

**OSLC Architecture Management Specification 2.1**

**Committee Specification Draft 01 /
Public Review Draft 01**

**05 June 2018**

Specification URIs

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Technical Committee:

[OASIS OSLC Lifecycle Integration Domains TC](https://www.oasis-open.org/committees/oslc-domains/)

Chairs:

Jim Amsden (jamsden@us.ibm.com), [IBM](http://www.ibm.com/)

Graham Bachelor (gray\_bachelor@uk.ibm.com), [IBM](http://www.ibm.com)

Editor:

Jim Amsden (jamsden@us.ibm.com), [IBM](http://www.ibm.com)

Additional artifacts:

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

* OSLC Architecture Management Version 2.1. Part 1: Specification (this document). <http://docs.oasis-open.org/oslc-domains/am/v2.1/csprd01/part1-architecture-management-spec/cm-v2.1-csprd01-part1-architecture-management-spec.html>
* OSLC Architecture Management Version 2.1. Part 2: Vocabulary. <http://docs.oasis-open.org/oslc-domains/am/v2.1/csprd01/part2-architecture-management-vocab/am-v2.1-csprd01-part2-architecture-management-vocab.html>

Related work:

This specification is related to:

* OSLC Architecture Management Specification Version 2.0, <http://open-services.net/wiki/architecture-management/OSLC-Architecture-Management-Specification-Version-2.0/>

RDF Namespaces:

[http://open-services.net/ns/core/am#](http://open-services.net/ns/core/am)

Abstract:

This specification defines the OSLC Architecture Management domain, a RESTful web services interface for the management of architectural resources and relationships between those and related resources such as product change requests, activities, tasks requirements or test cases. To support these scenarios, this specification defines a set of HTTP-based RESTful interfaces in terms of HTTP methods: GET, POST, PUT and DELETE, HTTP response codes, content type handling and resource formats.

Status:

This document was last revised or approved by the [OASIS OSLC Lifecycle Integration Domains TC](https://www.oasis-open.org/committees/oslc-domains/) on the above date. The level of approval is also listed above. Check the “Latest version” location noted above for possible later revisions of this document. Any other numbered Versions and other technical work produced by the Technical Committee (TC) are listed at <https://www.oasis-open.org/committees/tc_home.php?wg_abbrev=oslc-domains#technical>.

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**Table of Contents**

* [1. Introduction](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#intro)
	+ [1.1 IPR Policy](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#iprPolicy)
	+ [1.2 Terminology](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#terminology)
	+ [1.3 References](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#references)
		- [1.3.1 Normative references](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#normative-references)
		- [1.3.2 Informative references](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#informative-references)
	+ [1.4 Typographical Conventions and Use of RFC Terms](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#conventions)
* [2. Base Requirements](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#baseRequirements)
	+ [2.1 Compliance](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#compliance)
	+ [2.2 Specification Versioning](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#versioning)
	+ [2.3 Namespaces](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#namespaces)
	+ [2.4 Resource Formats](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#formats)
	+ [2.5 Resource Operations](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#resourceOps)
	+ [2.6 Authentication](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#authentication)
	+ [2.7 Error Responses](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#errors)
	+ [2.8 Pagination](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#pagination)
	+ [2.9 Requesting and Updating Properties](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#requestProps)
		- [2.9.1 Requesting a Subset of Properties](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#requestSubset)
		- [2.9.2 Updating a Subset of Properties](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#updateSubset)
		- [2.9.3 Updating Multi-Valued Properties](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#updatingMultiValueProps)
* [3. Vocabulary Terms and Constraints](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#ResourceDefs)
* [4. AM Service Provider Capabilities](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#capabilities)
	+ [4.1 Resource Shapes](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#resourceShapes1)
	+ [4.2 Service Provider Resources](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#resources)
	+ [4.3 Creation Factories](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#creationfactories)
	+ [4.4 Query Capabilities](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#querycapabilities)
	+ [4.5 Delegated UIs](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#delegatedUIs)
* [Appendix A. Samples](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#samples)
* [Appendix B. Acknowledgements](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#acknowledgements)
* [Appendix C. Change History](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#history)

**1. Introduction**

*This section is non-normative.*

This specification defines a RESTful web services interface for Architecture Management (AM), the management of product design artifacts, and models requests and relationships between those and related resources such as requirements, testing resources and change requests. To support these scenarios, this specification defines a set of HTTP-based RESTful interfaces in terms of HTTP methods: GET, POST, PUT and DELETE, as well as HTTP response codes, content type handling and resource formats.

The intent of this specification is to define the capabilities needed to support integration scenarios defined by the Architecture Management working group and not to provide a comprehensive interface to Architecture Management. The resource formats and operations may not match exactly the native artifacts supported by architecture management AM Servers but are intended to be compatible with them. The approach to supporting these scenarios is to delegate operations, as driven by service provider contributed user interfaces, as much as possible and not require a service provider to expose its complete data model and application logic.

This specification is a [[*OSLCCore3*](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#bib-OSLCCore3)] compliant specification, and as such most of its content references to [[*OSLCCore3*](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#bib-OSLCCore3)].

**1.1 IPR Policy**

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**1.2 Terminology**

*Resource*

An artifact used in the Application Lifecycle Management (ALM) space. A resource is directly addressable with an absolute URL.

*Architecture Management Resource (AMR)*

Directly addressable resources of some domain/notation (i.e. UML, BMPN, ER) that represent an abstraction of some behavior or construct of a system under development. An AMR maintains its identity after refactoring. In the semantic web, an AMR might correspond to a graph that is an instance of some vocabulary or micro-theory.

*Link*

A logical relationship from one resource to another resource. An OSLC AM Link is uni-directional. The subject (source) of a link represents the resource that "knows about" and is referencing another resource (target). The type of relationship is given by a predicate URI (link type). In semantic web terminology, a link would correspond to an RDF statement with a subject (source) a predicate (type) and object (target). The predicate could be defined by property in an RDF schema.

*Link type (LT)*

A URI that represents the type of a link. In semantic web terminology it is the predicate of an RDF triple. It clarifies the type of relationship between two resources. Link Type URIs may be defined locally, within the OSLC, or externally (i.e. Dublin Core terms). Link types could be defined in RDF Schemas.

*Link type Resource (LTR)*

A resource that contains human consumable information about a Link Type, like its human readable name and description. The resource is managed by the AM provider. The information may be about a Link Type in a different domain (i.e. Dublin Core Terms or OWL). The main use of a LTR is for clients who want to build a UI for users that clearly labels potential link types.

AM Client

An implementation of the OSLC Architecture Management specifications as a client. OSLC AM Clients consume services provided by AM servers.

AM Server

A server implementing the OSLC Architecture Management domain specifications. OSLC AM clients consume services provided by AM Servers. The use of the terms Client and Server are intended to distinguish typical consumers and providers of OSLC resources in a distributed environment based on REST. A particular application component could be a client for some OSLC domain services and a server for the same or another domain.

**1.3 References**

**1.3.1 Normative references**

[OSLCCore2]

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

[OSLCCore3]

Jim Amsden; S. Speicher. [*OSLC Core 3.0*](http://docs.oasis-open.org/oslc-core/oslc-core/v3.0/oslc-core-v3.0-part1-overview.html). Committee Specification. URL: <http://docs.oasis-open.org/oslc-core/oslc-core/v3.0/oslc-core-v3.0-part1-overview.html>

[OSLCPreview]

[*OSLC Resource Preview 3.0*](http://docs.oasis-open.org/oslc-core/oslc-core/v3.0/oslc-core-v3.0-part3-resource-preview.html). Committee Specification. URL: <http://docs.oasis-open.org/oslc-core/oslc-core/v3.0/oslc-core-v3.0-part3-resource-preview.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>

**1.3.2 Informative references**

[LDPPatch]

[*Linked Data Patch Format*](http://www.w3.org/TR/ldpatch/). Working Group Note. URL: <http://www.w3.org/TR/ldpatch/>

**1.4 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*, *SHOULD*, *SHOULD NOT*, *RECOMMENDED*, *MAY*, and *OPTIONAL* in this specification are to be interpreted as described in [[*RFC2119*](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#bib-RFC2119)].

**2. Base Requirements**

**2.1 Compliance**

This specification is based on [[*OSLCCore3*](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#bib-OSLCCore3)]. OSLC AM clients and servers *MUST* be compliant with both the core specification and this AM specification, and *SHOULD* follow all the guidelines and recommendations in both of these specifications.

The following table summarizes the requirements from OSLC Core Specification as well as some additional requirements specific to the AM domain. Note that this specification further restricts some of the requirements for OSLC Core Specification. See subsequent sections in this specification or the OSLC Core Specification to get further details on each of these requirements.

| **Requirement** | **Level** | **Meaning** |
| --- | --- | --- |
| Absolute URIs | *MUST* | AM Servers *MUST* use absolute URIs for all references to resources by properties |
| Unknown properties and content | *MAY*/*MUST* | AM Servers *MAY* ignore unknown content and AM clients *MUST* preserve unknown content when PUTing updates to resources, or POSTing creation of resources. AM Servers may discard such content and continue the POST or PUT operation without warning to the client. |
| Resource Operations | *MUST* | AM Servers *MUST* support resource operations via standard HTTP operations |
| Update and Delete | *SHOULD*/*MAY* | AM Servers *SHOULD* support resource modifications with standard HTTP PUT and DELETE methods. AM Servers *MAY* limit modifications |
| HTTP If-Match use | *MUST* | If AM Servers support update and delete of resources, they *MUST* support the standard HTTP If-Match header in PUT and DELETE for concurrency protection of resources. |
| Resource Paging | *MAY* | AM Servers *MAY* provide paging for a resource properties but only when specifically requested by client |
| Partial Resource Representations | *MAY* | Am Servers *MAY* support request for a subset of a resource's properties via the oslc.properties URL parameter retrieval via HTTP GET |
| Partial Update | *MAY* | AM Servers *MAY* support partial update of resources via the oslc.properties URL parameter retrieval via HTTP PUT and or using [*[LDPPatch](file:///C%3A%5C%5CUsers%5C%5Cjad%5C%5Cgit%5C%5Coslc-domains%5C%5Cam%5C%5Carchitecture-management-spec.html%22%20%5Cl%20%22bib-LDPPatch)*]. |
| Discovery | *MAY*/*MUST* | AM Servers *MAY* provide a Service Provider Catalog, *MUST* provide a Service Provider resource, and *MAY* provide other forms of discovery described in Core 3.0 Discovery. |
| Creation Factories | *MAY* | AM Servers *MAY* provide creation factories for resource formats that it supports. AM Servers *MAY* support creation factories for OSLC AM defined resources formatted as application/rdf+xml. AM Servers *MAY* support creation factories for other formats, and indicate such creation factories with a non-default identifier in the oslc:usage property of the creation factory definition in the service provider document |
| Query Capabilities | *MUST* | AM Servers *MUST* provide query capabilities on oslc\_am:Resource resources to enable clients to query for resources. AM Servers *SHOULD* support a query interface for oslc\_am:LinkType resources that support a GET for all LinkType resources. Such a GET does not require any simple query syntax parameters. AM Servers *MAY* support the full query syntax for LinkType resources.  |
| Query Syntax | *MUST* | OSLC query capabilities *MUST* support the OSLC Core Query Syntax |
| Delegated Dialogs | *SHOULD*/*MAY* | AM Servers *SHOULD* offer selection delegated dialogs and *MAY* offer creation delegated dialogs specified via service provider resource |
| Resource Preview | *SHOULD* | AM Servers *SHOULD* offer resource previews for resources that may be referenced by other resources  |
| Authentication | *SHOULD* | AM Servers SHOULD follow the recommendations for Authentication specified in [[*OSLCCore3*](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#bib-OSLCCore3)] |
| Error Responses | *SHOULD* | AM Servers *SHOULD* provide error responses using [*[OSLCCore3](file:///C%3A%5C%5CUsers%5C%5Cjad%5C%5Cgit%5C%5Coslc-domains%5C%5Cam%5C%5Carchitecture-management-spec.html%22%20%5Cl%20%22bib-OSLCCore3)*] defined error formats |
| RDF/XML Representations | *MUST* | AM Servers *MUST* support RDF/XML representations for OSLC Defined Resources |
| XML Representations | *MUST* | AM Servers *MUST* support XML representations that conform to the OSLC Core Guidelines for XML |
| JSON Representations | *MAY*/*MUST* | AM Servers *MAY* support JSON representations; those which do *MUST* conform to the OSLC Core Guidelines for JSON |
| HTML Representations | *MAY* | AM Servers *MAY* provide HTML representations for GET requests |

**2.2 Specification Versioning**

This specification follows the specification version guidelines given in [[*OSLCCore3*](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#bib-OSLCCore3)].

**2.3 Namespaces**

In addition to the namespace URIs and namespace prefixes oslc, rdf, dcterms and foaf defined in the [[*OSLCCore3*](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#bib-OSLCCore3)], OSLC AM defines the namespace URI of http://open-services.net/ns/am# with a preferred namespace prefix of oslc\_am.

**2.4 Resource Formats**

In addition to the requirements for resource representations in [[*OSLCCore3*](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#bib-OSLCCore3)], this section outlines further refinements and restrictions.

For HTTP GET/PUT/POST requests on all OSLC AM and OSLC Core defined resource types,

* AM Servers *MUST* support RDF/XML representations with media-type application/rdf+xml. RM Clients *MUST* be prepared to deal with any valid RDF/XML document.
* AM Servers *MUST* support XML representations with media-type application/xml. The XML representations *MUST* follow the guidelines outlined in the [OSLC Core Representations Guidance](http://open-services.net/bin/view/Main/OSLCCoreSpecAppendixRepresentations) to maintain compatibility with [[*OSLCCore2*](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#bib-OSLCCore2)].
* AM Servers *MAY* support JSON representations with media-type application/json. The JSON representations *MUST* follow the guidelines outlined in the [OSLC Core Representations Guidance](http://open-services.net/bin/view/Main/OSLCCoreSpecAppendixRepresentations) to maintain compatibility with [[*OSLCCore2*](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#bib-OSLCCore2)].

**2.5 Resource Operations**

OSLC AM Clients *MUST* include the OSLC Core Version header (OSLC-Core-Version: 2.0) in all HTTP request to OSLC AM Servers.

OSLC AM Servers *MUST* support HTTP GET requests on Architecture Management Resources (AMR), with an Accept header of application/rdf+xml, and return the RDF/XML representation of the resource.

OSLC AM Servers *SHOULD* support HTTP GET requests on Architecture Management Resources (AMR), with an Accept header of an HTML type ( application/html, application/xhtml), and return either an HTML/XHTML representation of the resource or redirect the client to another URL that can (i.e. 302 Redirect).

OSLC AM Servers *SHOULD* support HTTP GET requests for user interface (UI) preview of Architecture Management Resources (AMR) as defined by [*[OSLCPreview](file:///C%3A%5C%5CUsers%5C%5Cjad%5C%5Cgit%5C%5Coslc-domains%5C%5Cam%5C%5Carchitecture-management-spec.html%22%20%5Cl%20%22bib-OSLCPreview)*].

OSLC AM Servers *SHOULD* support resource modifications on Architecture Management Resources (AMR) with standard HTTP PUT and DELETE methods. AM Servers *MAY* limit modifications in any way they want. For example, a service provider may limit updates to resources to simple link properties of link types already defined in the provider. Modification methods *MUST* use the If-Match header for concurrency management. Providers *MAY* discard such properties and continue a PUT operation without warning to the client.

OSLC AM Servers *SHOULD* support resource modifications on LinkType Resources (LTR) with standard HTTP PUT and DELETE methods. AM Servers *MAY* limit modifications in any way they want. For example, a service provider may not support additional properties. Modification methods *SHOULD* use the If-Match header for concurrency management.

**2.6 Authentication**

See [[*OSLCCore3*](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#bib-OSLCCore3)], OSLC AM puts no additional constraints on authentication.

**2.7 Error Responses**

See [[*OSLCCore3*](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#bib-OSLCCore3)], OSLC AM puts no additional constraints on error responses

**2.8 Pagination**

OSLC AM Servers *SHOULD* support pagination of query results and *MAY* support pagination of a single resource's properties as defined by [!OSLCCore3]].

**2.9 Requesting and Updating Properties**

**2.9.1 Requesting a Subset of Properties**

An OSLC AM server *MAY* support the oslc.properties URL query parameter on a HTTP GET request on individual resource request or a collection of resources by query. If the oslc.properties query parameter is omitted on the request, then all resource properties *MUST* be provided in the response.

**2.9.2 Updating a Subset of Properties**

A client *MAY* request that a subset of a resource's properties be updated by using the [*[LDPPatch](file:///C%3A%5C%5CUsers%5C%5Cjad%5C%5Cgit%5C%5Coslc-domains%5C%5Cam%5C%5Carchitecture-management-spec.html%22%20%5Cl%20%22bib-LDPPatch)*] PATCH method.

For compatibility with [[*OSLCCore2*](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#bib-OSLCCore2)], a Server *MAY* also support partial update by identifying those properties to be modified using the oslc.properties URL parameter on a HTTP PUT request.

If the parameter oslc.properties contains a valid resource property on the request that is not provided in the content, the server *MUST* set the resource's property to a null or empty value. If the parameter oslc.properties contains an invalid resource property, then a 409 Conflict *MUST* be returned.

**2.9.3 Updating Multi-Valued Properties**

For multi-valued properties that contain a large number of values, it may be difficult and inefficient to add or remove property values. OSLC RM servers MAY provide support for a partial update of the multi-valued properties as defined by draft specification [LDPPatch]. RM servers MAY also support partial updates through HTTP PUT where only the updated properties are included in the entity request body.

**3. Vocabulary Terms and Constraints**

[OSLC Architecture Management Resources 2.1](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-vocab.html) Defines the vocabulary terms and constraints for OSLC Change Management resources. These terms and constraints are specified according to [[*OSLCCore3*](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#bib-OSLCCore3)].

**4. AM Server Capabilities**

**4.1 Resource Shapes**

OSLC AM services providers *SHOULD* support [Resource Shapes](http://open-services.net/bin/view/Main/OslcCoreSpecification%22%20%5Cl%20%22Resource_Shapes) as defined in [OSLC Core Specification](http://open-services.net/bin/view/Main/OslcCoreSpecification#Resource_Shapes)

**4.2 Service Provider Resources**

OSLC AM Servers *MUST* provide a [Service Provider Resource](http://open-services.net/bin/view/Main/OslcCoreSpecification#Service_Provider_Resources) that can be retrieved at a implementation dependent URI.

OSLC AM Servers *MUST* provide a [Service Provider Catalog Resource](http://open-services.net/bin/view/Main/OslcCoreSpecification#Service_Provider_Catalog_Resources) that can be retrieved at a implementation dependent URI.

OSLC AM Servers *MUST* provide a oslc:serviceProvider property for their defined resources that will be the URI to a [Service Provider Resource](http://open-services.net/bin/view/Main/OslcCoreSpecification#Service_Provider_Resources). This does not prevent AM Servers from providing multiple servie provider properties with different values, if the service provider supports multiple OSLC domain specifications, and the resource is applicable to multiple domains.

OSLC AM Servers *MUST* supply a value of http://open-services.net/ns/am# for the property oslc:domain on either oslc:ServiceProvider or oslc:ServiceProviderCatalog resources.

**4.3 Creation Factories**

OSLC AM Servers *MAY* support [Creation Factories](http://open-services.net/bin/view/Main/OslcCoreSpecification#Creation_Factories) as defined by OSLC Core.

OSLC AM Servers *MAY* discard properties it does not recognize and continue the POST operation without warning to the client. The returned resource will contain the accepted properties (and server generated properties like the dcterms:identifer) so clients will be able to confirm if required what was accepted.

If OSLC AM Servers support the creation of resources from the OSLC defined oslc\_am:Resource format, there *MUST* be at least one [Creation Factory](http://open-services.net/bin/view/Main/OslcCoreSpecification#Creation_Factories) entry in the Services definition, and its oslc:usage property *MUST* be set to http://open-services/ns/core#default. The oslc:resourceType *MUST* be set to http://open-services.net/ns/am#Resource.

If OSLC AM Servers support the creation of resources from a resource other than oslc\_am:Resource, there *MUST* be a separate creation services definition whose oslc:usage property *MUST NOT* be set to http://open-services/ns/core#default.

**4.4 Query Capabilities**

OSLC AM Servers *SHOULD* support the [Query Capabilities](http://open-services.net/bin/view/Main/OslcCoreSpecification#Query_Capabilities) as defined by OSLC Core for both [oslc\_am:Resource](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#Resource_Architecture_Management) and [oslc\_am:LinkType](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#Resource_Link_Type_Resource_LTR) resources.

If the service provider supports query capability for [oslc\_am:Resource](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#Resource_Architecture_Management) resources, it *MUST* support the following query parameters:

* oslc.where
* oslc.searchTerms

OSLC AM Servers *SHOULD* support query capability for [oslc\_am:LinkType](file:///C%3A%5CUsers%5Cjad%5Cgit%5Coslc-domains%5Cam%5Carchitecture-management-spec.html#Resource_Link_Type_Resource_LTR) resources. If supported then AM Servers *MUST* support a simple GET without any simple query parameters that returns all link type resources. AM Servers *SHOULD* support the full simple query syntax.

**4.5 Delegated UIs**

OSLC AM Servers *SHOULD* support the selection of resources by delegated web-based user interface dialogs [Delegated UIs](http://open-services.net/bin/view/Main/OslcCoreSpecification%22%20%5Cl%20%22Delegated_User_Interface_Dialogs) as defined by OSLC Core.

OSLC AM Servers *MAY* support the creation of resources by delegated web-based user interface dialogs [Delegated UIs](http://open-services.net/bin/view/Main/OslcCoreSpecification#Delegated_User_Interface_Dialogs) as defined by OSLC Core.

In oslc:Dialog elements, the two optional child elements; oslc:hintWidth and oslc:hintHeight specify the suggested size of the dialog or frame to render the HTML content in. Expected for the size values are defined by [CSS length units](http://www.w3.org/TR/CSS1/#length-units).

**Appendix A. Samples**

See [OSLC Architecture Management 2.0 Appendix A: Samples](http://open-services.net/wiki/architecture-management/OSLC-Architecture-Management-2.0-Appendix-A%3A-Samples)

**Appendix B. Acknowledgements**

*This section is non-normative.*

The following individuals have participated in the creation of this specification and are gratefully acknowledged:

**Participants**:

James Amsden, IBM (Editor)
ChrisArmstrong, Armstrong Process Group
Andy Berner, IBM
Scott Bosworth, IBM
JimConallen, IBM
Derry Davis, Accenture
Brenda Ellis, Northrop Grumman Corporation
Ian Green, IBM
Jonathan Harclerode, Accenture
Simon Helsen, IBM
Clyde Icuspit, IBM
Wally Mclaughlin, Armstrong Process Group
Thomas Picolli, IBM
Vishy Ramaswamy, IBM
Ren Renganathan. Citi Bank
Nick Crossley, IBM (Chair)

**Appendix C. Change History**

*This section is non-normative.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Revision** | **Date** | **Editor** | **Changes Made** |
| 01 | 08/22/2017 | Jim Amsden | Initial draft migration from open-services.net |