

## MARTe2-components - User story #351

### OPCUA

08.11.2018 11:05 - André Neto

<b>Status:</b> Closed	<b>Start date:</b> 08.11.2018
<b>Priority:</b> Normal	<b>Due date:</b>
<b>Assignee:</b>	<b>% Done:</b> 0%
<b>Category:</b>	<b>Estimated time:</b> 0.00 hour
<b>Target version:</b>	<b>Spent time:</b> 0.00 hour
<b>Git branch (link):</b>	<b>SVN commit (link/?p=rev):</b>
<b>Git merge to develop (link):</b>	

#### Description

Documentation, linting and coverage checked. Deployed in develop.

Implement an OPCUA interface for signals and StructuredDataI.

## Source code files modified

## Architecture & design review

**Date of the review:** //2019

**Person who did the review:** Andre' Neto

**Version of architecture & design document:** N/A. Strategy and main ideas for implementation discussed with B. Bauvir in informal meetings.

**Result of review:** N/A

**List of non-conformities:** N/A

## Code and documentation review

**Date of the review:** 13/07/2020

**Person who did the review:** Dídac Magriñá

**Result of review:** PASS

**List of non-conformities:**

#### Headers

**OK:** All headers are correctly formatted

**OK:** no errors found.

#### Possible Memory Issues:

- OPCUAClientI
  - GetReferences:
    - missing check to number of nodes before accessing bReq.nodesToBrowse
- OPCUAClientMethod, OPCUAClientRead, OPCUAClientWrite
  - Destructor (of three mentioned classes):
    - missing check if tempVariant and monitoredNodes are allocated before deleting them
  - GetExtensionObjectByteString (of three mentioned classes):
    - missing check if index is within range before accessing entryTypes and entryArrayElements
    - missing check if valueMemories[nodeCounter] is not null before accessing

- missing check if tempDataPtr[nOfBytes] is not null before accessing
  - SetServiceRequest (of three mentioned classes):
    - missing delete bReq.nodesToBrowse
  - OPCUAClientMethod::SetObjectRequest
    - missing delete tempStringnodeId after its allocation in OPCUAClient::GetReferences
    - missing delete ombReq.nodesToBrowse
  - OPCUAClientMethod::SetMethodRequest
    - missing delete tempStringnodeId after its allocation in OPCUAClient::GetReferences
    - missing delete mbReq.nodesToBrowse
  - OPCUAClientWrite::SetWriteRequest
    - missing check if writeValues[idx] is not null before accessing
- OPCUADSInput, OPCUADSOutput
  - GetSignalMemoryBuffer (of both classes)
    - missing check if signalIdx is within range before accessing types and nElements
  - GetStructure (of both classes)
    - missing check if index is within range before accessing entryArrayElements, entryTypes, and entryNumberOfMembers
- OPCUANode
  - Destructor
    - missing delete of settings->attr.arrayDimensions created on OPCUANode::InitArray
    - missing delete of settings->attr.value.arrayDimensions created on OPCUANode::InitArray
- OPCUAClient
  - MapStructuredData
    - missing check if index is within range before accessing entryArrayElements, entryTypes, and entryMemberNames

#### Documentation Improvements:

- Document structures in OPCUATypes.h following Doxygen style
- Confirm that multiple extension objects are not supported as per OPCUADSInput/OPCUADSOutput documentation. If they are supported, consider adding a test for this use case.

When using Complex DataType Extension, the DataSource only allows to write 1 structure. If you need to add more signals you must add another OPCUADSInput DataSource to your real time application.

```

ERR: /home/andre/Projects/MARTE2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:45: warning: Compound OPCUA::NodeProperties is not documented.
ERR: /home/andre/Projects/MARTE2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:60: warning: Compound OPCUA::ObjectProperties is not documented.
ERR: /home/andre/Projects/MARTE2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:54: warning: Member OPCUANodeSettings (typedef) of namespace OPCUA is not documented.
ERR: /home/andre/Projects/MARTE2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:68: warning: Member OPCUAObjectSettings (typedef) of namespace OPCUA is not documented.
ERR:
/home/andre/Projects/MARTE2-components/Source/Components/DataSources/OPCUADDataSource/OPCUAClientMethod.h:90:
warning: argument 'nodePaths' of command @param is not found in the argument list of
MARTE::OPCUAClientMethod::SetMethodRequest(const uint16 methodNamespaceIndex, StreamString methodPath)
ERR:
/home/andre/Projects/MARTE2-components/Source/Components/DataSources/OPCUADDataSource/OPCUAClientMethod.h:90:
warning: The following parameters of MARTE::OPCUAClientMethod::SetMethodRequest(const uint16 methodNamespaceIndex, StreamString methodPath) are not documented:
ERR:
/home/andre/Projects/MARTE2-components/Source/Components/DataSources/OPCUADDataSource/OPCUAClientMethod.h:79:
warning: argument 'nodePaths' of command @param is not found in the argument list of
MARTE::OPCUAClientMethod::SetObjectRequest(const uint16 methodNamespaceIndex, StreamString methodPath)
ERR:
/home/andre/Projects/MARTE2-components/Source/Components/DataSources/OPCUADDataSource/OPCUAClientMethod.h:79:
warning: The following parameters of MARTE::OPCUAClientMethod::SetObjectRequest(const uint16 methodNamespaceIndex, StreamString methodPath) are not documented:
ERR: /home/andre/Projects/MARTE2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:46: warning: Member attr (variable) of class OPCUA::NodeProperties is not documented.
ERR: /home/andre/Projects/MARTE2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:47: warning: Member value (variable) of class OPCUA::NodeProperties is not documented.
ERR: /home/andre/Projects/MARTE2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:48: warning: Member nodeId (variable) of class OPCUA::NodeProperties is not documented.

```

**ERR:** /home/andre/Projects/MARTe2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:49: warning: Member nodeName (variable) of class OPCUA::NodeProperties is not documented.  
**ERR:** /home/andre/Projects/MARTe2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:50: warning: Member parentNodeId (variable) of class OPCUA::NodeProperties is not documented.  
**ERR:** /home/andre/Projects/MARTe2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:51: warning: Member parentReferenceNodeId (variable) of class OPCUA::NodeProperties is not documented.  
**ERR:** /home/andre/Projects/MARTe2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:61: warning: Member attr (variable) of class OPCUA::ObjectProperties is not documented.  
**ERR:** /home/andre/Projects/MARTe2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:62: warning: Member nodeId (variable) of class OPCUA::ObjectProperties is not documented.  
**ERR:** /home/andre/Projects/MARTe2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:63: warning: Member nodeName (variable) of class OPCUA::ObjectProperties is not documented.  
**ERR:** /home/andre/Projects/MARTe2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:64: warning: Member parentNodeId (variable) of class OPCUA::ObjectProperties is not documented.  
**ERR:** /home/andre/Projects/MARTe2-components/Source/Components/Interfaces/OPCUA/OPCUATypes.h:65: warning: Member parentReferenceNodeId (variable) of class OPCUA::ObjectProperties is not documented.

#### Refactoring Suggestions:

- OPCUAClientRead, OPCUAClientWrite, and OPCUAClientMethod have very similar methods that could be moved up to their interface OPCUAClientI:
  - SetServiceRequest
  - GetExtensionObjectByteString

## Unit test review

**Date of the review:** 13/07/2019

**Person who did the review:** Dídac Magriñá

**Result of coverage tests review:** PASS

**Result of functional tests review:** PASS

**Result of review:** PASS

#### **List of non-conformities:**

- OPCUAMessageClient: coverage lower than 90% (82.9%)
- The mock OPCUA server used in other tests could be leveraged on OPCUAClientMethodTest, OPCUAMessageClientTest to check if UpdatePoint method has been called with expected parameters
- OPCUAServerTest: on Execute tests there is no check to confirm that data has been updated correctly
- OPCUAClientReadTest, OPCUAClientWriteTest: there is no check to confirm that data has been read/written correctly on server

**ERR:** Test file not found: Test/Components/Interfaces/OPCUA/OPCUATypesGTest.cpp

**ERR:** OPCUAObject:IsFirstObject is not tested

**ERR:** OPCUAObject:IsObject is not tested

**ERR:** OPCUAObject:SetFirst is not tested

**ERR:** OPCUAMessageClient:GetOPCUAClient is not tested

**ERR:** OPCUAMessageClient:GetServerAddress is not tested

**ERR:** OPCUARefrenceContainer:GetNumberOfDimensions is not tested

**ERR:** OPCUARefrenceContainer:GetNumberOfElements is not tested

**ERR:** OPCUARefrenceContainer:GetParentNodeId is not tested

**ERR:** OPCUARefrenceContainer:IsFirstObject is not tested

**ERR:** OPCUARefrenceContainer:SetNodeId is not tested

**ERR:** OPCUARefrenceContainer:SetNodeType is not tested

**ERR:** OPCUARefrenceContainer:SetNumberOfDimensions is not tested

**ERR:** OPCUARefrenceContainer:SetNumberOfElements is not tested

**ERR:** OPCUARefrenceContainer:SetParent is not tested

**ERR:** OPCUANode:IsNode is not tested

**ERR:** OPCUAServer:GetCPUMask is not tested

**ERR:** OPCUAServer:GetPort is not tested

**ERR:** OPCUAServer:GetRunning is not tested

**ERR:** OPCUAServer:GetStackSize is not tested

**ERR:** OPCUAServer:SetRunning is not tested

```
ERR: OPCUAClientMethod:GetMonitoredNodes is not tested
ERR: OPCUAClientRead:GetMonitoredNodes is not tested
ERR: OPCUAClientWrite:GetMonitoredNodes is not tested
ERR: OPCUAClientI:GetDataPtr is not tested
ERR: OPCUAClientI:GetExtensionObjectByteString is not tested
ERR: OPCUAClientI:GetNumberOfNodes is not tested
ERR: OPCUAClientI:GetServerAddress is not tested
ERR: OPCUAClientI:GetValueMemories is not tested
ERR: OPCUAClientI:SetServiceRequest is not tested
ERR: OPCUADSOutput:AllocateMemory is not tested
ERR: OPCUADSOutput:GetBrokerName is not tested
ERR: OPCUADSOutput:GetOPCUAClient is not tested
ERR: OPCUADSOutput:GetServerAddress is not tested
ERR: OPCUADSOutput:GetSignalMemoryBuffer is not tested
ERR: OPCUADSOutput:PrepareNextState is not tested
ERR: OPCUADSOutput:Synchronise is not tested
ERR: OPCUADSInput:AllocateMemory is not tested
ERR: OPCUADSInput:GetBrokerName is not tested
ERR: OPCUADSInput:GetOPCUAClient is not tested
ERR: OPCUADSInput:GetServerAddress is not tested
ERR: OPCUADSInput:GetSignalMemoryBuffer is not tested
ERR: OPCUADSInput:PrepareNextState is not tested

ERR: DataSources/OPCUADDataSource/OPCUAClientI.cpp: insufficient line coverage: (87.0 % < 90.0 %)
ERR: DataSources/OPCUADDataS.../OPCUAClientMethod.cpp: insufficient line coverage: (85.5 % < 90.0 %)
ERR: DataSources/OPCUADDataSource/OPCUAClientRead.cpp: insufficient line coverage: (83.1 % < 90.0 %)
ERR: DataSources/OPCUADDataS...e/OPCUAClientWrite.cpp: insufficient line coverage: (84.5 % < 90.0 %)
ERR: Interfaces/OPCUA/OPCUAMessageClient.cpp: insufficient line coverage: (78.9 % < 90.0 %)
```

#### GTest report

```
[-----] Global test environment tear-down
[=====] 154 tests from 11 test cases ran. (135431 ms total)
[ PASSED ] 154 tests.
```

## History

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### #1 - 12.06.2019 11:29 - André Neto

- Status changed from Code: Impl to Code: Rev

### #2 - 12.06.2019 11:29 - André Neto

- Assignee changed from Luca Porzio to André Neto

### #3 - 14.06.2019 18:08 - André Neto

- Status changed from Code: Rev to Unit: Rev

### #4 - 14.06.2019 18:09 - André Neto

- Status changed from Unit: Rev to Closed

- Description updated

### #5 - 16.12.2019 15:24 - André Neto

- Description updated

- Status changed from Closed to Code: Rev

- Assignee changed from André Neto to Giuseppe Ferro

### #6 - 29.01.2020 12:23 - André Neto

- Assignee deleted (Giuseppe Ferro)

### #7 - 11.03.2020 10:20 - André Neto

- Assignee set to Didac Magrina

**#8 - 22.04.2020 10:49 - André Neto**

- Status changed from Code: Rev to Code: Impl

**#9 - 22.04.2020 10:50 - André Neto**

- Assignee changed from Didac Magrina to Luca Porzio

**#10 - 01.07.2020 09:51 - André Neto**

- Status changed from Code: Impl to Code: Rev

**#11 - 13.07.2020 15:35 - Didac Magrina**

- Description updated

**#12 - 15.07.2020 11:22 - Didac Magrina**

Branch #351\_OPCUA-Review has **not** been merged yet into develop. A simulation has been performed on branch develop\_merge\_#351\_OPCUA-Review, it required to:

- Fix conflicts accepting version from #351\_OPCUA-Review. Conflicts are due to some commits on develop modified OPCUA files but were not present on #351\_OPCUA-Review. See commits between 489e09d6 and 0b7200c7
- Remove tests that remained from develop branch but were removed on #351\_OPCUA-Review. See commit 33ebbd5c

**#13 - 23.07.2020 09:46 - André Neto**

- Status changed from Code: Rev to Unit: Rev

**#14 - 23.07.2020 09:47 - André Neto**

- Assignee changed from Luca Porzio to André Neto

**#15 - 28.09.2020 08:12 - André Neto**

- Description updated

**#16 - 28.09.2020 08:12 - André Neto**

- Status changed from Unit: Rev to Closed

- Assignee deleted (André Neto)

QA good enough. Merged into develop and user-stories to improve QA will be added.

**#17 - 21.12.2020 16:24 - André Neto**

- Description updated