TM Forum Specification

Usage Consumption Conformance Profile

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NOTICE

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INTRODUCTION – API DESCRIPTION

The following document is the REST API Conformance document for the REST API for Usage Consumption.

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.

An 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 an 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.

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RESOURCE MODEL CONFORMANCE

API MANDATORY AND OPTIONAL RESOURCES

Resource Name	Mandatory or Optional	Comments
UsageConsumptionReport	M	
UsageConsumptionReportRequest	O	

USAGECONSUMPTIONREPORT API MANDATORY AND OPTIONAL ATTRIBUTES

The table below summarizes mandatory and optional attributes for resource "UsageConsumptionReport".

Attribute Name	Mandatory or Optional	Comments
id	O	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
href	O	Only if the server records the calculated report.
name	M	
description	O	
effectiveDate	M	
@baseType	O	
@type	O	
@schemaLocation	O	

bucket			M	Array of structures including at least one element
	id		M	
	name		O	
	usageType		O	
	isShared		O	
	@baseType		O	
	@type		O	
	@schemaLocation		O	
	product		O	Array of structures
		id	O	
		href	O	
		name	O	
		publicIdentifier	M if product included	
		@baseType	O	
		@type	O	
		@schemaLocation	O	
		user	O	Array of structures
			id	M if user included	
			href	O	

			name	O	
			role	O	
			@baseType	O	
			@type		
			@schemaLocation		
		outOfBucketCounter		O	Array of structures
			counterType	O	
			level	O	
			value.amount	M	If counter included
			value.units	M	If counter included
			valueName	O	
			consumptionPeriod	O	
			@baseType	O	
			@type	O	
			@schemaLocation	O	
	bucketBalance			O	Array of structures
		remainingValue.amount		M	If bucket balance included
		remainingValue.units		M	If bucket balance included
		remainingValueName		O	
		validFor		O	

		@baseType	O	
		@type	O	
		@schemaLocation	O	
	bucketCounter		O	Array of structures
		counterType	O	
		level	O	
		value.units	M	If bucket counter included
		value.amount	M	If bucket counter included
	valueName		O	
	consumptionPeriod		O	
	@baseType		O	
	@type		O	
	@schemaLocation		O	
	user		O	
		id	O	
		href	O	
		name	O	
		role	O	
		@referredType	O	
	Product		O	

			id	O	
			href	O	
			name	O	
			publicIdentifier	O	
			@referredType	O	

NOTIFICATION MODEL CONFORMANCE

The Pub/Sub models are common and described in the TMF REST Design Guidelines.

API MANDATORY AND OPTIONAL NOTIFICATIONS

For the Notifications defined by the API fill the following table and indicate which ones are mandatory and which ones are optional.

Notification Name	Mandatory or Optional	Comments

All attributes of the resource associate with the notification are mandatory.

API OPERATIONS CONFORMANCE

API MANDATORY AND OPTIONAL OPERATIONS

The following table indicates which ones are mandatory and which ones are optional for each one of the resources in the API (default is for all resources).

Uniform API Operation	Mandatory/Optional	Comments
GET	M	GET must be used to retrieve a representation of a resource
POST	Not supported	POST must be used to create a new resource
PUT	Not supported	PUT must be used to completely update a resource identified by its resource URI
PATCH	Not supported	PATCH must be used to partially update a resource
DELETE	O	DELETE must be used to remove a resource

API GET OPERATION CONFORMANCE

For every single resource use the following template to specify the mandatory and optional features supported by the GET operation.

Definitions

- **Filtered Search:** A filtered search can be applied using query parameters in order to obtain only the resource entities that meet the criteria defined by the filtering parameters included in the query request. Several elements can be applied to the filtered search. In that case logic, a logical AND is applied to combine the criteria.

- **Attribute selection (Filtered Response Data):** In order to apply a filter and limit the number of attributes included in the response, the GET request can include the "?fields=" query parameter. Several elements can be applied to the filter. In that case, a logical AND is applied to combine the values will provide in the response only the values assigned to attributes. Attribute selection capabilities are the same for collections retrieval and individual resource queries.

All the GET operations in this API share the same status code pattern

GET	M	
Response Status Code 200	M	
Other Status Codes	NA	

/USAGECONSUMPTIONREPORT?FIELDS=…&{FILTERING}

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 mandatory for all first level attributes.
Filtering is mandatory for first compliance level (L1) and optional otherwise.

/USAGECONSUMPTIONREPORT /{ID}?FIELDS=…&{FILTERING}

This operation retrieves an 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 mandatory for all first level attributes.
Filtering on sub-resources is optional for all compliance levels.

API DELETE OPERATION CONFORMANCE

All the POST operations in this API share the same status code pattern

DELETE	O	Used by admin only
Response Status Code 204	M	
Other Status Codes	NA	

/USAGECONSUMPTIONREPORT/{ID}

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

API CONFORMANCE TEST SCENARIOS

This section describes the test scenarios required for the basic CONNECT certification of the API.

Test Cases must be executed in the order defined for each resource because the result from one of the scenarios will be input for the next one.

Requests must be addressed to the endpoint provided for certification, specifically they must be addressed to the URI defined by the concatenation of the {apiRoot} and the specific resource, where the {apiRoot} is defined as {serverRoot}/usageConsumption/v2, where {serverRoot} defines the certification endpoint

USAGECONSUMPTIONREPORT RESOURCE TEST CASES

Nominal Scenarios

TC_UsgReport_N1 – Request consumption usage reports

- Register the following definition of usage reports in the server environment to simulate usage in the current month (validity period between first and last day of the current month)

```
usageReport = ur001
name = report1
user = u1
      product_Id = p111
      bucket_Id=b111
            type of bucket = data
            measurement period = first to last day of the month
            usage in measured period = 3 MB
            balance till the end of the month = 2 MB

usageReport = ur002
name = report2
user = u1
      product_Id = p222
            bucket_Id=b222
                  type of bucket = voice
                  measurement period = first to last day of the month
                  usage in measured period = 500 minutes
                  balance till the end of the month = 300 minutes

usageReport = ur003
name = report3
user = u2
      product_Id = p333
            bucket_Id=b331
                  type of bucket = sms
                  measurement period = first to last day of the month
                  usage in measured period = 150 message
                  balance in the period = 149 messages
      product_Id = p222
            bucket_Id=b332
                  type of bucket = national voice
                  measurement period = first to last day of the month
                  usage in measured period = 500 minutes
```

```
balance till the end of the month = 340 minutes
```

- Send a GET message to {apiRoot}/usageConsumptionReport.

- Wait for a response from the server with the following characteristics:

  o Response Code 200-OK
  o The body of the response includes three usageConsumptionReport resources with ID set to ur001, ur002 and ur003, the same identifiers as originally registered ine the server.
  o The response message includes all mandatory attributes and the values originally registered in the server.

TC_UsgReport_N2 – Request usage report for specific user

- Send a GET message to {apiRoot}/usageConsumptionReport?product.relatedParty.id=u1

- Wait for a response from the server with the following characteristics:

  o Response Code 200-OK
  o The body of the response includes two usageConsumptionReport resources with ID set to ur001 and ur002, the same identifiers as originally registered ine the server.
  o The response message includes all mandatory attributes and the values originally registered in the server.

- Send a GET message to {apiRoot}/usageConsumptionReport?product.relatedParty.id=u2

- Wait for a response from the server with the following characteristics:

  o Response Code 200-OK
  o The body of the response includes one usageConsumptionReport resource with ID set to ur003, the same identifier as originally registered ine the server.
  o The response message includes all mandatory attributes and the values originally registered in the server.

TC_UsgReport_N3 – Request usage report for specific network product

- Send a GET message to {apiRoot}/usageConsumptionReport?bucket.product.id=p333

- Wait for a response from the server with the following characteristics:

  o Response Code 200-OK
  o The body of the response includes one usageConsumptionReport resource with ID set to ur003 including at least the usage information regarding product p333, the same identifier as originally registered ine the server.
  o The response message includes all mandatory attributes and the values originally registered in the server.

TC_UsgReport_N4 – Request specific usage report

- Send a GET message to {apiRoot}/usageConsumptionReport/ur002

- Wait for a response from the server with the following characteristics:

    o Response Code 200-OK
    o The body of the response includes one usageConsumptionReport resource with ID set to ur002, the same identifier as originally registered ine the server.
    o The response message includes all mandatory attributes and the values originally registered in the server.

TC_UsgReport_N5 – Filtered data response

- Send a GET message to {apiRoot}/usageConsumptionReport/ur001?fields=id,bucket

- Wait for a response from the server with the following characteristics:

    o Response Code 200-OK
    o The body of the response includes one usageConsumptionReport resource with ID set to ur001, the same identifier as originally registered ine the server.
    o The response message includes all mandatory attributes and the values originally registered in the server.

Error Scenarios

A GET request to retrieve a consumption usage report for a product or user not defined will return a 200-OK with an empty array of Usage Consumption Reports resources.

TC_UsgReport_E1 – Unknown user

- Send a GET message to {apiRoot}/usageConsumptionReport?relatedParty.id=u000 where u000 does not match any of the identifiers previously created in the server.

- Wait for a response from the server with the following characteristics:

    o Response Code 200-OK
    o The body is empty.

TC_UsgReport_E2 – Unknown product

- Send a GET message to {apiRoot}/usageConsumptionReport?bucket.product.id=p000 where p000 does not match any of the identifiers previously created in the server.

- Wait for a response from the server with the following characteristics:

    o Response Code 200-OK
    o The body is empty.

ACKNOWKEDGEMENTS

VERSION HISTORY

Version Number	Date	Release led by:	Description
Version 1.0	06-Sep-2017	Luis Velarde Tazon Telefonica luis.velardetazon@telefonica.com	First release of the document
Version 3.0	07-Dec-2018	Sophie Bouleau Orange sophie.bouleau@orange.com	Alignment with the version 3.0 of the Usage Consumption REST API *Note: the version 3.0 is assigned to all the APIs delivered in the release 18.5*

RELEASE HISTORY

Release Number	Date	Release led by:	Description
18.5	07-Dec-2018	Sophie Bouleau Orange sophie.bouleau@orange.com	Alignment with the version 3.0 of the Usage Consumption REST API published in the Open APIs release 18.5