Payments API Blueprint

Purpose

The API is a web service that intends to allow 3rd party immediate access to the finance and leasing values for vehicles being sold by a dealer from providers who have registered in Fortellis. The payments API exposes the the following functions to allow for creating and searching the payments needed to purchase a vehicle.

- Payment calculation
    - Select finance type
    - Select rate
    - Select term
    - Add excess mileage
    - Add desired payment
    - Add the vehicle being purchased
    - Add any down payments
    - Add any rebates
    - Add the customer details
    - Add any trade-ins
    - Add additional products
- Search for existing payment calculations
    - By vehicle ID
    - By customer ID
    - By lender ID
    - Using a search string
- Get a previously calculated payment by the calculation ID
- Get additional lease information
- Get the desired payments breakdown
- Get the calculated fees for the payments
- Get the calculated taxes for the payments
- Get the list of rebates for the payments

See the block diagram below.The interface provides uniform access to all payment data irrespective of the provider system, standardizing details that may vary among them. Users of the web service may be different kinds of consumer- or dealer-facing applications.
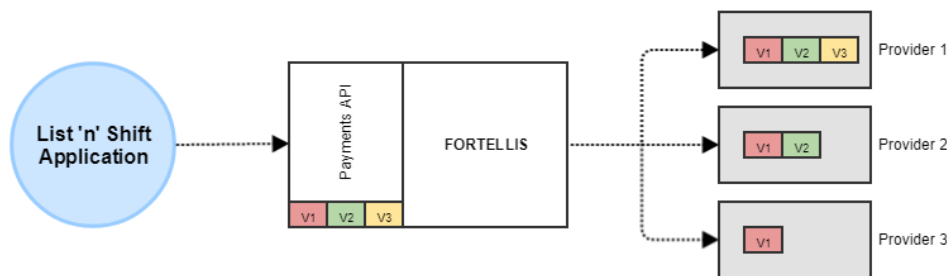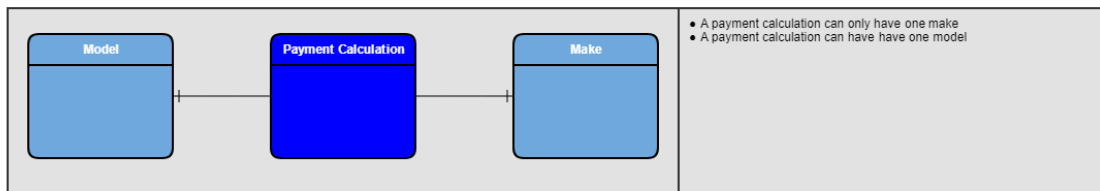
Basic

Workflows

This workflow enables the user to get the monthly payments required for given finance details. Refer the API specification for detailed API endpoint descriptions, data dictionary, error codes and status codes.

Workflow	Description	Inputs	Constraints	Resource Actions
Enter basic finance details to get a monthly payment	Use the call to work out what the monthly payments would be on a car of that value. This will give a list of alternatives for each lender set up on the dealer system	- Finance type - Finance rate - Finance term - Details of vehicle being bought - Down payment - Customer details including credit rating	- Make must match list of available codes - Model must match list of available codes	Post deal creation calculate payments
Load the finance details	Use this call to load an existing payment	calculationId	None	Query deal creation payments

Entity Relationships

- A payment calculation can only have one make
- A payment calculation can have have one model

Sequence Diagram

Basic Flow
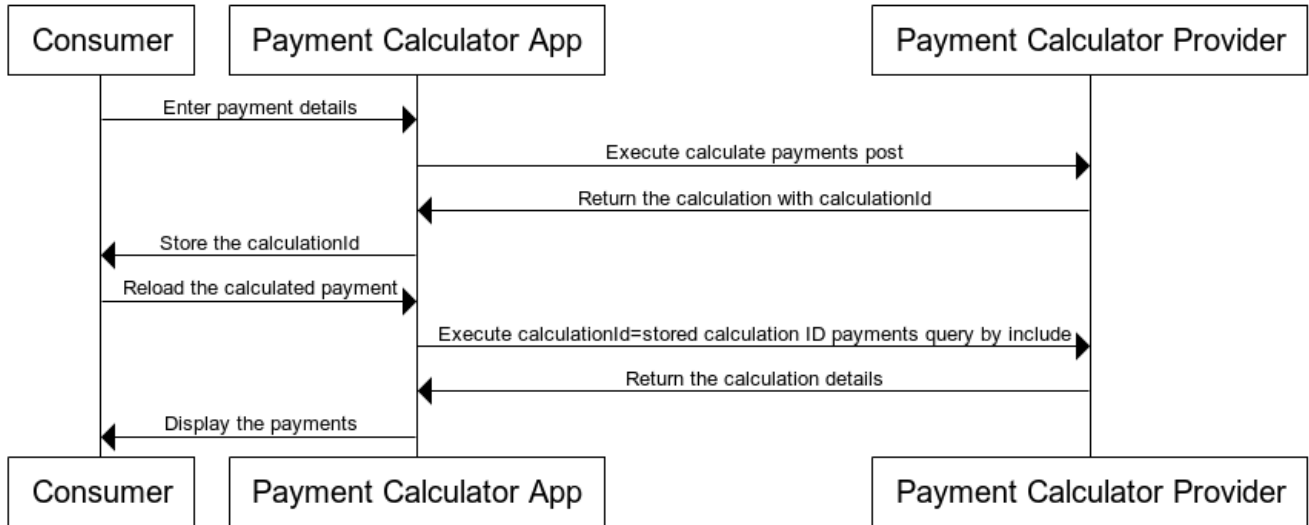

```
title Basic Flow

Consumer->Payment Calculator App:Enter payment details
Payment Calculator App->Payment Calculator Provider:Execute calculate
payments post
Payment Calculator Provider->Payment Calculator App:Return the
calculation with calculationId
Payment Calculator App->Consumer:Store the calculationId
Consumer->Payment Calculator App:Reload the calculated payment
Payment Calculator App->Payment Calculator Provider:Execute
calculationId=stored calculation ID payments query by include
Payment Calculator Provider->Payment Calculator App:Return the
calculation details
Payment Calculator App->Consumer:Display the payments
```

Simple

Workflows

Workflow	Description	Inputs	Constraints	Resource Actions
Find a vehicle on a dealer web site and get the price of it	This could be a manual search on the dealers web site with no interaction with Fortellis			

Add a calculate payments API	Once the vehicle required is found use the call to get the monthly payments. Would need to prompt for customer credit rating	• Finance type • Finance rate • Finance term • Details of vehicle being bought • Down payment • Customer details including credit rating	• Make must match list of available codes • Model must match list of available codes	Post deal creation calculate payments
Display the monthly payments as an indicator of what it will cost	Display result on web site			

Entity Relationships

Sequence Diagram
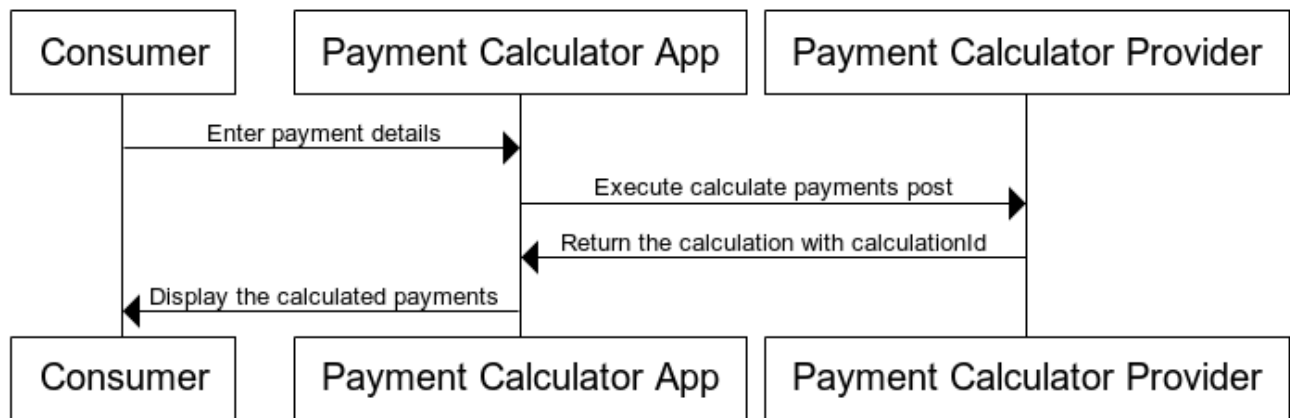
```
title Simple Flow

Consumer->Payment Calculator App:Enter payment details
Payment Calculator App->Payment Calculator Provider:Execute calculate
payments post
Payment Calculator Provider->Payment Calculator App:Return the
calculation with calculationId
Payment Calculator App->Consumer:Display the calculated payments
```
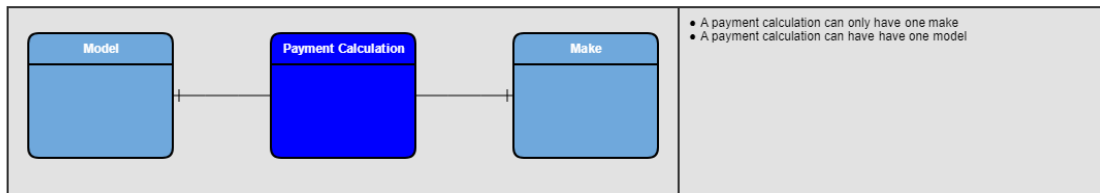
Intermediate

Workflows

Workflow	Description	Inputs	Constraints	Resource Actions
Search for vehicles using the Merchandisable vehicle API and display on a web site	Search for merchandisable vehicles based on the make and model required. This will return back the list of vehicles and basic information like price that will allow each to be advertised including 2 pictures and the ID of the given merchandisable vehicle	• makeCode • modelCode	• Make must match list of available codes • Model must match list of available codes	Query merchandisable vehicles
In your app select the vehicle found and select the calculate payments button	Use the information returned by the merchandisable vehicles to make the payments calculation call	• Finance type • Finance rate • Finance term • Details of vehicle being bought • Down payment • Customer details including credit rating	• Make must match list of available codes • Model must match list of available codes	Post deal creation calculate payments
Display the monthly payments as an indicator of what it will cost				

Entity Relationships

- A merchandisable vehicle can only have one make
- A merchandisable vehicle can only have one model
- A payment calculation can only have one make
- A payment calculation can have have one model

Sequence Diagram

Intermediate Flow

Consumer	Merchandiser App	Merchandisable Vehicle Provider	Payment Calculator App	Payment Calculator Provider

- Search for Ford Focus
- Execute makeCode=FORD modelCode=FOCUS search query
- Return the matched vehicles including merchandisableVehicleId
- Display the list of vehicles
- Select vehicle from the list
- Click calculation button and pass in selected vehicle details
- Execute calculate payments post
- Return the calculation with calculationId
- Store the calculationId
- Reload the calculated payment
- Execute calculationId=stored calculation ID payments query by include
- Return the calculation details
- Display the payments

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```
title Intermediate Flow

Consumer->Merchandiser App:Search for Ford Focus
Merchandiser App->Merchandisable Vehicle Provider:Execute makeCode=FORD
modelCode=FOCUS search query
Merchandisable Vehicle Provider->Merchandiser App:Return the matched
vehicles including merchandisableVehicleId
Merchandiser App->Consumer:Display the list of vehicles
Consumer->Merchandiser App:Select vehicle from the list
Consumer->Payment Calculator App:Click calculation button and pass in
selected vehicle details
Payment Calculator App->Payment Calculator Provider:Execute calculate
payments post
Payment Calculator Provider->Payment Calculator App:Return the
calculation with calculationId
Payment Calculator App->Consumer:Store the calculationId
Consumer->Payment Calculator App:Reload the calculated payment
Payment Calculator App->Payment Calculator Provider:Execute
calculationId=stored calculation ID payments query by include
Payment Calculator Provider->Payment Calculator App:Return the
calculation details
Payment Calculator App->Consumer:Display the payments
```

Advanced

Workflows

Workflow	Description	Inputs	Constraints	Resource Actions
Search for vehicles using the Merchandisable vehicle API and display on a web site	Search for merchandisable vehicles based on the make and model required. This will return back the list of vehicles and basic information like price that will allow each to be advertised including 2 pictures and the ID of the given merchandisable vehicle	• makeCode • modelCode	• Make must match list of available codes • Model must match list of available codes	Query merchandisable vehicles

In your app select the vehicle found and select the calculate payments button	Use the information returned by the merchandisable vehicles to make the payments calculation call	• Finance type • Finance rate • Finance term • Details of vehicle being bought • Down payment • Customer details including credit rating	• Make must match list of available codes • Model must match list of available codes	Post deal creation calculate payments
Display the monthly payments as an indicator of what it will cost				
Save the calculated value as a quote	Click a save quote button and call the Quotes API to get the result	• Deal reference • Vehicle identifier • Currency code • Gross value • Customer • Trade-ins	• Customer identifier needs to exist • Vehicle identifier needs to exists	Post to deal creation create quote

Entity Relationship

- A merchandisable vehicle can only have one make
- A merchandisable vehicle can only have one model
- A payment calculation can only have one make
- A payment calculation can have have one model
- A payment calculation can have have one quotation
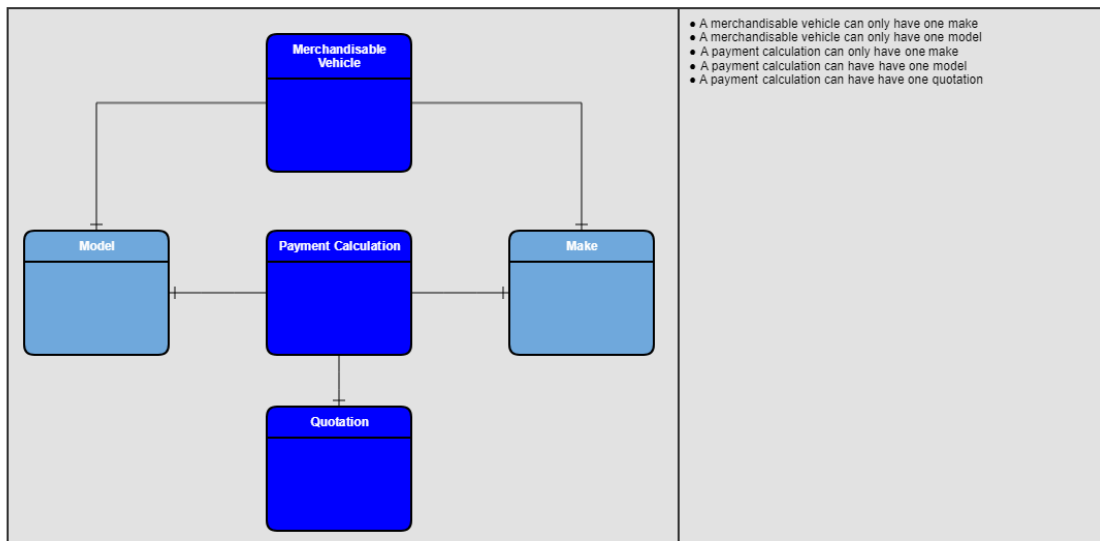
Sequence Diagram
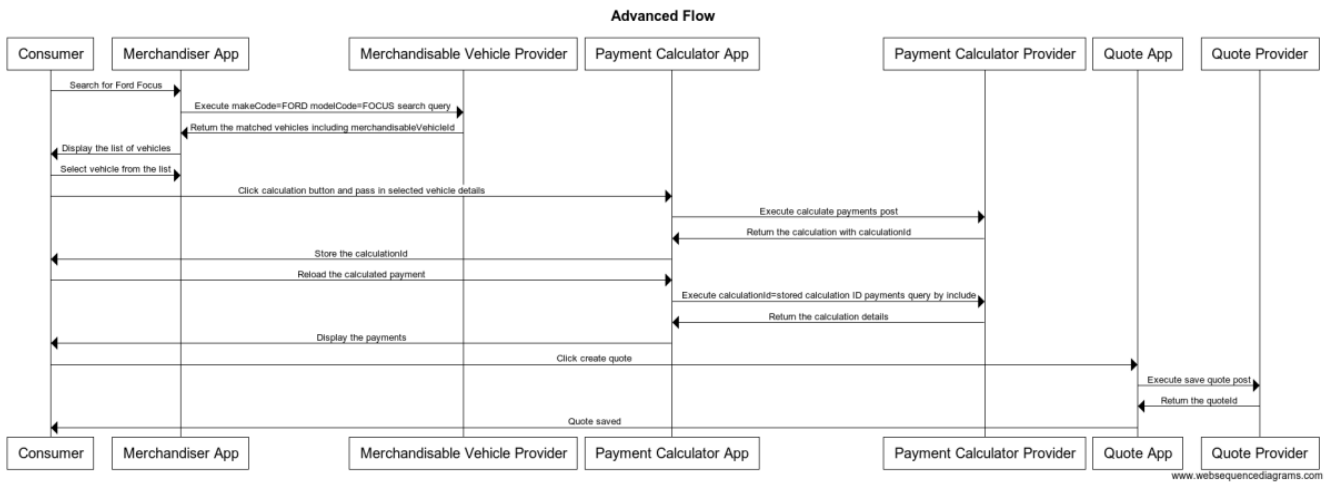
Advanced Flow

```
title Advanced Flow

Consumer->Merchandiser App:Search for Ford Focus
Merchandiser App->Merchandisable Vehicle Provider:Execute makeCode=FORD
modelCode=FOCUS search query
Merchandisable Vehicle Provider->Merchandiser App:Return the matched
vehicles including merchandisableVehicleId
Merchandiser App->Consumer:Display the list of vehicles
Consumer->Merchandiser App:Select vehicle from the list
Consumer->Payment Calculator App:Click calculation button and pass in
selected vehicle details
Payment Calculator App->Payment Calculator Provider:Execute calculate
payments post
Payment Calculator Provider->Payment Calculator App:Return the
calculation with calculationId
Payment Calculator App->Consumer:Store the calculationId
Consumer->Payment Calculator App:Reload the calculated payment
Payment Calculator App->Payment Calculator Provider:Execute
calculationId=stored calculation ID payments query by include
Payment Calculator Provider->Payment Calculator App:Return the
calculation details
Payment Calculator App->Consumer:Display the payments
Consumer->Quote App:Click create quote
Quote App->Quote Provider:Execute save quote post
Quote Provider->Quote App:Return the quoteId
Quote App->Consumer:Quote saved
```

Resource Reference

Query Parameters

Parameters used to calculate the payments

Attribute	Description	Type	Required
financeType	The type of finance being calculated. Finance, lease or cash	string	yes
rate	The interest rate used for the finance or lease calculation	number	no
term	The term in months for which the finance or lease will be paid	integer	no

Excess Mileage

Attribute	Description	Type	Required
additionalMileage	Mileage above the maximum for the lease	integer	no
annualMileage	Expected annual mileage used to calculate additional mileage charge for the lease	integer	no

Desired Payment

Attribute	Description	Type	Required
currencyCode	The currency of the grossValue as a three letter currency code ISO 4217	string	no
monthlyPayment	Desired monthly payment	number	no
type	How the monthly payment adjustment will be made. Cashdown	string	no

Vehicle

Attribute	Description	Type	Required
type	Type of vehicle having payments calculated for. New, used or certified	string	yes
currencyCode	The currency of the grossValue as a three letter currency code ISO 4217	string	yes
grossValue	The selling price of the vehicle	number	yes
stockReference	Reference code used to identify the vehicle	string	no
vin	The vehicle identification number (VIN)	string	no
makeCode	The make, franchise or brand of the vehicle	string	no
modelCode	The model of the vehicle	string	no
variantCode	The variant of the model	string	no
modelYear	The model year assigned to this vehicle. This is assigned by the manufacturer and it not necessarily the year of build, but the year of model release. Required for Lease deal	string	no
residualCode	Code assigned by 3rd party for residual pricing. This could be Algcode or CAP code	string	no
residual	The residual value of the vehicle after the finance or lease term expires. Required for Lease deal	number	no
msrp	Manufacturer suggested retail price (MSRP) for the vehicle	number	no

Accessories

Attribute	Description	Type	Required
name	Description of the accessory	string	yes
currencyCode	The currency of the grossValue as a three letter currency code ISO 4217	string	yes
grossValue	Value of the accessory	number	yes
taxable	Is the accessory taxable?	boolean	no

Down Payment

Attribute	Description	Type	Required
currencyCode	The currency of the grossValue as a three letter currency code ISO 4217	string	no
grossValue	Cash paid up front by the customer	number	no

Rebates

Attribute	Description	Type	Required
name	The description of the cash rebate	string	no
currencyCode	The currency of the grossValue as a three letter currency code ISO 4217	string	no
grossValue	Monetary value of the rebate or incentive	number	no
incentiveId	Identifier of the rebate incentive used	string	no
source	Source of the rebate	string	no

Customer

Attribute	Description	Type	Required
creditRating	Customer's credit rating	string	no

Physical Address

Attribute	Description	Type	Required
streetName	The name of the street. This may include the house name if there is no house number.	string	no
houseNumber	The number of the house in the street	string	no
buildingName	The name of the building	string	no
floorNumber	The number of the floor in the building (if applicable)	string	no
doorNumber	The door number (if applicable)	string	no
blockName	The name of the block the building resides in	string	no
postalCode	Postal or zip code	string	no

suburb	Suburb	string	no
city	The name of the city	string	no
county	The name of the county	string	no
province	The name of the province or state	string	no
countryCode	2 character ISO code for the country component of the address	string	no

Trade-ins

Attribute	Description	Type	Required
currencyCode	The currency of the grossValue as a three letter currency code ISO 4217	string	no
grossValue	Appraised monetary value of the trade-in	number	no
equity	Equity left in the trade-in vehicle	number	no

Additional Products

Attribute	Description	Type	Required
type	Type of extra product. Insurance, finance or accessory	string	no
name	Name of the insurance product	string	yes
currencyCode	The currency of the grossValue as a three letter currency code ISO 4217	string	yes
grossValue	Monetary value of the insurance product	number	yes
taxable	Is the insurance product taxable?	boolean	no
include	Should the product be included in finance?	boolean	no

Calculated Payments

Attribute	Description	Type	Required
paymentsCalculationId	Unique ID for the payment calculation being returned	string	yes
financeType	The type of finance for the payments. Finance, lease or cash	string	no
created	Date and time the payments calculation was created as defined by RFC 3339, section 5.6, for example, 2017-07-21T17:32:28Z	string($date-time)	no
lender	The name of the lender	string	yes
creditTier	The credit tier used for the rate	string	yes

Calculation Result

Attribute	Description	Type	Required

currencyCode	The currency of the values as a three letter currency code ISO 4217	string	no
monthlyPayment	Monthly payment	number	no
totalPayments	Total monthly payments	number	no
sellingPrice	Calculated selling price	number	no
rate	Default interest rate or interest rate provided by the client	number	no
term	Default term or term provided by the client in months	number	no
residual	Residual value of the vehicle at the end of the agreement period	number	no
amountFinanced	Total amount left to pay after initial down payments and other deductions	number	no
netCapitalizedCost	Gross capitalized cost minus any cost reductions	number	no

Mileage

Attribute	Description	Type	Required
maximumMileage	Maximum annual mileage before additional charges	number	no
excessMileageCost	Cost per mile above the maximumMileage	number	no

Lease

Accessed via the lease end point

Attribute	Description	Type	Required
buyBackCashValue	Lease end buy back cash value	number	no
purchaseOptionFee	Fee if the vehicle needs to be purchased	number	no
dispositionFee	Fee to cover the costs of cleaning and selling the vehicle at the end of the lease	number	no

Desired Payments

Accessed via the desired-payments end point

Attribute	Description	Type	Required
currencyCode	The currency of the values as a three letter currency code ISO 4217	string	yes
dealerRate	The reserved interest rate used by the dealer	number	no
downPayment	The cash amount applied to reduce the capital cost	number	no
customerRebates	The sum of customer rebates applied to reduce the capital cost	number	no
netTradeIns	The sum of net vehicle trade-ins applied to reduce capital cost. Negative equity will show as a negative value	number	no
inceptionFees	The sum of inception fees applied to monthly payment	number	no
deliveryCash	Amount of cash the customer must supply on delivery	number	no

Fees

Accessed via the fees end point

Attribute	Description	Type	Required
name	The name of the fee	string	yes
currencyCode	The currency of the grossValue as a three letter currency code ISO 4217	string	yes
grossValue	The monetary value of the fee	number	no
taxable	Is the fee taxable?	boolean	no

Taxes

Accessed via the taxes end point

Attribute	Description	Type	Required
name	The name of the tax	string	yes
currencyCode	The currency of the grossValue as a three letter currency code ISO 4217	string	yes
rate	The tax rate used in the calculation	number	no
grossValue	The monetary value of the tax	number	no

Rebates

Accessed via the rebates end point

Attribute	Description	Type	Required
name	The name of the rebate	string	yes
currencyCode	The currency of the grossValue as a three letter currency code ISO 4217	string	yes
grossValue	The monetary value of the rebate	number	no

References

Deal Creation Payments API Specification