HOW TO CREATE SMART COMPONENTS WITH VISUAL STUDIO AND C#

Created by: Peter Janus

Date: 4.10.2023

Contact: janus.peto@gmail.com

Requirements

Visual Studio 2022 (or Visual Studio 2019)

ABB RobotStudio 2022

Links that you can find helpfull

SmartComponent Introduction

CodeBehind API

SmartComponent Lifecycle *(I recomend you to read this before you start)*

Preparation

Step 1.

Import SDK Folder into → C:\Program Files (x86)\ABB

Step 2.

Import RobotStudio Templates from SDK folder →

C:\Program Files (x86)\ABB\SDK\RobotStudio 2022 SDK\ProjectTemplates

into Visual Studio Templates folder *(here create subfolder RobotStudioTemplates)* →

C:\Users\janus\Documents\Visual Studio 2022\Templates\ProjectTemplates\RobotStudioTemplates

Step 3.

Now open: Visual Studio → Create a new Project → RobotStudio 2022 Smart Component

After creating new project, u need to add references for Dynamics Link Libraries (DLL)

In Visual Studio open: Project → Add Reference → Browse

C:\Program Files (x86)\ABB\SDK\RobotStudio 2022 SDK

From this folder select dll files which u want to use.

Step 4.

When u run this code, Visual Studio will open LibraryCompiler and RobotStudio, so u need to make sure u have correct path for these files.

Path for LibraryCompiler.exe file can be edited here:
Project → Last icon with name of your project (Properties) → Build Events → Post-build event

Make sure you rewrite only path for your LibraryCompiler.exe file

"C:\Program Files (x86)\ABB\RobotStudio 2022\Bin\LibraryCompiler.exe"
"$(ProjectDir)\GetMatrixSMC.xml" → **!!!Dont edit this!!!**

Path for RobotStudio.exe file can be edited here:
Project → Last icon with name of your project (Properties) → Debug → Start external program

C:\Program Files (x86)\ABB\RobotStudio 2022\Bin\RobotStudio.exe

Step 5.

Open RobotStudio 2022, create station where u will test your SmartComponent.

My personal recommendation:
1) For each station create new project in RS
2) Name your stations in RS same as your projects in VS
3) Be careful with rewriting project name
4) You can add path for your station in every project, so after rebuild VS will automatically open station in RS, which match this project *(avoid opening the wrong stations)*

This can be done in VS:

Project → Last icon with name of your project (Properties) → Debug → Command line arguments
Here add path to your station (.rsproj). For example:

"C:\Users\janus\Documents\RobotStudio\Projects\GetMatrixSMC\GetMatrixSMC.rsproj"

Step 6.

VS project obtaining 2 parts, .XML file and .CS file.
XML file represent properties, inputs and outputs in your Smart Component.

In RS you can create Empty Smart Component, add Properties, Inputs and Outputs and Export this SMC into .xml file. Then just open .xml file with text editor and copy everything into your .xml file in VS project.

You can write what you want the smart component to do in the CODEBEHIND.cs file.

That is everything from me. If u have any questions, contact me and I will try to help.