

## MARTe2-core - User story #268

### Type conversion engine

10.11.2015 09:18 - André Neto

<b>Status:</b> Closed	<b>Start date:</b> 10.11.2015
<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> 0.8	<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

Implement the TypeConversion engine based on the previous MARTe implementation and on the prototype available in the branch Configuration\_prototype.

This engine is responsible of the deserialisation of the types stored in the ConfigurationDatabase (scalars, vectors and matrices). Each deserialised item is then type converted using the ScalarTypeConversion.

Note that this work does NOT include the ScalarTypeConversion work (see [#269](#))

#### Source code files modified

- Source/Core/BareMetal/L0Types/Vector.h
- Source/Core/BareMetal/L0Types/Matrix.h
- Source/Core/BareMetal/L4Configuration/AnyObject.h
- Source/Core/BareMetal/L4Configuration/AnyObject.cpp
- Source/Core/BareMetal/L4Configuration/TypeConversion.h
- Source/Core/BareMetal/L4Configuration/TypeConversion.cpp
- Source/Core/BareMetal/L4Configuration/ConfigurationDatabase.h
- Source/Core/BareMetal/L4Configuration/ConfigurationDatabase.cpp
- Source/Core/BareMetal/L4Configuration/FloatToInteger.cpp
- Source/Core/BareMetal/L4Configuration/IntegerToFloat.cpp
- Source/Core/BareMetal/L4Configuration/StringToFloat.cpp
- Source/Core/BareMetal/L4Configuration/StringToInteger.cpp
- Test/Core/BareMetal/L0Types/VectorTest.h
- Test/Core/BareMetal/L0Types/VectorTest.cpp
- Test/Core/BareMetal/L0Types/MatrixTest.h
- Test/Core/BareMetal/L0Types/MatrixTest.cpp
- Test/Core/BareMetal/L4Configuration/AnyObjectTest.h
- Test/Core/BareMetal/L4Configuration/AnyObjectTest.cpp
- Test/Core/BareMetal/L4Configuration/TypeConversionTest.h
- Test/Core/BareMetal/L4Configuration/TypeConversionTest.cpp
- Test/Core/BareMetal/L4Configuration/ConfigurationDatabaseTest.h
- Test/Core/BareMetal/L4Configuration/ConfigurationDatabaseTest.cpp
- Test/GTest/AnyObjectGTest.cpp
- Test/GTest/TypeConversionGTest.cpp
- Test/GTest/ConfigurationDatabaseGTest.cpp

#### Architecture & design review

**Date of the review:** 10/11/2015

**Person who did the review:** André Neto

**Version of architecture & design document:** N/A. As per the original MARTe implementation. The interface was prototyped in a dedicated branch and discussed in a technical meeting.

**Result of review:** N/A

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

## Code and documentation review

**Date of the review:** 25/11/2015 [on commit 8c35328]

**Person who did the review:** Ivan Herrero

**Result of review:** PASS

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

### Comments:

- The Vector and Matrix classes implementation use the standard new and delete operators.
- On Vector and Matrix classes, the dataPointer member could be declared as a T\* instead of a void\*, so it will be unnecessary to use reinterpret\_cast<T\*> on code.
- On Vector and Matrix class, some functions could be non-members, like Product, Transpose, and so on.
- The methods Determinant and Inverse of the Matrix class are declared as inline, but they are so big that it is useless.
- The methods Determinant and Inverse of the Matrix class are defined with concrete types (Matrix<float32> and Matrix<float64>), because they make sense only for floats, but then they are not generic implementations.

## Unit test review

**Date of the review:** 25/11/2015 [on commit 8c35328]

**Person who did the review:** Ivan Herrero

**Result of coverage tests review:** PASS

**Result of functional tests review:** PASS

**Result of review:** PASS

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

### Associated revisions

#### Revision 24adff7a - 12.11.2015 18:54 - Giuseppe Ferro

#268 Work in Progress implementation and testing of type conversion

#### Revision d45779c7 - 13.11.2015 18:10 - Giuseppe Ferro

#268 Added Type conversion tests.  
Fixed code.

#### Revision 11105337 - 16.11.2015 18:11 - Giuseppe Ferro

Merge remote-tracking branch 'origin/develop' into #268\_TypeConversion

Conflicts:  
Test/GTest/Makefile.inc

#### Revision 8b3a6238 - 16.11.2015 18:33 - Giuseppe Ferro

Merge remote-tracking branch 'origin/#267\_Configuration\_Database\_engine' into #268\_TypeConversion

#### Revision 3b6ed531 - 17.11.2015 18:55 - Giuseppe Ferro

#268  
- Lint and Documentation of StringToInteger and StringToFloat done.  
- Added tests to TypeConversion.  
- Work in Progress Matrix and vector tests.

#### Revision cbd1db24 - 18.11.2015 09:28 - Giuseppe Ferro

#268 Fixed approximation in float to int conversion 0.5-->1  
posticipated saturation to 0 in string to unsigned number conversion.

#### Revision b30b02e7 - 18.11.2015 16:39 - Giuseppe Ferro

Merge remote-tracking branch 'origin/#267\_Configuration\_Database\_engine'  
into #268\_TypeConversion

Conflicts:  
Source/Core/BareMetal/L4Configuration/TypeConversion.cpp

**Revision c6c27456 - 19.11.2015 13:36 - Giuseppe Ferro**

#268 Added support for char arrays in type conversion.  
Added new tests.  
Divided functions in more files.  
--Ready to be linted--

**Revision 111fa8e7 - 19.11.2015 18:40 - Giuseppe Ferro**

#268 Linting and documentation done.

**Revision 11210097 - 20.11.2015 08:01 - Giuseppe Ferro**

#268 Fixed a test.

**Revision 0b14a3c2 - 20.11.2015 11:18 - André Neto**

#267 Commit to synchronise with #268

**Revision 6f2450b8 - 20.11.2015 11:43 - Giuseppe Ferro**

#268 Fixed a bug in serialization of vector for CCStrings

**Revision deee70ef - 20.11.2015 12:17 - André Neto**

#267 synchronising with #268

**Revision c160beaf - 23.11.2015 12:36 - Giuseppe Ferro**

#268 Merged with #267 and fixed AnyObject.

**Revision ee46a179 - 23.11.2015 18:47 - Giuseppe Ferro**

#268 Added Tests to improve coverage.  
Work in Progress on Matrix adding new feautres

**Revision b257ac1a - 24.11.2015 12:41 - Giuseppe Ferro**

#268 Added Matrix tests and checked coverage.

**Revision 617f78d7 - 24.11.2015 13:46 - Giuseppe Ferro**

Merge remote-tracking branch 'origin/#267\_Configuration\_Database\_engine'  
into #268\_TypeConversion

Conflicts:  
MakeDefaults/Lint/marte\_flint\_files.Int  
Source/Core/BareMetal/L0Types/Matrix.h  
Source/Core/BareMetal/L0Types/Vector.h  
Source/Core/BareMetal/L4Configuration/AnyObject.cpp  
Test/Core/BareMetal/L4Configuration/AnyObjectTest.cpp  
Test/Core/BareMetal/L4Configuration/AnyObjectTest.h  
Test/GTest/AnyObjectGTest.cpp

**Revision 1bf7ff59 - 24.11.2015 14:53 - Giuseppe Ferro**

Merge remote-tracking branch 'origin/develop' into #268\_TypeConversion

Conflicts:  
MakeDefaults/Lint/marte\_flint\_files.Int  
Source/Core/BareMetal/L3Streams/String.cpp  
Test/Core/BareMetal/L3Streams/StringTest.cpp  
Test/GTest/Makefile.inc

**Revision da053ad5 - 24.11.2015 17:15 - Giuseppe Ferro**

#268 Added documentation to tests.

**Revision 11204138 - 24.11.2015 17:17 - Giuseppe Ferro**

#268 Moved Vector and Matrix tests to L0Types

**Revision 2138391a - 24.11.2015 17:21 - Giuseppe Ferro**

#268 Improved documentation

**Revision 3725d3b8 - 24.11.2015 17:36 - Giuseppe Ferro**

#268 Added AnyObjectTest::TestCleanUp().

**Revision 8c35328d - 25.11.2015 12:51 - Ivan Herrero**

#268 - Minor corrections and improvements on documentation.

## History

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**#1 - 10.11.2015 09:21 - André Neto**

- Description updated

**#2 - 10.11.2015 18:05 - Riccardo Vitelli**

- Status changed from New to Code: Impl

- Target version set to 0.8

**#3 - 11.11.2015 17:15 - Giuseppe Ferro**

- Assignee set to Giuseppe Ferro

**#4 - 24.11.2015 14:55 - Giuseppe Ferro**

- Status changed from Code: Impl to Code: Rev

**#5 - 24.11.2015 14:56 - Giuseppe Ferro**

- Assignee deleted (Giuseppe Ferro)

code implementation done: 1bf7ff5

The branch includes user stories [#267](#) and [#269](#)

**#6 - 24.11.2015 14:58 - Giuseppe Ferro**

- Description updated

**#7 - 24.11.2015 17:51 - Ivan Herrero**

- Description updated

- Assignee set to Ivan Herrero

**#8 - 25.11.2015 12:53 - Ivan Herrero**

- Description updated

**#9 - 25.11.2015 13:02 - Ivan Herrero**

- Description updated

**#10 - 25.11.2015 15:39 - Ivan Herrero**

- Assignee deleted (Ivan Herrero)

Merged with develop on commit a15780e.

**#11 - 25.11.2015 15:40 - Ivan Herrero**

Branch #268\_TypeConversion deleted on <https://vcis-gitlab.f4e.europa.eu/aneto/MARTe2>.

**#12 - 25.11.2015 15:47 - Ivan Herrero**

- Status changed from Code: Rev to Closed