Shared memory

straton user guide – Rev. 5

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CP_R31_006_H

straton

Content

1. Overview

The aim of this document is to help the user to configure and use the Shared Memory Driver.

2. Requirement and setup

The required software is the straton IDE for the configuration of the shared memory protocol.

The application can be downloaded to any straton runtime that support the Shared Memory driver.

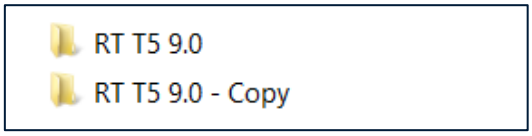
Download and install from https://straton-plc.com/telechargements/

> In order to use the Shared Memory,
>
> you will need to use two runtimes on the same

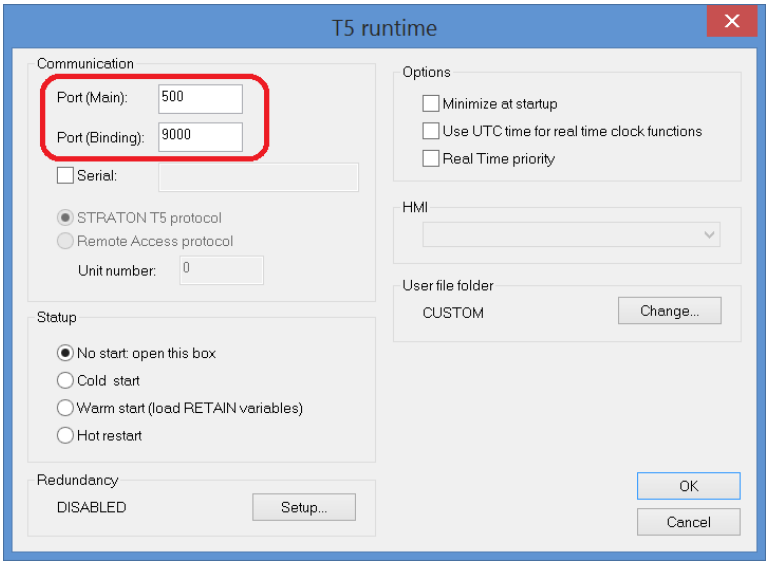
2.1. On Windows:

Currently the runtime can be installed only one time. When trying to install a runtime for the second time the setup will automatically propose to Modify, Repair or Remove the current installation.

Consequently, install the T5 runtime (do not use a folder in "Program Files" during installation), go into the folder where it is installed and just copy/paste the runtime's folder.



When launching both runtimes, check that each is using a different set of ports:



2.2. On a Linux embedded hardware:

In a Linux embedded hardware, you can simply start a second runtime in another terminal using the same method but using the following command line:

- ./t5xxx /port=1001 /evsport=9001

```
root@ubuntu:/home/hugo/straton/T5Linux32/bin#
root@ubuntu:/home/hugo/straton/T5Linux32/bin# ./t5x86 /port=1001 /evsport=9001
T5 Runtime for Linux - Linux Multithreaded - Aug 20 2019
Version 931 Changeset 58115
Devkit V9.3.181211 - 2019 - (c) COPA-DATA

Driver T5BusShm2: Shared memory V9.3.0
Driver T5BusMailbox: Mailbox V9.3.0
Driver T5DataServer: Data Server V9.3.0
Driver T5EIPC: Ethernet/IP Scanner V9.3.0
Driver T5EIPS: Ethernet/IP Adapter V9.3.0
Driver T5EIPTAG: Ethernet/IP Tag Client V9.3.0
Driver T5EIPFIO: Ethernet/IP PointIO / FlexIO V9.3.0
Driver T5BusExCANOpen: CANOpen master V9.3.0
Driver T5BusCompactCom V9.3 - Stack HMS V.2.02.01
Driver T5BusExMQTT: MQTT Client V9.3.0
SQLITE

Ready - Press CTRL+C to exit.

LICENSE : Key file found <K5License.ini>
LICENSE : Key number <00-0C-29-29-D0-81.0100.0.0.1308.5541
>
LICENSE : Adapter found <00-0C-29-29-D0-81>
```

```
root@ubuntu:/home/hugo/straton/T5Linux32_2/bin#
root@ubuntu:/home/hugo/straton/T5Linux32_2/bin# ./t5x86
T5 Runtime for Linux - Linux Multithreaded - Aug 20 2019
Version 931 Changeset 58115
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>
LICENSE : Adapter found <00-0C-29-29-D0-81>
```
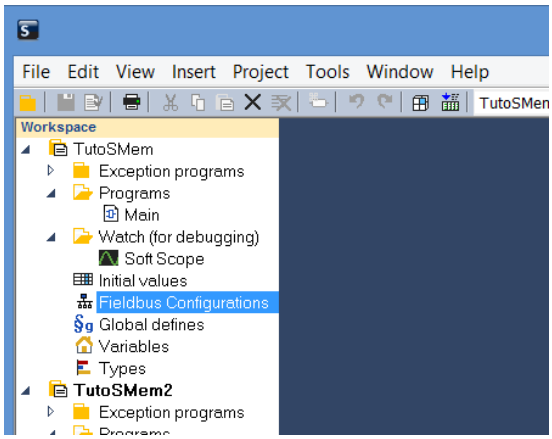

Note: both runtimes must be launched in a separate folder. Otherwise they would be sharing the t5.cod file and could generate errors.

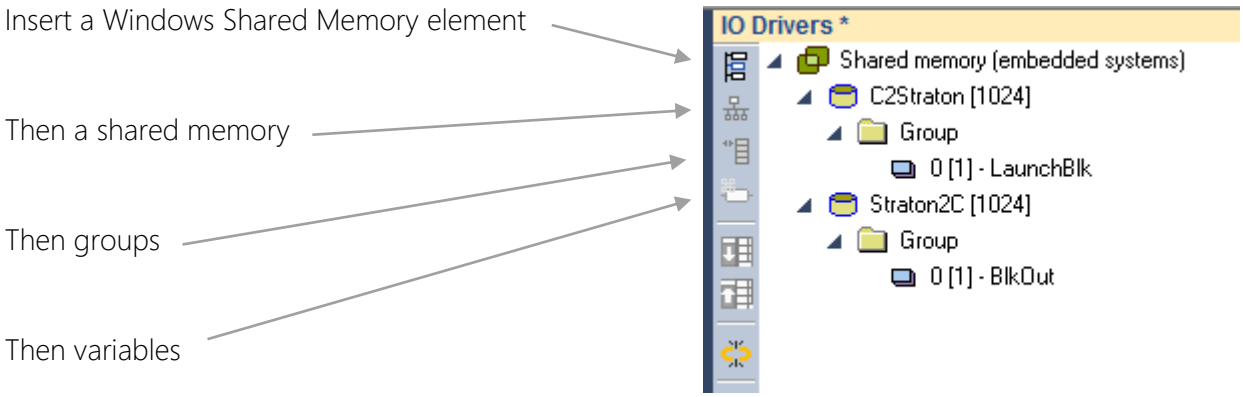
3. Create a shared memory

Open the Editor, create two different projects, and configure each of them to connect to the right port.

Then, in the projects tree, go to the "Fieldbus Configuration" (right click on the project > Shortcuts)

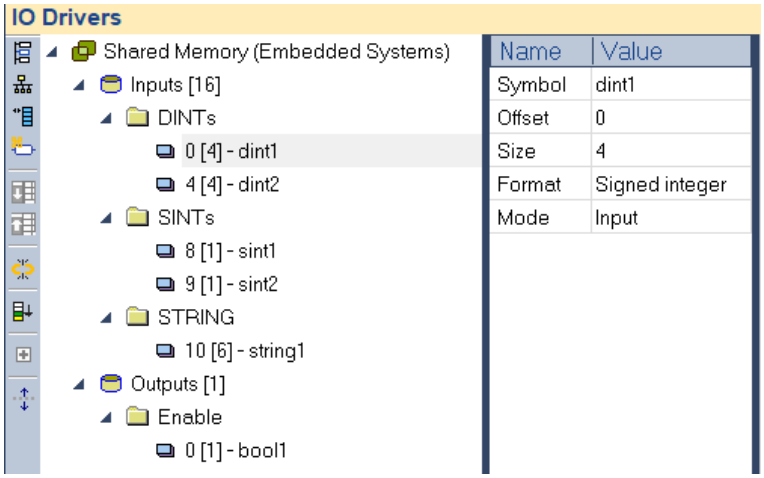


Once in the "Fieldbus configuration":

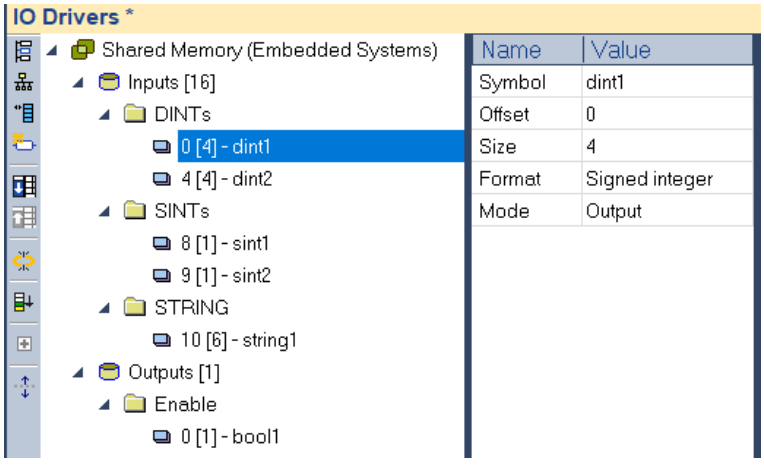


Example:

Configuration of application 1:



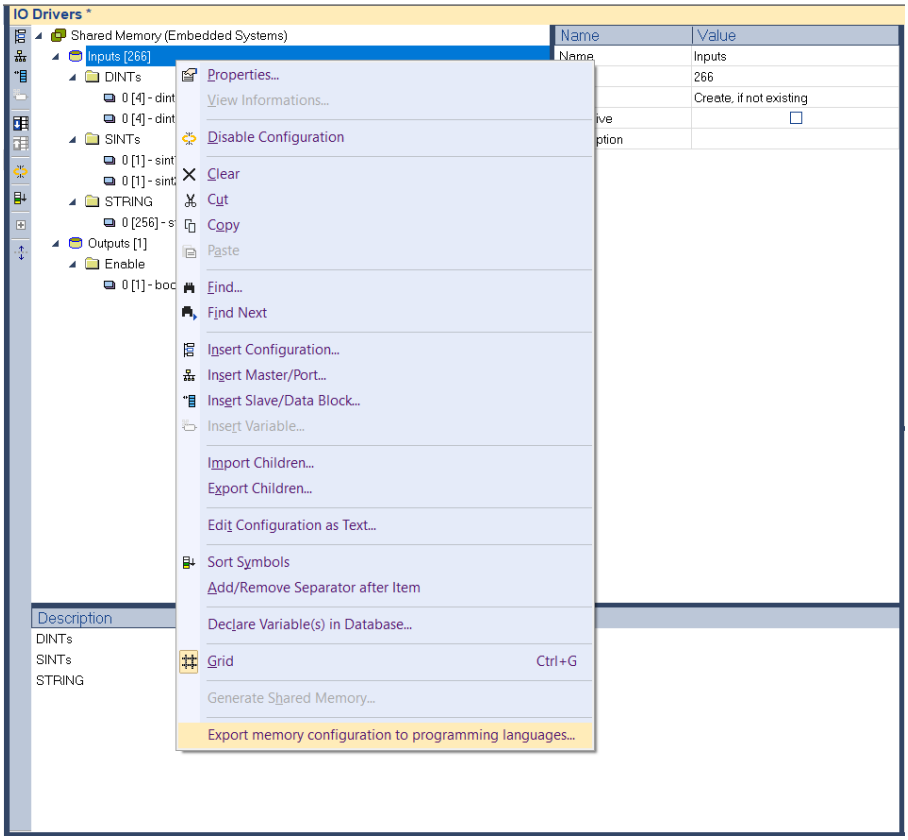
Configuration of application 2:



It is recommended to:

- Create the same tree in both projects/applications
- Give the same name to shared memory in both program
- Create different shared memory for inputs and outputs
- Give the right size to each variable
- Make sure the offsets are numbered in the same order in both projects, the offsets allow the different applications to locate and use the same element,

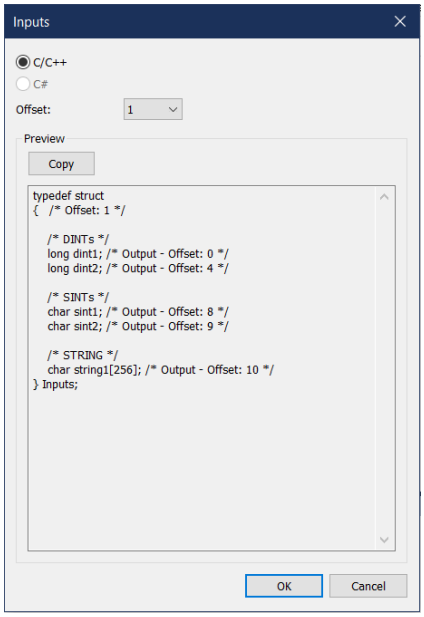
Once all the variables are filled, right click on the group of variables and click on "Export memory configuration to programming languages":

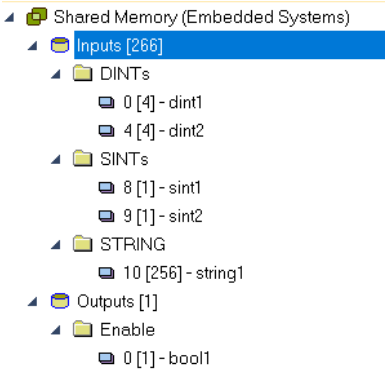


This window gives the C/C++ or C# code of the shared memory configuration. Note that the code given here is for an external use only. For example if the Shared Memory will be accessed by an external application once downloaded to the target

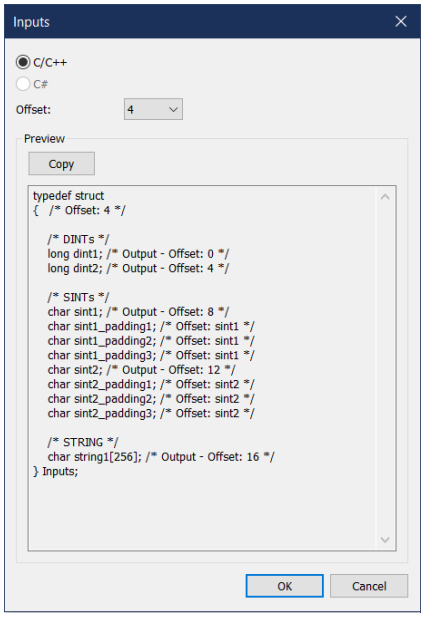
It also offer a fast way to renumber the variable offsets and allows to add a specific variable addresse offset for your configuration.

If you select an offset of 1, the variables will just be implemented one after another. Click on OK when you are done with the configuration and the shared memory will be updated with the correct variable offset.





If you select an offset different than 1, then it will automatically modify the code to respect it, for exemple with the same configuration and an offset of 4 (meaning, there can be only one variable declared every 4BYTES):



- No padding is needed for the DINTs because they are already 4BYTES
- In the case of the SINTs, they are only 1BYTE, to respect the address offset of 4, the wizard added 3paddings of 1BYTE each.
- The STRING is 256BYTES, it doesn't need any padding because 256 = 64 * 4.
- If the STRING was 255BYTE, it would have needed 1BYTE of padding.

4. Frequently Asked Questions

I WANT TO USE SHARED MEMORY ON OTHER SYSTEM THAN WINDOWS, HOW CAN I DO IT?

Follow the same steps, but instead of choosing "Windows Shared memory", use "Shared memory (embedded systems)" which works with other operating systems.

I CAN'T FIND THE "EXPORT MEMORY CONFIGURATION TO PROGRAMMING LANGUAGES" OPTION WHEN RIGHT CLICKING ON MY SHARED MEMORY, WHERE IS IT?

In straton 9.2 and lower, this option is named "Renumber offsets" and do not provide the option to see the C/C++ code of your configuration nor the possibility to add an address offset.