**TM Forum Specification**

**Intent Management API User Guide**

**TMF921**

**June 2022**

|  |  |
| --- | --- |
| **Latest Update: December 2022** | **Member Evaluation** |
| **Version 4.0.0** | **IPR Mode: RAND** |

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Introduction

This API supports the intent management API requirements as described in TMF921A (Intent management API Profile) including capabilities for setting the intent by the intent owner, reporting on intent by the intent handler and negotiating an intent between the Owner and the Handler.

The Intent Management API represents two main (REST) resources elements: Intent and IntentReport. One can extend these resources by following TMF API extension pattern. Support of polymorphic collections and types and schema based extension is provided by means of a list of generic meta-attributes in TMF APIs (@type, @baseType, @referredType and @schemaLocation). Polymorphism in collections occurs when entities inherit from base entities

Generic support of polymorphism and pattern extensions is described in the TMF API Design Guidelines v4.0 (TMF630) document.

.

# SAMPLE USE CASES

## Intent Use Cases

UC1: Create a new intent to set expectations without the need to express how those expectations are to be satisfied

UC2: Modify expectations as part of intent request

UC3: Remove an intent or intent expectations

UC4: Get a report on intent handling

The examples provided in this document demonstrate how to support some of the above use cases. Please refer to TMF921A for more detailed explanations of uses cases.

##### Explain TIO - Just Refer to TR290, TR291

##### Intent Expression

Short outline of Actual API Payloads

Need Complete Intent Expression. **Just JSON-LD** - (easier to explain Turtle!)

*expression": {  
 "expressionLanguage": "RDFS",  
 "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example-1",  
 "@baseType": "",  
 "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  
 "@type": "Expression"  
 },*

CONVERT JSON-LD - Provide BOTH (pierre)…

@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .

@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .

@prefix icm: <http://tio.models.tmforum.org/tio/v1.0.0/IntentCommonModel/> .

@prefix imo: <http://tio.models.tmforum.org/tio/v1.0.0/IntentManagementOntology/> .

@prefix pbi: <http://tio.models.tmforum.org/tio/v1.0.0/ProposalBestIntent/> .

@prefix cat: <http://www.operator.com/Catalog/> .

@prefix spot: <http://www.sdo1.org/Models/DynamicpriceOntology/> .

@prefix met: <http://www.sdo2.org/TelecomMetrics/Version\_1.0/> .

@prefix   t: <http://www.w3.org/2006/time#> .

@prefix  ex: <http://www.example.org/IntentNamespace/> .

@prefix iv: <https://tmforum.orv/2021/07/intentValidity/> .

@prefix itv: <https://tmforum.orv/2021/07/intentTemporalValidity/> .

# --- Intent ----------

ex:B1\_PriceSensitiveEnterprise\_Biz\_Intent1

 a icm:Intent ;

   rdfs:comment "Intent for ordering connectivity service via dynamic pricing";

   imo:intentOwner ex:IntentManagerXYZ;

   icm:hasExpectation ex:PriceSensitiveEnterprise\_Exp\_delivery,

                        ex:PriceSensitiveEnterprise\_Exp\_property,

                        ex:PriceSensitiveEnterprise\_Exp\_proposal,

                        ex:PriceSensitiveEnterprise\_Exp\_reporting;

# --- Intent Validity ----------

# How to model the fact we want the Intent NOW but we are willing to wait???

   iv:hasValidity

       [ a itv:TemporalValidity

         t:after [ a t:Instant ;  t:inXSDDateTimeStamp 2022-12-01T10:30:10+10:00  ] ] ;

.

# --- Delivery Expectation ----------

ex:PriceSensitiveEnterprise\_Exp\_delivery

 a icm:DeliveryExpectation ;

   icm:target \_:service ;

   icm:params ex:PriceSensitiveEnterprise\_Exp\_delivery\_Param\_type;

.

ex:PriceSensitiveEnterprise\_Exp\_delivery\_Param\_type

 a icm:DeliveryParam ;

   icm:targetDescription cat:ConnectivityService\_DynamicPrice

.

# --- Proposal Expectation ----------

# proposing 10$/hour

ex:PriceSensitiveEnterprise\_Exp\_property

 a pbi:ProposalExpectation ;

   icm:target \_:service ;

   icm:params ex:PriceSensitiveEnterprise\_Exp\_property\_Param\_price ;

.

ex:PriceSensitiveEnterprise\_Exp\_property\_Param\_price

 a pbi:ProposalParam ;

   spot:price [ icm:atMost [ spot:value 10 ; spot:unit spot:unitDollarHour  ] ;

   pbi:proposingTime pbi:ProposeImmediately ;

   pbi:proposingFrequency [ a t:Duration ; t:numericDuration "1" ; t:temporalUnit t:unitHour ]

.

# --- Property Expectation ----------

ex:PriceSensitiveEnterprise\_Exp\_property

 a icm:PropertyExpectation ;

   icm:target \_:service ;

   icm:params ex:PriceSensitiveEnterprise\_Exp\_property\_Param\_bandwidth ,

               ex:PriceSensitiveEnterprise\_Exp\_property\_Param\_fromLocation ,

               ex:PriceSensitiveEnterprise\_Exp\_property\_Param\_toLocation ;

.

ex:PriceSensitiveEnterprise\_Exp\_property\_Param\_bandwidth

 a icm:PropertyParam ;

   met:bandwidth [ icm:atLeast [ met:value 1 ; met:unit met:unitGBPS  ] ] ;

.

ex:PriceSensitiveEnterprise\_Exp\_property\_Param\_fromLocation

 a icm:PropertyParam ;

   spot:startLocation [ icm:exactly "locationA" ] ;

.

ex:PriceSensitiveEnterprise\_Exp\_property\_Param\_toLocation

 a icm:PropertyParam ;

   spot:endLocation [ icm:exactly "locationB" ] ;

.

# --- Reporting Expectation ----------

ex:PriceSensitiveEnterprise\_Exp\_reporting

 a icm:ReportingExpectation ;

   icm:target ex:B1\_PriceSensitiveEnterprise\_Biz\_Intent1 ;

   icm:params ex:PriceSensitiveEnterprise\_Exp\_reporting\_Param\_interval,

               ex:PriceSensitiveEnterprise\_Exp\_reporting\_Param\_event ;

.

ex:PriceSensitiveEnterprise\_Exp\_reporting\_Param\_interval

 a icm:ReportingParam ;

   icm:reportingInterval [ a t:Duration ;

                                t:numericDuration 10 ;

                                t:temporalUnit t:unitMinute ] .

ex:PriceSensitiveEnterprise\_Exp\_reporting\_Param\_event

 a icm:ReportingParam ;

   icm:reportingEvent icm:ReportingIntervalExpired ,

                        icm:IntentRejected ,

                        icm:StateComplies ,

                        icm:StateDegrades ,

                        icm:HandlingEnded ,

                        icm:UpdateRejected ,

                        icm:UpdateFinished  ;

.

Add details of ‘Scheduling” in Expression for Pierre

KEVIN TODO

* Explain that theire is a number of Intent Reports…
* Explain Expression and IRI…
* Ref or Value…IntentReport Schema
* Send example files to Kamal....

Give Kamal examples …PROBE/BEST/JUDGE …

1. Use case well decsribed
2. And the Value
3. Adoption ...

3 changes to Swagger (Kamal) DO this in next ASAP ! And Pierre has to approve!!!!

1 Remove Expressions as Resource / and corresponding event stuff

2 POST/PATCH on Intent Report

3 JSON Schema for Intent Report to refer to Intent as Ref or value (not just value)

##### Intent Report Expression

##### Modify Intent

Refer to 921A

##### Remove Intent

Refer to 921A

##### Report Intent

Refer to 921A

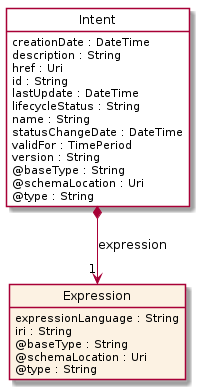
# RESOURCE MODEL

## Managed Entity and Task Resource Models

### Intent resource

An Intent instance is the formal description of all expectations including requirements, goals, and constraints given to a technical system.

**Resource model**



**Field descriptions**

*Intent* fields

|  |  |
| --- | --- |
| href | An uri (Uri). Hyperlink reference. |
| id | A string. unique identifier. |
| @baseType | A string. When sub-classing, this defines the super-class. |
| @schemaLocation | An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships. |
| @type | A string. When sub-classing, this defines the sub-class Extensible name. |
| creationDate | A date time (DateTime). Date and time of the creation of this Intent. |
| description | A string. The description of the intent. |
| expression | An expression (Expression). An Intent contains a set of expectations expressed (expression) in statements using a particular expressionLanguage. This attribute captures the intent expressed by the TM Forum Intent Ontology (TIO) as is stored as a string. The Expression is the formal statement of the intent and contains all the information that describes the complete intent. |
| lastUpdate | A date time (DateTime). Date and time of the last update of this Intent. |
| lifecycleStatus | A string. Used to indicate the current lifecycle status of this Intent. |
| name | A string. The name of the intent. |
| statusChangeDate | A date time (DateTime). A date time( DateTime). The date that the entity status changed to the current one. |
| validFor | A time period. The period for which this intent is valid. |
| version | A string. A field that identifies the specific version of an instance of an entity. If not specified version is defaulted to 1.0. |

*Expression* sub-resource

Expression is the ontology-encoded form of the Intent.

|  |  |
| --- | --- |
| @baseType | A string. When sub-classing, this defines the super-class. |
| @schemaLocation | An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships. |
| @type | A string. When sub-classing, this defines the sub-class Extensible name. |
| expressionLanguage | A string. The serialized Expression language of the intent serialized. |
| iri | A string. Internationalized Resource Identifier of the intent Expression. |

**Json representation sample**

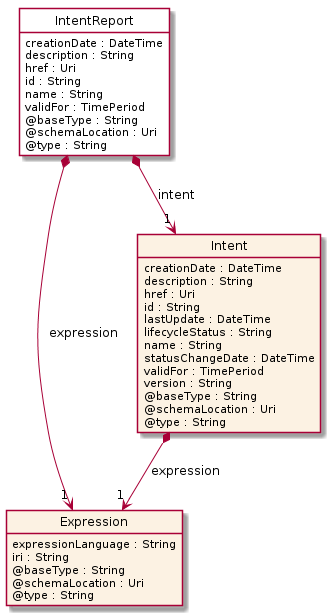
We provide below the json representation of an example of a 'Intent' resource object

|  |
| --- |
| {  "id": "20011",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intent/20011",  "creationDate": "2022-07-04T15:40:47.797Z",  "description": "An intent resource",  "lastUpdate": "2022-07-04T15:40:47.797Z",  "lifecycleStatus": "Active",  "name": "IntentA",  "statusChangeDate": "2022-07-04T15:40:47.797Z",  "version": "1.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2022-07-04T15:40:47.797Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Intent.schema.json",  "@type": "Intent" } |

### Intent Report resource

IntentReport is the mechanism to report back to Intent owner on an Intents status.

**Resource model**



**Field descriptions**

*IntentReport* fields

|  |  |
| --- | --- |
| href | An uri (Uri). Hyperlink reference. |
| id | A string. unique identifier. |
| @baseType | A string. When sub-classing, this defines the super-class. |
| @schemaLocation | An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships. |
| @type | A string. When sub-classing, this defines the sub-class Extensible name. |
| creationDate | A date time (DateTime). Date and time of the creation of this intent report. |
| description | A string. The description of the intent report. |
| expression | An expression (Expression). An Intent Report contains a set of expectations expressed (Expression) in statements using a particular espressionLanguage. This attribute captures the intent report expressed by the TM Forum Intent Ontology (TIO) as is stored as a string. The Expression is the formal statement of the intent and contains all the information that describes the complete intent. |
| intent | An intent (Intent). An Intent instance is the formal description of all expectations including requirements, goals, and constraints given to a technical system. |
| name | A string. The name of the intent report. |
| validFor | A time period. The period for which this intent report is valid. |

*Expression* sub-resource

Expression is the ontology-encoded form of the Intent.

|  |  |
| --- | --- |
| @baseType | A string. When sub-classing, this defines the super-class. |
| @schemaLocation | An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships. |
| @type | A string. When sub-classing, this defines the sub-class Extensible name. |
| expressionLanguage | A string. The serialized Expression language of the intent serialized. |
| iri | A string. Internationalized Resource Identifier of the intent Expression. |

*Intent* sub-resource

An Intent instance is the formal description of all expectations including requirements, goals, and constraints given to a technical system.

|  |  |
| --- | --- |
| href | An uri (Uri). Hyperlink reference. |
| id | A string. unique identifier. |
| @baseType | A string. When sub-classing, this defines the super-class. |
| @schemaLocation | An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships. |
| @type | A string. When sub-classing, this defines the sub-class Extensible name. |
| creationDate | A date time (DateTime). Date and time of the creation of this Intent. |
| description | A string. The description of the intent. |
| expression | An expression (Expression). An Intent contains a set of expectations expressed (expression) in statements using a particular expressionLanguage. This attribute captures the intent expressed by the TM Forum Intent Ontology (TIO) as is stored as a string. The Expression is the formal statement of the intent and contains all the information that describes the complete intent. |
| lastUpdate | A date time (DateTime). Date and time of the last update of this Intent. |
| lifecycleStatus | A string. Used to indicate the current lifecycle status of this Intent. |
| name | A string. The name of the intent. |
| statusChangeDate | A date time (DateTime). A date time( DateTime). The date that the entity status changed to the current one. |
| validFor | A time period. The period for which this intent is valid. |
| version | A string. A field that identifies the specific version of an instance of an entity. If not specified version is defaulted to 1.0. |

**Json representation sample**

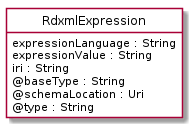
We provide below the json representation of an example of a 'IntentReport' resource object

|  |
| --- |
| {  "id": "20021",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intentReport/20021",  "creationDate": "2022-07-05T00:03:07.697Z",  "description": "An Intent report example",  "name": "MyIntent Report",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-intentReport-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "intent": {  "id": "20011",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intent/20011",  "creationDate": "2022-07-04T15:40:47.797Z",  "description": "An intent resource",  "lastUpdate": "2022-07-04T15:40:47.797Z",  "lifecycleStatus": "Active",  "name": "IntentA",  "statusChangeDate": "2022-07-04T15:40:47.797Z",  "version": "1.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2022-07-04T15:40:47.797Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Intent.schema.json",  "@type": "Intent"  },  "validFor": {  "endDateTime": "",  "startDateTime": "2022-07-05T00:03:07.697Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/IntentReport.schema.json",  "@type": "IntentTReport" } |

### Rdxml Expression resource

RdxmlExpression is the ontology-encoded form of the Intent as RDF-XML.

**Resource model**



**Field descriptions**

*RdxmlExpression* fields

|  |  |
| --- | --- |
| expressionLanguage | A string. The serialized Expression language of the intent serialized. |
| iri | A string. Internationalized Resource Identifier of the intent Expression. |
| @baseType | A string. When sub-classing, this defines the super-class. |
| @schemaLocation | An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships. |
| @type | A string. When sub-classing, this defines the sub-class Extensible name. |
| expressionValue | A string. RdxmlExpression is the ontology-encoded form of the Intent as RDF-XML as defined in https://www.w3.org/TR/rdf-syntax-grammar/. |

**Json representation sample**

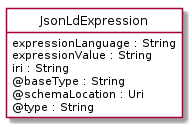
We provide below the json representation of an example of a 'RdxmlExpression' resource object

|  |
| --- |
| {  "expressionLanguage": "a string ...",  "iri": "a string ...",  "expressionValue": "a string ..." } |

### Json Ld Expression resource

JsonLdExpression is the ontology-encoded form of the Intent.

**Resource model**



**Field descriptions**

*JsonLdExpression* fields

|  |  |
| --- | --- |
| expressionLanguage | A string. The serialized Expression language of the intent serialized. |
| iri | A string. Internationalized Resource Identifier of the intent Expression. |
| @baseType | A string. When sub-classing, this defines the super-class. |
| @schemaLocation | An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships. |
| @type | A string. When sub-classing, this defines the sub-class Extensible name. |
| expressionValue | A string. JsonLdExpression is the ontology-encoded form of the Intent as JSON-LD as defined in https://www.w3.org/TR/json-ld/ should be validated against https://raw.githubusercontent.com/json-ld/json-ld.org/main/schemas/jsonld-schema.json. |

**Json representation sample**

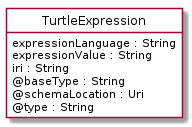
We provide below the json representation of an example of a 'JsonLdExpression' resource object

|  |
| --- |
| {  "expressionLanguage": "a string ...",  "iri": "a string ...",  "expressionValue": "a string ..." } |

### Turtle Expression resource

TurtleExpression is the ontology-encoded form of the Intent as Turtle RDF.

**Resource model**



**Field descriptions**

*TurtleExpression* fields

|  |  |
| --- | --- |
| expressionLanguage | A string. The serialized Expression language of the intent serialized. |
| iri | A string. Internationalized Resource Identifier of the intent Expression. |
| @baseType | A string. When sub-classing, this defines the super-class. |
| @schemaLocation | An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships. |
| @type | A string. When sub-classing, this defines the sub-class Extensible name. |
| expressionValue | A string. TurtleExpression is the ontology-encoded form of the Intent as Turtle RDF as defined in https://www.w3.org/TR/turtle/. |

**Json representation sample**

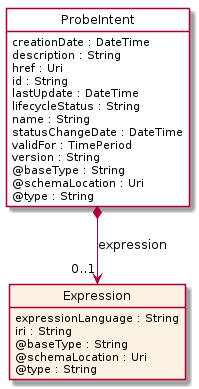
We provide below the json representation of an example of a 'TurtleExpression' resource object

|  |
| --- |
| {  "expressionLanguage": "a string ...",  "iri": "a string ...",  "expressionValue": "a string ..." } |

### Probe Intent resource

An Probe Intent instance is the formal description of all expectations including requirements, goals, and constraints given to a technical system.

**Resource model**



**Field descriptions**

*ProbeIntent* fields

|  |  |
| --- | --- |
| creationDate | A date time (DateTime). Date and time of the creation of this Intent. |
| description | A string. The description of the intent. |
| lastUpdate | A date time (DateTime). Date and time of the last update of this Intent. |
| lifecycleStatus | A string. Used to indicate the current lifecycle status of this Intent. |
| name | A string. The name of the intent. |
| statusChangeDate | A date time (DateTime). A date time( DateTime). The date that the entity status changed to the current one. |
| version | A string. A field that identifies the specific version of an instance of an entity. If not specified version is defaulted to 1.0. |
| href | An uri (Uri). Hyperlink reference. |
| id | A string. unique identifier. |
| @baseType | A string. When sub-classing, this defines the super-class. |
| @schemaLocation | An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships. |
| @type | A string. When sub-classing, this defines the sub-class Extensible name. |
| expression | An expression (Expression). An Intent contains a set of expectations expressed (expression) in statements using a particular expressionLanguage. This attribute captures the intent expressed by the TM Forum Intent Ontology (TIO) as is stored as a string. The Expression is the formal statement of the intent and contains all the information that describes the complete intent. |
| validFor | A time period. The period for which this intent is valid. |

*Expression* sub-resource

Expression is the ontology-encoded form of the Intent.

|  |  |
| --- | --- |
| @baseType | A string. When sub-classing, this defines the super-class. |
| @schemaLocation | An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships. |
| @type | A string. When sub-classing, this defines the sub-class Extensible name. |
| expressionLanguage | A string. The serialized Expression language of the intent serialized. |
| iri | A string. Internationalized Resource Identifier of the intent Expression. |

**Json representation sample**

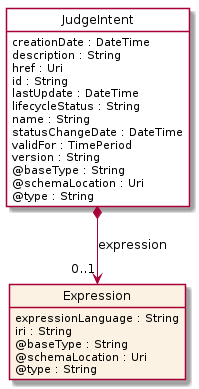
We provide below the json representation of an example of a 'ProbeIntent' resource object

|  |
| --- |
| {  "creationDate": "2022-07-05T00:00",  "description": "This probe intent ...",  "lastUpdate": "2022-07-05T00:00",  "lifecycleStatus": "a string ...",  "name": "a string ...",  "statusChangeDate": "2022-07-05T00:00",  "version": "a string ...",  "href": "a Uri ...",  "id": "a Uri ...",  "expression": {},  "validFor": {} } |

### Judge Intent resource

An Judge Intent instance is the formal description of all expectations including requirements, goals, and constraints given to a technical system.

**Resource model**



**Field descriptions**

*JudgeIntent* fields

|  |  |
| --- | --- |
| creationDate | A date time (DateTime). Date and time of the creation of this Intent. |
| description | A string. The description of the intent. |
| lastUpdate | A date time (DateTime). Date and time of the last update of this Intent. |
| lifecycleStatus | A string. Used to indicate the current lifecycle status of this Intent. |
| name | A string. The name of the intent. |
| statusChangeDate | A date time (DateTime). A date time( DateTime). The date that the entity status changed to the current one. |
| version | A string. A field that identifies the specific version of an instance of an entity. If not specified version is defaulted to 1.0. |
| href | An uri (Uri). Hyperlink reference. |
| id | A string. unique identifier. |
| @baseType | A string. When sub-classing, this defines the super-class. |
| @schemaLocation | An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships. |
| @type | A string. When sub-classing, this defines the sub-class Extensible name. |
| expression | An expression (Expression). An Intent contains a set of expectations expressed (expression) in statements using a particular expressionLanguage. This attribute captures the intent expressed by the TM Forum Intent Ontology (TIO) as is stored as a string. The Expression is the formal statement of the intent and contains all the information that describes the complete intent. |
| validFor | A time period. The period for which this intent is valid. |

*Expression* sub-resource

Expression is the ontology-encoded form of the Intent.

|  |  |
| --- | --- |
| @baseType | A string. When sub-classing, this defines the super-class. |
| @schemaLocation | An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships. |
| @type | A string. When sub-classing, this defines the sub-class Extensible name. |
| expressionLanguage | A string. The serialized Expression language of the intent serialized. |
| iri | A string. Internationalized Resource Identifier of the intent Expression. |

**Json representation sample**

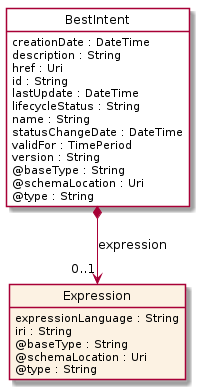
We provide below the json representation of an example of a 'JudgeIntent' resource object

|  |
| --- |
| {  "creationDate": "2022-07-05T00:00",  "description": "This judge intent ...",  "lastUpdate": "2022-07-05T00:00",  "lifecycleStatus": "a string ...",  "name": "a string ...",  "statusChangeDate": "2022-07-05T00:00",  "version": "a string ...",  "href": "a Uri ...",  "id": "a Uri ...",  "expression": {},  "validFor": {} } |

### Best Intent resource

An Best Intent instance is the formal description of all expectations including requirements, goals, and constraints given to a technical system.

**Resource model**



**Field descriptions**

*BestIntent* fields

|  |  |
| --- | --- |
| creationDate | A date time (DateTime). Date and time of the creation of this Intent. |
| description | A string. The description of the intent. |
| lastUpdate | A date time (DateTime). Date and time of the last update of this Intent. |
| lifecycleStatus | A string. Used to indicate the current lifecycle status of this Intent. |
| name | A string. The name of the intent. |
| statusChangeDate | A date time (DateTime). A date time( DateTime). The date that the entity status changed to the current one. |
| version | A string. A field that identifies the specific version of an instance of an entity. If not specified version is defaulted to 1.0. |
| href | An uri (Uri). Hyperlink reference. |
| id | A string. unique identifier. |
| @baseType | A string. When sub-classing, this defines the super-class. |
| @schemaLocation | An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships. |
| @type | A string. When sub-classing, this defines the sub-class Extensible name. |
| expression | An expression (Expression). An Intent contains a set of expectations expressed (expression) in statements using a particular expressionLanguage. This attribute captures the intent expressed by the TM Forum Intent Ontology (TIO) as is stored as a string. The Expression is the formal statement of the intent and contains all the information that describes the complete intent. |
| validFor | A time period. The period for which this intent is valid. |

*Expression* sub-resource

Expression is the ontology-encoded form of the Intent.

|  |  |
| --- | --- |
| @baseType | A string. When sub-classing, this defines the super-class. |
| @schemaLocation | An uri (Uri). A URI to a JSON-Schema file that defines additional attributes and relationships. |
| @type | A string. When sub-classing, this defines the sub-class Extensible name. |
| expressionLanguage | A string. The serialized Expression language of the intent serialized. |
| iri | A string. Internationalized Resource Identifier of the intent Expression. |

**Json representation sample**

We provide below the json representation of an example of a 'BestIntent' resource object

|  |
| --- |
| {  "creationDate": "2022-07-05T00:00",  "description": "This best intent ...",  "lastUpdate": "2022-07-05T00:00",  "lifecycleStatus": "a string ...",  "name": "a string ...",  "statusChangeDate": "2022-07-05T00:00",  "version": "a string ...",  "href": "a Uri ...",  "id": "a Uri ...",  "expression": {},  "validFor": {} } |

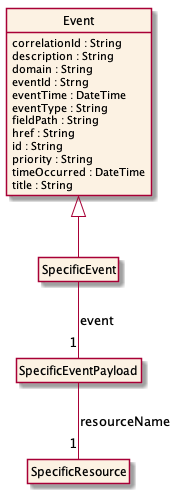
## Notification Resource Models

6 notifications are defined for this API

Notifications related to Intent:  
 - IntentCreateEvent  
 - IntentChangeEvent  
 - IntentDeleteEvent

Notifications related to IntentReport:  
 - IntentReportCreateEvent  
 - IntentReportChangeEvent  
 - IntentReportDeleteEvent

The notification structure for all notifications in this API follow the pattern depicted by the figure below.  
A notification event resource (depicted by "SpecificEvent" placeholder) is a sub class of a generic Event structure containing at least an id of the event occurrence (eventId), an event timestamp (eventTime), and the name of the resource (eventType).   
This notification structure owns an event payload structure ("SpecificEventPayload" placeholder) linked to the resource concerned by the notification using the resource name as access field ("resourceName" placeholder).



### Intent Create Event

Notification IntentCreateEvent case for resource Intent

**Json representation sample**

We provide below the json representation of an example of a 'IntentCreateEvent' notification event object

|  |
| --- |
| {  "eventId":"00001",  "eventTime":"2015-11-16T16:42:25-04:00",  "eventType":"IntentCreateEvent",  "event": {  "intent" :   {-- SEE Intent RESOURCE SAMPLE --}  } } |

### Intent Change Event

Notification IntentChangeEvent case for resource Intent

**Json representation sample**

We provide below the json representation of an example of a 'IntentChangeEvent' notification event object

|  |
| --- |
| {  "eventId":"00001",  "eventTime":"2015-11-16T16:42:25-04:00",  "eventType":"IntentChangeEvent",  "event": {  "intent" :   {-- SEE Intent RESOURCE SAMPLE --}  } } |

### Intent Delete Event

Notification IntentDeleteEvent case for resource Intent

**Json representation sample**

We provide below the json representation of an example of a 'IntentDeleteEvent' notification event object

|  |
| --- |
| {  "eventId":"00001",  "eventTime":"2015-11-16T16:42:25-04:00",  "eventType":"IntentDeleteEvent",  "event": {  "intent" :   {-- SEE Intent RESOURCE SAMPLE --}  } } |

### Intent Report Create Event

Notification IntentReportCreateEvent case for resource IntentReport

**Json representation sample**

We provide below the json representation of an example of a 'IntentReportCreateEvent' notification event object

|  |
| --- |
| {  "eventId":"00001",  "eventTime":"2015-11-16T16:42:25-04:00",  "eventType":"IntentReportCreateEvent",  "event": {  "intentReport" :   {-- SEE IntentReport RESOURCE SAMPLE --}  } } |

### Intent Report Change Event

Notification IntentReportChangeEvent case for resource IntentReport

**Json representation sample**

We provide below the json representation of an example of a 'IntentReportChangeEvent' notification event object

|  |
| --- |
| {  "eventId":"00001",  "eventTime":"2015-11-16T16:42:25-04:00",  "eventType":"IntentReportChangeEvent",  "event": {  "intentReport" :   {-- SEE IntentReport RESOURCE SAMPLE --}  } } |

### Intent Report Delete Event

Notification IntentReportDeleteEvent case for resource IntentReport

**Json representation sample**

We provide below the json representation of an example of a 'IntentReportDeleteEvent' notification event object

|  |
| --- |
| {  "eventId":"00001",  "eventTime":"2015-11-16T16:42:25-04:00",  "eventType":"IntentReportDeleteEvent",  "event": {  "intentReport" :   {-- SEE IntentReport RESOURCE SAMPLE --}  } } |

# API OPERATIONS

Remember the following Uniform Contract:

|  |  |  |
| --- | --- | --- |
| Operation on Entities | Uniform API Operation | Description |
| Query Entities | GET Resource | GET must be used to retrieve a representation of a resource. |
| Create Entity | POST Resource | POST must be used to create a new resource |
| Partial Update of an Entity | PATCH Resource | PATCH must be used to partially update a resource |
| Remove an Entity | DELETE Resource | DELETE must be used to remove a resource |
| Execute an Action on an Entity | POST on TASK Resource | POST must be used to execute Task Resources |
| Other Request Methods | POST on TASK Resource | GET and POST must not be used to tunnel other request methods. |

Filtering and attribute selection rules are described in the TMF REST Design Guidelines (TMF630).

Notifications are also described in a subsequent section.

## Operations on Intent

### List intents

**GET /intent?fields=...&{filtering}**

**Description**

This operation list intent entities.  
Attribute selection is enabled for all first level attributes.  
Filtering may be available depending on the compliance level supported by an implementation.

**Usage Samples**

Here's an example of a request for retrieving multiple Intent objects

|  |
| --- |
| **Request** |
| GET /tmf-api/intent/v4/intent?lifecycleStatus=Active Accept: application/json |
| **Response** |
| 200  [  {  "id": "20011",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intent/20011",  "creationDate": "2022-07-04T15:40:47.797Z",  "description": "An intent resource",  "lastUpdate": "2022-07-04T15:40:47.797Z",  "lifecycleStatus": "Active",  "name": "IntentA",  "statusChangeDate": "2022-07-04T15:40:47.797Z",  "version": "1.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2023-04-12T23:20:50.52Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Intent.schema.json",  "@type": "Intent"  },  {  "id": "20023",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intent/20023",  "creationDate": "2022-07-04T15:40:47.797Z",  "description": "An intent resource",  "lastUpdate": "2022-07-04T15:40:47.797Z",  "lifecycleStatus": "Terminated",  "name": "IntentB",  "statusChangeDate": "2022-07-04T15:40:47.797Z",  "version": "1.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example-2",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2022-07-04T15:40:47.797Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Intent.schema.json",  "@type": "Intent"  } ] |

### Retrieve intent

**GET /intent/{id}?fields=...&{filtering}**

**Description**

This operation retrieves an intent entity.  
Attribute selection is enabled for all first level attributes.  
Filtering on sub-resources may be available depending on the compliance level supported by an implementation.

**Usage Samples**

Here's an example of a request for retrieving a specific Intent object.

|  |
| --- |
| **Request** |
| GET /tmf-api/intent/v4/intent/20011 Accept: application/json |
| **Response** |
| 200  {  "id": "20011",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intent/20011",  "creationDate": "2022-07-04T15:40:47.797Z",  "description": "An intent resource",  "lastUpdate": "2022-07-04T15:40:47.797Z",  "lifecycleStatus": "Active",  "name": "IntentA",  "statusChangeDate": "2022-07-04T15:40:47.797Z",  "version": "1.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2022-07-04T15:40:47.797Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Intent.schema.json",  "@type": "Intent" } |

### Create intent

**POST /intent**

**Description**

This operation creates an intent entity.

**Mandatory and Non Mandatory Attributes**

The following tables provide the list of mandatory and non mandatory attributes when creating a Intent, including any possible rule conditions and applicable default values. Notice that it is up to an implementer to add additional mandatory attributes.

|  |  |
| --- | --- |
| Mandatory Attributes | Rule |
| name |  |
| expression |  |
| expression.expressionValue |  |

|  |  |
| --- | --- |
| Non Mandatory Attributes | Rule |
| @baseType |  |
| @schemaLocation |  |
| @type |  |
| creationDate |  |
| description |  |
| lastUpdate |  |
| lifecycleStatus |  |
| statusChangeDate |  |
| validFor |  |
| version |  |

**Usage Samples**

Here's an example of a request for creating an Intent object.

|  |
| --- |
| **Request** |
| POST /tmf-api/intent/v4/intent Content-Type: application/json  {  "description": "An intent resource",  "name": "IntentA",  "version": "1.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example-1",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2022-07-04T15:40:47.797Z"  },  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Intent.schema.json",  "@type": "Intent" } |
| **Response** |
| 201  {  "id": "20011",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intent/20011",  "creationDate": "2022-07-04T15:40:47.797Z",  "description": "An intent resource",  "lastUpdate": "2022-07-04T15:40:47.797Z",  "lifecycleStatus": "Created",  "name": "IntentA",  "statusChangeDate": "2022-07-04T15:40:47.797Z",  "version": "1.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2022-07-04T15:40:47.797Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Intent.schema.json",  "@type": "Intent" } |

### Patch intent

**PATCH /intent/{id}**

**Description**

This operation allows partial updates of an intent entity. Support of json/merge (https://tools.ietf.org/html/rfc7386) is mandatory, support of json/patch (http://tools.ietf.org/html/rfc5789) is optional.  
  
Note: If the update operation yields to the creation of sub-resources or relationships, the same rules concerning mandatory sub-resource attributes and default value settings in the POST operation applies to the PATCH operation. Hence these tables are not repeated here.

**Patchable and Non Patchable Attributes**

The tables below provide the list of patchable and non patchable attributes, including constraint rules on their usage.

|  |  |
| --- | --- |
| Patchable Attributes | Rule |
| href |  |
| id |  |
| @baseType |  |
| @schemaLocation |  |
| @type |  |
| creationDate |  |
| description |  |
| expression |  |
| lastUpdate |  |
| lifecycleStatus |  |
| name |  |
| statusChangeDate |  |
| validFor |  |
| version |  |

|  |  |
| --- | --- |
| Non Patchable Attributes | Rule |

**Usage Samples**

Here's an example of a request for patching an Intent. In this example, a new version is set, together with validity period and other modifications.

|  |
| --- |
| **Request** |
| PATCH /tmf-api/intent/v4/intent/20011 Content-Type: application/merge-patch+json  {  "description": "An intent resource - Modified",  "version": "2.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example11-modified",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2022-07-05T19:36:36.111Z"  } } |
| **Response** |
| 200  {  "id": "20011",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intent/20011",  "creationDate": "2022-07-04T15:40:47.797Z",  "description": "An intent resource - Modified",  "lastUpdate": "2022-07-05T19:36:36.111Z",  "lifecycleStatus": "Created",  "name": "IntentA",  "statusChangeDate": "2022-07-05T19:36:36.111Z",  "version": "2.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example11-modified",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2022-07-05T19:36:36.111Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Intent.schema.json",  "@type": "Intent" } |

### Delete intent

**DELETE /intent/{id}**

**Description**

This operation deletes an intent entity.

**Usage Samples**

Here's an example of a request for deleting an Intent.

|  |
| --- |
| **Request** |
| DELETE /tmf-api/intent/v4/intent/Intent |
| **Response** |
| 204 |

## Operations on Intent Report

### List intent reports

**GET intent/{intentId}/intentReport?fields=...&{filtering}**

**Description**

This operation list intent report entities.  
Attribute selection is enabled for all first level attributes.  
Filtering may be available depending on the compliance level supported by an implementation.

**Usage Samples**

Here's an example of a request for retrieving multiple intent reports.

|  |
| --- |
| **Request** |
| GET /tmf-api/intent/v4/intentReport Accept: application/json |
| **Response** |
| 200  [  {  "id": "20021",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intentReport/20021",  "creationDate": "2022-07-05T00:03:07.697Z",  "description": "An Intent report example",  "name": "MyIntent Report",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-intentReport-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "intent": {  "id": "20011",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intent/20011",  "creationDate": "2022-07-04T15:40:47.797Z",  "description": "An intent resource",  "lastUpdate": "2022-07-04T15:40:47.797Z",  "lifecycleStatus": "Active",  "name": "IntentA",  "statusChangeDate": "2022-07-04T15:40:47.797Z",  "version": "1.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2022-07-04T15:40:47.797Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Intent.schema.json",  "@type": "Intent"  },  "validFor": {  "endDateTime": "",  "startDateTime": "2022-07-05T00:03:07.697Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/IntentReport.schema.json",  "@type": "IntentTReport"  },  {  "id": "20029",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intentReport/20029",  "creationDate": "2022-07-05T00:04:07.697Z",  "description": "An Intent report example",  "name": "Intent Report2",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-intentReport-2",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "intent": {  "id": "20023",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intent/20023",  "creationDate": "2022-07-04T15:40:47.797Z",  "description": "An intent resource",  "lastUpdate": "2022-07-04T15:40:47.797Z",  "lifecycleStatus": "Terminated",  "name": "IntentB",  "statusChangeDate": "2022-07-04T15:40:47.797Z",  "version": "1.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example-2",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2022-07-04T15:40:47.797Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Intent.schema.json",  "@type": "Intent"  },  "validFor": {  "endDateTime": "",  "startDateTime": "2022-07-05T00:04:07.697Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/IntentReport.schema.json",  "@type": "IntentTReport"  } ] |

### Retrieve intent report

**GET intent/{intentId}/intentReport/{id}?fields=...&{filtering}**

**Description**

This operation retrieves an intent report entity.  
Attribute selection is enabled for all first level attributes.  
Filtering on sub-resources may be available depending on the compliance level supported by an implementation.

**Usage Samples**

Here's an example of a request for retrieving a specific intentReport objects.

|  |
| --- |
| **Request** |
| GET /tmf-api/intent/v4/intentReport/20021 Accept: application/json |
| **Response** |
| 200  {  "id": "20021",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intent/20021",  "creationDate": "2022-07-05T00:03:07.697Z",  "description": "An Intent report example",  "name": "MyIntent Report",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-intentReport-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "intent": {  "id": "20011",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intent/20011",  "creationDate": "2022-07-04T15:40:47.797Z",  "description": "An intent resource",  "lastUpdate": "2022-07-04T15:40:47.797Z",  "lifecycleStatus": "Active",  "name": "IntentA",  "statusChangeDate": "2022-07-04T15:40:47.797Z",  "version": "1.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2022-07-04T15:40:47.797Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Intent.schema.json",  "@type": "Intent"  },  "validFor": {  "endDateTime": "",  "startDateTime": "2022-07-05T00:03:07.697Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/IntentReport.schema.json",  "@type": "IntentTReport" } |

### Create intent report

**POST intent/{intentId}/intentReport**

**Description**

This operation creates an intent report entity.

**Mandatory and Non Mandatory Attributes**

The following tables provide the list of mandatory and non mandatory attributes when creating a IntentReport, including any possible rule conditions and applicable default values. Notice that it is up to an implementer to add additional mandatory attributes.

|  |  |
| --- | --- |
| Mandatory Attributes | Rule |
| name |  |
| expression |  |
| expression.expressionValue |  |
| intent |  |

|  |  |
| --- | --- |
| Non Mandatory Attributes | Rule |
| @baseType |  |
| @schemaLocation |  |
| @type |  |
| creationDate |  |
| description |  |
| validFor |  |

**Usage Samples**

Here's an example of a request for creating a IntentReport resource. In this example the request only passes mandatory attributes.

|  |
| --- |
| **Request** |
| POST /tmf-api/intent/v4/intentReport Content-Type: application/json  {  "name": "MyIntent Report",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-intentReport-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "intent": {  "id": "20011",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intent/20011",  "creationDate": "2022-07-04T15:40:47.797Z",  "description": "An intent resource",  "lastUpdate": "2022-07-04T15:40:47.797Z",  "lifecycleStatus": "Active",  "name": "IntentA",  "statusChangeDate": "2022-07-04T15:40:47.797Z",  "version": "1.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2022-07-04T15:40:47.797Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Intent.schema.json",  "@type": "Intent"  } } |
| **Response** |
| 201  {  "id": "20021",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intentReport/20021",  "name": "MyIntent Report",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-intentReport-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "intent": {  "id": "20011",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intent/20011",  "creationDate": "2022-07-04T15:40:47.797Z",  "description": "An intent resource",  "lastUpdate": "2022-07-04T15:40:47.797Z",  "lifecycleStatus": "Active",  "name": "IntentA",  "statusChangeDate": "2022-07-04T15:40:47.797Z",  "version": "1.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2022-07-04T15:40:47.797Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Intent.schema.json",  "@type": "Intent"  } } |

### Patch intent report

**PATCH intent/{intentId}/intentReport/{id}**

**Description**

This operation allows partial updates of an intent report entity. Support of json/merge (https://tools.ietf.org/html/rfc7386) is mandatory, support of json/patch (http://tools.ietf.org/html/rfc5789) is optional.  
  
Note: If the update operation yields to the creation of sub-resources or relationships, the same rules concerning mandatory sub-resource attributes and default value settings in the POST operation applies to the PATCH operation. Hence these tables are not repeated here.

**Patchable and Non Patchable Attributes**

The tables below provide the list of patchable and non patchable attributes, including constraint rules on their usage.

|  |  |
| --- | --- |
| Patchable Attributes | Rule |
| href |  |
| id |  |
| @baseType |  |
| @schemaLocation |  |
| @type |  |
| creationDate |  |
| description |  |
| expression |  |
| intent |  |
| name |  |
| validFor |  |

|  |  |
| --- | --- |
| Non Patchable Attributes | Rule |

**Usage Samples**

Here's an example of a request for patching a IntentReport resource.

|  |
| --- |
| **Request** |
| PATCH /tmf-api/intent/v4/intentReport/20021 Content-Type: application/merge-patch+json  {  "name": "new name" } |
| **Response** |
| 200  {  "id": "20021",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intentReport/20021",  "creationDate": "2022-07-05T00:03:07.697Z",  "description": "An Intent report example",  "name": "new name",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-intentReport-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "intent": {  "id": "20011",  "href": "https://mycsp.com:8080//tmf-api/intentManagement/v4/intent/20011",  "creationDate": "2022-07-04T15:40:47.797Z",  "description": "An intent resource",  "lastUpdate": "2022-07-04T15:40:47.797Z",  "lifecycleStatus": "Active",  "name": "IntentA",  "statusChangeDate": "2022-07-04T15:40:47.797Z",  "version": "1.0",  "expression": {  "expressionLanguage": "RDFS",  "iri": "https://mycsp.com:8080/tmf-api/rdfs/expression-example-1",  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Expression.schema.json",  "@type": "Expression"  },  "validFor": {  "endDateTime": "2023-04-12T23:20:50.52Z",  "startDateTime": "2022-07-04T15:40:47.797Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/Intent.schema.json",  "@type": "Intent"  },  "validFor": {  "endDateTime": "",  "startDateTime": "2022-07-05T00:03:07.697Z"  },  "@baseType": "",  "@schemaLocation": "https://mycsp.com:8080/tmf-api/schema/Common/IntentReport.schema.json",  "@type": "IntentTReport" } |

### Delete intent report

**DELETE intent/{intentId}/intentReport/{id}**

**Description**

This operation deletes an intent report entity.

**Usage Samples**

Here's an example of a request for deleting a given IntentReport.

|  |
| --- |
| **Request** |
| DELETE /tmf-api/intent/v4/intentReport/20021 |
| **Response** |
| 204 |

## Operations on Rdxml Expression

## Operations on Json Ld Expression

## Operations on Turtle Expression

## Operations on Probe Intent

## Operations on Judge Intent

## Operations on Best Intent

# API NOTIFICATIONS

For every single of operation on the entities use the following templates and provide sample REST notification POST calls.

It is assumed that the Pub/Sub uses the Register and UnRegister mechanisms described in the REST Guidelines reproduced below.

## Register listener

**POST /hub**

**Description**

Sets the communication endpoint address the service instance must use to deliver information about its health state, execution state, failures and metrics. Subsequent POST calls will be rejected by the service if it does not support multiple listeners. In this case DELETE /api/hub/{id} must be called before an endpoint can be created again.

**Behavior**

Returns HTTP/1.1 status code 204 if the request was successful.

Returns HTTP/1.1 status code 409 if request is not successful.

**Usage Samples**

Here's an example of a request for registering a listener.

|  |
| --- |
| **Request** |
| POST /api/hub  Accept: application/json  {"callback": "http://in.listener.com"} |
| **Response** |
| 201  Content-Type: application/json  Location: /api/hub/42  {"id":"42","callback":"http://in.listener.com","query":null} |

## Unregister listener

**DELETE /hub/{id}**

**Description**

Clears the communication endpoint address that was set by creating the Hub..

**Behavior**

Returns HTTP/1.1 status code 204 if the request was successful.

Returns HTTP/1.1 status code 404 if the resource is not found.

**Usage Samples**

Here's an example of a request for un-registering a listener.

|  |
| --- |
| **Request** |
| DELETE /api/hub/42  Accept: application/json |
| **Response** |
| 204 |

## Publish Event to listener

**POST /client/listener**

**Description**

Clears the communication endpoint address that was set by creating the Hub.

Provides to a registered listener the description of the event that was raised. The /client/listener url is the callback url passed when registering the listener.

**Behavior**

Returns HTTP/1.1 status code 201 if the service is able to set the configuration.

**Usage Samples**

Here's an example of a notification received by the listener. In this example “EVENT TYPE” should be replaced by one of the notification types supported by this API (see Notification resources Models section) and EVENT BODY refers to the data structure of the given notification type.

|  |
| --- |
| **Request** |
| POST /client/listener  Accept: application/json  {  "event": {  EVENT BODY  },  "eventType": "EVENT\_TYPE"  } |
| **Response** |
| 201 |

For detailed examples on the general TM Forum notification mechanism, see the TMF REST Design Guidelines.

Role based Access Control

The API will be released to allow all CRUD operations on API REST resources. However, the API operations are in subject to access control and can be limited depends on API user role. After a user presents his credentials for authentication, depending his validity of credentials he is given access to catalog based on his role.

For example, a User gets an error response if the user issues a Get on REST resources and he has no permission to access to those resources or if he tries to manipulate a resource but do not have Write Access.

Normally we anticipate that the OAUTH2 or Open ID Connect are used as the authorization APIs and that ACL are established between authorized parties with regards to the content of the inventory (i.e. GET but also enable of update operations on specific entities).

# Acknowledgements

## 

## Release History

|  |  |  |  |
| --- | --- | --- | --- |
| **Release Number** | **Date** | **Release led by:** | **Description** |
| V4.0 | July 2021 |  |  |

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