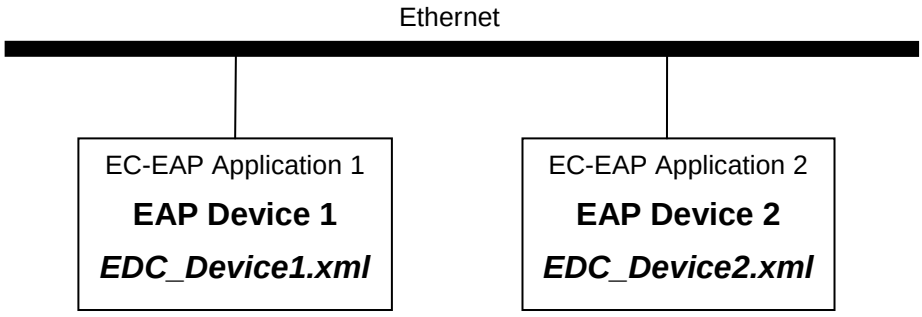


The variables can be watched in TwinCAT as well:


EAP Test1 - Microsoft Visual Studio (Administrator)
File Edit View Project Build Debug TwinCAT PLC Tools Scope Window Help
Release
TwinCAT RT (x86)
Solution Explorer
Solution 'EAP Test1' (2 projects)
EAPProject
References
Device1.eap
Device2.eap
TwinCAT Project
SYSTEM
MOTION
PLC
Untitled1
Untitled1 Project
External Types
References
DUTs
GVLs
GVL
POUs
MAIN (PRG)
VISUs
PlcTask (PlcTask)
Untitled1.tmc
Untitled1 Instance
PlcTask Inputs
PlcTask Outputs
SAFETY
C++
I/O
Devices
Device 1 (EtherCAT Auto
Image
Inputs
Outputs
Box 1 (Publisher)
Inputs
Outputs
outVar1
Inputs
Outputs
VarCtrl
MAIN.wV
outVar2
outVar3
Inputs
Outputs
VarCtrl
Device1.eap
MAIN [Online]
TwinCAT Project
TwinCAT_Device.Untitled1.MAIN
Expression
Type
Value
Prepared value
Address
Comment
wVars_out
ARRAY [1..4] OF WO...
%Q*
wVars_in
ARRAY [1..4] OF WO...
%I*
wVars_in[1]
WORD
16#F1D9
wVars_in[2]
WORD
16#E3B2
wVars_in[3]
WORD
16#D58B
wVars_in[4]
WORD
16#C764
wVars_out[1] := wVars_out[1] + 1;
wVars_out[2] := wVars_out[2] + 2;
wVars_out[3] := wVars_out[3] + 3;
wVars_out[4] := wVars_out[4] + 4;
RETURN
Toolbox
General
There are no usable controls in this group. Drag an item onto this text to add it to the toolbox.
Properties
Filter
Sort by
Sort order
Property
Value
Description
Error List
Ready
Ln 5
Col 1
Ch 1

4 Run demo with two EC-EAP Stacks

This demo is possible to run with two *EcEapDemo.exe* as well. In order to perform it, it is necessary to pass the Device1 EDC file to a copy of *EcEapDemo.exe*. The corresponding EDC files (*EDC_Device1.xml* and *EDC_Device2.xml*) can be found in the *Examples\EcEapDemo* folder.



The output in this case can be watched in two console windows, i.e. like this: