**TM Forum Specification**

**Shipment Tracking**

**API REST Specification**

**TMF684**

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# 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 were his router is using its order Id |
| Summary | Customer checks shipment information without knowing any details of the shipment itself |
| Actor(s) | 1. Customer
2. Mobile app (system)
 |
| Pre-Conditions | 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 | 1. Customer is browsing his latest orders
2. 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 subunite.g.BERTH, FLAT, PIER, SUITE, SHOP, TOWER, UNIT, WHARF. |
| subUnitNumber | No | A string. the discriminator used for the subunitoften 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": "FFFFXXXX987", "carrierTrackingUrl": "fodexDeliveryInc/shipments/FFFFXXXX987", "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 occurence (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/trackingAccept: application/json |
| **Response** |
| 200[ { "id": "123", "href": "/shipmentTracking/v1/tracking/123", "carrier": "Fodex", "trackingCode": "FFFFXXXX987", "carrierTrackingUrl": "fodexDeliveryInc/shipments/FFFFXXXX987", "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" }, { "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": "PPSSSUUU354", "carrierTrackingUrl": "psuShipping/tracking/PPSSSUUU354", "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/123Accept: application/json |
| **Response** |
| 200 { "id": "123", "href": "/shipmentTracking/v1/tracking/123", "carrier": "Fodex", "trackingCode": "FFFFXXXX987", "carrierTrackingUrl": "fodexDeliveryInc/shipments/FFFFXXXX987", "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" }, { "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/trackingContent-Type: application/json{ "carrier": "PSU", "trackingCode": "PPSSSUUU354", "carrierTrackingUrl": "psuShipping/tracking/PPSSSUUU354", "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", "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/checkpointContent-Type: application/json{ "status": "out of stock", "message": "Waiting for stock", "date": "2017-11-10T15:00:00.000Z", "checkPost": "Springfield warehouse", "city": "Springfield", "stateOrProvince": "Oregon", "country": "USA"} |
| **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": "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** |
| PATCH /shipmentTracking/v1/tracking/123Content-Type: application/json-patch+query[ {"op": "replace", "path": "estimatedDeliveryDate ", "value": "2018-01-01T12:01:34.000Z"}] |
| **Response** |
| 201 { "id": "123", "href": "/shipmentTracking/v1/tracking/123", "carrier": "Fodex", "trackingCode": "FFFFXXXX987", "carrierTrackingUrl": "fodexDeliveryInc/shipments/FFFFXXXX987", "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/hubAccept: application/json{"callback": "http://in.listener.com"} |
| **Response** |
| 201Content-Type: application/jsonLocation: /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/42Accept: 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/listenerAccept: 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.

# ACKNOWLEGEMENTS

## Release History

|  |  |  |  |
| --- | --- | --- | --- |
| **Release Number** | **Date**  | **Release led by:** | **Description**  |
| Release 18.0.0Version 1.0.0 | 13-Feb-2018 | Guillermo Martínez del CaminoTelefónicaguillermo.martinezdelcamino@telefonica.com | First Release of Draft Version of the Document. |
| Release 18.0.1Version 1.0.1 | 02-May-2018 | Adrienne Walcott | Updated to reflect TM Forum Approved status. Updated to TM Forum new brand guidelines |

## Contributors to Document

|  |  |
| --- | --- |
|  | Initial version |