



OSLC Automation Version 2.1 Part 2: Vocabulary

Project Specification Draft 01

21 January 2021

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Additional components:

This specification is one component of a Work Product that also includes:

- *OSLC Automation Version 2.1 Part 1: Specification.* [automation-spec.html](#)
- *OSLC Automation Version 2.1 Part 2: Vocabulary (this document).* [automation-vocab.html](#)
- *OSLC Automation Version 2.1 Part 3: Constraints.* [automation-shapes.html](#)
- *OSLC Automation Version 2.1 Machine Readable Vocabulary Terms.* [automation-vocab.ttl](#)
- *OSLC Automation Version 2.1 Machine Readable Vocabulary Constraints.* [automation-shapes.ttl](#)

Related work:

This specification is related to:

- *Open Services for Lifecycle Collaboration Automation Specification Version 2.1*. <http://open-services.net/wiki/automation/OSLC-Automation-Specification-Version-2.1/>

RDF Namespaces:

<http://open-services.net/ns/auto#>

Abstract:

This specification defines a vocabulary and resource shapes for the OSLC Automation domain.

Status:

This document was last revised or approved by the [OASIS Open Services for Lifecycle Collaboration \(OSLC\) OP](#) on the above date. The level of approval is also listed above. Check the “Latest stage” location noted above for possible later revisions of this document. Any other numbered Versions and other technical work produced by the Open Project are listed at <https://github.com/oslc-op/oslc-specs>.

Comments on this work can be provided by opening issues in the project repository or by sending email to the project’s public comment list oslc-op@lists.oasis-open-projects.org.

Note that any machine-readable content ([Computer Language Definitions](#)) declared Normative for this Work Product is provided in separate plain text files. In the event of a discrepancy between any such plain text file and display content in the Work Product’s prose narrative document(s), the content in the separate plain text file prevails.

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Table of Contents

- 1. Introduction
 - 1.1 Terminology
 - 1.2 References
 - 1.2.1 Normative references
 - 1.2.2 Informative references
 - 1.3 Typographical Conventions and Use of RFC Terms
- 2. Automation Vocabulary Terms
 - 2.1 Vocabulary Details
 - 2.1.1 Classes in this namespace (6)
 - 2.1.2 Properties in this namespace (14)
 - 2.1.3 Resources (Individuals) in this namespace (11)
- 3. Automation Resource Definitions
 - 3.1 Vocabulary Details
 - 3.1.1 Classes in this namespace (6)
 - 3.1.2 Properties in this namespace (14)
 - 3.1.3 Resources (Individuals) in this namespace (11)
- 4. Relationship labels
- 5. Conformance

1. Introduction

This section is non-normative.

This specification defines vocabulary terms for OSLC Automation resources. The intent is to define resources needed to support common integration scenarios that require potentially long running services that manage other OSLC resources.

1.1 Terminology

This section is non-normative.

Terminology is based on OSLC Core Overview [OSLCCore3], W3C Linked Data Platform [LDP], W3C's Architecture of the World Wide Web [WEBARCH], Hyper-text Transfer Protocol [HTTP11]. Terminology for this specification is defined in part 1 of the multi-part specification.

1.2 References

1.2.1 Normative references

[HTTP11]

R. Fielding; J. Gettis; J. Mogul. [Hyper-text Transfer Protocol \(HTTP/1.1\)](https://tools.ietf.org/html/rfc2616). STD 1. URL: <https://tools.ietf.org/html/rfc2616>

[LDP]

Steve Speicher; John Arwe; Ashok Malhotra. [Linked Data Platform 1.0](https://www.w3.org/TR/ldp/). 26 February 2015. W3C Recommendation. URL: <https://www.w3.org/TR/ldp/>

[OSLCCore2]

S. Speicher; D. Johnson. [OSLC Core Specification 2.0](http://open-services.net/bin/view/Main/OslcCoreSpecification). Finalized. URL: <http://open-services.net/bin/view/Main/OslcCoreSpecification>

[OSLCCore3]

Steve Speicher; Jim Amsden. [OSLC Core Overview v3.0](https://docs.oasis-open-projects.org/oslc-op/core/v3.0/oslc-core.html). Project Specification. URL: <https://docs.oasis-open-projects.org/oslc-op/core/v3.0/oslc-core.html>

[RFC2119]

S. Bradner. [Key words for use in RFCs to Indicate Requirement Levels](https://tools.ietf.org/html/rfc2119). March 1997. Best Current Practice. URL: <https://tools.ietf.org/html/rfc2119>

[RFC8174]

B. Leiba. [Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words](https://tools.ietf.org/html/rfc8174). May 2017. Best Current Practice. URL: <https://tools.ietf.org/html/rfc8174>

1.2.2 Informative references

[OSLCQM]

Paul McMahan; Jim Amsden; Gray Bachelor. [OSLC Quality Management 2.1. Part 1: Specification](https://open-services.net/spec/qm/latest). Project Specification Draft. URL: <https://open-services.net/spec/qm/latest>

[OSLCRM]

Ian Green; Jad El-khoury. [OSLC Requirements Management Version 2.1. Part 1: Specification](#). Project Specification Draft. URL: <https://open-services.net/spec/rm/latest>

[WEBARCH]

Ian Jacobs; Norman Walsh. [Architecture of the World Wide Web, Volume One](#). 15 December 2004. W3C Recommendation. URL: <https://www.w3.org/TR/webarch/>

1.3 Typographical Conventions and Use of RFC Terms

As well as sections marked as non-normative, all authoring guidelines, diagrams, examples, and notes in this specification are non-normative. Everything else in this specification is normative.

The key words "**MUST**", "**MUST NOT**", "**REQUIRED**", "**SHALL**", "**SHALL NOT**", "**SHOULD**", "**SHOULD NOT**", "**RECOMMENDED**", "**NOT RECOMMENDED**", "**MAY**", and "**OPTIONAL**" in this specification are to be interpreted as described in [BCP 14 \[RFC2119\]](#) [[RFC8174](#)] when, and only when, they appear in all capitals, as shown here.

In addition to the namespace URIs and namespace prefixes `oslc`, `rdf`, `dcterms` and `foaf` defined in the [OSLC Core specification](#), OSLC Automation defines the namespace URI of `http://open-services.net/ns/auto#` with a namespace prefix of `oslc_am`

This specification also uses these namespace prefix definitions:

- `oslc_rm` : `http://open-services.net/ns/rm#` [[OSLCRM](#)]
- `oslc_qm` : `http://open-services.net/ns/qm#` [[OSLCQM](#)]

2. Automation Vocabulary Terms

This specification defines the *root* superclasses, properties and values. Servers may define additional subclasses and provide additional properties as needed.

2.1 Vocabulary Details

The namespace URI for this vocabulary is: <http://open-services.net/ns/auto#>

All vocabulary URIs defined in the OSLC Automation namespace.

2.1.1 Classes in this namespace (6)

[AutomationPlan](#), [AutomationRequest](#), [AutomationResult](#), [ParameterInstance](#), [State](#), [Verdict](#)

AutomationPlan

<http://open-services.net/ns/auto#AutomationPlan>

AutomationPlan is an RDFS class.

The Automation Plan resource.

AutomationRequest

<http://open-services.net/ns/auto#AutomationRequest>

AutomationRequest is an RDFS class.

The Automation Request resource.

AutomationResult

<http://open-services.net/ns/auto#AutomationResult>

AutomationResult is an RDFS class.

The Automation Result resource.

ParameterInstance

<http://open-services.net/ns/auto#ParameterInstance>

ParameterInstance is an RDFS class.

The Automation Parameter Instance resource.

State

<http://open-services.net/ns/auto#State>

State is an RDFS class.

Defines the possible `oslc_auto:state` property values.

.. . .

Verdict

<http://open-services.net/ns/auto#Verdict>

Verdict is an RDFS class.

Defines the possible `oslc_auto:verdict` property values.

2.1.2 Properties in this namespace (14)

[binding](#), [desiredState](#), [executesAutomationPlan](#), [futureAction](#), [hasContribution](#), [inputParameter](#), [outputParameter](#), [parameterDefinition](#), [producedByAutomationRequest](#), [progress](#), [reportsOnAutomationPlan](#), [state](#), [usesExecutionEnvironment](#), [verdict](#)

binding

<http://open-services.net/ns/auto#binding>

binding is an RDF property.

A resource providing instructions that a client can follow to immediately execute the action, when the client is ready to do so. In this context (a deferred execution creation dialog), each binding is likely to be an immediate-execution binding, used during the execution phase of the deferred execution dialog interaction pattern.

desiredState

<http://open-services.net/ns/auto#desiredState>

desiredState is an RDF property.

Used to indicate the desired state of the automation request based on values defined by the service provider.

executesAutomationPlan

<http://open-services.net/ns/auto#executesAutomationPlan>

executesAutomationPlan is an RDF property.

Automation Plan run by the Automation Request. It is likely that the target resource will be an `oslc_auto:AutomationPlan` but that is not necessarily the case.

futureAction

<http://open-services.net/ns/auto#futureAction>

futureAction is an RDF property.

A resource representing actions that will become available on Automation Results that result from execution of this Plan. The resource is likely to be of type `oslc:Action`, but it can be of any type. Automation defines `oslc_auto:TeardownAction` as one kind of future action.

hasContribution

<http://open-services.net/ns/auto#contribution>

hasContribution is an RDF property.

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:title`,

dcterms:description and dcterms:type to provide a description of the contribution which would be appropriate for display in a simple UI for an automation result.

inputParameter

<http://open-services.net/ns/auto#inputParameter>

inputParameter is an RDF property.

Parameters provided when Automation Requests are created. These include parameters provided by the creator of the Automation Request (whether by delegated UI or HTTP POST) and **MAY** include additional parameters added by the service provider during Automation Request creation. See the definition of the `oslc_auto:parameterDefinition` attribute of the Automation Plan for additional guidance on determining which parameters are required. Creators of Automation Requests **MAY** provide parameters beyond those defined in the Automation Plan without guarantee the service provider will recognize or honor them. It is expected that this attribute is write-able on Automation Request creation and read-only thereafter.

outputParameter

<http://open-services.net/ns/auto#outputParameter>

outputParameter is an RDF property.

Automation Result output parameters are parameters associated with the result other than the `oslc_auto:inputParameter` resources. These could be parameters added during automation execution by the service provider or external agents. They could also be copies of input parameters with values changed during execution.

parameterDefinition

<http://open-services.net/ns/auto#parameterDefinition>

parameterDefinition is an RDF property.

The definition of a parameter for this Automation Plan. `parameterDefinitions` are either a local (inline) or referenced resource and use the attributes (the range) of the `oslc:Property` resource with one exception. When used in the context of an `oslc_auto:parameterDefinition`, the cardinality of `oslc:propertyDefinition` 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_auto:inputParameter` when unmodified during execution, or as an `oslc_auto:outputParameter` when modified during execution.

producedByAutomationRequest

<http://open-services.net/ns/auto#producedByAutomationRequest>

producedByAutomationRequest is an RDF property.

Automation Request which produced the Automation Result. It is likely that the target resource will be an `oslc_auto:AutomationResult` but that is not necessarily the case.

progress

<http://open-services.net/ns/auto#progress>

progress is an RDF property.

A percentage (0-100) of completion.

reportsOnAutomationPlan

<http://open-services.net/ns/auto#reportsOnAutomationPlan>

reportsOnAutomationPlan is an RDF property.

Automation Plan which the Automation Result reports on. It is likely that the target resource will be an `oslc_auto:AutomationPlan` but that is not necessarily the case.

state

<http://open-services.net/ns/auto#state>

state is an RDF property.

Used to indicate the state of the automation request 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.

usesExecutionEnvironment

<http://open-services.net/ns/auto#usesExecutionEnvironment>

usesExecutionEnvironment is an RDF property.

A resource representing the environment(s) which this Automation Plan can be executed in. The execution environment resource could represent a grouping of environmental details such as operating system, database, browser, compiler, etc. See also the execution environments section.

verdict

<http://open-services.net/ns/auto#verdict>

verdict is an RDF property.

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.

2.1.3 Resources (Individuals) in this namespace (11)

[canceled](#), [canceling](#), [complete](#), [error](#), [fail](#), [inProgress](#), [new](#), [passed](#), [queued](#), [unavailable](#), [warning](#)

canceled

<http://open-services.net/ns/auto#canceled>

canceled is an RDF individual.

Used to indicate that an automation request or result has been canceled.

canceling

<http://open-services.net/ns/auto#canceling>

canceling is an RDF individual.

Used to indicate the service provider is in the process of canceling an automation request or result.

complete

<http://open-services.net/ns/auto#complete>

complete is an RDF individual.

Used to indicate that an automation request or result is complete.

error

<http://open-services.net/ns/auto#error>

error is an RDF individual.

Used to indicate an automation result has completed but did not run successfully due to some error. This could be a timeout, automation coding error, network problem or other error which prevented the automation from running successfully to a pass, warning or fail verdict.

fail

<http://open-services.net/ns/auto#failed>

fail is an RDF individual.

Used to indicate an automation result represents a failed execution.

inProgress

<http://open-services.net/ns/auto#inProgress>

inProgress is an RDF individual.

Used to indicate an automation request or result is active in the service provider.

new

<http://open-services.net/ns/auto#new>

new is an RDF individual.

Used to indicate an automation request or result has just been created in the service provider and has not yet been acted upon.

passed

<http://open-services.net/ns/auto#passed>

passed is an RDF individual.

Used to indicate an automation result represents a passed execution.

queued

<http://open-services.net/ns/auto#queued>

queued is an RDF individual.

Primarily used to indicate an automation request or result is queued for additional actions by the service provider.

unavailable

<http://open-services.net/ns/auto#unavailable>

unavailable is an RDF individual.

Used to indicate an automation result is in a state where a final verdict such as `oslc:auto_pass` or `oslc_auto:fail` is not yet available. Usually used when the result is in a state other than `oslc_auto:complete`.

warning

<http://open-services.net/ns/auto#warning>

warning is an RDF individual.

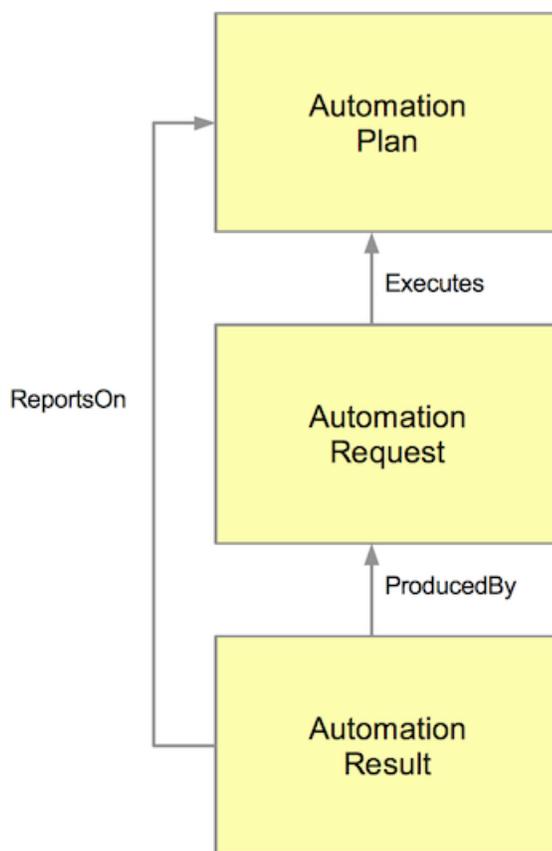
Used to indicate an automation result represents an execution which encountered conditions which prevented successful execution but did not result in a failed execution.

3. 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 [OSLCCore3] 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 [OSLCCore2] 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 [OSLCCore2] Selective Property Values in OSLC Core Specification.

3.1 Vocabulary Details

The namespace URI for this vocabulary is: <http://open-services.net/ns/auto#>

All vocabulary URIs defined in the OSLC Automation namespace.

3.1.1 Classes in this namespace (6)

[AutomationPlan](#), [AutomationRequest](#), [AutomationResult](#), [ParameterInstance](#), [State](#), [Verdict](#)

AutomationPlan

<http://open-services.net/ns/auto#AutomationPlan>

AutomationPlan is an RDFS class.

The Automation Plan resource.

AutomationRequest

<http://open-services.net/ns/auto#AutomationRequest>

AutomationRequest is an RDFS class.

The Automation Request resource.

AutomationResult

<http://open-services.net/ns/auto#AutomationResult>

AutomationResult is an RDFS class.

The Automation Result resource.

ParameterInstance

<http://open-services.net/ns/auto#ParameterInstance>

ParameterInstance is an RDFS class.

The Automation Parameter Instance resource.

State

<http://open-services.net/ns/auto#State>

State is an RDFS class.

Defines the possible `oslc_auto:state` property values.

Verdict

<http://open-services.net/ns/auto#Verdict>

Verdict is an RDFS class.

Defines the possible `oslc_auto:verdict` property values.

3.1.2 Properties in this namespace (14)

[binding](#), [desiredState](#), [executesAutomationPlan](#), [futureAction](#), [hasContribution](#), [inputParameter](#), [outputParameter](#), [parameterDefinition](#), [producedByAutomationRequest](#), [progress](#), [reportsOnAutomationPlan](#), [state](#), [usesExecutionEnvironment](#), [verdict](#)

binding

`http://open-services.net/ns/auto#binding`

binding is an RDF property.

A resource providing instructions that a client can follow to immediately execute the action, when the client is ready to do so. In this context (a deferred execution creation dialog), each binding is likely to be an immediate-execution binding, used during the execution phase of the deferred execution dialog interaction pattern.

desiredState

`http://open-services.net/ns/auto#desiredState`

desiredState is an RDF property.

Used to indicate the desired state of the automation request based on values defined by the service provider.

executesAutomationPlan

`http://open-services.net/ns/auto#executesAutomationPlan`

executesAutomationPlan is an RDF property.

Automation Plan run by the Automation Request. It is likely that the target resource will be an `oslc_auto:AutomationPlan` but that is not necessarily the case.

futureAction

`http://open-services.net/ns/auto#futureAction`

futureAction is an RDF property.

A resource representing actions that will become available on Automation Results that result from execution of this Plan. The resource is likely to be of type `oslc:Action`, but it can be of any type. Automation defines `oslc_auto:TeardownAction` as one kind of future action.

hasContribution

`http://open-services.net/ns/auto#contribution`

hasContribution is an RDF property.

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:title`, `dcterms:description` and `dcterms:type` to provide a description of the contribution which would be appropriate for display in a simple UI for an automation result.

inputParameter

inputParameter

<http://open-services.net/ns/auto#inputParameter>

inputParameter is an RDF property.

Parameters provided when Automation Requests are created. These include parameters provided by the creator of the Automation Request (whether by delegated UI or HTTP POST) and **MAY** include additional parameters added by the service provider during Automation Request creation. See the definition of the `oslc_auto:parameterDefinition` attribute of the Automation Plan for additional guidance on determining which parameters are required. Creators of Automation Requests **MAY** provide parameters beyond those defined in the Automation Plan without guarantee the service provider will recognize or honor them. It is expected that this attribute is write-able on Automation Request creation and read-only thereafter.

outputParameter

<http://open-services.net/ns/auto#outputParameter>

outputParameter is an RDF property.

Automation Result output parameters are parameters associated with the result other than the `oslc_auto:inputParameter` resources. These could be parameters added during automation execution by the service provider or external agents. They could also be copies of input parameters with values changed during execution.

parameterDefinition

<http://open-services.net/ns/auto#parameterDefinition>

parameterDefinition is an RDF property.

The definition of a parameter for this Automation Plan. *parameterDefinitions* are either a local (inline) or referenced resource and use the attributes (the range) of the `oslc:Property` resource with one exception. When used in the context of an `oslc_auto:parameterDefinition`, the cardinality of `oslc:propertyDefinition` 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_auto:inputParameter` when unmodified during execution, or as an `oslc_auto:outputParameter` when modified during execution.

producedByAutomationRequest

<http://open-services.net/ns/auto#producedByAutomationRequest>

producedByAutomationRequest is an RDF property.

Automation Request which produced the Automation Result. It is likely that the target resource will be an `oslc_auto:AutomationResult` but that is not necessarily the case.

progress

<http://open-services.net/ns/auto#progress>

progress is an RDF property.

A percentage (0-100) of completion.

reportsOnAutomationPlan

<http://open-services.net/ns/auto#reportsOnAutomationPlan>

reportsOnAutomationPlan is an RDF property.

Automation Plan which the Automation Result reports on. It is likely that the target resource will be an `oslc_auto:AutomationPlan` but that is not necessarily the case.

state

`http://open-services.net/ns/auto#state`

state is an RDF property.

Used to indicate the state of the automation request 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.

usesExecutionEnvironment

`http://open-services.net/ns/auto#usesExecutionEnvironment`

usesExecutionEnvironment is an RDF property.

A resource representing the environment(s) which this Automation Plan can be executed in. The execution environment resource could represent a grouping of environmental details such as operating system, database, browser, compiler, etc. See also the execution environments section.

verdict

`http://open-services.net/ns/auto#verdict`

verdict is an RDF property.

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.

3.1.3 Resources (Individuals) in this namespace (11)

[canceled](#), [canceling](#), [complete](#), [error](#), [fail](#), [inProgress](#), [new](#), [passed](#), [queued](#), [unavailable](#), [warning](#)

canceled

`http://open-services.net/ns/auto#canceled`

canceled is an RDF individual.

Used to indicate that an automation request or result has been canceled.

canceling

`http://open-services.net/ns/auto#canceling`

canceling is an RDF individual.

Used to indicate the service provider is in the process of canceling an automation request or result.

complete

`http://open-services.net/ns/auto#complete`

complete is an RDF individual.

Used to indicate that an automation request or result is complete.

error

<http://open-services.net/ns/auto#error>

error is an RDF individual.

Used to indicate an automation result has completed but did not run successfully due to some error. This could be a timeout, automation coding error, network problem or other error which prevented the automation from running successfully to a pass, warning or fail verdict.

fail

<http://open-services.net/ns/auto#failed>

fail is an RDF individual.

Used to indicate an automation result represents a failed execution.

inProgress

<http://open-services.net/ns/auto#inProgress>

inProgress is an RDF individual.

Used to indicate an automation request or result is active in the service provider.

new

<http://open-services.net/ns/auto#new>

new is an RDF individual.

Used to indicate an automation request or result has just been created in the service provider and has not yet been acted upon.

passed

<http://open-services.net/ns/auto#passed>

passed is an RDF individual.

Used to indicate an automation result represents a passed execution.

queued

<http://open-services.net/ns/auto#queued>

queued is an RDF individual.

Primarily used to indicate an automation request or result is queued for additional actions by the service provider.

unavailable

<http://open-services.net/ns/auto#unavailable>

Standards Track Work Product

unavailable is an RDF individual.

Used to indicate an automation result is in a state where a final verdict such as `oslc:auto_pass` or `oslc:auto:fail` is not yet available. Usually used when the result is in a state other than `oslc:auto:complete`.

warning

<http://open-services.net/ns/auto#warning>

warning is an RDF individual.

Used to indicate an automation result represents an execution which encountered conditions which prevented successful execution but did not result in a failed execution.

4. Relationship labels

This section is non-normative.

When an RM 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 Servers **MAY** support a `dcterms:title` link property in RM resource representations where a relationship property is permitted, using the anchor approach outlined in the OSLC Core Links Guidance.

Servers and Clients should be aware that the `dcterms:title` of a link is unrelated to the `dcterms:title` of the object resource. Indeed, links may carry other properties with names in common to the object of the link, but there is no specified relationship between these property values.

5. Conformance

Architecture Management servers **MUST** use the vocabulary terms defined here where required, and with the meanings defined here.

Architecture Management servers **MAY** augment this vocabulary with additional classes, properties, and individuals.