MARTe2-core - Meeting #347

MARTe2 QA-audit (v0.18)

05.09.2018 12:11 - André Neto

Status:	Closed	**Start date:**	31.05.2018
Priority:	Normal	**Due date:**	
Assignee:	André Neto	**% Done:**	0%
Category:		**Estimated time:**	0.00 hour
Target version:	v0.18	**Spent time:**	0.00 hour

Description

The v0.18 solves several minor bug fixes and offers new features:
- Sleep interface is now based on float (as opposed to double).
- The ObjectRegistryDatabase can be managed using Messages (e.g. to reload a new application).
- More than one RealTimeApplication can run in the same MARTe application

Requirements review

Date of the review: 05/09/2018

Person who did the review: André Neto

Version of requirements: N/A

Result of review: N/A

List of non-conformities: N/A

Comments: No new requirements were added w.r.t. to v0.14.

Architecture & design review

Date of the review: 05/09/2018

Person who did the review: André Neto

Version of architecture & design document: N/A

Result of review: N/A

List of non-conformities: N/A

Comments: No updates related to the architecture.

Code and documentation review

Date of the review: 05/09/2018

Person who did the review: André Neto

Version of source code: 0.18

Result of review: PASS

List of non-conformities:

```
 Note 974: Worst case function for stack usage: 'MARTe::ConfigurationDatabase::Copy' is recursive,
 loop contains call to 'MARTe::ConfigurationDatabase::Copy'. See +stack for a full report. [MISRA
 C++ Rule 7-5-4]
```

List of warnings reported by Doxygen:

```
documented symbol `DoubleInteger< T > MARTe::DoubleInteger< T >::operator &' was not declared or d
efined.    Source/Core/BareMetal/L0Types/DoubleInteger.h
documented symbol `void MARTe::DoubleInteger< T >::operator &=' was not declared or defined.    Co
re/BareMetal/L0Types/DoubleInteger.h
documented symbol `ReferenceT< T > * MARTe::ReferenceT< T >::operator &' was not declared or defin
ed.    Source/Core/BareMetal/L2Objects/ReferenceT.h
```

Remark
The documentation of DataSourceI has to be revisited.

Remark
The SquareRoot template methods for float32 and float64 need to be provided.

```
template<typename Type>
inline Type SquareRoot(const Type x) {

    Type tmp = x;

    if (tmp < (Type) 0) {
        REPORT_ERROR_STATIC_0(ErrorManagement::Warning, "SquareRoot<Type> of negative number");
        tmp *= -1;
    }

    return sqrt(tmp);
}
```

It is only valid for Type being float64. In case of float32, there would be an implicit casting to satisfy the sqrt method. Two implementations shall be provided to call sqrt and sqrtf, as appropriate

Remark
The following classes have non-virtual destructors. As long they are not base classes of any derived class, it is safe, but they need to be monitored (flexlint will check and signal this as error code 1509).

```
Matrix, Vector, GlobalObjectsDatabase, LoadableLibrary, MemoryArea, StaticListHolder, CharBuffer,
AnyTypeCreator, LexicalAnalyzer, Token, TokenInfo, Directory, MutexSem, ThreadInformation.
```

Unit test review

Date of the review: 05/09/2018

Person who did the review: André Neto

Version of unit tests: 0.18

Result of coverage tests review: PASS

Result of functional tests review: PASS

Result of review: PASS

List of non-conformities:

LCOV report (files containing functions not executed at all):
Note: execute with

```
lcov -l  Build/MARTe2.coverage.info
```

```
                                         |Lines      |Functions|Branches
Filename                                 |Rate    Num|Rate  Num|Rate   Num
===============================================================================
L1Portability/Environm...Linux/BasicConsole.cpp|79.4%   223|76.2%  42|   -    0
```

```
L1Portability/FastResourceContainer.cpp          |83.5%    97|71.4%    7|    -     0
L1Portability/MemoryArea.cpp                      |91.2%    57|91.7%   12|    -     0
L2Objects/ClassProperties.cpp                     |92.9%    28|87.5%    8|    -     0
L2Objects/Introspection.cpp                       |73.3%    15|85.7%    7|    -     0
L2Objects/IntrospectionEntry.cpp                  |88.3%   111|93.3%   15|    -     0
L2Objects/Object.cpp                              |88.8%   250|96.8%   31|    -     0
L5GAMs/GAM.cpp                                    |98.0%   349|94.6%   37|    -     0
ExceptionHandler.h                                | 0.0%     2| 0.0%    2|    -     0
```

LCOV report (files containing functions with coverage < 90%):

```
                                                  |Lines      |Functions|Branches
Filename                                          |Rate    Num|Rate  Num|Rate   Num
==================================================================================
L1Portability/Environm...Linux/BasicConsole.cpp  |79.4%   223|76.2%   42|    -     0
L1Portability/Environment/Linux/Sleep.cpp        |76.3%    93| 100%    8|    -     0
L1Portability/FastResourceContainer.cpp          |83.5%    97|71.4%    7|    -     0
L2Objects/ClassRegistryDatabase.cpp              |81.9%   127| 100%   15|    -     0
L2Objects/Introspection.cpp                      |73.3%    15|85.7%    7|    -     0
L2Objects/IntrospectionEntry.cpp                 |88.3%   111|93.3%   15|    -     0
L2Objects/Object.cpp                             |88.8%   250|96.8%   31|    -     0
L2Objects/ReferenceCon...erFilterReferences.cpp  |84.6%    13| 100%    5|    -     0
L3Streams/BufferedStreamIOBuffer.cpp             |86.0%    50| 100%    8|    -     0
L3Streams/DoubleBufferedStream.cpp               |82.7%   110|84.0%   25|    -     0
L3Streams/IOBufferFloatPrint.cpp                 |84.5%   464| 100%   29|    -     0
L3Streams/IOBufferIntegerPrint.cpp               |85.2%   460|93.5%   93|    -     0
L3Streams/SingleBufferedStream.cpp               |84.1%   176|83.3%   24|    -     0
L3Streams/StreamString.cpp                       |89.9%   149|88.9%   36|    -     0

[/home/aneto/Projects/MARTe2-dev/Source/Core/FileSystem/L1Portability/Environment/Linux/]
BasicFile.cpp                                     |87.8%   278|93.9%   33|    -     0
BasicTCPSocket.cpp                               |85.5%   234| 100%   25|    -     0
BasicUDPSocket.cpp                               |88.1%   118|95.7%   23|    -     0
Directory.cpp                                    |86.2%    80| 100%   15|    -     0
DirectoryScanner.cpp                             |88.0%    92|90.0%   10|    -     0

[/home/aneto/Projects/MARTe2-dev/Source/Core/FileSystem/L6App/Environment/Linux/]
Bootstrap.cpp                                     |41.9%    31|60.0%    5|    -     0

[/home/aneto/Projects/MARTe2-dev/Source/Core/Scheduler/L1Portability/]
ExceptionHandler.h                               | 0.0%     2| 0.0%    2|    -     0

[/home/aneto/Projects/MARTe2-dev/Source/Core/Scheduler/L5GAMs/]
GAMScheduler.cpp                                 |87.1%   132| 100%   15|    -     0
==================================================================================
                                        Total:|94.0% 19608|88.1%   7k|    -     0
```

GTest report

```
 [----------] Global test environment tear-down
 [==========] 3976 tests from 153 test cases ran. (238268 ms total)
 [  PASSED  ] 3975 tests.
 [  FAILED  ] 1 tests, listed below:
 [  FAILED  ] IOBufferGTest.TestPrintStructuredDataInterface
```

Integration test review

Date of the review: 05/09/2018

Person who did the review: André Neto

Version of integration tests: 0.18

Result of review: N/A

List of non-conformities: N/A

Comments: Not performed.

Acceptance test review

Date of the review: 05/09/2018

Person who did the review: André Neto

Version of acceptance tests: 0.18

Result of review: N/A

List of non-conformities: N/A

Comments: Not performed.

Related issues:		
copied from Meeting #342: MARTe2 QA-audit (v0.17)	**Closed**	**31.05.2018**

History

#1 - 05.09.2018 12:11 - André Neto

- copied from Meeting #342: MARTe2 QA-audit (v0.17) added

#2 - 05.09.2018 12:33 - André Neto

- Description updated