**ENTITY DESCRIPTIONS**

The OPC-UA nodes are translated to FIWARE Orion Context Broker entities via mapping configuration file. The mapping is done in the following way (show below):

"contexts" : [ {

"id" : "age01\_TM\_Station",

"type" : "TM\_Station",

"service" : "opcua\_tmstation",

"subservice" : "/demo",

"polling" : false,

"mappings" : [ {

"ocb\_id" : "GoodPartsCounter",

"opcua\_id" : "ns=2;s=GoodPartsCounter",

"object\_id" : null,

"inputArguments" : [ ]

}, {

"ocb\_id" : "TotalPartsCounter",

"opcua\_id" : "ns=2;s=TotalPartsCounter",

"object\_id" : null,

"inputArguments" : [ ]

}, {

"ocb\_id" : "TargetQuantity",

"opcua\_id" : "ns=2;s=TargetQuantity",

"object\_id" : null,

"inputArguments" : [ ]

}, {

"ocb\_id" : "PackagingUnitQuantity",

"opcua\_id" : "ns=2;s=PackagingUnitQuantity",

"object\_id" : null,

"inputArguments" : [ ]

}, {

"ocb\_id" : "CycleTime",

"opcua\_id" : "ns=2;s=CycleTime",

"object\_id" : null,

"inputArguments" : [ ]

}, {

"ocb\_id" : "TMrobot\_Operation",

"opcua\_id" : "ns=3;s=OperationMode",

"object\_id" : null,

"inputArguments" : [ ]

}, {

"ocb\_id" : "TMrobot\_Gripper",

"opcua\_id" : "ns=3;s=GripperHold",

"object\_id" : null,

"inputArguments" : [ ]

}, {

"ocb\_id" : "TMrobot\_CycleTime",

"opcua\_id" : "ns=3;s=CycleTime",

"object\_id" : null,

"inputArguments" : [ ]

}, {

"ocb\_id" : "Conveyor\_Sensor1",

"opcua\_id" : "ns=5;s=Sensor1",

"object\_id" : null,

"inputArguments" : [ ]

}, {

"ocb\_id" : "Conveyor\_Sensor2",

"opcua\_id" : "ns=5;s=Sensor2",

"object\_id" : null,

"inputArguments" : [ ]

}, {

"ocb\_id" : "Conveyor\_CycleTime",

"opcua\_id" : "ns=5;s=CycleTime",

"object\_id" : null,

"inputArguments" : [ ]

}, {

"ocb\_id" : "OTTO\_Battery",

"opcua\_id" : "ns=4;s=Battery",

"object\_id" : null,

"inputArguments" : [ ]

}, {

"ocb\_id" : "OTTO\_Serial",

"opcua\_id" : "ns=4;s=Serial",

"object\_id" : null,

"inputArguments" : [ ]

}, {

"ocb\_id" : "OTTO\_Name",

"opcua\_id" : "ns=4;s=Name",

"object\_id" : null,

"inputArguments" : [ ]

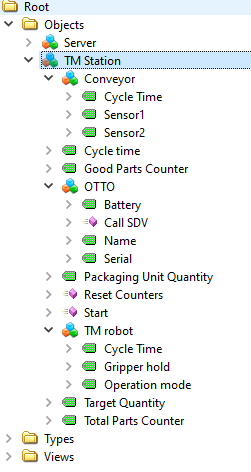
}

]

This is also presenting the entities available in the context broker.

**Entity description**

* Cycle time – numeric variable, presenting the complete cycle time of a workstation
* Good parts counter – numeric variable, presenting the counter of good partis since last counter reset
* Total parts counter – numeric variable, presenting the total count of parts since last reset of the counters. It is actually presenting the sum of good and bad parts
* Target quantity – numeric variable, presenting the goal count of good parts to complete the work order
* Packaging unit quantity – numeric variable, presenting the amount of parts, which fits in transportation box. This variable is used for automatic call of the OTTO SDV.
* Sensor 1 – Boolean variable, presenting the status of the sensor at the drop zone of the conveyor. This data can be used to determine bottlenecks and unusual behavior
* Sensor 2 – Boolean variable, presenting the status of the sensor at the pick zone of the conveyor. This data can be used to determine bottlenecks and unusual behavior
* Operation mode – numeric variable, mode of the robot. It can be used to detect errors and interference of the operators



*OPC-UA discovery example*