

# Renesas Quick Start Guide

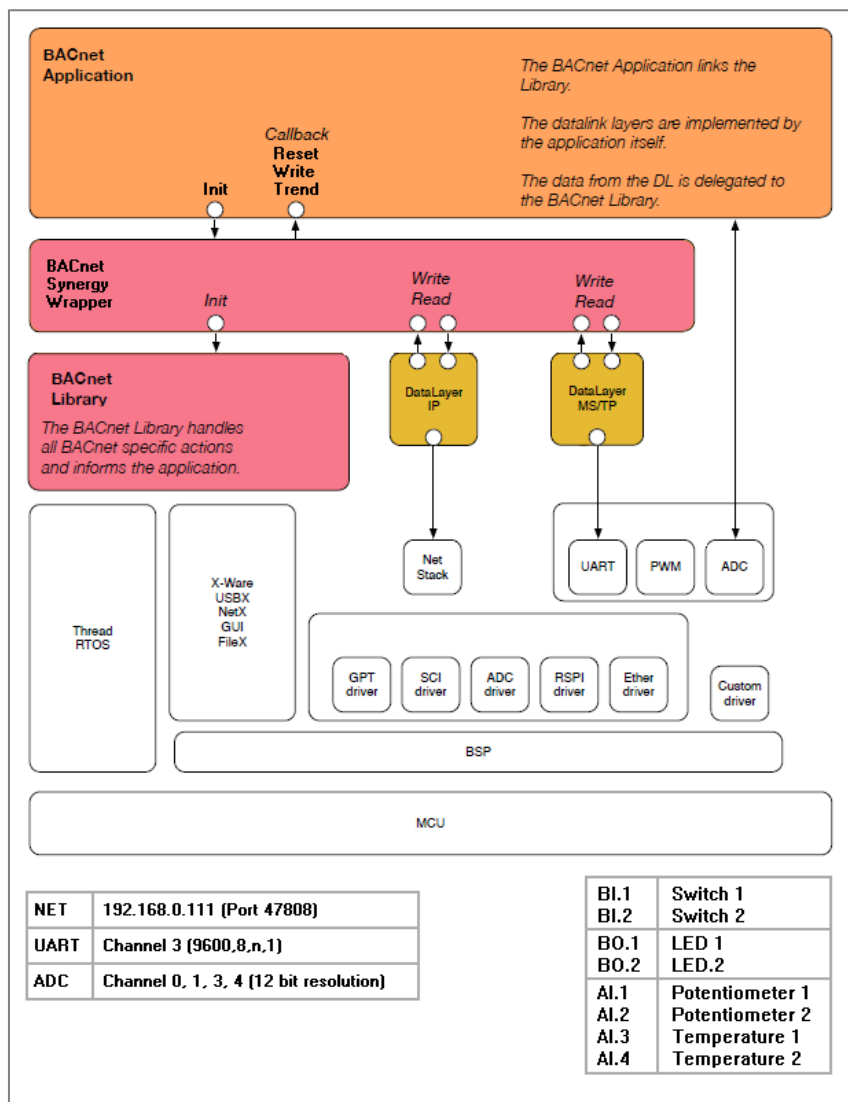
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# 1. Overview

The CS Lab BACnet demo application for Renesas Synergy™ provides an overview of the performance of BACnet API CS Lab GmbH and comprises the complete request scope for BACnet Advanced Application Controller (B-AAC).

The demo application includes the following BACnet objects:

- device object (Description of the BACnet device)
- binary input objects (2 switch)
- binary output objects (2 LED's)
- analog input objects (2 Potentiometer and 2 temperature sensors)
- analog output object (shows the current value of the scheduler object)
- scheduler object (with entries for every hour from Monday to Sunday)
- trend log object (distinguished values of the potentiometer on)
- calendar object (is required by the scheduler object)
- notification class object (is applied for alarms)



Architecture of Application Demo

## 2. Requirements

### Required software

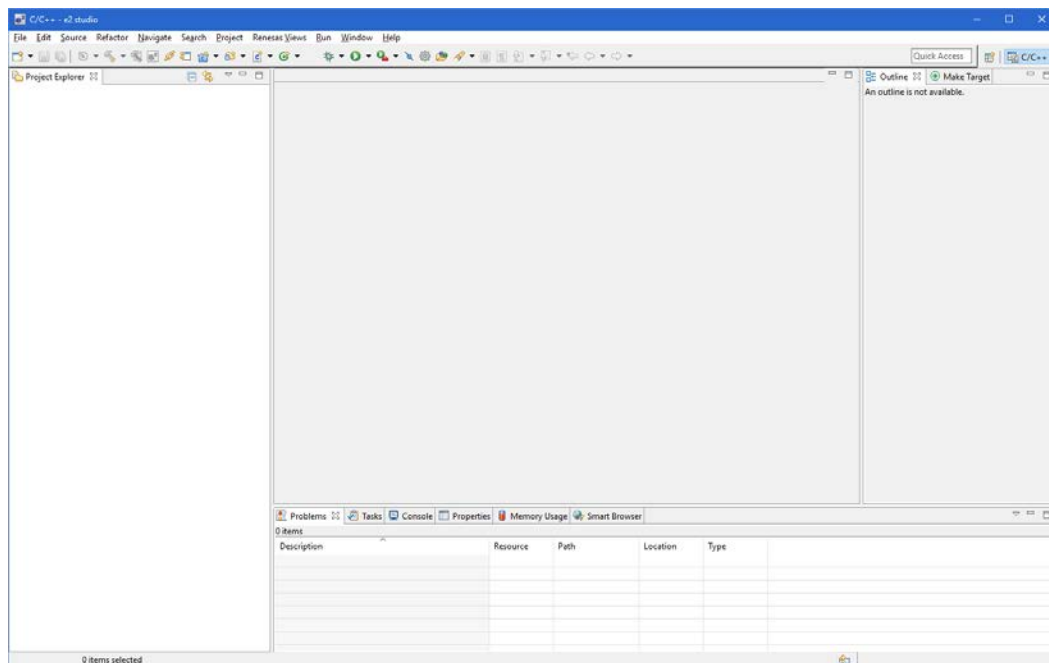
- e<sup>2</sup> studio Version 5.0.0.043
- GCC ARM Embedded 4.9 2015q3
- Renesas Synergy Software Package (SSP) 1.1.0
- Bacnetdemo of Renesas Synergy Gallery

### Installation IDE

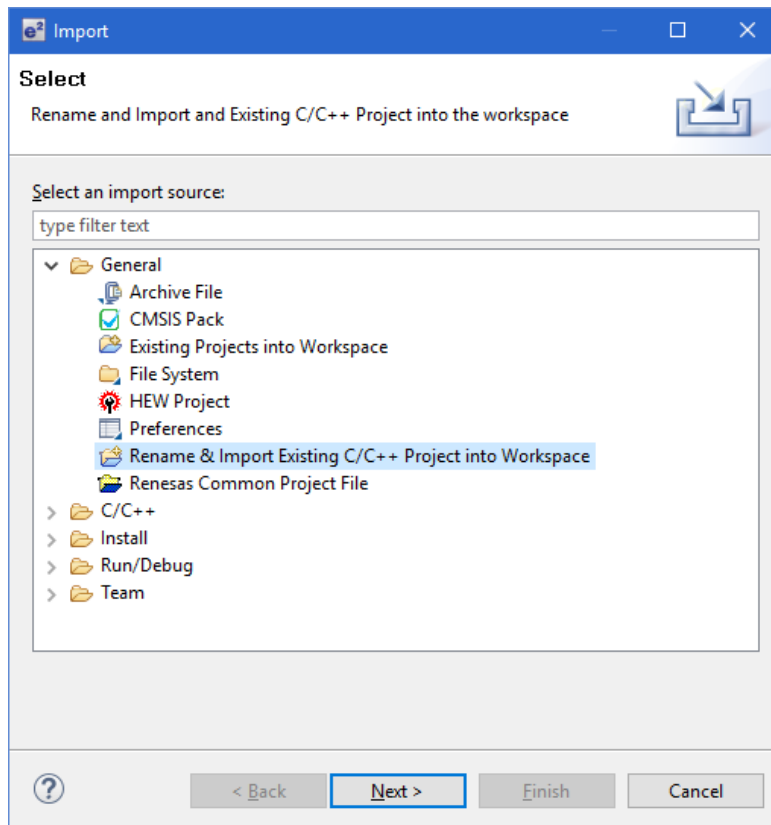
See the special installation instructions.

### Installation bacnetdemo

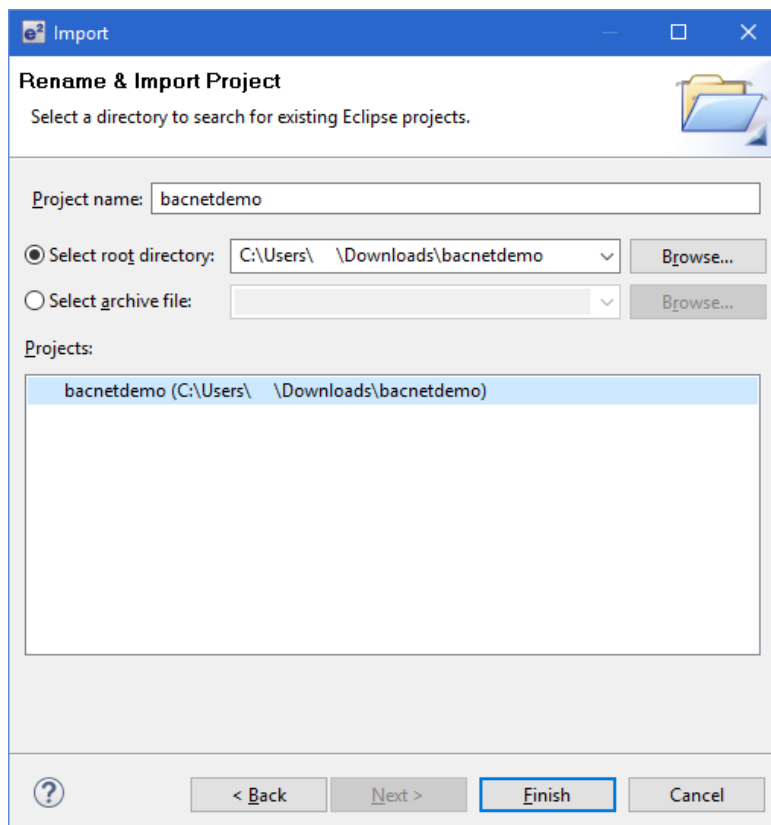
1. Load Packed Project
2. Unpack project
3. Start e<sup>2</sup> studio
4. Import Projekt (Menue: File -> Import...)
5. General -> Rename & Import Existing C/C++ Project into Workspace
6. Allocate project name and select project from the download folder
7. Save settings
8. Project will be imported
9. Open File configuration.xml
10. Create configuration
11. Translate project



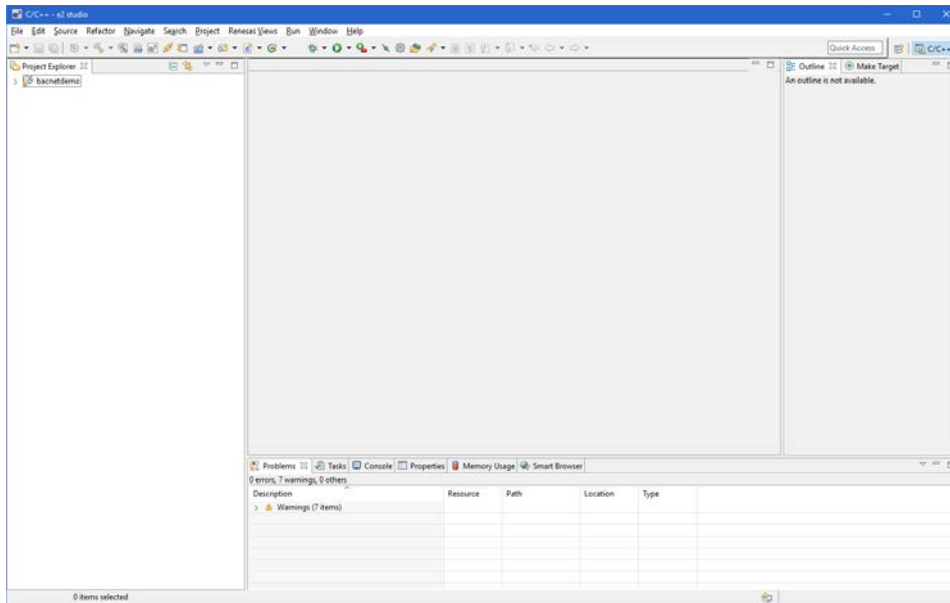
Start e<sup>2</sup> studio



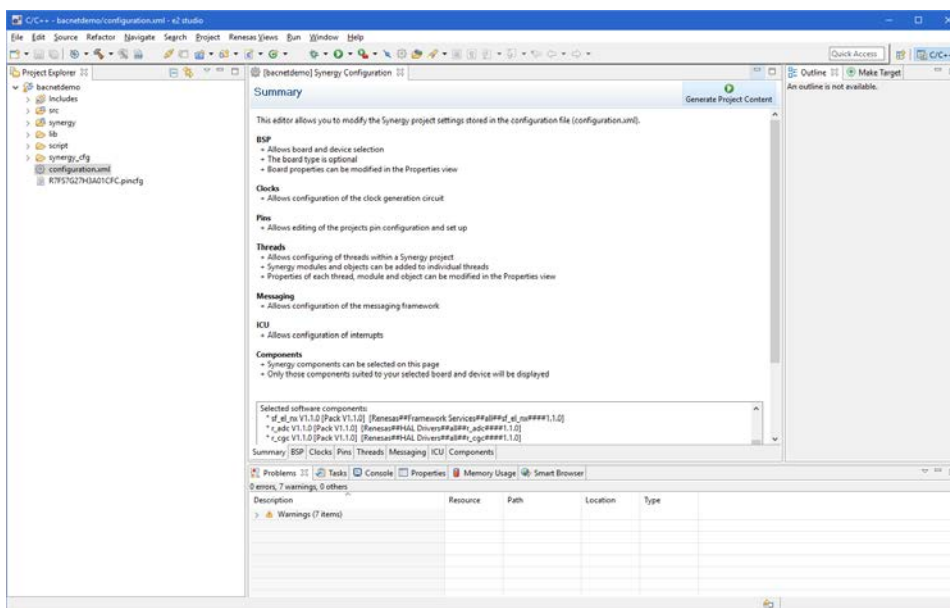
Import Project



Import Project (Page 2)



Imported project



Create configuration

## 3. Additional information

### Interfaces

For proper operation the demo application requires appropriate hardware at the interfaces of the Renesas Boards S7G2.

BACnet Object	Description	Board connection
BI.1	Switch 1	Port 0 Pin 5
BI.2	Switch 2	Port 0 Pin 6
BO.1	LED 1	Port 6 Pin 0
BO.2	LED 2	Port 6 Pin 0
AI.1	Potentiometer 1	Channel 0
AI.2	Potentiometer 2	Channel 1
AI.3	Temperature sensor 1	Channel 3
AI.4	Temperature sensor 2	Channel 4

### Switch to MS / TP

The demo application operates with an IP-based data link. If you like to work for your example with MS / TP, you have to activate the BACNET\_DATA\_LINK\_MSTP macro (in module bacnetdemo.c) and recompile the application. The MS / TP link operates at 9600 baud, 8 data bits, 1 stop bit and no parity and is connected to the UART channel. 3

### Activation of Foreign Device

The use of a Foreign Device is 'off' by default. If you need a foreign device, you need to activate the BACNET\_DEMO\_WITH\_FOREIGN\_DEVICE macro (in module bacnetdemo.c) and recompile the application.

### Memory usage

The BACnet objects require storage in RAM and ROM. The following table provides an overview of the consumption in bytes per BACnet object.

BACnet Object	RAM	ROM
DEV	113	1413
BI	53	942
BO	11	484
AI	70	1008
AO	83	1040
CA	3	226
NC	18	290
SC	59	482
TR	149	1170