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OSLC Adapter for Publishing Information on FMUs (Functional Mockup Units)
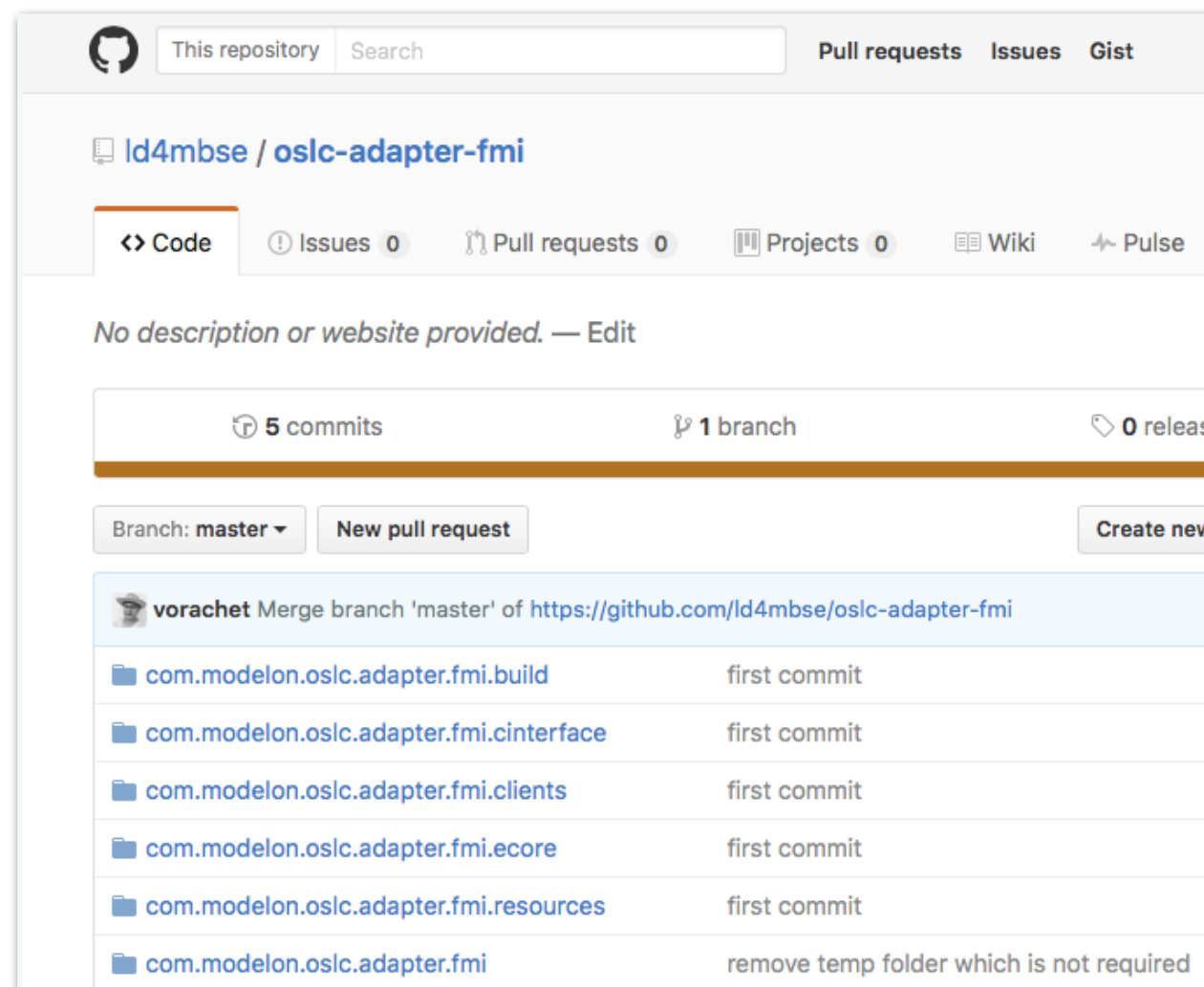
Available on **GitHub**

Topics

- OSLC Adapter for FMI project on GitHub
- Embodiment of implementation
- The built-in HTML representation feature for browsing FMU information
- Definition of an FMU
- FMI concepts for data representation
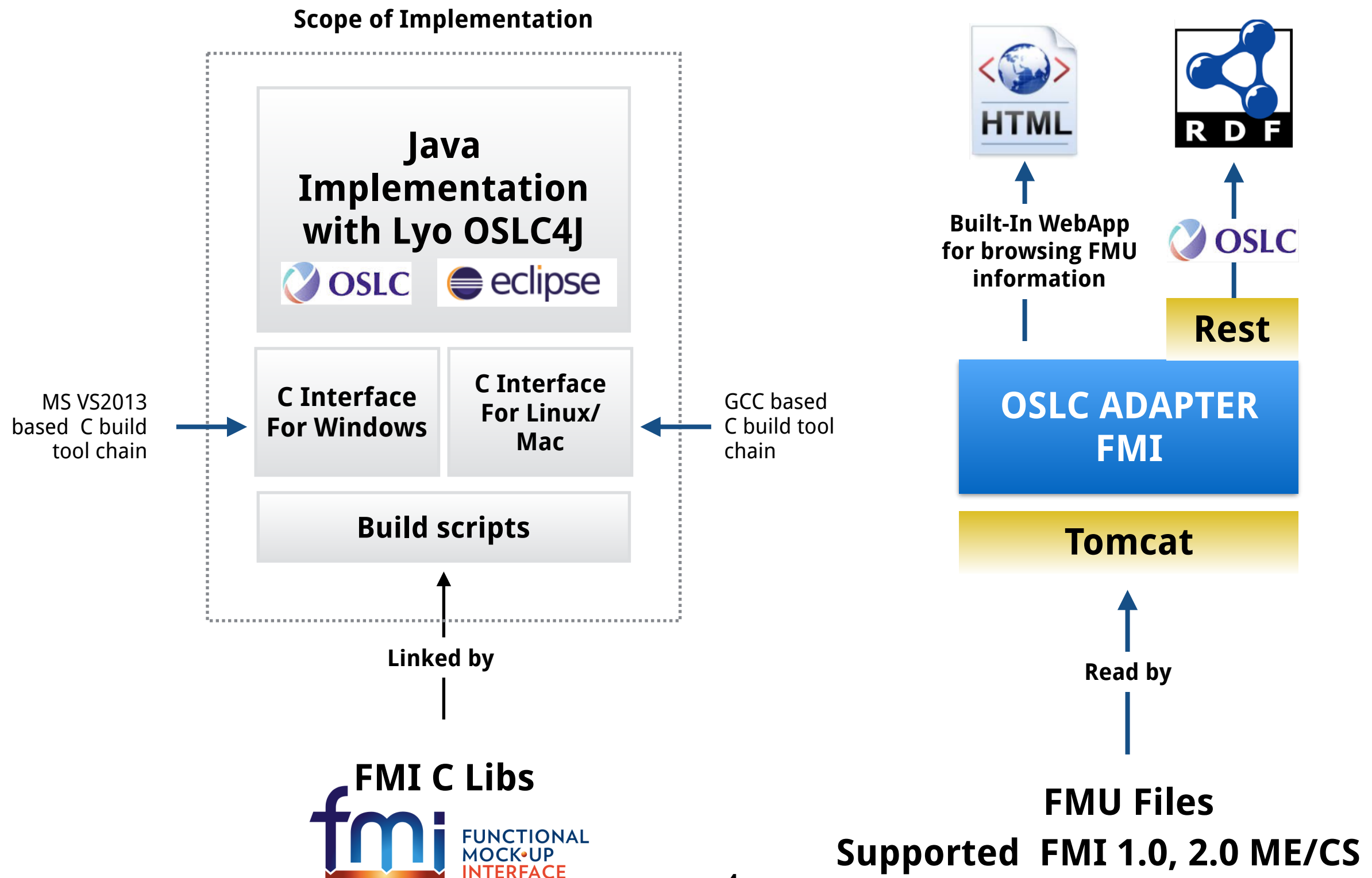- URI Specifications

GitHub https://github.com/ld4mbse/oslc-adapter-fmi

The OSLC FMI adapter provides web services publishing information on FMUs (Functional Mockup Units) conforming to the FMI Standard. The interface was developed for Modelon by Koneksys. The C-language part is based on the open source FMI-Library by Modelon, and the Java-language part on oslc4j by Eclipse Lyo.

This repository	Search		Pull requests Issues Gist

ld4mbse / oslc-adapter-fmi

<> Code	⊙ Issues 0	⑂ Pull requests 0	▥ Projects 0	▤ Wiki	⌁ Pulse

No description or website provided. — Edit

⊙ 5 commits	⑂ 1 branch	◇ 0 releas

Branch: master ▾	New pull request			Create new

vorachet Merge branch 'master' of https://github.com/ld4mbse/oslc-adapter-fmi

📁 com.modelon.oslc.adapter.fmi.build	first commit
📁 com.modelon.oslc.adapter.fmi.cinterface	first commit
📁 com.modelon.oslc.adapter.fmi.clients	first commit
📁 com.modelon.oslc.adapter.fmi.ecore	first commit
📁 com.modelon.oslc.adapter.fmi.resources	first commit
📁 com.modelon.oslc.adapter.fmi	remove temp folder which is not required

Embodiment of Implementation

Scope of Implementation

Java Implementation with Lyo OSLC4J

OSLC   eclipse

MS VS2013 based C build tool chain

C Interface For Windows

C Interface For Linux/ Mac

GCC based C build tool chain

Build scripts

Linked by

FMI C Libs

FUNCTIONAL MOCK·UP INTERFACE

HTML

RDF

Built-In WebApp for browsing FMU information

OSLC

Rest

OSLC ADAPTER FMI

Tomcat

Read by

FMU Files Supported FMI 1.0, 2.0 ME/CS

4

The built-in HTML representation feature for browsing FMU information

Service Provider Catalog

🌐 http://localhost:8686/oslc4jfmi/services/catalog
Adapter Publisher: modelon
Adapter Identity: com.modelon.oslc

Service Providers

🌐 http://localhost:8686/oslc4jfmi/services/serviceProviders

FMI 2.0 **CS** FMI2.0_CS_Buildings_Examples_DualFanDualDuct_Controls_RoomMixingBox.fmu

FMI 1.0 **CS** FMI1.0_CS_ControlledTemperature.fmu

FMI 1.0 **CS** FMI1.0_CS_CoupledClutches.fmu

FMI 1.0 **CS** FMI1.0_CS_PID_Controller.fmu

FMI 1.0 **ME** FMI1.0_ME_BooleanNetwork1.fmu

FMI 1.0 **ME** FMI1.0_ME_CoupledClutches.fmu

FMI 1.0 **ME** FMI1.0_ME_IntegerNetwork1.fmu

FMI 2.0 **CS** FMI2.0_CS_ControlledTemperature.fmu

FMI 2.0 **CS** FMI2.0_CS_CoupledClutches.fmu

FMI 2.0 **CS** FMI2.0_CS_PID_Controller.fmu

FMI 2.0 **ME** FMI2.0_ME_bouncingBall.fmu

FMI 2.0 **ME** FMI2.0_ME_dq.fmu

FMI 2.0 **ME** FMI2.0_ME_vanDerPol.fmu

Definition of an FMU
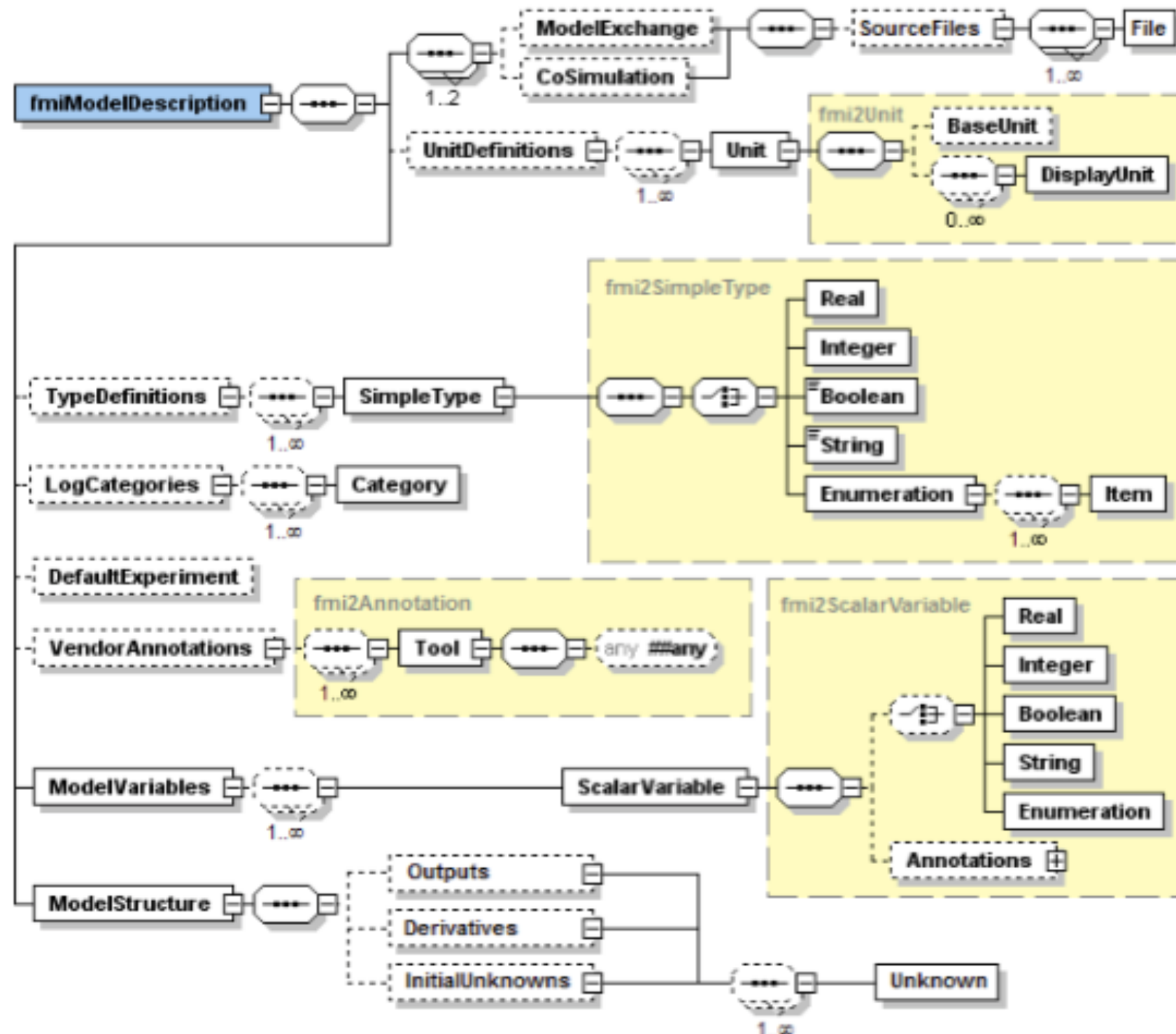
FMI concepts for data representation

Each FMU contains 24 FMI concepts query capabilities

« Service Catalog

Service Provider

FMI 1.0 **CS** **FMI1.0_CS_ControlledTemperature.fmu**

http://localhost:8686/oslc4jfmi/services/serviceProviders/FMI1.0_CS_ControlledTemperature

UnitDefinition Query Capability	Derivative Query Capability	DefaultExperiment Query Capability
InitialUnknown Query Capability	FMU Query Capability	ScalarVariable Query Capability
Annotation Query Capability	VendorTool Query Capability	ListingDirectDependency Query Capability
ScalarVariableType Query Capability	Enumeration Query Capability	CoSimulation Query Capability
BaseUnitDefinition Query Capability	SourceFile Query Capability	TypeDefinition Query Capability
ModelDescription Query Capability	ModelStructure Query Capability	ModelExchange Query Capability
ModelVariables Query Capability	Output Query Capability	BaseUnit Query Capability
ListingAlias Query Capability	VendorAnnotation Query Capability	TypeDef Query Capability

Browsing Model Description

FMU Query Capability

FMI1.0_CS_ControlledTemperature

This document: http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_ControlledTemperature/FMU/FMI1.0_CS_ControlledTemperature

ResourceLinks

ModelDescription

http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_ControlledTemperature/ModelDescription/ControlledTemperature

Attributes

Identifier
FMI1.0_CS_ControlledTemperature
FmiVersion
1.0
IsModelExchangeFMU
false
IsCoSimulationFMU
true

ModelDescription Query Capability

FMI1.0_CS_ControlledTemperature

This document: http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_ControlledTemperature/ModelDescription/ControlledTemperature

ResourceLinks

DefaultExperiment

http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_ControlledTemperature/DefaultExperiment/ControlledTemperature

CoSimulation

http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_ControlledTemperature/CoSimulation/ControlledTemperature

ModelExchange

http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_ControlledTemperature/ModelExchange/ControlledTemperature

ModelVariables

http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_ControlledTemperature/ModelVariables/ControlledTemperature

UnitDefinitions

KPers
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_ControlledTemperature/UnitDefinition/KPers
degC
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_ControlledTemperature/UnitDefinition/degC

8

Browsing Model Variables

ModelVariables Query Capability

FMI1.0_CS_ControlledTemperature

This document: http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_ControlledTemperature/ModelVariables/ControlledTemperature

ResourceLinks

ScalarVariables

ground.p.i
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_Controlle

thermalConductor.dT
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_Controlle

constantVoltage.i
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_Controlle

ramp.y
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_Controlle

constantVoltage.v
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_Controlle

heatingResistor.R_ref
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_Controlle

_nle_solver_tol_factor
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_Controlle

heatingResistor.T_ref
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_Controlle

idealSwitch.unitVoltage
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_Controlle

ramp.height
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_Controlle

_events_default_tol
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_Controlle

heatingResistor.R
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_Controlle

heatCapacitor.der_T
http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_Controlle

ScalarVariable Query Capability

FMI1.0_CS_ControlledTemperature

This document: http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_ControlledTemperature/ScalarVariable/ground.p.i

ResourceLinks

ListingAliases

ListingDirectDependencies

ScalarVariableType

http://localhost:8686/oslc4jfmi/services/FMI1.0_CS_ControlledTemperature/ScalarVariableType/ground.p.i

Attributes

Identifier
ground.p.i

Index
38

Name
ground.p.i

Description
Current flowing into the pin

ValueReference
60

Variability
continuous

Causality
internal

Initial

URI Specifications

OSLC Service Catalog – Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/catalog
- GET http://:/oslc4jfmi/services/catalog

OSLC Service Providers – Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/serviceProviders
- GET http://:/oslc4jfmi/services/serviceProviders

OSLC Service Provider – Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/serviceProviders/{FMIFMU_Identifier}
- GET http://:/oslc4jfmi/services/serviceProviders/{FMIFMU_Identifier}

OSLC FMI Resource Shapes – Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/fmi/resourceShapes
- GET http://:/oslc4jfmi/services/fmi/resourceShapes

FMI RDF vocabulary – Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/rdfvocabulary
- GET http://:/oslc4jfmi/services/fmi/rdfvocabulary

URI Specifications

FMI Concept: FMU

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/FMU
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/FMU/{FMU_Identifier}

FMI Concept: ModelDescription

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/ModelDescription
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/ModelDescription/{ModelDescription_Identifier}

FMI Concept: DefaultExperiment

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/DefaultExperiment
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/DefaultExperiment/{DefaultExperiment_Identifier}

URI Specifications

FMI Concept: ModelExchange

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/ModelExchange
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/ModelExchange/{ModelExchange_Identifier}

FMI Concept: CoSimulation

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/CoSimulation
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/CoSimulation/{CoSimulation_Identifier}

FMI Concept: SourceFile

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/SourceFile
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/SourceFile/{SourceFile_Identifier}

FMI Concept: UnitDefinition

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/UnitDefinition
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/UnitDefinition/{UnitDefinition_Identifier}

URI Specifications

FMI Concept: BaseUnit

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/BaseUnit
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/BaseUnit/{BaseUnit_Identifier}

FMI Concept: BaseUnitDefinition

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/BaseUnitDefinition
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/BaseUnitDefinition/{BaseUnitDefinition_Identifier}

FMI Concept: VendorAnnotation

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/VendorAnnotation
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/VendorAnnotation/{VendorAnnotation_Identifier}

FMI Concept: VendorTool

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/VendorTool
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/VendorTool/{VendorTool_Identifier}

URI Specifications

FMI Concept: Annotation

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/Annotation
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/Annotation/{Annotation_Identifier}

FMI Concept: TypeDefinition

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/TypeDefinition
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/TypeDefinition/{TypeDefinition_Identifier}

FMI Concept: TypeDef

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/TypeDef
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/TypeDef/{TypeDef_Identifier}

FMI Concept: Enumeration

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/Enumeration
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/Enumeration/{Enumeration_Identifier}

URI Specifications

FMI Concept: ModelVariables

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/ModelVariables
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/ModelVariables/{ModelVariables_Identifier}

FMI Concept: ScalarVariable

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/ScalarVariable
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/ScalarVariable/{ScalarVariable_Identifier}

FMI Concept: ScalarVariableType

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/ScalarVariableType
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/ScalarVariableType/{ScalarVariableType_Identifier}

FMI Concept: ListingAlias

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/ListingAlias
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/ListingAlias/{ListingAlias_Identifier}

URI Specifications

FMI Concept: ListingDirectDependency

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/ListingDirectDependency
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/ListingDirectDependency/{ListingDirectDependency_Identifier}

FMI Concept: ModelStructure

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/ModelStructure
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/ModelStructure/{ModelStructure_Identifier}

FMI Concept: Derivative

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/Derivative
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/Derivative/{Derivative_Identifier}

FMI Concept: InitialUnknown

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/InitialUnknown
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/InitialUnknown/{InitialUnknown_Identifier}

URI Specifications

FMI Concept: Output

OSLC Query Capability - Accept (text/html, application/rdf+xml)

- GET http://localhost:8686/oslc4jfmi/services/{FMIFMU_Identifier}/Output
- GET http://:/oslc4jfmi/services/{FMIFMU_Identifier}/Output/{Output_Identifier}

Resources

- OSLC adapter for FMI https://github.com/ld4mbse/oslc-adapter-fmi
- Functional Mock-up Interface (FMI) https://www.fmi-standard.org
- FMI Library http://www.jmodelica.org/FMILibrary
- Open Services: http://open-services.net/
- Eclipse LYO OSLC SDK / Test Suite: http://www.eclipse.org/lyo/