

Client API for Omnichannel Promotion Pricing

Document History

Version	Date	Change
1.0	2021-11-29	Initial version

Client API 8.0

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Interface Summary

The Client API 8.0 is part of the promotion pricing service 7.0.x and defines the data model for price calculation requests and responses. The request contains a shopping cart with one or multiple line items. The promotion pricing service applies monetary discounts and loyalty points (for example) to the given shopping cart based on its content (items, prices, scanned coupons, assigned customer groups, and so on) and on the master data of the promotions accessible via the Data Access API. After the price calculation, it returns added information about the promotions that have been applied.



The communication is stateless and without any graphical user interface (GUI); it is up to the client to build up a context for the data that it receives.

Preconditions

The promotion pricing service is an autonomous service. It does not need to invoke other services in order to be able to calculate monetary discounts and loyalty points because the necessary data is provided as part of the request response and the data that is available via the Data Access API of the PPS.

The promotion pricing service receives the following information as part of the request:

- Regular prices (RegularSalesUnitPrice)



The regular price can also be retrieved via the Data Access API.

- Complete article and merchandise hierarchies of an item (MerchandiseHierarchy)
For example not only the merchandise hierarchy groups that are assigned directly to the items, but the whole merchandise hierarchy trees above them.
- Customer group assignments (Loyalty)
- Manual triggers (PromotionManualTriggerType)
- Extension elements (any)

Calling the Client API

Basically, there are two different ways how to call (use) the Client API.

HTTP(S) based REST access

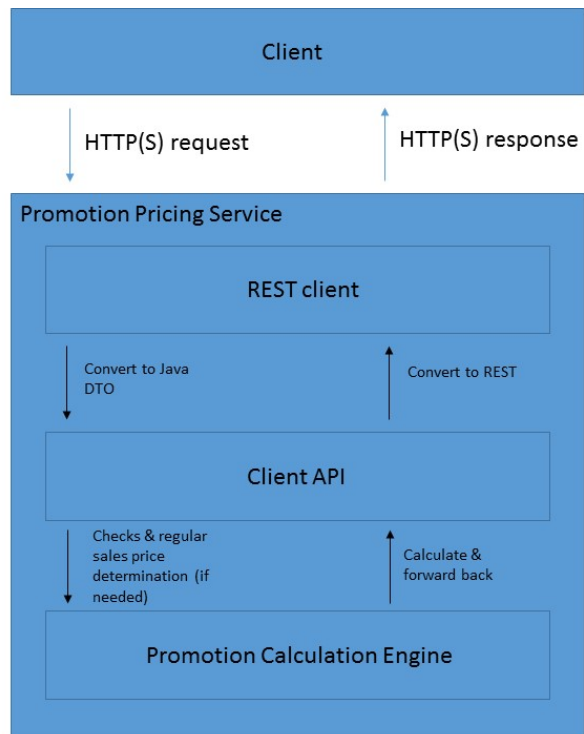
The client, for example, a POS system sends an HTTP(S) based REST request to the promotion pricing service.

Call Details	Value
HTTP(S) method	POST
URL	http[s]://<HOSTNAME>:<PORT>/restapi/

POST header field	Header field value	Mandatory	Description
Content-Type	application/xml or application/json	yes	The content type of the body. If the body contains XML then use application/xml. If the body contains JSON then use application/json.
Authorization	Basic authentication	yes	The basic authentication contains ID and password of the service user that is used to carry out the Promotion Pricing Service.

POST body content	Mandatory	Data type	Description
Price calculation request as XML or JSON	Yes	PriceCalculate (see chapter Data Model)	The price calculation request It contains the version numbers, an ARTS header and the shopping cart (see chapter Data Model).

HTTP(S) status code	Response body content	Data type	Description
200 (OK)	Price calculation response as XML or JSON	PriceCalculateResponse (see chapter Data Model)	The response of the promotion pricing service to the shopping cart. This can be the updated shopping cart that includes the calculated discounts and bonus points, information about used promotion master data, and applied coupons.
400 (Bad Request)	Price calculation response as XML or JSON	Price calculation response as XML or JSON	Calculation request could not be fulfilled due to wrong or missing data.
401 (Unauthorized)			Calculation request could not be fulfilled due to a non-existing service user and/or a wrong password.
403 (Forbidden)			Calculation request could not be fulfilled due to a service user without the necessary permissions.
500 (Internal Server Error)			Calculation request could not be fulfilled due to unforeseen technical problems, for example, database exceptions.



Java Access

The needed libraries for the promotion pricing service are integrated into the system of the client. With this, the client can directly call the method `calculate()` of an implementation of the `PromotionPricingService` interface:

PromotionPricingService interface

```
/* *****  
Class: PromotionPricingService  
  
@Copyright (c) 2016, SAP SE, Germany, All rights reserved.  
  
***** */  
  
package com.sap.ppengengine.client.service;  
import java.util.Map;  
import com.sap.ppengengine.client.dto.PriceCalculate;  
import com.sap.ppengengine.client.dto.PriceCalculateResponse;  
/**  
 * The (external) pricing and promotion service interface  
 *  
 */  
public interface PromotionPricingService {  
    /**  
     * The single entry method for the pricing and promotion service  
     *  
     * @param priceCalculate  
     *         Price Calculate request  
     * @param configParams  
     *         Configuration parameters  
     * @return Price Calculate response  
     */  
    public PriceCalculateResponse calculate(PriceCalculate priceCalculate,  
        Map<String, String> configParams);  
}
```

Data Model

This chapter describes all entities of the SAP Client API version 8.0 of the promotion pricing service. The SAP Client API is based on the ARTS Pricing Service Interface 4.0.0. It is a subset of the ARTS data model without the elements that are not needed for price calculation and enriched by elements that are not part of in the ARTS standard. Simple types, for example string or decimal, are not described in detail. The cardinality of the elements is provided by the underlying ARTS data model. Restrictions to this cardinality, and restrictions to the possible enumeration values are described in the corresponding field.

In case of JSON, the column *Attribute/Element* is not relevant as there are no attributes in JSON but only elements.

In the column *Available as of Client API Version* refers to the Client API version, not the version of the promotion pricing service which might differ.



Currently the following client API versions are included in the promotion pricing service:

- Version 1.0, available with promotion pricing service 1.0 or higher
- Version 2.0, available with promotion pricing service 2.0 or higher
- Version 2.1, available with promotion pricing service 3.0.12 or higher. This version includes the addition of the optional field **MasterDataSourceSystemID** in the ARTS header.
- Version 3.0, available with promotion pricing service 4.0.8 or higher. This version includes the addition of the optional field **ComputationBaseAmount** in the **RetailPriceModifierBase**.
- Version 4.0, available with promotion pricing service 5.0.0 or higher. This version includes the addition of the optional field **CalculationScheme** in the **PriceCalculateBase**.
- Version 5.0, available with promotion pricing service 6.0.0 or higher. This version includes **AdditionalBonusLineItem** and **LineItemAttributes** (generic attributes).
- Version 6.0, 7.0 and 8.0 available with promotion pricing service 7.0.0 or higher. With Client API 6.0, a business unit of type **distribution chain** can be added to the ARTS header. With Client API 7.0, **message variables** providing machine-readable context information for error messages are introduced. With Client API 8.0, **generic transaction attributes** can be added to the shopping cart (PriceCalculateBase).

PriceCalculateType

Generated Java class: com.sap.ppengine.client.dto.PriceCalculate

Top-Level entity that contains a price calculation request.

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
InternalMajorVersion	integer	Attribute		Yes	1.0	<p>Major part of the version, for example the value 4 if the version is 4.0.</p> <div style="border: 1px solid #ffc107; padding: 5px; margin: 5px 0;">  This is the version of the SAP Client API and not the ARTS Pricing Service Interface version that is always 4.0.0. </div> <p>The current major version is 4 but requests with major version 1, 2 and 3 are also still supported, other values lead to error ID <i>SAP-0009</i>. If this attribute is missing in the request, error ID <i>SAP-0008</i> is sent back.</p>
InternalMinorVersion	integer	Attribute		No	1.0	<p>Minor part of the version. For example the value 0 if the version is 4.0.</p> <div style="border: 1px solid #ffc107; padding: 5px; margin: 5px 0;">  This is the version of the SAP Client API and not the ARTS Pricing Service Interface version that is always 4.0.0. </div> <p>The following values for minor versions are supported:</p> <ul style="list-style-type: none"> 0 for major version 1 0 and 1 for major version 2 0 for major version 3 <p>Deviating values lead to error ID <i>SAP-0009</i>. The default value is set to 0.</p>
ARTSHeader	ARTSCommonHeaderType	Element	[0..1] Restricted to 1.	Yes	1.0	<p>Header information about the ARTS request or response If this element is missing in the request, error ID <i>SAP-0007</i> is sent back.</p> <p>For more information, see chapter ARTSCommon Header Type.</p>
PriceCalculateBody	PriceCalculateBase	Element	[0..*] Restricted to 1.	Yes	1.0	<p>Price calculation information of the ARTS request/response. In case of no or more than one PriceCalculateBody, error ID <i>SAP-0013</i> is sent back.</p> <p>For more information, see chapter <i>PriceCalculateBase</i>.</p>
any		Element	[0..*]	No	1.0	Extensibility element

PriceCalculateResponseType

Generated Java class: com.sap.ppengine.client.dto.PriceCalculateResponse


Top-Level entity that contains the response to a price calculation request.

In the data model, there is no difference between the request and the response. Therefore, *PriceCalculateResponseType* is identical to *PriceCalculateType*.

ARTSCommonHeaderType

Generated Java class: com.sap.ppengine.client.dto.ARTSCommonHeaderType

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks

Action Code	ActionCommonData Type Codes	Attribute		No	1.0	Defines the action of the request Only <i>Calculate</i> is supported, other values lead to error ID <i>SAP-0010</i> . For more information, see chapter <i>ActionCommonData Type Codes</i> .																		
MessageType	MessageTypeCode	Attribute		No	1.0	Defines the type of the message, for example <i>Request</i> The following values are supported: <ul style="list-style-type: none"> • <i>Request</i> for the request Other values than <i>Request</i> lead to error ID <i>SAP-0011</i>. • <i>Response</i> (for the response) For more information, see chapter <i>MessageTypeCode</i> .																		
MessageID	MessageIDType (string)	Element	[0..1] Restricted to 1	Yes	1.0	UUID of the request that is generated by the calling application, for example, a POS workstation or a Hybris online store. In case of a response, the UUID is generated by the promotion pricing service. If missing in the request, error ID <i>GKR-100506</i> is returned.																		
DateTime	DateTimeType (date Time)	Element	[0..*]	No	1.0	Timestamp (which is always interpreted as local time) of the message with the following format: 2015-01-13T04:48:30.427 <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>Year</td> </tr> <tr> <td>01</td> <td>Month</td> </tr> <tr> <td>13</td> <td>Day</td> </tr> <tr> <td>T</td> <td>Time</td> </tr> <tr> <td>04</td> <td>Hours</td> </tr> <tr> <td>48</td> <td>Minutes</td> </tr> <tr> <td>30</td> <td>Seconds</td> </tr> <tr> <td>427</td> <td>Milliseconds</td> </tr> </tbody> </table>	Value	Description	2015	Year	01	Month	13	Day	T	Time	04	Hours	48	Minutes	30	Seconds	427	Milliseconds
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427	Milliseconds																							
Response	ResponseType	Element	[0..1]	No	1.0	Unique information needed in a response <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;">  In case of a request, this information is not available. </div> For more information, see chapter <i>ResponseType</i> .																		
Requestor	string	Element	[0..1]	No	1.0	This entity that requests the message.																		
BusinessUnit	BusinessUnitCommon Data	Element	[0..*] Restricted to 1	Yes	1.0	Defines the location If there are no business units, or more than one business unit maintained, error ID <i>SAP-0012</i> is generated. For more information, see chapter <i>BusinessUnitCommon Data</i> .																		
WorkstationID	WorkstationIDCommon Data (string)	Element	[0..1]	No	1.0	Identifier of the workstation, typically the serial number, that sends the request																		

RequestedLanguage	string	Element	[0..1]	No	1.0	Language code in ISO 639-1 format for texts requested from client (deprecated : use RequestedMultiLanguage instead). If missing in the request, the first language found in the database is returned.
RequestedMultiLanguage	string	Element	[0..*]	No	2.0	Language codes in ISO 639-1 format for texts requested from client. If missing in the request, all available languages in the database are returned.
any		Element	[0..*]	No	1.0	Extensibility element
MasterDataSourceSystemID	string	Element	[0..1]	No	2.1	Identifier of the source system, in which the master data of the price calculation request (for example, the items, merchandise categories and business units) was created originally. In an SAP context, this is the logical system ID. This field is part of the semantical key. If filled in the price calculation request, this field overrides the value of the configuration property sap.dataaccess-common.logSys .

ActionCommonDataTypeCodes

Generated Java enum: `com.sap.pengine.client.dto.ActionCommonDataTypeCodesEnumeration`

This enum consists of the values listed below. The values that are supported by the promotion pricing service are marked in bold:

- Add
- Adjust
- Begin
- **Calculate**
- Cancel
- Complete
- Create
- Delete
- Delivered
- Dispatch
- Donate
- Error
- Lookup
- Initiate
- Inquiry
- Instruction
- Information
- Packed
- PartialCancel
- PartialComplete
- Picked
- Read
- Refusal
- Remove
- Request
- Replace
- Reserve
- Return
- Search
- Settle
- Shipped
- Subtract
- Suggest
- Update

MessageTypeCode


Generated Java enum: `com.sap.pengine.client.dto.MessageTypeCodeEnumeration`

This enum consists of the values listed below. The values that are supported by the promotion pricing service are marked in bold:

- **Request**
- **Response**
- Publish
- Acknowledge

ResponseType


ResponseType extends **ResponseCommonData**.

 Currently, only an extensibility element is added in entity **ResponseType**.

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
any		Element	[0..*]	No	1.0	Extensibility element

ResponseCommonData

Generated Java class: **com.sap.ppengine.client.dto.ResponseCommonData**

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks																		
ResponseCode	ResponseTypeCode	Attribute		No	1.0	Indicates if the message was successful (<i>OK</i>), or not (<i>Rejected</i>). The default value is set to <i>OK</i> . For more information, see chapter ResponseTypeCode.																		
RequestID	string	Element	[1]	Yes	1.0	This is a UUID that ties this response to the original request (MessageID from request).																		
ResponseTimestamp	dateTime	Element	[0..1]	No	1.0	Timestamp of the request corresponding to the response. Its format 2015-01-13T04:48:30.427 has the following meaning: <table border="1" data-bbox="997 1119 1229 1497"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>Year</td> </tr> <tr> <td>01</td> <td>Month</td> </tr> <tr> <td>13</td> <td>Day</td> </tr> <tr> <td>T</td> <td>Time</td> </tr> <tr> <td>04</td> <td>Hours</td> </tr> <tr> <td>48</td> <td>Minutes</td> </tr> <tr> <td>30</td> <td>Seconds</td> </tr> <tr> <td>427</td> <td>Milliseconds</td> </tr> </tbody> </table>	Value	Description	2015	Year	01	Month	13	Day	T	Time	04	Hours	48	Minutes	30	Seconds	427	Milliseconds
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427	Milliseconds																							
BusinessError	BusinessErrorType	Element	[0..*]	No	1.0	Error reporting mechanism between two applications <div data-bbox="997 1556 1472 1640" style="border: 1px solid #ccc; border-radius: 10px; padding: 5px; margin: 5px 0;">  If there is no error, this class remains empty. </div> For more information, see chapter BusinessErrorType.																		

ResponseTypeCode

Generated Java enum: **com.sap.ppengine.client.dto.ResponseTypeCodeEnumeration**

This enum consists of the values listed below. The values that are supported by the promotion pricing service are marked in bold:

- **OK**

- Rejected

BusinessErrorType

BusinessErrorType extends BusinessErrorCommonData.



Currently, only an extensibility element is added in entity BusinessErrorType.

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
any		Element	[0..*]	No	1.0	Extensibility element

BusinessErrorCommonData

Generated Java class: `com.sap.ppengine.client.dto.BusinessErrorCommonData`

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Severity	SeverityCodeType	Attribute		No	1.0	Evaluates the error. There are different error types, for example <i>Warning</i> . The default error type is <i>Information</i> . For more information, see chapter SeverityCodeType.
ErrorID	string	Element	[0..1]	No	1.0	Identifier for this particular instance of the error. For the entire list of possible error IDs, see chapter Error Handling.
Description	DescriptionCommonData	Element	[0..1]	No	1.0	Detailed information about the error. For more information, see chapter DescriptionCommonData.
ErrorSerialNumber	integer	Element	1	Yes	7.0	Error serial number. The combination of the error ID and error serial number uniquely defines an error situation from a business point of view. It must fall into the smallint/short range.
LineItemSequenceNumber	integer	Element	[0..1]	No	7.0	Sequence number of the line item to which the business error refers.
MessageVariables	MessageVariablesType	Element	[0..1]	No	7.0	Message variables providing machine-readable context information. The list of variables and their sorting order is fixed per ErrorID and ErrorSerialNumber.

SeverityCodeType

Generated Java enum: `com.sap.ppengine.client.dto.SeverityCodeEnumeration`

This enum consists of the following values (supported values in **bold**):

- **Information**
- **Warning**
- **Error**

BusinessUnitCommonData

Generated Java class: `com.sap.ppengine.client.dto.BusinessUnitCommonData`

BusinessUnitCommonData extends string. This entity contains the business unit identifier, for example, the identifier of a business unit can be defined in the ARTSCommonHeaderType entity as follows:

<BusinessUnit TypeCode="RetailStore">0001</BusinessUnit>

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Type Code	BusinessUnitTypeCode	Attribute		No	1.0	For business unit type, the following values are supported: <ul style="list-style-type: none"> • RetailStore • DistributionCenter • Factory • Vendor • Customer The default value is RetailStore . For more information, see chapter BusinessUnitTypeCode.
value	string				1.0	Business unit identifier In case of an invalid value, for example an empty string in the request, error ID SAP-0017 is sent back. The identifier must not exceed 60 characters, otherwise the request cannot be processed and error ID SAP-0022 is sent back.

BusinessUnitTypeCode

Generated Java enum: `com.sap.ppengine.client.dto.BusinessUnitTypeCodeEnumeration`

This enum consists of the values listed below. The values that are supported by the promotion pricing service are marked in bold:

- **RetailStore**
- **DistributionCenter**
- AdministrationCenter
- CallCenter
- WebSite
- Distributor
- Filler
- TransitCellar
- Producer
- Grower
- **Factory**
- Building
- Dormitory
- **Vendor**
- **Customer**
- **DistributionChain** (introduced with version 6.0)

MessageVariablesType

Generated Java class: `com.sap.ppengine.client.dto.MessageVariablesType`

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
MessageVariable	MessageVariableType	Element	[0..*]	No	7.0	Message variable for a business error


MessageVariableType

Generated Java class: `com.sap.ppengine.client.dto.MessageVariableType`

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
value	string	Element	1	Yes	7.0	String representation of the message variable value, see in the following.
name	string	Attribute	1	Yes	7.0	Name of the message variable.

PriceCalculateBase

Generated Java class: `com.sap.ppengine.client.dto.PriceCalculateBase`

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks																		
TransactionType	TransactionType	Attribute		No	1.0	Type of the transaction <div style="border: 1px solid #ffc107; padding: 5px; display: inline-block;">  This field is currently not evaluated. </div> For more information, see chapter TransactionType.																		
NetPriceFlag	boolean	Attribute		Yes	1.0	Decides whether net or gross prices are to be determined.																		
CalculationMode	CalculationModeTypeCode	Attribute		No	2.0	Calculation mode for the price calculation. For more information, see chapter CalculationModeTypeCode. The default is <i>Basket</i> .																		
CalculationScheme	CalculationSchemeTypeCode	Attribute		No	4.0	Calculation scheme controls the transaction control break code handling. For more information, see chapter CalculationSchemeTypeCode. The default is <i>CalcAll</i> .																		
TransactionID	IDCommonData (string)	Element	[0..1]	No	1.0	Identifier of the transaction If the identifier is not provided in the request, it is generated automatically.																		
DateTime	DateTimeCommonData (dateTime)	Element	[0..1] Restricted to 1.	Yes	1.0	Timestamp relevant for any calculation. It is always interpreted as local time and the format is as follows: 2015-01-13T04:48:30.427 <table border="1" data-bbox="977 1514 1190 1887"> <thead> <tr> <th>Field</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Year</td> <td>2015</td> </tr> <tr> <td>Month</td> <td>01</td> </tr> <tr> <td>Day</td> <td>13</td> </tr> <tr> <td>Time</td> <td>T</td> </tr> <tr> <td>Hours</td> <td>04</td> </tr> <tr> <td>Minutes</td> <td>48</td> </tr> <tr> <td>Seconds</td> <td>30</td> </tr> <tr> <td>Milliseconds</td> <td>427</td> </tr> </tbody> </table> If this element is missing in the request, error ID <i>SAP-0014</i> is sent back.	Field	Value	Year	2015	Month	01	Day	13	Time	T	Hours	04	Minutes	48	Seconds	30	Milliseconds	427
Field	Value																							
Year	2015																							
Month	01																							
Day	13																							
Time	T																							
Hours	04																							
Minutes	48																							
Seconds	30																							
Milliseconds	427																							

Loyalty	LoyaltyAccountCommonData	Element	[0..*]	No	1.0	Loyalty information of the customer For more information, see chapter LoyaltyAccountCommonData.
ShoppingBasket	ShoppingBasketBase	Element	[0..1] Restricted to 1.	Yes	1.0	Shopping cart of the price calculation request and response. If this element is missing in the request, error ID <i>SAP-0015</i> is sent back. For more information, see chapter ShoppingBasketBase.
RegularSalesUnitPrice RoundingRule	RoundingRuleType	Element	[0..1]	No	1.0	Rounding rule for regular prices (element RegularSalesUnitPrice) For more information, see chapter RoundingRuleType.
TxAttribute	TransactionAttributeType	Element	[0..*]	No	8.0	Generic attribute (key-value pair) that a transaction (ShoppingBasket) has to fulfill.
any		Element	[0..*]	No	1.0	Extensibility element

TransactionType

Generated Java enum: com.sap.ppengine.client.dto.TransactionTypeEnumeration

This enum consists of the following values:

- **SaleTransaction**
- ReturnTransaction
- ExchangeTransaction

The values that are supported by the promotion pricing service are marked in bold.

CalculationModeTypeCode

Generated Java enum: com.sap.ppengine.client.dto.CalculationModeEnumeration

This enum was introduced with version 2.0 and consists of the following values:

- **Basket**
- **LinItem**

CalculationSchemeTypeCode

Generated Java enum: com.sap.ppengine.client.dto.CalculationSchemeEnumeration

This enum was introduced with version 4.0 and consists of the following values:

- **CalcAll**
- **CalcForItem**

RoundingRuleType

Generated Java class: com.sap.ppengine.client.dto.RoundingRuleType

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Rounding Method	RoundingMethodTypeCode	Attribute		No	1.0	Describes the rounding method The default value is set to <i>Commercial</i> .
Multiple	DecimalCommonData (decimal)	Attribute		No	1.0	Contains the number of decimals and the round destination value. The multiple is <i>0.1</i> for nearest 1/10ths, <i>0.01</i> for nearest 1/100ths, <i>0.001</i> for nearest 1/1000ths, and so on. Likewise for whole numbers <i>1</i> is to the nearest unit, <i>10</i> is to nearest 10's, <i>100</i> is to nearest 100's and <i>1000</i> is to nearest 1000's. Accordingly, the multiple is <i>0.05</i> for nearest 5/100ths. This is used for rounding of cash amounts in countries where smaller coins do not exist. The default value is set to <i>0.01</i> .

any		Element	[0..*]	No	1.0	Extensibility element
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RoundingMethodTypeCode

Generated Java enum: `com.sap.ppengine.client.dto.TransactionTypeEnumeration`

This enum consists of the following values:

- Up
- Down
- Commercial

LoyaltyAccountCommonData

Generated Java class: `com.sap.ppengine.client.dto.LoyaltyAccountCommonData`

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
CustomerID	string	Element	[0..1]	Yes (in case of an existing LoyaltyProgram)	1.0	Identifier of the customer The length of the identifier element in the request must not exceed 40 characters, otherwise error ID <i>GKR-100501</i> is sent back. If the request does not contain an identifier, but only a LoyaltyProgramID, error ID <i>GKR-100506</i> is sent back.
LoyaltyProgram	LoyaltyAccountType	Element	[0..*]	No	1.0	Loyalty account information. For more information, see chapter <i>LoyaltyAccountType</i>
CustomerIsEmployeeFlag	boolean	Element	[0..1]	No	1.0	Indicates if this customer is an employee. Currently, this information is not needed as the only way for granting employee discounts in this context is to handle employees as customers. There are no employee discount groups available.

LoyaltyAccountType

Generated Java class: `com.sap.ppengine.client.dto.LoyaltyAccountType`

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
LoyaltyProgramID	LoyaltyProgramIDType (string)	Element	[0..*]	No	1.0	Identifier of the loyalty program The length of the LoyaltyProgramID element in the request must not exceed 40 characters, otherwise error ID <i>GKR-100501</i> is sent back.
any		Element	[0..*]	No	1.0	Extensibility element

ShoppingBasketBase

Generated Java class: `com.sap.ppengine.client.dto.ShoppingBasketBase`

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
LineItem	LineItemDomainSpecific	Element	[1..*]	Yes	1.0	Line items of the shopping cart If there are no line items in the request, error ID <i>SAP-0016</i> is sent back. If there are too many line items in the request, error ID <i>SAP-0019</i> is returned. This is defined via property <i>sap.client-impl.maxnumberoflineitems</i> , for more information see the <i>OPP Development & Extension Guide</i> . For more information, see chapter <i>LineItemDomainSpecific</i> .
any		Element	[0..*]	No	1.0	Extensibility element

LinItemDomainSpecific

Generated Java class: `com.sap.ppengine.client.dto.LinItemDomainSpecific`

LinItemDomainSpecific extends LinItemBase. Currently, no elements are added in entity LinItemDomainSpecific.

LinItemBase

Generated Java class: `com.sap.ppengine.client.dto.LinItemBase`

LinItemBase extends LinItemChoiceDomainSpecific.

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
SequenceNumber	SequenceNumberType (unsignedLong)	Element	[1]	Yes	1.0	Sequence number of this line item The first sequence number is always 0 and there must not be any gaps. It must also fall in the smallint/short range, otherwise error ID <i>GKR-100501</i> is sent back.
MerchandiseHierarchy	MerchandiseHierarchyCommonData	Element	[0..*]	No	1.0	Merchandise hierarchy information (group ID) At this place, the merchandise hierarchy groups are listed, to which the line item is assigned, directly or indirectly. For more information, see chapter MerchandiseHierarchy CommonData.

LinItemChoiceDomainSpecific

Generated Java class: `com.sap.ppengine.client.dto.LinItemChoiceDomainSpecific`

LinItemChoiceDomainSpecific extends LinItemChoiceBase. LinItemChoiceDomainSpecific can contain none or one of the entities mentioned in the following table (choice[0..1]). It also must not be mixed up with an element from LinItemChoiceBase.

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
PromotionManualTrigger	PromotionManualTriggerType	Element	[0..1]	No	1.0	Manual triggers created by the client in order to make the transaction eligible for promotions that contain eligibilities of type <i>manual trigger</i> . For more information, see chapter PromotionManual TriggerType.
PromotionExternalTrigger	PromotionExternalTriggerType	Element	[0..1]	No	1.0	External trigger External triggers are values which are requested via webservice in order to check whether the transaction is eligible for promotions that contain eligibilities of type <i>external trigger</i> . For more information, see chapter PromotionExternal TriggerType. External triggers are currently not supported.
any		Element	[0..1]	No	1.0	Extensibility element

LinItemChoiceBase

Generated Java class: `com.sap.ppengine.client.dto.LinItemChoiceBase`

LinItemChoiceBase can contain none or one (choice[0..1]) of the entities mentioned in the following table. Although the cardinality can be 0, a ShoppingBasket should contain at least one real line item (Sale, SaleForDelivery, SaleForPickup, Return, ReturnForDelivery, ReturnForPickup, CustomerOrderForDelivery or CustomerOrderForPickup). It also must not be mixed up with an element from LinItemChoiceDomainSpecific.

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
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		e n t					
Sale	SaleBase	Element	[0..1]	No	1.0	A flavor of a line item whereby customers purchase an item and take it out directly. For more information, see chapter SaleBase.	
SaleForDelivery	SaleForDeliveryBase	Element	[0..1]	No	1.0	A flavor of a line item whereby customers purchase an item that will be delivered to a location on a future date and time. For more information, see chapter SaleForDeliveryBase. SaleForDelivery is currently not supported.	
SaleForPickup	SaleForPickupBase	Element	[0..1]	No	1.0	A flavor of a line item whereby customers purchase an item and pick it up from a location on a future date and time. For more information, see chapter SaleForPickupBase. SaleForPickup is currently not supported.	
Return	ReturnBase	Element	[0..1]	No	1.0	A flavor of a line item whereby customers return an item that they brought at the same location. For more information, see chapter ReturnBase. Return is currently not supported.	
ReturnForDelivery	ReturnForDeliveryBase	Element	[0..1]	No	1.0	A flavor of a line item whereby customers return an item that is to be delivered to a location on a future date and time. For more information, see chapter ReturnForDeliveryBase. ReturnForDelivery is currently not supported.	
ReturnForPickup	ReturnForPickupBase	Element	[0..1]	No	1.0	A flavor of a line item whereby customers return an item and the store will pick it up from a location on a future date and time. For more information, see chapter ReturnForPickupBase. ReturnForPickup is currently not supported.	
CustomerOrderForDelivery	CustomerOrderForDeliveryBase	Element	[0..1]	No	1.0	A flavor of a line item whereby customers purchase an unavailable item. The store places a special order on behalf of this purchase, and the item is to be delivered as soon as available. The customer may, or may not pay for the item at the time of the order placement. For more information, see chapter CustomerOrderForDeliveryBase.	
CustomerOrderForPickup	CustomerOrderForPickupBase	Element	[0..1]	No	1.0	A flavor of a line item whereby customers purchase an unavailable item. The store places a special order on behalf of this purchase, and the customers pick up the item when available. The customer may, or may not pay for the item at the time of the order placement. For more information, see chapter CustomerOrderForPickupBase. CustomerOrderForPickup is currently not supported.	
Discount	DiscountBase	Element	[0..1]	No	1.0	Discount on transaction level For more information, see chapter DiscountBase.	
LoyaltyReward	LoyaltyRewardBase	Element	[0..1]	No	1.0	Loyalty reward on transaction level for the customer The crediting of a customer loyalty account with points is the only supported reward type. For more information, see chapter LoyaltyRewardBase.	
Coupon	TenderCouponBase	Element	[0..1]	No	1.0	Allows the entry of coupons. Unused coupons are to be returned to the customer respectively the customer has to be notified about that fact. For more information, see chapter TenderCouponBase.	
AdditionalBonusLineItem	AdditionalBonusType	Element	[0..1]	No	5.0	The additional bonus added to the shopping cart by the consumer of the calculation service. Part of the calculation request. Adding one or more AdditionalBonusLineItem elements to the request is the expected response of the service consumer after the calculation service has returned one or more AdditionalBonusDiscountLineItem elements to the response of a previous request.	
AdditionalBonusDiscountLineItem	AdditionalBonusDiscountType	Element	[0..1]	No	5.0	The additional bonus proposed by the calculation service. Part of the calculation response. Must be evaluated by the consumer of the calculation service.	

MerchandiseHierarchyCommonData

Generated Java class: `com.sap.ppengine.client.dto.MerchandiseHierarchyCommonData`

MerchandiseHierarchyCommonData extends string.

This entity contains the merchandise hierarchy group identifier, for example the identifier of a merchandise hierarchy group is given in the LineItemBase entity as follows:

<MerchandiseHierarchy ID="1">12345</ MerchandiseHierarchy>

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
ID	string	Attribute		No	1.0	Merchandise hierarchy group identifier qualifier The length must not exceed 4 characters, otherwise error ID <i>GKR-100501</i> is sent back. The value '1' is to be used in case of merchandise groups, otherwise the article hierarchy ID is to be used. Only 2 different values for a single line item are supported, otherwise error ID <i>SAP-0024</i> is sent back (refers to PPS 3.0).
value	string				1.0	Merchandise hierarchy group identifier The length must not exceed 30 characters, otherwise error ID <i>GKR-100501</i> is sent back.

MerchSetType

Generated Java class: `com.sap.ppengine.client.dto.MerchSetType`

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
MerchandiseSet ID	string	Element	1	Yes	5.0	Identifier of the merchandise set
RootNode	MerchandiseSetNodeTypeL0	Element	1	Yes	5.0	The root node (operation node) of the merchandise set
any		Element	[0..1]	No	5.0	Extensibility element

MerchandiseSetNodeTypeL0

Generated Java class: `com.sap.ppengine.client.dto.MerchandiseSetNodeTypeL0`

MerchandiseSetNodeTypeL0 extends AbstractMerchandiseSetNodeType.

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Include	MerchandiseSetNodeTypeL1	Element	[0..n]	No	5.0	Merchandise set node that is included in the merchandise set.
Exclude	MerchandiseSetNodeTypeL1	Element	[0..n]	No	5.0	Merchandise set node that is excluded from the merchandise set.
Filter	MerchandiseSetNodeTypeL1	Element	[0..n]	No	5.0	Merchandise set node with filter restriction.

MerchandiseSetNodeTypeL1

Generated Java class: `com.sap.ppengine.client.dto.MerchandiseSetNodeTypeL1`

`MerchandiseSetNodeTypeL1` extends `AbstractMerchandiseSetNodeType`.

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Filter	<code>MerchandiseSetNodeTypeL2</code>	Element	[0..n]	No	5.0	Merchandise set node with filter restriction.

MerchandiseSetNodeTypeL2

Generated Java class: `com.sap.ppengine.client.dto.MerchandiseSetNodeTypeL2`

`MerchandiseSetNodeTypeL2` extends `AbstractMerchandiseSetNodeType`.

AbstractMerchandiseSetNodeType

Generated Java class: `com.sap.ppengine.client.dto.AbstractMerchandiseSetNodeType`

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Type	<code>MerchandiseSetNodeTypeCode</code>	Element	1	Yes	5.0	Type of the merchandise set node. Can be: <ul style="list-style-type: none">• <i>Operation</i>• <i>Item</i>• <i>GenericAttribute</i>• <i>MerchandiseHierarchyNode</i>
Operation	<code>OperationTypeCode</code>	Element	[0..1]	No	5.0	Operation for operation nodes in merchandise sets. Currently only <i>Difference</i> is supported.
ItemID	<code>ItemIDCommonData</code>	Element	[0..1]	No	5.0	Identifier for the item. Relevant only for merchandise set nodes of type <i>Item</i> .
MerchandiseHierarchy	<code>MerchandiseHierarchyCommonData</code>	Element	[0..1]	No	5.0	Merchandise hierarchy information
GenericAttribute	<code>LineItemAttributeType</code>	Element	[0..1]	No	5.0	Generic attribute

MerchandiseSetNodeTypeCode

Generated Java enum: `com.sap.ppengine.client.dto.MerchandiseSetNodeTypeCodeEnumeration`

This enum consists of the following values:

- **Operation**
- **Item**
- **MerchandiseHierarchyNode**
- **GenericAttribute**

OperationTypeCode

Generated Java enum: `com.sap.ppengine.client.dto.OperationTypeCodeEnumeration`

This enum consists of the following value:

- **Difference**

LineItemAttributeType

Generated Java class: `com.sap.ppengine.client.dto.LineAttributeType`

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
value	string	Element	1	Yes	5.0	String representation of the attribute value, see in the following.
name	string	Attribute	1	Yes	5.0	Name of the attribute. Must match pattern: <code>^[A-Z][A-Z0-9_]*\$</code>
custom	boolean	Attribute	1	No	5.0	Indicator for customer owned attribute defaults to <i>true</i> . True only if the name of the attribute is in the customer namespace (everything except prefix <i>SAP_</i>).

The string representation corresponds to the result of the `toString()` method of the corresponding Java class. Depending on the data type defined in the attribute configuration, the corresponding Java classes are listed in the following table:

Data Type	Description	Java class
0	String	<code>java.lang.String</code>
1	Long	<code>java.lang.Long</code>
2	Boolean	<code>java.lang.Boolean</code>
3	Decimal	<code>java.math.BigDecimal</code>
4	Fixed Value	<code>java.lang.String</code>

TransactionAttributeType

Generated Java class: `com.sap.ppengine.client.dto.TransactionAttributeType`

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
value	string	Element	1	Yes	8.0	String representation of the attribute value. See also description of <i>LineItemAttributeType</i> .
name	string	Attribute	1	Yes	8.0	Name of the attribute. Must match the pattern: <code>^[A-Z][A-Z0-9_]*\$</code>
custom	boolean	Attribute	1	No	8.0	Indicator for customer-owned attribute defaults to <i>true</i> . True only if the name of the attribute is in the customer namespace (everything except prefix <i>SAP_</i>).

PromotionManualTriggerType

Generated Java class: `com.sap.ppengine.client.dto.PromotionManualTriggerType`

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
ManualTriggerSequenceNumber	integer	Element	[1]	Yes	1.0	Sequence number of the manual trigger allowing more than one trigger to be assigned to a line item respectively the transaction. It must fall into the smallint/short range, otherwise error ID GKR-100501 is sent back. It also must be unique in the context of the current line (for line-item related manual triggers respectively the transaction (for transaction-related manual triggers), otherwise error ID GKR-100505 is sent back.
ManualTriggerType	string	Element	[1]	Yes	1.0	Type of the manual trigger The value must match the eligibility master data so that the corresponding promotion can be applied. The length of this value must not exceed 2 characters in the request (e.g. CO), otherwise error ID GKR-100501 is sent back.
ManualTriggerValue	string	Element	[1]	Yes	1.0	Value of the manual trigger

						This value must match the eligibility master data so that the corresponding promotion can be applied. The length of this field must not exceed 255 chars in the request, otherwise error ID <i>GKR-100501</i> is sent back.
Privilege Type	string	Element	[1]	Yes	1.0	Privilege type of the manual trigger. Possible values are: <ul style="list-style-type: none"> <i>PS</i> - The new price amount for line item-related triggers <i>RS</i> - The reduction amount for line item-related triggers <i>RP</i> - The reduction percentage <i>AM</i> - The reduction value resulting from price derivation rule master data If there is another value in the request, error ID <i>GKR-100500</i> sent back.
Privilege Value	AmountCommonData	Element	[1]	Yes	1.0	Privilege value of the manual trigger that is defined by the <i>PrivilegeType</i> . For more information, see chapter AmountCommonData.
ManualTriggerSequenceAddend	unsigned Long	Element	[1]	Yes	1.0	A value that is to be added to the sequence of the promotion price derivation rule This allows to apply multiple manual discounts with the same price derivation rule.
any		Element	[0..*]	No	1.0	Extensibility element

PromotionExternalTriggerType

Generated Java class: `com.sap.ppengine.client.dto.PromotionExternalTriggerType`

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
ExternalTriggerType	string	Element	[1]	Yes	1.0	Type of the external trigger The following values are possible: <ul style="list-style-type: none"> <i>00</i> - Turnover of the (current) year <i>01</i> - Discount amount that was granted during the (current) year
ExternalTriggerAmount	AmountCommonData	Element	[1]	Yes	1.0	Amount of the external trigger The meaning of this field is defined by ExternalTriggerType. For more information, see chapter AmountCommonData.
any		Element	[0..*]	No	1.0	Extensibility element

SaleBase

Generated Java class: `com.sap.ppengine.client.dto.SaleBase`

SaleBase extends ItemDomainSpecific. Currently there is no attribute, or element added in entity SaleBase.

SaleForDeliveryBase

Generated Java class: `com.sap.ppengine.client.dto.SaleForDeliveryBase`

SaleForDeliveryBase extends ItemDomainSpecific. Currently there is no attribute, or element added in entity SaleForDeliveryBase.

SaleForPickupBase

Generated Java class: `com.sap.ppengine.client.dto.SaleForPickupBase`

SaleForPickupBase extends ItemDomainSpecific. Currently no attribute, or element is added in entity SaleForPickupBase.

ReturnBase

Generated Java class: `com.sap.ppengine.client.dto.ReturnBase`

ReturnBase extends ItemDomainSpecific. Currently no attribute, or element is added in entity ReturnBase.

ReturnForDeliveryBase

Generated Java class: `com.sap.ppengine.client.dto.ReturnForDeliveryBase`

ReturnForDeliveryBase extends ItemDomainSpecific. Currently no attribute, or element is added in entity ReturnForDeliveryBase.

ReturnForPickupBase

Generated Java class: `com.sap.ppengine.client.dto.ReturnForPickupBase`

ReturnForPickupBase extends ItemDomainSpecific. Currently no attribute or element is added in entity ReturnForPickupBase.

CustomerOrderForDeliveryBase

Generated Java class: `com.sap.ppengine.client.dto.CustomerOrderForDeliveryBase`

CustomerOrderForDeliveryBase extends ItemDomainSpecific. Currently no attribute, or element is added in entity CustomerOrderForDeliveryBase.

CustomerOrderForPickupBase

Generated Java class: `com.sap.ppengine.client.dto.CustomerOrderForPickupBase`

CustomerOrderForPickupBase extends ItemDomainSpecific. Currently no attribute, or element is added in entity CustomerOrderForPickupBase.

DiscountBase

Generated Java class: `com.sap.ppengine.client.dto.DiscountBase`

DiscountBase extends RetailPriceModifierDomainSpecific. For more information about this element, see chapter RetailPriceModifierDomainSpecific.

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
ProratedFlag	boolean	Attribute		No	1.0	Determines whether the discount amount applies to the whole transaction, or is prorated to the discountable line items of the transaction. Only the value <i>true</i> is supported, otherwise error ID <i>GKR-100500</i> is sent back.

LoyaltyRewardBase

Generated Java class: `com.sap.ppengine.client.dto.LoyaltyRewardBase`

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
TypeCode	LoyaltyRewardTypeCode	Attribute		No	1.0	Type code of the loyalty reward If a request contains a value other than <i>Award</i> , error ID <i>GKR-100500</i> is sent back. For more information, see <i>LoyaltyRewardTypeCode</i> .
PromotionID	string	Element	[0..1]	Yes	1.0	The identifier of the promotion that triggered the loyalty reward. If this identifier is missing in a request, error ID <i>GKR-100500</i> is sent back.
PointsAwarded	PointsAwardedType	Element	[1..*]	No	1.0	The number of points awarded by the line item The length of 11 including 3 decimal places must not be exceeded in the request, otherwise error ID <i>GKR-100502</i> is sent back.

						For more information, see PointsAwardedType.
ManualTriggerSequenceNumber	integer	Element	[0..1]	No	1.0	The sequence number for the trigger to be assigned to a single LoyaltyReward. It references the ManualTriggerSequenceNumber of PromotionManualTriggerType (see corresponding chapter) that triggered this reward. There can be more than one trigger assigned. If the value in the request does not fall into the smallint/short range, error ID <i>GKR-100501</i> is sent back.
PointsAwardedAmount	AmountCommonData	Element	[0..1]	No	1.0	The monetary equivalent that is expressed in the local currency for the number of frequent shopper points awarded (PointsAwarded). For more information, see AmountCommonData.
ComputationBaseAmount	AmountCommonData	Element	[0..1]	No	1.0	Base amount for the computation For more information, see AmountCommonData.
ExternalSystemOriginatorFlag	boolean	Element	[0..1]	No	1.0	Determines if this LoyaltyReward was created by an external system. If yes, it must not be changed, but its own modifications with higher sequence may be applied. The value <i>'true'</i> is currently not supported.
PriceDerivationRule	PriceDerivationRuleBase	Element	[0..1]	No	1.0	The price derivation rule that belongs to this loyalty reward. For more information, see PriceDerivationRule Base.
any		Element	[0..*]	No	1.0	Extensibility element

TenderCouponBase

Generated Java class: `com.sap.ppengine.client.dto.TenderCouponBase`

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Quantity	QuantityCommonData	Element	[0..1]	No	1.0	Quantity of the coupon The maximum length of 3 must not be exceeded in the request, otherwise error ID <i>GKR-100501</i> is sent back. See above.
PrimaryLabel	string	Element	[0..1] Restricted to 1.	Yes	1.0	The coupon number It must be unique in the message, otherwise error ID <i>GKR-100505</i> is sent back. The length must not exceed 40 characters in the request, otherwise error ID <i>GKR-100501</i> is sent back.
RewardValue	DecimalCommonData (decimal)	Element	[0..1]	No	1.0	Reduction amount, reduction percentage or new price amount, depending on the given RewardType. If RewardValue exists in the request but RewardType is missing, error ID <i>GKR-100506</i> is sent back. If RewardValue does not exist in the request but RewardType exists and is valid, also error ID <i>GKR-100506</i> is sent back.
any		Element	[0..*]	No	1.0	Extensibility element
AppliedQuantity	DecimalCommonData (decimal)	Element	[0..1]	No	1.0	The subset of registered coupons that was finally used, for example, to trigger price derivation rules. The maximum length of 3 must not be exceeded in the request, otherwise error ID <i>GKR-100501</i> is sent back.
RewardType	string	Element	[0..1]	No	1.0	Determines how the new effective sales price is to be calculated if the discount information is provided through RewardValue. Possible values are: <ul style="list-style-type: none"> • <i>RP</i> - reduction percentage • <i>RS</i> - reduction amount • <i>PS</i> - new price amount In case of a different value in the request, error ID <i>GKR-100500</i> is sent back.

AdditionalBonusType

Generated Java class: com.sap.ppengine.client.dto.AdditionalBonusType

AdditionalBonusType extends AdditionalBonusBase. For more information about this element, see chapter AdditionalBonusBase.

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Quantity	QuantityCommonData	Element	1	Yes	5.0	Quantity of the AdditionalBonus
MerchandiseSetID	string	Element	[0..1]	No	5.0	The identifier of the merchandise set

AdditionalBonusBase

Generated Java class: com.sap.ppengine.client.dto.AdditionalBonusBase

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
AdditionalBonusId	string	Element	1	Yes	5.0	The identifier of the AdditionalBonus
ItemID	string	Element	[0..1]	No	5.0	The identifier of the item
any					5.0	Extensibility element

AdditionalBonusDiscountType

Generated Java class: com.sap.ppengine.client.dto.AdditionalBonusDiscountType

AdditionalBonusDiscountType extends AdditionalBonusBase. For more information about this element, see chapter AdditionalBonusBase.

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
TotalGrantedQuantity	QuantityCommonData	Element	1	Yes	5.0	Denotes the total granted quantity of the additional bonus. '0' if the provided additionalBonusLineItem does not belong to any applied promotion.
QuantityDifference	QuantityDifference	Element	1	Yes	5.0	Quantity field denotes the difference between TotalGrantedQuantity and already existing additional bonus in a transaction. <ul style="list-style-type: none">• Positive value - there is not enough additional bonus provided in the transaction - info for client that there are not enough additional bonus items• Negative value - there is too much additional bonus provided in the transaction - info for client that there are too many additional bonus items• 0 value - there is the correct amount of additional bonus in the transaction - info for client that everything is OK
MerchandiseSet	MerchandiseSetType	Element	[0..1]	No	5.0	Merchandise set information.
PriceDerivationRule	PriceDerivationRuleBase	Element	[0..1]	No	5.0	Reference to applied promotion. Will not be created if the request contains an AdditionalBonusLineItem which does not belong to any applied promotion.
any					5.0	Extensibility element

RetailPriceModifierDomainSpecific

Generated Java class: com.sap.ppengine.client.dto.RetailPriceModifierDomainSpecific

RetailPriceModifierDomainSpecific extends RetailPriceModifierBase.

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
PriceDerivationRule	PriceDerivationRuleBase	Element	[0..*]	Yes	1.0	The price derivation rule that belongs to this price modifier If there is more than one PriceDerivationRule within one price modifier, error ID GKR-100504 is sent back.

		ment	Restricted to 1.			For more information, see chapter PriceDerivationRuleBase.
any		Element	[0..*]	No	1.0	Extensibility element
ManualTriggerSequenceNumber	integer	Element	[0..1]	No	1.0	The sequence number for the trigger that allows more than one trigger to be assigned to a single RetailPriceModifier. It references the ManualTriggerSequenceNumber of PromotionManualTriggerType (see corresponding chapter) that triggered this price modifier. If the value of this field in the request does not fall into the smallint/short range, error ID <i>GKR-100501</i> is sent back.
ExtraAmount	AmountCommonData	Element	[0..1]	No	1.0	A monetary amount that results from applying a price modifier but does not affect the line item respectively transaction total. If the value is negative in the request, error ID <i>GKR-100503</i> is sent back. For more information, see chapter AmountCommonData.
ExternalSystemOriginatorFlag	boolean	Element	[0..1]	No	1.0	Determines whether this discount was created by an external system. If yes, it must not be changed, but its own modifications with higher sequence may be applied. If not set in the request, the default value is set to <i>false</i> . The value <i>'true'</i> is currently not supported.

RetailPriceModifierBase

Generated Java class: `com.sap.ppengine.client.dto.RetailPriceModifierBase`

Name	Type	Attributability / Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
SequenceNumber	SequenceNumberType (unsignedLong)	Element	[1]	Yes	1.0	Sequence number of the price modifier If the value does not fall into the smallint/short range, error ID <i>GKR-100501</i> is sent back. If it is not unique to all retail price modifiers of the current line item in the request, error ID <i>GKR-100505</i> is sent back.
Amount	AmountType (AmountCommonData)	Element	[0..1]	No	1.0	Amount of the price modification For more information, see chapter AmountCommonData.
Percent	PercentType	Element	[0..1]	No	1.0	Percentage of the price modification For more information, see chapter PercentType.
PreviousPrice	PreviousPriceType (AmountCommonData)	Element	[0..1]	No	1.0	Regular price without modification For more information, see chapter AmountCommonData.
NewPrice	NewPriceType (AmountCommonData)	Element	[0..1]	No	1.0	Effective sales price with modification For more information, see chapter AmountCommonData.

PromotionID	PromotionID Type (string)	Element	[0..1]	No	1.0	Identifier of the OPP promotion for which this price modifier has been created.
ItemLink	SequenceNumberType (unsignedLong)	Element	[0..*] Restricted to 1.	No / Yes	1.0	The link to the discount line item that forced the creation of this RetailPriceModifier in order to keep the prorated transaction-related discount for the current line item. Is not used in the context of the modification of the price of a single line item (item-related discount). If it does not fall into the smallint/short range in the request, error ID <i>GKR-100501</i> is sent back.
Quantity	QuantityCommonData	Element	[0..1] Restricted to 1.	Yes	1.0	Quantity of the line item for which this promotion rule is applied. Note this is the quantity for which a discount (possibly zero discount) was applied. Due to rounding effects, this is not necessarily the same quantity as specified via the corresponding eligibility. If zero discounts are not allowed, this quantity may be smaller than expected. The maximum length must not exceed 11 including 3 decimal places in the request, otherwise error ID <i>GKR-100502</i> is sent back. For more information, see chapter QuantityCommonData.
Rounding	RoundingCommonData	Element	[0..1]	No	1.0	Rounding information of the discount If this field contains a negative value in the request, error ID <i>GKR-100503</i> is sent back. For more information, see chapter RoundingCommonData.
ComputationBaseAmount	AmountCommonData	Element	[0..1]	No	3.0	The amount used as a base for the calculation of the price modification. For more information, see chapter AmountCommonData.

RetailPriceModifierAmountAction

Generated Java enum: `com.sap.ppengine.client.dto.RetailPriceModifierAmountActionEnumeration`

This enum consists of the following values (supported values in **bold**):

- **Add**
- **Subtract**
- Replace
- For

RetailPriceModifierPercentAction

Generated Java enum: `com.sap.ppengine.client.dto.RetailPriceModifierAmountActionEnumeration`

This enum consists of the following values (supported values in **bold**):

- **Add**
- **Subtract**
- For


PriceDerivationRuleBase

Generated Java class: `com.sap.ppengine.client.dto.PriceDerivationRuleBase`

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
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ApplicationType	PriceDerivationApplicationTypeCode	Attribute		No	1.0	The discount type code of the PriceDerivationRule, for example, <i>DiscountTotal</i> . For more information and for supported values, see chapter PriceDerivationApplicationTypeCode.
PriceDerivationRuleID	string	Element	[1]	Yes	1.0	A unique identifier of the price derivation rule
Eligibility	PriceDerivationRuleEligibility	Element	[0..*]	No	1.0	Price derivation rule eligibilities This element is only used if one or more coupons triggered the modifier. If more than one coupon is needed as trigger, each coupon results in a separate eligibility element. For more information, see chapter PriceDerivationRuleEligibility.
any		Element	[0..*]	No	1.0	Extensibility element
PromotionDescription	string	Element	[0..1]	No	1.0	Description of the OPP promotion (deprecated :use PromotionDescriptionMultiLanguage instead)
PromotionDescriptionMultiLanguage	DescriptionCommonData	Element	[0..*]	No	2.0	Descriptions of the OPP promotion in different languages
PromotionPriceDerivationRuleSequence	unsignedLong	Element	[0..1]	No	1.0	Sequence of the price derivation rule, which is used for the collision handling. Promotions with different sequence numbers are applied according to ascending sequence numbers. In case of identical sequence numbers, only the promotion with the highest resolution (see below) is applied. Line-item related promotions and basket promotions are treated independently. If this element is not in the request, the default is set to 0.
PromotionPriceDerivationRuleResolution	unsignedLong	Element	[0..1]	No	1.0	Resolution of the price derivation rule. It is used for collision handling. In case of multiple promotions with an identical sequence number (see above) and identical highest resolution, a best-price calculation is executed. Line-item-related promotions and transaction-related promotions are treated independently. If this element is not in the request, the default is set to 0.
PromotionPriceDerivationRuleTypeCode	string	Element	[0..1]	No	1.0	(SAP) Condition type code of the promotion price derivation rule. If the text exceeds 4 characters, it is truncated.
TransactionControlBreakCode	string	Element	[0..1]	No	1.0	Determines if the price derivation rule is to be applied during the registration of the transaction. Possible values are: <ul style="list-style-type: none"> • PO - line item-related price derivation rule, calculated after each line item • SU - transaction-related price derivation rule, calculated after subtotal • PC - line item-related price derivation rule, calculated after subtotal (was introduced with version 4.0) • SP - transaction-related price derivation rule, calculated after each line item (was introduced with version 4.0) If there is another than the above mentioned supported values in the request, error ID <i>GKR-100500</i> is sent back. If this value is missing in the request, the default value is set to <i>SU</i> .
PriceDerivationRuleDescription	string	Element	[0..1]	No	1.0	Description of the price derivation rule This field is currently not supported.
PromotionOriginatorTypeCode	string	Element	[0..1]	No	1.0	Type code of the originator of the promotion. It is determined from the promotion master data to be analyzed by downstream systems.
TriggerQuantity	DecimalCommonData (decimal)	Element	[0..1]	No	1.0	The total quantity that needs to be purchased in order to trigger the price derivation rule. The maximum length in the request must not exceed 11 including 3 decimal places, otherwise error ID <i>GKR-100502</i> is sent back.
DiscountMethodCode	string	Element	[0..1]	No	1.0	Determines how the discount impacts the calculation of the transaction. Possible values are: <ul style="list-style-type: none"> • 00 - The discount reduces the transaction total • 01 - The discount does not influence the transaction total or the amount the customer has to pay. However, the customer gets a gift certificate for the discount amount that he can use to pay for the next purchase. • 02 - The discount is used as a tender for the current transaction, for example it reduces the remaining amount that the customer has to pay. • 03 - The discount reduces the transaction total but is counterbalanced by some gift certificate sale. • 04 - A coupon is given to the customer instead of a discount. Transaction total is not reduced. If there is a different value in the request, error ID <i>GKR-100500</i> is sent back. If this value is missing in the request, the default value is set to 00.
FrequentShopperPointsFlag	boolean	Element	[0..1]	No	1.0	Determines whether a discount (<i>false</i>) or frequent shopper points (<i>true</i>) are granted by the price derivation rule. If this element is missing in the request, the default value is set to <i>false</i> .
	DecimalCommonData		[0..1]	No	1.0	The count of default loyalty points assigned to the customer group This value is needed to calculate the percental frequent shopper points, since different point agreements might

CustomerGroupLoyaltyPointsDefaultQuantity	(decimal)	Element				exist for different customer groups. The maximum length of the value must not exceed 11 including 3 decimal places, otherwise error ID <i>GKR-100502</i> is sent back. This field is not supported with version 2.0.
ProhibitPrintFlag	boolean	Element	[0..1]	No	1.0	Determines if the result of the applied price derivation rule is to be suppressed on displays and accordingly not printed on the receipt. If this element is missing in the request, the default value is set to <i>false</i> .
TenderTypeCode	string	Element	[0..1]	No	1.0	Type code of the tender This value is needed only for <i>DiscountMethodCode = 02</i> . The length of the value must not exceed 4 characters, otherwise error ID <i>GKR-100501</i> is sent back.
PointsConversionAmount	AmountCommonData	Element	[0..1]	No	1.0	The exchange rate for the conversion of points into the local currency of the business unit. For more information, see chapter <i>AmountCommonData</i> .
NoEffectOnSubsequentPriceDerivationRulesFlag	boolean	Element	[0..1]	No	1.0	Determines whether applying this price derivation rule influences the calculation base of subsequent price derivation rules (<i>false</i>) or not (<i>true</i>). This is only relevant for line-item-related monetary price derivation rules. If this element is missing in the request, the default value is set to <i>false</i> .
ProhibitTransactionRelatedPriceDerivationRulesFlag	boolean	Element	[0..1]	No	1.0	Determines whether applying this price derivation rule influences the calculation base of subsequent transaction-related price derivation rules (<i>false</i>) or not (<i>true</i>). This is only relevant for line-item-related monetary price derivation rules. If this element is missing in the request, the default value is set to <i>false</i> .
ExclusiveFlag	boolean	Element	[0..1]	No	1.0	Determines whether this price derivation rule is an exclusive one. This impacts the application of other price derivation rules by the promotion calculation engine. If this element is missing in the request, 'false' is taken as default.
ConcurrenceControlVector	string	Element	[0..1]	No	1.0	Determines how this price derivation rule behaves related to other applicable price derivation rules. The length must not exceed 20 characters in the request, otherwise error ID <i>GKR-100501</i> is sent back. The <i>ConcurrenceControlVector</i> is currently not supported.
AppliedCount	DecimalCommonData (decimal)	Element	[0..1]	No	1.0	Describes how often the current price derivation rule was applied.
ReceiptLine	string	Element	[0..1]	No	1.0	The text to be printed on the receipt (deprecated : use <i>ReceiptLineMultiLanguage</i> instead) The length must not exceed 40 characters in the request, otherwise the text is truncated.
ReceiptLineMultiLanguage	DescriptionCommonData	Element	[0..*]	No	2.0	The texts to be printed on the receipt in different languages
ExternalPromotionID	string	Element	[0..1]	No	1.0	Identifies an external promotion that was the origin for the corresponding OPP promotion.
ExternalPriceDerivationRuleID	string	Element	[0..1]	No	1.0	The external price derivation rule ID from the OPP promotion. The length must not exceed 255 characters in the request, otherwise the content is truncated. This field is currently not supported.
CouponPrintoutID	string	Element	[0..1]	No	1.0	The coupon number of the printout coupon. This is only needed for <i>DiscountMethodCode = 04</i> . The length must not exceed 40 characters in the request, otherwise it is truncated.
CouponPrintoutRule	string	Element	[0..1]	No	1.0	Describes how the printout of the coupon is to be done This is only needed for <i>DiscountMethodCode = 04</i> . Possible values are: <ul style="list-style-type: none"> • 00 - A separate receipt is to be printed • 01 - The coupon is to be printed at the end of the receipt of the current transaction In case of another value in the request, error ID <i>GKR-100501</i> is sent back. If this value is not part of the request, the default value is set to 00.
CouponPrintoutText	string	Element	[0..1]	No	1.0	The (formatted) text to be printed Is needed for <i>DiscountMethodCode = "04"</i> only.
PrintoutValidityPeriod	integer	Element	[0..1]	No	1.0	Describes for how many days the coupon will be valid. Is only needed for <i>DiscountMethodCode = 04</i> .
GiftCertificateExpirationDate	date	Element	[0..1]	No	1.0	The end of the date range in which the gift certificate is valid This value is only needed for <i>DiscountMethodCode = 03</i> .
ExternalAction	ExternalActionType	Element	[0..1]	No	1.0	Contains an external action, for example, <i>Shake hands with customer</i> . For more information, see chapter <i>ExternalActionType</i> .
OperatorDisplayText	DescriptionCommonData	Element	[0..*]	No	2.0	Texts in different languages shown to the operator.
CustomerDisplayText	DescriptionCommonData	Element	[0..*]	No	2.0	Texts in different languages shown to the customer.
PromotionType	string	Element	[0..1]	No	2.0	The <i>PromotionType</i> is used to classify promotions. Note: The content of this element is passed to the requestor.
CalculationBaseS	string	Element	[0..1]	No	2.0	The <i>CalculationBaseSequence</i> is used to define the basis for applying a promotion.

equence		me nt						 The type of this element is a string although its content has a numeric value. It could also contain a negative value. In that case the corresponding sign is reflected as a postfix. For example value "-1" is reflected in this element by type string as follows: "1-". The content of this element is passed to the requestor.
PromotionID	string	Ele me nt	[0..1]	No	5.0	Promotion Identifier		

PriceDerivationApplicationTypeCode

Generated Java enum: `com.sap.ppengine.client.dto.PriceDerivationApplicationTypeCodeEnumeration`

This enum consists of the following values (supported values in **bold**):

- **Manual**
- Item
- **MixMatch**
- **FixedPrice**
- PromotionalAward
- BuyOneGetOne (BOGO)
- None
- **DiscountSingle**
- **DiscountPercent**
- **DiscountTotale**
- **FixPriceTotal**
- **DiscountPercentTotal**
- **DiscountPercentTotal2**
- DiscountTotalInterval
- **ExternalAction**
- **SetPriceTotal** (introduced with version 2.0)
- **AdditionalBonus** (introduced with version 5.0)

ExternalActionTextType

Generated Java enum: `com.sap.ppengine.client.dto.ExternalActionTextType`

ExternalActionTextType extends DescriptionCommonData and only has an additional attribute.

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
ID	string	Attribute		Yes	1.0	Identifier of the external action text The maximum length of this value must not exceed 60 characters, otherwise error ID <i>GKR-100501</i> is sent back.
value	DescriptionCommonData				1.0 (changed in a compatible way in version 2.0)	Text content.

ExternalActionParameterType

Generated Java enum: `com.sap.ppengine.client.dto.ExternalActionParameterType`

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
ID	string	Attribute		Yes	1.0	Identifier of the external action value The maximum length of this value must not exceed 60 characters, otherwise, error ID <i>GKR-100501</i> is sent back.
value	string				1.0	Parameter content The maximum length of this value must not exceed 255 characters, otherwise, error ID <i>GKR-100501</i> is sent back.


ExternalActionType

Generated Java enum: com.sap.ppengine.client.dto.ExternalActionType

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
ID	string	Attribute		Yes	1.0	Identifier of the external action The maximum length of this value must not exceed 60 characters, otherwise, error ID <i>GKR-100501</i> is sent back.
Text	ExternalActionTextType	Element	[0..*]	No	1.0	Texts of the external action in different languages. See above.
Parameter	ExternalActionParameterType	Element	[0..*]	No	1.0	Parameters of the external action. See above.
any		Element	[0..*]	No	1.0	Extensibility element.

PriceDerivationRuleEligibility

Generated Java class: com.sap.ppengine.client.dto.PriceDerivationRuleEligibility

 This element is currently only used in the context of store coupons (see also below).


Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Type	DerivationRuleEligibilityType	Attribute		Yes	1.0	Type of the price derivation rule eligibility. Restricted to <i>StoreCoupon</i> For more information, see chapter DerivationRuleEligibility Type.
ReferenceID	string	Element	[0..1] Restricted to 1 in a coupon context.	No /Yes	1.0	The coupon number that was used to trigger the modifier. The maximum length of this value must not exceed 40 characters, otherwise, error ID <i>GKR-100501</i> is sent back
any		Element	[0..*]	No	1.0	Extensibility element.
ReferenceSequence Number	integer	Element	[0..1] Restricted to 1 in a coupon context	No /Yes	1.0	The sequence number for the coupon. If the value in the request does not fall into the smallint/short range, error ID <i>GKR-100501</i> is sent back. If the element is missing in the request, error ID <i>GKR-100506</i> is sent back.

DerivationRuleEligibilityType

Generated Java enum: com.sap.ppengine.client.dto.DerivationRuleEligibilityTypeEnumeration

This enum consists of the following values (supported values in **bold**):

- Item
- MerchandiseClass
- Customer
- CustomerGroup
- CustomerAccount
- Employee
- CalendarPeriod
- Brand
- PriceLine
- TotalBasket
- **StoreCoupon**
- Combination
- ExternalTrigger
- ManualTrigger
- PositionType

 Only StoreCoupons is marked as a supported value because this is the only type that is currently used in the context of store coupons (see also above).

PointsAwardedType

PointsAwardedType extends PointsCommonData.


PointsCommonData

Generated Java class: `com.sap.ppengine.client.dto.PointsCommonData`

PointsCommonData extends BalanceCommonData.

This entity contains the number of points received, for example, the number of points given in the LoyaltyRewardBase entity:

```
<PointsAwardedAmount Type="PointsEarned">5.00</ PointsAwardedAmount >
```

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Type	PointsTypeCode	Attribute		No	1.0	Type code of the points, for example, <i>PointsEarned</i> The default value is set to <i>Credited</i> because of the underlying ARTS data model. <div style="border: 1px solid orange; padding: 5px; display: inline-block;"> Currently only the value <i>PointsEarned</i> is supported. Any other value provided in the request is also treated as <i>PointsEarned</i>.</div>
value	decimal				1.0	Number of received points

PointsTypeCode

Generated Java enum: `com.sap.ppengine.client.dto.PointsTypeCodeEnumeration`

This enum consists of the following values (supported values in **bold**):


- Credited
- Debited
- Balance
- Assigned
- **PointsEarned**
- Redeemed
- TotalRedeemed
- Reversal
- PointsAdjustment

ItemDomainSpecific

Generated Java class: `com.sap.ppengine.client.dto.ItemDomainSpecific`

ItemDomainSpecific extends ItemBase.

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
			No	1.0		Indicates the inclusion of all applicable taxes in the effective sales price.


Tax Include Price Flag	boolean	Element	[0..1]	No	1.0	This field is currently not supported. All prices are currently without applicable taxes.
any		Element	[0..*]	No	1.0	Extensibility element
NonPieceGoodFlag	boolean	Element	[0..1]	No	1.0	Indicates if the item is a piece goods item. If not provided in the request, the value is set to <i>false</i> .
FrequentShopperPointsEligibilityFlag	boolean	Element	[0..1]	No	1.0	Determines whether the line item is eligible for frequent shopper points. If not provided in the request, the value is set to <i>false</i> .
DiscountTypeCode	string	Element	[0..1]	No	1.0	This code controls whether the item is eligible for discount respectively frequent shopper points. This is controlled in more detail than with the indicators <i>NonDiscountableFlag</i> and <i>FrequentShopperPointsEligibleFlag</i> , for example on price derivation rule level. The value range is from 0 to 9. Error ID <i>GKR-100500</i> or <i>GKR-100501</i> is returned in case of an invalid value. This field is currently not supported.
PriceTypeCode	string	Element	[0..1]	No	1.0	Type code of the price Restricted to <i>00</i> and <i>01</i> , otherwise error ID <i>GKR-100500</i> is sent back.
NotConsideredByPriceEngineFlag	boolean	Element	[0..1]	No	1.0	Determines whether the Calculation Engine should care about the line item as a trigger; this information is needed because it may happen that another process (e.g. a return regarding to an existing transaction) applies rules for the line item which the Calculation Engine must not change. Assuming that the line item is discountable in general, it is controlled by setting the <i>NotConsideredByPriceEngineFlag</i> to true that the line item cannot act as trigger for and be granted a discount or bonus points from a line item-related price derivation rule. However, it can do so for a transaction-related price derivation rule. If not provided in the request, the value is set to <i>false</i> .
FrequentShopperPointsModifier	FrequentShopperPointsModifierType	Element	[0..*]	No	1.0	Reflects a modification of the frequent shopper points of the line item. For more information, see chapter <i>FrequentShopperPointsModifier</i> .
PromotionPriceDerivationRuleReference	PromotionPriceDerivationRuleReferenceType	Element	[0..*]	No	1.0	For each line item involved in triggering the reward, this entry is written <div style="border: 1px solid orange; border-radius: 10px; padding: 5px; margin: 10px 0;"> There might be a difference between line items that trigger a price derivation rule and line items that get a reward.</div> For more information, see chapter <i>PromotionPrice DerivationRule ReferenceType</i> .
Promot	Promoti	Ele		No	1.0	Manual triggers created by the client in in order to make the transaction eligible for promotions that contain eligibilities of type <i>manual trigger</i> .

ion Ma nua lTri gger	onM anua lTrig gerT ype	m e nt	[0 .. *]			For more information, see chapter PromotionManual TriggerType.
Lin el te m A ttri bute	Linel tem Attri bute Type	El e m e nt	[0 .. *]	No	5.0	One or more attribute values of the corresponding line item. These attributes can be master data attributes of the corresponding item (for example, the brand), attributes of a certain instance of the item (for example, whether it has a small defect or not), attributes inherited by a certain hierarchy node above the product (for example, the supported HDMI version of a television) and so on. Although, from the data model perspective, the number of possible attribute-value pairs is unlimited, it is strongly recommended to keep the number of provided attribute values as small as possible.

ItemBase

Generated Java class: `com.sap.ppengines.client.dto.ItemBase`

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
ItemType	RetailTransactionItemType	Attribute		No	1.0	Type of the item, for example, <i>GiftCertificate</i> Restricted to <i>Stock</i> and <i>GiftCertificate</i> . The default value is <i>Stock</i> . For other values, error ID <i>GKR-100500</i> is sent back. For more information, see chapter RetailTransaction ItemType.
NonDiscountableFlag	boolean	Attribute		No	1.0	Indicates if discounts are not allowed for this item If not set in the request, <i>false</i> is used as default value.
FixedPriceFlag	boolean	Attribute		No	1.0	Indicates if the regular price needs to be read If set to <i>true</i> , the <i>RegularSalesUnitPrice</i> needs to be present in the price calculation request, otherwise error ID <i>SAP-0005</i> is sent back. If set to <i>false</i> , the regular price (<i>RegularSalesUnitPrice</i>) is read and the corresponding field is set automatically. If not part of the request, <i>false</i> is set as default value.
ItemID	ItemIDType (string)	Element	[1..4] Restricted to 1.	Yes	1.0	The identifier of the item In case of an invalid identifier (empty string), error ID <i>SAP-0002</i> is sent back. In case of a missing identifier, error ID <i>SAP-0001</i> is sent back. The identifier must not exceed 60 characters, otherwise the request cannot be processed and error ID <i>SAP-0021</i> is sent back.
MerchandiseHierarchy	MerchandiseHierarchy CommonData	Element	[1..*]	No	1.0	Merchandise hierarchy information This is the main merchandise hierarchy group. For more information, see chapter MerchandiseHierarchy CommonData.
RegularSalesUnitPrice	UnitPriceCommonData (AmountCommonData)	Element	[0..1]	No	1.0	The regular sales unit price of the item If this element is provided in the request and <i>FixedPriceFlag</i> is set to <i>false</i> , the value is overwritten. If this element is provided in the request and <i>FixedPriceFlag</i> is set to <i>true</i> , it is used. However, the currency must also be set, otherwise error ID <i>SAP-0018</i> is sent back. For more information, see chapter UnitPriceCommonData..
ExtendedAmount	ExtendedAmountType (AmountCommonData)	Element	[0..1]	No	1.0	The amount to be paid for this item. The amount refers to the total quantity of the line item. Therefore, any line item-related retail price modifiers are considered, as well as shares of transaction-related discounts for the line item. For more information, see chapter ExtendedAmountType.
ExtendedDiscountAmount	AmountCommonData	Element	[0..1]	No	1.0	The total line-item-related discount amount for this line item. For more information, see chapter AmountCommonData.
Quantity	QuantityCommonData	Element	[0..*] Restricted to 1.	Yes	1.0	The quantity of this item If this value contains decimal places, error ID <i>GKR-100502</i> is sent back. In case of no or more than one element, error ID <i>SAP-0003</i> is sent back. For more information, see chapter QuantityCommonData.
RetailPriceModifier	RetailPriceModifier DomainSpecific	Element	[0..*]	No	1.0	Retail price modifiers that influenced the sales price of this item. For more information, see RetailPriceModifier DomainSpecific.

ItemLink	ItemLinkType (unsigned long)	Element	[0..*]	No	1.0	<p>This field is used in case of ItemType <i>Fee</i>. It points to the line item for which the fee, for example delivery cost, is relevant. If there are no fees involved, this field is not used. If the value does not fall into the smallint/short range, error ID <i>GKR-100501</i> is sent back.</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;">  Fees are currently not supported with OPP. </div>
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RetailTransactionItemType

Generated Java enum: `com.sap.ppengine.client.dto.RetailTransactionItemTypeEnumeration`

This enum consists of the following values (supported values in **bold**):

- **Stock**
- Grade
- Service
- Alteration
- Fee
- FeeRefund
- Deposit
- DepositRefund
- Tare
- ItemCollection
- Warranty
- **GiftCertificate**

FrequentShopperPointsModifierType

Generated Java class: `com.sap.ppengine.client.dto.FrequentShopperPointsModifierType`

FrequentShopperPointsModifierType extends LoyaltyRewardBase.

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API version	Description/Remarks
SequenceNumber	unsignedLong	Element	[1]	Yes	1.0	Sequence number of the frequent shopper points modifier. This field allows more than one point modification to occur on the line item. If the value does not fit in the smallint/short value range, error ID <i>GKR-100501</i> is sent back. It must be unique in the context of the current line item, otherwise error ID <i>GKR-100505</i> is sent back.
AppliedQuantity	DecimalCommonData (decimal)	Element	[1]	Yes	1.0	The quantity the points' modifier applies to. The maximum length for this value must not exceed 11 (including 3 decimal places) in the request, otherwise error ID <i>GKR-100501</i> is sent back. If this field is missing in the request in case of non-proration, error ID <i>GKR-100506</i> is sent back.
ItemLink	SequenceNumberType (unsignedLong)	Element	[0..1]	No	1.0	Link to the LoyaltyReward line item that forced the creation of this FrequentShopperPointsPriceModifier in order to keep the share of the prorated transaction-related points for the current line item. It is not used in the context of modifying points for a dedicated line item. It must be in the smallint/short value range, otherwise error ID <i>GKR-100501</i> is sent back.

PromotionPriceDerivationRuleReferenceType

Generated Java class: `com.sap.ppengine.client.dto.PromotionPriceDerivationRuleReferenceType`

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
PromotionID	string	Element	[1]	Yes	1.0	The identifier of the promotion to which this line item references to.
	string		[1]	Yes	1.0	The identifier of the price derivation rule to which this line item references to.

PriceDerivationRuleID		Element				
ReferenceQuantity	DecimalCommonData (decimal)	Element	[1]	Yes	1.0	The quantity share of the line item that was necessary to fulfill the price derivation rule eligibilities. The maximum length of this value must not exceed 11 including 3 decimal places, otherwise error ID <i>GKR-100501</i> is sent back.
any		Element	[0..*]	No	1.0	Extensibility element

DescriptionCommonData

Generated Java class: `com.sap.ppengine.client.dto.DescriptionCommonData`

DescriptionCommonData extends string.

This entity contains the descriptive text as, for example, the description text of a business error is in the BusinessErrorCommonData entity:

```
<Description Language="EN">Text of the business error</Description>
```

The complete list of possible errors is described in chapter *Error Handling*.

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Language	string	Attribute		No	2.0	Language code in ISO 639-1 format for the text. The default is <i>EN</i> (English).
value	string				1.0	Description text

AmountCommonData

Generated Java class: `com.sap.ppengine.client.dto.AmountCommonData`

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Currency	CurrencyTypeCode	Attribute		No	1.0	Defines the ISO code for the currency of the amount, for example <i>USD</i> or <i>EUR</i> The default currency is <i>USD</i> . For more information, see chapter <i>CurrencyTypeCode</i> .
value	DecimalCommonData (decimal)				1.0	Amount

CurrencyTypeCode

Generated Java enum: `com.sap.ppengine.client.dto.CurrencyTypeCodeEnumeration`

This enum consists of the following values:

- ADP
- AED
- AFA
- ALL
- AMD
- ANG
- AOA
- ARS
- ATS
- AUD
- AWG
- AZM
- BAM
- BBD
- BDT

- BEF
- BGL
- BGN
- BHD
- BIF
- BMD
- BND
- BOB
- BOV
- BRL
- BSD
- BTN
- BWP
- BYR
- BZD
- CAD
- CDF
- CHF
- CLF
- CLP
- CNY
- COP
- CRC
- CUP
- CVE
- CYP
- CZK
- DEM
- DJF
- DKK
- DOP
- DZD
- ECS
- ECV
- EEK
- EGP
- ERN
- ESP
- ETB
- EUR
- FIM
- FJD
- FKP
- FRF
- GBP
- GEL
- GHC
- GIP
- GMD
- GNF
- GRD
- GTQ
- GWP
- GYD
- HKD
- HNL
- HRK
- HTG
- HUF
- IDR
- IEP
- ILS
- INR
- IQD
- IRR
- ISK
- ITL
- JMD
- JOD
- JPY
- KES
- KGS
- KHR
- KMF
- KPW
- KRW
- KWD
- KYD
- KZT

- LAK
- LBP
- LKR
- LRD
- LSL
- LTL
- LUF
- LVL
- LYD
- MAD
- MDL
- MGF
- MKD
- MMK
- MNT
- MOP
- MRO
- MTL
- MUR
- MVR
- MWK
- MXN
- MXV
- MYR
- MZM
- NAD
- NGN
- NIO
- NLG
- NOK
- NPR
- NZD
- OMR
- PAB
- PEN
- PGK
- PHP
- PKR
- PLN
- PTE
- PYG
- QAR
- ROL
- RUB
- RUR
- RWF
- SAR
- SBD
- SCR
- SDD
- SEK
- SGD
- SHP
- SIT
- SKK
- SLL
- SOS
- SRG
- STD
- SVC
- SYP
- SZL
- THB
- TJS
- TMM
- TND
- TOP
- TPE
- TRL
- TTD
- TWD
- TZS
- UAH
- UGX
- USD
- USN
- USS
- UYU
- UZS

- VEB
- VND
- VUV
- WST
- XAF
- XAG
- XAU
- XBA
- XBB
- XBC
- XCD
- XDR
- XFO
- XFU
- XOF
- XPD
- XPF
- XPT
- XTS
- YER
- YUM
- ZAR
- ZMK
- ZWD

AmountType

Generated Java class: com.sap.ppengine.client.dto.RetailPriceModifierBase.Amount

AmountType extends AmountCommonData. For more information, see chapter AmountCommonData.

This entity contains the amount as, for example, the amount in the RetailPriceModifierBase entity:

<Amount Action="Subtract" Currency="EUR" >2.99000</Amount>

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Action	RetailPriceModifierAmountAction	Attribute		Yes	1.0	Defines the action of the price modification amount, for example, the value <i>Subtract</i> for price reduction Restricted to <i>Add</i> and <i>Subtract</i> . In case of other values, error ID <i>GKR-100500</i> is sent back. For more information, see chapter RetailPriceModifierAmountAction.
value	decimal				1.0	Amount value

PercentType

Generated Java class: com.sap.ppengine.client.dto.RetailPriceModifierBase.Percent

PercentType extends PercentageCommonData (decimal).

This entity contains the percentage as, for example, the percentage in the RetailPriceModifierBase entity:

<Percent Action="Add">11.23</Percent>

Name	Type	Attribute/Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Action	RetailPriceModifierPercentAction	Attribute		Yes	1.0	Defines the action of the price modification percentage, for example, the value <i>Subtract</i> for price reduction Restricted to <i>Add</i> and <i>Subtract</i> . In case of other values, error ID <i>GKR-100500</i> is sent back. For more information, see chapter RetailPriceModifierPercentAction.
value	decimal				1.0	Percentage If this field contains more than 4 decimal places in the request, error ID <i>GKR100501</i> is sent back,

QuantityCommonData

Generated Java class: com.sap.ppengine.client.dto.QuantityCommonData

This entity contains the quantity, the units ,and the unit of measurement (UOM) as, for example, in the SaleBase entity:

```
<Quantity Units="1" UnitOfMeasureCode="PCE">5</Quantity>
```

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
Units	decimal	Attribute		No	1.0	Number of units sold If the length exceeds the integer range, error ID <i>GKR-100501</i> is sent back. The default is set to <i>1</i> .
UnitOfMeasureCode	string	Attribute		No	1.0	The code to specify the units in which a value is being expressed, or manner in which a measurement has been taken. We expect the unit of measurement in ISO code format. If the unit of measurement is missing or invalid (empty string), error ID <i>SAP-0004</i> is sent back.
value	decimal				1.0	Quantity value

RoundingCommonData

Generated Java class: com.sap.ppengine.client.dto.RoundingCommonData

This entity contains the rounding information, as in the following example:

```
<Rounding RoundingDirection="UP">0.12345</Rounding>
```

Name	Type	Attribute /Element	Cardinality	Required	Available as of Client API Version	Description/Remarks
RoundingDirection	RoundingDirectionCommonData TypeCodes	Attribute		No	1.0	Defines a rounding up (value <i>Up</i>) or a rounding down (value <i>Down</i>). Other values result in error ID <i>GKR-100500</i> . If there was no rounding at all, the attribute is not set.
value	decimal				1.0	Rounding value

RoundingDirectionCommonData TypeCodes

Generated Java enum: com.sap.ppengine.client.dto.RoundingDirectionCommonData TypeCodes Enumeration

This enum consists of the following values:

- **Up**
- **Down**

LoyaltyRewardTypeCode

Generated Java enum: com.sap.ppengine.client.dto.LoyaltyRewardTypeCode Enumeration

This enum consists of the following values (supported values in **bold**):

- **Award**
- **Rebate**

Understanding the details

Possible Triggers

- Customer: LoyaltyAccountCommonData->CustomerID
- Customer group: LoyaltyAccountCommonData->LoyaltyProgram (LoyaltyAccountType)->LoyaltyProgramID
- Employee group: To support employee discount groups in the current version, you have to handle them as customer groups. (LoyaltyAccountCommonData->CustomerIsEmployeeFlag)
- Merchandise category: LineItemBase->MerchandiseHierarchy (MerchandiseHierarchyCommonData)
- Item: ItemBase->ItemID and ItemBase->Quantity (QuantityCommonData)->UnitOfMeasureCode (ItemBase of all Sale-, Return-, Customer-related line items)
- Manual trigger: LineItemChoiceDomainSpecific->PromotionManualTrigger (PromotionManualTriggerType) (as separate line item), or ItemDomainSpecific->PromotionManualTrigger (PromotionManualTriggerType) (ItemDomainSpecific of all Sale-, Return-, Customer-related line items)
- ExternalTrigger: LineItemChoiceDomainSpecific->PromotionExternalTrigger (PromotionExternalTriggerType) (as separate line item)
- Coupon: TenderCouponsBase->PrimaryLabel (coupon line item)
- Transaction total: Is summed up internally by the promotion calculation engine.
- Position type: ItemBase->ItemType (ItemBase of all Sale-, Return-, Customer-related line items)
- Multiple triggers can be combined

Calculation Control

- ItemBase->NonDiscountableFlag (ItemBase of all Sale-, Return-, Customer-related line items)
- ItemDomainSpecific->NonPieceGoodFlag (ItemDomainSpecific of all Sale-, Return-, Customer-related line items)
- ItemDomainSpecific->FrequentShopperPointsEligibilityFlag (ItemDomainSpecific of all Sale-, Return-, Customer-related line items)
- ItemDomainSpecific->DiscountTypeCode (ItemDomainSpecific of all Sale-, Return-, Customer-related line items)
- ItemDomainSpecific->PriceTypeCode (ItemDomainSpecific of all Sale-, Return-, Customer-related line items)
- ItemDomainSpecific->NotConsideredByPriceEngineFlag (ItemDomainSpecific of all Sale-, Return-, Customer-related line items)

Collision Handling

- PriceDerivationRuleBase->PromotionPriceDerivationRuleSequence
- PriceDerivationRuleBase->PromotionPriceDerivationRuleResolution
- PriceDerivationRuleBase->TransactionControlBreakCode
- PriceDerivationRuleBase->NoEffectOnSubsequentPriceDerivationRulesFlag
- PriceDerivationRuleBase->ProhibitTransactionRelatedPriceDerivationRulesFlag
- PriceDerivationRuleBase->ExclusiveFlag
- PriceDerivationRuleBase->ConcurrencyControlVector

Possible Benefits

- Line item-related discount: ItemBase->RetailPriceModifier (RetailPriceModifierDomainSpecific) without ItemLink (ItemBase of all Sale-, Return-, Customer-related line items)
- Line item-related bonus points: ItemDomainSpecific->FrequentShopperPointsModifier (FrequentShopperPointsModifierType) without ItemLink (ItemDomainSpecific of all Sale-, Return-, Customer-related line items)
- Prorated transaction-related discount: LineItemChoiceBase->Discount (DiscountBase) line item and ItemBase->RetailPriceModifier (RetailPriceModifierDomainSpecific) with ItemLink referring to the DiscountBase line item (ItemBase of all Sale-, Return-, Customer-related line items) but without PriceDerivationRule (PriceDerivationRuleBase)
- Non-prorated transaction-related discount: not supported with the current version

- Prorated transaction-related bonus points: LineItemChoiceBase->LoyaltyReward (LoyaltyRewardBase) line item and ItemDomainSpecific->FrequentShopperPointsModifier (FrequentShopperPointsModifierType) with ItemLink referring to the LoyaltyRewardBase line item (ItemDomainSpecific of all Sale-, Return-, Customer-related line items) but without PriceDerivationRule (PriceDerivationRuleBase)
- Non-prorated transaction-related bonus points: not supported with the current version
- Discounts could be handled as tender or could be granted as coupon or gift certificate: the response contains a Discount (DiscountBase) line item or ItemBase->RetailPriceModifier (RetailPriceModifierDomainSpecific). The client has to perform the required tasks based on the information provided in PriceDerivationRuleBase->DiscountMethodCode, TenderTypeCode, CouponPrintoutID, CouponPrintoutRule, CouponPrintoutText, PrintoutValidityPeriod, GiftCertificateExpirationDate and RetailPriceModifierDomainSpecific->ExtraAmount
- Another possible use case is that the promotion calculation engine itself does not grant a benefit, but provides the client with data it needs to perform an action (PriceDerivationRuleBase->ExternalAction (ExternalActionType))
- LoyaltyReward specifies loyalty points on transaction level. FrequentShopperPointsPriceModifier specifies loyalty points on LineItem level. Coupons as reward are not handled with an own element, but with some fields in the PriceDerivationRuleBase, for example CouponPrintoutID or CouponPrintoutText.

Information about Applied Price Derivation Rules

- A copy (snapshot) of relevant price derivation rule master data: PriceDerivationRuleBase
- How often the price derivation rule as applied: PriceDerivationRuleBase->AppliedCount
- Involved line items: ItemDomainSpecific->PromotionPriceDerivationRuleReference (ItemDomainSpecific of all Sale-, Return-, Customer-related line items)
- Number of used coupons: TenderCouponBase->AppliedQuantity


Printout Control

- PriceDerivationRuleBase->ProhibitPrintFlag
- PriceDerivationRuleBase->ReceiptLine

Custom Extensions (any)

- An any element may contain any content
- It is not intended to be processed/generated by the standard promotion calculation engine, but by project-specific extensions to it.
- Please refer to the Development & Extension Guide for Omnichannel Promotion Pricing (chapter PPS Module client-interface) to get more information about the extensibility of the Client API.

Error Handling

 Business error texts are only available in English and are not translated. Only the Error IDs remain stable. The texts might be subject to change.

Overview Error Codes

This section provides an overview about the error and response codes.

Error ID	Description	Severity
SAP-0001	Invalid number of item IDs have been found in a line item (caused by number of item IDs != 1).	Error
SAP-0002	Invalid item ID has been found in a line item (caused by blank or null item ID).	Error
SAP-0003	Wrong number of quantity elements have been found in a line item (expected is always 1 element).	Error
SAP-0004	Empty or null unit of measure code has been found in a line item.	Error

SAP-0005	Occurs when the FixedPriceFlag is set to "true" but the RegularSalesUnitPrice is missing.	Error
SAP-0006	Invalid number of base prices read (expected is always 1 element).	Error
SAP-0007	Occurs when the ARTS Header is missing the the PriceCalculate request.	Error
SAP-0008	Occurs when the InternalMajorVersion is missing in the PriceCalculate entity.	Error
SAP-0009	Occurs in case of an invalid InternalMajorVersion and/or InternalMinorVersion.	Error
SAP-0010	Occurs in case of an unsupported action code in the ARTS Header (expected is only "Calculate").	Error
SAP-0011	Occurs when a unsupported message type is in the ARTSHeader (expected is only "Request").	Error
SAP-0012	Wrong number of BusinessUnit elements in the ARTS Header (expected is always 1 element).	Error
SAP-0013	Wrong number of PriceCalculateBody elements in the PriceCalculate request (expected is always 1 element).	Error
SAP-0014	Occurs when the DateTime element is missing in the PriceCalculateBody.	Error
SAP-0015	Occurs when the ShoppingBasket element is missing in the PriceCalculateBody.	Error
SAP-0016	No line items are present in the PriceCalculate request.	Error
SAP-0017	Occurs in case of a invalid BusinessUnit (blank or null).	Error
SAP-0018	Occurs when the provided RegularSalesUnitPrice does not contain a valid currency (not blank or null).	Error
SAP-0019	Too many line items are present in the PriceCalculate request.	Error
SAP-0020	RequestedLanguage and RequestedMultiLanguage together in the PriceCalculate request.	Error
SAP-0021	Occurs when the item ID is too long (max length is 60 characters).	Error
SAP-0022	Occurs when the business unit is too long (max length is 60 characters).	Error
SAP-0023	Occurs when the COND_SPR_UNIT is < 1.	Error
SAP-0024	Occurs when there are more than 2 different merchandise hierarchy group identifier qualifier (field ID in MerchandiseHierarchyCommonData). Note: This is only relevant for PPS 3.0.	Error
SAP-0025	Occurs when the master data source system ID is used in Client API version < 2.1.	Error
SAP-0026	Occurs when CalculationScheme is set for a too low interface version (< 4.0).	Error
SAP-0027	Occurs when Line Item attributes are provided for a too low interface version (< 5.0).	Error
SAP-0028	Occurs when an unknown line item attribute was provided in the request.	Error
SAP-0029	Occurs when the name of a line item attribute was not set.	Error
SAP-0030	Occurs when the name of a line item attribute has an illegal value.	Error
SAP-0031	Occurs when the name of a line item attribute does not match the "custom" flag.	Error
SAP-0032	Occurs when AdditionalBonus is set for a too low interface version (< 5.0).	Error
SAP-0033	Occurs when a certain business unit type occurs more than once in a calculation request version. (>= API version 6.0)	Error
SAP-0034	Occurs when more than one business unit is provided in the request but no business unit of type "distribution chain" is present. (>= API version 6.0)	Error
SAP-0035	Occurs when the format for the distribution chain does not match the expected pattern. (>= API version 6.0)	Error
SAP-0036	Occurs when the interface version for the provided transaction attributes is too low. (< 8.0)	Error
SAP-0037	Occurs when the name of a transaction attribute has an invalid value.	Error
SAP-0038	Occurs when an unknown transaction attribute is provided in the request.	Error
SAP-0039	Occurs when the name of a transaction attribute is not set.	Error
SAP-0040	Occurs when the name of a transaction attribute does not match the custom flag.	Error
SAP-9999	Occurs in case of an unexpected error	Error
GKR-100500	Value not supported.	Error

GKR-100501	Value too big.	Error
GKR-100502	Too many decimal places.	Error
GKR-100503	Value negativ.	Error
GKR-100504	Structure wrong.	Error
GKR-100505	ID not unique.	Error
GKR-100506	Missing element or attribute.	Error
GKR-100507	Too many Quantity elements.	Error
GKR-100508	Not existing or unknown.	Error
GKR-100509	Line item not allowed in line item calculation mode.	Error
GKR-100510	External benefit not allowed in line item calculation mode.	Error
GKR-100511	Manufacturer coupon is not valid.	Error
GKR-100512	Value too long.	Error
GKR-100513	Too many integer digits.	Error
GKR-100520	Calculation quantity limit reached.	Error
GKR-100521	Too many elements or attributes.	Error

Business Error Structure

This section provides information about the detailed structure of business errors.

Business Error ID	Error Explanation	Error Serial Number	Line Item Sequence Number	Parameter Information	
				Parameter Name	Parameter Value
SAP-0001	A line item contains an invalid number of item IDs (caused by number of ItemIDs != 1)	0	Yes	NumberOfItemIds	<the number of item IDs>
				SequenceNumber	<the sequence number of the line item that caused the error>
SAP-0002	A line item contains an invalid item ID (blank or null).	0	Yes	SequenceNumber	<the sequence number of the line item that caused the error>
SAP-0003	Incorrect number of quantity elements in a line item (expected is always 1 element).	0	Yes	NumberOfQuantities	<the number of quantities for an item in one line>
				SequenceNumber	<the sequence number of the line item that caused the error>
SAP-0004	The request cannot contain line items with no unit of measure code or a unit of measure code with value 0.	0	Yes	SequenceNumber	<the sequence number of the line item that caused the error>
SAP-0005	The FixedPriceFlag is set to "true" but the RegularSalesUnitPrice is missing.	0	Yes	SequenceNumber	<the sequence number of the line item that caused the error>

					error>
SAP-0006	The database contains an invalid number of regular prices (expected is always 1 element).	0	No	-	-
SAP-0007	The ARTS Header is missing the request.	0	No	-	-
SAP-0008	The InternalMajorVersion is missing in the PriceCalculate entity.	0	No	-	-
SAP-0009	The request contains an invalid InternalMajorVersion and/or InternalMinorVersion.	0	No	MasterVersionProvided	<the master version in the calculation request>
				MasterVersionSupported	<the allowed master version>
				MinorVersionProvided	<the minor version in the calculation request>
				MinorVersionSupported	<the allowed minor version>
SAP-0010	The request contains an unsupported action code in the ARTS Header (expected is only "Calculate").	0	No	ActionCode	<the value of the unsupported action code>
SAP-0011	The request contains an unsupported message type in the ARTS Header (expected is only "Request").	0	No	MessageType	<the value of the unsupported message type>
SAP-0012	Incorrect number of BusinessUnit elements in the ARTS Header (expected is always 1 element).	0	No	BUnitAllowed	<the allowed number of business units>
				BUnitProvided	<the number of business units in the calculation request>
SAP-0013	Incorrect number of PriceCalculateBody elements in the PriceCalculate request (expected is always 1 element).	0	No	PriceCalculateBody	<the number of calculation bodies in the calculation request>
SAP-0014	The DateTime element is missing in the PriceCalculateBody.	0	No	-	-
SAP-0015	The ShoppingBasket element is missing in the PriceCalculateBody.	0	No	-	-
SAP-0016	The request does not contain any line items.	0	No	-	-
SAP-0017	The request contains an invalid business unit (blank or null).	0	No	-	-
SAP-0018	The provided RegularSalesUnitPrice does not contain a valid currency (not blank or null).	0	Yes	SequenceNumber	<the sequence number of the line item that caused the error>
SAP-0019	Too many line items in the PriceCalculate request.	0	No	-	-
SAP-0020	RequestedLanguage and RequestedMultiLanguage together in the PriceCalculate request.	0	No	-	-
SAP-0021	The item ID is too long (maximum length is 60 characters).	0	Yes	ItemLength	<the number of characters of the item ID>
				ItemLengthMax	<the allowed number of characters for the item ID>
				SequenceNumber	<the sequence number of the line item that caused the error>
SAP-0022	The business unit is too long (maximum length is 60 characters).	0	No	BusinessUnitLength	<the number of characters of the business unit>
				BusinessUnitMaxLength	<the allowed number of characters for the business unit>
SAP-0023	The COND_SPR_UNIT attribute in the pricing master data must not be < 1.	0	No	-	-
SAP-0024	There are more than 2 different merchandise hierarchy group identifier qualifiers (field ID in MerchandiseHierarchyCommonData).	0	Yes	MerchandiseHierarchyQualifier	<the actual number of different merchandise hierarchies>
				SequenceNumber	<the sequence number of the line item that caused the error>
SAP-0025	The master data source system ID is used in	0	No	MajorVersion	<the value of the

	Client API version < 2.1.				unsupported major version of the Client API>
				MinorVersion	<the value of the unsupported minor version of the Client API>
SAP-0026	CalculationScheme is set for a Client API version (< 4.0) that is not supported.	0	-	-	-
SAP-0027	Line item attributes are provided for a Client API version (< 5.0) that is not supported.	0	-	-	-
SAP-0028	Unknown line item attribute in the request.	0	Yes	Attribute	<the name of the attribute>
				SequenceNumber	<the sequence number of the line item that caused the error>
SAP-0029	The name of a line item attribute is not set.	0	Yes	SequenceNumber	<the sequence number of the line item that caused the error>
SAP-0030	The name of a line item attribute has an invalid value.	0	Yes	Attribute	<the name of the attribute>
				SequenceNumber	<the sequence number of the line item that caused the error>
				Value	<the value provided for the attribute>
SAP-0031	The name of a line item attribute does not match the "custom" flag.	0	Yes	Attribute	<the name of the attribute>
				SequenceNumber	<the sequence number of the line item that caused the error>
SAP-0032	AdditionalBonus is set for a Client API version (< 5.0) that is not supported.	0	-	-	-
SAP-0033	A business unit type is used more than once in the calculation request version.	0	No	BusinessUnitType	<the type of the business unit>
SAP-0034	More than one business unit is provided in the request. But none of them is of type "distribution chain".	0	No	BusinessUnitType	<the business unit of type "distribution chain" that is missing>
SAP-0035	The format of the distribution chain does not match the expected pattern.	0	No	BusinessUnitType	<the business unit of type "distribution chain" with missing delimiter>
SAP-0036	The interface version for the provided transaction attributes is too low. (< 8.0)	0	No	-	-
SAP-0037	The name of a transaction attribute has an invalid value.	0	No	TransactionAttributeName	<the name of the invalid transaction attribute>
				TransactionAttributeValue	<the value of the invalid transaction attribute>
SAP-0038	An unknown transaction attribute was provided in the request.	0	No	TransactionAttributeName	<the name of the unknown transaction attribute>
SAP-0039	The name of a transaction attribute was not set.	0	No	-	-
SAP-0040	The name of a transaction attribute does not match with the custom flag.	0	No	TransactionAttributeName	<the name of the invalid transaction attribute>
SAP-9999	Unexpected error	0	No	-	-



For a detailed list of the error message structure of business errors starting with GKR-, for example GKR-100500, see section *Business Error Codes* in the latest version of the [SDK Promotion Calculation Engine](#).

Examples

The now following example requests and responses are all in XML format because it is better readable than JSON.

Example 1: No Promotion

The customer buys a single item 3 times:

Example 1: Request

```
<PriceCalculate xmlns="http://www.sap.com/IXRetail/namespace/" InternalMajorVersion="3" InternalMinorVersion="0">
  <ARTSHeader ActionCode="Calculate" MessageType="Request">
    <MessageID>24006277100103003034034700701395</MessageID>
    <DateTime>2015-09-08T16:53:25.278</DateTime>
    <BusinessUnit TypeCode="RetailStore">1101</BusinessUnit>
  </ARTSHeader>

  <PriceCalculateBody TransactionType="SaleTransaction" NetPriceFlag="true">
    <TransactionID>9a89f2edfd1e413ea147e334b9c2ed4b</TransactionID>
    <DateTime>2015-09-08T16:53:25.278</DateTime>
    <ShoppingBasket>
      <LineItem>
        <SequenceNumber>0</SequenceNumber>
        <MerchandiseHierarchy ID="1">RF11111</MerchandiseHierarchy>
        <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="false">
          <NonPieceGoodFlag>>false</NonPieceGoodFlag>
          <FrequentShopperPointsEligibilityFlag>true</FrequentShopperPointsEligibilityFlag>
          <NotConsideredByPriceEngineFlag>>false</NotConsideredByPriceEngineFlag>
          <ItemID>510110016</ItemID>
          <Quantity Units="1" UnitOfMeasureCode="PCE">3</Quantity>
        </Sale>
      </LineItem>
    </ShoppingBasket>
  </PriceCalculateBody>
</PriceCalculate>
```

As there is no promotion effective for this item, there is the following response:

- The ARTS Header is extended with the Response entity (ResponseType) saying that the request was processed successfully (ResponseCode=OK). It contains the ID and the time stamp of the request (RequestID and ResponseTimestamp).
- The sale line item is extended with the fields ExtendedAmount=30.0 (RegularSalesUnitPrice * Units * Quantity, 10.0 * 1 * 3) and ExtendedDiscountAmount=0.0 (as there was no reduction).

Example 1: Response

```
<PriceCalculateResponse xmlns="http://www.sap.com/IXRetail/namespace/" InternalMajorVersion="3" InternalMinorVersion="0">
  <ARTSHeader ActionCode="Calculate" MessageType="Response">
    <MessageID>24006277100103003034034700701396</MessageID>
    <DateTime>2015-09-08T16:53:26.278</DateTime>
    <Response ResponseCode="OK">
      <RequestID>24006277100103003034034700701395</RequestID>
      <ResponseTimestamp>2015-09-08T16:53:26.281</ResponseTimestamp>
    </Response>
    <BusinessUnit TypeCode="RetailStore">1101</BusinessUnit>
  </ARTSHeader>

  <PriceCalculateBody TransactionType="SaleTransaction" NetPriceFlag="true">
    <TransactionID>9a89f2edfd1e413ea147e334b9c2ed4c</TransactionID>
    <DateTime>2015-09-08T16:53:25.278</DateTime>
    <ShoppingBasket>
      <LineItem>
        <SequenceNumber>0</SequenceNumber>
        <MerchandiseHierarchy ID="1">RF11111</MerchandiseHierarchy>
        <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="false">
          <ItemID>510110016</ItemID>
          <RegularSalesUnitPrice Currency="EUR">10.0</RegularSalesUnitPrice>
          <ExtendedAmount Currency="EUR">30.0</ExtendedAmount>
          <ExtendedDiscountAmount Currency="EUR">0.0</ExtendedDiscountAmount>
          <Quantity Units="1.0" UnitOfMeasureCode="PCE">3</Quantity>
          <NonPieceGoodFlag>>false</NonPieceGoodFlag>
          <FrequentShopperPointsEligibilityFlag>true</FrequentShopperPointsEligibilityFlag>
          <PriceTypeCode>00</PriceTypeCode>
          <NotConsideredByPriceEngineFlag>>false</NotConsideredByPriceEngineFlag>
        </Sale>
      </LineItem>
    </ShoppingBasket>
  </PriceCalculateBody>
</PriceCalculateResponse>
```

Example 2: Promotion on Transaction Level

The customer buys 2 items (each one only once). This example shows that it is possible that the regular price is already included in the incoming request (2nd line item). In this case, it is not retrieved by the promotion pricing service.

Example 2: Request

```
<PriceCalculate xmlns="http://www.sap.com/IXRetail/namespace/" InternalMajorVersion="3" InternalMinorVersion="0">
  <ARTSHeader ActionCode="Calculate" MessageType="Request">
    <MessageID>24006277100103003034034700701395</MessageID>
    <DateTime>2015-09-08T16:53:25.278</DateTime>
    <BusinessUnit TypeCode="RetailStore">1101</BusinessUnit>
  </ARTSHeader>

  <PriceCalculateBody TransactionType="SaleTransaction" NetPriceFlag="true">
    <TransactionID>9a89f2edfd1e413ea147e334b9c2ed4b</TransactionID>
    <DateTime>2015-09-08T16:53:25.278</DateTime>
    <ShoppingBasket>
      <LineItem>
        <SequenceNumber>0</SequenceNumber>
        <MerchandiseHierarchy ID="1">RF11111</MerchandiseHierarchy>
        <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="false">
          <NonPieceGoodFlag>false</NonPieceGoodFlag>
          <FrequentShopperPointsEligibilityFlag>true</FrequentShopperPointsEligibilityFlag>
          <NotConsideredByPriceEngineFlag>false</NotConsideredByPriceEngineFlag>
          <ItemID>510110016</ItemID>
          <Quantity Units="1" UnitOfMeasureCode="PCE">1</Quantity>
        </Sale>
      </LineItem>
      <LineItem>
        <SequenceNumber>1</SequenceNumber>
        <MerchandiseHierarchy ID="1">RF11111</MerchandiseHierarchy>
        <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="true">
          <NonPieceGoodFlag>false</NonPieceGoodFlag>
          <FrequentShopperPointsEligibilityFlag>true</FrequentShopperPointsEligibilityFlag>
          <NotConsideredByPriceEngineFlag>false</NotConsideredByPriceEngineFlag>
          <ItemID>510110017</ItemID>
          <Quantity Units="1" UnitOfMeasureCode="PCE">1</Quantity>
          <RegularSalesUnitPrice Currency="EUR">15.00000</RegularSalesUnitPrice>
        </Sale>
      </LineItem>
    </ShoppingBasket>
  </PriceCalculateBody>
</PriceCalculate>
```

There is an active promotion with the following rule: "Buy at least for 25 Euro and get a discount of 5€"

With the 2nd line item the limit is reached and the customer receives a transational discount. This discount is prorated to both line items with the price modifier element.

The response also contains a 3rd line item. This line item is a discount that shows the total transational discount including the price derivation rule.

Example 2: Response

```
<PriceCalculateResponse xmlns="http://www.sap.com/IXRetail/namespace/" InternalMajorVersion="3" InternalMinorVersion="0">
  <ARTSHeader ActionCode="Calculate" MessageType="Response">
    <MessageID>24006277100103003034034700701396</MessageID>
    <DateTime>2015-09-08T16:53:26.278</DateTime>
    <Response ResponseCode="OK">
      <RequestID>24006277100103003034034700701395</RequestID>
      <ResponseTimestamp>2015-09-08T16:53:26.281</ResponseTimestamp>
    </Response>
    <BusinessUnit TypeCode="RetailStore">1101</BusinessUnit>
  </ARTSHeader>

  <PriceCalculateBody TransactionType="SaleTransaction" NetPriceFlag="true">
    <TransactionID>9a89f2edfd1e413ea147e334b9c2ed4c</TransactionID>
    <DateTime>2015-09-08T16:53:25.278</DateTime>
    <ShoppingBasket>
      <LineItem>
        <SequenceNumber>0</SequenceNumber>
        <MerchandiseHierarchy ID="1">RF11111</MerchandiseHierarchy>
        <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="false">
```



```

<ItemID>510110016</ItemID>
<RegularSalesUnitPrice Currency="EUR">15.00000</RegularSalesUnitPrice>
<ExtendedAmount Currency="EUR">12.50000</ExtendedAmount>
<ExtendedDiscountAmount Currency="EUR">0.00000</ExtendedDiscountAmount>
<Quantity Units="1.0" UnitOfMeasureCode="PCE">1</Quantity>
<NonPieceGoodFlag>>false</NonPieceGoodFlag>
<FrequentShopperPointsEligibilityFlag>>true</FrequentShopperPointsEligibilityFlag>
<PriceTypeCode>00</PriceTypeCode>
<NotConsideredByPriceEngineFlag>>false</NotConsideredByPriceEngineFlag>
<RetailPriceModifier>
  <SequenceNumber>0</SequenceNumber>
  <Amount Currency="EUR" Action="Subtract">2.50000</Amount>
  <Percent Action="Subtract">16.67</Percent>
  <PreviousPrice Currency="EUR">15.00000</PreviousPrice>
  <NewPrice Currency="EUR">12.50000</NewPrice>
  <PromotionID>1082</PromotionID>
  <ItemLink>2</ItemLink>
  <Quantity>1.0</Quantity>
  <Rounding>0.0</Rounding>
  <ExtraAmount Currency="EUR">0.00000</ExtraAmount>
  <ExternalSystemOriginatorFlag>>false</ExternalSystemOriginatorFlag>
</RetailPriceModifier>
</LineItem>
<LineItem>
  <SequenceNumber>1</SequenceNumber>
  <MerchandiseHierarchy ID="1">RF11111</MerchandiseHierarchy>
  <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="true">
    <ItemID>510110017</ItemID>
    <RegularSalesUnitPrice Currency="EUR">15.00000</RegularSalesUnitPrice>
    <ExtendedAmount Currency="EUR">12.50000</ExtendedAmount>
    <ExtendedDiscountAmount Currency="EUR">0.00000</ExtendedDiscountAmount>
    <Quantity Units="1.0" UnitOfMeasureCode="PCE">1</Quantity>
    <NonPieceGoodFlag>>false</NonPieceGoodFlag>
    <FrequentShopperPointsEligibilityFlag>>true</FrequentShopperPointsEligibilityFlag>
    <PriceTypeCode>00</PriceTypeCode>
    <NotConsideredByPriceEngineFlag>>false</NotConsideredByPriceEngineFlag>
    <RetailPriceModifier>
      <SequenceNumber>0</SequenceNumber>
      <Amount Currency="EUR" Action="Subtract">2.50000</Amount>
      <Percent Action="Subtract">16.67</Percent>
      <PreviousPrice Currency="EUR">15.00000</PreviousPrice>
      <NewPrice Currency="EUR">12.50000</NewPrice>
      <PromotionID>1082</PromotionID>
      <ItemLink>2</ItemLink>
      <Quantity>1.0</Quantity>
      <Rounding>0.0</Rounding>
      <ExtraAmount Currency="EUR">0.00000</ExtraAmount>
      <ExternalSystemOriginatorFlag>>false</ExternalSystemOriginatorFlag>
    </RetailPriceModifier>
  </Sale>
</LineItem>
<LineItem>
  <SequenceNumber>2</SequenceNumber>
  <ExtraAmount>0.00000</ExtraAmount>
  <ExternalSystemOriginatorFlag>>false</ExternalSystemOriginatorFlag>
  <Discount ProratedFlag="true">
    <SequenceNumber>0</SequenceNumber>
    <Amount Currency="EUR" Action="Subtract">5.00000</Amount>
    <Percent Action="Subtract">16.67</Percent>
    <PreviousPrice Currency="EUR">30.00000</PreviousPrice>
    <NewPrice Currency="EUR">25.00000</NewPrice>
    <PromotionID>1082</PromotionID>
    <ItemLink>0</ItemLink>
    <ItemLink>1</ItemLink>
    <Quantity>1.0</Quantity>
    <Rounding>0.0</Rounding>
    <PriceDerivationRule ApplicationType="DiscountTotal">
      <PriceDerivationRuleID>3314</PriceDerivationRuleID>
      <PromotionDescription>Buy for at least 25 Euro and you get a discount of 5 Euro<
/PromotionDescription>
      <PromotionPriceDerivationRuleSequence>3314</PromotionPriceDerivationRuleSequence>
      <PromotionPriceDerivationRuleResolution>0</PromotionPriceDerivationRuleResolution>
      <PromotionPriceDerivationRuleTypeCode/>
      <TransactionControlBreakCode>SU</TransactionControlBreakCode>
      <PromotionOriginatorTypeCode>01</PromotionOriginatorTypeCode>
      <TriggerQuantity>0.0</TriggerQuantity>
      <FrequentShopperPointsFlag>>false</FrequentShopperPointsFlag>
      <CustomerGroupLoyaltyPointsDefaultQuantity>0.0<
/Customergrouployaltypointsdefaultquantity>

```

```

                <ProhibitPrintFlag>false</ProhibitPrintFlag>
                <PointsConversionAmount>0.01</PointsConversionAmount>
                <NoEffectOnSubsequentPriceDerivationRulesFlag>false<
/NoEffectOnSubsequentPriceDerivationRulesFlag>
                <ProhibitTransactionRelatedPriceDerivationRulesFlag>false<
/ProhibitTransactionRelatedPriceDerivationRulesFlag>
                <ExclusiveFlag>false</ExclusiveFlag>
                <AppliedCount>1.0</AppliedCount>
                <ExternalPromotionID>0000000000000000000000000000002651</ExternalPromotionID>
                <PrintoutValidityPeriod>-1</PrintoutValidityPeriod>
            </PriceDerivationRule>
        </LineItem>
    </ShoppingBasket>
</PriceCalculateBody>
</PriceCalculateResponse>

```

Example 3: Promotion on Item Level

The request of this example is identical with the request in example 2.

Example 3: Request

```

<PriceCalculate xmlns="http://www.sap.com/IXRetail/namespace/" InternalMajorVersion="3" InternalMinorVersion="0">
  <ARTSHeader ActionCode="Calculate" MessageType="Request">
    <MessageID>24006277100103003034034700701395</MessageID>
    <DateTime>2015-09-08T16:53:25.278</DateTime>
    <BusinessUnit TypeCode="RetailStore">1101</BusinessUnit>
  </ARTSHeader>

  <PriceCalculateBody TransactionType="SaleTransaction" NetPriceFlag="true">
    <TransactionID>9a89f2edfd1e413ea147e334b9c2ed4b</TransactionID>
    <DateTime>2015-09-08T16:53:25.278</DateTime>
    <ShoppingBasket>
      <LineItem>
        <SequenceNumber>0</SequenceNumber>
        <MerchandiseHierarchy ID="1">RF11111</MerchandiseHierarchy>
        <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="false">
          <NonPieceGoodFlag>false</NonPieceGoodFlag>
          <FrequentShopperPointsEligibilityFlag>true</FrequentShopperPointsEligibilityFlag>
          <NotConsideredByPriceEngineFlag>false</NotConsideredByPriceEngineFlag>
          <ItemID>510110016</ItemID>
          <Quantity Units="1" UnitOfMeasureCode="PCE">1</Quantity>
        </Sale>
      </LineItem>
      <LineItem>
        <SequenceNumber>1</SequenceNumber>
        <MerchandiseHierarchy ID="1">RF11111</MerchandiseHierarchy>
        <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="true">
          <NonPieceGoodFlag>false</NonPieceGoodFlag>
          <FrequentShopperPointsEligibilityFlag>true</FrequentShopperPointsEligibilityFlag>
          <NotConsideredByPriceEngineFlag>false</NotConsideredByPriceEngineFlag>
          <ItemID>510110017</ItemID>
          <Quantity Units="1" UnitOfMeasureCode="PCE">1</Quantity>
          <RegularSalesUnitPrice Currency="EUR">15.0000</RegularSalesUnitPrice>
        </Sale>
      </LineItem>
    </ShoppingBasket>
  </PriceCalculateBody>
</PriceCalculate>

```

There is an active promotion with the following rule: "Buy item 510110016 (1st line item) and get a discount of 5 Euro".

The response shows that the 1st line item contains a price modifier with a price derivation rule. For the 2nd line item there was no promotion effective, as in example 1.

There is also no discount line item, because there is no transactional discount.

Example 3: Response

```

<PriceCalculateResponse xmlns="http://www.sap.com/IXRetail/namespace/" InternalMajorVersion="3" InternalMinorVersion="0">
  <ARTSHeader ActionCode="Calculate" MessageType="Response">

```

```
<MessageID>24006277100103003034034700701396</MessageID>
<DateTime>2015-09-08T16:53:26.278</DateTime>
<Response ResponseCode="OK">
  <RequestID>24006277100103003034034700701395</RequestID>
  <ResponseTimestamp>2015-09-08T16:53:26.281</ResponseTimestamp>
</Response>
<BusinessUnit TypeCode="RetailStore">1101</BusinessUnit>
</ARTSHeader>

<PriceCalculateBody TransactionType="SaleTransaction" NetPriceFlag="true">
  <TransactionID>9a89f2edfd1e413ea147e334b9c2ed4c</TransactionID>
  <DateTime>2015-09-08T16:53:25.278</DateTime>
  <ShoppingBasket>
    <LineItem>
      <SequenceNumber>0</SequenceNumber>
      <MerchandiseHierarchy ID="1">RF11111</MerchandiseHierarchy>
      <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="false">
        <ItemID>510110016</ItemID>
        <RegularSalesUnitPrice Currency="EUR">10.00000</RegularSalesUnitPrice>
        <ExtendedAmount Currency="EUR">5.00000</ExtendedAmount>
        <ExtendedDiscountAmount Currency="EUR">5.00000</ExtendedDiscountAmount>
        <Quantity Units="1.0" UnitOfMeasureCode="PCE">1</Quantity>
        <NonPieceGoodFlag>false</NonPieceGoodFlag>
        <FrequentShopperPointsEligibilityFlag>true</FrequentShopperPointsEligibilityFlag>
        <PriceTypeCode>00</PriceTypeCode>
        <NotConsideredByPriceEngineFlag>false</NotConsideredByPriceEngineFlag>
        <RetailPriceModifier>
          <SequenceNumber>0</SequenceNumber>
          <Amount Currency="EUR" Action="Subtract">5.00000</Amount>
          <Percent Action="Subtract">50.00</Percent>
          <PreviousPrice Currency="EUR">10.00000</PreviousPrice>
          <NewPrice Currency="EUR">5.00000</NewPrice>
          <PromotionID>1082</PromotionID>
          <Quantity>1.0</Quantity>
          <Rounding>0.0</Rounding>
          <PriceDerivationRule ApplicationType="DiscountSingle">
            <PriceDerivationRuleID>3314</PriceDerivationRuleID>
            <PromotionDescription>Buy item 510110016 and you get it with a discount of 5 Euro<
/PromotionDescription>
            <PromotionPriceDerivationRuleSequence>3314</PromotionPriceDerivationRuleSequence>
            <PromotionPriceDerivationRuleResolution>0</PromotionPriceDerivationRuleResolution>
            <PromotionPriceDerivationRuleTypeCode/>
            <TransactionControlBreakCode>SU</TransactionControlBreakCode>
            <PromotionOriginatorTypeCode>01</PromotionOriginatorTypeCode>
            <TriggerQuantity>0.0</TriggerQuantity>
            <FrequentShopperPointsFlag>false</FrequentShopperPointsFlag>
            <CustomerGroupLoyaltyPointsDefaultQuantity>0.0<
/CustomergrouployaltyPointsDefaultQuantity>
            <ProhibitPrintFlag>false</ProhibitPrintFlag>
            <PointsConversionAmount>0.01</PointsConversionAmount>
            <NoEffectOnSubsequentPriceDerivationRulesFlag>false<
/NoEffectOnSubsequentPriceDerivationRulesFlag>
            <ProhibitTransactionRelatedPriceDerivationRulesFlag>false<
/ProhibitTransactionRelatedPriceDerivationRulesFlag>
            <ExclusiveFlag>false</ExclusiveFlag>
            <AppliedCount>1.0</AppliedCount>
            <ExternalPromotionID>000000000000000000000000000000000000000000002651</ExternalPromotionID>
            <PrintoutValidityPeriod>-1</PrintoutValidityPeriod>
          </PriceDerivationRule>
          <ExtraAmount Currency="EUR">0.00000</ExtraAmount>
          <ExternalSystemOriginatorFlag>false</ExternalSystemOriginatorFlag>
        </RetailPriceModifier>
      </Sale>
    </LineItem>
    <LineItem>
      <SequenceNumber>1</SequenceNumber>
      <MerchandiseHierarchy ID="1">RF11111</MerchandiseHierarchy>
      <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="true">
        <ItemID>510110017</ItemID>
        <RegularSalesUnitPrice Currency="EUR">15.00000</RegularSalesUnitPrice>
        <ExtendedAmount Currency="EUR">15.00000</ExtendedAmount>
        <ExtendedDiscountAmount Currency="EUR">0.00000</ExtendedDiscountAmount>
        <Quantity Units="1.0" UnitOfMeasureCode="PCE">1</Quantity>
        <NonPieceGoodFlag>false</NonPieceGoodFlag>
        <FrequentShopperPointsEligibilityFlag>true</FrequentShopperPointsEligibilityFlag>
        <PriceTypeCode>00</PriceTypeCode>
        <NotConsideredByPriceEngineFlag>false</NotConsideredByPriceEngineFlag>
      </Sale>
    </LineItem>
  </ShoppingBasket>
</PriceCalculateBody>
```

```

    </ShoppingBasket>
  </PriceCalculateBody>
</PriceCalculateResponse>

```

Example 4: Promotion with Target Groups (Customer Groups)

Starting with CARAB 4.0 FP 02 customer groups (also known as target groups) are available. Using this feature means promotions can be applied to specific customer (groups). This also means the request has to contain the customer group information as well. The following example shows how such a request looks like for applying customer groups.

Example 4: Request

```

<PriceCalculate xmlns="http://www.sap.com/IXRetail/namespace/" InternalMajorVersion="3" InternalMinorVersion="0"
>
  <ARTSHeader ActionCode="Calculate" MessageType="Request">
    <MessageID>24006277100103003034034700701395</MessageID>
    <DateTime>2015-09-08T16:53:25.278</DateTime>
    <BusinessUnit TypeCode="RetailStore">1101</BusinessUnit>
  </ARTSHeader>

  <PriceCalculateBody TransactionType="SaleTransaction" NetPriceFlag="true">
    <TransactionID>9a89f2edfdle413ea147e334b9c2ed4b</TransactionID>
    <DateTime>2015-09-08T16:53:25.278</DateTime>
    <Loyalty>
      <CustomerID>22</CustomerID>
      <LoyaltyProgram>
        <LoyaltyProgramID>123456789</LoyaltyProgramID>
        <LoyaltyProgramID>987654321</LoyaltyProgramID>
      </LoyaltyProgram>
      <CustomerIsEmployeeFlag>>false</CustomerIsEmployeeFlag>
    </Loyalty>
    <ShoppingBasket>
      <LineItem>
        <SequenceNumber>0</SequenceNumber>
        <MerchandiseHierarchy ID="1">RF11111</MerchandiseHierarchy>
        <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="false">
          <NonPieceGoodFlag>>false</NonPieceGoodFlag>
          <FrequentShopperPointsEligibilityFlag>>true</FrequentShopperPointsEligibilityFlag>
          <NotConsideredByPriceEngineFlag>>false</NotConsideredByPriceEngineFlag>
          <ItemID>510110016</ItemID>
          <Quantity Units="1" UnitOfMeasureCode="PCE">1</Quantity>
        </Sale>
      </LineItem>
      <LineItem>
        <SequenceNumber>1</SequenceNumber>
        <MerchandiseHierarchy ID="1">RF11111</MerchandiseHierarchy>
        <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="true">
          <NonPieceGoodFlag>>false</NonPieceGoodFlag>
          <FrequentShopperPointsEligibilityFlag>>true</FrequentShopperPointsEligibilityFlag>
          <NotConsideredByPriceEngineFlag>>false</NotConsideredByPriceEngineFlag>
          <ItemID>510110017</ItemID>
          <Quantity Units="1" UnitOfMeasureCode="PCE">1</Quantity>
          <RegularSalesUnitPrice Currency="EUR">15.00000</RegularSalesUnitPrice>
        </Sale>
      </LineItem>
    </ShoppingBasket>
  </PriceCalculateBody>
</PriceCalculate>

```

The target group(s) is identified by an ID that is used within the <LoyaltyProgram> element and is assigned to <LoyaltyProgramID> as child element of <LoyaltyProgram>. In the example above 2 target group IDs ("123456789" and "987654321") are assigned to the request .



It is possible to assign one or more target groups to a promotion. Fulfilling one assignment is sufficient promotion to be granted.

Example 4: Response

```
<PriceCalculateResponse xmlns="http://www.sap.com/IXRetail/namespace/" InternalMajorVersion="3"
InternalMinorVersion="0">
  <ARTSHeader ActionCode="Calculate" MessageType="Response">
    <MessageID>24006277100103003034034700701396</MessageID>
    <DateTime>2015-09-08T16:53:26.278</DateTime>
    <Response ResponseCode="OK">
      <RequestID>24006277100103003034034700701395</RequestID>
      <ResponseTimestamp>2015-09-08T16:53:26.281</ResponseTimestamp>
    </Response>
    <BusinessUnit TypeCode="RetailStore">1101</BusinessUnit>
  </ARTSHeader>

  <PriceCalculateBody TransactionType="SaleTransaction" NetPriceFlag="true">
    <TransactionID>9a89f2edfd1e413ea147e334b9c2ed4c</TransactionID>
    <DateTime>2015-09-08T16:53:25.278</DateTime>
    <Loyalty>
      <CustomerID>22</CustomerID>
      <LoyaltyProgram>
        <LoyaltyProgramID>123456789</LoyaltyProgramID>
        <LoyaltyProgramID>987654321</LoyaltyProgramID>
      </LoyaltyProgram>
      <CustomerIsEmployeeFlag>>false</CustomerIsEmployeeFlag>
    </Loyalty>
    <ShoppingBasket>
      <LineItem>
        <SequenceNumber>0</SequenceNumber>
        <MerchandiseHierarchy ID="1">RF11111</MerchandiseHierarchy>
        <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="false">
          <ItemID>510110016</ItemID>
          <RegularSalesUnitPrice Currency="EUR">10.00000</RegularSalesUnitPrice>
          <ExtendedAmount Currency="EUR">5.00000</ExtendedAmount>
          <ExtendedDiscountAmount Currency="EUR">5.00000</ExtendedDiscountAmount>
          <Quantity Units="1.0" UnitOfMeasureCode="PCE">1</Quantity>
          <NonPieceGoodFlag>>false</NonPieceGoodFlag>
          <FrequentShopperPointsEligibilityFlag>true</FrequentShopperPointsEligibilityFlag>
          <PriceTypeCode>00</PriceTypeCode>
          <NotConsideredByPriceEngineFlag>>false</NotConsideredByPriceEngineFlag>
          <RetailPriceModifier>
            <SequenceNumber>0</SequenceNumber>
            <Amount Currency="EUR" Action="Subtract">5.00000</Amount>
            <Percent Action="Subtract">50.00</Percent>
            <PreviousPrice Currency="EUR">10.00000</PreviousPrice>
            <NewPrice Currency="EUR">5.00000</NewPrice>
            <PromotionID>1082</PromotionID>
            <Quantity>1.0</Quantity>
            <Rounding>0.0</Rounding>
            <PriceDerivationRule ApplicationType="DiscountSingle">
              <PriceDerivationRuleID>3314</PriceDerivationRuleID>
              <PromotionDescription>Buy item 510110016 and you get it with a discount of 5 Euro<
/PromotionDescription>
              <PromotionPriceDerivationRuleSequence>3314</PromotionPriceDerivationRuleSequence>
              <PromotionPriceDerivationRuleResolution>0</PromotionPriceDerivationRuleResolution>
              <PromotionPriceDerivationRuleTypeCode/>
              <TransactionControlBreakCode>SU</TransactionControlBreakCode>
              <PromotionOriginatorTypeCode>01</PromotionOriginatorTypeCode>
              <TriggerQuantity>0.0</TriggerQuantity>
              <FrequentShopperPointsFlag>>false</FrequentShopperPointsFlag>
              <CustomerGroupLoyaltyPointsDefaultQuantity>0.0<
/CustomerGroupLoyaltyPointsDefaultQuantity>
              <ProhibitPrintFlag>>false</ProhibitPrintFlag>
              <PointsConversionAmount>0.01</PointsConversionAmount>
              <NoEffectOnSubsequentPriceDerivationRulesFlag>>false<
/NoEffectOnSubsequentPriceDerivationRulesFlag>
              <ProhibitTransactionRelatedPriceDerivationRulesFlag>>false<
/ProhibitTransactionRelatedPriceDerivationRulesFlag>
              <ExclusiveFlag>>false</ExclusiveFlag>
            </PriceDerivationRule>
          </RetailPriceModifier>
        </Sale>
      </LineItem>
    </ShoppingBasket>
  </PriceCalculateBody>
</PriceCalculateResponse>
```

```

        <AppliedCount>1.0</AppliedCount>
        <ExternalPromotionID>000000000000000000000000000000000000000000002651</ExternalPromotionID>
        <PrintoutValidityPeriod>-1</PrintoutValidityPeriod>
    </PriceDerivationRule>
    <ExtraAmount Currency="EUR">0.00000</ExtraAmount>
    <ExternalSystemOriginatorFlag>>false</ExternalSystemOriginatorFlag>
    </RetailPriceModifier>
</Sale>
</LineItem>
<LineItem>
    <SequenceNumber>1</SequenceNumber>
    <MerchandiseHierarchy ID="1">RF11111</MerchandiseHierarchy>
    <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="true">
        <ItemID>510110017</ItemID>
        <RegularSalesUnitPrice Currency="EUR">15.00000</RegularSalesUnitPrice>
        <ExtendedAmount Currency="EUR">15.00000</ExtendedAmount>
        <ExtendedDiscountAmount Currency="EUR">0.00000</ExtendedDiscountAmount>
        <Quantity Units="1.0" UnitOfMeasureCode="PCE">1</Quantity>
        <NonPieceGoodFlag>>false</NonPieceGoodFlag>
        <FrequentShopperPointsEligibilityFlag>true</FrequentShopperPointsEligibilityFlag>
        <PriceTypeCode>00</PriceTypeCode>
        <NotConsideredByPriceEngineFlag>>false</NotConsideredByPriceEngineFlag>
    </Sale>
</LineItem>
</ShoppingBasket>
</PriceCalculateBody>
</PriceCalculateResponse>

```

The target groups assigned to the request are also included in the corresponding response.

Example 5: Additional Bonus

Starting with CARAB 5.0 FP01, you can add an additional bonus to promotions.

In the following example, there is a promotion *"Buy for more than EUR 50 from merchandise set 1354176 and you get 2 products from the same merchandise set as an additional bonus"*.

Example 5: Request

Product CHA2111004 is part of merchandise set 1354176 and the customer buys 5 pieces for a regular sales price of EUR 20 per piece. As the promotion previously mentioned is defined, the client can add four products of the merchandise set to the shopping cart. The client already has two products added as an additional bonus and writes this information in the line items with the sequence numbers 2 and 3. The information about the corresponding additional bonus identifier is part of these line items and relevant for the validation of the additional bonus.

Request

```

<PriceCalculate xmlns="http://www.sap.com/IXRetail/namespace/"
    InternalMajorVersion="5" InternalMinorVersion="0">
    <ARTSHeader ActionCode="Calculate" MessageType="Request">
        <MessageID>9a89f2edfd1e413ea147e334b9c2ed4b</MessageID>
        <DateTime>2240-01-15T04:48:30.427-05:00</DateTime>
        <BusinessUnit TypeCode="RetailStore">FC04</BusinessUnit>
    </ARTSHeader>

```

```

</ARTSHeader>
<PriceCalculateBody TransactionType="SaleTransaction"
  NetPriceFlag="true">
  <TransactionID>9a89f2edfdle413ea147e334b9c2ed4b</TransactionID>
  <DateTime>2240-01-31T04:48:30.427-05:00</DateTime>
  <ShoppingBasket>
    <LineItem>
      <SequenceNumber>0</SequenceNumber>
      <MerchandiseHierarchy ID="1">BBB
    </MerchandiseHierarchy>
    <Sale ItemType="Stock" NonDiscountableFlag="false"
      FixedPriceFlag="true">
      <TaxIncludedInPriceFlag>>false</TaxIncludedInPriceFlag>
      <NonPieceGoodFlag>>false</NonPieceGoodFlag>
      <RegularSalesUnitPrice currency="EUR">20.0
    </RegularSalesUnitPrice>
      <FrequentShopperPointsEligibilityFlag>>true
    </FrequentShopperPointsEligibilityFlag>
      <NotConsideredByPriceEngineFlag>>false
    </NotConsideredByPriceEngineFlag>
      <ItemID>CHA2111004</ItemID>
      <Quantity Units="1" UnitOfMeasureCode="PCE">5</Quantity>
    </Sale>
    </LineItem>
    <LineItem>
      <SequenceNumber>1</SequenceNumber>
      <MerchandiseHierarchy ID="1">AAA
    </MerchandiseHierarchy>
    <Sale ItemType="Stock" NonDiscountableFlag="false"
      FixedPriceFlag="true">
      <TaxIncludedInPriceFlag>>false</TaxIncludedInPriceFlag>
      <NonPieceGoodFlag>>false</NonPieceGoodFlag>
      <RegularSalesUnitPrice currency="EUR">30.3
    </RegularSalesUnitPrice>
      <FrequentShopperPointsEligibilityFlag>>true
    </FrequentShopperPointsEligibilityFlag>
      <NotConsideredByPriceEngineFlag>>false
    </NotConsideredByPriceEngineFlag>
      <ItemID>XXX</ItemID>
      <Quantity Units="1" UnitOfMeasureCode="PCE">1</Quantity>
    </Sale>
    </LineItem>
    <LineItem>
      <AdditionalBonusLineItem>
        <AdditionalBonusID>1354178</AdditionalBonusID>
        <ItemID>Item1</ItemID>
        <Quantity Units="1" UnitOfMeasureCode="PCE">2</Quantity>
      </AdditionalBonusLineItem>
      <SequenceNumber>2</SequenceNumber>
    </LineItem>

    <LineItem>
      <AdditionalBonusLineItem>
        <AdditionalBonusID>1354178</AdditionalBonusID>
        <Quantity Units="1" UnitOfMeasureCode="PCE">1</Quantity>
      </AdditionalBonusLineItem>
      <MerchandiseHierarchy ID="1">AAA</MerchandiseHierarchy>
      <SequenceNumber>3</SequenceNumber>
    </LineItem>
  </ShoppingBasket>
</PriceCalculateBody>
</PriceCalculate>
</PriceCalculate>

```

Example 5: Response

The promotion is found and the response looks as follows:

- There is a fifth additional line item in the response with the sequence number 20001. This line item is an AdditionalBonusDiscountLineItem. A PriceDerivationRule with the corresponding promotion is also part of the line item.

- In the AdditionalBonusDiscountLineItem, the information is given back to the client that it is proposed to add four products from the merchandise set 1354176 as additional bonus.
 - TotalGrantedQuantity = 4.0
 - MerchandiseSetID = 1354176
- As already 3 pieces of a product from merchandise set 1354176 as additional bonus were in the request, the information is given back that one piece is still missing.
 - QuantityDifference = 1.0
- The merchandise set 1354176 is resolved in the response to make it easier for the client to find products which belong to the merchandise set.

Response

```

<PriceCalculateResponse xmlns="http://www.sap.com/IXRetail/namespace/" InternalMajorVersion="
5" InternalMinorVersion="0">
  <ARTSHeader ActionCode="Calculate" MessageType="Response">
    <MessageID>ca030357-88ac-4b3b-95dd-3cbc7fbf2e8d</MessageID>
    <DateTime>2021-04-16T16:02:27.819</DateTime>
    <Response ResponseCode="OK">
      <RequestID>9a89f2edfd1e413ea147e334b9c2ed4b</RequestID>
      <ResponseTimestamp>2240-01-15T04:48:30.427</ResponseTimestamp>
    </Response>
    <BusinessUnit TypeCode="RetailStore">FC04</BusinessUnit>
  </ARTSHeader>
  <PriceCalculateBody TransactionType="SaleTransaction" NetPriceFlag="true" CalculationMode="Basket">
    <TransactionID>9a89f2edfd1e413ea147e334b9c2ed4b</TransactionID>
    <DateTime>2240-01-31T04:48:30.427</DateTime>
    <ShoppingBasket>
      <LineItem>
        <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="true">
          <ItemID>CHA2111004</ItemID>
          <RegularSalesUnitPrice Currency="USD">20.0</RegularSalesUnitPrice>
          <ExtendedAmount Currency="USD">100.0</ExtendedAmount>
          <ExtendedDiscountAmount Currency="USD">0.0</ExtendedDiscountAmount>
          <Quantity Units="1" UnitOfMeasureCode="PCE">5</Quantity>
          <TaxIncludedInPriceFlag>false</TaxIncludedInPriceFlag>
          <NonPieceGoodFlag>false</NonPieceGoodFlag>
          <FrequentShopperPointsEligibilityFlag>true</FrequentShopperPointsEligibilityFlag>
          <PriceTypeCode>00</PriceTypeCode>
          <NotConsideredByPriceEngineFlag>false</NotConsideredByPriceEngineFlag>
        </Sale>
        <SequenceNumber>0</SequenceNumber>
        <MerchandiseHierarchy ID="1">BBB
          </MerchandiseHierarchy>
      </LineItem>
      <LineItem>
        <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="true">
          <ItemID>XXX</ItemID>
          <RegularSalesUnitPrice Currency="USD">30.3</RegularSalesUnitPrice>
          <ExtendedAmount Currency="USD">30.3</ExtendedAmount>
          <ExtendedDiscountAmount Currency="USD">0.0</ExtendedDiscountAmount>
          <Quantity Units="1" UnitOfMeasureCode="PCE">1</Quantity>
          <TaxIncludedInPriceFlag>false</TaxIncludedInPriceFlag>
          <NonPieceGoodFlag>false</NonPieceGoodFlag>
          <FrequentShopperPointsEligibilityFlag>true</FrequentShopperPointsEligibilityFlag>
          <PriceTypeCode>00</PriceTypeCode>
          <NotConsideredByPriceEngineFlag>false</NotConsideredByPriceEngineFlag>
        </Sale>
        <SequenceNumber>1</SequenceNumber>
        <MerchandiseHierarchy ID="1">AAA</MerchandiseHierarchy>
      </LineItem>
      <LineItem>
        <AdditionalBonusLineItem>
          <Quantity Units="1" UnitOfMeasureCode="PCE">2</Quantity>
          <AdditionalBonusID>1354178</AdditionalBonusID>
          <ItemID>Item1</ItemID>
        </AdditionalBonusLineItem>
        <SequenceNumber>2</SequenceNumber>
      </LineItem>
      <LineItem>
        <AdditionalBonusLineItem>

```



```

        <Quantity Units="1" UnitOfMeasureCode="PCE">1</Quantity>
        <AdditionalBonusID>1354178</AdditionalBonusID>
    </AdditionalBonusLineItem>
    <SequenceNumber>3</SequenceNumber>
    <MerchandiseHierarchy ID="1">AAA</MerchandiseHierarchy>
</LineItem>
<LineItem>
    <AdditionalBonusDiscountLineItem>
        <TotalGrantedQuantity>4.0</TotalGrantedQuantity>
        <QuantityDifference>1.0</QuantityDifference>
        <MerchandiseSet>
            <MerchandiseSetID>1354176</MerchandiseSetID>
            <RootNode>
                <Include>
                    <Type>Item</Type>
                    <ItemID>CHA2111004</ItemID>
                </Include>
                <Include>
                    <Type>Item</Type>
                    <ItemID>CHA2111005</ItemID>
                </Include>
                <Include>
                    <Type>Item</Type>
                    <ItemID>CHA2111006</ItemID>
                </Include>
                <Include>
                    <Type>Item</Type>
                    <ItemID>CHA2111007</ItemID>
                </Include>
                <Include>
                    <Type>MerchandiseHierarchyNode</Type>
                    <MerchandiseHierarchy ID="C2">AHL1100</MerchandiseHierarchy>
                </Include>
                <Include>
                    <Type>MerchandiseHierarchyNode</Type>
                    <MerchandiseHierarchy ID="1">CHA2110</MerchandiseHierarchy>
                </Include>
                <Exclude>
                    <Type>Item</Type>
                    <ItemID>CHA2111008</ItemID>
                </Exclude>
                <Exclude>
                    <Type>MerchandiseHierarchyNode</Type>
                    <MerchandiseHierarchy ID="1">CHA2111</MerchandiseHierarchy>
                </Exclude>
                <Exclude>
                    <Type>MerchandiseHierarchyNode</Type>
                    <MerchandiseHierarchy ID="C2">AHL1110</MerchandiseHierarchy>
                </Exclude>
                <Type>Operation</Type>
                <Operation>Difference</Operation>
            </RootNode>
        </MerchandiseSet>
        <PriceDerivationRule ApplicationType="AdditionalBonus">
            <PriceDerivationRuleID>1354174</PriceDerivationRuleID>
            <PromotionDescription>Buy for more than 50 Euro from MSET1 and
get 2 products from Mset 1 for free</PromotionDescription>
            <PromotionDescriptionMultiLanguage Language="EN"
>Buy for more than 50 Euro from MSET1 and
get 2 products from Mset 1 for free</PromotionDescriptionMultiLanguage>
            <PromotionPriceDerivationRuleSequence>1354174</PromotionPriceDerivationRuleSequence>
            <PromotionPriceDerivationRuleResolution>1</PromotionPriceDerivationRuleResolution>
            <TransactionControlBreakCode>SU</TransactionControlBreakCode>
            <PromotionOriginatorTypeCode>01</PromotionOriginatorTypeCode>
            <TriggerQuantity>0.0</TriggerQuantity>
            <DiscountMethodCode>00</DiscountMethodCode>
            <FrequentShopperPointsFlag>>false</FrequentShopperPointsFlag>
            <CustomerGroupLoyaltyPointsDefaultQuantity>0.0<
/ CustomerGroupLoyaltyPointsDefaultQuantity>
            <ProhibitPrintFlag>>false</ProhibitPrintFlag>
            <PointsConversionAmount Currency="USD">0.01</PointsConversionAmount>

```



```

        <LineItemAttribute name="SEASON" custom="true">spring</LineItemAttribute>
        <Quantity Units="1" UnitOfMeasureCode="PCE">10</Quantity>
    </Sale>
</LineItem>
<LineItem >
    <SequenceNumber>0</SequenceNumber>
    <Sale ItemType="Stock" FixedPriceFlag="true">
        <RegularSalesUnitPrice currency="EUR">100.00</RegularSalesUnitPrice>
        <ItemID>NO_MATCH</ItemID>
        <LineItemAttribute name="BRAND" custom="true">xyz</LineItemAttribute>
        <LineItemAttribute name="SEASON" custom="true">winter</LineItemAttribute>
        <Quantity Units="1" UnitOfMeasureCode="PCE">10</Quantity>
    </Sale>
</LineItem>

</ShoppingBasket>
</PriceCalculateBody>
</PriceCalculate>

```

Example 6: Response

The promotion is found and the response shows that:

- for the first line item, the promotion is successfully applied.
- for the second line item, the promotion is not applied since the attributes do not match with what is defined in the promotion.

Response

```

<PriceCalculateResponse xmlns="http://www.sap.com/IXRetail/namespace/" InternalMajorVersion="5"
InternalMinorVersion="0">
    <ARTSHeader ActionCode="Calculate" MessageType="Response">
        <MessageID>4106ae7a-395a-4a60-8dcd-a420c5d2710f</MessageID>
        <DateTime>2021-05-28T15:59:57.541</DateTime>
        <Response ResponseCode="OK">
            <RequestID>123456789</RequestID>
            <ResponseTimestamp>2240-01-24T18:13:51.000</ResponseTimestamp>
        </Response>
        <Requestor>Requestor</Requestor>
        <BusinessUnit TypeCode="Customer">P160</BusinessUnit>
        <MasterDataSourceSystemID>QI5CLNT800</MasterDataSourceSystemID>
    </ARTSHeader>
    <PriceCalculateBody TransactionType="TransactionType" NetPriceFlag="false" CalculationMode="Basket">
        <TransactionID>TransactionID</TransactionID>
        <DateTime>2240-01-24T18:13:51.000</DateTime>
        <ShoppingBasket>
            <LineItem>
                <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="true">
                    <ItemID>MATCH</ItemID>
                    <RegularSalesUnitPrice Currency="USD">100.0</RegularSalesUnitPrice>
                    <ExtendedAmount Currency="USD">500.0</ExtendedAmount>
                    <ExtendedDiscountAmount Currency="USD">500.0</ExtendedDiscountAmount>
                    <Quantity Units="1" UnitOfMeasureCode="PCE">10</Quantity>
                    <RetailPriceModifier>
                        <PriceDerivationRule ApplicationType="DiscountPercent">
                            <PriceDerivationRuleID>470216</PriceDerivationRuleID>
                            <PromotionDescription>Promotion with Merchandise Set with Generic attributes<
/PromotionDescription>
                                <PromotionDescriptionMultiLanguage Language="EN">Promotion with Merchandise Set
with Generic attributes</PromotionDescriptionMultiLanguage>
                                <PromotionPriceDerivationRuleSequence>470216</PromotionPriceDerivationRuleSequence>
                                <PromotionPriceDerivationRuleResolution>1</PromotionPriceDerivationRuleResolution>
                                <TransactionControlBreakCode>PO</TransactionControlBreakCode>
                                <PromotionOriginatorTypeCode>01</PromotionOriginatorTypeCode>
                                <TriggerQuantity>0.0</TriggerQuantity>
                                <DiscountMethodCode>00</DiscountMethodCode>
                                <FrequentShopperPointsFlag>>false</FrequentShopperPointsFlag>
                                <CustomerGroupLoyaltyPointsDefaultQuantity>0.0<

```

```

/CustomerGroupLoyaltyPointsDefaultQuantity>
    <ProhibitPrintFlag>>false</ProhibitPrintFlag>
    <PointsConversionAmount Currency="USD">0.01</PointsConversionAmount>
    <NoEffectOnSubsequentPriceDerivationRulesFlag>>false<
/NoEffectOnSubsequentPriceDerivationRulesFlag>
    <ProhibitTransactionRelatedPriceDerivationRulesFlag>>false<
/ProhibitTransactionRelatedPriceDerivationRulesFlag>
    <ExclusiveFlag>>false</ExclusiveFlag>
    <AppliedCount>1.0</AppliedCount>
    <ExternalPromotionID>00000000000000000000000000000000000000000000010167</ExternalPromotionID>
    <PrintoutValidityPeriod>0</PrintoutValidityPeriod>
    <PromotionType>RS</PromotionType>
    <CalculationBaseSequence>1-</CalculationBaseSequence>
    <PromotionID>470215</PromotionID>
</PriceDerivationRule>
<ExtraAmount Currency="USD">0.0</ExtraAmount>
<ExternalSystemOriginatorFlag>>false</ExternalSystemOriginatorFlag>
<SequenceNumber>0</SequenceNumber>
<Amount Currency="USD" Action="Subtract">500.0</Amount>
<Percent Action="Subtract">50.000</Percent>
<PreviousPrice Currency="USD">1000.0</PreviousPrice>
<NewPrice Currency="USD">500.0</NewPrice>
<PromotionID>470215</PromotionID>
<Quantity>10.0</Quantity>
<Rounding Currency="USD">0.0</Rounding>
<ComputationBaseAmount Currency="USD">1000.0</ComputationBaseAmount>
</RetailPriceModifier>
<NonPieceGoodFlag>>false</NonPieceGoodFlag>
<FrequentShopperPointsEligibilityFlag>>false</FrequentShopperPointsEligibilityFlag>
<PriceTypeCode>00</PriceTypeCode>
<NotConsideredByPriceEngineFlag>>false</NotConsideredByPriceEngineFlag>
<PromotionPriceDerivationRuleReference>
    <PromotionID>470215</PromotionID>
    <PriceDerivationRuleID>470216</PriceDerivationRuleID>
    <ReferenceQuantity>10</ReferenceQuantity>
</PromotionPriceDerivationRuleReference>
<LineItemAttribute name="BRAND" custom="true">xyz</LineItemAttribute>
<LineItemAttribute name="SEASON" custom="true">spring</LineItemAttribute>
</Sale>
<SequenceNumber>0</SequenceNumber>
</LineItem>
<LineItem>
    <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="true">
        <ItemID>NO_MATCH</ItemID>
        <RegularSalesUnitPrice Currency="USD">100.0</RegularSalesUnitPrice>
        <ExtendedAmount Currency="USD">1000.0</ExtendedAmount>
        <ExtendedDiscountAmount Currency="USD">0.0</ExtendedDiscountAmount>
        <Quantity Units="1" UnitOfMeasureCode="PCE">10</Quantity>
        <NonPieceGoodFlag>>false</NonPieceGoodFlag>
        <FrequentShopperPointsEligibilityFlag>>false</FrequentShopperPointsEligibilityFlag>
        <PriceTypeCode>00</PriceTypeCode>
        <NotConsideredByPriceEngineFlag>>false</NotConsideredByPriceEngineFlag>
        <LineItemAttribute name="BRAND" custom="true">xyz</LineItemAttribute>
        <LineItemAttribute name="SEASON" custom="true">winter</LineItemAttribute>
    </Sale>
    <SequenceNumber>1</SequenceNumber>
</LineItem>
</ShoppingBasket>
</PriceCalculateBody>
</PriceCalculateResponse>

```

Example 7: Distribution Chain

Starting with CARAB5.0 FP02 and PPS version 7.0, you can add a distribution chain on header level to promotions. Starting with Client API 6.0, you can add a distribution chain on the ARTS Header of a request.

The distribution chain consists of a sales organisation and a distribution channel that are concatenated and separated by a delimiter "|". You can enter the distribution chain as a business unit with type code "DistributionChain".

Example 7: Request

In the following request, the (net) sales price for 5 items of product **MR560050** sold in store **R151**, sales organization **R001**, and distribution channel **R1** is determined.

Request

```
<PriceCalculate
  xmlns="http://www.sap.com/IXRetail/namespace/" InternalMajorVersion="8"
  InternalMinorVersion="0">
  <ARTSHeader ActionCode="Calculate" MessageType="Request">
    <MessageID>9a89f2edfd1e413ea147e334b9c2ed4b</MessageID>
    <DateTime>2552-06-11T04:48:30.427-05:00</DateTime>
    <BusinessUnit TypeCode="RetailStore">R151</BusinessUnit>
    <BusinessUnit TypeCode="DistributionChain">R001|R1</BusinessUnit>
    <MasterDataSourceSystemID>XYZ</MasterDataSourceSystemID>
  </ARTSHeader>
  <PriceCalculateBody
    TransactionType="SaleTransaction" NetPriceFlag="true">
    <TransactionID>9a89f2edfd1e413ea147e334b9c2ed4b</TransactionID>
    <DateTime>2019-01-17T04:48:30.427-05:00</DateTime>
    <ShoppingBasket>
      <LineItem>
        <SequenceNumber>0</SequenceNumber>
        <MerchandiseHierarchy ID="1">RF13132</MerchandiseHierarchy>
        <Sale ItemType="Stock" NonDiscountableFlag="false"
          FixedPriceFlag="false">
          <TaxIncludedInPriceFlag>false</TaxIncludedInPriceFlag>
          <NonPieceGoodFlag>false</NonPieceGoodFlag>
          <FrequentShopperPointsEligibilityFlag>true<
            /FrequentShopperPointsEligibilityFlag>
          <NotConsideredByPriceEngineFlag>false</NotConsideredByPriceEngineFlag>
          <ItemID>MR560050</ItemID>
          <Quantity Units="1" UnitOfMeasureCode="PCE">5</Quantity>
        </Sale>
      </LineItem>
    </ShoppingBasket>
  </PriceCalculateBody>
</PriceCalculate>
```

Example 7 : Response

The response includes the sales price for 5 items of product **MR560050** sold in store **R151**, sales organization **R001**, and distribution channel **R1**. The net sales price is **USD 225.15**. No promotion was found.

Response

```
<PriceCalculateResponse xmlns="http://www.sap.com/IXRetail/namespace/" InternalMajorVersion="8"
  InternalMinorVersion="0">
  <ARTSHeader ActionCode="Calculate" MessageType="Response">
    <MessageID>4a463bbe-1bef-47cf-aa12-14bd160b6229</MessageID>
    <DateTime>2021-09-20T11:39:58.432</DateTime>
    <Response ResponseCode="OK">
      <RequestID>9a89f2edfd1e413ea147e334b9c2ed4b</RequestID>
      <ResponseTimestamp>2552-06-11T04:48:30.427</ResponseTimestamp>
    </Response>
    <BusinessUnit TypeCode="RetailStore">R151</BusinessUnit>
    <BusinessUnit TypeCode="DistributionChain">R001|R1</BusinessUnit>
    <MasterDataSourceSystemID>XYZ</MasterDataSourceSystemID>
  </ARTSHeader>
  <PriceCalculateBody TransactionType="SaleTransaction" NetPriceFlag="true" CalculationMode="Basket">
```

```

<TransactionID>9a89f2edfd1e413ea147e334b9c2ed4b</TransactionID>
<DateTime>2019-01-17T04:48:30.427</DateTime>
<ShoppingBasket>
  <LineItem>
    <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="false">
      <ItemID>MR560050</ItemID>
      <RegularSalesUnitPrice Currency="USD">45.03</RegularSalesUnitPrice>
      <ExtendedAmount Currency="USD">225.15</ExtendedAmount>
      <ExtendedDiscountAmount Currency="USD">0.0</ExtendedDiscountAmount>
      <Quantity Units="1" UnitOfMeasureCode="PCE">5</Quantity>
      <TaxIncludedInPriceFlag>false</TaxIncludedInPriceFlag>
      <NonPieceGoodFlag>false</NonPieceGoodFlag>
      <FrequentShopperPointsEligibilityFlag>true</FrequentShopperPointsEligibilityFlag>
      <PriceTypeCode>00</PriceTypeCode>
      <NotConsideredByPriceEngineFlag>false</NotConsideredByPriceEngineFlag>
    </Sale>
    <SequenceNumber>0</SequenceNumber>
    <MerchandiseHierarchy ID="1">RF13132</MerchandiseHierarchy>
  </LineItem>
</ShoppingBasket>
<RegularSalesUnitPriceRoundingRule RoundingMethod="Commercial" Multiple="0.01"/>
</PriceCalculateBody>
</PriceCalculateResponse>

```

Example 8: Generic Attributes on Transaction Level

Starting with CARAB 5.0 FP02 and Client API 8.0, you can add generic attributes on transaction level to promotions.

In the following example, there is a promotion *"Buy something on a Friday and get 50% discount"*

Example 8: Request

The transaction-related generic attribute DAY with the value Friday is added to the PriceCalculationBody. (The generic attribute is not part of the single line items as it would be the case for line item-related generic attributes.)

Request

```

<PriceCalculate xmlns="http://www.sap.com/IXRetail/namespace/"
  InternalMajorVersion="8" InternalMinorVersion="0">
  <ARTSHeader ActionCode="Calculate" MessageType="Request">
    <MessageID>123456789</MessageID>
    <DateTime>2240-01-25T18:13:51.0</DateTime>
    <Requestor>Requestor</Requestor>
    <BusinessUnit TypeCode="Customer">P160</BusinessUnit>
    <MasterDataSourceSystemID>QI5CLNT800</MasterDataSourceSystemID>
  </ARTSHeader>
  <PriceCalculateBody TransactionType="SaleTransaction"
    NetPriceFlag="false">
    <TransactionID>TransactionID</TransactionID>
    <DateTime>2240-01-25T18:13:51.0</DateTime>
    <TxAttribute name="DAY">Friday</TxAttribute>
    <ShoppingBasket>
      <LineItem >
        <SequenceNumber>0</SequenceNumber>
        <Sale ItemType="Stock" FixedPriceFlag="true">
          <RegularSalesUnitPrice currency="EUR">100.00</RegularSalesUnitPrice>
          <ItemID>PRODUCT1</ItemID>
          <Quantity Units="1" UnitOfMeasureCode="PCE">10</Quantity>
        </Sale>
      </LineItem>
      <LineItem >
        <SequenceNumber>1</SequenceNumber>

```



```

        <PrintoutValidityPeriod>0</PrintoutValidityPeriod>
        <PromotionType>RS</PromotionType>
        <CalculationBaseSequence>1-</CalculationBaseSequence>
        <PromotionID>480216</PromotionID>
    </PriceDerivationRule>
    <ExtraAmount Currency="USD">0.0</ExtraAmount>
    <ExternalSystemOriginatorFlag>>false</ExternalSystemOriginatorFlag>
    <SequenceNumber>0</SequenceNumber>
    <Amount Currency="USD" Action="Subtract">500.0</Amount>
    <Percent Action="Subtract">50.000</Percent>
    <PreviousPrice Currency="USD">1000.0</PreviousPrice>
    <NewPrice Currency="USD">500.0</NewPrice>
    <PromotionID>480216</PromotionID>
    <Quantity>10.0</Quantity>
    <Rounding Currency="USD">0.0</Rounding>
    <ComputationBaseAmount Currency="USD">1000.0</ComputationBaseAmount>
</RetailPriceModifier>
<NonPieceGoodFlag>>false</NonPieceGoodFlag>
<FrequentShopperPointsEligibilityFlag>>false</FrequentShopperPointsEligibilityFlag>
<PriceTypeCode>00</PriceTypeCode>
<NotConsideredByPriceEngineFlag>>false</NotConsideredByPriceEngineFlag>
<PromotionPriceDerivationRuleReference>
    <PromotionID>480216</PromotionID>
    <PriceDerivationRuleID>480216</PriceDerivationRuleID>
    <ReferenceQuantity>10</ReferenceQuantity>
</PromotionPriceDerivationRuleReference>
</Sale>
<SequenceNumber>0</SequenceNumber>
</LineItem>
<LineItem>
    <Sale ItemType="Stock" NonDiscountableFlag="false" FixedPriceFlag="true">
        <ItemID>PRODUCT2</ItemID>
        <RegularSalesUnitPrice Currency="USD">100.0</RegularSalesUnitPrice>
        <ExtendedAmount Currency="USD">500.0</ExtendedAmount>
        <ExtendedDiscountAmount Currency="USD">500.0</ExtendedDiscountAmount>
        <Quantity Units="1" UnitOfMeasureCode="PCB">10</Quantity>
        <RetailPriceModifier>
            <PriceDerivationRule ApplicationType="DiscountPercent">
                <PriceDerivationRuleID>480216</PriceDerivationRuleID>
                <PromotionDescription>Testoffer for Idoc Inbound with
                    Generic attributes on transaction level (tx)</PromotionDescription>
                <PromotionDescriptionMultiLanguage Language="EN">Testoffer for Idoc Inbound with
                    Generic attributes on transaction level (tx)<
/PromotionDescriptionMultiLanguage>
                <PromotionPriceDerivationRuleSequence>480216</PromotionPriceDerivationRuleSequence>
                <PromotionPriceDerivationRuleResolution>1</PromotionPriceDerivationRuleResolution>
                <TransactionControlBreakCode>PO</TransactionControlBreakCode>
                <PromotionOriginatorTypeCode>01</PromotionOriginatorTypeCode>
                <TriggerQuantity>0.0</TriggerQuantity>
                <DiscountMethodCode>00</DiscountMethodCode>
                <FrequentShopperPointsFlag>>false</FrequentShopperPointsFlag>
                <CustomerGroupLoyaltyPointsDefaultQuantity>0.0<
/CustomerGroupLoyaltyPointsDefaultQuantity>
                <ProhibitPrintFlag>>false</ProhibitPrintFlag>
                <PointsConversionAmount Currency="USD">0.01</PointsConversionAmount>
                <NoEffectOnSubsequentPriceDerivationRulesFlag>>false<
/NoEffectOnSubsequentPriceDerivationRulesFlag>
                <ProhibitTransactionRelatedPriceDerivationRulesFlag>>false<
/ProhibitTransactionRelatedPriceDerivationRulesFlag>
                <ExclusiveFlag>>false</ExclusiveFlag>
                <AppliedCount>1.0</AppliedCount>
                <ExternalPromotionID>0000000000000000000000000000010167</ExternalPromotionID>
                <PrintoutValidityPeriod>0</PrintoutValidityPeriod>
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Material Number: