OSLC PLM Workgroup

Oct 19th 2010

open-services.net

V0.2

Organisers today

- Workgroup lead: Rainer Ersch, Siemens
- Coordinator: Gray Bachelor, IBM

Today’s agenda

- Roll call and brief introductions - welcome new members
- Objective for today's meeting
  - Discuss progress and outlook of the current work on SE Scenario #1
- Recap of the approach
- Walkthrough of PLM Reference model
  - SysML, STEP and xml representations of the OMG Hybrid SUV example
- Update on OSLC SPEC analysis and alignment
- Discuss next steps
- Dates of next meetings
- AOB
- Summary and close

Today’s objectives

1. To pursue the PLM Reference model for the scenario context and implementation
2. To update on OSLC SPEC alignment outlook

Summary of the approach

- Our scenario #1 provides the basis for exploring the coverage of the existing OSLC Specs
  - http://open-services.net/bin/view/Main/PlmSystemsEngineeringScenarioSystemsEngineerReactstoChangedRequirements
- We identified two actions as typical of the need to trace product and system context and implementation
  - a4 Locate requirements in change request context
  - a7 Locate Reusable Implementation to Satisfy Change ?
- These actions require that we identify means to represent
  - Requirements as configured text, documents and models
  - Context and implementation as configured structures, meta-data and models
  - Relationships between Requirements, Context and Implementations
- We propose initially to define a reference or boundary representation of product and/or system to use to evaluate the existing Specs (resources and services)
- There is not a single dominant representation of product and system structure to use as a reference
- We agreed to explore the Standard for the Exchange of Product model data (STEP)
  - Based upon ISO 10303 and is meant for product data exchange between tools
  - has a modular construction applied in multiple Application Protocols with significant industry support
  - has a proven and flexible core construct of Product, Product_version, Product_view_definition
- We agreed to explore and apply the SysML HSUV example to support our investigation

Progress made

Progress made – the basics

- Identification of relevant assets and information in the public domain
  - Current assessment is that sufficient have been found for the need identified
- Identify and select core STEP representations
  - AP233 and AP239
- Production of sample data from the HSUV SysML example
  - STEP representation (.stp file)
  - XML representation (.owl file)
- Exploration of HSUV Requirements representation in OWL
  - STEP file
  - ontoSTEP
  - Protege

Model build out status

SysML Model build out	Purpose	Reference model	Status	Outlook / plan
Requirements version annotation	SysML model not include.	Must	Done	
Block versioning	SysML model not include. Build out include SW blocks	Should	Done	
Design variant annotation	SysML model not include.	Should	Done	Variant expression could be done later
Product identity annotation	SysML has identity example but no versioning. “Name” used as identifier	Must	Done	Real part # as attributes later option
ECU SW Component content	Builds a credible example. ECU block contains 2 SW comps + calibration	Should	Done	
Design variant content	Builds a credible example. SW component versions included in ECU	Should	Done	
Engineering BOM	Builds a credible example.	Must	Available in the model	Need to visualise as a list or table
Variant expression example	Support future evaluation of variant expression	Could	Underway	Need more investigation

Summary of work done

- Added the second variant of the fuel tank assembly with the two pumps
- Added a third variant of the emissions requirement, and introduced the new variant_expression property to differentiate it from the existing requirement
- Added extraction capability to get the Blocks and their structural relationships
- Added extraction capability to get the Derived requirements relationships and hook them up correctly
- Added extraction capability to get the Satisfy requirements to blocks relationships and hook them up correctly

Next notes

- extraction of the variant_expression values and their proper representation in STEP
- get the extractor to handle the connectivity relationships in the BDD and IBD (item flows and control flows and study the mapping of these to STEP constructs since these are not populated by hand in the old STEP model

Model artefacts

http://open-services.net/bin/view/Main/PlmScenariosGm

- STEP_OWL_XSLT_Release_3.zip:
  - These are the XSLT stylesheets used to extract STEP Part 21 from the Topcased SysML? XMI, this release adds handling for derived requirements and assignment of requirements
  - Release 2. These are the XSLT stylesheets used to extract STEP Part 21 from the Topcased SysML? XMI, this release adds block (structure) handling and works on single combined models
  - Release 1 These are the XSLT stylesheets used to extract STEP Part 21 from the Topcased SysML? XMI, this first release handles requirements and associated metadata
- HSUVModel_Release_7.zip:
  - Includes the OWL and STEP extract files
  - Release 7 cleans out redundant stuff and cleans up diagrams from Release 6
  - Release 2 of the HSUV Model in Topcased, this one adds most of the structure
  - Release 3 of the HSUV Model in Topcased, this one adds the PowerControlUnit? breakdown, and all version info is moved to properties of the requirements/blocks instead of comments
  - Release 4 of the HSUV Model in Topcased, adds the decomposition of PowerControlUnit? and intrduces version 2 of requirement and structures to meet it
  - Release 5 is major rearrangement, combining the requirements, structure and use case models into one model called HSUVExample
  - Release 6 finishes major rearrangement started in Release 5, and adds the dual fuel pump variant of the fuel tank assembly to go with the Ultra Low Emissions software and calibrations

Quick tips on consuming the SysML model

- topcased
  - Download the zip file
  - In topcased create a new project
  - Selected the project and Import as an archive
  - Explore the html or models (SysML and jpgs)
  - The .owl and .stp files are available too
- HTML
  - Download the zip file
  - Unzip to a target directory
  - Locate the html directory and the index.htm file
  - Open the index.htm file and explore the html viewer

STEP file

- STEP files are text files (ISO-10303-Part21)
  - “HEADER”
  - REQUIREMENT
  - SYSTEM
  - SYSTEM BREAKDOWN
  - SYSTEM ELEMENT

  - ORGANIZATION
  - APPLIED_ACTIVITY_ASSIGNMENT

Xml

- OWL
- xlst files
  - Used to extract from topcased

OSLC SPEC analysis

- Analysis of existing specs
  - Propose to focus on Core and RM
- Traceability scenarios from RM team
  - Link
- Identify “same as” or “equivalent” using OWL
  - Capture gaps and issues
- Investigate possibility to make a basic transformation
- CM, AM next iteration

Next meeting – for discussion

- Update to last proposal
  - Nov 9th 11am Eastern
    - Receive results of the current time box
    - Plan and confirm next time box

Any other business ?

Summary

Thank you

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