

CustomerBill Conformance Profile

NOTICE

Copyright © TM Forum 2023. All Rights Reserved.

This document and translations of it may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published, and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this section are included on all such copies and derivative works. However, this document itself may not be modified in any way, including by removing the copyright notice or references to TM FORUM, except as needed for the purpose of developing any document or deliverable produced by a TM FORUM Collaboration Project Team (in which case the rules applicable to copyrights, as set forth in the [TM FORUM IPR Policy](#), must be followed) or as required to translate it into languages other than English.

The limited permissions granted above are perpetual and will not be revoked by TM FORUM or its successors or assigns.

This document and the information contained herein is provided on an "AS IS" basis and TM FORUM DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY OWNERSHIP RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Direct inquiries to the TM Forum office:

181 New Road, Suite 304

Parsippany, NJ 07054, USA

Tel No. +1 862 227 1648

TM Forum Web Page: www.tmforum.org

Table of Contents

NOTICE	1
Introduction - API description	4
Resource Model Conformance	5
API Mandatory Resources	5
General Notes on Resource Attribute Conformance	5
AppliedCustomerBillingRate Resource Mandatory Attributes	6
BillCycle Resource Mandatory Attributes	7
CustomerBill Resource Mandatory Attributes	7
CustomerBillCreateEvent Resource Mandatory Attributes	9
CustomerBillOnDemand Resource Mandatory Attributes	9
CustomerBillOnDemandCreateEvent Resource Mandatory Attributes	10
CustomerBillOnDemandStateChangeEvent Resource Mandatory Attributes	10
CustomerBillStateChangeEvent Resource Mandatory Attributes	10
Notification Model Conformance	11
API Operations Conformance	12
Operation	12
Prefix	12
AppliedCustomerBillingRate Mandatory Operations	12
BillCycle Mandatory Operations	13
CustomerBill Mandatory Operations	13
CustomerBillCreateEvent Mandatory Operations	13
CustomerBillOnDemand Mandatory Operations	13
CustomerBillOnDemandCreateEvent Mandatory Operations	13
CustomerBillOnDemandStateChangeEvent Mandatory Operations	13
CustomerBillStateChangeEvent Mandatory Operations	14
RETRIEVE Operation Conformance	15
AppliedCustomerBillingRate	15
Channels	15
Request Message Schema	15
Response Message Schema	15
BillCycle	16
Channels	16
Request Message Schema	16
Response Message Schema	16
CustomerBill	17
Channels	17
Request Message Schema	17
Response Message Schema	18

CustomerBillOnDemand	18
Channels	18
Request Message Schema	18
Response Message Schema	19
Definitions for Filter	19
LIST Operation Conformance	20
AppliedCustomerBillingRate	20
Channels	20
Request Message Schema	20
Response Message Schema	20
BillCycle	21
Channels	21
Request Message Schema	21
Response Message Schema	22
CustomerBill	22
Channels	22
Request Message Schema	23
Response Message Schema	23
CustomerBillOnDemand	23
Channels	24
Request Message Schema	24
Response Message Schema	24
Definitions for Filter	25
CREATE Operation Conformance	26
CustomerBillOnDemand	26
Channels	26
Request Message Schema	26
Response Message Schema	26
Expected Status Codes:	27
PATCH Operation Conformance	28
CustomerBill	28
Channels	28
Request Message Schema	28
Response Message Schema	28
Expected Status Codes:	29
Patchable and Non Patchable Attributes:	29
DELETE Operation Conformance	30
Acknowledgements	31
Release History	31
Version History	31

Introduction - API description

The following document is the conformance specification of the Async API for Any management.

Resource Model Conformance

API Mandatory Resources

The following table indicates the mandatory resources for this API.

Resource Name	Comment
AppliedCustomerBillingRate	
BillCycle	
CustomerBill	
CustomerBillCreateEvent	
CustomerBillOnDemand	
CustomerBillOnDemandCreateEvent	
CustomerBillOnDemandStateChangeEvent	
CustomerBillStateChangeEvent	

General Notes on Resource Attribute Conformance

There are three situations that could occur for an attribute:

- Mandatory attribute,
- Mandatory attribute if the optional parent attribute is present,
- Non-mandatory/Optional attribute. Those are all the other attributes not mentioned in the following subsections. Please refer to the corresponding API REST Specification for more details.
- The tables in the subsections below indicate which attributes are mandatory including mandatory when an optional parent is present.
- Where a resource is an input into an API (e.g. CREATE, PATCH), Mandatory means that the attribute value must be supplied by the API consumer in the input (and must not be blank or null).
- Where a resource is an output from an API (e.g. RETRIEVE, LIST, CREATE), Mandatory means that the attribute value must be supplied by the API provider in the output (and must not be blank or null).
- For a sub-resource that is not an array, Mandatory (cardinality 1..1) means that the sub-resource must be present, while Optional (cardinality 0..1) means that the sub-resource may be absent. Mandatory and Optional on the sub-resource attributes apply to the sub-resource if present.
- For a sub-resource that is an array, Mandatory (cardinality 1..) **means that at least one sub-resource must be present in the array, while Optional (cardinality 0..)** means that the array may be absent. Mandatory and Optional on the sub-resource attributes apply to each of the sub-

resources if present.

In this table are listed all mandatory attributes. A mandatory attribute MUST be retrieved in resource representation when no attribute selection is used (e.g. retrieveTroubleTicket.commandRequest {id}) without any attribute selection

When an attribute is listed with an indentation (in second column) it means this attribute is mandatory if root (parent) attribute is present.

AppliedCustomerBillingRate Resource Mandatory Attributes

Mandatory attribute when parent is present		Rule
@type		M
date		M
id		M
isBilled		M
topicRef		M
bill (if present)		
	@type	M
	id	M
billingAccount (if present)		
	@type	M
	id	M
	name	M
characteristic (if present)		
	@type	M
	name	M
	valueType	M
characteristic.characteristicRelationship (if present)		
	@type	M
	id	M
	relationshipType	M
periodCoverage (if present)		
	endDateTime	M
	startDateTime	M
product (if present)		

Mandatory attribute when parent is present		Rule
	@type	M
	id	M
taxExcludedAmount (if present)		
	unit	M
	value	M
taxIncludedAmount (if present)		
	unit	M
	value	M

BillCycle Resource Mandatory Attributes

Mandatory attribute when parent is present		Rule
billingDate		M
billingPeriod		M
chargeDate		M
creditDate		M
id		M
mailingDate		M
name		M
paymentDueDate		M
topicRef		M
BillCycleSpecification (if present)		
	@type	M
	id	M
validFor (if present)		
	endDateTime	M
	startDateTime	M

CustomerBill Resource Mandatory Attributes

Mandatory attribute when parent is present		Rule
@type		M
billDate		M
id		M
lastUpdate		M

Mandatory attribute when parent is present		Rule
state		M
topicRef		M
amountDue (if present)		
	unit	M
	value	M
appliedPayment (if present)		
	payment	M
appliedPayment.appliedAmount (if present)		
	unit	M
	value	M
appliedPayment.payment (if present)		
	@type	M
	id	M
billCycle (if present)		
	@referredType	M
	@type	M
	id	M
billDocument (if present)		
	@type	M
billingAccount (if present)		
	@referredType	M
	@type	M
	id	M
	name	M
billingPeriod (if present)		
	endDateTime	M
	startDateTime	M
financialAccount (if present)		
	@referredType	M
	@type	M
	id	M
	name	M
paymentMethod (if present)		

Mandatory attribute when parent is present		Rule
	@type	M
	id	M
relatedParty (if present)		
	@type	M
	partyOrPartyRole	M
	role	M
remainingAmount (if present)		
	unit	M
	value	M
taxExcludedAmount (if present)		
	unit	M
	value	M
taxIncludedAmount (if present)		
	unit	M
	value	M
taxItem (if present)		
	@type	M
	taxAmount	M
taxItem.taxAmount (if present)		
	unit	M
	value	M

CustomerBillCreateEvent Resource Mandatory Attributes

Mandatory attribute when parent is present	Rule
--	------

CustomerBillOnDemand Resource Mandatory Attributes

Mandatory attribute when parent is present	Rule
@type	M
id	M
lastUpdate	M

Mandatory attribute when parent is present		Rule
state		M
topicRef		M
billingAccount (if present)		
	@type	M
	id	M
customerBill (if present)		
	@type	M
	id	M
relatedParty (if present)		
	@type	M
	partyOrPartyRole	M
	role	M

CustomerBillOnDemandCreateEvent Resource Mandatory Attributes

Mandatory attribute when parent is present	Rule
--	------

CustomerBillOnDemandStateChangeEvent Resource Mandatory Attributes

Mandatory attribute when parent is present	Rule
--	------

CustomerBillStateChangeEvent Resource Mandatory Attributes

Mandatory attribute when parent is present	Rule
--	------

Notification Model Conformance

There are no mandatory notifications for this API.

API Operations Conformance

For every single resource, the following tables include mandatory operations.

Operation

Every operation consists of two parts:

- REQUEST: Publish a message on a 'commandRequest' channel.
- RESPONSE: Subscribe to the corresponding 'commandReply' channel to receive the response.

Prefix

All channel names are defined with a "{prefix}" parameter.

Let's take the example of `{prefix}.tmfapi.AppliedCustomerBillingRate.v5.retrieveAppliedCustomerBillingRate.commandRequest`.

This topic name consists of two pieces:

1. a optional prefix **{prefix}**
2. a constant: **tmfapi.AppliedCustomerBillingRate.v5.retrieveAppliedCustomerBillingRate.commandRequest**

Your application may support this channel both with and without a prefix, but the constant must always be present.

Without the prefix, the channel name is:

tmfapi.AppliedCustomerBillingRate.v5.retrieveAppliedCustomerBillingRate.commandRequest

However, some organisations may prefix the channel name for administrative purposes, say to denote the name of a company, department, etc. When using a prefix, say 'acme' for a company named 'Acme Telecom', the channel name is:

acme.tmfapi.AppliedCustomerBillingRate.v5.retrieveAppliedCustomerBillingRate.commandRequest

AppliedCustomerBillingRate Mandatory Operations

The following table indicates which ones are mandatory for the AppliedCustomerBillingRate resource:

Uniform API Operation	Comment
RETRIEVE	Retrieve a AppliedCustomerBillingRate given it's id

Uniform API Operation	Comment
LIST	Retrieve a list of AppliedCustomerBillingRates

BillCycle Mandatory Operations

The following table indicates which ones are mandatory for the BillCycle resource:

Uniform API Operation	Comment
RETRIEVE	Retrieve a BillCycle given it's id
LIST	Retrieve a list of BillCycles

CustomerBill Mandatory Operations

The following table indicates which ones are mandatory for the CustomerBill resource:

Uniform API Operation	Comment
RETRIEVE	Retrieve a CustomerBill given it's id
LIST	Retrieve a list of CustomerBills

CustomerBillCreateEvent Mandatory Operations

There are no mandatory operations define for the CustomerBillCreateEvent resource.

CustomerBillOnDemand Mandatory Operations

The following table indicates which ones are mandatory for the CustomerBillOnDemand resource:

Uniform API Operation	Comment
RETRIEVE	Retrieve a CustomerBillOnDemand given it's id
LIST	Retrieve a list of CustomerBillOnDemands
CREATE	Create a CustomerBillOnDemand

CustomerBillOnDemandCreateEvent Mandatory Operations

There are no mandatory operations define for the CustomerBillOnDemandCreateEvent resource.

CustomerBillOnDemandStateChangeEvent Mandatory Operations

There are no mandatory operations define for the CustomerBillOnDemandStateChangeEvent

resource.

CustomerBillStateChangeEvent Mandatory Operations

There are no mandatory operations define for the CustomerBillStateChangeEvent resource.

RETRIEVE Operation Conformance

AppliedCustomerBillingRate

This operation retrieves a AppliedCustomerBillingRate entity.

Channels

REQUEST CHANNEL	{prefix}.customerBill.v5.retrieveAppliedCustomerBillingRate.commandRequest
REPLY CHANNEL	{prefix}.customerBill.v5.retrieveAppliedCustomerBillingRate.commandReply

Note: See the API Operations Conformance section above for more details on the request and reply channels.

Request Message Schema

Payload

The parameters for this operation are to be sent as headers.

Headers

Property		Mandatory/Optional
X-Correlation-Id		M
Reply-Channel		M
Parameters		M
	id	M
	fields	
Query-Filters		

Response Message Schema

Payload

The Payload is is a AppliedCustomerBillingRate resource entity.

Headers

Property	Mandatory/Optional
X-Correlation-Id	M
Status-Code	M

Property	Mandatory/Optional
X-Request-Channel	M

Expected Status Codes:

Status Code	Mandatory/Optional
200 if successful	M
404 if not found	M

BillCycle

This operation retrieves a BillCycle entity.

Channels

REQUEST CHANNEL	{prefix}.customerBill.v5.retrieveBillCycle.comm andRequest
REPLY CHANNEL	{prefix}.customerBill.v5.retrieveBillCycle.comm andReply

Note: See the API Operations Conformance section above for more details on the request and reply channels.

Request Message Schema

Payload

The parameters for this operation are to be sent as headers.

Headers

Property		Mandatory/Optional
X-Correlation-Id		M
Reply-Channel		M
Parameters		M
	id	M
	fields	
Query-Filters		

Response Message Schema

Payload

The Payload is is a BillCycle resource entity.

Headers

Property	Mandatory/Optional
X-Correlation-Id	M
Status-Code	M
X-Request-Channel	M

Expected Status Codes:

Status Code	Mandatory/Optional
200 if successful	M
404 if not found	M

CustomerBill

This operation retrieves a CustomerBill entity.

Channels

REQUEST CHANNEL	{prefix}.customerBill.v5.retrieveCustomerBill.co mmandRequest
REPLY CHANNEL	{prefix}.customerBill.v5.retrieveCustomerBill.co mmandReply

Note: See the API Operations Conformance section above for more details on the request and reply channels.

Request Message Schema

Payload

The parameters for this operation are to be sent as headers.

Headers

Property		Mandatory/Optional
X-Correlation-Id		M
Reply-Channel		M
Parameters		M
	id	M

Property		Mandatory/Optional
	fields	
Query-Filters		

Response Message Schema

Payload

The Payload is is a CustomerBill resource entity.

Headers

Property	Mandatory/Optional
X-Correlation-Id	M
Status-Code	M
X-Request-Channel	M

Expected Status Codes:

Status Code	Mandatory/Optional
200 if successful	M
404 if not found	M

CustomerBillOnDemand

This operation retrieves a CustomerBillOnDemand entity.

Channels

REQUEST CHANNEL	{prefix}.customerBill.v5.retrieveCustomerBillOnDemand.commandRequest
REPLY CHANNEL	{prefix}.customerBill.v5.retrieveCustomerBillOnDemand.commandReply

Note: See the API Operations Conformance section above for more details on the request and reply channels.

Request Message Schema

Payload

The parameters for this operation are to be sent as headers.

Headers

Property		Mandatory/Optional
X-Correlation-Id		M
Reply-Channel		M
Parameters		M
	id	M
	fields	
Query-Filters		

Response Message Schema

Payload

The Payload is is a CustomerBillOnDemand resource entity.

Headers

Property	Mandatory/Optional
X-Correlation-Id	M
Status-Code	M
X-Request-Channel	M

Expected Status Codes:

Status Code	Mandatory/Optional
200 if successful	M
404 if not found	M

Definitions for Filter

- **Filtered Search:** A filtered search can be applied using query parameters to obtain only the resources that meet the criteria defined by the filtering parameters included in the request. Several elements can be applied to the filtered search as part of the 'filters' parameter. In that case logic, a logical AND is applied to combine the criteria (e.g.severity=<value>&status=<value>).
- **Attribute selection (Limiting Response Data):** In order to limit which attributes are included in the response, the RETRIEVE request payload can include the fields parameter. Only those attributes whose names are supplied in this parameter will be returned. Attribute selection capabilities are the same for collections retrieval and individual resource queries.
- **Level:** The filtering and attribute selection can apply to the top level properties (attributes) and subproperties. The tables below show which attributes need to be supported in top-level or contained resources.

LIST Operation Conformance

AppliedCustomerBillingRate

This operation retrieves an array of AppliedCustomerBillingRate entities. Attribute selection is enabled for all first level attributes.

Channels

REQUEST CHANNEL	{prefix}.customerBill.v5.listAppliedCustomerBillingRate.commandRequest
REPLY CHANNEL	{prefix}.customerBill.v5.listAppliedCustomerBillingRate.commandReply

Note: See the API Operations Conformance section above for more details on the request and reply channels.

Request Message Schema

Payload

The parameters for this operation are to be sent as headers.

Headers

Property		Mandatory/Optional
X-Correlation-Id		M
Reply-Channel		M
Parameters		M
	fields	
	offset	
	limit	
Query-Filters		

Response Message Schema

Payload

The Payload is is an array of AppliedCustomerBillingRate resource entities.

Headers

Property	Mandatory/Optional
X-Correlation-Id	M
Status-Code	M
X-Total-Count	
X-Result-Count	
X-Request-Channel	M

Expected Status Codes:

Status Code	Mandatory/Optional
200 if successful	M
404 if not found	M

BillCycle

This operation retrieves an array of BillCycle entities. Attribute selection is enabled for all first level attributes.

Channels

REQUEST CHANNEL	{prefix}.customerBill.v5.listBillCycle.commandRequest
REPLY CHANNEL	{prefix}.customerBill.v5.listBillCycle.commandReply

Note: See the API Operations Conformance section above for more details on the request and reply channels.

Request Message Schema

Payload

The parameters for this operation are to be sent as headers.

Headers

Property	Mandatory/Optional
X-Correlation-Id	M
Reply-Channel	M
Parameters	M
	fields
	offset

Property		Mandatory/Optional
	limit	
Query-Filters		

Response Message Schema

Payload

The Payload is is an array of BillCycle resource entities.

Headers

Property	Mandatory/Optional
X-Correlation-Id	M
Status-Code	M
X-Total-Count	
X-Result-Count	
X-Request-Channel	M

Expected Status Codes:

Status Code	Mandatory/Optional
200 if successful	M
404 if not found	M

CustomerBill

This operation retrieves an array of CustomerBill entities. Attribute selection is enabled for all first level attributes.

Channels

REQUEST CHANNEL	{prefix}.customerBill.v5.listCustomerBill.commandRequest
REPLY CHANNEL	{prefix}.customerBill.v5.listCustomerBill.commandReply

Note: See the API Operations Conformance section above for more details on the request and reply channels.

Request Message Schema

Payload

The parameters for this operation are to be sent as headers.

Headers

Property		Mandatory/Optional
X-Correlation-Id		M
Reply-Channel		M
Parameters		M
	fields	
	offset	
	limit	
Query-Filters		

Response Message Schema

Payload

The Payload is is an array of CustomerBill resource entities.

Headers

Property	Mandatory/Optional
X-Correlation-Id	M
Status-Code	M
X-Total-Count	
X-Result-Count	
X-Request-Channel	M

Expected Status Codes:

Status Code	Mandatory/Optional
200 if successful	M
404 if not found	M

CustomerBillOnDemand

This operation retrieves an array of CustomerBillOnDemand entities. Attribute selection is enabled for all first level attributes.

Channels

REQUEST CHANNEL	{prefix}.customerBill.v5.listCustomerBillOnDemand.commandRequest
REPLY CHANNEL	{prefix}.customerBill.v5.listCustomerBillOnDemand.commandReply

Note: See the API Operations Conformance section above for more details on the request and reply channels.

Request Message Schema

Payload

The parameters for this operation are to be sent as headers.

Headers

Property		Mandatory/Optional
X-Correlation-Id		M
Reply-Channel		M
Parameters		M
	fields	
	offset	
	limit	
Query-Filters		

Response Message Schema

Payload

The Payload is is an array of CustomerBillOnDemand resource entities.

Headers

Property		Mandatory/Optional
X-Correlation-Id		M
Status-Code		M
X-Total-Count		
X-Result-Count		
X-Request-Channel		M

Expected Status Codes:

Status Code	Mandatory/Optional
200 if successful	M
404 if not found	M

Definitions for Filter

- **Filtered Search:** A filtered search can be applied using query parameters to obtain only the resources that meet the criteria defined by the filtering parameters included in the request. Several elements can be applied to the filtered search as part of the 'filters' parameter. In that case logic, a logical AND is applied to combine the criteria (e.g.severity=<value>&status=<value>).
- **Attribute selection (Limiting Response Data):** In order to limit which attributes are included in the response, the RETRIEVE request payload can include the fields parameter. Only those attributes whose names are supplied in this parameter will be returned. Attribute selection capabilities are the same for collections retrieval and individual resource queries.
- **Level:** The filtering and attribute selection can apply to the top level properties (attributes) and subproperties. The tables below show which attributes need to be supported in top-level or contained resources.

CREATE Operation Conformance

CustomerBillOnDemand

This operation creates a CustomerBillOnDemand entity.

Channels

REQUEST CHANNEL	{prefix}.customerBill.v5.createCustomerBillOnDemand.commandRequest
REPLY CHANNEL	{prefix}.customerBill.v5.createCustomerBillOnDemand.commandReply

Note: See the API Operations Conformance section above for more details on the request and reply channels.

Request Message Schema

Payload

The Payload is is a CustomerBillOnDemand FVO resource entity.

The following table provides the list of mandatory attributes when creating an instance of the CustomerBillOnDemand resource, including any possible rule, conditions and applicable default values.

Mandatory Attribute	Rule
---------------------	------

Headers

Property		Mandatory/Optional
X-Correlation-Id		M
Reply-Channel		M
Parameters		M
	fields	

Response Message Schema

Payload

The Payload is is a CustomerBillOnDemand resource entity.

Headers

Property	Mandatory/Optional
X-Correlation-Id	M
Status-Code	M
X-Request-Channel	M

Expected Status Codes:

Status Code	Mandatory/Optional
201 if successful	M

PATCH Operation Conformance

CustomerBill

This operation updates partially a CustomerBill entity.

Channels

REQUEST CHANNEL	{prefix}.customerBill.v5.patchCustomerBill.commandRequest
REPLY CHANNEL	{prefix}.customerBill.v5.patchCustomerBill.commandReply

Note: See the API Operations Conformance section above for more details on the request and reply channels.

Request Message Schema

Payload

The Payload is is a CustomerBill MVO resource entity.

Headers

Property		Mandatory/Optional
X-Correlation-Id		M
Reply-Channel		M
Parameters		M
	id	M
	fields	

Response Message Schema

Payload

The Payload is is a CustomerBill resource entity.

Headers

Property		Mandatory/Optional
X-Correlation-Id		M
Status-Code		M
X-Request-Channel		M

Expected Status Codes:

Status Code	Mandatory/Optional
200 if successful	M

Patchable and Non Patchable Attributes:

DELETE Operation Conformance

<TMF_DELETE_OPERATION_CONFORMANCE>

Acknowledgements

Release History

Release Number	Date	Release led by:	Description

Version History

Version Number	Date	Modified by	Description