OSLC Automation Specification Version 2.0

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This Version


Latest Version


Previous Version

- This specification is the initial version of an OSLC Automation specification.

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Contributors

- See Contributors section below.

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### Introduction

This specification builds on the OSLC Core Specification ([http://open-services.net/bin/view/Main/OslcCoreSpecification](http://open-services.net/bin/view/Main/OslcCoreSpecification)) to define the resources and operations supported by an Open Services for Lifecycle Collaboration (OSLC) Automation provider.

Automation resources define automation plans, automation requests and automation results of the software development, test and deployment lifecycle. They represent individual resources as well as their relationship to other automation resources and to other linked resources outside of the automation domain. The intent of this specification is to define the set of HTTP-based RESTful interfaces in terms of HTTP methods: GET, POST, PUT and DELETE. HTTP response codes, mime type handling and resource formats. The capabilities of the interface definitions are driven by key integration scenarios and therefore don’t represent a complete setup of operations on resources or resource types. The resource formats and operations may not match exactly the native models supported by automation service providers but are intended to be compatible with them.

Automation, as referenced in this specification, refers to the use of IT systems such as servers, workstations and smart hand-held devices to improve efficiency and reduce the need for manual human interactions in the software development, test and deployment lifecycle. See the Automation Scenarios ([http://open-services.net/wiki/automation/AutomationScenarios](http://open-services.net/wiki/automation/AutomationScenarios)) page for examples from the build, test and deployment disciplines.

### Terminology

#### Service Provider

- an implementation of the OSLC Automation specification as a server. OSLC Automation clients consume these services

#### Automation Resource

- A resource managed by the Automation service provider. The types of resources defined by this specification are Automation Plan, Automation Request and Automation Result.

#### Automation Plan

- Defines the unit of automation which is available for execution.

#### Automation Request

- Defines the submission of the information required to execute an Automation Plan and indicates the desired execution state.

#### Automation Result

- Defines intermediate and final execution status of an Automation Request, along with contributions to the result.

#### Automation Parameter Definition

- Defines an individual input parameter of an Automation Plan. Parameter Definitions provide an indication of the type of the parameter and range of allowed values.

#### Automation Parameter Instance

- Defines an individual input or output parameter instance for an Automation Request or Result.

### Base Requirements

#### Compliance

This specification is based on the OSLC Core Specification ([http://open-services.net/bin/view/Main/OslcCoreSpecification](http://open-services.net/bin/view/Main/OslcCoreSpecification)). OSLC Automation consumers and service providers MUST be compliant with both the core specification and this Automation specification, and SHOULD follow all the guidelines and recommendations in both these specifications.

The following table summarizes the requirements from OSLC Core Specification as well as some (but not all) additional requirements specific to Automation. See the full content of the Automation specification for all requirements. Note that this specification further restricts some of the requirements for OSLC Core Specification as noted in the Origin column of the compliance table. See further sections in this specification or the OSLC Core Specification to get further details on each of these requirements.

Any consumer or service provider behaviors are allowed unless explicitly prohibited by this or dependent specifications; conditional permissive requirements, especially those qualified with “MAY”, are implicitly covered by the preceding clause. While technically redundant in light of that broad permission, OSLC specifications do still make explicit MAY-qualified statements in cases where the editors believe doing so is likely to add clarity.

#### Requirements on OSLC Consumers

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Level</th>
<th>Origin(s)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown properties and content</td>
<td>MUST</td>
<td><a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Unknown_properties_and_content">Core</a></td>
<td>OSLC clients MUST preserve unknown content</td>
</tr>
<tr>
<td>Unknown properties and content</td>
<td>SHOULD</td>
<td><a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Unknown_properties_and_content">Core</a></td>
<td>OSLC clients SHOULD assume an OSLC service will discard unknown property values.</td>
</tr>
</tbody>
</table>

#### Requirements on OSLC Service Providers

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Level</th>
<th>Origin(s)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown properties and content</td>
<td>MUST</td>
<td><a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Unknown_properties_and_content">Core</a></td>
<td>OSLC service providers MUST return an error code if recognized content is invalid.</td>
</tr>
<tr>
<td>Unknown properties and content</td>
<td>MAY</td>
<td><a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Unknown_properties_and_content">Core</a></td>
<td>OSLC service providers MAY ignore unknown content.</td>
</tr>
<tr>
<td>Resource Operations</td>
<td>MUST</td>
<td><a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Resource_Operations">Core</a></td>
<td>OSLC service providers MUST support resource operations via standard HTTP operations.</td>
</tr>
<tr>
<td>Resource Operations</td>
<td>MAY</td>
<td><a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Resource_Operations">Core</a></td>
<td>OSLC service providers MAY support resource operations via alternative HTTP operations.</td>
</tr>
<tr>
<td>Partial Resource Representations</td>
<td>MUST</td>
<td><a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Selective_Property_Values">Core</a></td>
<td>OSLC service providers MUST support partial resource representations.</td>
</tr>
<tr>
<td>Partial Resource Representations</td>
<td>MAY</td>
<td><a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Selective_Property_Values">Core</a></td>
<td>OSLC service providers MAY support partial resource representations.</td>
</tr>
<tr>
<td>Service Provider Resources</td>
<td>MUST</td>
<td><a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Service_Provider_Resources">Core</a></td>
<td>OSLC service providers MUST provide a Service Provider Catalog resource.</td>
</tr>
<tr>
<td>Service Provider Resources</td>
<td>MAY</td>
<td><a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Service_Provider_Resources">Core</a></td>
<td>OSLC service providers MAY provide extension points for Service Provider Resources.</td>
</tr>
<tr>
<td>Creation Factories</td>
<td>MUST</td>
<td><a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Creation_Factories">Core</a></td>
<td>OSLC service providers MUST provide a Service Provider Catalog resource.</td>
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<td>Creation Factories</td>
<td>MAY</td>
<td><a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Creation_Factories">Core</a></td>
<td>OSLC service providers MAY provide extension points for Service Provider Resources.</td>
</tr>
<tr>
<td>Query Capabilities</td>
<td>SHOULD</td>
<td><a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Query_Capabilities">Core</a></td>
<td>OSLC service providers SHOULD provide query capabilities to enable clients to query for resources.</td>
</tr>
</tbody>
</table>
If a service provider supports an OSLC query capabilities, the query capabilities MUST support the OSLC Core Query Syntax.

OSLC service providers SHOULD allow clients to discover, via their service provider resources, any delegated UI Dialogs they offer.

OSLC service providers SHOULD offer delegated UI dialogs for resource creation requests.

OSLC service providers SHOULD offer delegated UI dialogs for resource selection requests.

OSLC Service SHOULD offer UI previews for resources that may be referenced by other resources.

Authentication

When Automation Consumers request:

- Automation Providers MAY accept HTTP Basic Authentication and OAuth 2.0 Authorization Code (Token) flows for authentication.
- Automation Providers SHOULD offer OAuth URLS via their service provider resource.

- OSLC service providers MAY support OAuth.
- OSLC service providers that support OAuth SHOULD allow clients to discover the required OAuth URLs via their service provider resource.

UI Preview

- OSLC service providers SHOULD support pagination of query results and support pagination of a single resource's properties as defined by the OSLC Core Specification.

- OSLC service providers SHOULD offer UI previews for resources that may be referenced by other resources.

- OSLC service providers SHOULD offer delegated UI dialogs for resource selection requests.

- OSLC service providers SHOULD provide HTML representations for HTTP GET requests.

- OSLC service providers MAY support the OAuth Authorization Code (Token) flows for authentication.

OSLC Core Representations Guidance

- Automation Providers MAY provide RDF/XML and JSON representations for OSLC-defined resources.
- Automation Providers MAY provide RDF/XML and JSON representations for properties.

Query Syntax

- Automation Providers MAY provide RDF/XML and JSON representations for OSLC-defined resources.
- Automation Providers MAY provide RDF/XML and JSON representations for properties.

- Automation Providers MAY accept XML and JSON representations. Automation Providers accepting RDF/XML SHOULD be prepared for representations that follow the guidelines outlined in the OSLC Core Representations Guidance.

OSLC query capabilities MAY provide JSON representations for HTTP GET, POST and PUT requests that conform to the Core Guidelines for XML.

HTTP Method support table

- OSLC service providers MAY provide RDF/XML representations on POST requests. RDF/XML representations on POST requests whose semantic intent is to create a new resource instance.

OSLC Core Representations


HTTP PUT/POST request formats for Automation resources:


- Automation Providers MAY accept XML and JSON representations. Automation Providers accepting XML or JSON SHOULD be prepared for representations that follow the guidelines outlined in the OSLC Core Representations Guidance.

For HTTP PUT/POST request formats for Automation resources:

- Automation Providers MAY accept RDF/XML representations and MAY accept XML representations.
- Automation Providers SHOULD accept RDF/XML representations and MAY accept XML representations.

For HTTP GET response formats for Query requests:

- Automation Providers MUST provide RDF/XML, and MAY provide JSON, XML, and Atom Syndication Format XML.

When Automation Consumers request:

- Automation Providers MAY accept RDF/XML representations and MAY accept XML representations.
- Automation Providers SHOULD accept RDF/XML representations and MAY accept XML representations.

Authentication

See OSLC Core Authentication section (http://open-services.net/bin/view/Main/OslcCoreSpecification#Authentication). OSLC Automation puts no additional constraints on authentication.

Error Responses

See OSLC Core Error Responses section (http://open-services.net/bin/view/Main/OslcCoreSpecification#error_responses). OSLC Automation puts no additional constraints on error responses.

Pagination

OSLC Automation service providers SHOULD support pagination of query results and MAY support pagination of a single resource's properties as defined by the OSLC Core Specification.

Labels for Relationships

Automation relationships to other resources are represented as properties whose values are the URI of the object or target resource. When an Automation relationship property is to be presented in a user interface, it may be helpful to provide an informative and useful textual label for that relationship instance. (This in addition to the relationship property URI and the object resource URI, which are also candidates for presentation to a user.) To this end, OSLC providers MAY support a data-multiple link property in Automation resource representations, using the anchor approach outlined in the OSLC Core Links Guidance (http://open-services.net/bin/view/Main/OslcCoreSpecAppendixLinks).

RDF/XML and XML example using reified statement:

```
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
        xmlns:oslc="http://open-services.net/oslc#"
        xmlns:atom="http://www.w3.org/2005/Atom"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <rdf:Description rdf:about="http://example.com/resource">
    <oslc:hasProperty rdf:resource="http://example.com/property"/>
  </rdf:Description>
</rdf:RDF>
```
Automation Resource Definitions

The Automation resource properties are not limited to the ones defined in this specification; service providers may provide additional properties. It is recommended that any additional properties exist in their own unique namespace and not use the namespaces defined in this specification.

A list of properties is defined for each type of resource. Most of these properties are identified in OSLC Core Appendix A: Common Properties (http://open-services.net/bin/view/Main/OSLCCoreSpecAppendixA). Any exceptions are noted. Relationship properties refer to other resources. These resources may be in any OSLC domain (including Automation).

The diagram below shows the relationships between Automation Resources.

For all resource types defined in this specification, all required properties (those defined with an occurrence of exactly-one or one-or-many) MUST exist for each resource and must be provided when requested. All other properties are optional, and might not exist on some or any resources; those that do not exist will not be present in the returned representation even if requested, while those that do exist MUST be provided if requested. Providers MAY define additional provider-specific properties; providers SHOULD use their own namespaces for such properties, or use standard Dublin Core or RDF namespaces and properties where appropriate.

If no specific set of properties is requested, all properties are returned - both those defined in this specification as well as any provider-specific ones. See Selective Property Values (http://open-services.net/bin/view/Main/OslcCoreSpecification#Selective_Property_Values) in OSLC Core Specification.

Consumers of OSLC Automation services should note that some resources may have a very large number of related resources, and that some resources may be very large and/or expensive to compute. For this reason, consumers are strongly encouraged to use the oslc.properties parameter to limit the properties returned from a request to the subset required. See Selective Property Values (http://open-services.net/bin/view/Main/OslcCoreSpecification#Selective_Property_Values) in OSLC Core Specification.

Resource: AutomationPlan

- Name: AutomationPlan
- Description: A resource representing the unit of automation which is available for execution.
- Type URI http://open-services.net/ns/auto#AutomationPlan

AutomationPlan Properties

<table>
<thead>
<tr>
<th>Prefixed Name</th>
<th>Occurs</th>
<th>Read-only</th>
<th>Value-type</th>
<th>Representation</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>dcterms:contributor</td>
<td>zero-or-many</td>
<td>unspecified</td>
<td>!AnyResource</td>
<td>Either</td>
<td>any</td>
<td>Contributor or contributors to resource (reference: Dublin Core). It is likely that the target resource will be an foaf:Person (<a href="http://open-services.net/bin/view/Main/OSLCCoreSpecAppendixA#foaf_Person_Resource">http://open-services.net/bin/view/Main/OSLCCoreSpecAppendixA#foaf_Person_Resource</a>) but that is not necessarily the case.</td>
</tr>
<tr>
<td>dcterms:created</td>
<td>zero-or-many</td>
<td>True</td>
<td>DateTime</td>
<td>n/a</td>
<td>n/a</td>
<td>Timestamp of resource creation (reference: Dublin Core)</td>
</tr>
<tr>
<td>dcterms:creator</td>
<td>zero-or-many</td>
<td>unspecified</td>
<td>AnyResource</td>
<td>Either</td>
<td>any</td>
<td>Creator or creators of resource (reference: Dublin Core). It is likely that the target resource will be an foaf:Person (<a href="http://open-services.net/bin/view/Main/OSLCCoreSpecAppendixA#foaf_Person_Resource">http://open-services.net/bin/view/Main/OSLCCoreSpecAppendixA#foaf_Person_Resource</a>) but that is not necessarily the case.</td>
</tr>
</tbody>
</table>
Resource: AutomationRequest

- **Name:** AutomationRequest
- **Description:** A resource representing the intention to execute an Automation Plan. The Automation Request contains the information required to request that the provider execute an Automation Plan.
- **Type URI** [http://open-services.net/ns/auto#AutomationRequest](http://open-services.net/ns/auto#AutomationRequest)

### AutomationRequest Properties

<table>
<thead>
<tr>
<th>Prefixed Name</th>
<th>Occurs</th>
<th>Read-only</th>
<th>Value-type</th>
<th>Representation</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oslc:serviceProvider</td>
<td>many</td>
<td>True</td>
<td>Reference</td>
<td></td>
<td></td>
<td>范围,但不是必需的Case。一个唯一标识符为资源。当资源被服务提供者创建时，不会为其创建。不用于前端显示。</td>
</tr>
</tbody>
</table>
| oslc:instanceShape | zero- or-one | True | Resource |                |       |资源Shape提供资源属性的值和允许值。
| oslc:Property | zero- or many | True | String |                |       |资源类型 URI。
| title | exactly-one | True | String |                | n/a  |资源类型 URI。
| rdf:type | zero-or-many | True | Reference |                | n/a  |统一标识符为资源。当资源被服务提供者创建时，不会为其创建。不用于前端显示。
| dcterms:identifier | one-or-many | True | String |                | n/a  |资源类型 URI。
| dcterms:modified | exactly-one | True | DateTime |                | n/a  |资源类型 URI。
| dcterms:created | zero-or-many | True | Resource |                | n/a  |资源类型 URI。
| dcterms:description | zero-or-many | True | String |                | n/a  |资源类型 URI。
| dcterms:creator | zero-or-many | True | Resource |                | n/a  |资源类型 URI。
| dcterms:contributor | many | True | AnyResource |                | any  |资源类型 URI。
| oslc:AutoResourceShape | one-or-many | True | AnyResource |                | n/a  |资源类型 URI。
| oslc:ServiceProvider | one-or-many | True | Resource |                | n/a  |资源类型 URI。

### AutomationRequest: Start of additional properties

<table>
<thead>
<tr>
<th>Prefixed Name</th>
<th>Occurs</th>
<th>Read-only</th>
<th>Value-type</th>
<th>Representation</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
</table>
| oslc:executesAutomationPlan | exactly-one | False | Resource Reference |                | any  |自动化计划由自动化请求启动。它可能与资源池中的资源ID没有关系。
| oslc:ResourceShape | one-or-many | True | AnyResource |                | n/a  |资源类型 URI。
| oslc:ServiceProvider | many | True | Resource |                | n/a  |资源类型 URI。

### OSLC Automation: Start of additional properties

<table>
<thead>
<tr>
<th>Prefixed Name</th>
<th>Occurs</th>
<th>Read-only</th>
<th>Value-type</th>
<th>Representation</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
</table>
| oslc:state | zero-or-many | True | AnyResource |                | n/a  |资源类型 URI。
| oslc:desiredState | zero-or-one | False | AnyResource |                | n/a  |资源类型 URI。
| oslc:inputParameter | many | True | AnyResource |                | any  |资源类型 URI。

### Relationship properties: This grouping of properties is used to identify relationships between resources managed by OSLC Service Providers

<table>
<thead>
<tr>
<th>Prefixed Name</th>
<th>Occurs</th>
<th>Read-only</th>
<th>Value-type</th>
<th>Representation</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
</table>
| oslc:executesAutomationPlan | exactly-one | False | Resource Reference |                | any  |自动化计划由自动化请求启动。它可能与资源池中的资源ID没有关系。

Description

The definition of a parameter for this Automation Plan. parameterDefinitions are either a local (inline) or referenced resource and use the attributes of the range of the oslc:Property ([http://open-services.net/ns/auto#AutomationRequest](http://open-services.net/ns/auto#AutomationRequest)) becomes zero-or-one instead of exactly-one. Automation consumers creating Automation Requests MUST use the oslc:occurs attribute of the parameterDefinition, if present, to determine if a given parameter is required when creating the Automation Request. If the oslc:occurs attribute indicates the parameter is required (exactly-one or one-or-more), the service provider must guarantee the named parameter will be present in the Automation Result either as an oslc:inputParameter or as an oslc:outputParameter when unmodified during execution, or as an oslc:inputOutputParameter when modified during execution.
**Resource: AutomationResult**

- **Name:** AutomationResult
- **Description:** A resource representing the intermediate and final execution state of an Automation Request, along with contributions to the result.
- **Type URI:** http://open-services.net/ns/auto#AutomationResult

**AutomationResult Properties**

<table>
<thead>
<tr>
<th>Prefixed Name</th>
<th>Occurs</th>
<th>Read-only</th>
<th>Value-type</th>
<th>Representation</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>dcterms:contributor</td>
<td>zero-or-many</td>
<td>True</td>
<td>AnyResource</td>
<td>Either</td>
<td>any</td>
<td>Contributor or contributors to resource (reference: Dublin Core). It is likely that the target resource will be an foaf:Person (<a href="http://xmlns.com/foaf/0.1/Person">http://xmlns.com/foaf/0.1/Person</a>) but that is not necessarily the case. When the service provider or its agents is the contributor to the resource, a foaf:Agent (<a href="http://xmlns.com/foaf/spec/foaf-Agent">http://xmlns.com/foaf/spec/foaf-Agent</a>) could be used.</td>
</tr>
<tr>
<td>dcterms:created</td>
<td>zero-or-one</td>
<td>True</td>
<td>DateTime</td>
<td>n/a</td>
<td>n/a</td>
<td>Timestamp of resource creation (reference: Dublin Core)</td>
</tr>
<tr>
<td>dcterms:creator</td>
<td>zero-or-many</td>
<td>True</td>
<td>AnyResource</td>
<td>Either</td>
<td>any</td>
<td>Creator or creators of the resource (reference: Dublin Core). It is likely that the target resource will be a foaf:Person, but that is not necessarily the case. The resource should represent the entity on whose behalf the automation is being created. When the provider itself or its agent is the initiator of the automation (perhaps in the case of a scheduled automation), an additional foaf:Agent resource could be used.</td>
</tr>
<tr>
<td>dcterms:identifier</td>
<td>exactly-one</td>
<td>True</td>
<td>String</td>
<td>n/a</td>
<td>n/a</td>
<td>A unique identifier for a resource. Assigned by the service provider when a resource is created. Not intended for end-user display.</td>
</tr>
<tr>
<td>dcterms:modified</td>
<td>zero-or-one</td>
<td>True</td>
<td>DateTime</td>
<td>n/a</td>
<td>n/a</td>
<td>Timestamp of latest resource modification (reference: Dublin Core)</td>
</tr>
<tr>
<td>rdf:type</td>
<td>zero-or-many</td>
<td>True</td>
<td>Resource</td>
<td>Reference</td>
<td>n/a</td>
<td>The resource type URIs.</td>
</tr>
<tr>
<td>dcterms:subject</td>
<td>zero-or-many</td>
<td>True</td>
<td>AnyResource</td>
<td>String</td>
<td>n/a</td>
<td>Tag or keyword for a resource. Each occurrence of a dc:subject property denotes an additional tag for the resource.</td>
</tr>
<tr>
<td>dcterms:title</td>
<td>exactly-one</td>
<td>True</td>
<td>XMLLiteral</td>
<td>n/a</td>
<td>n/a</td>
<td>Title (reference: Dublin Core) of the resource represented as rich text in XHTML content. SHOULD include only content that is valid and suitable for display in a simple UI for an automation result.</td>
</tr>
<tr>
<td>oslc:instanceShape</td>
<td>zero-or-one</td>
<td>True</td>
<td>Resource</td>
<td>Reference</td>
<td>oslc:ResourceShape (<a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Service_Provider_Resources">http://open-services.net/bin/view/Main/OslcCoreSpecification#Service_Provider_Resources</a>)</td>
<td>Resource Shape that provides hints as to resource property value-types and allowed values.</td>
</tr>
<tr>
<td>oslc:serviceProvider</td>
<td>zero-or-many</td>
<td>True</td>
<td>Resource</td>
<td>Reference</td>
<td>oslc:ServiceProvider (<a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Service_Provider_Resources">http://open-services.net/bin/view/Main/OslcCoreSpecification#Service_Provider_Resources</a>)</td>
<td>The scope of a resource is a link to the resource’s OSLC Service Provider.</td>
</tr>
</tbody>
</table>

**OSLC Automation: Start of additional properties**

<table>
<thead>
<tr>
<th>Prefixed Name</th>
<th>Occurs</th>
<th>Read-only</th>
<th>Value-type</th>
<th>Representation</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oslc_AUTO</td>
<td>one-or-many</td>
<td>True</td>
<td>AnyResource</td>
<td>Either</td>
<td>n/a</td>
<td>Used to indicate the state of the automation result based on values defined by the service provider. Most often a read-only property. It is expected that this will be a resource reference to a definition of a valid automation request state on the service provider.</td>
</tr>
<tr>
<td>oslc_AUTO:iState</td>
<td>zero-or-one</td>
<td>False</td>
<td>AnyResource</td>
<td>n/a</td>
<td>n/a</td>
<td>Used to indicate the desired state of the Automation Result based on values defined by the service provider. It is expected that this will be a resource reference to a definition of a valid automation result state on the service provider.</td>
</tr>
<tr>
<td>oslc_AUTO:desiredState</td>
<td>zero-or-many</td>
<td>unspecified AnyResource</td>
<td>n/a</td>
<td>n/a</td>
<td>Used to indicate the verdict of the automation result based on values defined by the service provider. Most often a read-only property. It is expected that this will be a resource reference to a definition of a valid automation result verdict on the service provider.</td>
<td></td>
</tr>
<tr>
<td>oslc_AUTO:verdict</td>
<td>zero-or-many</td>
<td>unspecified AnyResource</td>
<td>n/a</td>
<td>n/a</td>
<td>A result contribution associated with this automation result. It is recommended that the contribution be an inline resource which can be retrieved with the automation result. The recommended attributes beyond the contribution itself are dcterms:creator, dcterms:contribution, rdf:resource and rdf:type to provide a description of the contribution which would be appropriate for display in a simple UI for an automation result.</td>
<td></td>
</tr>
<tr>
<td>oslc_AUTO:contribution</td>
<td>zero-or-many</td>
<td>True</td>
<td>AnyResource</td>
<td>Either</td>
<td>n/a</td>
<td>A copy of the parameters provided during creation of the Automation Request which produced this Automation Result (see oslc_auto:inputParameterProperties on Automation Result should be considered a point-in-time copy of the parameter at the time the Automation Request was created.</td>
</tr>
<tr>
<td>oslc_AUTO:outputParameter</td>
<td>zero-or-many</td>
<td>True</td>
<td>AnyResource</td>
<td>Either</td>
<td>n/a</td>
<td>Automation Result output parameters are parameters associated with the automation execution which produced this Result. This includes the final value of all parameters used to initiate the execution and any additional parameters which may have been created during automation execution by the service provider or external agents. It is recommended that the output parameter may change as the execution proceeds. Point-in-time accuracy of the values of output parameters is not covered by this specification. Once the Automation Result is in a final state (oslc_auto:complete or oslc_auto:canceled), the oslc_auto:outputParameter values MUST NOT change.</td>
</tr>
</tbody>
</table>

**Relationship properties: This grouping of properties is used to identify relationships between resources managed by OSLC Service Providers**

- **oslc_AUTO:producedByAutomationRequest**
- **oslc_AUTO:reportsOnAutomationPlan**

**Resource: ParameterInstance**

- **Name:** ParameterInstance
- **Description:** A resource representing an individual input or output parameter instance for an Automation Request or Result. Automation Requests and Results may have 0 or more parameter instances.
- **Type URI:** http://open-services.net/ns/auto#ParameterInstance

**ParameterInstance Properties**

<table>
<thead>
<tr>
<th>Prefixed Name</th>
<th>Occurs</th>
<th>Read-only</th>
<th>Value-type</th>
<th>Representation</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oslc:name</td>
<td>exactly-one</td>
<td>True</td>
<td>String</td>
<td>n/a</td>
<td>n/a</td>
<td>The name of the parameter instance.</td>
</tr>
<tr>
<td>rdf:value</td>
<td>zero-or-one</td>
<td>True</td>
<td>unspecified AnyResource</td>
<td>String</td>
<td>n/a</td>
<td>The value of the parameter. The value may be an RDF literal or a resource. If the value is an RDF literal, then it SHOULD be a RDF typed literal.</td>
</tr>
<tr>
<td>dcterms:description</td>
<td>zero-or-one</td>
<td>True</td>
<td>XMLLiteral</td>
<td>n/a</td>
<td>n/a</td>
<td>Descriptive text (reference: Dublin Core) about resource represented as rich text in XHTML content. SHOULD include only content that is valid and suitable inside an XHTML xml:element.</td>
</tr>
<tr>
<td>rdf:type</td>
<td>zero-or-one</td>
<td>True</td>
<td>Resource</td>
<td>Reference</td>
<td>oslc:ResourceShape (<a href="http://open-services.net/bin/view/Main/OslcCoreSpecification#Service_Provider_Resources">http://open-services.net/bin/view/Main/OslcCoreSpecification#Service_Provider_Resources</a>)</td>
<td>Resource Shape that provides hints as to resource property value-types and allowed values.</td>
</tr>
</tbody>
</table>
The service providers supports requirements for delegated UIs is as follows:

OSLC Automation service providers support the selection and creation of Automation resources as defined by Delegated UIs. OSLC Automation providers SHOULD support the services.net/bin/view/Main/OSLCCoreSpecRDFXMLExamples#Specifying_the_shape_of_a_query) if shape information is NOT present with the Query Capability, service providers MUST use the default properties defined in OSLC Core RDF/XML Examples (http://open-services.net/bin/view/Main/OSLCCoreSpecRDFXMLExamples#Specifying_the_shape_of_a_query) to contain the result.

Selective Property Values
OSLC Automation providers SHOULD support the oslc:properties syntax for selective property value retrieval when a resource is accessible via its resource URI.

Delegated UIs
OSLC Automation service providers support the selection and creation of Automation resources as defined by Delegated UIs (http://open-services.net/bin/view/Main/OslcCoreSpecification#Delegated_User_Interface_Dialogs) in OSLC Core. The service providers supports requirements for delegated UIs is as follows:
State and Verdict properties

OSLC Automation service providers can identify the state and verdict using references to property values in the OSLC Automation vocabulary or to property values that are not in the Automation vocabulary (i.e. in the service provider’s own vocabulary). It is expected that the state and verdict values will be URI references to property values, but inline resources defining the state and verdict property values are also valid. Automation service providers MUST use at least one verdict (Automation Results) and state (Automation Requests and Results) defined in the OSLC automation vocabulary in addition to any states or verdicts not in the Automation vocabulary.

The additional property values for oslc_auto:state are:

- http://open-services.net/ns/auto#new - used to indicate an automation request or result has just been created in the service provider and has not yet been acted upon.
- http://open-services.net/ns/auto#inProgress - used to indicate an automation request or result is queued for additional actions by the service provider.
- http://open-services.net/ns/auto#canceling - used to indicate the service provider is in the process of canceling an automation request or result.
- http://open-services.net/ns/auto#canceled - used to indicate an automation request or result has been canceled.
- http://open-services.net/ns/auto#complete - used to indicate that an automation request or result is complete.

The additional property values for oslc_auto:verdict are:

- http://open-services.net/ns/auto#unavailable - used to indicate an automation result is in a state where a final verdict such as oslc_auto:passed or oslc_auto:failed is not yet available. Usually used when the result is in a state other than oslc_auto:complete.
- http://open-services.net/ns/auto#inProgress - used to indicate an automation result represents a successful execution.
- http://open-services.net/ns/auto#canceling - used to indicate an automation result represents an execution which encountered conditions which prevented successful execution but did not result in a failed execution.
- http://open-services.net/ns/auto#canceled - used to indicate an automation result represents a failed execution.
- http://open-services.net/ns/auto#failed - used to indicate that an automation request or result is complete.

Automation Service Provider HTTP method support

For V2 of the OSLC Automation specification, support for all HTTP methods in the compliance table is not required for all Automation resources. The following table summarizes the requirements for each resource type, HTTP method and for each media type.

<table>
<thead>
<tr>
<th>Resource</th>
<th>RDF/XML</th>
<th>XML</th>
<th>JSON</th>
<th>OSLC</th>
<th>HTML</th>
<th>Unspecified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automation Plan</td>
<td>MUST</td>
<td>MAY</td>
<td>SHOULD</td>
<td>SHOULD</td>
<td>MAY</td>
<td>N/A</td>
</tr>
<tr>
<td>PUT</td>
<td>MAY</td>
<td>MAY</td>
<td>MAY</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>POST</td>
<td>MAY</td>
<td>MAY</td>
<td>MAY</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>DELETE</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>MAY</td>
</tr>
<tr>
<td>Automation Request</td>
<td>GET</td>
<td>MUST</td>
<td>SHOULD</td>
<td>SHOULD</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>PUT</td>
<td>MAY</td>
<td>MAY</td>
<td>MAY</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>POST</td>
<td>MAY</td>
<td>MAY</td>
<td>MAY</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>DELETE</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>MAY</td>
</tr>
<tr>
<td>Automation Result</td>
<td>GET</td>
<td>MUST</td>
<td>MAY</td>
<td>MAY</td>
<td>SHOULd</td>
<td>N/A</td>
</tr>
<tr>
<td>PUT</td>
<td>SHOULD</td>
<td>MAY</td>
<td>MAY</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>POST</td>
<td>MAY</td>
<td>MAY</td>
<td>MAY</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>DELETE</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>MAY</td>
</tr>
<tr>
<td>Parameter Definition</td>
<td>GET</td>
<td>MAY</td>
<td>MAY</td>
<td>MAY</td>
<td>MAY</td>
<td>N/A</td>
</tr>
<tr>
<td>PUT</td>
<td>MAY</td>
<td>MAY</td>
<td>MAY</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>POST</td>
<td>MAY</td>
<td>MAY</td>
<td>MAY</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>DELETE</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>MAY</td>
</tr>
<tr>
<td>Parameter Instance</td>
<td>GET</td>
<td>MAY</td>
<td>MAY</td>
<td>MAY</td>
<td>MAY</td>
<td>N/A</td>
</tr>
<tr>
<td>PUT</td>
<td>MAY</td>
<td>MAY</td>
<td>MAY</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>POST</td>
<td>MAY</td>
<td>MAY</td>
<td>MAY</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>DELETE</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>MAY</td>
</tr>
</tbody>
</table>

OSLC Automation service providers SHOULD support deletion of any resources for which it allows creation.

Automation Specification Guidance

This section is informative.

Canceling the execution of an automation

The Automation Request and Automation Result resources have an oslc_auto:desiredState attribute. A consumer can indicate a desire to cancel the execution of an automation by doing a PUT to the artifact with this attribute set to a value of http://open-services.net/ns/auto#cancelled. If the service provider supports cancelation of automation executions, the receipt of a PUT with this attribute set should trigger the necessary provider processing. If the cancelation is successful, the service provider should set the appropriate artifact oslc_auto:state to http://open-services.net/ns/auto#cancelled.

- When only an Automation Request is active (Automation Result not created yet), the consumer should request cancelation by setting oslc_auto:desiredState on the Automation Request.
- When Automation Requests and Automation Results are active (in an oslc_auto:state other than oslc_auto:canceled or oslc_auto:complete), the consumer should request cancelation by setting oslc_auto:desiredState on the Automation Request.
- When only an Automation Request is active (Automation Request completed, canceled or no longer exists), the consumer should request cancelation by setting oslc_auto:desiredState on the Automation Request.
- Consumers are responsible for checking the status code of the response to the request for cancelation and for checking the oslc_auto:state of the resource.

Responses to Cancelation Requests

If a service provider does not support cancelation of an automation, or if an error occurs preventing successful cancelation, the service provider should respond to the PUT request with an HTTP status code 500 and an OSLC Error Resource (http://open-services.net/bin/view/Main/OslcCoreSpecification#Error_Responses) detailing the cause for the failed cancelation.

State consistency

The Automation Request and Automation Result resources have an oslc_auto:state attribute. Automation service providers should, where possible, enforce state consistency for related Automation Requests and Results. In general, this means an Automation Result in a final state (completed, canceled) should not have a related Automation Request in a non-final state. Other contradictions such as completed Automation Result with a new Automation Request should also be avoided. Suggested consistent (C) and inconsistent (I) states are:

- Automation Result
  - oslc_auto:state
    - oslc_auto:canceled
    - oslc_auto:complete
    - oslc_auto:inProgress
    - oslc_auto:queued
    - oslc_auto:new
    - oslc_auto:passed
    - oslc_auto:failed
    - oslc_auto:unavailable
  - oslc_auto:verdict
    - oslc_auto:passed
    - oslc_auto:failed
    - oslc_auto:unavailable
Parameters Added During Execution

When Automation Requests are created for an Automation Plan, the creator of the request supplies oslc_auto:inputParameter attributes based on the oslc_auto:parameterDefinition attributes found in the Automation Plan instance. There are scenarios where a provider may add additional parameters during the course of execution and a consumer of Automation Results might wish to discover what these added parameters will be. One method of discovery is for the consumer to simply examine the oslc_auto:outputParameter attributes of the Automation Result. This may not be sufficient for consumers who have a need to know the added parameters prior to executing the Automation Plan.

Service providers can advertise which parameters will be added during the course of execution using the oslc:readOnly attribute of the oslc:Property resource which is the basis for the oslc_auto:parameterDefinition in the Automation Plan. By setting oslc:readOnly to true, the provider indicates that this parameter is not available for the consumer to set, but will or may be added to the Automation Result’s oslc_auto:outputParameters attribute of the Automation Result’s resource which is the basis for the specific parameterDefinition.

Example 1: An Automation Plan parameterDefinition fragment showing a parameter guaranteed to be added during execution

```xml
<oslc_auto:parameterDefinition>
  <oslc:name>DeployedIPAddress</oslc:name>
  <oslc:occurr>http://open-services.net/ns/core#Exactly-one</oslc:occurr>
  <oslc:valueType rdf:resource="http://www.w3.org/2001/XMLSchema#string"/>
  <oslc:occurs>http://open-services.net/ns/core#Zero-or-many</oslc:occurs>
  <oslc:readOnly>true</oslc:readOnly>
</oslc_auto:parameterDefinition>
```

Example 2: An Automation Plan parameterDefinition fragment showing a parameter which may be added during execution

```xml
<oslc_auto:parameterDefinition>
  <oslc:name>FailedTestName</oslc:name>
  <oslc:occurr>http://open-services.net/ns/core#Zero-or-many</oslc:occurr>
  <oslc:valueType rdf:resource="http://www.w3.org/2001/XMLSchema#string"/>
</oslc_auto:parameterDefinition>
```

Appendix A: Samples

(this section is informative)

See OSLC Automation Version 2.0 Samples (http://open-services.net/wiki/automation/OSLC-Automation-Version-2.0-Samples)

Appendix B: Resource Shapes

(this section is informative)


Appendix C: Notices and References

Reporting Issues on the Specification

The working group participants who author and maintain this working draft specification, monitor a distribution list where issues or questions can be raised, see Automation Mailing List (http://open-services.net/mailman/listinfo/oslc-automation-open-services.net).

Also the issues found with this specification and their resolution can be found at Automation Specification Version 2.0 Issues (http://open-services.net/wiki/automation/Automation-Specification-Version-2.0-Issues).

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Intellectual Property Covenant

The members of the Working Group (or as appropriate, their empaths) have documented a Patent Non-Assertion Covenant for implementations of the Automation 2.0 Specification, as described in the open-services.net Terms of Use (http://open-services.net/terms.html). Details of the Covenant may be found here (http://open-services.net/wiki/automation/Patent-Non-Assert-Covenants-for-Automation-Specification-version-2.0).

References

- OSLC Core - OSLC Core Specification 2.0 (http://open-services.net/bin/view/Main/OslcCoreSpecification)
- Dublin Core 1.1 - Dublin Core Metadata Element Set, Version 1.1 (http://dublincore.org/documents/2010/10/11/dces/)
- FOAF - Friend of a Friend (FOAF) v0.98 (http://xmlns.com/foaf/spec/20100809.html)
- OAuth 1.0a - RFC5849 - The OAuth 1.0a Protocol (http://tools.ietf.org/html/rfc5849)
- XML Namespaces - Namespaces in XML 1.0 (Third Edition) (http://www.w3.org/TR/REC-xml-names/)

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