

OPC DAY
FINLAND 2022

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OPC UA PubSub Hands-on Demo



PROSYS OPC

Jouni Aro
Chief Technology Officer

jouni.aro@prosysopc.com

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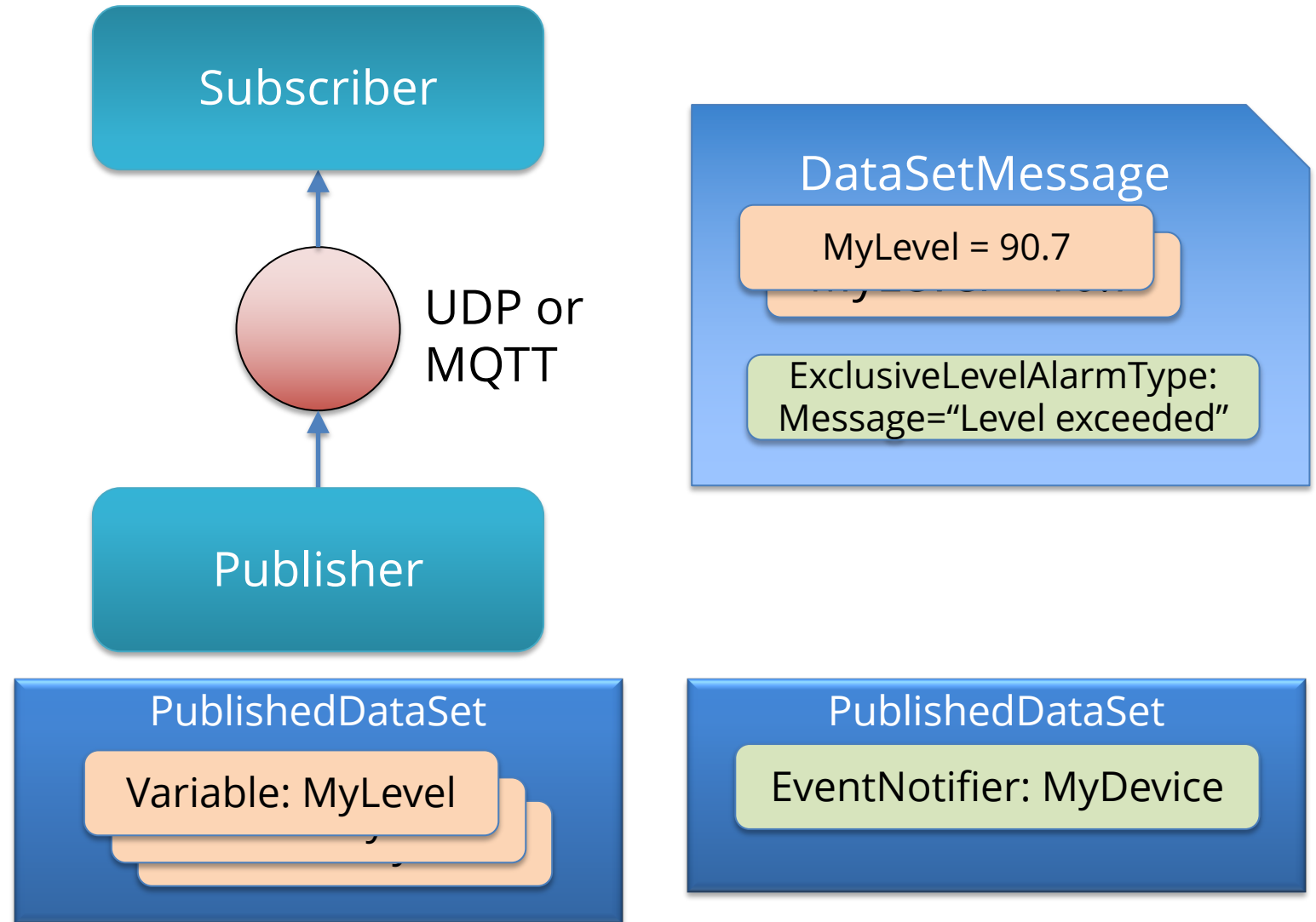
FINNISH SOCIETY OF AUTOMATION
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Contents

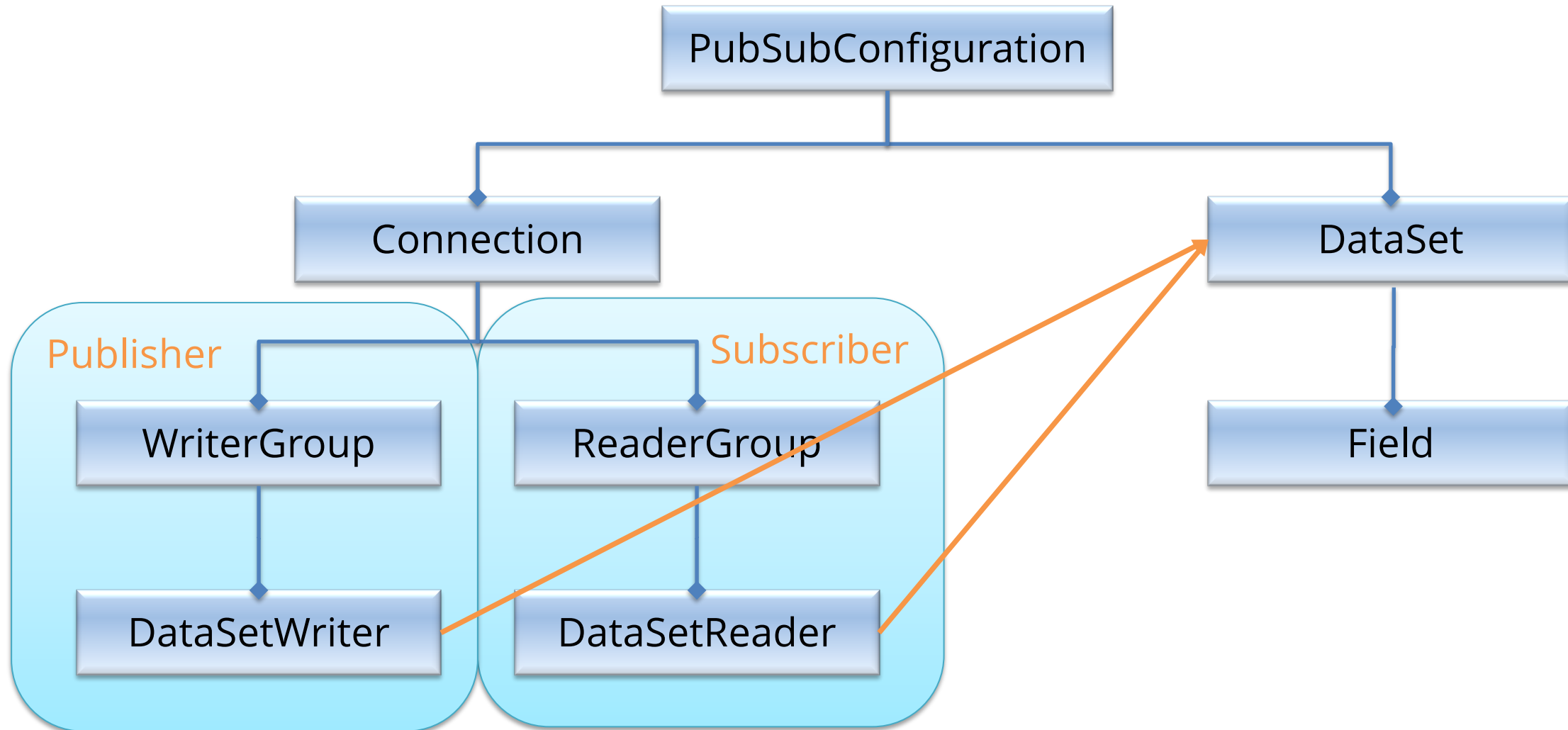
- OPC UA PubSub Model
- OPC UA PubSub Configuration
 - Connection
 - DataSets
- PubSub Demo
 - OPC UA Simulation Server as Publisher
 - OPC UA Browser as Subscriber
- Open Industry 4.0 Demo
 - Open Edge Computing Guideline
 - MessageBus based on OPC UA PubSub MQTT
 - Simulated Device
 - Vendor Nameplate – Master Asset Model
 - Device Health

OPC UA PubSub Model

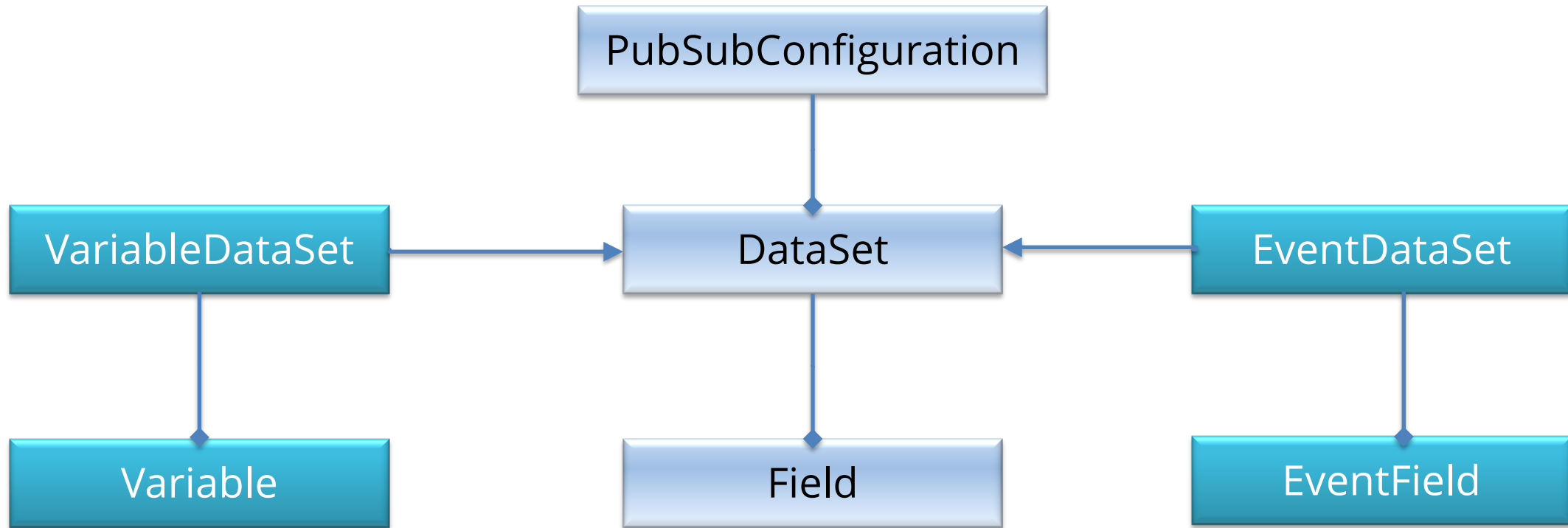
1. Create **DataSets** with
 - a. Variables
 - b. EventNotifiers
2. **Publish DataSetMessages** to Network with
 - a. Data Changes
 - b. Events
3. **Subscriber** can filter what it needs



Configuration

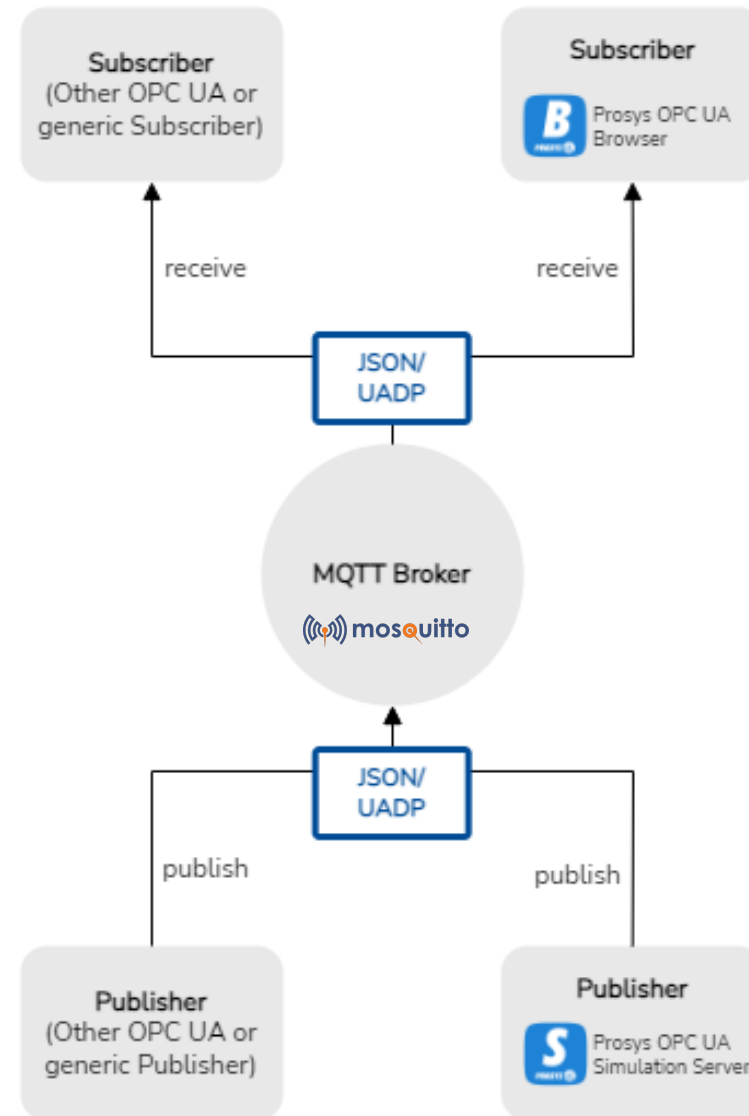


Configuration

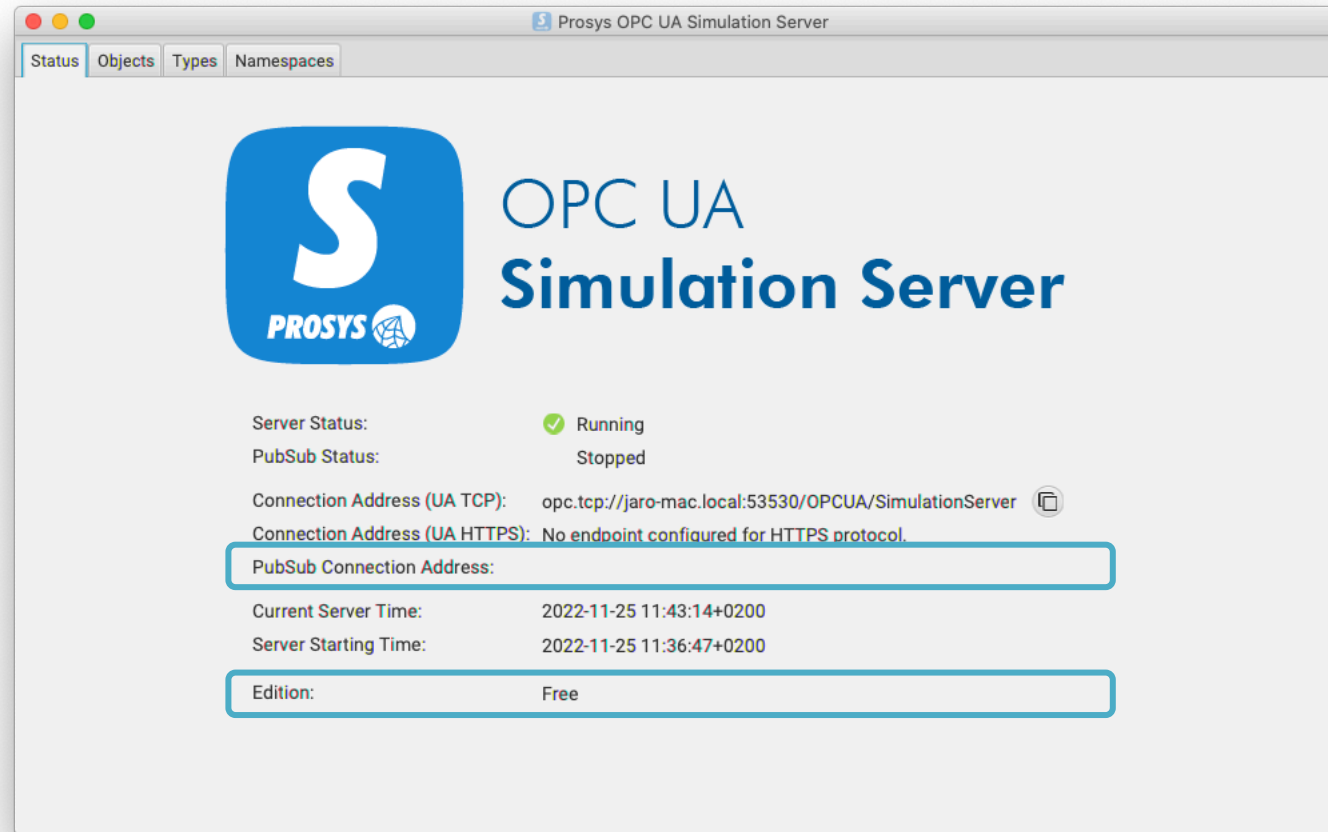


PubSub Demo

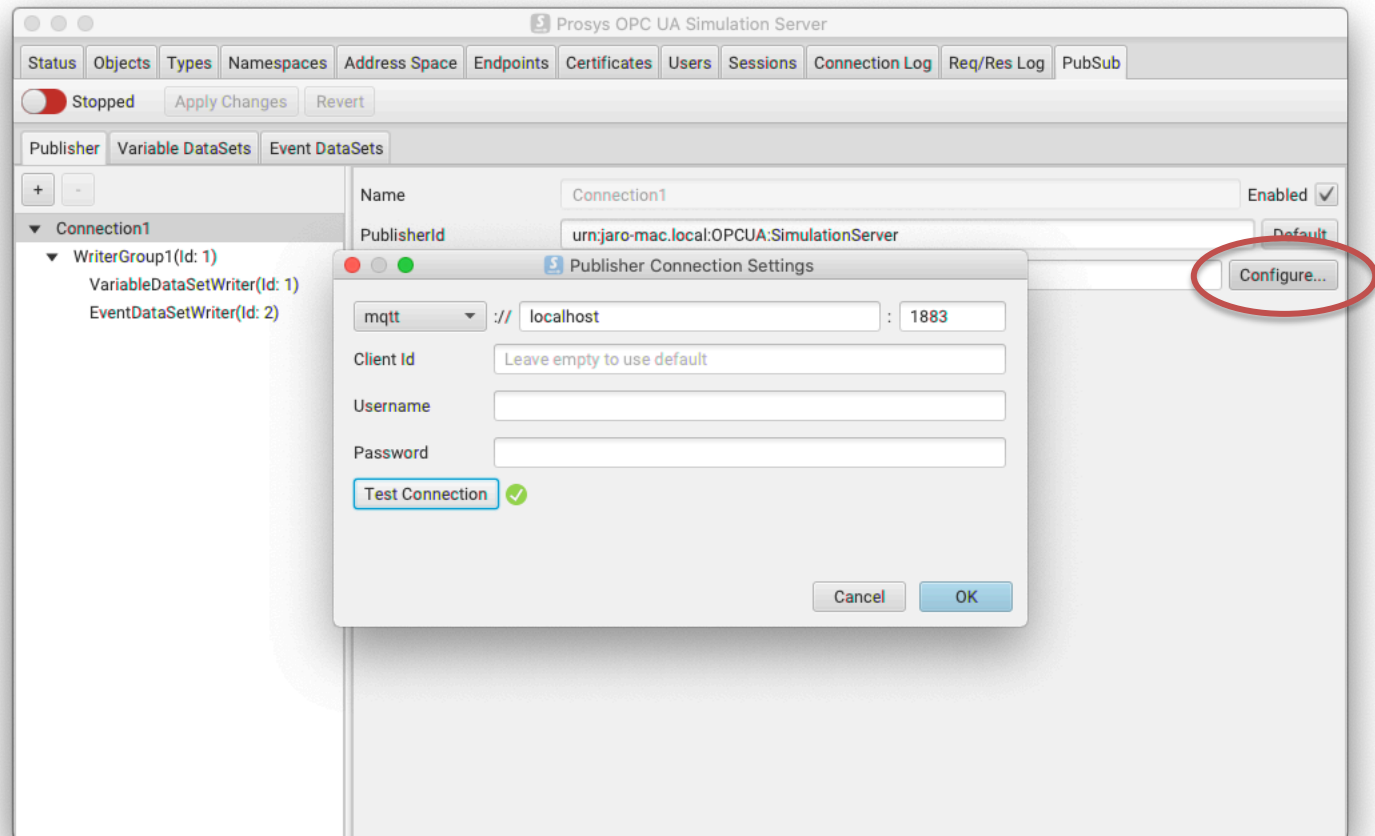
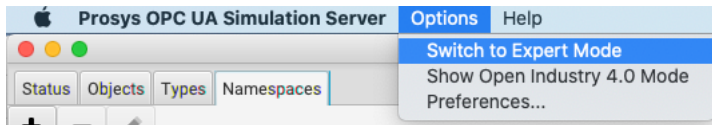
- Prosys OPC UA Simulation Server
- Eclipse Mosquitto MQTT Broker
- Prosys OPC UA Browser



Simulation Server as Publisher



Publisher Connection



Install and run



<https://mosquitto.org/download/>

VariableDataSet & VariableDataSetWriter

The image displays two screenshots of the Prosys OPC UA Simulation Server interface, illustrating the configuration of VariableDataSet and VariableDataSetWriter.

Left Screenshot: Variable DataSets Configuration

The interface shows the 'Variable DataSets' tab selected. The 'Variable DataSet Name' is 'SampleVariableDataSet'. The 'Published variables' table lists the following data:

Field Name	Description	Source NodeId	Value
Counter		ns=3;i=1001	10
Random		ns=3;i=1002	-1.813964
Sawtooth		ns=3;i=1003	-0.8
Sinusoid		ns=3;i=1004	-0.8134734
Square		ns=3;i=1005	2.0
Triangle		ns=3;i=1006	-0.5333334

Right Screenshot: VariableDataSetWriter Configuration

The 'VariableDataSetWriter' configuration window is shown. The 'DataSetWriter Name' is 'VariableDataSetWriter'. The 'DataSet' is 'SampleVariableDataSet'. The 'KeyFrameCount' is 5. The 'DataSet Message Content Mask' includes 'DataSetWriterId' (checked), 'Timestamp' (checked), and 'Status' (checked). The 'DataSet Field Content Mask' includes 'SourceTimestamp' (checked), 'ServerTimestamp' (checked), 'SourcePicoSeconds' (checked), 'ServerPicoSeconds' (checked), and 'RawData' (checked). The 'Queue Name' is 'prosysopc/json/data/urn:jaro-mac.local:OPCUA:SimulationServer/WriterGroup1/VariableDe'. The 'Metadata Queue Name' is 'prosysopc/json/metadata/urn:jaro-mac.local:OPCUA:SimulationServer/WriterGroup1/Varia'.

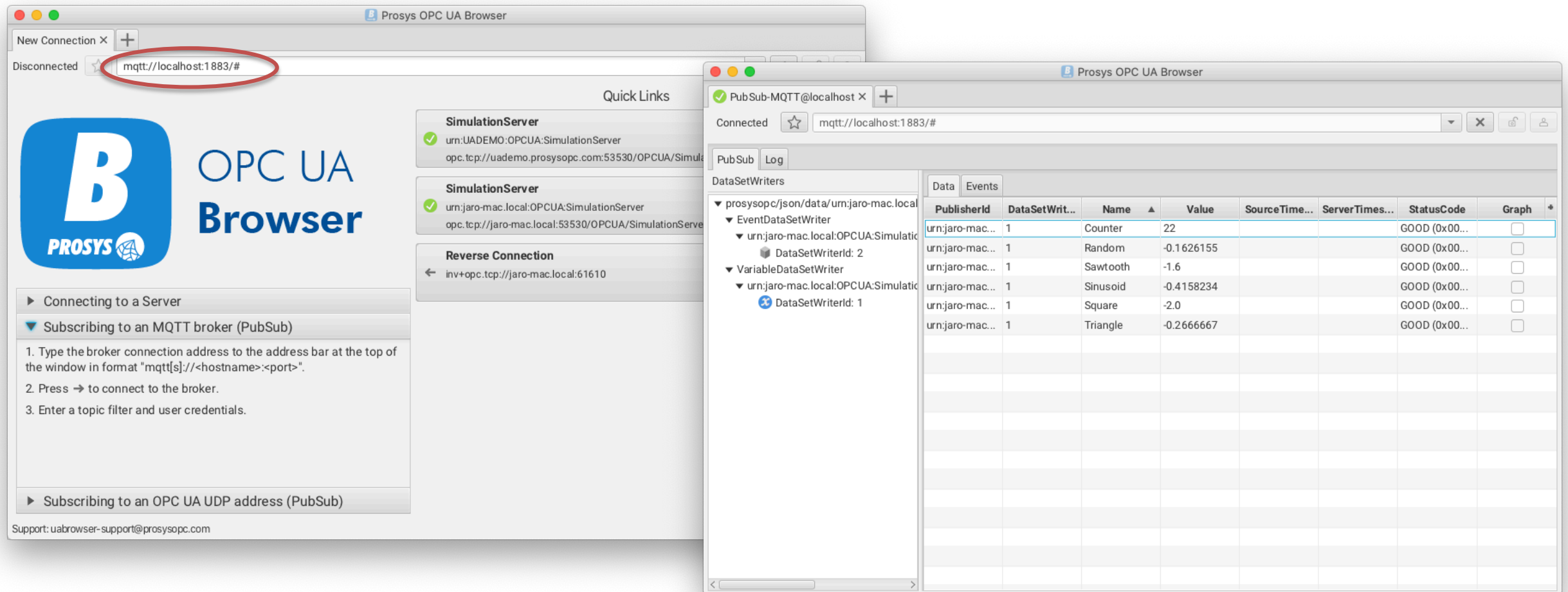
Simulation Server: PubSub Running

The image shows two overlapping screenshots of the Prosys OPC UA Simulation Server interface. The background screenshot shows the 'Status' tab with a 'Running' toggle switch circled in red. The foreground screenshot shows the 'PubSub' tab with the following details:

- Server Status:** Running (indicated by a green checkmark)
- PubSub Status:** Running (indicated by a green checkmark)
- Connection Address (UA TCP):** opc.tcp://jaro-mac.local:53530/OPCUA/SimulationServer
- Connection Address (UA HTTPS):** No endpoint configured for HTTPS protocol.
- PubSub Connection Address:** mqtt://localhost:1883 (circled in red)
- Current Server Time:** 2022-11-25 18:38:54+0200
- Server Starting Time:** 2022-11-25 18:18:47+0200
- Edition:** Free

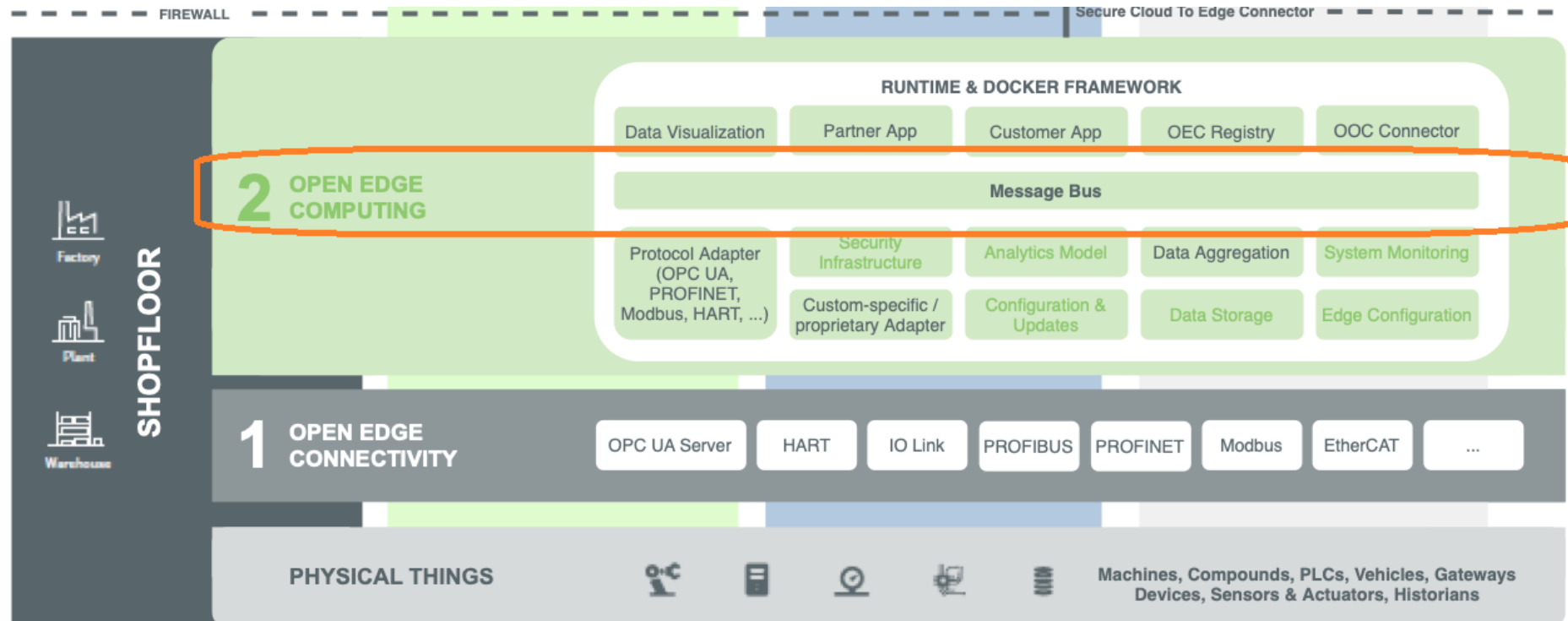
The Prosys OPC logo is visible in the bottom right corner.

OPC UA Browser as Subscriber



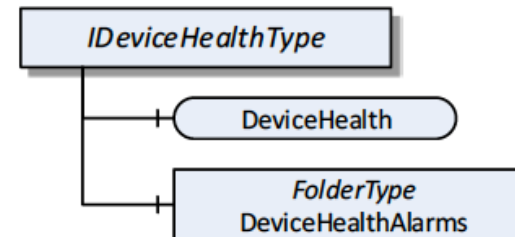
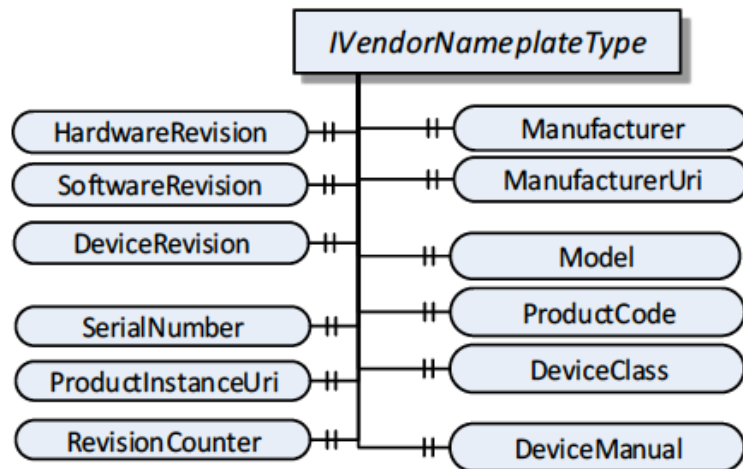
Open Industry 4.0 Simulation

- OEC Message Bus
 - OPC UA PubSub MQTT

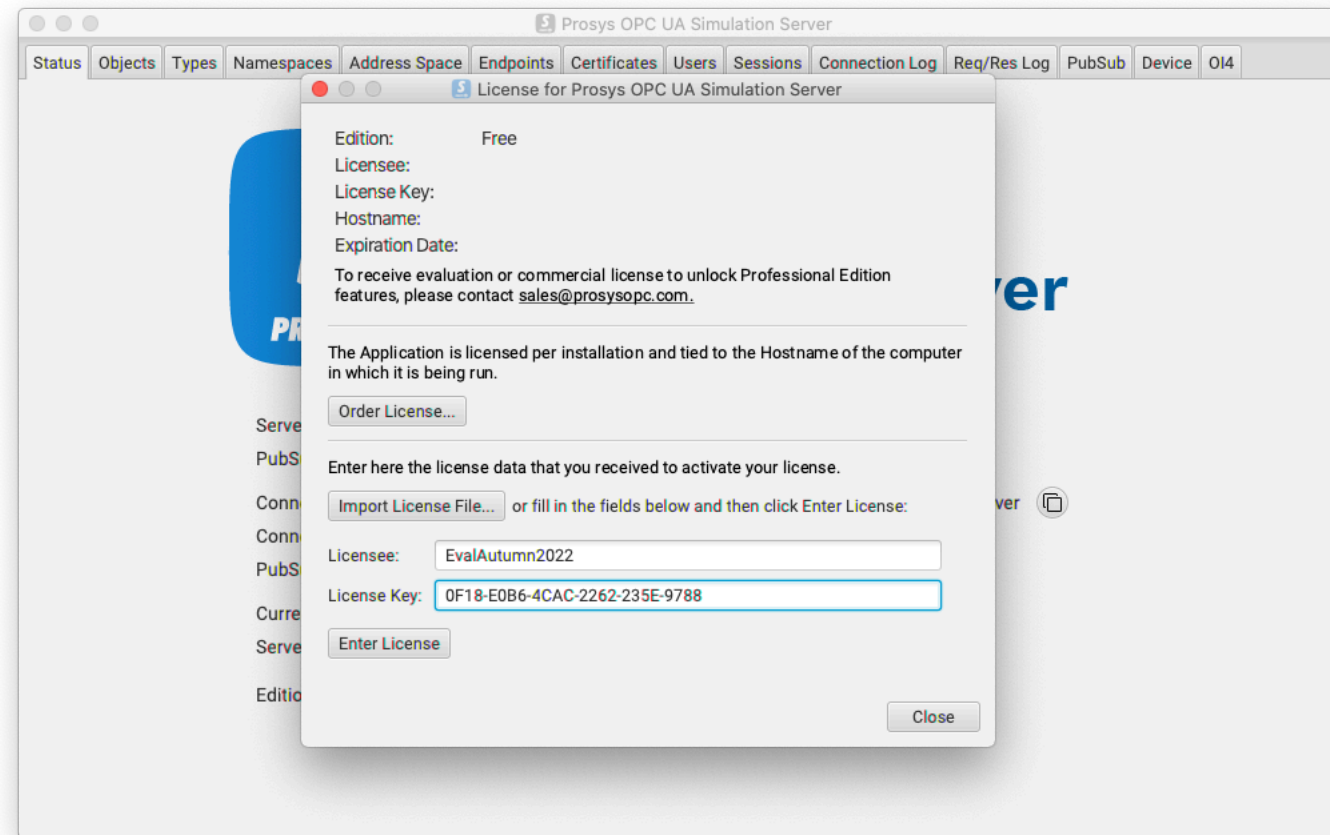


Open Industry 4.0 Simulation

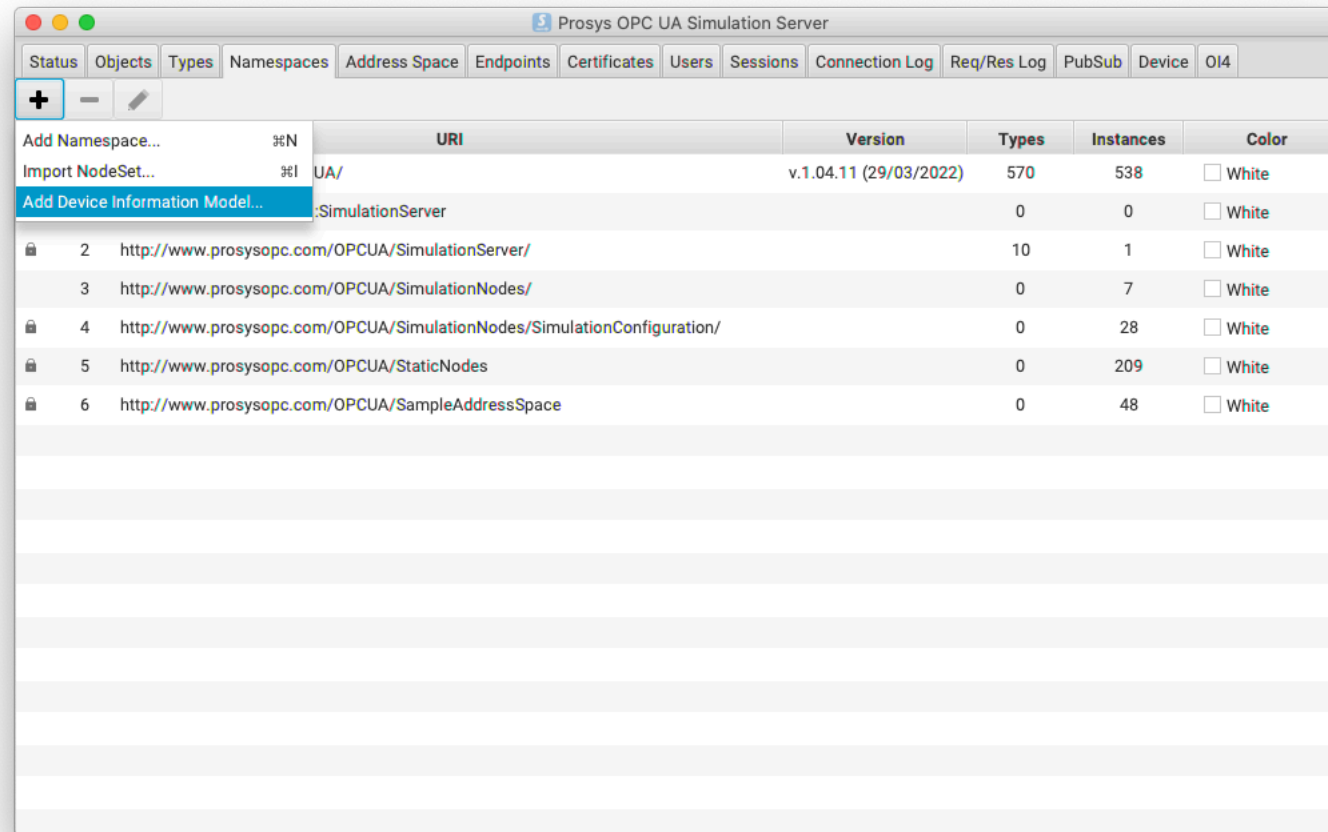
- Master Asset Model (mam) DataSet
 - OPC UA Vendor Nameplate
- Health (health) DataSet
 - OPC UA Health



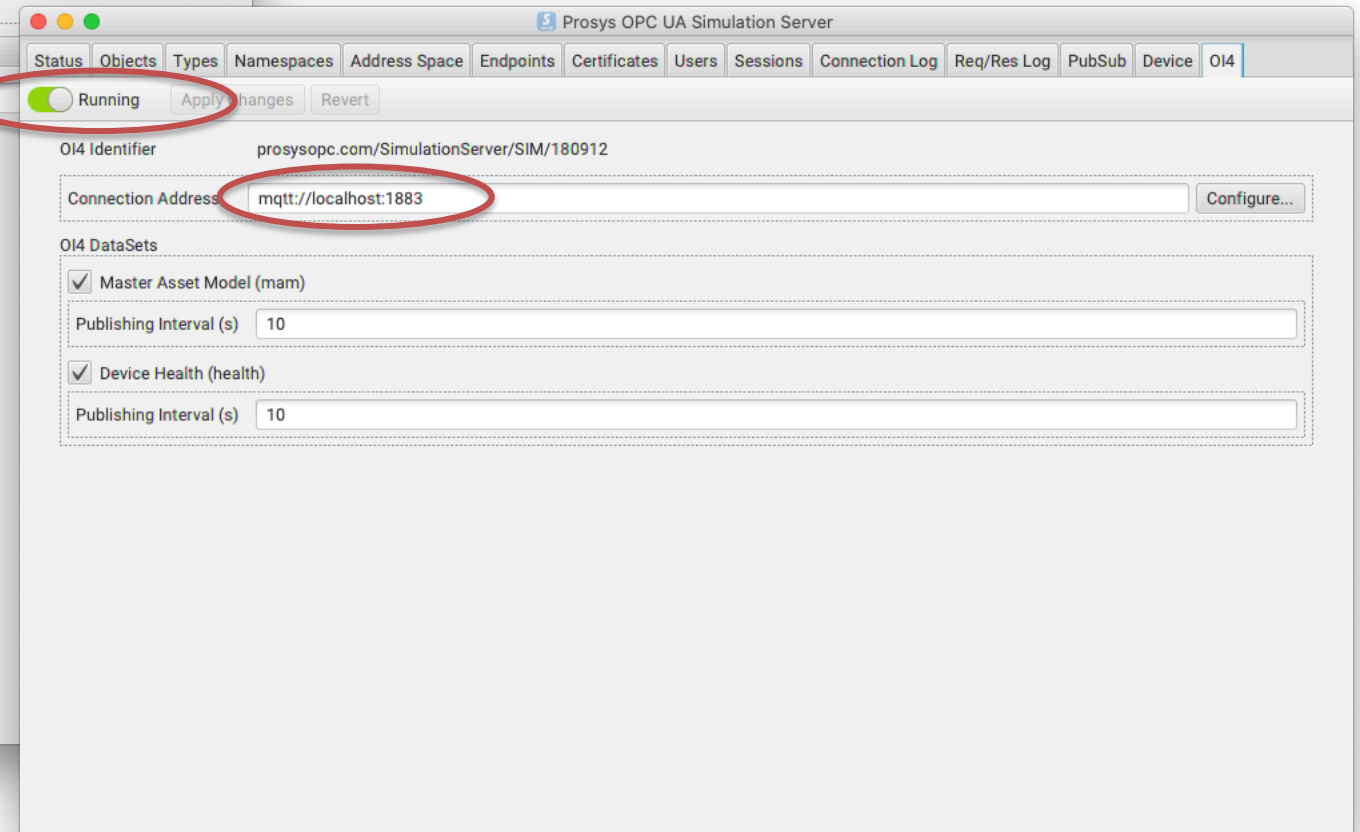
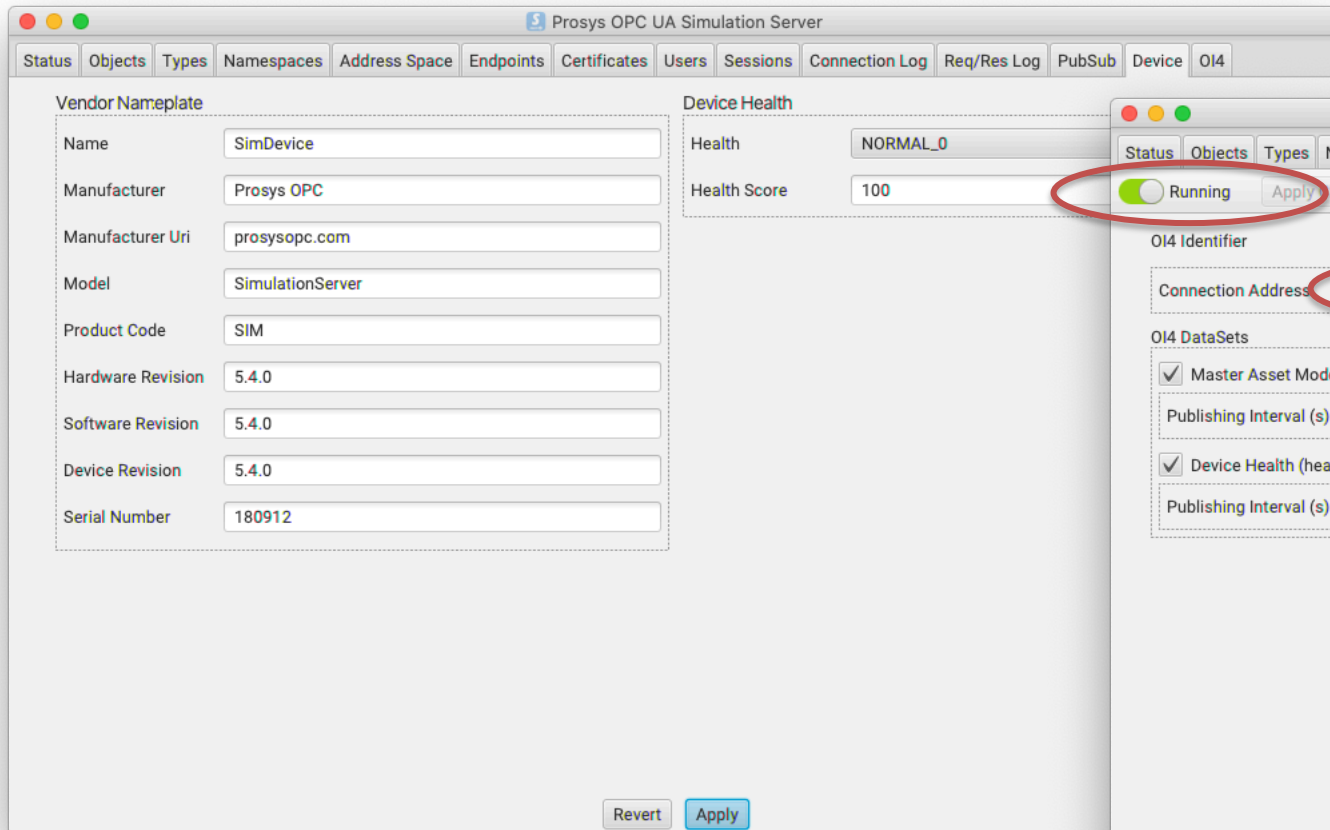
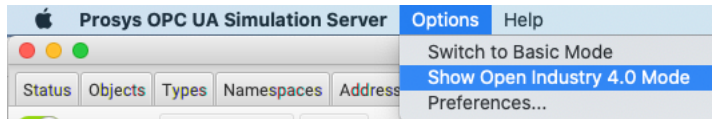
Simulation Server Pro License



Add Device Information Model



OI4 Simulation



OPC UA Browser as OI4 Subscriber

The screenshot shows the Prosys OPC UA Browser window. The title bar indicates the application is 'Prosys OPC UA Browser'. The address bar shows a connection to 'PubSub-MQTT@localhost' with the URL 'mqtt://localhost:1883/#'. The interface is divided into a left sidebar and a main table area.

Left Sidebar (DataSetWriters):

- oi4/OTConnector/prosysopc.com/Simu
 - health/prosysopc.com/SimulationSer
 - OTConnector/prosysopc.com/Simu
 - DataSetWriterId: 2
 - mam/prosysopc.com/SimulationServ
 - OTConnector/prosysopc.com/Simu
 - DataSetWriterId: 1
- prosysopc/json/data/urn:jaro-mac.local
 - EventDataDataSetWriter
 - urn:jaro-mac.local:OPCUA:Simulatio
 - DataSetWriterId: 2
 - VariableDataSetWriter
 - urn:jaro-mac.local:OPCUA:Simulatio
 - DataSetWriterId: 1

Main Table (Data):

PublisherId	DataSetWriterId	Name	Value
OTConnector/prosysopc.com/SimulationServer/SIM/180912	1	Description	This OT connecti...
OTConnector/prosysopc.com/SimulationServer/SIM/180912	1	DeviceClass	OI4.OTConnector
OTConnector/prosysopc.com/SimulationServer/SIM/180912	1	DeviceManual	TBD
OTConnector/prosysopc.com/SimulationServer/SIM/180912	1	DeviceRevision	5.4.0
OTConnector/prosysopc.com/SimulationServer/SIM/180912	1	HardwareRevision	5.4.0
OTConnector/prosysopc.com/SimulationServer/SIM/180912	1	Manufacturer	Prosys OPC
OTConnector/prosysopc.com/SimulationServer/SIM/180912	1	ManufacturerUri	prosysopc.com
OTConnector/prosysopc.com/SimulationServer/SIM/180912	1	Model	SimulationServer
OTConnector/prosysopc.com/SimulationServer/SIM/180912	1	ProductCode	SIM
OTConnector/prosysopc.com/SimulationServer/SIM/180912	1	ProductInstanceUri	prosysopc.com/...
OTConnector/prosysopc.com/SimulationServer/SIM/180912	1	RevisionCounter	1.0
OTConnector/prosysopc.com/SimulationServer/SIM/180912	1	SerialNumber	180912
OTConnector/prosysopc.com/SimulationServer/SIM/180912	1	SoftwareRevision	5.4.0
OTConnector/prosysopc.com/SimulationServer/SIM/180912	2	health	NORMAL_0
OTConnector/prosysopc.com/SimulationServer/SIM/180912	2	healthScore	100.0
urn:jaro-mac.local:OPCUA:SimulationServer	1	Counter	25
urn:jaro-mac.local:OPCUA:SimulationServer	1	Random	-1.831495
urn:jaro-mac.local:OPCUA:SimulationServer	1	Sawtooth	0.8
urn:jaro-mac.local:OPCUA:SimulationServer	1	Sinusoid	0.8134733

Thank you!



PROSYS OPC

Jouni Aro
Chief Technology Officer

jouni.aro@prosysopc.com

