



Framework Specification

Shipment Tracking API REST Specification

TMF684
Release 18.0.0
February 2018

Latest Update: TM Forum Release 18.0	Member Evaluation
Version 1.0.0	IPR Mode: RAND

NOTICE

Copyright © TM Forum 2018. All Rights Reserved.

This document and translations of it may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published, and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this section are included on all such copies and derivative works. However, this document itself may not be modified in any way, including by removing the copyright notice or references to TM FORUM, except as needed for the purpose of developing any document or deliverable produced by a TM FORUM Collaboration Project Team (in which case the rules applicable to copyrights, as set forth in the [TM FORUM IPR Policy](#), must be followed) or as required to translate it into languages other than English.

The limited permissions granted above are perpetual and will not be revoked by TM FORUM or its successors or assigns.

This document and the information contained herein is provided on an "AS IS" basis and TM FORUM DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY OWNERSHIP RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Direct inquiries to the TM Forum office:

4 Century Drive, Suite 100
Parsippany, NJ 07054, USA

Tel No. +1 973 944 5100

Fax No. +1 973 944 5110

TM Forum Web Page: www.tmforum.org

TABLE OF CONTENTS

NOTICE	2
Table of Contents.....	2
List of Tables	4
Introduction	5
SAMPLE USE CASES	6
RESOURCE MODEL.....	7
Managed Entity and Task Resource Models	7
User Interaction resource	7
Notification Resource Models	12
Shipment Tracking Creation Notification.....	13
Shipment Tracking Change Notification.....	13
API OPERATIONS.....	15
Operations on Shipment Tracking	15
List user interactions.....	15
Retrieve Shipment Tracking	18
Create Shipment Tracking	20
Add Shipment Tracking Checkpoint.....	23
Patch Shipment Tracking.....	24
Delete Shipment Tracking	27
API NOTIFICATIONS.....	28
Register listener	28
Unregister listener	28
Publish Event to listener	29
Acknowledgements.....	31
Release History	31
Contributors to Document.....	31

LIST OF TABLES

N/A

INTRODUCTION

Telco companies often send goods to customers. Shipment information can be provided to them so they can be aware of when things were shipped and when they will arrive. Typically telcos use different delivery companies to deliver things on their behalf and this API intends to abstract the end developers from that complexity by providing a single interface. A **Shipment Tracking** captures information about the current status of the shipment, the past checkpoints and the estimated arrival date. Via this API, tracking information can be retrieved by providing an order Id or the shipping company's tracking id.

SAMPLE USE CASES

Use Case Id	UC_TMF_ShipmentTracking_0001
Use Case Name	Customer checks where his router is using its order Id
Summary	Customer checks shipment information without knowing any details of the shipment itself
Actor(s)	<ol style="list-style-type: none">1. Customer2. Mobile app (system)
Pre-Conditions	<ol style="list-style-type: none">1. There is a back-end service pairing orders and shipments.
Begins When	When all pre-conditions have been met and the user taps on a button that provides the detailed order info.
Description	<ol style="list-style-type: none">1. Customer is browsing his latest orders2. Customer taps on “track shipment” button of his last order, a router.3. The app queries the required information from the back-end server using the TMF shipment tracking API.4. The info is rendered on the app screen.

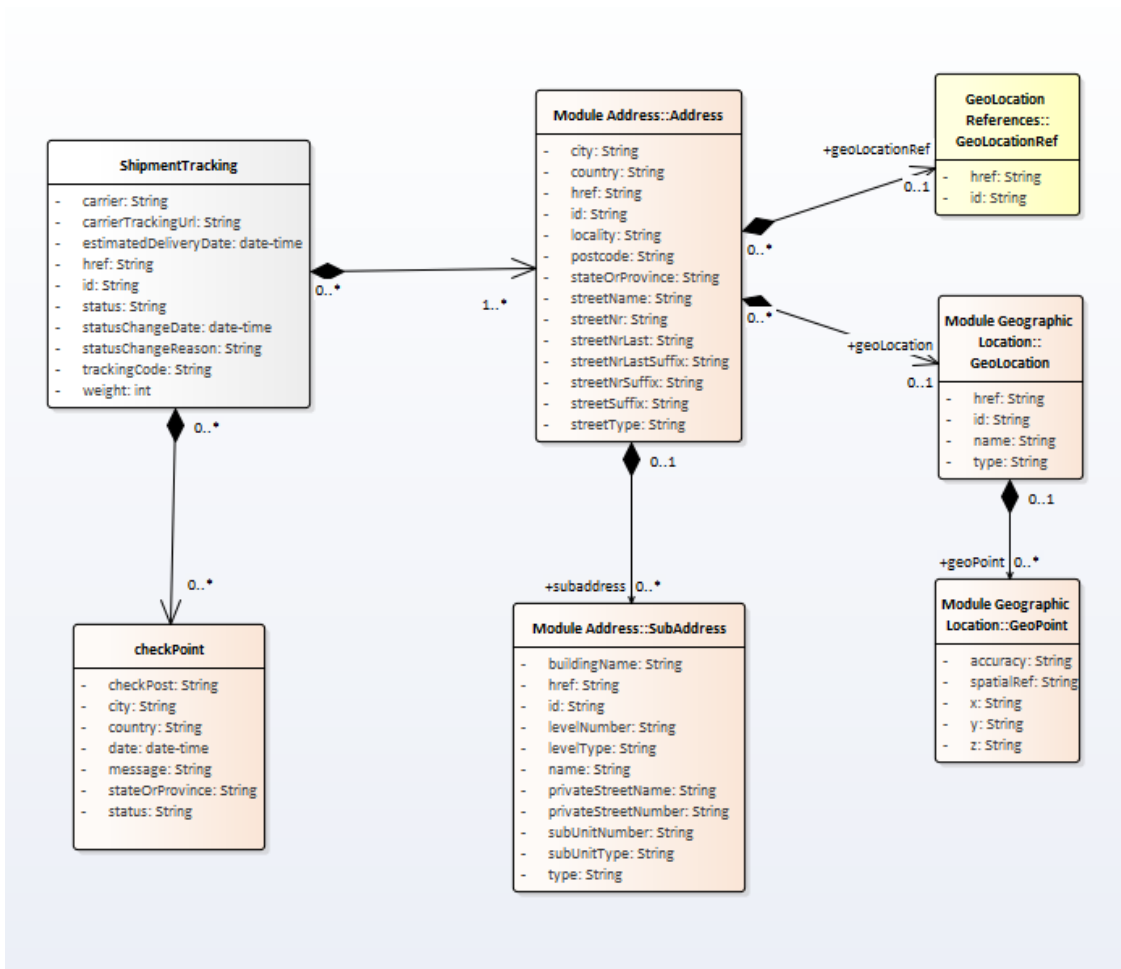
RESOURCE MODEL

Managed Entity and Task Resource Models

USER INTERACTION RESOURCE

The user interaction resource is used for indicating an interaction within a user and a company (e.g.: visit to a store, call to a call center, message received in a marketing campaign, etc.). A user interaction might result in other actions, such as submitted orders or raised tickets. A user interaction has a description, a reason, an originator (the user or the company) and contains a reference to an account, to other related parties and to the channel where it occurred.

Resource model



Field descriptions

ShipmentTracking fields

Field	Mandatory in API messages	Description
href	Not on creation, yes on retrieval	A string. Hyperlink to access the shipment information.
id	Not on creation, yes on retrieval	A string. Unique identifier of the shipment.
carrier	Yes	A string: Carrier identifier

trackingCode	No	A strubg; Tracking code in the carrier network
carrierTrackingUrl	No	A string; Url where the carrier provides its tracking information
trackingDate	Yes	Date-time. Date when the shipment began to be tracked.
status	No	A string. Current status of the parcel
statusChangeDate	No	Date-time. Last time the status changed.
statusChangeReason	No	Date-time. Reason why the status last changed
weight	No	Integer. Weight of the package in grams
estimatedDeliveryDate	No	Date-time. Date when the parcel is estimated to be delivered
addressFrom	No	GeographicAddressType. Address the package departed from
addressTo	Yes	GeographicAddressType. Address where the package will be delivered
checkpoint	No	Array of checkpointType. Information about the different places where the parcel was checked in.
order	No	OrderRef. Reference to the order that caused the delivery

GeographicAddress sub-resource

Address reference. Defines an address and/or identifies an existing address entity

An address allows textual description of an existing place over the surface of the Earth

This resource could be invoked as reference or value

Field	Mandatory in API messages	Description
id	No	A string. Unique identifier of the entity within the server
href	No	A string. Reference of the entity
streetNr	Yes if neither id nor href nor are included	A string. Number identifying a specific property on a public street. It may be combined with streetNrLast for ranged addresses.
streetNrSuffix	No	A string. the first street number suffix.
streetNrLast	No	A string. Last number in a range of street numbers allocated to a property.
streetNrLastSuffix	No	A string. Last street number suffix for a ranged address.
streetName	Yes if neither id nor href nor are included	A string. Name of the street or other street type.
streetType	Yes if neither id nor href nor are included	A string. Alley, avenue, boulevard, brae, crescent, drive, highway, lane, terrace, parade, place, tarn, way, wharf.
streetSuffix	No	A string. A modifier denoting a relative direction.
postcode	Yes if neither id nor href nor are included	A string. Descriptor for a postal delivery area, used to speed and simplify the delivery of mail (also known as zipcode).
locality	Yes if neither id nor href nor are included	A string. "An area of defined or undefined boundaries within a local authority or other legislatively defined area, usually rural or semi-rural in nature." [ANZLIC-STREET], or a suburb "a bounded locality within a city, town or shire principally of urban character " [ANZLICSTREET].
city	No	A string. City that the address is in.
stateOrProvince	Yes if neither id nor href nor are included	A string. the State or Province that the address is in.

country	Yes if neither id nor href nor are included	A string. Country that the address is in.
geographicLocation	No	A geo location (GeographicLocation) passed by reference or by value. A GeoLocation allows describing through coordinate(s) a point, a line or a space.
subAddress	No	A list of sub addresses (SubAddress [*]). Representation of a SubAddress It is used for addressing within a property in an urban area (country properties are often defined differently). It may refer to a building, a building cluster, or a floor of a multistory building.
@type	No	A string. Indicates the type of the resource. Here can be 'UrbanPropertyAddress', 'FormattedAddress', 'JapanesePropertyAddress', 'AustralianPropertyAddress', etc...
@schemaLocation	No	A string. A Link to the schema describing this REST Resource. The resource described 'UrbanPropertyAddress' but a schema could be used for other property address description.

GeographicLocation sub-resource

GeographicLocation reference. Defines a geo location and/or identifies an existing geo location entity

A GeoLocation allows describing through coordinate(s) a point, a line or a space.

This resource could be invoked as reference or value

Field	Mandatory in API messages	Description
id	No	A string. Unique Identifier of a GeoLocation.
href	No	A string. href of the GeoLocation.
name	No	A string. Name of a GeoLocation.
type	Yes if href not included	A string. Type allows describing Geolocation form: it could be a point, a line, a polygon, a cylinder, etc....
geographicPoint	Yes if href not included	A list of geo points (GeographicPoint [*]). A GeoPoint defines a geographic point through coordinates.
@type	No	A string. Indicates the type of the resource for extensibility purposes.
@schemaLocation	No	A string. A Link to the schema describing this REST Resource.

GeographicPoint sub-resource

A GeoPoint defines a geographic point through coordinates.

Field	Mandatory in API messages	Description
accuracy	Yes	A string. Accuracy of the coordinate specified.
spatialRef	Yes	A string. Geocoding referential.
x	Yes	A string. x coordinate (usually latitude).
y	Yes	A string. y coordinate (usually longitude).
z	No	A string. z coordinate (usually elevation).

subAddress sub-resource

Representation of a SubAddress

It is used for addressing within a property in an urban area (country properties are often defined differently). It may refer to a building, a building cluster, or a floor of a multistory building.

Field	Mandatory in API messages	Description
id	No	A string. Unique Identifier of the subAddress.
href	No	A string. Href of the subAddress.
type	No	A string. type of subAddress : it can be a subunit or a private street.
name	No	A string. Name of the subAddress to identify it with a meaningful identification.
subUnitType	No	A string. the type of subunit e.g.BERTH, FLAT, PIER, SUITE, SHOP, TOWER, UNIT, WHARF.
subUnitNumber	No	A string. the discriminator used for the subunit often just a simple number e.g. FLAT 5, may also be a range.
levelType	No	A string. describes level types within a building.
levelNumber	No	A string. used where a level type may be repeated e.g. BASEMENT 1, BASEMENT 2.
buildingName	No	A string. allows for buildings that have well-known names.
privateStreetName	No	A string. private streets internal to a property (e.g. a university) may have internal names that are not recorded by the land title office.
privateStreetNumber	No	A string. private streets numbers internal to a private street.
@type	No	A string. Type of the resource for thus subResource
@schemaLocation	No	A string. A Link to the schema describing the structure of this REST Resource to allow for extensions

OrderRef relationship

Order reference.

Field	Mandatory in API messages	Description
href	Yes	A string. Unique reference of the order.
id	Yes	A string. Unique identifier of the order.
name	No	A string. A user-friendly name for the order, such as "my telco pack".
description	No	A string. A user-friendly description of the order.

CheckPoint relationship

Information about the places where the parcel was checked in and its status at that moment.

Field	Mandatory in API messages	Description
status	Yes	A string. Status of the delivery at the moment it checked in.
message	No	A string. Custom message for anything related to the check in.
date	Yes	Date-time. Date of the check-in
checkPost	Yes	A string. Screen name of the site where the parcel checked in such as "Madrid warehouse"
city	No	A string. City where the site is.
stateOrProvince	No	A string. State or province of the site
country	Yes	A string. Country of the site

Json representation sample

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

```
{
```

```

"id": "123",
"href": "/shipmentTracking/v1/tracking/123",
"carrier": "Fodex",
"trackingCode": "FFFFXXX987",
"carrierTrackingUrl": "fodexDeliveryInc/shipments/FFFFXXX987",
"trackingDate": "2017-11-05T14:19:11.460Z",
"status": "in customs",
"statusChangeDate": "2017-11-10T14:19:11.460Z",
"statusChangeReason": "Arrived at customs office",
"weight": 2500,
"estimatedDeliveryDate": "2017-11-16T14:19:11.460Z",
"addressFrom": {
  "streetNr": "3",
  "streetName": "Evergreen Terrace",
  "streetType": "street",
  "postcode": "87654",
  "city": "Springfield",
  "stateOrProvince": "Oregon",
  "country": "USA"
},
"addressTo": {
  "streetNr": "S/N",
  "streetName": "Ronda de la Comunicación",
  "streetType": "Calle",
  "postcode": "28050",
  "locality": "Madrid",
  "city": "Madrid",
  "stateOrProvince": "Madrid",
  "country": "ESP"
},
"checkpoint": [
  {
    "status": "shipped",
    "message": "Shipped from warehouse facilities",
    "trackingDate": "2017-11-05T14:19:11.460Z",
    "checkPost": "Springfield warehouse",
    "city": "Springfield",
    "stateOrProvince": "Oregon",
    "country": "USA",
    "postcode": "87654"
  },
  {
    "status": "in progress",
    "message": "Arrived at Dallas to be shipped by plane",
    "date": "2017-11-07T14:19:11.460Z",
    "checkPost": "Dallas airport",
    "city": "Dallas",
    "stateOrProvince": "Texas",
    "country": "USA",
    "postcode": "75261"
  },
  {
    "status": "in customs",
    "message": "Arrived at Madrid airport customs office",
    "date": "2017-11-10T14:19:11.460Z",
    "checkPost": "Madrid Barajas airport",
  }
]

```

```
"city": "Madrid",
"stateOrProvince": "Madrid",
"country": "ESP",
"postcode": "28042"
}
],
"order": {
  "id": "654",
  "href": "https://host:port/productOrderingManagement/productOrder/654",
  "name": "New telco pack",
  "description": "Telco pack with black Friday offer"
}
}
```

Notification Resource Models

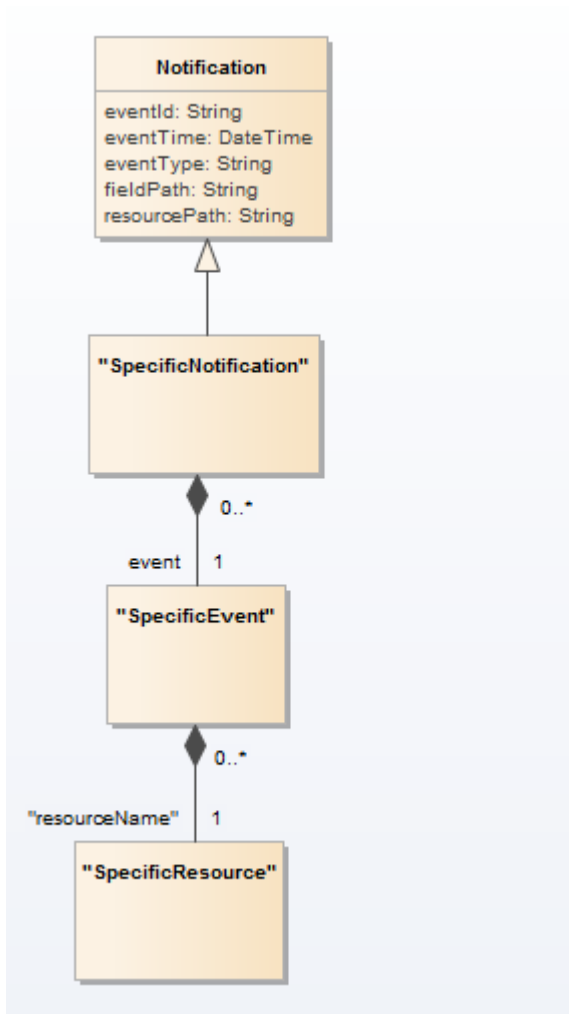
2 notifications are defined for this API

Notifications related to ShipmentTracking:

- ShipmentTrackingCreationNotification
- ShipmentTrackingChangeNotification

The notification structure for all notifications in this API follow the pattern depicted by the figure below. A notification resource (depicted by "SpecificNotification" placeholder) is a sub class of a generic Notification structure containing an id of the event occurrence (eventId), an event timestamp (eventTime), and the name of the notification resource (eventType).

This notification structure owns an event structure ("SpecificEvent" placeholder) linked to the resource concerned by the notification using the resource name as access field ("resourceName" placeholder).



SHIPMENT TRACKING CREATION NOTIFICATION

Notification sent when a new ShipmentTracking resource is created.

Json representation sample

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

```

{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"ShipmentTrackingCreationNotification",
  "event": {
    "shipmentTracking":
      {-- SEE ShipmentTracking RESOURCE SAMPLE --}
  }
}

```

SHIPMENT TRACKING CHANGE NOTIFICATION

Notification sent when changing a ShipmentTracking resource.

Json representation sample

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

```
{
  "eventId":"00001",
  "eventTime":"2015-11-16T16:42:25-04:00",
  "eventType":"ShipmentTrackingChangeNotification",
  "event": {
    "shipmentTracking":
      {-- SEE ShipmentTracking 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
Complete Update of an Entity	PUT Resource	PUT must be used to completely update a resource identified by its resource URI
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.

Notifications are also described in a subsequent section.

OPERATIONS ON SHIPMENT TRACKING

LIST USER INTERACTIONS

GET /tracking?fields=...&{filtering}

Description

This operation lists shipment tracking entities.

Attribute selection is enabled for all first level attributes and using order.id in order to find parcels relative to a certain order.

Filtering may be available depending on the compliance level supported by an implementation.

Usage Samples

Here's an example of a request for retrieving ShipmentTracking resources.

Request
GET /shipmentTracking/v1/tracking Accept: application/json
Response
200 <pre>[{ "id": "123", "href": "/shipmentTracking/v1/tracking/123", "carrier": "Fodex", "trackingCode": "FFFFXXX987", "carrierTrackingUrl": "fodexDeliveryInc/shipments/FFFFXXX987", "trackingDate": "2017-11-05T14:19:11.460Z", "status": "in customs", "statusChangeDate": "2017-11-10T14:19:11.460Z", "statusChangeReason": "Arrived at customs office", "weight": 2500, "estimatedDeliveryDate": "2017-11-16T14:19:11.460Z", "addressFrom": { "streetNr": "3", "streetName": "Evergreen Terrace", "streetType": "street", "postcode": "87654", "city": "Springfield", "stateOrProvince": "Oregon", "country": "USA" }, "addressTo": { "streetNr": "S/N", "streetName": "Ronda de la Comunicación", "streetType": "Calle", "postcode": "28050", "locality": "Madrid", "city": "Madrid", "stateOrProvince": "Madrid", } }]</pre>


```
"country": "ESP"
},
"checkpoint": [
  {
    "status": "shipped",
    "message": "Shipped from warehouse facilities",
    "trackingDate": "2017-11-05T14:19:11.460Z",
    "checkPost": "Springfield warehouse",
    "city": "Springfield",
    "stateOrProvince": "Oregon",
    "country": "USA"
  },
  {
    "status": "in progress",
    "message": "Arrived at Dallas to be shipped by plane",
    "date": "2017-11-07T14:19:11.460Z",
    "checkPost": "Dallas airport",
    "city": "Dallas",
    "stateOrProvince": "Texas",
    "country": "USA"
  },
  {
    "status": "in customs",
    "message": "Arrived at Madrid airport customs office",
    "date": "2017-11-10T14:19:11.460Z",
    "checkPost": "Madrid Barajas airport",
    "city": "Madrid",
    "stateOrProvince": "Madrid",
    "country": "ESP"
  }
],
"order": {
  "id": "654",
  "href": "https://host:port/productOrderingManagement/productOrder/654",
  "name": "New telco pack",
  "description": "Telco pack with black Friday offer"
}
},
{
  "id": "456",
  "href": "/shipmentTracking/v1/tracking/456",
  "carrier": "PSU",
  "trackingCode": "PPSSUUU354",
  "carrierTrackingUrl": "psuShipping/tracking/PPSSUUU354",
  "trackingDate": "2017-11-10T15:00:00.000Z",
  "status": "Shipped",
  "statusChangeDate": "2017-11-12T15:00:00.000Z",
  "statusChangeReason": "Shipped",
  "weight": 1250,
  "estimatedDeliveryDate": "2017-11-20T20:00:00.000Z",
  "addressFrom": {
    "streetNr": "3",
    "streetName": "Evergreen Terrace",
    "streetType": "street",
    "postcode": "87654",
    "city": "Springfield",
```

```

"stateOrProvince": "Oregon",
"country": "USA"
},
"addressTo": {
"streetNr": "S/N",
"streetName": "Ronda de la Comunicación",
"streetType": "Calle",
"postcode": "28050",
"locality": "Madrid",
"city": "Madrid",
"stateOrProvince": "Madrid",
"country": "ESP"
},
"checkpoint": [
{
"status": "out of stock",
"message": "Waiting for stock",
"date": "2017-11-10T15:00:00.000Z",
"checkPost": "Springfield warehouse",
"city": "Springfield",
"stateOrProvince": "Oregon",
"country": "USA"
},
{
"status": "shipped",
"message": "Shipped from warehouse facilities",
"trackingDate": "2017-11-12T15:00:00.000Z",
"checkPost": "Springfield warehouse",
"city": "Springfield",
"stateOrProvince": "Oregon",
"country": "USA"
}
],
"order": {
"id": "999",
"href": "https://host:port/productOrderingManagement/productOrder/999",
"name": "Smart router",
"description": "Smart 5G router"
}
}
]

```

RETRIEVE SHIPMENT TRACKING

GET /tracking/{id}?fields=...

Description

This operation retrieves a single shipment tracking entity. Attribute selection is enabled for all first level attributes.

Usage Samples

Here's an example of a request for retrieving a Shipment Tracking resource.

Request
GET /shipmentTracking/v1/tracking/123 Accept: application/json
Response
<pre> 200 { "id": "123", "href": "/shipmentTracking/v1/tracking/123", "carrier": "Fodex", "trackingCode": "FFFFXXX987", "carrierTrackingUrl": "fodexDeliveryInc/shipments/FFFFXXX987", "trackingDate": "2017-11-05T14:19:11.460Z", "status": "in customs", "statusChangeDate": "2017-11-10T14:19:11.460Z", "statusChangeReason": "Arrived at customs office", "weight": 2500, "estimatedDeliveryDate": "2017-11-16T14:19:11.460Z", "addressFrom": { "streetNr": "3", "streetName": "Evergreen Terrace", "streetType": "street", "postcode": "87654", "city": "Springfield", "stateOrProvince": "Oregon", "country": "USA" }, "addressTo": { "streetNr": "S/N", "streetName": "Ronda de la Comunicación", "streetType": "Calle", "postcode": "28050", "locality": "Madrid", "city": "Madrid", "stateOrProvince": "Madrid", "country": "ESP" }, "checkpoint": [{ "status": "shipped", "message": "Shipped from warehouse facilities", "trackingDate": "2017-11-05T14:19:11.460Z", "checkPost": "Springfield warehouse", "city": "Springfield", "stateOrProvince": "Oregon", "country": "USA" }] } </pre>

```

"status": "in progress",
"message": "Arrived at Dallas to be shipped by plane",
"date": "2017-11-07T14:19:11.460Z",
"checkPost": "Dallas airport",
"city": "Dallas",
"stateOrProvince": "Texas",
"country": "USA"
},
{
"status": "in customs",
"message": "Arrived at Madrid airport customs office",
"date": "2017-11-10T14:19:11.460Z",
"checkPost": "Madrid Barajas airport",
"city": "Madrid",
"stateOrProvince": "Madrid",
"country": "ESP",
"postcode": "28042"
}
],
"order": {
"id": "654",
"href": "https://host:port/productOrderingManagement/productOrder/654",
"name": "New telco pack",
"description": "Telco pack with black Friday offer"
}
}
    
```

CREATE SHIPMENT TRACKING

POST /tracking

Description

This operation creates a shipment tracking entity.

Mandatory and Non-Mandatory Attributes

The following tables provides the list of mandatory and non-mandatory attributes when creating a ShipmentTracking, 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
carrier	
trackingDate	
addressTo	

Non Mandatory Attributes	Default Value	Rule
id		Will be assigned by the server after creation
href		Will be assigned by the server after creation
trackingCode		

carrierTrackingUrl		
status	shipped	Could be given a default status by the server on creation
statusChangeDate		
statusChangeReason		
weight		
estimatedDeliveryDate		

Additional Rules

The following table provides additional rules indicating mandatory fields in sub-resources or relationships when creating a ShipmentTracking resource.

Context	Mandatory Sub-Attributes
addressFrom	Check GeographicAddress mandatory fields (in case it appears)
addressTo	Check GeographicAddress mandatory fields
order	Id, href (in case it appears)

Usage Samples

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

Request
POST /shipmentTracking/v1/tracking Content-Type: application/json <pre>{ "carrier": "PSU", "trackingCode": "PPSSUUU354", "carrierTrackingUrl": "psuShipping/tracking/PPSSUUU354", "trackingDate": "2017-11-10T15:00:00.000Z", "status": "out of stock", "weight": 1250, "estimatedDeliveryDate": "2017-11-20T20:00:00.000Z", "addressFrom": { "streetNr": "3", "streetName": "Evergreen Terrace", "streetType": "street", "postcode": "87654", "city": "Springfield", "stateOrProvince": "Oregon", "country": "USA" }, "addressTo": { "streetNr": "S/N", "streetName": "Ronda de la Comunicación", "streetType": "Calle", "postcode": "28050", "locality": "Madrid", "city": "Madrid",</pre>

```

"stateOrProvince": "Madrid",
"country": "ESP"
},
"order": {
  "id": "999",
  "href": "https://host:port/productOrderingManagement/productOrder/999",
  "name": "Smart router",
  "description": "Smart 5G router"
}
}

```

Response

201

```

{
  "id": "456",
  "href": "/shipmentTracking/v1/tracking/456",
  "carrier": "PSU",
  "trackingCode": "PPSSSUUU354",
  "carrierTrackingUrl": "psuShipping/tracking/PPSSSUUU354",
  "trackingDate": "2017-11-10T15:00:00.000Z",
  "status": "out of stock",
  "statusChangeDate": "2017-11-10T15:00:00.000Z",
  "statusChangeReason": "Tracking created",
  "weight": 1250,
  "estimatedDeliveryDate": "2017-11-20T20:00:00.000Z",
  "addressFrom": {
    "streetNr": "3",
    "streetName": "Evergreen Terrace",
    "streetType": "street",
    "postcode": "87654",
    "city": "Springfield",
    "stateOrProvince": "Oregon",
    "country": "USA"
  },
  "addressTo": {
    "streetNr": "S/N",
    "streetName": "Ronda de la Comunicación",
    "streetType": "Calle",
    "postcode": "28050",
    "locality": "Madrid",
    "city": "Madrid",
    "stateOrProvince": "Madrid",
    "country": "ESP"
  },
  "order": {
    "id": "999",
    "href": "https://host:port/productOrderingManagement/productOrder/999",
    "name": "Smart router",
    "description": "Smart 5G router"
  }
}

```

ADD SHIPMENT TRACKING CHECKPOINT

POST /tracking/{id}/checkpoint

Description

This operation adds a checkpoint to a shipment tracking entity.

Mandatory and Non-Mandatory Attributes

The following tables provides the list of mandatory and non-mandatory attributes when creating a CheckPoint, including any possible rule conditions and applicable default values. Notice that it is up to an implementer to add additional mandatory attributes. Notice that adding a checkpoint should update the status of the parent shipmentTracking entity.

Mandatory Attributes	Rule
status	
date	
checkPost	
country	

Non Mandatory Attributes	Default Value	Rule
message		
city		
stateOrProvince		

Usage Samples

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

Request
POST /shipmentTracking/v1/tracking/123/checkpoint Content-Type: application/json <pre>{ "status": "out of stock", "message": "Waiting for stock", "date": "2017-11-10T15:00:00.000Z", "checkPost": "Springfield warehouse", "city": "Springfield", "stateOrProvince": "Oregon", "country": "USA" }</pre>
Response
201

```

{
  "id": "456",
  "href": "/shipmentTracking/v1/tracking/456",
  "carrier": "PSU",
  "trackingCode": "PPSSUUU354",
  "carrierTrackingUrl": "psuShipping/tracking/PPSSUUU354",
  "trackingDate": "2017-11-10T15:00:00.000Z",
  "status": "in progress",
  "statusChangeDate": "2017-11-10T15:00:00.000Z",
  "statusChangeReason": "Cannot ship in time because of lack of stock",
  "weight": 1250,
  "estimatedDeliveryDate": "2017-11-20T20:00:00.000Z",
  "addressFrom": {
    "streetNr": "3",
    "streetName": "Evergreen Terrace",
    "streetType": "street",
    "postcode": "87654",
    "city": "Springfield",
    "stateOrProvince": "Oregon",
    "country": "USA"
  },
  "addressTo": {
    "streetNr": "S/N",
    "streetName": "Ronda de la Comunicación",
    "streetType": "Calle",
    "postcode": "28050",
    "locality": "Madrid",
    "city": "Madrid",
    "stateOrProvince": "Madrid",
    "country": "ESP"
  },
  "checkpoint": [
    {
      "status": "out of stock",
      "message": "Waiting for stock",
      "date": "2017-11-10T15:00:00.000Z",
      "checkPost": "Springfield warehouse",
      "city": "Springfield",
      "stateOrProvince": "Oregon",
      "country": "USA"
    }
  ],
  "order": {
    "id": "999",
    "href": "https://host:port/productOrderingManagement/productOrder/999",
    "name": "Smart router",
    "description": "Smart 5G router"
  }
}

```

PATCH SHIPMENT TRACKING

PATCH /tracking/{id}

Description

This operation allows partial updates of a user interaction 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
status	
statusChangeDate	
statusChangeReason	
estimatedDeliveryDate	
addressTo	
trackingDate	
checkpoint	

Non Patchable Attributes	Rule
id	
href	
carrier	
trackingCode	
carrierTrackingUrl	
weight	
addressFrom	

Usage Samples

Here's an example of a request for patching a shipmentTracking resource. It is a request to change the tentative delivery date.

Request
<pre>PATCH /shipmentTracking/v1/tracking/123 Content-Type: application/json-patch+query [{"op": "replace", "path": "estimatedDeliveryDate ", "value": "2018-01-01T12:01:34.000Z"}]</pre>
Response

201

```
{
  "id": "123",
  "href": "/shipmentTracking/v1/tracking/123",
  "carrier": "Fodex",
  "trackingCode": "FFFFXXX987",
  "carrierTrackingUrl": "fodexDeliveryInc/shipments/FFFFXXX987",
  "trackingDate": "2018-01-01T12:01:34.000Z",
  "status": "in customs",
  "statusChangeDate": "2017-11-10T14:19:11.460Z",
  "statusChangeReason": "Arrived at customs office",
  "weight": 2500,
  "estimatedDeliveryDate": "2017-11-16T14:19:11.460Z",
  "addressFrom": {
    "streetNr": "3",
    "streetName": "Evergreen Terrace",
    "streetType": "street",
    "postcode": "87654",
    "city": "Springfield",
    "stateOrProvince": "Oregon",
    "country": "USA"
  },
  "addressTo": {
    "streetNr": "S/N",
    "streetName": "Ronda de la Comunicación",
    "streetType": "Calle",
    "postcode": "28050",
    "locality": "Madrid",
    "city": "Madrid",
    "stateOrProvince": "Madrid",
    "country": "ESP"
  },
  "checkpoint": [
    {
      "status": "shipped",
      "message": "Shipped from warehouse facilities",
      "trackingDate": "2017-11-05T14:19:11.460Z",
      "checkPost": "Springfield warehouse",
      "city": "Springfield",
      "stateOrProvince": "Oregon",
      "country": "USA"
    },
    {
      "status": "in progress",
      "message": "Arrived at Dallas to be shipped by plane",
      "date": "2017-11-07T14:19:11.460Z",
      "checkPost": "Dallas airport",
      "city": "Dallas",
      "stateOrProvince": "Texas",
      "country": "USA"
    },
    {
      "status": "in customs",
      "message": "Arrived at Madrid airport customs office",
      "date": "2017-11-10T14:19:11.460Z",
    }
  ]
}
```

```
"checkPost": "Madrid Barajas airport",
"city": "Madrid",
"stateOrProvince": "Madrid",
"country": "ESP",
"postcode": "28042"
},
"order": {
  "id": "654",
  "href": "https://host:port/productOrderingManagement/productOrder/654",
  "name": "New telco pack",
  "description": "Telco pack with black Friday offer"
}
}
```

DELETE SHIPMENT TRACKING

DELETE /tracking/{id}

Description

This operation deletes a shipment tracking entity.

Usage Samples

Here's an example of a request for deleting a Shipment Tracking resource.

Request
DELETE /shipmentTracking/v1/tracking/789987
Response
204

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.

ACKNOWLEDGEMENTS

RELEASE HISTORY

Release Number	Date	Release led by:	Description
Release 18.0.0 Version 1.0.0	13-Feb-2018	Guillermo Martínez del Camino Telefónica guillermo.martinezdelcamino@telefonica.com	First Release of Draft Version of the Document.

CONTRIBUTORS TO DOCUMENT

	Initial version
--	-----------------