#### Simulation Environment FactoryIO

See also Selmo Help Center

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#### Simulation with FactoryIO

The FactoryIO simulation software enables the simulation of systems with different control systems. Communication takes place via the OPC UA protocol. After successful installation of CoDeSys and installation of the PLC program, the connection to the OPC UA server is established.

In the first step, it is necessary to set up the user and password for the OPC server in the ctrlX controller from Bosch Rexroth. In the "VIEW" tab, select the "Open Console" option.



In the console, the user name for the OPC-UA login must be changed with the following command: drivers.opc\_client.ua\_username="boschrexroth"



Furthermore, the password is entered with the following command: drivers.opc\_client.ua\_password="boschrexroth"



After the simulation has been opened, it can be started directly. As a result, the signal and control elements are active and the process can be followed as soon as it has been started via the Selmo HMI. This is illustrated here using the sorting system:





#### Customize communication

The simulation packages are provided fully configured for the respective demo projects and should work right away. An adjustment of communication may be necessary.

The communication is adjusted by calling up the window for the drivers via the function key F4. In this window, selecting CONFIGURATION  $\rightarrow$  OPC Client DA/UA (1) opens the dialog for the settings. By pressing the "Search Server" button (2), a list of all available OPC servers is displayed in the drop-down menu. At this point, the communication can be adjusted by selecting an appropriate server.

| 💠 Factory IO                  |   |  |
|-------------------------------|---|--|
|                               |   |  |
| $\leftarrow$ KONFIGURATION    | Server                                      |  |
|                               | Name der Maschine                           |  |
| Advantech USB 4704 & USB 4750 |   |  |
| Allen-Bradley Logix5000       | SERVER SUCHEN                               |  |
| Allen-Bradley Micro800        | OPC Server                                  |  |
| Allen-Bradley MicroLogix      | OPCUAServer@SO-NB (UA) ~                    |  |
| Allen-Bradley SLC 5/05        |   |  |
| Automgen Server               | Items/Nodes                                 |  |
| Control I/O                   |   |  |
| МНЈ                           | Limitierung                                 |  |
| Modbus TCP/IP Client          | 32  |  |
| Modbus TCP/IP Server          | Einträge filtern dessen Namen beginnen mit: |  |
| OPC Client DA/UA              | Kein Filter                                 |  |
| Siemens LOGO!                 | Einträge filtern dessen Namen beinhalten:   |  |
| Siemens S7-200/300/400        | GVL_FactoryIO                               |  |
| Siemens S7-1200/1500          |   |  |
| Siemens S7-PLCSIM             | STANDARD                                    |  |

The corresponding GVL must be specified in the filter (4), in this case GVL\_Factory\_IO (or alternatively GVL for other demos). By pressing the "SEARCH" button (3), all variables of this GVL are searched and displayed in the previous window.

In some cases, it is necessary to re-link the I/Os to the simulation. This process is done by using the drag-and-drop feature:



If there are any difficulties with the connection, a check of the console is necessary to determine if a user or password is entered. Otherwise, the user and password must be deleted in the Config.cfg file under C:\Users\ActUser\AppData\Local\Real Games\Factory IO\.

(except for ctrlX controllers):

```
drivers.opc_client.ua_username = r''
drivers.opc_client.ua_password = r''
```

| Currently in use version | 2.5.7          |
|--------------------------|----------------|
| Interface                | OPC-UA         |
| Zus. Components          | None           |
| Licensing                | 30-day license |

Shared ports:

| Service | Ports (Inbound)   |
|---------|---|
| TCP/IP: | By default, ports such as 502/TCP for Modbus TCP and 102/TCP for S7 communication are used. |
| OPC UA: | 4840/TCP (inbound) for communication with OPC UA clients.                                   |
| MQTT:   | 1883/TCP (inbound) and 8883/TCP (secure, inbound) for communication via MQTT.               |