



TM Forum Specification

Payment Methods API REST Specification

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INTRODUCTION

The following document is the specification of the REST API for Payment Methods. It includes the model definition as well as all available operations for usage consumption reports.

This API allows the following operations

- Retrieve a list of payment methods stored in a server filtered by a given criteria
- Retrieve a specific payment method
- Delete a specific payment method
- Retrieve a list of payment methods associated to an account filtered by a given criteria

SAMPLE USE CASES

This section includes a set of main use cases that can be performed with this API. Additional use cases can be generated using the operations and resources defined in this specification.

- Request a list of payment methods stored on a server filtered by different criteria:
 - Validity period
 - Account
 - Type
- Request a specific payment method stored on a server
- Request a list of payment methods associated to a given account

RESOURCE MODEL

PAYMENTMETHOD RESOURCE

The Payment Method resource represents an instantiated payment method that can be of different types. Some fields are common to all types while the method specification details depend on the type.

A paymentMethod might carry information about a bank card, a voucher, a bank account, a telco account, a loyalty account, a bucket, a check or an online wallet and could be updated to be used with anything else that could be used to perform a payment.

```
{
  "id": "123456",
  "href": "{paymentMethodsAPI}/paymentMethods/12345",
  "name": "Main credit card",
  "description": "My mastercard gold",
  "validFor": {
    "startDateTime": "2016-03-17T00:00:00",
    "endDateTime": "2016-04-16T00:00:00"
  },
  "account": [{
    "id": "321654",
    "href": "{accountsManagementAPI}/account/321654",
    "name": "John Doe's account"
  }, {
    "id": "987654",
    "href": "{accountsManagementAPI}/account/987654",
    "name": "The account of John Doe's daughter"
  }],
  "preferred": true,
  "relatedParty": [{
    "id": "55554444",
    "href": "{customerManagementAPI}/customers/55554444",
    "type": "customer",
    "name": "John Doe",
    "role": "owner"
  }, {
    "id": "66665555",
    "href": "{customerManagementAPI}/customers/66665555",
    "type": "customer",
    "name": "John Doe's daughter",
    "role": "user"
  }],
  "type": "bankCard",
  "authorizationCode": "1234567890",
  "status": "Active",
  "statusDate": "2016-03-17T00:00:00",
  "details": {
    "brand": "MasterCard",
    "type": "Debit",
    "number": "00000000000000000000",
    "expirationDate": "2019-03-25T12:00:00",
    "cvv": "000",
    "lastFourDigits": "0000",
    "nameOnCard": "John Doe",
    "bank": "Fictitious Bank.inc"
  }
}
```

}

FIELD DESCRIPTIONS

Element	Type	Mandatory in API messages	Description
id	string	Yes in response	Unique Identifier within the server for the payment method.
href	string	Yes in response	A resource URI pointing to the resource in the server that stores the detailed information. This is typically the resource url to retrieve individual details for the specific payment method
name	string	No	Friendly name assigned to the payment method
description	string	No	Text describing the contents of the payment method
validFor	TimePeriod	No	Date interval in which the payment method is valid
account	Array of AccountRef	No	Reference to the accounts that are linked to the payment method
preferred	boolean	No	If the method is the preferred one by the owner. Typically used when querying for the payment methods of a specific customer or account
relatedParty	relatedPartyRefType	No	Reference to the customer or party that owns that payment method or can use it
@type	string	Yes	Type of payment method (e.g.: bank card, cash, voucher...). The details field type depends on the value assigned to this one

Element	Type	Mandatory in API messages	Description
authorizationCode	string	No	Authorization code provided by a financial institution. Typically this would be populated for recurring payments using the method, as payments have an authorization code of their own.
status	string	No	Current status of the payment method
statusDate	date-time	No	Last time the status changed
details	oneOf -AccountRefType -TokenizedCardType -BankCardType -BankAccountTransferType -BankAccountDebitType -BucketRefType -CashType -CheckType -LoyaltyRefType -DigitalWalletType	Yes	Details of the payment method. Its type depends on the specified value for the field type.

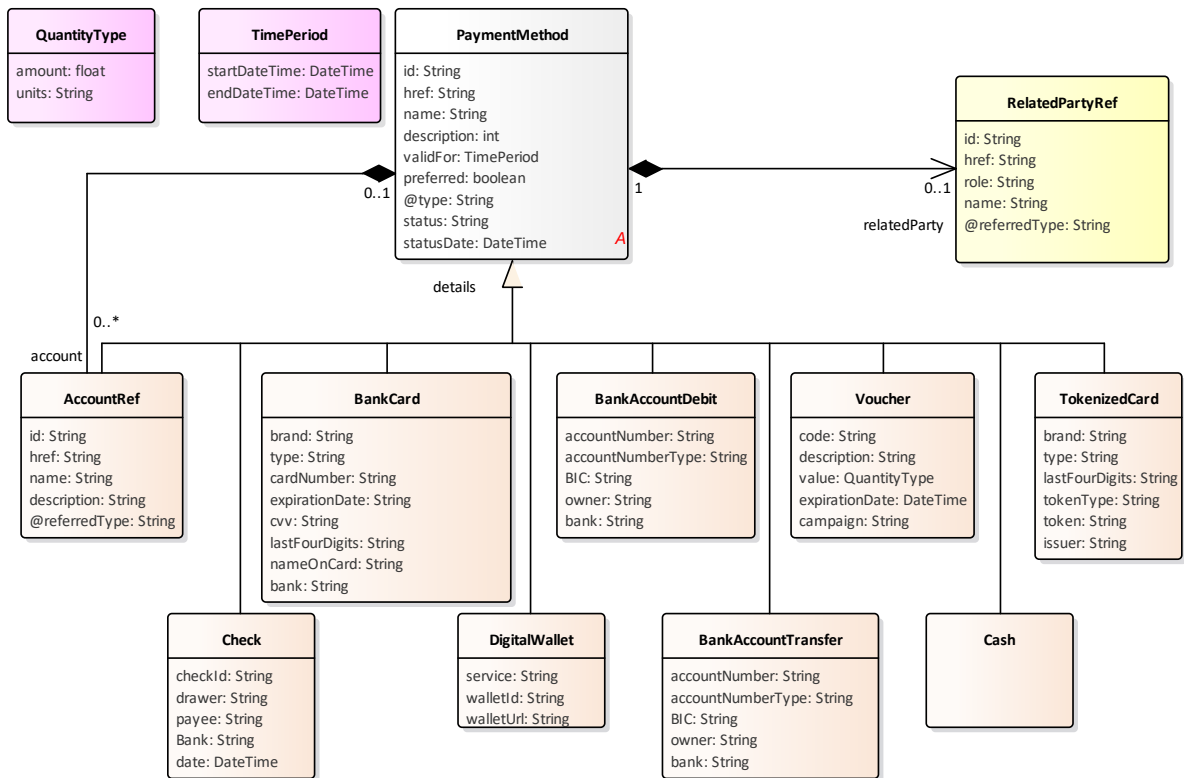


Figure 1: Payment Method resource model

Field Descriptions

RelatedPartyRef: Information about an associated entity and its role

Field	Description
id	Unique identifier of the related party
href	Reference to the party
name	Name of the party
role	Role of the related entity
@referredType	Type of the referred party for polymorphism

BankCard: Detailed information for a bank card

Field	Description
brand	Card brand. E.g.: Visa, MasterCard, AmericanExpress...
type	Type of the card (e.g.: Credit, debit...)
cardNumber	Credit card number
expirationDate	Expiration date of the card
cvv	security code (e.g.: CVV, CVV2) of the card
lastFourDigits	Last four digits of the credit card
nameOnCard	Name on the card
bank	Bank that issued the card

TokenizedCard: Detailed information for a stored tokenized card

Field	Description
brand	Card brand. Might be used for display purposes
type	Card type. Might be used for display purposes
lastFourDigits	Last four digits of the credit card. Might be used for display purposes
tokenType	Token type (e.g.: emv)
token	The token itself
issuer	Whoever issued the token

BankAccountDebit: Detailed information for a bank account debit. Bear in mind that this could be extended to add any required authorization fields to allow recurring payments.

Field	Description
accountNumber	Bank Account Number (this could refer to the IBAN or SWIFT number)
accountNumberType	Type of account number (e.g.: IBAN, SWIFT, ...)
BIC	Business Identifier Code/Swift code of the financial institution where the account is located
owner	Owner of the bank account
bank	Display name of the bank

BankAccountTransfer: Detailed information for a bank account transfer

Field	Description
accountNumber	Bank Account Number (this could refer to the IBAN or SWIFT number)
accountNumberType	Type of account number (e.g.: IBAN, SWIFT, ...)
BIC	Business Identifier Code/Swift code of the financial institution where the account is located
owner	Owner of the bank account
bank	Display name of the bank

Check: Detailed information of a check

Field	Description
code	Unique identifier of the check
drawer	Person or entity writing the check
payee	Person or entity the check is addressed to
bank	Bank performing the payment of the check
date	Date when the check was signed

AccountRef: Reference to a telco account. This entity is used in two different ways:

1. To reference an internal account that could be billed directly to perform the payment in the field “details” when “@type” references an account.
2. To reference accounts that are linked to the payment method in the field “account”

Field	Description
id	Unique identifier of the account
href	Reference to a resource in the server where to perform actions on the account. Most likely the given uri will be called using a different API
name	Entity name
description	Description of the associated account
@referredType	Specifies the type of the referenced account (e.g.: financial)

LoyaltyRef: Reference to an account in a loyalty system that could be used to perform the payment.

Field	Description
id	Unique identifier of the loyalty account
href	Reference to a resource in the server where to perform actions on the loyalty account. Most likely the given uri will be called using a different API
name	Entity name
description	Description of the associated loyalty account

BucketRef: Reference to a bucket that could be used to perform the payment, especially in the pre-paid environment.

Field	Description
id	Unique identifier of the bucket
href	Reference to a resource in the server where to perform actions on the bucket. Most likely the given uri will be called using a different API
name	Entity name
description	Description of the associated bucket

Voucher: Detailed information of a voucher

Field	Description
code	Code that identifies the voucher
description	Description of the voucher i.e.: get one and receive one free
value	Discount that the voucher applies when it's a discount voucher
expirationDate	the voucher's expiration date
campaign	Campaign this voucher belongs to

DigitalWallet: Detailed information of a check

Field	Description
service	Organization, platform or currency backing the wallet (e.g.: PayPal, Yandex, BitCoin...)
walletId	account identifier in that service
walletUrl	URI pointing at the digital wallet (e.g.: https://paypal.me/johndoe)

Cash: Cash has no additional data, but it could be extended to add information (e.g.: the cashier who took the payment, the person who paid, etc.)

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 For reconciliation processes
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

Filtering and attribute selection rules are described in the TMF REST Design Guidelines.

PAYMENT METHODS COLLECTION RESOURCE

GET /paymentMethods/v1/paymentMethod

Description:

The Application invokes this operation to retrieve a list of payment methods from the server.

The request could include filters in order to retrieve only a specific subset of all the payment methods stored in the server such as filtering by type or validity date.

Behavior:

Status Code	Description
200	PaymentMethods information was returned successfully
400	Request Error
500	The server encountered an unexpected condition which prevented it from fulfilling the request
Other	The server may use other HTTP error status codes to reflect the error, the client must be processed in accordance with the error messages in other HTTP specification.

The example below includes the attributes within the Payment Methods resource model that must be included in the query response

REQUEST
<pre>GET https://{serverRoot}/paymentMethods/v1/paymentMethod Content-type: application/json</pre>
RESPONSE
<pre>200 Content-Type: application/json [{ "id": "12345", "href": "{paymentMethodsAPI}/paymentMethod/12345", "description": "My credit card", "validFor": { "startDateTime": "2016-03-25T12:00:00", "endDateTime": "2019-03-25T12:00:00" }, "preferred": true, "relatedParty": [{ "id": "55554444", "href": "{customerManagementAPI}/customer/55554444", "@referredType": "customer", "name": "John Doe ", "role": "owner" }], "@type": "bankCard", "authorizationCode": "1234567890", "status": "Active", "statusDate": "2016-03-25T12:00:00", "details": { "brand": "MasterCard", "type": "Debit", "number": "0000000000000000", "expirationDate": "2019-03-25T12:00:00", "cvv": "000",</pre>

```

        "lastFourDigits": "0000",
        "nameOnCard": "John Doe",
        "bank": "Fictitious Bank.inc"
    },
    {
        "id": "67890",
        "href": "{paymentMethodsAPI}/paymentMethod/67890",
        "description": "Bank account",
        "validFor": {
            "startDateTime": "2013-03-25T12:00:00",
            "endDateTime": "2030-03-25T12:00:00"
        },
        "preferred": false,
        "relatedParty": [{
            "id": "55554444",
            "href": "{customerManagementAPI}/customer/55554444",
            "@referredType": "customer",
            "name": "John Doe",
            "role": "owner"
        }],
        "@type": "bankAccountTransfer",
        "authorizationCode": "1234567890",
        "status": "Active",
        "statusDate": "2013-03-25T12:00:00",
        "details": {
            "accountNumber": "DE44 5001 0517 5407 3249 31",
            "accountNumberType": "IBAN",
            "BIC": "DEUTDEFF",
            "owner": "John Doe",
            "bank": "Deutsche Bank"
        }
    },
    {
        "id": "444444",
        "href": "{paymentMethodsAPI}/paymentMethod/444444",
        "description": "Check",
        "validFor": {
            "startDateTime": "2010-03-25T12:00:00",
            "endDateTime": "2010-04-25T12:00:00"
        },
        "preferred": false,
        "relatedParty": [{
            "id": "55554444",
            "href": "{customerManagementAPI}/customer/55554444",
            "@referredType": "customer",
            "name": "John Doe",
            "role": "owner"
        }],
        "@type": "check",
        "authorizationCode": "1234567890",
        "status": "Active",
        "statusDate": "2010-03-25T12:00:00",
        "details": {
            "drawer": "TMForum",
            "payee": "John Doe",
            "bank": "Fictitious Bank.inc",
            "date": "2010-03-25T12:00:00"
        }
    },
}

```

```

{
  "id": "55555",
  "href": "{paymentMethodsAPI}/paymentMethod/55555",
  "description": "Loyalty points program",
  "validFor": {
    "startDateTime": "2007-11-02T12:00:00",
    "endDateTime": "2040-01-01T12:00:00"
  },
  "preferred": false,
  "relatedParty": [{
    "id": "55554444",
    "href": "{customerManagementAPI}/customer/55554444",
    "@referredType": "customer",
    "name": "John Doe "
    "role": "owner"
  }],
  "@type": "loyalty",
  "status": "Active",
  "statusDate": "2010-03-25T12:00:00",
  "details": {
    "id": "57869",
    "href": "loyaltyApi/loyaltyProgram/3412",
    "name": "John Doe's loyalty points"
    "description": "Loyalty program in association with
    fictitious company .inc"
  }
},
{
  "id": "55555",
  "href": "{paymentMethodsAPI}/paymentMethod/7777",
  "description": "Discount voucher",
  "validFor": {
    "startDateTime": "2016-11-02T12:00:00",
    "endDateTime": "2018-01-01T12:00:00"
  },
  "preferred": false,
  "relatedParty": [{
    "id": "55554444",
    "href": "{customerManagementAPI}/customer/55554444",
    "@referredType": "customer",
    "name": "John Doe"
    "role": "owner"
  }],
  "@type": "voucher",
  "status": "Active",
  "statusDate": "2010-03-25T12:00:00",
  "details": {
    "id": "12345",
    "code": "H%3845",
    "description": "Get 300MB free",
    "value": [{
      "amount": "300",
      "units": "MB"
    }],
    "expirationDate": "2018-01-01T12:00:00",
    "campaign": "Some cool Christmas campaign",
  }
}
}]

```


The example below shows the case where the reports for an user must only include bank cards of the party 55554444. If payment methods are associated to accounts instead of parties, the query parameter `account.id` could be used instead.

REQUEST
<pre>GET https://{serverRoot}/paymentMethods/v1/paymentMethod?type=bankCard&relatedParty.id=55554444 Content-type: application/json</pre>
RESPONSE
<pre>200 Content-Type: application/json [{ "id": "12345", "href": "{paymentMethodsAPI}/paymentMethod/12345", "description": "My credit card", "validFor": { "startDateTime": "2016-03-25T12:00:00", "endDateTime": "2019-03-25T12:00:00" }, "preferred": true, "relatedParty": [{ "id": "55554444", "href": "{customerManagementAPI}/customer/55554444", "@referredType": "customer", "name": "John Doe", "role": "owner" }], "@type": "bankCard", "authorizationCode": "1234567890", "status": "Active", "statusDate": "2010-03-25T12:00:00", "details": { "brand": "MasterCard", "type": "Debit", "number": "00000000000000000000", "expirationDate": "2019-03-25T12:00:00", "cvv": "000", "lastFourDigits": "0000", "nameOnCard": "John Doe", "bank": "Fictitious Bank.inc" } }]</pre>

POST /paymentMethods/v1/paymentMethod

Description:

The Application invokes this operation to request a new payment method to be created.

Behavior:

Status Code	Description
201	Successful paymentMethod generated (resource created)
400	Request Error
500	The server encountered an unexpected condition which prevented it from fulfilling the request
Other	The server may use other HTTP error status codes to reflect the error, the client must be processed in accordance with the error messages in other HTTP specification.

The example below includes the attributes within the Usage Report entity resource model that are mandatory to be included in the request when creating a new resource in the server

REQUEST
<pre> POST https://{serverRoot}/paymentMethods/v1/paymentMethod Content-type: application/json { "description": "My credit card", "validFor": { "startDateTime": "2016-03-25T12:00:00", "endDateTime": "2019-03-25T12:00:00" }, "preferred": true, "relatedParty": [{ "id": "55554444", "href": "{customerManagementAPI}/customer/55554444", "@referredType": "customer", "name": "John Doe", "role": "owner" }], "@type": "bankCard", "authorizationCode": "1234567890", "status": "Active", "statusDate": "2010-03-25T12:00:00", "details": { "brand": "MasterCard", "type": "Debit", "number": "00000000000000000000", "expirationDate": "2019-03-25T12:00:00", "cvv": "000", "lastFourDigits": "0000", "nameOnCard": "John Doe", "bank": "Fictitious Bank.inc" } } </pre>
RESPONSE
201

```
Content-Type: application/json
Location: https://{serverRoot}/paymentMethod/v1/paymentMethod/12345

Response is not required to include a BODY with the contents of
the paymentMethod resource created, but if included it must be
filled with at least the mandatory parameters.
```

SINGLE PAYMENT METHOD RESOURCE

GET /paymentMethods/v1/paymentMethod/{paymentMethodId}

Description:

The Application invokes this operation to retrieve a specific payment method.

Behavior:

Status Code	Description
200	the payment method information was returned successfully
400	Request Error
500	The server encountered an unexpected condition which prevented it from fulfilling the request
Other	The server may use other HTTP error status codes to reflect the error, the client must be processed in accordance with the error messages in other HTTP specification.

The example below includes the attributes within the PaymentMethod resource model that must be included in the query response

REQUEST
GET https://{serverRoot}/paymentMethods/v1/paymentMethod/12345 Content-type: application/json
RESPONSE
200 Content-Type: application/json { " id": "12345", " href": "{paymentMethodsAPI}/paymentMethod/12345", " description": "My credit card", " validFor": { " startDateTime": "2016-03-25T12:00:00", " endDateTime": "2019-03-25T12:00:00" }, }

```

    "preferred": true,
    "relatedParty": [{
      "id": "55554444",
      "href": "{customerManagementAPI}/customer/55554444",
      "@referredType": "customer",
      "name": "John Doe ",
      "role": "owner"
    }],
    "@type": "bankCard",
    "authorizationCode": "1234567890",
    "status": "Active",
    "statusDate": "2010-03-25T12:00:00",
    "details": {
      "brand": "MasterCard",
      "type": "Debit",
      "number": "000000000000000000",
      "expirationDate": "2019-03-25T12:00:00",
      "cvv": "000",
      "lastFourDigits": "0000",
      "nameOnCard": "John Doe",
      "bank": "Fictitious Bank.inc"
    }
  }
}

```

DELETE /paymentMethods/v1/paymentMethod/{paymentMethodId}

Description:

The Application invokes this operation to delete a specific payment method.

Behavior:

Status Code	Description
200 or 204	the payment method information was deleted successfully
400	Request Error
500	The server encountered an unexpected condition which prevented it from fulfilling the request
Other	The server may use other HTTP error status codes to reflect the error, the client must be processed in accordance with the error messages in other HTTP specification.

The example below includes the attributes within the PaymentMethod resource model that must be included in the query response

REQUEST
DELETE https://{serverRoot}/paymentMethods/v1/paymentMethod/12345

Content-type: application/json
RESPONSE
204

ACCOUNT PAYMENT METHODS RESOURCE

GET /paymentMethods/v1/account/{accountId}/paymentMethod

Description:

The Application invokes this operation to request the payment methods associated to a specific account.

Behavior:

Status Code	Description
200	Payment methods retrieved successfully
400	Request Error
500	The server encountered an unexpected condition which prevented it from fulfilling the request
Other	The server may use other HTTP error status codes to reflect the error, the client must be processed in accordance with the error messages in other HTTP specification.

The example below includes the attributes within the Payment Method entity resource model that are mandatory to be included in the response when retrieving the payment methods associated to an account in the server

REQUEST
GET https://{serverRoot}/paymentMethods/v1/account/99999/paymentMethod Content-type: application/json
RESPONSE
200 Content-Type: application/json [{ " id": "22222", " href": "{paymentMethodsAPI}/paymentMethod/22222", " description": "My VISA Gold", " validFor": { " startDateTime": "2016-03-25T12:00:00", " endDateTime": "2019-03-25T12:00:00" }, },

```

    "preferred": true,
    "relatedParty": [{
      "id": "55554444",
      "href": "{customerManagementAPI}/customer/55554444",
      "@referredType": "customer",
      "name": "John Doe"
      "role": "owner"
    }],
    "@type": "bankCard",
    "authorizationCode": "1234567890",
    "status": "Active",
    "statusDate": "2010-03-25T12:00:00",
    "details": {
      "brand": "Visa",
      "type": "Credit",
      "number": "000000000000000000",
      "expirationDate": "2018-04-25T12:00:00",
      "cvv": "000",
      "lastFourDigits": "0000",
      "nameOnCard": "John Doe",
      "bank": "Fictitious Bank.inc"
    }
  },
  {
    ...
  }
]

```

VERSION HISTORY

Version Number	Date Modified	Release led by:	Description
Version 0.1	28-Apr-2017	Guillermo Martínez (Telefónica)	First Draft of the document.
Version 0.2	06-Jun-2017	Guillermo Martínez (Telefónica)	Second Draft of the document.
Version 1.0.1	17-Nov-2017	Guillermo Martínez (Telefónica)	Final version of the document
Version 1.0.2	18-Jan-2018	Adrienne Walcott	Formatting/style edits prior to publication

RELEASE HISTORY

Release Number	Date Modified	Modified by:	Description of changes
17.5.0	17-Nov-2017	Guillermo Martínez (Telefónica)	First release of document