*Frameworx Specification*

Billing Management API REST Specification

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# Table of Contents

[NOTICE 2](#_Toc404178528)

[Table of Contents 3](#_Toc404178529)

[List of Tables 5](#_Toc404178530)

[Introduction 6](#_Toc404178531)

[SAMPLE USE CASES 8](#_Toc404178532)

[RESOURCE MODEL 9](#_Toc404178533)

[Managed Entity and Task Resource Models 9](#_Toc404178534)

[BillingAccount Resource 9](#_Toc404178535)

[Customer billing cycle specification Resource 10](#_Toc404178536)

[Customer bill Format Resource 10](#_Toc404178537)

[customer bill presentation media Resource 10](#_Toc404178538)

[applied customer billing charge Resource 14](#_Toc404178539)

[Settlement note ADVICE Resource 16](#_Toc404178540)

[Notification Resource Models 22](#_Toc404178541)

[BillingAccount State Change Notification 23](#_Toc404178542)

[SettlementNoteAdvice Notification 24](#_Toc404178543)

[API OPERATION TEMPLATES 25](#_Toc404178544)

[GET API/billingManagement/ BillingAccount /{ID} 26](#_Toc404178545)

[PUT API/BillingManagement/BillingAccount/{ID} 28](#_Toc404178546)

[PATCH API/billingManagement/ BillingAccount /{ID} 28](#_Toc404178547)

[POST API/bILLING Management/BillingAccount 30](#_Toc404178548)

[DELETE API/billingManagement/BillingAccount/{ID} 35](#_Toc404178549)

[POST API/bILLING Management/AppliedCustomerbillingcharge 35](#_Toc404178550)

[GET API/bILLING Management/AppliedCustomerbillingcharge 39](#_Toc404178551)

[DELETE API/billingManagement/ appliedCustomerBillingCharge /{ID} 40](#_Toc404178552)

[PATCH API/billingManagement/ appliedCustomerBillingCharge /{ID} 41](#_Toc404178553)

[PUT API/billingManagement/ appliedCustomerBillingCharge /{ID} 41](#_Toc404178554)

[GET API/bILLINGManagement/SettlementnoteADVICE /{ID} 41](#_Toc404178555)

[DELETE API/billingManagement/ Settlement note ADVICE /{ID} 44](#_Toc404178556)

[PATCH API/billingManagement/ Settlement note ADVICE /{ID} 45](#_Toc404178557)

[PUT API/billingManagement/ Settlement note ADVICE /{ID} 45](#_Toc404178558)

[POST API/billingManagement/ Settlement note ADVICE /{ID} 45](#_Toc404178559)

[GET API/bILLING Management/ CUSTOMER BILLING CYCLE Specification 46](#_Toc404178560)

[GET API/bILLING Management/ CUSTOMER BILL Format 47](#_Toc404178561)

[GET API/bILLING Management/ CUSTOMER BILL Presentation Media 48](#_Toc404178562)

[API NOTIFICATIOn TEMPLATES 49](#_Toc404178563)

[REGISTER LISTENER POST /hub 49](#_Toc404178564)

[UNREGISTER LISTENER DELETE hub/{id} 49](#_Toc404178565)

[Release History 51](#_Toc404178566)

[Contributors to Document 51](#_Toc404178567)

# List of Tables

N/A

# Introduction

The Billing API provides standardized mechanism for billing account, bill item and settlement note advice management either in B2B or B2B2C contexts.

It allows creation, update and retrieval of a billing account either in a B2B2C relationship context (creation of mass market customer billing account within a “Billing on Behalf of” process for example) or in a B2B context (creation of a billing account for a partner or B2B customer).

It also allows creation and query of bill items allowing partners or B2B customer to check their invoice.

In addition, it allows notification of settlement note advice to partners who can, then, query it.

Billing API manages the following Data resources:

* **Billing account** 
  + A billing account is a detailed description of a customer’s bill structure
  + Main billing account attributes are its identifier and name, rating type (prepaid, postpaid), status, identifier of related customer account, billing cycle information, bill format and presentation media (post mail, email, web page), billing currency, billing account balance identifier, payment means (e.g. credit card) related party reference and role (Invoice responsible, payer, etc.)
* **Bill item** (aka Applied Customer Billing Charge in SID terminology)
  + A bill item is an amount, usually of money, for which a person or an organization is financially liable
  + Main bill item attributes are its identifier, creation date, description (additional data displayed on the bill), type of charge (recurring, one time or usage), currency code, taxes and amounts related information (tax included amount, tax excluded amount, tax rate), identifier and type of the concerned service
* **Settlement Note Advice**
  + The settlement is about transferring money receiving by a partner to another partner. The settlement is notified to the partner with a settlement note advice containing details in settlement lines.
  + Main settlement note advice attributes are its identifier, Creation date, description, due date, , taxes and amounts related information (tax included amount, tax excluded amount, tax rate, etc.), currency code, settlement method, receiver and issuer, settlement note Item related to a product information (identifier, description, quantity, taxes and amounts related information, product information)
* **Customer Billing Cycle Specification**
  + A detailed description of when to initiate a billing cycle and the various sub steps of a billing cycle.
* **Customer Bill Format**
  + A detailed description of the way in which a customer’s bill is presented.
* **Customer Bill Presentation Media**
  + A means of communicating a CustomerBill, supported by the associated bill format. For example, post mail, email, web page.

Billing API performs the following operations on the above mentioned resources

* **On billing account**
  + Retrieval of a billing account or a collection of billing accounts
  + Partial update of a billing account
  + Creation of a billing account
  + Notification of billing account state change
* **On Bill Item (Applied Customer Billing Charge)**
  + Creation of a bill item
  + Retrieval of a bill item or a collection of bill items
* **On Settlement note advice**
  + Retrieval of a settlement note advice or a collection of settlement note advices
  + Notification of a settlement note advice
* **On Customer Billing Cycle Specification**
  + Retrieval of a customer billing cycle specification
  + Creation of a customer billing cycle specification
  + Deletion of a customer billing cycle specification
* **On Customer Bill Format**
  + Retrieval of a customer bill format
  + Creation of a customer bill format
  + Deletion of a customer bill format
* **On Customer Bill Presentation Media**
  + Retrieval of a customer bill presentation media
  + Creation of a customer bill presentation media
  + Deletion of a customer bill presentation media

# SAMPLE USE CASES

Reader will find example of use cases using Billing API in “Open Digital Business Scenarios and Use Cases” document

# RESOURCE MODEL

## Managed Entity and Task Resource Models

JSON based representation of the managed entities and tasks.

### BillingAccount Resource

A BillingAccount is a detailed description of a customer’s bill structure.

JSON representation of a BillingAccount

|  |
| --- |
| {  "id": "65",  "href": "http://serverlocation:port/billingManagement/billingAccount/65",  "ratingType": "postpaid",  "name": "my personal Billing Account",  "state": "Active",  "validFor": {  "startDateTime": "2013-04-19T16:42:23.0Z"  },  "customerAccount": {  "id": "15",  "href": "http://serverlocation:port/customerManagement/customerAccount/15",  "name": "Customer Account xxx"  },  "customerBillingCycleSpecification": {  "id": "26",  "href": "http://serverlocation:port/billingManagement/customerbillingCycleSpecification/26",  "name": "Monthly billing on the 15"  },  "customerBillFormat": {  "id": "23",  "href": "http://serverlocation:port/billingManagement/customerBillFormat/23",  "name": "Detailed invoice"  },  "customerBillPresentationMedia": {  "id": "25",  "href": "http://serverlocation:port/billingManagement/customerBillPresentationMedia/25",  "name": "Electronic invoice"  },  "currency": {  "currencyCode": "EUR"  },  "billingAccountBalance": [  {  "type": "ReceivableBalance",  "amount": 52.3,  "validFor": {  "startDateTime": "2013-04-19T16:42:23.0Z",  "endDateTime": "2013-06-19T00:00:00.0Z"  },  "status": "Due"  }  ],  "relatedParty": [  {  "id": "1",  "href": "http://serverlocation:port/partyManagement/partyRole/1",  "role": "bill receiver"  },  {  "id": "5",  "href": "http://serverlocation:port/partyManagement/partyRole/5",  "role": "bill responsible"  }  ],  "paymentMean": {  "id": "45",  "href": "http://serverlocation:port/customerManagement/paymentMean/45",  "name": "my favourite payment mean"  }  } |

### Customer billing cycle specification Resource

|  |
| --- |
| {  "id": "26",  "href": "http://serverlocation:port/billingManagement/customerbillingCycleSpecification/26",  "name": "Monthly billing on the 15",  "billingDateShift": 15,  "frequency": "monthly"  } |

### Customer bill Format Resource

|  |
| --- |
| {  "id": "23",  "href": "http://serverlocation:port/billingManagement/customerBillFormat/23",  "name": "Detailed invoice"  } |

### customer bill presentation media Resource

|  |
| --- |
| {  "id": "25",  "href": "http://serverlocation:port/billingManagement/customerBillPresentationMedia/25",  "name": "Electronic invoice"  } |

Field Descriptions :

BillingAccount: A detailed description of a customer’s bill structure.

|  |  |
| --- | --- |
| Field | Description |
| id | Unique identifier of the billing account |
| href | Reference of the billing account |
| name | A short descriptive name |
| ratingType | Rating type (prepaid, postpaid) of the billing account |
| state | Used to track the lifecycle state |
| validFor. | The period for which the billing account is valid |

BillingAccountBalance: Balance of the Billing Account.

|  |  |
| --- | --- |
| Field | Description |
| type | Type of the balance |
| amount | Balance amount |
| validFor | Balance validity period |
| status | Balance status |

CustomerAccount: An arrangement that a customer has with an enterprise that provides products to the customer (SID definition to be reviewed?).

|  |  |
| --- | --- |
| Field | Description |
| id | Unique identifier of the customer account |
| href | Reference of the customer account |
| name | A short descriptive name |

CustomerBillingCycleSpecification: A detailed description of when to initiate a billing cycle and the various sub steps of a billing cycle.

|  |  |
| --- | --- |
| Field | Description |
| id | Unique identifier of the customer billing cycle specification |
| billingDateShift | An offset of a billing date. The offset is expressed as number of days with regard to the start of the billing period. |
| frequency | Frequency of the billing cycle (monthly for instance) |
| href | Reference of the customer billing cycle specification |
| name | A short descriptive name |

CustomerBillFormat: A detailed description of the way in which a customer’s bill is presented.

|  |  |
| --- | --- |
| Field | Description |
| id | Unique identifier of the customer bill format |
| href | Reference of the customer bill format |
| name | A short descriptive name |

CustomerBillPresentationMedia: A means of communicating a CustomerBill, supported by the associated bill format. For example, post mail, email, web page.

|  |  |
| --- | --- |
| Field | Description |
| id | Unique identifier of the customer bill presentation media |
| href | Reference of the customer bill presentation media |
| name | A short descriptive name |

Currency: A base / value business entity used to represent currency.

|  |  |
| --- | --- |
| Field | Description |
| currencyCode | A string used as a code for specifying the currency associated to the given amounts. The ISO4217 norm uses 3 letters to define the currency (for example USD for US dollar or EUR for Euro) |

PaymentMean: defines a specific mean of payment (e.g. direct debit with all details associated).

|  |  |
| --- | --- |
| Field | Description |
| id | Unique identifier of the payment mean |
| href | Reference of the payment mean |
| name | Name of the payment mean |

RelatedParty: Defines party or partyRole linked to a specific entity.

|  |  |
| --- | --- |
| Field | Description |
| id | Unique identifier of related party |
| href | Reference of the relatedParty, could be a party reference or a partyRole reference |
| role | Role of the related party |

UML models:



Figure 1 – BillingAccount resource model



Figure 2 – CustomerBillPresentationMedia resource model



Figure 3 CustomerBillingCycleSpecification resource model



Figure 4 CustomerBillFormat resource model

### applied customer billing charge Resource

|  |
| --- |
| {  "id": "25",  "href": "http://serverlocation:port/BillingManagement/appliedCustomerBillingCharge/25",  "date": "2013-04-19T16:42:23.0Z",  "description": "Partner Premium monthly fee",  "type": "Recurring",  "currencyCode": "USD",  "taxIncludedAmount": 2.4,  "taxExcludedAmount": 2,  "appliedCustomerBillingTaxRate": [  {  "amount": 0.4,  "taxCategory": "VAT"  }  ],  "serviceId": [  {  "id": "0601020304",  "type": "Mobile number"  }  ],  "productSpecification": [  {  "name": "Partner Premium",  "productNumber": "P001"  }  ],  "period": [  {  "startPeriod": "2013-10-01T00:00:00.0Z",  "endPeriod": "2013-10-31T00:00:00.0Z"  }  ]  } |

Tax rate should be further defined by experts.

Field Descriptions :

AppliedCustomerBillingCharge: An amount, usually of money, for which a person or an organization is financially liable.

|  |  |
| --- | --- |
| Field | Description |
| id | Unique identifier of the applied customer billing charge |
| href | Reference of the applied customer billing charge |
| date | Creation date of the applied customer billing charge |
| description | Additional data to be displayed on the customer bill for this applied customer billing charge |
| type | Type of the applied customer billing charge (recurring, one time or usage) necessary to find the category of the invoice where the charge has to be displayed |
| currencyCode | A string used as a code for specifying the currency associated to the given amounts. The ISO4217 norm uses 3 letters to define the currency (for example USD for US dollar or EUR for Euro) |
| taxIncludedAmount | All taxes included amount to be charged on the customer bill (expressed in the given currency) |
| taxExcludedAmount | Tax excluded amount to be charged on the customer bill (expressed in the given currency) |

AppliedCustomerBillingTaxRate: An amount of money levied on the price of a product by a legislative body.

|  |  |
| --- | --- |
| Field | Description |
| amount | Tax amount |
| taxCategory | A categorization of the tax rate |

Period: defines the period of a recurring charge

|  |  |
| --- | --- |
| Field | Description |
| startPeriod | Start date of the period |
| endPeriod | End date of the period |

ProductSpecification: A detailed description of a tangible or intangible object made available externally in the form of a ProductOffering to Customers or other Parties playing a PartyRole.

|  |  |
| --- | --- |
| Field | Description |
| productNumber | An identification number assigned to uniquely identity the specification |
| Name | The name of the product specification |

ServiceId: defines the identifier of the service

|  |  |
| --- | --- |
| Field | Description |
| id | Identifier of the service |
| type | Type of the service identifier (e.g. mobile number) |

UML models:



Figure 5 AppliedCustomerBillingCharge (Bill Item) resource model

### Settlement note ADVICE Resource

|  |
| --- |
| {  "id": "26",  "href": "http://serverlocation:port/BillingManagement/settlementNoteAdvice/26",  "date": "2013-04-19T16:42:23.0Z",  "description": "Settlement note â€“ From 2013/10/01 to 2013/10/31",  "paymentDueDate": "2013-04-19T16:42:23.0Z",  "taxDate": "2013-04-19T16:42:23.0Z",  "currencyCode": "EUR",  "taxExcludedAmount": 89933.25,  "taxIncludedAmount": 107560.16,  "taxItem": [  {  "taxCategory": "VAT",  "taxRate": 19.6,  "taxAmount": 17626.91  }  ],  "settlementMethod": {  "code": "NET",  "label": "Netting"  },  "receiver": {  "id": "63796",  "href": "http://serverlocation:port/PartyManagement/partyRole/63796",  "taxRegistration": {  "number": "FR12345678912"  }  },  "issuer": {  "id": "0800",  "href": "http://serverlocation:port/PartyManagement/partyRole/0800",  "taxRegistration": {  "number": "FR98765432178"  }  },  "settlementNoteImage": {  "imageFormat": "pdf",  "imageSize": 130,  "imageFileName": "BungiornoFrance-2013October-1234",  "imageFileURL": "http://serverlocation:port/SettlementNoteImage/RQAAAABAAAAAAAAALryCQAbAAAAMAAxAF8ASQBuAHMAdABhAGwAb"  },  "settlementNoteItem": [  {  "itemNumber": "1",  "itemId": "0815",  "itemLabel": "Achats Gamifive",  "quantity": 34873,  "taxExcludedUnitPrice": 1.463,  "taxExcludedAmount": 51019.2,  "taxIncludedAmount": 61018.96,  "taxItem": [  {  "taxCategory": "VAT",  "taxRate": 19.6,  "taxAmount": 9999.76  }  ],  "period": {  "startPeriod": "2013-10-01T00:00:00.0Z",  "endPeriod": "2013-10-31T00:00:00.0Z"  },  "productSpecification": {  "name": "Gamifive",  "productNumber": "17060"  }  },  {  "itemNumber": "2",  "itemId": "0816",  "itemLabel": "Achats iGirls TV",  "quantity": 19001,  "taxExcludedUnitPrice": 2.048,  "taxExcludedAmount": 38914.05,  "taxIncludedAmount": 46541.2,  "period": {  "startPeriod": "2013-10-01T00:00:00.0Z",  "endPeriod": "2013-10-31T00:00:00.0Z"  },  "productSpecification": {  "name": "iGirls TV",  "productNumber": "17063"  }  }  ]  } |

Field Descriptions :

SettlementNoteAdvice: The settlement is about transferring money receiving by a CSP to a partner. The settlement is notified to the partner with a settlement note advice containing details in settlement lines.

|  |  |
| --- | --- |
| Field | Description |
| id | A unique identifier for the settlement note advice |
| date | Creation date of the settlement note advice |
| description | A free description text |
| href | Reference of the settlement note advice |
| paymentDueDate | Date at which the due amount should have been paid to the partner |
| taxDate | Date of the tax |
| currencyCode | A string used as a code for specifying the currency associated to the given amounts. The ISO4217 norm uses 3 letters to define the currency (for example USD for US dollar or EUR for Euro) |
| taxExcludedAmount | All taxes excluded amount (expressed in the given currency) |
| taxIncludedAmount | All taxes included amount (expressed in the given currency) |

TaxItem: A tax item is created for each tax rate and tax type used in the settlement note.

|  |  |
| --- | --- |
| Field | Description |
| taxCategory | Tax category (for example VAT) |
| taxRate | Tax rate |
| taxAmount | Tax amount |

SettlementMethod: is the way in which the CSP provides the payment.

|  |  |
| --- | --- |
| Field | Description |
| Code | Code of the settlement method |
| label | A word, term or phrase by which a settlement method is known and distinguished from other settlement method |

Receiver: PartyRole who will receive the settlement note.

|  |  |
| --- | --- |
| Field | Description |
| id | Identifier of the receiver |
| href | Reference of the receiver |

Issuer: PartyRole who will issue the settlement note.

|  |  |
| --- | --- |
| Field | Description |
| id | Identifier of the issuer |
| href | Reference of the issuer |

TaxRegistration: The CSP and the partner could be registered with a tax number in a tax registration system.

|  |  |
| --- | --- |
| Field | Description |
| number | Tax registration number |

SettlementNoteImage: is the image of the settlement note.

|  |  |
| --- | --- |
| Field | Description |
| imageFormat | The format of the settlement note image (Csv, pdf, xls, txt…) |
| imageSize | The size of the settlement note image (in bytes) |
| imageFileName | The name of the file in which the settlement note image is saved |
| imageFileURL | The URL of the settlement note image |

SettlementNoteItem: concerns a product identified by its catalogue reference. It could also follow a period delimited by a start and an end date.

|  |  |
| --- | --- |
| Field | Description |
| itemNumber | Unique number assigned to the settlement note item |
| itemId | Unique identifier of the settlement note item |
| itemLabel | A free description text for the settlement note item |
| quantity | Quantity |
| taxExcludedUnitPrice | Tax excluded unit price to be applied on the given quantity |
| taxExcludedAmount | Tax excluded amount equal to quantity \* taxExcludedUnitPrice |
| taxIncludedAmount | All taxes included amount equal to taxExcludedAmount + taxAmount |

Period: defines the period of a recurring charge

|  |  |
| --- | --- |
| Field | Description |
| startPeriod | Start date of the period |
| endPeriod | End date of the period |

ProductSpecification: A detailed description of a tangible or intangible object made available externally in the form of a ProductOffering to Customers or other Parties playing a PartyRole.

|  |  |
| --- | --- |
| Field | Description |
| productNumber | An identification number assigned to uniquely identity the specification |
| Name | The name of the product specification |

UML models



Figure 6 – SettlementNoteAdvice resource model

BillingAccount lifecycle:



Figure 7 : Billing Account States

State definitions:

* + Defined / created: billing account has been created but no related invoice can be produced
  + Active: The billing account is active and related invoices are produced
  + Pending update : billing account update is planned and will be effective for next billing cycle
  + Suspended : billing account has been suspended on customer request or for other reasons (bad debts, etc.)
  + Pending closed: the billing account will be closed when the last invoice will have been produced
  + Closed : the billing account is closed and can not be changed to another state.

## Notification Resource Models

Two notification event types are defined:

1. BillingAccountStateChangeNotification
2. SettlementNoteAdviceNotification

Billing Account State Change Notification UML Diagram:



### BillingAccount State Change Notification

|  |
| --- |
| {  "eventType": "BillingAccountStateChangeNotification",  "eventTime": "2014-09-27T05:46:25.0Z",  "eventId": "13048231",  "event":  {  "billingAccount":  {  "id": "43",  Following a whole representation of the BillingAccount with all its attributes   See BillingAccount Resource.  }  }  } |

Settlement Note Advice Notification UML Diagram:



### SettlementNoteAdvice Notification

|  |
| --- |
| {  "eventType": "SettlementNoteAdviceNotification",  "eventTime": "2014-09-27T05:46:25.0Z",  "eventId": "108345",  "event":  {  "settlementNoteAdvice":  {  "id": "456",  Following a whole representation of the SettlementNoteAdvice with all its attributes   See SettlementNoteAdvice Resource.  }  }  } |

# API OPERATION TEMPLATES

For every single of operation on the entities use the following templates and provide sample REST requests and responses.

Remember that the following Uniform Contract rules must be used :

|  |  |  |
| --- | --- | --- |
| 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.

## GET API/billingManagement/ BillingAccount /{ID}

Note that collections can be retrieved via GET /api/<RESOURCE> with no {ID}

Description :

* Operation to retrieve BillingAccount (s) in a BillingAccount repository
* Filtering is enabled for all attributes
* Attribute selection is enabled for all attributes
* The resource is either a managed entity (query by id) or a collection (query with criteria)
* The resource identifier is a http uri

Behavior :

* Standard behavior and response codes for GET operations

We mandate L0 (equality) filtering in every specification as per REST Guidelines.

Example: Retrieve BillingAccount 65.

|  |
| --- |
| **REQUEST** |
| GET /billingManagement/billingAccount/65  Accept: application/json |
| **RESPONSE** |
| {  "id": "65",  "href": "http://serverlocation:port/billingManagement/billingAccount/65",  "ratingType": "postpaid",  "name": "my personal Billing Account",  "state": "Active",  "validFor": {  "startDateTime": "2013-04-19T16:42:23.0Z"  },  "customerAccount": {  "id": "15",  "href": "http://serverlocation:port/customerManagement/customerAccount/15",  "name": "Customer Account xxx"  },  "customerBillingCycleSpecification": {  "id": "26",  "href": "http://serverlocation:port/billingManagement/customerbillingCycleSpecification/26",  "name": "Monthly billing on the 15"  },  "customerBillFormat": {  "id": "23",  "href": "http://serverlocation:port/billingManagement/customerBillFormat/23",  "name": "Detailed invoice"  },  "customerBillPresentationMedia": {  "id": "25",  "href": "http://serverlocation:port/billingManagement/customerBillPresentationMedia/25",  "name": "Electronic invoice"  },  "currency": {  "currencyCode": "EUR"  },  "billingAccountBalance": [  {  "type": "ReceivableBalance",  "amount": 52.3,  "validFor": {  "startDateTime": "2013-04-19T16:42:23.0Z",  "endDateTime": "2013-06-19T00:00:00.0Z"  },  "status": "Due"  }  ],  "relatedParty": [  {  "id": "1",  "href": "http://serverlocation:port/partyManagement/partyRole/1",  "role": "bill receiver"  },  {  "id": "5",  "href": "http://serverlocation:port/partyManagement/partyRole/5",  "role": "bill responsible"  }  ],  "paymentMean": {  "id": "45",  "href": "http://serverlocation:port/customerManagement/paymentMean/45",  "name": "my favourite payment mean"  }  } |

## PUT API/BillingManagement/BillingAccount/{ID}

No put operation for BillingAccount

## PATCH API/billingManagement/ BillingAccount /{ID}

This Uniform Contract operation is used to partially update the representation of a managed entity or a task.

Description :

* Provide an overall description of the Operation
* Describe the input representation of the <resource> instance.
* Describe if the resource represents a managed entity or a task.
* Describe the structure of the identifier.

Behavior :

* What status and exception codes are returned.
* Returns HTTP/1.1 status code 201 if the request was successful.
* Any other special return and/or exception codes.

|  |  |  |
| --- | --- | --- |
| Attribute name | Patchable | error |
| RatingType | No |  |
| Name | Y |  |
| Valid for. startDateTime | Y |  |
| Valid for:endDateTime | Y | After the start date |
| CustomerAccount.id | Y | Should exist |
| CustomerBillingCycleSpecification.id | Y |  |
| CustomerBillFormat.id | Y |  |
| CustomerBillPresentationMedia.id | Y |  |
| Currency code | Y |  |
| PaymentMean.id | Y |  |
| RelatedParty.id | Y | Bill receiver is mandatory |
| State | Y | Transition state should be valid (need further work in financial entities) |
| BillingAccountBalance | N |  |

No additional complex rules for patching attributes.

Example : Update BillingAccount 65 : change of customer bill presentation media.

|  |
| --- |
| **REQUEST** |
| PATCH billingManagement/billingAccount/65  Content-type: application/json  {  "customerBillPresentationMedia": {  "id": "78",  "href": http://serverlocation:port/billingManagement/customerBillPresentationMedia/78"}  } |
| **RESPONSE** |
| 201  Content-Type: application/json  {  "customerBillPresentationMedia": {  "id": "78",  "href": http://serverlocation:port/billingManagement/customerBillPresentationMedia/78",  "name": "Paper invoice"  }  } |

## POST API/bILLING Management/BillingAccount

This operation is used to create a BillingAccount.

Pre-conditions:

We assume that the customer and the customer account have been already defined. The bill receiver contact also exists.

All reference data have been already defined.

Description :

* Provides an overall description of the Operation
* Describes the input representation of the <resource> instance.
* Describes if the resource represents a managed entity or a task.
* Describes the structure of the identifier.

Mandatory attributes are :

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute name | Mandatory | Default | error |
| RatingType | N | Postpaid |  |
| Name | N | Customer name |  |
| Valid for. startDateTime | N | Today | Valid date not earlier than one bill cycle in the past |
| Valid for:endDateTime | N |  | After the start date |
| CustomerAccount.id | Y |  | Should exist (see precondition) |
| CustomerBillingCycleSpecification.id | N | Bill issuer choice |  |
| CustomerBillFormat.id | N | Standard invoice |  |
| CustomerBillPresentationMedia.id | N | Electronic invoice |  |
| Currency code | N | National currency |  |
| PaymentMean | N | Customer choice |  |
| RelatedParty.id | Y |  | Bill receiver is mandatory (see precondition) |
| BillingAccountBalance.id | N |  |  |

Additional rules

|  |  |
| --- | --- |
| **Rule name** | **Rule** |
| POST Preconditions | Customer account must have been created previously  Party role must exist |

Behavior :

* Standard POST behavior

Example : creation of a BillingAccount

|  |
| --- |
| **REQUEST** |
| POST billingManagement/billingAccount  Content-type: application/json  {  "ratingType": "postpaid",  "name": "my personal Billing Account",  "state": "active",  "validFor": {  "startDateTime": "2013-04-19T16:42:23.0Z"  },  "customerAccount": {  "id": "45",  "href": "http://serverlocation:port/customerManagement/customerAccount/15",  "name": "Customer Account xxx"  },  "customerBillingCycleSpecification": {  "id": "26",  "href": "http://serverlocation:port/billingManagement/customerbillingCycleSpecification/26",  "name": "Monthly billing on the 15"  },  "customerBillFormat": {  "id": "23",  "href": "http://serverlocation:port/billingManagement/customerBillFormat/23",  "name": "Detailed invoice"  },  "customerBillPresentationMedia": {  "id": "25",  "href": "http://serverlocation:port/billingManagement/customerBillPresentationMedia/25",  "name": "Electronic invoice"  },  "currency": {  "currencyCode": "EUR"  },  "billingAccountBalance": [  {  "type": "ReceivableBalance",  "amount": 52.3,  "validFor": {  "startDateTime": "2013-04-19T16:42:23.0Z",  "endDateTime": "2013-06-19T00:00:00.0Z"  },  "status": "Due"  }  ],  "relatedParty": [  {  "id": "1",  "href": "http://serverlocation:port/partyManagement/partyRole/1",  "role": "bill receiver"  },  {  "id": "5",  "href": "http://serverlocation:port/partyManagement/partyRole/5",  "role": "bill responsible"  }  ],  "paymentMean": {  "id": "45",  "href": "http://serverlocation:port/customerManagement/paymentMean/45",  "name": "my favourite payment mean"  }  } |
| **RESPONSE** |
| 201  Content-Type: application/json  {  "id": "65",  "href": "http://serverlocation:port/billingManagement/billingAccount/65",  "ratingType": "postpaid",  "name": "my personal Billing Account",  "state": "Active",  "validFor": {  "startDateTime": "2013-04-19T16:42:23.0Z"  },  "customerAccount": {  "id": "15",  "href": "http://serverlocation:port/customerManagement/customerAccount/15",  "name": "Customer Account xxx"  },  "customerBillingCycleSpecification": {  "id": "26",  "href": "http://serverlocation:port/billingManagement/customerbillingCycleSpecification/26",  "name": "Monthly billing on the 15"  },  "customerBillFormat": {  "id": "23",  "href": "http://serverlocation:port/billingManagement/customerBillFormat/23",  "name": "Detailed invoice"  },  "customerBillPresentationMedia": {  "id": "25",  "href": "http://serverlocation:port/billingManagement/customerBillPresentationMedia/25",  "name": "Electronic invoice"  },  "currency": {  "currencyCode": "EUR"  },  "billingAccountBalance": [  {  "type": "ReceivableBalance",  "amount": 52.3,  "validFor": {  "startDateTime": "2013-04-19T16:42:23.0Z",  "endDateTime": "2013-06-19T00:00:00.0Z"  },  "status": "Due"  }  ],  "relatedParty": [  {  "id": "1",  "href": "http://serverlocation:port/partyManagement/partyRole/1",  "role": "bill receiver"  },  {  "id": "5",  "href": "http://serverlocation:port/partyManagement/partyRole/5",  "role": "bill responsible"  }  ],  "paymentMean": {  "id": "45",  "href": "http://serverlocation:port/customerManagement/paymentMean/45",  "name": "my favourite payment mean"  }  } |

## DELETE API/billingManagement/BillingAccount/{ID}

No delete operation for the BillingAccount.

|  |
| --- |
| **REQUEST** |
|  |
| **RESPONSE** |
|  |

## POST API/bILLING Management/AppliedCustomerbillingcharge

This operation is used to create applied customer billing charges..

Note: Adjustment needs another API to cover invoice adjustment and charge adjustment.

Pre-conditions:

Description :

* Provides an overall description of the Operation
* Describes the input representation of the <resource> instance.
* Describes if the resource represents a managed entity or a task.
* Describes the structure of the identifier.

Mandatory attributes are :

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute name | Mandatory | Default | error |
| date | N | Today |  |
| description | N |  |  |
| type | Y |  | Recurring, non recurring, usage, … |
| currencyCode | Y |  |  |
| taxIncludedAmount | N |  |  |
| taxExcludedAmount | Y |  |  |
| taxRate.amount | N |  |  |
| service.id | Y |  | 400 if service.id is invalid |
| service.idType | N |  |  |
| productSpecification.name | Y |  |  |
| productSpecification.productNumber | N |  |  |
| period.startPeriod | N |  | Only mandatory for recurring charge |
| period.endPeriod | N |  | Only mandatory for recurring charge |

Additional rules

|  |  |
| --- | --- |
| **Rule name** | **Rule** |
| POST Preconditions | Service must have been created previously  productSpecification must have been created previously |

Behavior :

* Standard POST behavior

Example : creation of applied customer billing charge

|  |
| --- |
| **REQUEST** |
| POST billingManagement/appliedCustomerBillingCharge  Content-type: application/json  {  "date": "2013-04-19T16:42:23.0Z",  "description": "Partner Premium monthly fee",  "type": "recurring",  "currencyCode": "USD",  "taxIncludedAmount": 2.4,  "taxExcludedAmount": 2,  "appliedCustomerBillingTaxRate": [  {  "amount": 0.4,  "taxCategory": "VAT"  }  ],  "serviceId": [  {  "id": "0601020304",  "type": "Mobile number"  }  ],  "productSpecification": [  {  "name": "Partner Premium",  "productNumber": "P001"  }  ],  "period": [  {  "startPeriod": "2013-10-01T00:00:00.0Z",  "endPeriod": "2013-10-31T00:00:00.0Z"  }  ]  } |

|  |
| --- |
| **RESPONSE** |
| 201  Content-Type: application/json  {  "id": "25",  "href": "http://serverlocation:port/BillingManagement/appliedCustomerBillingCharge/25",  "date": "2013-04-19T16:42:23.0Z",  "description": "Partner Premium monthly fee",  "type": "recurring",  "currencyCode": "USD",  "taxIncludedAmount": 2.4,  "taxExcludedAmount": 2,  "appliedCustomerBillingTaxRate": [  {  "amount": 0.4,  "taxCategory": "VAT"  }  ],  "serviceId": [  {  "id": "0601020304",  "type": "Mobile number"  }  ],  "productSpecification": [  {  "name": "Partner Premium",  "productNumber": "P001"  }  ],  "period": [  {  "startPeriod": "2013-10-01T00:00:00.0Z",  "endPeriod": "2013-10-31T00:00:00.0Z"  }  ]  } |

## GET API/bILLING Management/AppliedCustomerbillingcharge

Note that collections can be retrieved via GET /api/<RESOURCE> with no {ID}

Description :

* Operation to retrieve AppliedCustomerBillingCharge (s) in a repository
* Filtering is enabled for all attributes
* Attribute selection is enabled for all attributes
* The resource is either a managed entity (query by id) or a collection (query with criteria)
* The resource identifier is a http uri

Behavior :

* Standard behavior and response codes for GET operations

Behavior :

* Standard GET behavior

We mandate L0 (equality) filtering in every specification as per REST Guidelines

Example: retrieval of applied customer billing charges

|  |
| --- |
| **REQUEST** |
| GET billingManagement/appliedCustomerBillingCharge?service.id=0601020304  Content-type: application/json |

|  |
| --- |
| **RESPONSE** |
| {  "id": "25",  "href": "http://serverlocation:port/BillingManagement/appliedCustomerBillingCharge/25",  "date": "2013-04-19T16:42:23.0Z",  "description": "Partner Premium monthly fee",  "type": "recurring",  "currencyCode": "USD",  "taxIncludedAmount": 2.4,  "taxExcludedAmount": 2,  "appliedCustomerBillingTaxRate": [  {  "amount": 0.4,  "taxCategory": "VAT"  }  ],  "serviceId": [  {  "id": "0601020304",  "type": "Mobile number"  }  ],  "productSpecification": [  {  "name": "Partner Premium",  "productNumber": "P001"  }  ],  "period": [  {  "startPeriod": "2013-10-01T00:00:00.0Z",  "endPeriod": "2013-10-31T00:00:00.0Z"  }  ]  } |

## DELETE API/billingManagement/ appliedCustomerBillingCharge /{ID}

No delete operation for the AppliedCustomerBillingCharge

|  |
| --- |
| **REQUEST** |
|  |
| **RESPONSE** |
|  |

## PATCH API/billingManagement/ appliedCustomerBillingCharge /{ID}

No patch operation for the AppliedCustomerBillingCharge

|  |
| --- |
| **REQUEST** |
|  |
| **RESPONSE** |
|  |

## PUT API/billingManagement/ appliedCustomerBillingCharge /{ID}

No put operation for the AppliedCustomerBillingCharge

|  |
| --- |
| **REQUEST** |
|  |
| **RESPONSE** |
|  |

## GET API/bILLINGManagement/SettlementnoteADVICE /{ID}

Note that collections can be retrieved via GET /api/<RESOURCE> with no {ID}

Description :

* Operation to retrieve SettlementNoteAdvice (s) in a repository
* Filtering is enabled for all attributes
* Attribute selection is enabled for all attributes
* The resource is either a managed entity (query by id) or a collection (query with criteria)
* The resource identifier is a http uri

Behavior :

* Standard behavior and response codes for GET operations

Behavior :

* Standard GET behavior

We mandate L0 (equality) filtering in every specification as per REST Guidelines

Example: get a settlement note advice

|  |
| --- |
| **REQUEST** |
| GET billingManagement/settlementNoteAdvice?id=26  Content-type: application/json |

|  |
| --- |
| **RESPONSE** |
| Status:200  Content-Type: application/json  Last-Modified:11/28/13 13:30:30  {  "id": "26",  "href": "http://serverlocation:port/BillingManagement/settlementNoteAdvice/26",  "date": "2013-04-19T16:42:23.0Z",  "description": "Settlement note â€“ From 2013/10/01 to 2013/10/31",  "paymentDueDate": "2013-04-19T16:42:23.0Z",  "taxDate": "2013-04-19T16:42:23.0Z",  "currencyCode": "EUR",  "taxExcludedAmount": 89933.25,  "taxIncludedAmount": 107560.16,  "taxItem": [  {  "taxCategory": "VAT",  "taxRate": 19.6,  "taxAmount": 17626.91  }  ],  "settlementMethod": {  "code": "NET",  "label": "Netting"  },  "receiver": {  "id": "63796",  "href": "http://serverlocation:port/PartyManagement/partyRole/63796",  "taxRegistration": {  "number": "FR12345678912"  }  },  "issuer": {  "id": "0800",  "href": "http://serverlocation:port/PartyManagement/partyRole/0800",  "taxRegistration": {  "number": "FR98765432178"  }  },  "settlementNoteImage": {  "imageFormat": "pdf",  "imageSize": 130,  "imageFileName": "BungiornoFrance-2013October-1234",  "imageFileURL": "http://serverlocation:port/SettlementNoteImage/RQAAAABAAAAAAAAALryCQAbAAAAMAAxAF8ASQBuAHMAdABhAGwAb"  },  "settlementNoteItem": [  {  "itemNumber": "1",  "itemId": "0815",  "itemLabel": "Achats Gamifive",  "quantity": 34873,  "taxExcludedUnitPrice": 1.463,  "taxExcludedAmount": 51019.2,  "taxIncludedAmount": 61018.96,  "taxItem": [  {  "taxCategory": "VAT",  "taxRate": 19.6,  "taxAmount": 9999.76  }  ],  "period": {  "startPeriod": "2013-10-01T00:00:00.0Z",  "endPeriod": "2013-10-31T00:00:00.0Z"  },  "productSpecification": {  "name": "Gamifive",  "productNumber": "17060"  }  },  {  "itemNumber": "2",  "itemId": "0816",  "itemLabel": "Achats iGirls TV",  "quantity": 19001,  "taxExcludedUnitPrice": 2.048,  "taxExcludedAmount": 38914.05,  "taxIncludedAmount": 46541.2,  "period": {  "startPeriod": "2013-10-01T00:00:00.0Z",  "endPeriod": "2013-10-31T00:00:00.0Z"  },  "productSpecification": {  "name": "iGirls TV",  "productNumber": "17063"  }  }  ]  } |

## DELETE API/billingManagement/ Settlement note ADVICE /{ID}

No delete operation for the SettlementNoteAdvice

|  |
| --- |
| **REQUEST** |
|  |
| **RESPONSE** |
|  |

## PATCH API/billingManagement/ Settlement note ADVICE /{ID}

No patch operation for the SettlementNoteAdvice

|  |
| --- |
| **REQUEST** |
|  |
| **RESPONSE** |
|  |

## PUT API/billingManagement/ Settlement note ADVICE /{ID}

No put operation for the SettlementNoteAdvice

|  |
| --- |
| **REQUEST** |
|  |
| **RESPONSE** |
|  |

## POST API/billingManagement/ Settlement note ADVICE /{ID}

No post operation for the SettlementNoteAdvice

|  |
| --- |
| **REQUEST** |
|  |
| **RESPONSE** |
|  |

## GET API/bILLING Management/ CUSTOMER BILLING CYCLE Specification

Note that collections can be retrieved via GET /api/<RESOURCE> with no {ID}

Description :

* Operation to retrieve CustomerBillingCycleSpecification (s) in a repository
* Filtering is enabled for all attributes
* Attribute selection is enabled for all attributes
* The resource is either a managed entity (query by id) or a collection (query with criteria)
* The resource identifier is a http uri

Behavior :

* Standard behavior and response codes for GET operations

Behavior :

* Standard GET behavior

We mandate L0 (equality) filtering in every specification as per REST Guidelines

Example: CustomerBillingCycleSpecification retrieval

|  |
| --- |
| **REQUEST** |
| GET billingManagement/customerBillingCycleSpecification/26  Content-type: application/json |

|  |
| --- |
| **RESPONSE** |
| Status:200  Content-Type: application/json  Last-Modified:11/28/13 13:30:30  {  "id": "26",  "href": "http://serverlocation:port/billingManagement/customerbillingCycleSpecification/26",  "name": "Monthly billing on the 15",  "billingDateShift": 15,  "frequency": "monthly"  } |

## GET API/bILLING Management/ CUSTOMER BILL Format

Note that collections can be retrieved via GET /api/<RESOURCE> with no {ID}

Description :

* Operation to retrieve CustomerBillFormat (s) in a repository
* Filtering is enabled for all attributes
* Attribute selection is enabled for all attributes
* The resource is either a managed entity (query by id) or a collection (query with criteria)
* The resource identifier is a http uri

Behavior :

* Standard behavior and response codes for GET operations

Behavior :

* Standard GET behavior

We mandate L0 (equality) filtering in every specification as per REST Guidelines

Example: CustomerBillFormat retrieval

|  |
| --- |
| **REQUEST** |
| GET billingManagement/customerBillFormat/26  Content-type: application/json |

|  |
| --- |
| **RESPONSE** |
| Status:200  Content-Type: application/json  Last-Modified:11/28/13 13:30:30  {  "id": "26",  "href": "http://serverlocation:port/billingManagement/customerBillFormat/26",  "name": "Detailed invoice"  } |

## GET API/bILLING Management/ CUSTOMER BILL Presentation Media

Note that collections can be retrieved via GET /api/<RESOURCE> with no {ID}

Description :

* Operation to retrieve CustomerBillPresentationMedia (s) in a repository
* Filtering is enabled for all attributes
* Attribute selection is enabled for all attributes
* The resource is either a managed entity (query by id) or a collection (query with criteria)
* The resource identifier is a http uri

Behavior :

* Standard behavior and response codes for GET operations

Behavior :

* Standard GET behavior

We mandate L0 (equality) filtering in every specification as per REST Guidelines

Example: CustomerBillPresentationMedia retrieval

|  |
| --- |
| **REQUEST** |
| GET billingManagement/customerBillPresentationMedia/26  Content-type: application/json |

|  |
| --- |
| **RESPONSE** |
| Status:200  Content-Type: application/json  Last-Modified:11/28/13 13:30:30  {  "id": "26",  "href": "http://serverlocation:port/billingManagement/customerBillPresentationMedia/26",  "name": "Electronic invoice"  } |

# API NOTIFICATIOn TEMPLATES

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.

No notification mechanism for appliedCustomerBillingCharge

## 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.

|  |
| --- |
| **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.

|  |
| --- |
| **REQUEST** |
| DELETE /api/hub/{id}  Accept: application/json |
| **RESPONSE** |
| 204 |

Example see TMF REST Design Guidelines.

## Release History

|  |  |  |  |
| --- | --- | --- | --- |
| **Release Number** | **Date** | **Release led by:** | **Description** |
| Release 1.0 | 04/15/2013 | Pierre Gauthier  TM Forum  [pgauthier@tmforum.org](mailto:pgauthier@tmforum.org) | First Release of Draft Version of the Document. |
| Release 1.1 |  |  | Updated for use in the Paris Spec Jam – and rebranded. |

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