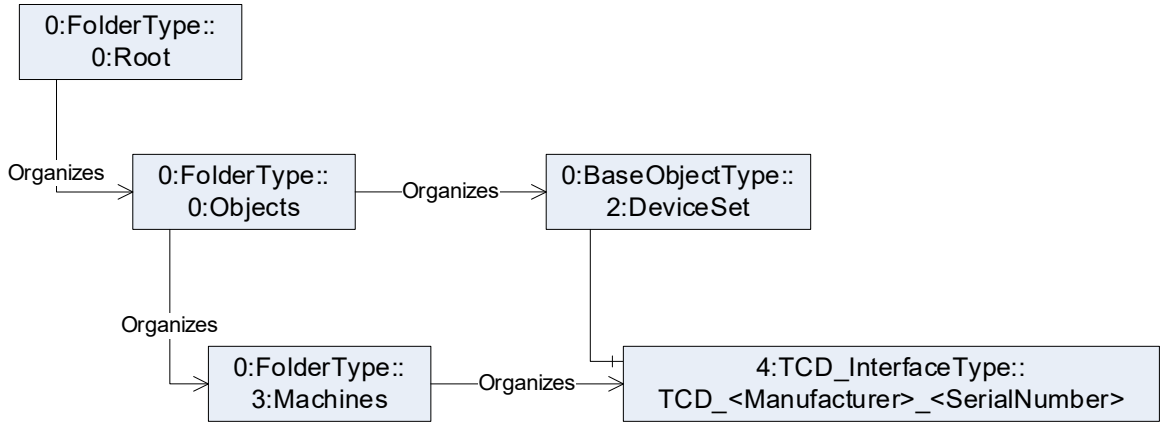
OPC 40082-1 Instance for umati Demonstrator

The namespace for the instances is manufacturer specific, e.g.
`http://samplemanufacturer.org/umati_opc40082-1_sample_instance/`

Table 2 shows the complete structure of the instance needed for the umati demonstrator. The demonstrator requires, that all mandatory elements of the *TCD_InterfaceType* are existent, even if there are not displayed in the dashboard. If the value of a variable a not displayed, is can be filled with a static dummy value (e.g. empty string). All displayed values are highlighted in light-blue.

Important: In OPC 40082-1 it is defined, that the instance of the *TCD_InterfaceType* is located under the Object *DeviceSet*. For umati it is necessary to add it under the Machines folder defined by OPC UA for machinery. In practice it is not necessary to create a new instance. It is sufficient to have an *Organizes Reference* from the *Machines* folder to the instance located under DeviceSet



In addition, OPC 40082-1 uses the *MachineInformationType* defined in OPC 40083. For participation in the umati demonstrator it is necessary to create in parallel an instance of the *MachineIdentificationType* defined in OPC UA for Machinery.

Table 1 – Namespaces used in this document

NamespaceURI	Namespace Index	Example
http://opcfoundation.org/UA/	0	0:NodeVersion
http://opcfoundation.org/UA/PlasticsRubber/TCD/	1	*Default namespace of OPC 40082-1 → no prefix used, e.g.* TCD_InterfaceType
http://opcfoundation.org/UA/DI/	2	2:DeviceClass
http://opcfoundation.org/UA/PlasticsRubber/GeneralTypes/	3	3:MachineInformationType
http://opcfoundation.org/UA/Machinery	4	4:MachineIdentificationType

Table 2 – Sample instance of TCD_InterfaceType

BrowseName	Type	Example Value	Remarks
Objects			
↳ Machines			
↳ TCD_<Manufacturer>_<SerialNumber>	TCD_InterfaceType		
↳ 2:Identification	4:MachineIdentificationType		1)
– 2:ProductInstanceUri		“http://samplemanufacturer.com/ TCD1234”	2)
– 2:Manufacturer	0:LocalizedText	“Sample Manufacturer”	
– 2:Model	0:LocalizedText	“TCD 3000”	3)
– 2:SerialNumber	0:String	“1234”	
– 2:DeviceClass	0:String	“Temperature Control Device”	
– 4:Location	0:String	“K 14 F42/N 51.260407 E 6.744588”	3), 4)
↳ Identification	3:IdentificationType		
– 2:DeviceClass	0:String	“Temperature Control Device”	
– 2:Manufacturer	0:LocalizedText	“Sample Manufacturer”	
– 2:Model	0:LocalizedText	“TCD 3000”	
– 2:SerialNumber	0:String	“1234”	
↳ MachineConfiguration	3:MachineConfigurationType		2)
– 3:UserMachineName	0:String	“My TCD”	2)
– 3:LocationName	0:String	“K 14 F42/N 51.260407 E 6.744588”	2)
– 3:TimeZoneOffset	0:TimeZoneDataType	*offset*: 0 *daylightSavingInOffset:* true	2)
↳ TCDSpecification	TCDSpecificationType		
– ConnectedLoad	0:AnalogItemType → 0:Double	10.2	2)
– EURange	0:Range	Low: 0 High: 20	2)
– EngineeringUnits	0:EUInformation	namespaceUri: “http://www.opcfoundation.org/UA/ units/un/cefact” unitId: 4937556 displayName: “kw” description: “kilowatt”	2)
– MaxTemperature	0:AnalogItemType → 0:Double	160	
– EURange	0:Range	Low: 0 High: 200	
– EngineeringUnits	0:EUInformation	namespaceUri: “http://www.opcfoundation.org/UA/ units/un/cefact” unitId: 4408652 displayName: “°C” description: “degree Celsius”	
– NominalFlowRate	0:AnalogItemType → 0:Double	45	2)
– EURange	0:Range	Low: 0 High: 100	2)
– EngineeringUnits	0:EUInformation	namespaceUri: “http://www.opcfoundation.org/UA/ units/un/cefact” unitId: 19506 displayName: “l/min” description: “litre per minute”	2)
– PowerValue	0:AnalogItemType → 0:Double	8	2)
– EURange	0:Range	Low: 0 High: 20	2)
– EngineeringUnits	0:EUInformation	namespaceUri: “http://www.opcfoundation.org/UA/ units/un/cefact” unitId: 4937556 displayName: “kw” description: “kilowatt”	2)
↳ Operation	OperationType		
– ActiveErrors	3:ActiveErrorDataType	*empty array / NULL*	2)
– DeviceMappingNumber	0:UInt32	1	2)
– HighestAlarmSeverity	0:UInt16	0	2)
– OperationMode	OperatingModeEnumeration	2 (= NORMAL_OPERATION)	

BrowseName	Type	Example Value	Remarks
↳ DeviceZone	DeviceZoneType		
↳ Temperature	3:ControlledParameterType		
– ActualValue	0:AnalogItemType → 0:Double	122.4	
– EURange	0:Range	Low: 0 High: 200	
– EngineeringUnits	0:EUInformation	namespaceUri: “http://www.opcfoundation.org/UA/units/un/cefact” unitId: 4408652 displayName: “°C” description: “degree Celsius”	

1) Not included in OPC 40084-1 TCD_InterfaceType. To be added in the instance
2) This variable is mandatory in the model but will not be displayed in the demonstrator
3) Not mandatory in OPC UA for Machinery but for this model and will be displayed in the demonstrator
4) See https://showcase.umati.org/Dashboard.html#location-of-fair-machine-and-software-icons-on-the-dashboard for rules for filling the location.