

MEF Legato Interface Profile SpecificationFebruary 2019MEF 73 draft 0.1

Working Draft

MEF 73 draft 0.1

MEF Legato Interface Profile Specification

April 2019

This draft represents MEF work in progress and is subject to change.

Disclaimer

© MEF Forum 2019. All Rights Reserved.

The information in this publication is freely available for reproduction and use by any recipient and is believed to be accurate as of its publication date. Such information is subject to change without notice and MEF Forum (MEF) is not responsible for any errors. MEF does not assume responsibility to update or correct any information in this publication. No representation or warranty, expressed or implied, is made by MEF concerning the completeness, accuracy, or applicability of any information contained herein and no liability of any kind shall be assumed by MEF as a result of reliance upon such information.

The information contained herein is intended to be used without modification by the recipient or user of this document. MEF is not responsible or liable for any modifications to this document made by any other party.

The receipt or any use of this document or its contents does not in any way create, by implication or otherwise:

1. any express or implied license or right to or under any patent, copyright, trademark or trade secret rights held or claimed by any MEF member which are or may be associated with the ideas, techniques, concepts or expressions contained herein; nor
2. any warranty or representation that any MEF members will announce any product(s) and/or service(s) related thereto, or if such announcements are made, that such announced product(s) and/or service(s) embody any or all of the ideas, technologies, or concepts contained herein; nor
3. any form of relationship between any MEF member and the recipient or user of this document.

Implementation or use of specific MEF standards, specifications, or recommendations will be voluntary, and no Member shall be obliged to implement them by virtue of participation in MEF Forum. MEF is a non-profit international organization to enable the development and worldwide adoption of agile, assured and orchestrated network services. MEF does not, expressly or otherwise, endorse or promote any specific products or services.

# Table of Contents

[1 List of Contributing Members 4](#_Toc2090068)

[2 Abstract 4](#_Toc2090069)

[3 Terminology and Abbreviations 5](#_Toc2090070)

[4 Compliance Levels 6](#_Toc2090071)

[5 Introduction 7](#_Toc2090072)

[6 Use Cases and Flow 8](#_Toc2090073)

[7 Interface Requirements 8](#_Toc2090074)

[8 Interface Information Model 8](#_Toc2090075)

[8.1 Service Catalog 8](#_Toc2090076)

[8.1.1 Service Specification 8](#_Toc2090077)

[8.1.2 Service Spec Characteristic 8](#_Toc2090078)

[8.2 Service Order 8](#_Toc2090079)

[8.2.1 Service Order 8](#_Toc2090080)

[8.2.2 Service Order Item 8](#_Toc2090081)

[8.2.3 Service Order Message 8](#_Toc2090082)

[8.2.4 Related Party 8](#_Toc2090083)

[8.3 Service Inventory 8](#_Toc2090084)

[8.3.1 Service 8](#_Toc2090085)

[8.3.2 Service Characteristic 8](#_Toc2090086)

[8.3.3 Supporting Resource 8](#_Toc2090087)

[9 State Diagrams 8](#_Toc2090088)

[10 MEF Service Common Model (MSCM) Mapping 8](#_Toc2090089)

[11 References 8](#_Toc2090090)

[Appendix A Appendix Title (Informative) 9](#_Toc2090091)

[A.1 Appendix Subsection 9](#_Toc2090092)

[A.1.1 Appendix second-level subsection 9](#_Toc2090093)

# List of Figures

**No table of figures entries found.**

# List of Tables

[Table 1 – Terminology and Abbreviations 5](#_Toc2090094)

# List of Contributing Members

The following members of the MEF participated in the development of this document and have requested to be included in this list.

1. This list will be finalized before Letter Ballot. Any member that comments in at least one CfC is eligible to be included by opting in before the Letter Ballot is initiated. Note it is the MEF member that is listed here (typically a company or organization), not their individual representatives.

* ABC Networks
* XYZ Communications

# Abstract

The MEF Legato Interface Profile Specification (IPS) describes use cases, requirements and the information model (including Class diagrams and descriptions, Interface Operations, Sequence diagrams, State diagrams, etc) for the MEF Legato Service API (MLSAPI). The MLSAPI is expected to be applied at the MEF LSO Legato Interface Reference Point (IRP).

# Terminology and Abbreviations

This section defines the terms used in this document. In many cases, the normative definitions to terms are found in other documents. In these cases, the third column is used to provide the reference that is controlling, in other MEF or external documents.

In addition, terms defined in MEF X [1] are included in this document by reference, and are not repeated in the table below.

| Term | Definition | Reference |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Table 1 – Terminology and Abbreviations

# Compliance Levels

The key words "**MUST**", "**MUST NOT**", "**REQUIRED**", "**SHALL**", "**SHALL NOT**", "**SHOULD**", "**SHOULD NOT**", "**RECOMMENDED**", "**NOT RECOMMENDED**", "**MAY**", and "**OPTIONAL**" in this document are to be interpreted as described in BCP 14 (RFC 2119 [1], RFC 8174 [2]) when, and only when, they appear in all capitals, as shown here. All key words must be in bold text.

Items that are **REQUIRED** (contain the words **MUST** or **MUST** **NOT**) are labeled as **[Rx]** for required. Items that are **RECOMMENDED** (contain the words **SHOULD** or **SHOULD** **NOT**) are labeled as **[Dx]** for desirable. Items that are **OPTIONAL** (contain the words **MAY** or **OPTIONAL**) are labeled as **[Ox]** for optional**.**

1. The following paragraph will be deleted if no conditional requirements are used in the document.

A paragraph preceded by **[CRa]<** specifies a conditional mandatory requirement that **MUST** be followed if the condition(s) following the “<” have been met. For example, “**[CR1]<**[D38]” indicates that Conditional Mandatory Requirement 1 must be followed if Desirable Requirement 38 has been met. A paragraph preceded by **[CDb]<** specifies a Conditional Desirable Requirement that **SHOULD** be followed if the condition(s) following the “<” have been met. A paragraph preceded by **[COc]<** specifies a Conditional Optional Requirement that **MAY** be followed if the condition(s) following the “<” have been met.

# Introduction

The MEF Legato IPS describes use cases, requirements and the information model for the MEF Legato Service API (MLSAPI). The MLSAPI is expected to be applied at the MEF LSO Legato Interface Reference Point (IRP).

The MLSAPI is agnostic of any specific MEF product, service or technology specification. The different MEF services will be described as Service Specification instances (functional templates) retrievable from a Service Catalog using MLSAPI. The schema for the different types of MEF services is not specified in this document and will be done in the related MEF project – MEF Services Common Model (MSCM) The MLSAPI information model is defined to be aligned with the MSCM as well as MEF Core Model (MCM).

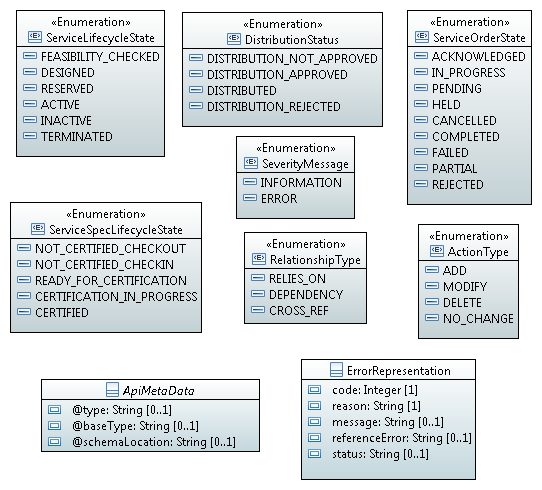
# Use Cases and Flow

# Interface Requirements

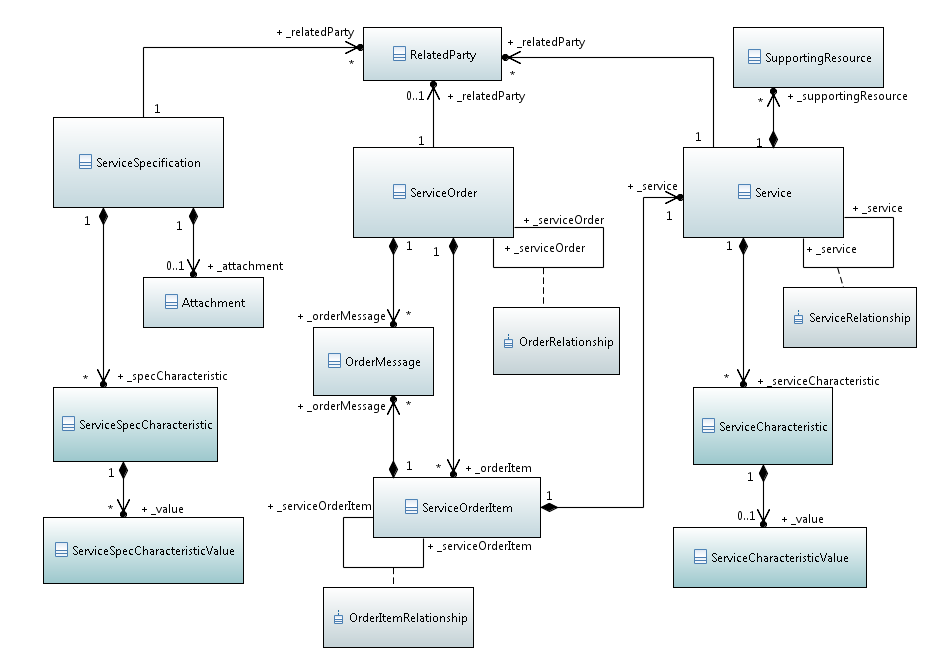
# Interface Information Model

## Class Diagrams

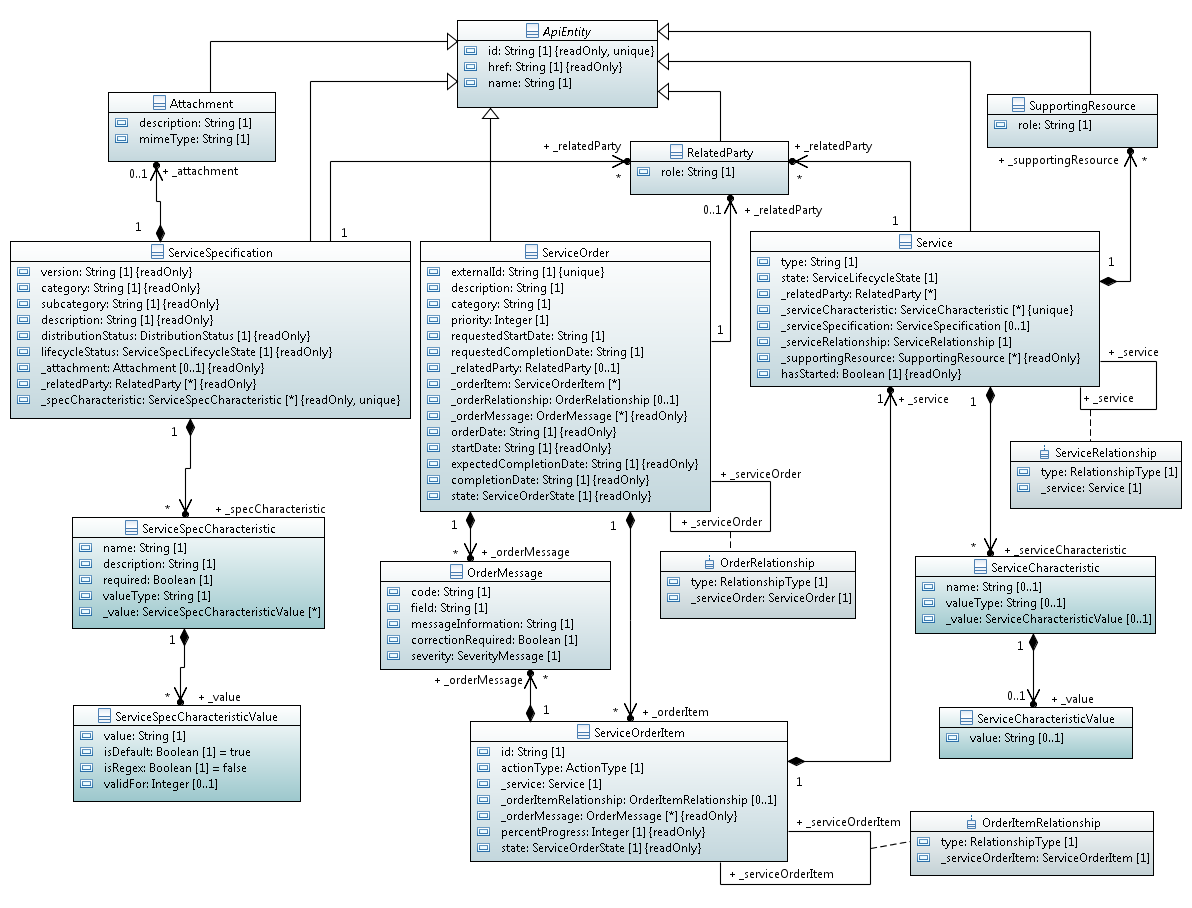
### LSAPI Data Types



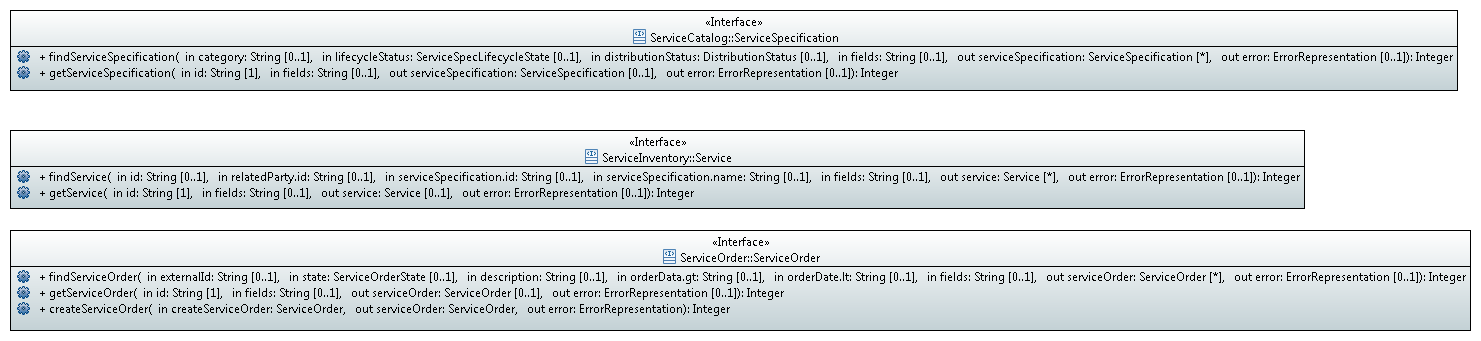
### LSAPI Model



### LSAPI Model Details



### LSAPI Operations



## Class Descriptions

### ApiEntity

The abstract super-class of all Legato Service API resource (object) classes for purposes to encapsulating some common attributes that will be inherited by all concrete descendents.

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| id | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Unique identifier of an object instance of this entity class. |
| href | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | URI reference of an object instance of this entity class. |
| name | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Name of an object instance of this entity class. |

### ApiMetaData

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| @type | String | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | The class type of a REST resource |
| @baseType | String | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA |  |
| @schemaLocation | String | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Provides a link to the schema describing the REST resource |

### Attachment

An attchment represents a file that is used to complement the description of an entity through video, pictures, etc...

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| description | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | A narrative text describing the content of the attachment |
| mimeType | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Attachment type such as video, picture, etc... |
| id | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Unique identifier of an object instance of this entity class. |
| href | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | URI reference of an object instance of this entity class. |
| name | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Name of an object instance of this entity class. |

### ErrorRepresentation

Representation of an error.

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| code | Integer | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Application related error code (as defined in the API or from a common list). |
| reason | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Text that explains the reason for error. This can be shown to a client user. |
| message | String | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Text that provide more details and corrective actions related to the error. This can be shown to a client user |
| referenceError | String | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | url pointing to documentation describing the error |
| status | String | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | http error code extension like 400-2 |

### OrderItemRelationship

Reference to an related Service Order Item and the type of association.
The type of related Service Order Item, can be : "dependency" if this Order Item needs to be "not started" until another order item is complete, "relies-on" if this Order Item relies on the related order item or simply "cross-ref" to keep track of the source Order Item

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| type | RelationshipType | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA |  |

### OrderMessage

This class offers the capability to provide additional information about the Order.

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| code | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | A code associated to this message |
| field | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Service Order attribute related to this error message |
| messageInformation | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Additional description text related to this message |
| correctionRequired | Boolean | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Indicator that an action is required to allow service order fullfilment to follow up |
| severity | SeverityMessage | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Severity of the message (information, error) |

### OrderRelationship

Reference to an related Service Order and the type of association.
The type of related Service Order, can be : "dependency" if the order needs to be "not started" until another order is complete or "cross-ref" to keep track of the source order

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| type | RelationshipType | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA |  |

### RelatedParty

A related party defines a party and its role, that is linked to a specific entity (such as ServiceSpecification, ServiceOrder, Service, etc)

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| role | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Role of the related party |
| id | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Unique identifier of an object instance of this entity class. |
| href | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | URI reference of an object instance of this entity class. |
| name | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Name of an object instance of this entity class. |

### Service

Service class offers the ability to describe the characteristics of an instance of specific type of service.
The Business Application (BA) triggers the Service Orchestration Function (SOF) to create/update/delete a Service via the Service Order/Service Order Item operations.
The SOF is responsible for orchestrating the Service fulfillment and maintaining Service instance state/attributes and notifying BA of any changes.
Functionally, a Service is instantiated using a related Service Specification instance as its template.
Thus the Services that share the same Service Specification instance would therefore share the same set of characteristics.
The MEF Service classes that describe a specific type of MEF Service instance will be associated with the Service Specification class,
as well as the Service instances will contain a reference to the MEF Service schema.
The assumption is that the Service Specifications describing the Service instance in the Service Order Item are already available (to both BA & SOF).

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| type | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Type of the service - TBD – e.g. OrderedService or PartnerService, or EVC, OVC |
| state | ServiceLifecycleState | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | The lifecycle state of the Service instance being operated upon. The "intended" state of the Service instance may be specified by the BA/requestor in the Service Order and then further maintained by the SOF. This state attribute value-transition follows the "Service Lifecycle State Machine" diagram described elsewhere in this specification. |
| \_relatedParty | RelatedParty | 0..\* | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA |  |
| \_serviceCharacteristic | ServiceCharacteristic | 0..\* | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | A list of Service Characteristics. This is essentially a name/value pair list used to store instance specific values of Service attributes. The behavior is equivalent to a MAP data structure where only one entry for any given value of "name" can exist. |
| \_serviceSpecification | ServiceSpecification | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | The reference to the Service Specification (in the Service Catalog) used as template to instantiate the Service. |
| \_serviceRelationship | ServiceRelationship | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Reference to an related Service and the type of association. The type of related Service can be : "dependency" if this Service needs to be "not started" until another Service instance is complete, "relies-on" if this Order Item relies on the related Service instance or simply "cross-ref" to keep track of the source Service instance |
| \_supportingResource | SupportingResource | 0..\* | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | A collection of references to Resource(s) supporting the Service instance. |
| hasStarted | Boolean | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | This attribute if TRUE, indicates that this Service has already been started. If the value of this attribute is FALSE, then this signifies that this Service has NOT been Started. |
| id | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Unique identifier of an object instance of this entity class. |
| href | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | URI reference of an object instance of this entity class. |
| name | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Name of an object instance of this entity class. |

### ServiceCharacteristic

Characteristics of the service that is instantiated or to modified

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| name | String | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Name of the characteristic |
| valueType | String | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | ValueType of the characteristic. Could a simple attribute or a complex one as a table or an array. |
| \_value | ServiceCharacteristicValue | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA |  |

### ServiceCharacteristicValue

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| value | String | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA |  |

### ServiceOrder

A Service Order is used to request operations on a Service instance.
A Service Order groups one or more one Service Order Items - one per specific action on a Service instance.
The Action associated with the Service Order Item describes the operation (add, remove, update) to be applied on the specified Service instance.
The Service Order Item and its associated Action can operate on both existing (remove, update) as well as future (add) Service instance.
The Service Order is triggered from the Business Application (BA) system in charge of the Product Order management to the Service Orchestration Function (SOF) system that will orchestrate the Service fulfillment.
The assumption is that the Service Specifications describing the Service instance in the Service Order Item are already available (to both BA & SOF).

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| externalId | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA |  |
| description | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | A free-text description of the service order. |
| category | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Used to categorize the order that can be useful for the OM system (e.g. "broadband", "TVOption", …) |
| priority | Integer | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | A way that can be used by order requester to prioritize orders in Service Order Management system (from 0 to 4: 0 is the highest priority, and 4 the lowest). It could be for example valued by BA based on customer order requested priority |
| requestedStartDate | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Order start date wished by the requestor |
| requestedCompletionDate | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Requested delivery date from the requestor perspective |
| \_relatedParty | RelatedParty | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA |  |
| \_orderItem | ServiceOrderItem | 0..\* | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA |  |
| \_orderRelationship | OrderRelationship | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Reference to an related Service Order and the type of association. The type of related Service Order, can be : "dependency" if the order needs to be "not started" until another order is complete or "cross-ref" to keep track of the source order |
| \_orderMessage | OrderMessage | 0..\* | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | An optional array of messages associated with the Order. |
| orderDate | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Date when the order was created |
| startDate | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Date when the order fulfillment start – valued by server side (not requester) |
| expectedCompletionDate | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Expected delivery date amended by the provider |
| completionDate | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Date when the order was completed. |
| state | ServiceOrderState | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: YES | Used to indicate the current status of the Service Order This read-only state attribute is maintained by the SOF. This state attribute value-transition follows the "Service Order State Machine" diagram described elsewhere in this specification. The Service Order and Order Items state transitions are tightly coupled. |
| id | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Unique identifier of an object instance of this entity class. |
| href | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | URI reference of an object instance of this entity class. |
| name | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Name of an object instance of this entity class. |

### ServiceOrderItem

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| id | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA |  |
| actionType | ActionType | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | The action to be carried out on the Service instance. Can be: • add • modify • delete • noChange |
| \_service | Service | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | The Service instance and its characteristics/attributes to be acted on by the Order (Item). |
| \_orderItemRelationship | OrderItemRelationship | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Reference to an related Service Order Item and the type of association. The type of related Service Order Item, can be : "dependency" if this Order Item needs to be "not started" until another order item is complete, "relies-on" if this Order Item relies on the related order item or simply "cross-ref" to keep track of the source Order Item |
| \_orderMessage | OrderMessage | 0..\* | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | An optional array of messages associated with the Order Item. |
| percentProgress | Integer | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA |  |
| state | ServiceOrderState | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Used to indicate the current status of the Service Order Item. This read-only state attribute is maintained by the SOF. This state attribute value-transition follows the "Service Order Item State Machine" diagram described elsewhere in this specification. The Service Order and Order Items state transitions are tightly coupled. |

### ServiceRelationship

Reference to an related Service and the type of association.
The type of related Service can be : "dependency" if this Service needs to be "not started" until another Service instance is complete, "relies-on" if this Order Item relies on the related Service instance or simply "cross-ref" to keep track of the source Service instance

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| type | RelationshipType | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA |  |

### ServiceSpecCharacteristic

A characteristic quality or distinctive feature of a ServiceSpecification. This class allows to encode the attributes of a service specification.
It is not expected to specialize this class in UML, since the specification instances of this class can be derived from Service schema class attributes defined in UML.

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| name | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Name of the characteristic - A word, term, or phrase by which this characteristic specification is known and distinguished from other characteristic specifications |
| description | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | A narrative that explains in detail what the characteristic is. |
| required | Boolean | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | A parameter to define if the characteristic is mandatory. |
| valueType | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | A kind of value that the characteristic can take on, such as numeric, text and so forth |
| \_value | ServiceSpecCharacteristicValue | 0..\* | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | A list of service spec characteristic values - that can function as a template for service instantiation |

### ServiceSpecCharacteristicValue

This class represents service spec characteristic values - that can function as a template for service instantiation

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| value | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | A discrete serialized string value that the characteristic can take on. |
| isDefault | Boolean | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Indicates if the value is the default value for a characteristic |
| isRegex | Boolean | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Indicates whether value string is a regular expression constraint for the ServiceSpecCharacteristic value |
| validFor | Integer | 0..1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | The period of time in seconds for which a value is applicable |

### ServiceSpecification

ServiceSpecification class offers the ability to describe the characteristics of a specific type of service.
Functionally, it acts as a template by which Services may be instantiated.
By sharing the same specification, these services would therefore share the same set of characteristics.
The MEF Service classes that describe a specific type of MEF Service will be associated with this class
via a <specify> stereotype to enable generation of specification characteristics (via tooling or otherwise).

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| version | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Service specification version. |
| category | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | The category is used to group service specifications in logical containers. Categories can be further sub-categorized into other categories. |
| subcategory | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | The category is used to group service specifications in logical containers. Categories can be further sub-categorized into other categories. |
| description | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | A narrative that explains the details of the service specification. |
| distributionStatus | DistributionStatus | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Used to indicate the current distribution status of the service specification. |
| lifecycleStatus | ServiceSpecLifecycleState | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Used to indicate the current lifecycle status of the Service Specification. This read-only state attribute is maintained by the SOF. This state attribute value-transition follows the "Service Specification Lifecycle State Machine" diagram described elsewhere in this specification. |
| \_attachment | Attachment | 0..1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Complements the description of a service specification |
| \_relatedParty | RelatedParty | 0..\* | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Party linked to the Service Specification |
| \_specCharacteristic | ServiceSpecCharacteristic | 0..\* | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA |  |
| id | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Unique identifier of an object instance of this entity class. |
| href | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | URI reference of an object instance of this entity class. |
| name | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Name of an object instance of this entity class. |

### SupportingResource

This class provides reference to the Resource supporting the Service instance.

Applied stereotypes:

* OpenModelClass
* support: MANDATORY
* OpenInterfaceModelClass
* objectCreationNotification: NA
* objectDeletionNotification: NA

| **Attribute Name** | **Type** | **Mult.** | **Access** | **Stereotypes** | **Description** |
| --- | --- | --- | --- | --- | --- |
| role | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA |  |
| id | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Unique identifier of an object instance of this entity class. |
| href | String | 1 | R | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | URI reference of an object instance of this entity class. |
| name | String | 1 | RW | OpenModelAttribute   * isInvariant: false * valueRange: no range constraint * support: MANDATORY   OpenInterfaceModelAttribute   * AVC: NA | Name of an object instance of this entity class. |

## Data Types and Enumeration

### Enumeration: ActionType

Contains Enumeration Literals:

* ADD:
* MODIFY:
* DELETE:
* NO\_CHANGE:

### Enumeration: DistributionStatus

Contains Enumeration Literals:

* DISTRIBUTION\_NOT\_APPROVED:
* DISTRIBUTION\_APPROVED:
* DISTRIBUTED:
* DISTRIBUTION\_REJECTED:

### Enumeration: RelationshipType

Contains Enumeration Literals:

* RELIES\_ON:
* DEPENDENCY:
* CROSS\_REF:

### Enumeration: ServiceLifecycleState

Contains Enumeration Literals:

* FEASIBILITY\_CHECKED:
* DESIGNED:
* RESERVED:
* ACTIVE:
* INACTIVE:
* TERMINATED:

### Enumeration: ServiceOrderState

Contains Enumeration Literals:

* ACKNOWLEDGED:
* IN\_PROGRESS:
* PENDING:
* HELD:
* CANCELLED:
* COMPLETED:
* FAILED:
* PARTIAL:
* REJECTED:

### Enumeration: ServiceSpecLifecycleState

Contains Enumeration Literals:

* NOT\_CERTIFIED\_CHECKOUT:
* NOT\_CERTIFIED\_CHECKIN:
* READY\_FOR\_CERTIFICATION:
* CERTIFICATION\_IN\_PROGRESS:
* CERTIFIED:

### Enumeration: SeverityMessage

Contains Enumeration Literals:

* INFORMATION:
* ERROR:

## Interface Operations

### ServiceCatalog::ServiceSpecification

This Interface class is intended to encapsulate details of the API operations for Service Catalog management.
The intent of this API is to provide a consistent/standardized mechanism to query the Service Catalog.
The Service Catalog API can be invoked by the Business Applications (BA) systems to update/sync its internal cache/repository with Service Catalog maintained by the Service Orchestration Function (SOF)

Applied stereotypes:

* OpenModelInterface
* support: MANDATORY

#### Operation: findServiceSpecification()

This operation returns a list of Service Specification instances matching the query parameters from the Service Catalog maintained by the SOF.
Attribute selection is possible using the "fields" parameter to filter retrieved attribute(s) for each Service Specification instance.
If an exception is encountered, then appropriate returnCode and error information is populated and returned as specified.

Applied stereotypes:

* OpenModelOperation
* isOperationIdempotent:false
* isAtomic:invalid
* support:MANDATORY

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter Name** | **Type** | **Dir.** | **Multi.** | **Stereotypes** | **Description** |
| category | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Filter by Category |
| lifecycleStatus | ServiceSpecLifecycleState | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Filter by Service Specification Lifecycle status |
| distributionStatus | DistributionStatus | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Filter by Service Specification Distribution status |
| fields | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | fields attribute may be used to filter retrieved attribute(s) for returned Service Specification instances. Specified as string value containing a list of attribute names separated by space |
| serviceSpecification | ServiceSpecification | out | 0..\* | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Return Code 200: Success. The list of Service Specification instances matching the input query parameters. If the "fields" input parameter is specified, the returned Service Specification instance will only contain the request attributes. |
| error | ErrorRepresentation | out | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | 400: Bad Request List of supported error codes: - 20: Invalid URL parameter value - 21: Missing body - 22: Invalid body - 23: Missing body field - 24: Invalid body field - 25: Missing header - 26: Invalid header value - 27: Missing query-string parameter - 28: Invalid query-string parameter value 401: Unauthorized List of supported error codes: - 40: Missing credentials - 41: Invalid credentials - 42: Expired credentials 403: Forbidden List of supported error codes: - 50: Access denied - 51: Forbidden requester - 52: Forbidden user - 53: Too many requests 404: Not Found List of supported error codes: - 60: Resource not found 422: Unprocessable entity Functional error - Specific business errors for current operation will be encapsulated in this 500: Internal Server Error List of supported error codes: - 1: Internal error 503: Service Unavailable List of supported error codes: - 5: The service is temporarily unavailable - 6: API is over capacity, retry later ! |
| returnCode | Integer | return | 1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | 200: Success 400: Bad Request 401: Unauthorized 403: Forbidden 404: Not Found 422: Unprocessable entity 500: Internal Server Error 503: Service Unavailable |

#### Operation: getServiceSpecification()

This operation retrieves a Service Specification instance identified by the Id parameter from the Service Catalog maintained by the SOF.
Attribute selection is possible using the "fields" parameter to filter retrieved attribute(s) for the returned Service Specification instance.
If an exception is encountered, then appropriate returnCode and error information is populated and returned as specified.

Applied stereotypes:

* OpenModelOperation
* isOperationIdempotent:false
* isAtomic:invalid
* support:MANDATORY

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter Name** | **Type** | **Dir.** | **Multi.** | **Stereotypes** | **Description** |
| id | String | in | 1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Id of the specific Service Specification instance to be retrieved |
| fields | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | fields attribute may be used to filter retrieved attribute(s) for returned Service Specification instance. Specified as string value containing a list of attribute names separated by space |
| serviceSpecification | ServiceSpecification | out | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Return Code 200: Success The Service Specification instance matching the input Id parameters. If the "fields" input parameter is specified, the returned Service instance will only contain the request attributes. |
| error | ErrorRepresentation | out | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | 400: Bad Request List of supported error codes: - 20: Invalid URL parameter value - 21: Missing body - 22: Invalid body - 23: Missing body field - 24: Invalid body field - 25: Missing header - 26: Invalid header value - 27: Missing query-string parameter - 28: Invalid query-string parameter value 401: Unauthorized List of supported error codes: - 40: Missing credentials - 41: Invalid credentials - 42: Expired credentials 403: Forbidden List of supported error codes: - 50: Access denied - 51: Forbidden requester - 52: Forbidden user - 53: Too many requests 404: Not Found List of supported error codes: - 60: Resource not found 422: Unprocessable entity Functional error - Specific business errors for current operation will be encapsulated in this 500: Internal Server Error List of supported error codes: - 1: Internal error 503: Service Unavailable List of supported error codes: - 5: The service is temporarily unavailable - 6: API is over capacity, retry later ! |
| returnCode | Integer | return | 1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | 200: Success 400: Bad Request 401: Unauthorized 403: Forbidden 404: Not Found 422: Unprocessable entity 500: Internal Server Error 503: Service Unavailable |

### ServiceInventory::Service

This Interface class is intended to encapsulate details of the API operations for Service Inventory management.
The intent of this API is to provide a consistent/standardized mechanism to query the Service inventory.
The Service Inventory API can be invoked by the Business Applications (BA) systems to update/sync its internal cache/repository with Service Inventory maintained by the Service Orchestration Function (SOF)

Applied stereotypes:

* OpenModelInterface
* support: MANDATORY

#### Operation: findService()

This operation returns a list of Service instances matching the query parameters from the Service Inventory maintained by the SOF.
Attribute selection is possible using the "fields" parameter to filter retrieved attribute(s) for each Service instance.
If an exception is encountered, then appropriate returnCode and error information is populated and returned as specified.

Applied stereotypes:

* OpenModelOperation
* isOperationIdempotent:false
* isAtomic:invalid
* support:MANDATORY

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter Name** | **Type** | **Dir.** | **Multi.** | **Stereotypes** | **Description** |
| id | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Id of the specific Service instance to be retrieved. This is an optional parameter for this operation. |
| relatedParty.id | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Id of the relatedParty associated with the Service instance. |
| serviceSpecification.id | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Id of the associated Service Specification used to instatiate the Service. It is possible for multiple Services to be associated with a single Service Specification. |
| serviceSpecification.name | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Name of the associated Service Specification used to instatiate the Service. It is possible for multiple Services to be associated with a single Service Specification. |
| fields | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | fields attribute may be used to filter retrieved attribute(s) for returned Service instances. Specified as string value containing a list of attribute names separated by space |
| service | Service | out | 0..\* | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Return Code 200: Success. The list of Service instances matching the input query parameters. If the "fields" input parameter is specified, the returned Service instance will only contain the request attributes. |
| error | ErrorRepresentation | out | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | 400: Bad Request List of supported error codes: - 20: Invalid URL parameter value - 21: Missing body - 22: Invalid body - 23: Missing body field - 24: Invalid body field - 25: Missing header - 26: Invalid header value - 27: Missing query-string parameter - 28: Invalid query-string parameter value 401: Unauthorized List of supported error codes: - 40: Missing credentials - 41: Invalid credentials - 42: Expired credentials 403: Forbidden List of supported error codes: - 50: Access denied - 51: Forbidden requester - 52: Forbidden user - 53: Too many requests 404: Not Found List of supported error codes: - 60: Resource not found 422: Unprocessable entity Functional error - Specific business errors for current operation will be encapsulated in this 500: Internal Server Error List of supported error codes: - 1: Internal error 503: Service Unavailable List of supported error codes: - 5: The service is temporarily unavailable - 6: API is over capacity, retry later ! |
| returnCode | Integer | return | 1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | 200: Success 400: Bad Request 401: Unauthorized 403: Forbidden 404: Not Found 422: Unprocessable entity 500: Internal Server Error 503: Service Unavailable |

#### Operation: getService()

This operation retrieves a Service instance identified by the Id parameter from the Service Inventory manintained by the SOF.
Attribute selection is possible using the "fields" parameter to filter retrieved attribute(s) for the returned Service instance.
If an exception is encountered, then appropriate returnCode and error information is populated and returned as specified.

Applied stereotypes:

* OpenModelOperation
* isOperationIdempotent:false
* isAtomic:invalid
* support:MANDATORY

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter Name** | **Type** | **Dir.** | **Multi.** | **Stereotypes** | **Description** |
| id | String | in | 1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Id of the specific Service instance to be retrieved |
| fields | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | fields attribute may be used to filter retrieved attribute(s) for returned Service instance. Specified as string value containing a list of attribute names separated by space |
| service | Service | out | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Return Code 200: Success The Service instance matching the input Id parameters. If the "fields" input parameter is specified, the returned Service instance will only contain the request attributes. |
| error | ErrorRepresentation | out | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | 400: Bad Request List of supported error codes: - 20: Invalid URL parameter value - 21: Missing body - 22: Invalid body - 23: Missing body field - 24: Invalid body field - 25: Missing header - 26: Invalid header value - 27: Missing query-string parameter - 28: Invalid query-string parameter value 401: Unauthorized List of supported error codes: - 40: Missing credentials - 41: Invalid credentials - 42: Expired credentials 403: Forbidden List of supported error codes: - 50: Access denied - 51: Forbidden requester - 52: Forbidden user - 53: Too many requests 404: Not Found List of supported error codes: - 60: Resource not found 422: Unprocessable entity Functional error - Specific business errors for current operation will be encapsulated in this 500: Internal Server Error List of supported error codes: - 1: Internal error 503: Service Unavailable List of supported error codes: - 5: The service is temporarily unavailable - 6: API is over capacity, retry later ! |
| returnCode | Integer | return | 1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | 200: Success 400: Bad Request 401: Unauthorized 403: Forbidden 404: Not Found 422: Unprocessable entity 500: Internal Server Error 503: Service Unavailable |

### ServiceOrder::ServiceOrder

This Interface class is intended to encapsulate details of the API operations for Service Order management.
The intent of this API is to provide a consistent/standardized mechanism to manipulate the Service instances (and in turn the Service fulfillment) through Service Orders.
The Service Order API can be invoked by the Business Applications (BA) systems to initiate Service Orders that manipulate the Service fulfillment process by the Service Orchestration Function (SOF)

Applied stereotypes:

* OpenModelInterface
* support: MANDATORY

#### Operation: createServiceOrder()

This operation creates a Service Order instance in the Service Order management system maintained by the SOF.
A Service Order is used to request operations on a Service instance.
A Service Order groups one or more one Service Order Items - one per specific action on a Service instance.
The Action associated with the Service Order Item describes the operation (add, remove, update) to be applied on the specified Service instance.
The Service Order Item and its associated Action can operate on both existing (remove, update) as well as future (add) Service instance.
The Service Order is triggered from the Business Application (BA) system in charge of the Product Order management to the Service Orchestration Function (SOF) system that will orchestrate the Service fulfillment.
The assumption is that the Service Specifications describing the Service instance in the Service Order Item are already available (to both BA & SOF).
If an exception is encountered, then appropriate returnCode and error information is populated and returned as specified.

Applied stereotypes:

* OpenModelOperation
* isOperationIdempotent:false
* isAtomic:invalid
* support:MANDATORY

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter Name** | **Type** | **Dir.** | **Multi.** | **Stereotypes** | **Description** |
| createServiceOrder | ServiceOrder | in | 1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | The Service Order to be instatiated. The mandatory and optional attributes are specified in the Service Order / Service Order Item classes/schema. The readOnly attributes cannot be specified as will be assigned by SOF and returned in the output Service Order instance. The Service Instance attributes are to be specified and constrained as per the associated Service Specification template. |
| serviceOrder | ServiceOrder | out | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Return Code 201: Success The created Service Order instance with Id and Href fields assigned by SOF. |
| error | ErrorRepresentation | out | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | 400: Bad Request List of supported error codes: - 20: Invalid URL parameter value - 21: Missing body - 22: Invalid body - 23: Missing body field - 24: Invalid body field - 25: Missing header - 26: Invalid header value - 27: Missing query-string parameter - 28: Invalid query-string parameter value 401: Unauthorized List of supported error codes: - 40: Missing credentials - 41: Invalid credentials - 42: Expired credentials 403: Forbidden List of supported error codes: - 50: Access denied - 51: Forbidden requester - 52: Forbidden user - 53: Too many requests 404: Not Found List of supported error codes: - 60: Resource not found 422: Unprocessable entity Functional error - Specific business errors for current operation will be encapsulated in this as follows: \*\* 100: OrderItem with 'add' action but serviceSpecification id missing \*\* 101: OrderItem with 'change'/'noChange'/'remove' but service id missing \*\* 102: OrderItem with 'add' action - serviceSpecification id provided but not existing \*\* 103: OrderItem with 'add' action but service id already existing in the inventory \*\* 104: A customer for existing service(s) is provided but he did not exist \*\* 105: OrderItem with 'change'/'noChange'/'remove' - Service id provided but it is not existing in the inventory 500: Internal Server Error List of supported error codes: - 1: Internal error 503: Service Unavailable List of supported error codes: - 5: The service is temporarily unavailable - 6: API is over capacity, retry later ! |
| returnCode | Integer | return | 1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | 200: Success 400: Bad Request 401: Unauthorized 403: Forbidden 404: Not Found 422: Unprocessable entity 500: Internal Server Error 503: Service Unavailable |

#### Operation: findServiceOrder()

This operation returns a list of Service Order instances matching the query parameters from the Service Order management system maintained by the SOF.
Attribute selection is possible using the "fields" parameter to filter retrieved attribute(s) for each Service Order instance.
If an exception is encountered, then appropriate returnCode and error information is populated and returned as specified.

Applied stereotypes:

* OpenModelOperation
* isOperationIdempotent:false
* isAtomic:invalid
* support:MANDATORY

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter Name** | **Type** | **Dir.** | **Multi.** | **Stereotypes** | **Description** |
| externalId | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Filter by externalId |
| state | ServiceOrderState | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Filter by Service Order state |
| description | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Filter by Service Order description |
| orderData.gt | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Filter Service Orders with orderDate greater than or equal to the specified date |
| orderDate.lt | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Filter Service Orders with orderDate less than equal to the specified date |
| fields | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | fields attribute may be used to filter retrieved attribute(s) for returned Service Order instances. Specified as string value containing a list of attribute names separated by space |
| serviceOrder | ServiceOrder | out | 0..\* | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Return Code 200: Success. The list of Service Order instances matching the input query parameters. If the "fields" input parameter is specified, the returned Service Order instance will only contain the request attributes. |
| error | ErrorRepresentation | out | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | 400: Bad Request List of supported error codes: - 20: Invalid URL parameter value - 21: Missing body - 22: Invalid body - 23: Missing body field - 24: Invalid body field - 25: Missing header - 26: Invalid header value - 27: Missing query-string parameter - 28: Invalid query-string parameter value 401: Unauthorized List of supported error codes: - 40: Missing credentials - 41: Invalid credentials - 42: Expired credentials 403: Forbidden List of supported error codes: - 50: Access denied - 51: Forbidden requester - 52: Forbidden user - 53: Too many requests 404: Not Found List of supported error codes: - 60: Resource not found 422: Unprocessable entity Functional error - Specific business errors for current operation will be encapsulated in this 500: Internal Server Error List of supported error codes: - 1: Internal error 503: Service Unavailable List of supported error codes: - 5: The service is temporarily unavailable - 6: API is over capacity, retry later ! |
| returnCode | Integer | return | 1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | 200: Success 400: Bad Request 401: Unauthorized 403: Forbidden 404: Not Found 422: Unprocessable entity 500: Internal Server Error 503: Service Unavailable |

#### Operation: getServiceOrder()

This operation retrieves a Service Order instance identified by the Id parameter from the Service Order managment system maintained by the SOF.
Attribute selection is possible using the "fields" parameter to filter retrieved attribute(s) for the returned Service Order instance.
If an exception is encountered, then appropriate returnCode and error information is populated and returned as specified.

Applied stereotypes:

* OpenModelOperation
* isOperationIdempotent:false
* isAtomic:invalid
* support:MANDATORY

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter Name** | **Type** | **Dir.** | **Multi.** | **Stereotypes** | **Description** |
| id | String | in | 1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Id of the specific Service Order instance to be retrieved |
| fields | String | in | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | fields attribute may be used to filter retrieved attribute(s) for returned Service Order instance. Specified as string value containing a list of attribute names separated by space |
| serviceOrder | ServiceOrder | out | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | Return Code 200: Success The Service Order instance matching the input Id parameters. If the "fields" input parameter is specified, the returned Service instance will only contain the request attributes. |
| error | ErrorRepresentation | out | 0..1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | 400: Bad Request List of supported error codes: - 20: Invalid URL parameter value - 21: Missing body - 22: Invalid body - 23: Missing body field - 24: Invalid body field - 25: Missing header - 26: Invalid header value - 27: Missing query-string parameter - 28: Invalid query-string parameter value 401: Unauthorized List of supported error codes: - 40: Missing credentials - 41: Invalid credentials - 42: Expired credentials 403: Forbidden List of supported error codes: - 50: Access denied - 51: Forbidden requester - 52: Forbidden user - 53: Too many requests 404: Not Found List of supported error codes: - 60: Resource not found 422: Unprocessable entity Functional error - Specific business errors for current operation will be encapsulated in this 500: Internal Server Error List of supported error codes: - 1: Internal error 503: Service Unavailable List of supported error codes: - 5: The service is temporarily unavailable - 6: API is over capacity, retry later ! |
| returnCode | Integer | return | 1 | OpenModelParameter   * valueRange: no range constraint * support: MANDATORY | 200: Success 400: Bad Request 401: Unauthorized 403: Forbidden 404: Not Found 422: Unprocessable entity 500: Internal Server Error 503: Service Unavailable |

# MEF Service Common Model (MSCM) Mapping

# References

1. IETF RFC 2119, *Key words for use in RFCs to Indicate Requirement Levels*, March 1997
2. IETF RFC 8174, *Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words*, May 2017

1. Appendix Title (Informative)

Appendix content.

* 1. MEF Access E-Line Service Specification

More content

* + 1. Appendix second-level subsection

Yet more content.