Evaluation Description

Definition

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Outline

• Evaluation Descriptions
• SEALS Evaluation Description Language (SEDL)
• Evaluation Description Bundles
• Evaluation Descriptions Repository Service (EDRS)
EVALUATION DESCRIPtIONS
Evaluation Descriptions

Evaluation Description: describes how an evaluation is to be conducted

1. Access test data
2. Invoke tool
3. Collect results
4. Interpret results
5. Store results

... orchestrated by an evaluation workflow
Evaluation Descriptions in the SEALS Platform

SEALS Platform

Evaluation Description

EDRS (Evaluation Descriptions)

TDRS (Test Data)

RRS (Results)

TRS (Tools)

Tool

Semantic Evaluation at Large Scale
Requirements for Evaluation Descriptions

An Evaluation Description must represent:

• *Evaluation workflow*
  Which are the steps of the process to be executed?

• *Execution contract*
  What kind of things are being evaluated?

• *Custom services*
  implementations of evaluation-specific operations

• *Metadata*
  Who, when, what, etc.?
Evaluation Workflow

• Workflow specified in WS-BPEL 2.0
  (Web Services Business Process Execution Language 2.0)

• Platform compliance criteria
  – BPEL workflow must implement generic evaluation description WSDL
    http://www.development.seals-project.eu/resources/res/engine/evaluation/wsdl/{version}/evaluation.wsdl
  – Pass-through of header information
    (header part of BPEL input variable must be passed to header part of each invoked web service)
  – Asynchronous callback
    (generic evaluation description WSDL specifies callback operation to be called when BPEL process terminates)
Execution Contract

• What test data, tools and results can a workflow consume?
• What results does it produce?
• Execution Contract specifies categories (in terms of ontology classes)
• Input arguments can be validated prior to execution
  → early check for compatibility
Custom Services

• Not provided by the *SEALS platform*
• Inherent to *evaluation description*
  – Result interpretation service
  – Special utility services
• Custom Services must be shipped with the evaluation description
  – Interface definition (WSDL)
  – Types (XSD)
  – Implementation (JAR)
Metadata

Evaluation Descriptions annotated with

• Name
• Author
• Creation time
• Description

Additionally: metadata managed by repository
SEALS EVALUATION DESCRIPTION LANGUAGE (SEDL)
SEALS Evaluation Description Language (SEDL)

- XML-based descriptor file format
- Contents:
  - Execution Contract
  - Evaluation Workflow
  - Custom Services
  - Metadata
  - Resources and dependencies among them

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SEDL Overview

- SEDL Document
  - Metadata
    - Execution Contract
      - Parameters
      - Outputs
    - Evaluation Workflow
    - Custom Services
      - Custom Service
    - Resources
      - Resource
      - Dependency
      - ...
SEDL Content Details: Execution Contract

• Parameter:
  – Name (refers to name of BPEL input argument)
  – Type (refers to ontology class)
  – Resource reference (refers to ontology resource, specifying the type class)

• Output:
  – same as above
SEDL Content Details: Evaluation Workflow

• Evaluation Workflow:
  – Process name
    (refers to name of the BPEL process)
  – Resource reference
    (refers to BPEL resource specifying the process)
SEDL Content Details: Custom Services

• Custom Service:
  – Documentation (textual description of the service)
  – WSDL
    • Port type (refers to port type for this service provided by the WSDL)
    • Resource reference (refers to WSDL resource specifying this port type)
  – Implementation
    • Class name (refers to the name of the implementation Java class)
    • Resource reference (refers to binary resource specifying this class)
SEDL Content Details: Resources

• Resource
  – Location
    (pathname relative to the SEDL document)
  – Dependency
    • Either with reference to another resource ...
    • ... or with child resource elements
Bundle Contents

Everything is a resource

• Evaluation BPEL workflow

• Execution Contract requires
  – ontologies
    (to define category classes)

• Custom Services require
  – WSDL definitions
  – XSD type definitions
  – Implementation JAR binaries
EVALUATION DESCRIPTIONS
REPOSITORY SERVICE (EDRS)
Evaluation Description

Repository Service: Service Stack

- Client-side Java API
- REST API
- Server-side Java API
Artifact Histories and Versions

- EDRS stores evaluation description artifacts
- Several versions per artifact: a \textit{history} of artifacts
- Evaluation Description (ZIP bundle) is a version
Repository Access (REST API)
HTTP Resources

- Artifact history collection resource
  http://[prefix]/eds

- Artifact history resource
  http://[prefix]/eds/[history]

- Artifact version resource
  http://[prefix]/eds/[history]/[version]

- Publication resource
  http://[prefix]/eds/[history]/[version]/pub
Repository Access (REST API)

HTTP Operations

- **HTTP GET**
  Retrieval of metadata / artifacts

- **HTTP POST**
  Registering of artifact histories,
  Storing of artifact versions,
  Publication of versions

- **HTTP PUT**
  Update of metadata

- **HTTP DELETE**
  Removal of artifact histories / versions,
  Unpublication of versions
Thanks for your attention!