

TM Forum Specification

Usage Consumption API REST Specification

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Table of Contents

NOTICE	2
Table of Contents.....	3
List of Tables	4
Introduction	5
SAMPLE USE CASES.....	6
Support of polymorphism and extension patterns	9
RESOURCE MODEL.....	10
Managed Entity and Task Resource Models	10
Usage Consumption Report resource	10
Usage Consumption Report Request resource	19
Notification Resource Models	22
Usage Consumption Report Request State Change Notification	23
API OPERATIONS.....	25
Operations on Usage Consumption Report.....	26
Query an usage consumption report in synchronous mode.....	26
Retrieve usage consumption report.....	44
Delete usage consumption report.....	50
Operations on Usage Consumption Report Request.....	50
Retrieve an usage consumption report request	50
Create usage consumption report request	52
Delete usage consumption report request	54
API NOTIFICATIONS.....	55
Register listener	55
Unregister listener	56
Publish Event to listener	56
Acknowledgements	58
Document History.....	58
Version History	58
Release History	58

List of Tables

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Introduction

The following document is the specification of the REST API for Usage Consumption. It includes the model definition as well as all available operations.

This API covers the consumption follow up function providing ongoing information about usages related to any subscribed network products (voice, data, TV,...) without having to wait the invoice production. These information may concern usages charged on a bucket supervised or not and so the remaining credits on the bucket. It allows customers or users to be informed on usages done and remaining credits on the buckets that they consume under their purchased offers and options.

A bucket is a quantity of units (time, volume, currency or events) available via a subscribed offer or option and that can be consumed during a validity period. A bucket has at least one balance valid at a given point. This balance is decremented by usage charged on the bucket and incremented by credit operations (like top-up operations for example). At a given point, this balance defines the remaining allowed usage quantity for a given period, corresponding to the initial allowed usage quantity minus consumed usage quantity.

The bucket has also consumption counters which give measures about the usage quantity consumed on the bucket. These counters can be detailed by device or by user for example when a bucket is shared between several devices or several users.

The usage consumption API allow to view at a given point the balance and the consumption counters of the various buckets (SMS, Voice, Data for example) that one or more user(s) consume with each of his devices, according to the purchased offers and options.

A usage consumption report retrieves the data related to these balances and various consumption counters and calculated at the time of the request by the server.

So the API allows to retrieve usage consumption report with information about balances and consumption counters for a given criteria : a network product or a user for example.

The use of the both resources described in this document is conditioned by the capability of the server.

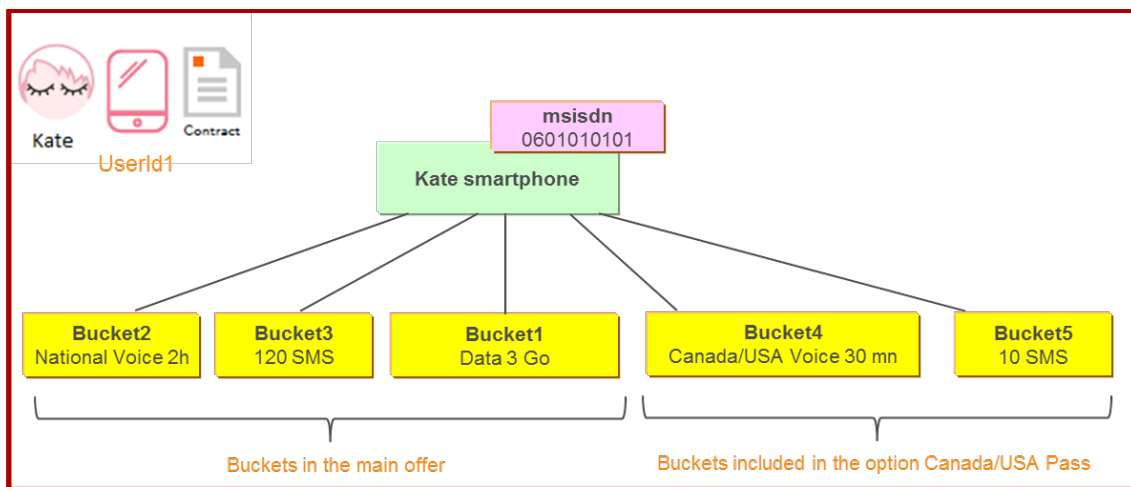
- If the server could perform the calculation and so give the usage consumption report in synchronous mode according to the criteria given by the API requester, a GET operation with filter criteria on usageConsumptionReport resource could be used. We could accept to use a GET operation in this context because the server calculates the data given in the usage consumption report without necessarily store it.
- We must also anticipate the use case where the server could only give an asynchronous response to the calculation of an usage consumption report requested by the API requester. In this case, a POST operation on usageConsumptionReportRequest could be sent by the API Requester asking the server that a usage consumption report calculation has to be performed. Then, the API requester could follow the process with a GET operation on this same resource retrieving the status of the request. The server could also use the notification pattern to inform the API requester that the usage consumption report is available.

SAMPLE USE CASES

To illustrate JSON representation of resources concerned by these APIs, we use the three use cases detailed below.

Use case 1 (UC1) : one user Kate with one device

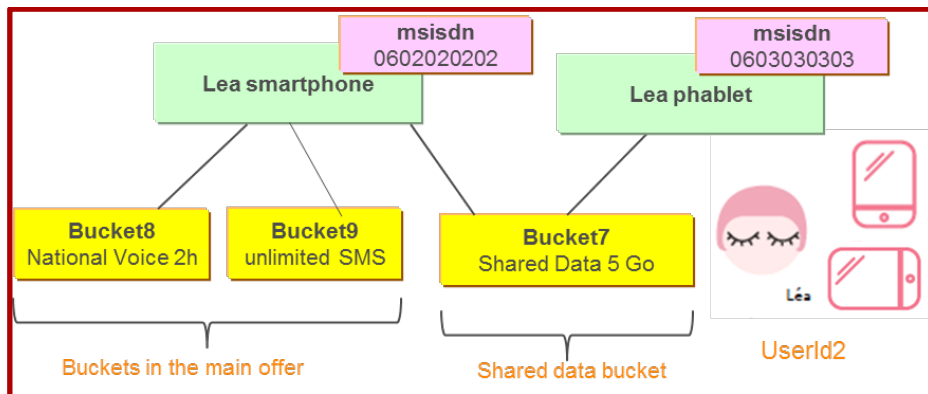
Kate has a smartphone identified by msisdn number 0601010101. She subscribed to a MainOffer allowing her to consume three monthly buckets : a national voice bucket with an initial value of 2 hours, a SMS bucket with an initial value of 120 SMS and a data bucket with an initial value of 3 Go. She also subscribed to an option CanadaUSAPass with a Canada/USA voice bucket with an initial value of 30 minutes and a SMS bucket with an initial value of 10 SMS.



With her smartphone, Kate has used 40 minutes on the national voice bucket, 25 sms on sms bucket and 1.2 Go on the data bucket of the main offer. She also has consumed 20 minutes on the voice bucket and 10 sms ont the sms bucket of the Canada/USA Pass. She also had 20 USD out of bucket in international voice usages.

Use case 2 (UC2) : one user Lea with two devices consuming a shared data bucket

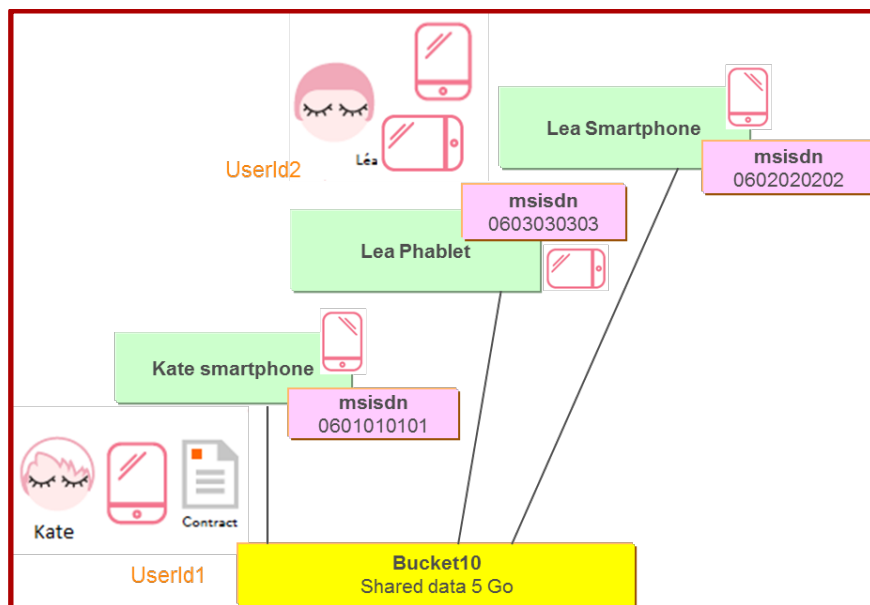
Lea has two devices : a smartphone identified by msisdn number 0602020202 and a phablet identified by msisdn number 0603030303. She subscribed to a MainOffer allowing her to consume with its smartphone two monthly buckets : a national voice bucket with an initial value of 2 hours and an unlimited SMS bucket. She also subscribed to a Shared Data offer with an initial value of 5 Go. This data bucket is shared with the phablet et can also be consumed by it.



With her smartphone, Lea has used 60 minutes on the voice bucket, 123 sms on the SMS bucket and 1.0 Go on the 3.0 Go used in the data shared bucket. She also has used 2.0 Go with the phablet on the 3.0 Go used in the data shared bucket.

Use case 3 (UC3) : a shared data bucket consumed by a community of two users

Kate is the contract holder. Kate subscribes to a Shared Data offer containing a shared data bucket of 5 Go consumed by a community (family) of two users : Kate and Lea. Kate consumes it with her smartphone identified by msisdn number 0601010101 and Lea with her smartphone identified by msisdn number 0602020202 and her tablet identified by msisdn number 0603030303.



Lea has used 1 Go with her smartphone and 1.2 Go with the phablet. Kate has used 1.0 Go with her smartphone.

For this shared data bucket, we can have :

- A global report for the three products (Kate smartphone, Lea smartphone and Lea phablet) with a global balance (remains 1.8 Go), a global consumption counter (3.2 used), consumption counters detailed by users

(1.0 used by Kate and 2.2 used by Lea) and consumption counters detailed by product (1.0 used by Kate smartphone, 1.0 used by Lea smartphone and 1.2 used by Lea phablet).

- A report for a user : Lea for example with consumption counters for her smartphone and her phablet or Kate with consumption counters for her smartphone.
- A report for a product (Kate smartphone, Lea smartphone or Lea phablet).

Support of polymorphism and extension patterns

Support of polymorphic collections and types and schema based extension is provided by means of a list of generic meta-attributes that we describe below. Polymorphism in collections occurs when entities inherit from base entities, for instance a `BillingAccount` and `SettlementAccount` inheriting properties from the abstract `Account` entity.

Generic support of polymorphism and pattern extensions is described in the TMF API Guidelines v3.0 Part 2 document.

The `@type` attribute provides a way to represent the actual class type of an entity. For example, within a list of `Account` instances some may be instances of `BillingAccount` where other could be instances of `SettlementAccount`. The `@type` gives this information. All resources and sub-resources of this API have a `@type` attributes that can be provided when this is useful.

The `@referredType` can be used within reference entities (like for instance an `AccountRef` object) to explicitly denote the actual entity type of the referred class. Notice that in reference entities the `@type`, when used, denotes the class type of the reference itself, such as `BillingAccountRef` or `SettlementAccountRef`, and not the class type of the referred object. However since reference classes are rarely sub-classed, `@type` is generally not useful in reference objects.

The `@schemaLocation` property can be used in resources to allow specifying user-defined properties of an Entity or to specify the expected *characteristics* of an entity.

The `@baseType` attribute gives a way to provide explicitly the base of class of a given resource that has been extended.

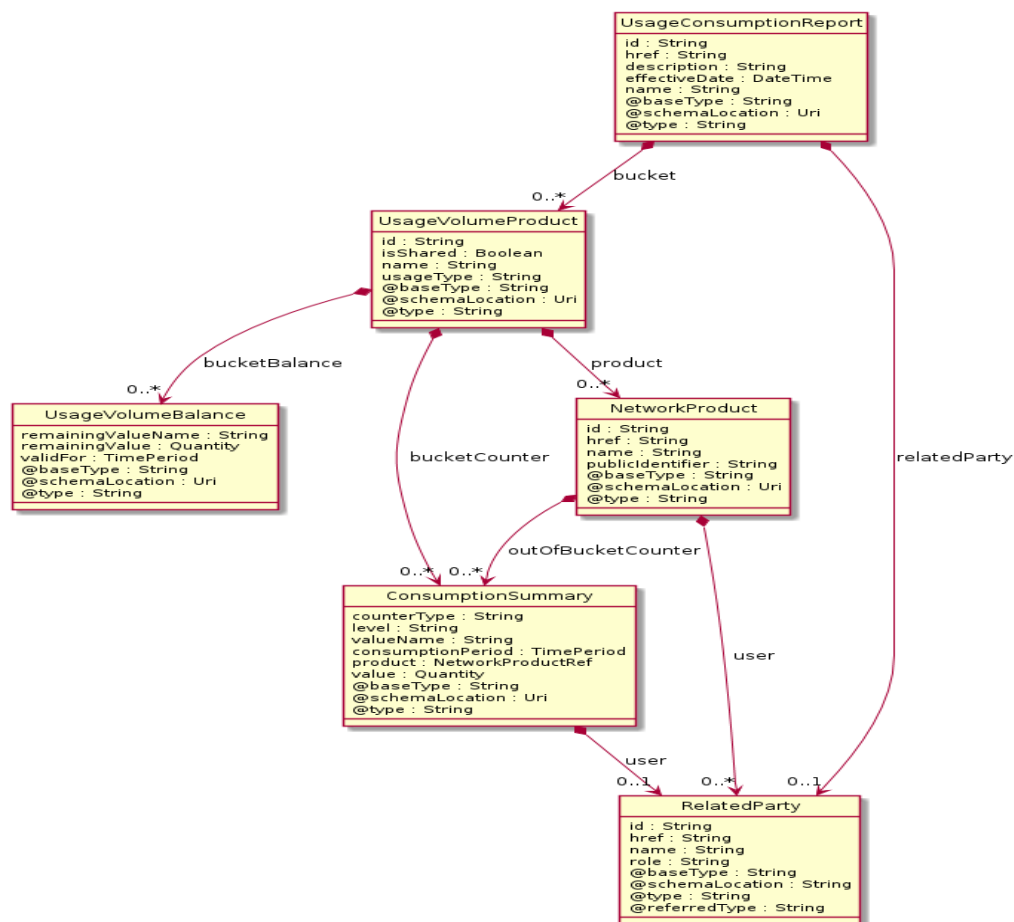
RESOURCE MODEL

Managed Entity and Task Resource Models

Usage Consumption Report resource

A usage consumption report enables to know at a given point the balances and the consumption counters related to various buckets (SMS, Voice, Data for example). It could be calculated for a device identified by a public key (msisdn number for a mobile device for example or PSTN or VOIP number for a fix device), for a subscribed offer or option or for a user.

Resource model



Field descriptions

UsageConsumptionReport fields

bucket	A list of usage volume products (UsageVolumeProduct [*]). Bucket(s) included in the offer or option subscribed.
description	A string. Free short text describing the usage consumption report content.
effectiveDate	A date time (DateTime). Date and time when the usage consumption report was calculated and generated.
href	A string. Hyperlink to access the usage consumption report. The report is calculated at the time of the request by the server. Generally, this report is not recorded by the server. If it is, an unique identifier of the usage consumption report is given by the server.
id	A string. The report is calculated at the time of the request by the server. Generally, this report is not recorded by the server. If it is, an unique identifier of the usage consumption report is given by the server.
name	A string. Usage consumption report name.
relatedParty	A related party (RelatedParty). RelatedParty reference. A related party defines party or party role linked to a specific entity.

ConsumptionSummary sub-resource

The consumption counters (called ConsumptionSummary in the SID model) detail for example the different kind of consumption done on the bucket.

consumptionPeriod	A time period. Consumption counter period between a start date time and an end date time. For prepaid bucket, the period of counters is between the start date of the bucket and the effective date of the usage consumption report generation. For postpaid bucket, the period of counters is between the last bill date and the effective date of the usage consumption report generation.
counterType	A string. Type of the consumption counter. We can give for example a counter of the used value for a bucket (counterType=used for example) or the value of the consumption done out of the bucket(s) (counterType=outOfBucket for example).
level	A string. Counter level. The counter can be given globally for the bucket or detailed by user or by network product for example in case of shared bucket.
product	A network product reference (NetworkProductRef). Public identifier associated to the product for which the consumption counter is detailed. If the level of the counter is global (i.e. concerning all the network products), the list of them is not specified. It can be found through the network products listed in the bucket sub-resource.

user	A related party (RelatedParty). Reference of the user for which the consumption counter is detailed. If the level of the counter is global (i.e. concerning all the users), the list of them is not specified. It can be found through the users listed in the network products of the bucket sub-resource.
value	A quantity (Quantity). Numeric value of the bucket counter in a given unit.
valueName	A string. Value of the counter in a formatted string used for display needs for example.

NetworkProduct sub-resource

An instantiated network product (specialization of a product) subscribed by a customer.

href	A string. Reference to the network product.
id	A string. Unique identifier of the network product.
name	A string. Network product name.
outOfBucketCounter	A list of consumption summaries (ConsumptionSummary [*]). Counters detailing usage consumption out of the buckets.
publicIdentifier	A string. Public number associated to the network product (msisdn number for mobile line for example).
user	A list of related parties (RelatedParty [*]). References of the users of the network product.

Quantity sub-resource

An amount in a given unit.

amount	A float. Numeric value in a given unit.
units	A string. Unit.

RelatedParty sub-resource

RelatedParty reference. A related party defines party or party role linked to a specific entity.

@referredType	A string. The actual type of the target instance when needed for disambiguation.
href	A string. Reference of the related party, could be a party reference or a party role reference.
id	A string. Unique identifier of a related party.
name	A string. Name of the related party.

role A string. Role of the related party.

UsageVolumeBalance sub-resource

The balance (called UsageVolumeBalance in the SID model) defines the remaining allowed product usage quantity in terms of volume, time, currency or events. It corresponds to the initial allowed usage quantity minus the usage consumed on the bucket.

remainingValue A quantity (Quantity). Numeric remaining value for the bucket given in the unit (for example 1.9). This numeric value could be used for calculation for example.

remainingValueName A string. Remaining value in a formatted string for the bucket given in the balance unit (for example 1.9 Gb). This formatted string could be used for display needs for example.

validFor A time period. Balance period between a start date time and an end date time. For prepaid bucket, the period of the balance is between the effective date of the usage consumption report generation and the end date of the bucket. For postpaid bucket, the period of the balance is between the effective date of the usage consumption report generation and the next bill date.

UsageVolumeProduct sub-resource

A bucket (called UsageVolumeProduct in the SID model) represents a quantity of usage, as 2 hours national calls or 50 sms for example. It could be either a quantity or an amount in a currency (i.e. It could represent a fixed number of SMS, MMS, minutes of calls, quantity of data, number of events as well as a specific amount in a given currency). It requires one or more network products from which usages will debit the bucket.

bucketBalance A list of usage volume balances (UsageVolumeBalance [*]). The balance (called UsageVolumeBalance in the SID model) defines the remaining allowed product usage quantity in terms of volume, time, currency or events. It corresponds to the initial allowed usage quantity minus the usage consumed on the bucket.

bucketCounter A list of consumption summaries (ConsumptionSummary [*]). The consumption counters (called ConsumptionSummary in the SID model) detail for example the different kind of consumption done on the bucket.

id A string. Unique identifier of the bucket.

isShared A boolean. True if the bucket is shared between several devices or users.

name A string. Bucket name.

product A list of network products (NetworkProduct [*]). An instantiated network product (specialization of a product) subscribed by a customer.

usageType A string. Type of usage concerned by the bucket, such as voice, sms, data.

NetworkProductRef relationship

Reference of a product.

@referredType A string. Generic attribute indicating the name of the class type of the referred resource entity.

href A string. Reference to the network product.

id A string. Unique identifier of the network product.

name A string. Network product name.

publicIdentifier A string. Public number associated to the product (msisdn number for mobile line for example).

Json representation sample

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

```
{
  "id": "ucr0001",
  "href": "https://serverRoot/tmf-api/usageConsumption/v4/usageConsumptionReport/ucr0001",
  "name": "Usage consumption report ucr0001",
  "description": "Usage consumption Report for Kate smartphone",
  "effectiveDate": "2018-03-15T15:44:28",
  "bucket": [
    {
      "id": "bkt001",
      "name": "Main offer - data",
      "usageType": "data",
      "isShared": false,
      "product": [
        {
          "id": "product1",
          "name": "Kate smartphone",
          "publicIdentifier": "33601010101",
          "user": [
            {
              "id": "usr1",
              "name": "Kate",
              "role": "user",
              "@referredType": "individual"
            }
          ]
        }
      ],
      "outOfBucketCounter": [
        {

```

```

        "counterType": "outOfBucket",
        "level": "global",
        "value": {
            "amount": 20.0,
            "units": "USD"
        },
        "valueName": "20 USD",
        "consumptionPeriod": {
            "startDateTime": "2018-03-01T:00:00:00",
            "endDateTime": "2018-03-15T:00:00:00"
        }
    }
}
],
"bucketBalance": [
    {
        "remainingValue": {
            "amount": 1.8,
            "units": "Go"
        },
        "remainingValueName": "it remains 1.8 Go",
        "validFor": {
            "startDateTime": "2018-03-15T:00:00:00",
            "endDateTime": "2018-03-30T:00:00:00"
        }
    }
],
"bucketCounter": [
    {
        "counterType": "used",
        "level": "global",
        "value": {
            "amount": 1.2,
            "units": "Go"
        },
        "valueName": "1.2 Go used",
        "consumptionPeriod": {
            "startDateTime": "2018-03-01T:00:00:00",
            "endDateTime": "2018-03-15T:00:00:00"
        }
    }
]
},
{
    "id": "bkt002",
    "name": "Main offer - national voice",
    "usageType": "national voice",
    "isShared": false,
    "product": [
        {
            "id": "product1",
            "name": "Kate smartphone",

```

```

    "publicIdentifier": "33601010101",
    "user": [
      {
        "id": "usr1",
        "name": "Kate",
        "role": "user",
        "@referredType": "individual"
      }
    ]
  },
  "bucketBalance": [
    {
      "remainingValue": {
        "amount": 80.0,
        "units": "mins"
      },
      "remainingValueName": "it remains 80 minutes",
      "validFor": {
        "startDateTime": "2018-03-15T:00:00:00",
        "endDateTime": "2018-03-30T:00:00:00"
      }
    }
  ],
  "bucketCounter": [
    {
      "counterType": "used",
      "level": "global",
      "value": {
        "amount": 40.0,
        "units": "mins"
      },
      "valueName": "40 mins used",
      "consumptionPeriod": {
        "startDateTime": "2018-03-01T:00:00:00",
        "endDateTime": "2018-03-15T:00:00:00"
      }
    }
  ]
},
{
  "id": "bkt003",
  "name": "Main offer - sms",
  "usageType": "sms",
  "isShared": false,
  "product": [
    {
      "id": "product1",
      "name": "Kate smartphone",
      "publicIdentifier": "33601010101",
      "user": [
        {
          "id": "usr1",

```



```
        "name": "Kate",
        "role": "user",
        "@referredType": "individual"
      }
    ]
  },
  "bucketBalance": [
    {
      "remainingValue": {
        "amount": 95.0,
        "units": "sms"
      },
      "remainingValueName": "it remains 95 sms",
      "validFor": {
        "startDateTime": "2018-03-15T:00:00:00",
        "endDateTime": "2018-03-30T:00:00:00"
      }
    }
  ],
  "bucketCounter": [
    {
      "counterType": "used",
      "level": "global",
      "value": {
        "amount": 25.0,
        "units": "sms"
      },
      "valueName": "25 sms used",
      "consumptionPeriod": {
        "startDateTime": "2018-03-01T:00:00:00",
        "endDateTime": "2018-03-15T:00:00:00"
      }
    }
  ]
},
{
  "id": "bkt004",
  "name": "Option Canada/USA - voice",
  "usageType": "voice",
  "isShared": false,
  "product": [
    {
      "id": "product1",
      "name": "Kate smartphone",
      "publicIdentifier": "33601010101",
      "user": [
        {
          "id": "usr1",
          "name": "Kate",
          "role": "user",
          "@referredType": "individual"
        }
      ]
    }
  ]
}
```

```

    ]
  }
},
"bucketBalance": [
  {
    "remainingValue": {
      "amount": 10.0,
      "units": "mins"
    },
    "remainingValueName": "it remains 10 minutes",
    "validFor": {
      "startDateTime": "2018-03-15T:00:00:00",
      "endDateTime": "2018-03-30T:00:00:00"
    }
  }
],
"bucketCounter": [
  {
    "counterType": "used",
    "level": "global",
    "value": {
      "amount": 20.0,
      "units": "mins"
    },
    "valueName": "20 mins used",
    "consumptionPeriod": {
      "startDateTime": "2018-03-01T:00:00:00",
      "endDateTime": "2018-03-15T:00:00:00"
    }
  }
]
},
{
  "id": "bkt005",
  "name": "Option Canada/USA - sms",
  "usageType": "sms",
  "isShared": false,
  "product": [
    {
      "id": "product1",
      "name": "Kate smartphone",
      "publicIdentifier": "33601010101",
      "user": [
        {
          "id": "usr1",
          "name": "Kate",
          "role": "user",
          "@referredType": "individual"
        }
      ]
    }
  ]
},
"bucketBalance": [

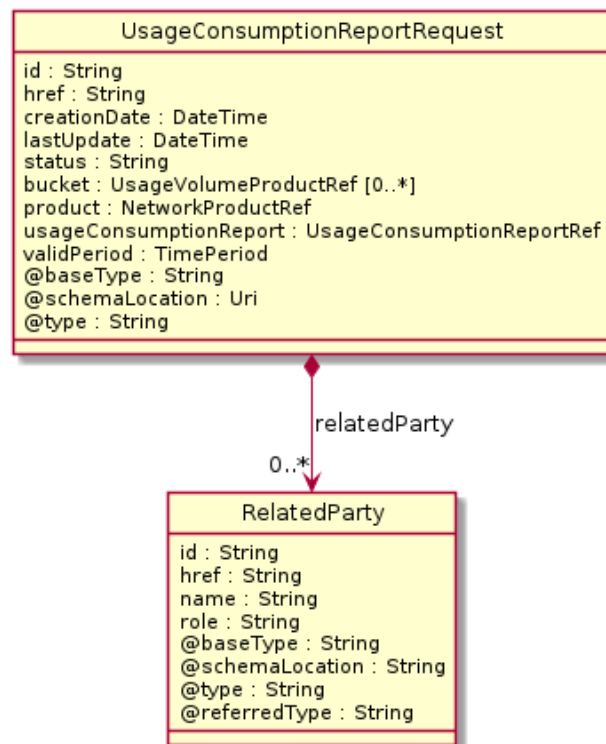
```

```
{
  "remainingValue": {
    "amount": 0.0,
    "units": "sms"
  },
  "remainingValueName": "Sms bucket exhausted",
  "validFor": {
    "startDateTime": "2018-03-15T:00:00:00",
    "endDateTime": "2018-03-30T:00:00:00"
  }
},
"bucketCounter": [
  {
    "counterType": "used",
    "level": "global",
    "value": {
      "amount": 10.0,
      "units": "sms"
    },
    "valueName": "10 sms used",
    "consumptionPeriod": {
      "startDateTime": "2018-03-01T:00:00:00",
      "endDateTime": "2018-03-15T:00:00:00"
    }
  }
]
}
```

Usage Consumption Report Request resource

An UsageConsumptionReportRequest allows to manage the calculation request of a usage consumption report.

Resource model



Field descriptions

UsageConsumptionReportRequest fields

bucket	A list of usage volume product references (UsageVolumeProductRef [*]). Reference of the buckets for which the usage consumption report is requested.
createDate	A date time (DateTime). Date and time of the request creation.
href	A string. Reference of the usage consumption report request.
id	A string. Unique identifier of the usage consumption report request given by the server.
lastUpdate	A date time (DateTime). Date when the status was last changed.
product	A network product reference (NetworkProductRef). Network product reference for which the usage consumption report is requested.
relatedParty	A list of related parties (RelatedParty [*]). Reference and role of the related parties for which the usage consumption report is requested.
status	A string. Status of the usage consumption report request (InProgress or done).

usageConsumptionReport	A usage consumption report reference (UsageConsumptionReportRef). References of the usage consumption report (given when it has been calculated and the status of the request is done).
validPeriod	A time period. Validity period.

RelatedParty sub-resource

RelatedParty reference. A related party defines party or party role linked to a specific entity.

@baseType	A string. When sub-classing, this defines the super-class.
@referredType	A string. The actual type of the target instance when needed for disambiguation.
@schemaLocation	A string. A URI to a JSON-Schema file that defines additional attributes and relationships.
@type	A string. When sub-classing, this defines the sub-class entity name.
href	A string. Reference of the related party, could be a party reference or a party role reference.
id	A string. Unique identifier of a related party.
name	A string. Name of the related party.
role	A string. Role of the related party.

NetworkProductRef relationship

Reference of a product.

@referredType	A string. Generic attribute indicating the name of the class type of the referred resource entity.
href	A string. Reference to the network product.
id	A string. Unique identifier of the network product.
name	A string. Network product name.
publicIdentifier	A string. Public number associated to the product (msisdn number for mobile line for example).

UsageConsumptionReportRef relationship

Reference of an usage consumption report.

description	A string. Free short text describing the usage consumption report content.
effectiveDate	A date time (DateTime). Date and time when the usage consumption report was calculated and generated.
href	A string. Hyperlink to access the usage consumption report.
id	A string. Unique identifier of the usage consumption report given by the server.
name	A string. Usage consumption report name.

UsageVolumeProductRef relationship

Reference of a bucket.

@referredType	A string. Generic attribute indicating the name of the class type of the referred resource entity.
id	A string. Unique identifier of the bucket.
name	A string. Bucket name.

Json representation sample

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

```
{
  "id": "ucrreq001",
  "href": "https://serverRoot/tmf-api/usageConsumption/v4/usageConsumptionReportRequest/ucrreq001",
  "creationDate": "2018-03-15T:15:44:28",
  "status": "InProgress",
  "lastUpdate": "2018-03-15T:15:44:28",
  "product": {
    "publicIdentifier": "33601010101"
  }
}
```

Notification Resource Models

One notification is defined for this API.

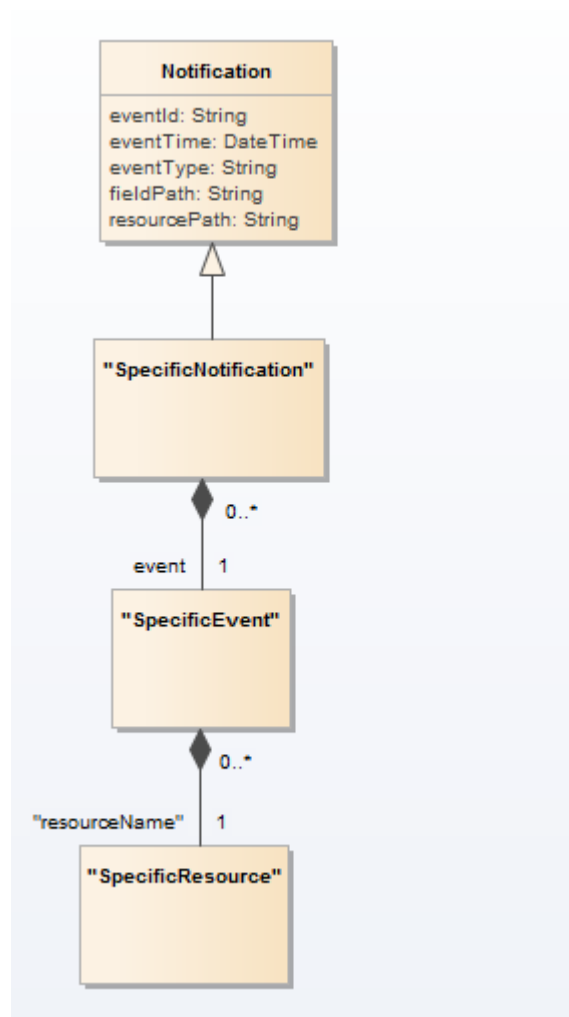
Notifications related to UsageConsumptionReportRequest:

- UsageConsumptionReportRequestStateChangeNotification

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).



Usage Consumption Report Request State Change Notification

Notification sent when changing the state of a usage consumption report request resource.

Json representation sample

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

```
{
  "eventId": "00001",
  "eventTime": "2015-11-16T16:42:25-04:00",
  "eventType": "UsageConsumptionReportRequestStateChangeNotification",
  "event": {
    "usageConsumptionReportRequest":
      {-- SEE UsageConsumptionReportRequest 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.

Note : POST, PUT and PATCH operations are not supported for the UsageConsumptionReport resource because the usage consumption report is dynamically calculated by the server at the time of request. However, the server can simply record the calculated report and so attribute it a unique identifier used by GET and DELETE operations.

OPERATIONS ON USAGE CONSUMPTION REPORT

Query an usage consumption report in synchronous mode

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

Description

This operation is used to request the calculation of a new usage consumption report for a specific network product identified by a msisdn number for example. It is used when a server could calculate and generate the usage consumption report in synchronous mode.

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 a usage consumption report for use case 1. The given criteria is the msisdn number 0601010101 used by Kate.

Request
GET {apiRoot}/usageConsumptionReport?product.publicIdentifier=33601010101 Accept: application/json
Response
<pre> 200 [{ "id": "ucr0001", "href": "https://serverRoot/tmf-api/usageConsumption/v4/usageConsumptionReport/ucr0001", "name": "Usage consumption report ucr0001", "description": "Usage consumption Report for Kate smartphone", "effectiveDate": "2018-03-15T:15:44:28", "bucket": [{ "id": "bkt001", "name": "Main offer - data", "usageType": "data", "isShared": false, "product": [{ "id": "product1", "name": "Kate smartphone", "publicIdentifier": "33601010101", }] }] }] </pre>

```
"user": [
  {
    "id": "usr1",
    "name": "Kate",
    "role": "user",
    "@referredType": "Individual"
  }
],
"outOfBucketCounter": [
  {
    "counterType": "outOfBucket",
    "level": "global",
    "value": {
      "amount": 20.0,
      "units": "USD"
    },
    "valueName": "20 USD",
    "consumptionPeriod": {
      "startDateTime": "2018-03-01T:00:00:00",
      "endDateTime": "2018-03-15T:00:00:00"
    }
  }
]
},
"bucketBalance": [
  {
    "remainingValue": {
      "amount": 1.8,
      "units": "Go"
    },
    "remainingValueName": "it remains 1.8 Go",
    "validFor": {
      "startDateTime": "2018-03-15T:00:00:00",
      "endDateTime": "2018-03-30T:00:00:00"
    }
  }
],
"bucketCounter": [
  {
    "counterType": "used",
    "level": "global",
    "value": {
      "amount": 1.2,
      "units": "Go"
    },
    "valueName": "1.2 Go used",
    "consumptionPeriod": {
      "startDateTime": "2018-03-01T:00:00:00",
      "endDateTime": "2018-03-15T:00:00:00"
    }
  }
]
```

```
},
{
  "id": "bkt002",
  "name": "Main offer - national voice",
  "usageType": "national voice",
  "isShared": false,
  "product": [
    {
      "id": "product1",
      "name": "Kate smartphone",
      "publicIdentifier": "33601010101",
      "user": [
        {
          "id": "usr1",
          "name": "Kate",
          "role": "user",
          "@referredType": "Individual"
        }
      ]
    }
  ]
},
"bucketBalance": [
  {
    "remainingValue": {
      "amount": 80.0,
      "units": "mins"
    },
    "remainingValueName": "it remains 80 minutes",
    "validFor": {
      "startDateTime": "2018-03-15T:00:00:00",
      "endDateTime": "2018-03-30T:00:00:00"
    }
  }
],
"bucketCounter": [
  {
    "counterType": "used",
    "level": "global",
    "value": {
      "amount": 40.0,
      "units": "mins"
    },
    "valueName": "40 mins used",
    "consumptionPeriod": {
      "startDateTime": "2018-03-01T:00:00:00",
      "endDateTime": "2018-03-15T:00:00:00"
    }
  }
]
},
{
  "id": "bkt003",
  "name": "Main offer - sms",
```

```
"usageType": "sms",
"isShared": false,
"product": [
  {
    "id": "product1",
    "name": "Kate smartphone",
    "publicIdentifier": "33601010101",
    "user": [
      {
        "id": "usr1",
        "name": "Kate",
        "role": "user",
        "@referredType": "Individual"
      }
    ]
  }
],
"bucketBalance": [
  {
    "remainingValue": {
      "amount": 95.0,
      "units": "sms"
    },
    "remainingValueName": "it remains 95 sms",
    "validFor": {
      "startDateTime": "2018-03-15T:00:00:00",
      "endDateTime": "2018-03-30T:00:00:00"
    }
  }
],
"bucketCounter": [
  {
    "counterType": "used",
    "level": "global",
    "value": {
      "amount": 25.0,
      "units": "sms"
    },
    "valueName": "25 sms used",
    "consumptionPeriod": {
      "startDateTime": "2018-03-01T:00:00:00",
      "endDateTime": "2018-03-15T:00:00:00"
    }
  }
]
},
{
  "id": "bkt004",
  "name": "Option Canada/USA - voice",
  "usageType": "voice",
  "isShared": false,
  "product": [
    {
```

```
    "id": "product1",
    "name": "Kate smartphone",
    "publicIdentifier": "33601010101",
    "user": [
      {
        "id": "usr1",
        "name": "Kate",
        "role": "user",
        "@referredType": "Individual"
      }
    ]
  },
  "bucketBalance": [
    {
      "remainingValue": {
        "amount": 10.0,
        "units": "mins"
      },
      "remainingValueName": "it remains 10 minutes",
      "validFor": {
        "startDateTime": "2018-03-15T:00:00:00",
        "endDateTime": "2018-03-30T:00:00:00"
      }
    }
  ],
  "bucketCounter": [
    {
      "counterType": "used",
      "level": "global",
      "value": {
        "amount": 20.0,
        "units": "mins"
      },
      "valueName": "20 mins used",
      "consumptionPeriod": {
        "startDateTime": "2018-03-01T:00:00:00",
        "endDateTime": "2018-03-15T:00:00:00"
      }
    }
  ]
},
{
  "id": "bkt005",
  "name": "Option Canada/USA - sms",
  "usageType": "sms",
  "isShared": false,
  "product": [
    {
      "id": "product1",
      "name": "Kate smartphone",
      "publicIdentifier": "33601010101",
      "user": [
```

```

        {
          "id": "usr1",
          "name": "Kate",
          "role": "user",
          "@referredType": "Individual"
        }
      ]
    },
    "bucketBalance": [
      {
        "remainingValue": {
          "amount": 0.0,
          "units": "sms"
        },
        "remainingValueName": "Sms bucket exhausted",
        "validFor": {
          "startDateTime": "2018-03-15T:00:00:00",
          "endDateTime": "2018-03-30T:00:00:00"
        }
      }
    ],
    "bucketCounter": [
      {
        "counterType": "used",
        "level": "global",
        "value": {
          "amount": 10.0,
          "units": "sms"
        },
        "valueName": "10 sms used",
        "consumptionPeriod": {
          "startDateTime": "2018-03-01T:00:00:00",
          "endDateTime": "2018-03-15T:00:00:00"
        }
      }
    ]
  }
]

```

Here's an example of a request for retrieving a usage consumption report for use case 2. The given criteria is the msisdn number 0603030303 used by Lea.

Request

GET {apiRoot}/usageConsumptionReport?product.publicIdentifier=33603030303
Accept: application/json

Response

```
200
[
  {
    "id": "ucr0002",
    "href": "https://serverRoot/tmf-api/usageConsumption/v4/usageConsumptionReport/ucr0002",
    "name": "Usage consumption report ucr0002",
    "description": "Usage Consumption Report for Lea phablet",
    "effectiveDate": "2018-03-15T:15:44:28",
    "bucket": [
      {
        "id": "bkt007",
        "name": "Shared data bucket",
        "usageType": "data",
        "isShared": true,
        "product": [
          {
            "id": "product3",
            "name": "Lea phablet",
            "publicIdentifier": "33603030303",
            "user": [
              {
                "id": "usr2",
                "name": "Lea",
                "role": "user",
                "@referredType": "Individual"
              }
            ]
          }
        ]
      }
    ],
    "bucketBalance": [
      {
        "remainingValue": {
          "amount": 2.0,
          "units": "Go"
        },
        "remainingValueName": "it remains 2.0 Go",
        "validFor": {
          "startDateTime": "2016-03-15T:00:00:00",
          "endDateTime": "2016-03-30T:00:00:00"
        }
      }
    ],
    "bucketCounter": [
      {
        "counterType": "used",
        "level": "global",
```



```

    "value": {
      "amount": 3.0,
      "units": "Go"
    },
    "valueName": "3.0 Go used",
    "consumptionPeriod": {
      "startDateTime": "2018-03-01T:00:00:00",
      "endDateTime": "2018-03-15T:00:00:00"
    }
  },
  {
    "counterType": "used",
    "level": "detail",
    "value": {
      "amount": 2.0,
      "units": "Go"
    },
    "valueName": "2.0 Go used",
    "consumptionPeriod": {
      "startDateTime": "2018-03-01T:00:00:00",
      "endDateTime": "2018-03-15T:00:00:00"
    }
  }
]
}
]

```

Here's an example of a request for retrieving a usage consumption report for use case 2. The given criteria is the user reference usr2.

Request
GET {apiRoot}/usageConsumptionReport?relatedParty.id=usr2 Accept: application/json
Response
200 [{ "id": "ucr0004", "href": "https://serverRoot/tmf-api/usageConsumption/v4/usageConsumptionReport/ucr0004", "name": "Usage consumption report ucr0004", "description": "Usage Consumption Report for user usr2", "effectiveDate": "2018-03-15T:15:44:28",

```
"relatedParty": {
  "id": "usr2",
  "name": "Lea",
  "role": "user",
  "@referredType": "individual"
},
"bucket": [
  {
    "id": "bkt007",
    "name": "Shared data bucket",
    "usageType": "data",
    "isShared": true,
    "bucketBalance": [
      {
        "remainingValue": {
          "amount": 2.0,
          "units": "Go"
        },
        "remainingValueName": "it remains 2.0 Go",
        "validFor": {
          "startDateTime": "2018-03-15T:00:00:00",
          "endDateTime": "2018-03-30T:00:00:00"
        }
      }
    ]
  },
  {
    "counterType": "used",
    "level": "global",
    "value": {
      "amount": 3.0,
      "units": "Go"
    },
    "valueName": "3.0 Go used",
    "consumptionPeriod": {
      "startDateTime": "2018-03-01T:00:00:00",
      "endDateTime": "2018-03-15T:00:00:00"
    }
  },
  {
    "counterType": "used",
    "level": "detailByProduct",
    "value": {
      "amount": 2.0,
      "units": "Go"
    },
    "valueName": "2.0 Go used",
    "product": {
      "publicIdentifier": "33603030303"
    }
  },
  {
    "counterType": "used",
```

```

        "level": "detailByProduct",
        "value": {
            "amount": 1.0,
            "units": "Go"
        },
        "valueName": "1.0 Go used",
        "product": {
            "publicIdentifier": "33602020202"
        }
    }
]
},
{
    "id": "bkt008",
    "name": "Main offer - national voice",
    "usageType": "national voice",
    "isShared": false,
    "product": [
        {
            "id": "product4",
            "name": "Lea smartphone",
            "publicIdentifier": "33602020202",
            "user": [
                {
                    "id": "usr2",
                    "name": "Lea",
                    "role": "user",
                    "@referredType": "individual"
                }
            ]
        }
    ]
},
"bucketBalance": [
    {
        "remainingValue": {
            "amount": 60.0,
            "units": "mins"
        },
        "remainingValueName": "it remains 60 minutes",
        "validFor": {
            "startDateTime": "2018-03-15T:00:00:00",
            "endDateTime": "2018-03-30T:00:00:00"
        }
    }
],
"bucketCounter": [
    {
        "counterType": "used",
        "level": "global",
        "value": {
            "amount": 60.0,
            "units": "mins"
        }
    }
],

```

```
        "valueName": "60 mins used",
        "consumptionPeriod": {
            "startDateTime": "2018-03-01T:00:00:00",
            "endDateTime": "2018-03-15T:00:00:00"
        }
    }
]
},
{
    "id": "bkt009",
    "name": "Main offer - sms",
    "usageType": "sms",
    "isShared": false,
    "product": [
        {
            "id": "product4",
            "name": "Lea smartphone",
            "publicIdentifier": "33602020202",
            "user": [
                {
                    "id": "usr2",
                    "name": "Lea",
                    "role": "user",
                    "@referredType": "individual"
                }
            ]
        }
    ]
},
"bucketBalance": [
    {
        "remainingValue": {
            "units": "sms"
        },
        "remainingValueName": "Unlimited sms"
    }
],
"bucketCounter": [
    {
        "counterType": "used",
        "level": "global",
        "value": {
            "amount": 123.0,
            "units": "sms"
        },
        "valueName": "123 sms used",
        "consumptionPeriod": {
            "startDateTime": "2018-03-01T:00:00:00",
            "endDateTime": "2018-03-15T:00:00:00"
        }
    }
]
}
```

```
}  
]
```

Here's an example of a request for retrieving a global usage consumption report for use case 3. The given criteria is the bucket reference bucket10

Request

```
GET {apiRoot}/usageConsumptionReport?bucket.id=bucket10  
Accept: application/json
```

Response

```
200  
[  
  {  
    "id": "ucr0005",  
    "href": "https://serverRoot/tmf-api/usageConsumption/v4/usageConsumptionReport/ucr0005",  
    "description": "Global Usage Consumption Report for shared data bucket",  
    "effectiveDate": "2018-03-15T:15:44:28",  
    "bucket": [  
      {  
        "id": "bkt0010",  
        "name": "Shared data bucket",  
        "usageType": "data",  
        "isShared": true,  
        "product": [  
          {  
            "id": "product1",  
            "name": "Kate smartphone",  
            "publicIdentifier": "33601010101",  
            "user": [  
              {  
                "id": "usr1",  
                "name": "Kate",  
                "role": "user",  
                "@referredType": "individual"  
              }  
            ]  
          }  
        ],  
      },  
      {  
        "id": "product2",  
        "name": "Lea smartphone",  
        "publicIdentifier": "33602020202",  
        "user": [  
          {  
            "id": "usr2",
```

```
        "name": "Lea",
        "role": "user",
        "@referredType": "individual"
      }
    ]
  },
  {
    "id": "product3",
    "name": "Lea phablet",
    "publicIdentifier": "33603030303",
    "user": [
      {
        "id": "usr2",
        "name": "Lea",
        "role": "user",
        "@referredType": "individual"
      }
    ]
  }
],
"bucketBalance": [
  {
    "remainingValue": {
      "amount": 1.8,
      "units": "Go"
    },
    "remainingValueName": "it remains 1.8 Go",
    "validFor": {
      "startDateTime": "2018-03-15T:00:00:00",
      "endDateTime": "2018-03-30T:00:00:00"
    }
  }
],
"bucketCounter": [
  {
    "counterType": "used",
    "level": "global",
    "value": {
      "amount": 3.2,
      "units": "Go"
    },
    "valueName": "3.2 Go used",
    "consumptionPeriod": {
      "startDateTime": "2018-03-01T:00:00:00",
      "endDateTime": "2018-03-15T:00:00:00"
    }
  },
  {
    "counterType": "used",
    "level": "detailByUser",
    "value": {
      "amount": 1.0,
      "units": "Go"
    }
  }
]
```

```
    },
    "valueName": "1.0 Go used",
    "user": {
      "id": "usr1",
      "name": "Kate",
      "@referredType": "individual"
    }
  },
  {
    "counterType": "used",
    "level": "detailByUser",
    "value": {
      "amount": 2.2,
      "units": "Go"
    },
    "valueName": "2.2 Go used",
    "user": {
      "id": "usr2",
      "name": "Lea",
      "@referredType": "individual"
    }
  },
  {
    "counterType": "used",
    "level": "detailByProduct",
    "value": {
      "amount": 1.0,
      "units": "Go"
    },
    "valueName": "1.0 Go used",
    "product": {
      "publicIdentifier": "33601010101"
    }
  },
  {
    "counterType": "used",
    "level": "detailByProduct",
    "value": {
      "amount": 1.0,
      "units": "Go"
    },
    "valueName": "1.0 Go used",
    "product": {
      "publicIdentifier": "33602020202"
    }
  },
  {
    "counterType": "used",
    "level": "detailByProduct",
    "value": {
      "amount": 1.2,
      "units": "Go"
    }
  },
}
```

```

        "valueName": "1.2 Go used",
        "product": {
          "publicIdentifier": "33603030303"
        }
      }
    ]
  }
}
]

```

Here's an example of a request for retrieving a usage consumption report for Lea user for use case 3. The given criteria are the bucket reference bucket10 and the user reference usr2.

Request
GET {apiRoot}/usageConsumptionReport?bucket.id=bucket10&product.user.id=usr2 Accept: application/json
Response
<pre> 200 [{ "id": "ucr0006", "href": "https://serverRoot/tmf-api/usageConsumption/v4/usageConsumptionReport/ucr0006", "description": "Usage Consumption Report for shared data bucket and user Lea", "effectiveDate": "2018-03-15T:15:44:28", "bucket": [{ "id": "bkt0010", "name": "Shared data bucket", "usageType": "data", "isShared": true, "product": [{ "id": "product2", "name": "Lea smartphone", "publicIdentifier": "33602020202", "user": [{ "id": "usr2", "name": "Lea", "role": "user", "@referredType": "individual" }] }] }] }] </pre>


```
    },
    {
      "id": "product3",
      "name": "Lea phablet",
      "publicIdentifier": "33603030303",
      "user": [
        {
          "id": "usr2",
          "name": "Lea",
          "role": "user",
          "@referredType": "individual"
        }
      ]
    }
  ],
  "bucketBalance": [
    {
      "remainingValue": {
        "amount": 1.8,
        "units": "Go"
      },
      "remainingValueName": "it remains 1.8 Go",
      "validFor": {
        "startDateTime": "2018-03-15T:00:00:00",
        "endDateTime": "2018-03-30T:00:00:00"
      }
    }
  ],
  "bucketCounter": [
    {
      "counterType": "used",
      "level": "global",
      "value": {
        "amount": 3.2,
        "units": "Go"
      },
      "valueName": "3.2 Go used",
      "consumptionPeriod": {
        "startDateTime": "2018-03-01T:00:00:00",
        "endDateTime": "2018-03-15T:00:00:00"
      }
    },
    {
      "counterType": "used",
      "level": "detailByUser",
      "value": {
        "amount": 2.2,
        "units": "Go"
      },
      "valueName": "2.2 Go used",
      "user": {
        "id": "usr2",
        "name": "Lea",
```

```

        "@referredType": "individual"
      },
    ],
    {
      "counterType": "used",
      "level": "detailByProduct",
      "value": {
        "amount": 1.0,
        "units": "Go"
      },
      "valueName": "1.0 Go used",
      "product": {
        "publicIdentifier": "33602020202"
      }
    },
    {
      "counterType": "used",
      "level": "detailByProduct",
      "value": {
        "amount": 1.2,
        "units": "Go"
      },
      "valueName": "1.2 Go used",
      "product": {
        "publicIdentifier": "33603030303"
      }
    }
  ]
}
]

```

Here's an example of a request for retrieving a usage consumption report for Lea smartphone for use case 3. The given criteria are the bucket reference bucket10 and the public identifier of the Lea smartphone 3302020202.

Request
GET {apiRoot}/usageConsumptionReport?bucket.id=bucket10&product.publicIdentifier=33602020202 Accept: application/json
Response
200 [{ "id": "ucr0007",

```
"href": "https://serverRoot/tmf-api/usageConsumption/v4/usageConsumptionReport/ucr0007",
"description": "Consumption Report for shared data bucket for Lea smartphone",
"effectiveDate": "2018-03-15T:15:44:28",
"bucket": [
  {
    "id": "bkt0010",
    "name": "Shared data bucket",
    "usageType": "data",
    "isShared": true,
    "product": [
      {
        "id": "product2",
        "name": "Lea smartphone",
        "publicIdentifier": "33602020202",
        "user": [
          {
            "id": "usr2",
            "name": "Lea",
            "role": "user",
            "@referredType": "Individual"
          }
        ]
      }
    ]
  }
],
"bucketBalance": [
  {
    "remainingValue": {
      "amount": 1.8,
      "units": "Go"
    },
    "remainingValueName": "it remains 1.8 Go",
    "validFor": {
      "startDateTime": "2018-03-15T:00:00:00",
      "endDateTime": "2018-03-30T:00:00:00"
    }
  }
],
"bucketCounter": [
  {
    "counterType": "used",
    "level": "global",
    "value": {
      "amount": 3.2,
      "units": "Go"
    },
    "valueName": "3.2 Go used",
    "consumptionPeriod": {
      "startDateTime": "2018-03-01T:00:00:00",
      "endDateTime": "2018-03-15T:00:00:00"
    }
  }
],
{
  "counterType": "used",
```

```

    "level": "detailByProduct",
    "value": {
      "amount": 1.0,
      "units": "Go"
    },
    "valueName": "1.0 Go used",
    "product": {
      "publicIdentifier": "33602020202"
    }
  }
]
}
]
}
]

```

Retrieve usage consumption report

GET /usageConsumptionReport/{id}?fields=...&{filtering}

Description

This operation retrieves a usage consumption report entity. This operation could be used only if the server has recorded the usage consumption report on its database after calculation.

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 a sample of a request for retrieving a usageConsumptionReport resource calculated for the use case 1.

Request
<pre>GET {apiRoot}/usageConsumptionReport/ucr0001 Accept: application/json</pre>
Response
<pre>200 { "id": "ucr0001", "href": "https://serverRoot/tmf-api/usageConsumption/v4/usageConsumptionReport/ucr0001", "name": "Usage consumption report ucr0001", "description": "Usage consumption Report for Kate smartphone",</pre>

```
"effectiveDate": "2018-03-15T:15:44:28",
"bucket": [
  {
    "id": "bkt001",
    "name": "Main offer - data",
    "usageType": "data",
    "isShared": false,
    "product": [
      {
        "id": "product1",
        "name": "Kate smartphone",
        "publicIdentifier": "33601010101",
        "user": [
          {
            "id": "usr1",
            "name": "Kate",
            "role": "user",
            "@referredType": "Individual"
          }
        ],
        "outOfBucketCounter": [
          {
            "counterType": "outOfBucket",
            "level": "global",
            "value": {
              "amount": 20.0,
              "units": "USD"
            },
            "valueName": "20 USD",
            "consumptionPeriod": {
              "startDateTime": "2018-03-01T:00:00:00",
              "endDateTime": "2018-03-15T:00:00:00"
            }
          }
        ]
      }
    ],
    "bucketBalance": [
      {
        "remainingValue": {
          "amount": 1.8,
          "units": "Go"
        },
        "remainingValueName": "it remains 1.8 Go",
        "validFor": {
          "startDateTime": "2018-03-15T:00:00:00",
          "endDateTime": "2018-03-30T:00:00:00"
        }
      }
    ],
    "bucketCounter": [
      {
        "counterType": "used",
```

```
"level": "global",
"value": {
  "amount": 1.2,
  "units": "Go"
},
"valueName": "1.2 Go used",
"consumptionPeriod": {
  "startDateTime": "2018-03-01T:00:00:00",
  "endDateTime": "2018-03-15T:00:00:00"
}
}
],
{
  "id": "bkt002",
  "name": "Main offer - national voice",
  "usageType": "national voice",
  "isShared": false,
  "product": [
    {
      "id": "product1",
      "name": "Kate smartphone",
      "publicIdentifier": "33601010101",
      "user": [
        {
          "id": "usr1",
          "name": "Kate",
          "role": "user",
          "@referredType": "Individual"
        }
      ]
    }
  ]
},
"bucketBalance": [
  {
    "remainingValue": {
      "amount": 80.0,
      "units": "mins"
    },
    "remainingValueName": "it remains 80 minutes",
    "validFor": {
      "startDateTime": "2018-03-15T:00:00:00",
      "endDateTime": "2018-03-30T:00:00:00"
    }
  }
],
"bucketCounter": [
  {
    "counterType": "used",
    "level": "global",
    "value": {
      "amount": 40.0,
      "units": "mins"
    }
  }
]
```

```
    },
    "valueName": "40 mins used",
    "consumptionPeriod": {
      "startDateTime": "2018-03-01T:00:00:00",
      "endDateTime": "2018-03-15T:00:00:00"
    }
  }
]
},
{
  "id": "bkt003",
  "name": "Main offer - sms",
  "usageType": "sms",
  "isShared": false,
  "product": [
    {
      "id": "product1",
      "name": "Kate smartphone",
      "publicIdentifier": "33601010101",
      "user": [
        {
          "id": "usr1",
          "name": "Kate",
          "role": "user",
          "@referredType": "Individual"
        }
      ]
    }
  ]
},
"bucketBalance": [
  {
    "remainingValue": {
      "amount": 95.0,
      "units": "sms"
    },
    "remainingValueName": "it remains 95 sms",
    "validFor": {
      "startDateTime": "2018-03-15T:00:00:00",
      "endDateTime": "2018-03-30T:00:00:00"
    }
  }
],
"bucketCounter": [
  {
    "counterType": "used",
    "level": "global",
    "value": {
      "amount": 25.0,
      "units": "sms"
    },
    "valueName": "25 sms used",
    "consumptionPeriod": {
      "startDateTime": "2018-03-01T:00:00:00",
```

```
        "endTime": "2018-03-15T:00:00:00"
      }
    }
  ],
},
{
  "id": "bkt004",
  "name": "Option Canada/USA - voice",
  "usageType": "voice",
  "isShared": false,
  "product": [
    {
      "id": "product1",
      "name": "Kate smartphone",
      "publicIdentifier": "33601010101",
      "user": [
        {
          "id": "usr1",
          "name": "Kate",
          "role": "user",
          "@referredType": "Individual"
        }
      ]
    }
  ]
},
{
  "bucketBalance": [
    {
      "remainingValue": {
        "amount": 10.0,
        "units": "mins"
      },
      "remainingValueName": "it remains 10 minutes",
      "validFor": {
        "startDateTime": "2018-03-15T:00:00:00",
        "endDateTime": "2018-03-30T:00:00:00"
      }
    }
  ],
  "bucketCounter": [
    {
      "counterType": "used",
      "level": "global",
      "value": {
        "amount": 20.0,
        "units": "mins"
      },
      "valueName": "20 mins used",
      "consumptionPeriod": {
        "startDateTime": "2018-03-01T:00:00:00",
        "endDateTime": "2018-03-15T:00:00:00"
      }
    }
  ]
}
```



```
    },
    {
      "id": "bkt005",
      "name": "Option Canada/USA - sms",
      "usageType": "sms",
      "isShared": false,
      "product": [
        {
          "id": "product1",
          "name": "Kate smartphone",
          "publicIdentifier": "33601010101",
          "user": [
            {
              "id": "usr1",
              "name": "Kate",
              "role": "user",
              "@referredType": "Individual"
            }
          ]
        }
      ]
    },
    "bucketBalance": [
      {
        "remainingValue": {
          "amount": 0.0,
          "units": "sms"
        },
        "remainingValueName": "Sms bucket exhausted",
        "validFor": {
          "startDateTime": "2018-03-15T:00:00:00",
          "endDateTime": "2018-03-30T:00:00:00"
        }
      }
    ],
    "bucketCounter": [
      {
        "counterType": "used",
        "level": "global",
        "value": {
          "amount": 10.0,
          "units": "sms"
        },
        "valueName": "10 sms used",
        "consumptionPeriod": {
          "startDateTime": "2018-03-01T:00:00:00",
          "endDateTime": "2018-03-15T:00:00:00"
        }
      }
    ]
  }
]
```

```
}
```

Delete usage consumption report

DELETE /usageConsumptionReport/{id}

Description

This operation deletes an usage consumption report entity.

Usage Samples

Here's an example of a request for deleting an usage consumption report resource.

Request
DELETE {apiRoot}/usageConsumptionReport/ucr001
Response
204

OPERATIONS ON USAGE CONSUMPTION REPORT REQUEST

Retrieve an usage consumption report request

GET

/usageConsumptionReportRequest/{id}?fields=...&{filtering}

Description

This operation retrieves a usage consumption report request 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 usage consumption report request completed corresponding to use case 1.

Request
GET {apiRoot}/usageConsumptionReportRequest/uccrreq001 Accept: application/json
Response
200 { "id": "uccrreq001", "href": "https://serverRoot/tmf-api/usageConsumption/v4/usageConsumptionReportRequest/uccrreq001", "creationDate": "2018-03-15T:15:44:28", "status": "inProgress", "lastUpdate": "2018-03-15T:15:44:28" }

Create usage consumption report request

POST /usageConsumptionReportRequest

Description

This operation creates a usage consumption report request entity. This operation is used by the requester when the server couldn't calculate and generate the report in synchronous mode.

After, the API requester could follow the process with a GET operation on this same resource retrieving the status of the request. The server could also use the notification pattern to inform the API requester that the usage consumption report is available.

Mandatory and Non Mandatory Attributes

The following tables provides the list of mandatory and non mandatory attributes when creating a UsageConsumptionReportRequest, 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
product	At least one product or relatedParty or bucket reference must be provided in the request
relatedParty	At least one product or relatedParty or bucket reference must be provided in the request
bucket	At least one product or relatedParty or bucket reference must be provided in the request

Non Mandatory Attributes	Default Value	Rule
creationDate		
lastUpdate		
status		
usageConsumptionReport		
validPeriod		

Usage Samples

Here's an example of a request for requesting an usage consumption report for use case 1 : given criteria is the msisdn number 0601010101 used by one user Kate.

Request
POST {apiRoot}/usageConsumptionReportRequest Content-Type: application/json <pre>{ "product": { "publicIdentifier": "33601010101" } }</pre>
Response
201 <pre>{ "id": "ucrreq001", "href": " https://serverRoot/tmf-api/usageConsumption/v4/usageConsumptionReportRequest/ucrreq001", "creationDate": "2018-03-15T:15:44:28", "status": "InProgress", "lastUpdate": "2018-03-15T:15:44:28" }</pre>

Here's an example of a request for requesting an usage consumption report for use case 2 : given criteria is the user reference usr2.

Request

POST {apiRoot}/usageConsumptionReportRequest
Content-Type: application/json

```
{
  "relatedParty": {
    "id": "usr2",
    "name": "Lea",
    "role": "user",
    "@referredType": "Individual"
  }
}
```

Response

201

```
{
  "id": "ucrreq004",
  "href": " https://serverRoot/tmf-api/usageConsumption/v4/usageConsumptionReportRequest/ucrreq004",
  "creationDate": "2018-03-15T:15:44:28",
  "status": "InProgress",
  "lastUpdate": "2018-03-15T:15:44:28"
}
```

Delete usage consumption report request

DELETE /usageConsumptionReportRequest/{id}

Description

This operation deletes a usage consumption report request entity.

Usage Samples

Here's an example of a request for deleting a usage consumption report request resource.

Request

DELETE {apiRoot}/usageConsumptionReportRequest/uccrreq001

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
<pre>POST /client/listener Accept: application/json { "event": { EVENT BODY }, "eventType": "EVENT_TYPE" }</pre>
Response
201

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

Acknowledgements

DOCUMENT HISTORY

Version History

Release Number	Date	Release led by:	Description
Version 1.0	06-Sep-2017	Sophie Bouleau Orange sophie.bouleau@orange.com Luis Velarde Tazon, Telefonica luis.velardetazon@telefonica.com	First release of the document
Version 4.0	07-Jan-2019	Sophie Bouleau, Orange sophie.bouleau@orange.com	Alignment with TMF Open API guidelines 3.0 and with SID mapping. Changes from JIRA AP-1052 <i>Note: the version 4.0 is assigned to all the APIs delivered in the release 18.5</i>

Release History

Release Number	Date	Release led by:	Description
Release 17.5.0	15-Apr-2013	Sophie Bouleau, Orange sophie.bouleau@orange.com Luis Velarde Tazon, Telefonica luis.velardetazon@telefonica.com	First release of the document
Release 18.5.0	07-Jan-2019	Sophie Bouleau, Orange sophie.bouleau@orange.com	Version 4.0 of the API REST <i>Note: the version 4.0 is assigned to all the APIs delivered in the release 18.5</i>