



Grant ANR-12-INSE-0011

ANR INS GEMOC

D4.1.1 - Gemoc Architectural description Task 4.1.1

Version 1.0

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1. Introduction

1.1 Purpose

This document presents the architectural design of the Gemoc Studio. We focus on the description of Components and Metamodels integrated in the Gemoc Studio.

1.2 Perimeter

1.3 Definitions, Acronyms and Abbreviations

- **Architecture** : fundamental conception of a system in its environment embodied in its elements, their relationships between each other and to its environment, and the principles guiding its design and evolution

1.4 References

1.5 Summary

2. Architecture

2.1 Introduction

2.2 Exchanges

2.3 Components

2.3.1 *Ecore Editor*

2.3.1.1 Purpose

This component port requires the following outputs:

- **Domain Specific Metamodel** :

2.3.2 *EMF Tree Editor Generator*

2.3.2.1 Purpose

This component port requires the following inputs:

- **Domain Specific Metamodel** :

This component port requires the following outputs:

- **Domain Specific Tree Editor** :

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2.3.3 *Xtext*

2.3.3.1 Purpose

This component port requires the following inputs:

- **Domain Specific Metamodel :**
- **Xtext Grammar :**

This component port requires the following outputs:

- **Domain Text Editor :**

2.3.4 *Timesquare DSA/MOCC Map Editor*

2.3.4.1 Purpose

This component port requires the following inputs:

- **MOCC Model :**
- **Kermeta Model :**

This component port requires the following outputs:

- **ECL Model :**

2.3.5 *ECL Editor*

2.3.5.1 Purpose

This component port requires the following outputs:

- **ECL Model :**

2.3.6 *Kermeta Compiler*

2.3.6.1 Purpose

This component port requires the following inputs:

- **Domain Specific Metamodel :**
- **Domain Specific Metamodel Byte Code :**
- **Kermeta Model :**

This component port requires the following outputs:

- **Domain Specific Metamodel Byte Code Extension :**

2.3.7 *Timesquare Solver*

2.3.7.1 Purpose

This component port requires the following inputs:

- **CCSL Model :**
- **Trigger Event Request :**

This component port requires the following outputs:

- **Domain Specific Event Vector Model :**

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2.3.8 *Trace Editor*

2.3.8.1 Purpose

This component port requires the following inputs:

- **Trace Model :**

2.3.9 *User Animation Viewer*

2.3.9.1 Purpose

2.3.10 *Gemoc Process assistant*

2.3.10.1 Purpose

This component port requires the following inputs:

- **Gemoc Project State Model :**

2.3.11 *ModhelX*

2.3.11.1 Purpose

2.3.12 *NEMO*

2.3.12.1 Purpose

2.3.13 *CEP Engine*

2.3.13.1 Purpose

2.3.14 *Timesquare MOCC To Execution Model*

2.3.14.1 Purpose

This component port requires the following inputs:

- **ECL Model :**
- **Domain Specific Model :**

This component port requires the following outputs:

- **CCSL Model :**

2.3.15 *Domain Specific Tree Editor*

2.3.15.1 Purpose

This component port requires the following inputs:

- **Domain Specific Tree Editor :**
- **Domain Specific Metamodel :**

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2.3.16 *Execution Engine*

2.3.16.1 Purpose

This component port requires the following inputs:

- **Domain Specific Event Vector Model :**
- **Execution Model :**
- **Domain Specific Metamodel Byte Code :**
- **Domain Specific Event Model :**

This component port requires the following outputs:

- **Trace Model :**
- **Execution Model :**
- **Trigger Event Request :**
- **Runtime Controller :**

2.3.17 *Eclipse Debug*

2.3.17.1 Purpose

This component port requires the following inputs:

- **Launch Utilities :**
- **Debug User Interface :**

2.3.18 *Kermeta Editor*

2.3.18.1 Purpose

This component port requires the following outputs:

- **Kermeta Model :**

2.3.19 *EMF Gen Model*

2.3.19.1 Purpose

This component port requires the following inputs:

- **Domain Specific Metamodel :**

This component port requires the following outputs:

- **Domain Specific Metamodel Byte Code :**

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2.3.20 *Sirius Framework*

2.3.20.1 Purpose

This component port requires the following inputs:

- **Domain Specific Representation Definition Model :**
- **Domain Specific Metamodel :**
- **Domain Specific Metamodel Byte Code :**
- **Domain Specific Representation Definition Extension Model :**

This component port requires the following outputs:

- **Domain Specific Graphical Animated Editor :**
- **Domain Specific Graphical Animator :**

2.3.21 *Sirius Animator Framework*

2.3.21.1 Purpose

This component port requires the following inputs:

- **Domain Specific Representation Definition Extension Model :**

This component port requires the following outputs:

- **Domain Specific Graphical Animator :**

2.3.22 *Random Policy*

2.3.22.1 Purpose

2.3.23 *Scenario Policy*

2.3.23.1 Purpose

2.3.24 *Replay Policy*

2.3.24.1 Purpose

This component port requires the following inputs:

- **Trace Model :**

2.3.25 *Policy*

2.3.25.1 Purpose

This component port requires the following inputs:

- **Domain Specific Event Vector Model :**

This component port requires the following outputs:

- **Domain Specific Event Model :**

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2.3.26 *Interactive Policy*

2.3.26.1 Purpose

2.3.27 *Solver*

2.3.27.1 Purpose

This component port requires the following inputs:

- **Concurrency Execution Model :**
- **Domain Specific Event Model :**

This component port requires the following outputs:

- **Domain Specific Event Vector Model :**

2.3.28 *DSA Compiler*

2.3.28.1 Purpose

This component port requires the following inputs:

- **DSA Model :**

This component port requires the following outputs:

- **Domain Specific Metamodel Byte Code Extension :**

2.3.29 *Sirius Editor*

2.3.29.1 Purpose

This component port requires the following inputs:

- **Domain Specific Metamodel :**

This component port requires the following outputs:

- **Domain Specific Representation Definition Model :**
- **Domain Specific Representation Definition Extension Model :**

2.3.30 *Executable Modeling Tools*

2.3.30.1 Purpose

2.3.31 *Domain Specific Graphical Animated Editor*

2.3.31.1 Purpose

This component port requires the following inputs:

- **Domain Specific Model :**
- **Runtime Controller :**

This component port requires the following outputs:

- **Launch Utilities :**
- **Debug User Interface :**
- **Modeling Project :**

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2.3.32 *Domain Specific Graphical Animator*

2.3.32.1 Purpose

This component port requires the following inputs:

- **Domain Specific Model :**
- **Runtime Controller :**

This component port requires the following outputs:

- **Launch Utilities :**
- **Debug User Interface :**

2.3.33 *Execution Engine for Heterogeneous Models*

2.3.33.1 Purpose

2.3.34 *Language Definition Tools*

2.3.34.1 Purpose

2.3.35 *Eclipse Modeling*

2.3.35.1 Purpose

2.3.36 *Eclipse*

2.3.36.1 Purpose

2.3.37 *Domain Specific Text Editor*

2.3.37.1 Purpose

2.3.38 *Domain Specific Metamodel Byte Code*

2.3.38.1 Purpose

2.3.39 *Domain Specific Metamodel Byte Code Extension*

2.3.39.1 Purpose

2.3.40 *Domain Specific Editor*

2.3.40.1 Purpose

This component port requires the following outputs:

- **Domain Specific Model :**

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2.3.41 Reflexive Model Animators

2.3.41.1 Purpose

2.3.42 Domain Specific Graphical Animator

2.3.42.1 Purpose

2.3.43 MOCC Editor

2.3.43.1 Purpose

This component port requires the following outputs:

- **MOCC Model :**

2.3.44 DSA Editor

2.3.44.1 Purpose

This component port requires the following outputs:

- **DSA Model :**

2.3.45 AS Editor

2.3.45.1 Purpose

This component port requires the following outputs:

- **Domain Specific Metamodel :**

2.3.46 CCSL Library Editor

2.3.46.1 Purpose

This component port requires the following outputs:

- **CCSL Model :**

2.3.47 DSA/MOCC Map Editor

2.3.47.1 Purpose

This component port requires the following inputs:

- **DSA Model :**
- **MOCC Model :**

This component port requires the following outputs:

- **DSE Model :**

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2.3.48 *Domain Specific MOCC To Execution Model*

2.3.48.1 Purpose

This component port requires the following inputs:

- **Domain Specific Model :**
- **DSE Model :**

This component port requires the following outputs:

- **Concurrency Execution Model :**

2.4 Metamodels

2.4.1 *ECL Model*

2.4.2 *MOCC Model*

2.4.3 *DSA Model*

2.4.4 *Execution Model*

2.4.5 *Trace Model*

2.4.6 *Domain Specific Representation Definition Model*

2.4.7 *Ecore Model*

2.4.8 *Domain Specific Model*

2.4.9 *Domain Specific Event Vector Model*

2.4.10 *Concurrency Execution Model*

2.4.11 *Gemoc Project State Model*

2.4.12 *CCSL Model*

2.4.13 *Domain Specific Metamodel*

2.4.14 *Scenario Model*

2.4.15 *DSE Model*

2.4.16 *Domain Specific Representation Definition Extension Model*

2.4.17 *Domain Specific Event Model*

2.4.18 *Kermeta Model*

3. Component integration process