



BILINFO FINANCE OFFER ON PLATFORMS

Third party integration document

Abstract

Bilinfo Finance Offer On Platforms enables Dealers to select Finance Offers for Cars to be shown on Bilbasen, DBA and Dealer CMS sites. This document describes the prerequisites and details for building a Finance Offer On Platforms integration into Bilinfo.

Version history

Version	Date	Authors	Comments
0.1.0	10/09/2018	Jacob Sønderskov (jsonderskov@ebay.com)	First draft version based on the <i>Bilinfo integration using the Case Plugin Architecture (2.4.0)</i> documentation.
1.0.0	12/09/2018	Jacob Sønderskov	First release version.
1.0.1	13/09/2018	Jacob Sønderskov	Change cover page and add abstract.
1.0.2	11/10/2018	Henrik Thomsen	allowFinanceOfferOnMarketplaces should be used when calculating loan matrix
2.0.0	24/01/2019	Lars Tabro Sørensen	New major version – breaking change: Moved ‘period’ in 4.2 from outer response object, to inner LoanOfferItem in order to support offers on multiple loan periods.

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A. Disclaimer

Information presented here might be altered by eBay from time to time. Inconsistencies across the document are to be expected and they will be addressed in updates.

Any update will be specified in Version history.

Data and system integrity

Abuse of the system is forbidden in any regard. If you find a security issue or exploitation outside the original intent of the system, you are expected to report the exploit or bug to the Bilinfo team.

B. Versioning and Deprecation Policy

Versioning in Bilinfo Services is essential to achieving our vision behind Partner integrations in Bilinfo. Using the versioning principles described below will allow for your Bilinfo integrations to remain stable and fully functional as the Bilinfo business continues to evolve and mature.

New Versions of the Bilinfo Services

The versioning principles employed in Bilinfo Services largely follow that of the *Semantic Versioning Specification*^[1]. The Semantic Versioning Specification, in short, specifies a version increment based on the backwards compatibility of the API or Web Service. A summary of the specification can be seen in the following Listing B-1:

Given a version number MAJOR.MINOR.PATCH, increment the:

1. MAJOR version when you make incompatible API changes,
2. MINOR version when you add functionality in a backwards-compatible manner, and
3. PATCH version when you make backwards-compatible bug fixes.

Additional labels for pre-release and build metadata are available as extensions to the MAJOR.MINOR.PATCH format.

Listing B-1: Semantic Versioning Specification 2.0.0 summary

The types of changes that are minor version changes and backward compatible are:

- Adding a new method (GET, POST etc.) to an API
- Adding a new property to the method response payload
- Adding a new *non-personal data*^[2] property to an `iframe` communication

The types of changes that are major version changes and not backward compatible are:

- Removing existing method (GET, POST etc.) from an API
- Renaming existing method path
- Changing request body or query string for existing method
- Changing method response structure and/or property names
- Removing a property from an `iframe` communication
- Renaming a property from an `iframe` communication
- Renaming a message in an `iframe` communication
- Adding a new *personal data*^[2] property to an `iframe` communication

¹ <https://semver.org>

² Personal data as defined in Regulation (EU) 2016/679 of 27 April 2016 (GDPR) and the Danish Data Protection Act.

In general, new major versions of Bilinfo Services will only be introduced, when existing interfaces does not allow for further evolution and improving of our Partner integrations without modification. Due to the need for Partner action, major versions are used as a last resort and are as such very rare. Minor version updates will require no Partner action.

Updating your Bilinfo integration

Updating your Bilinfo integration to support a new major version is non-optional as the existing integration paradigm is fundamentally changed. It is as such not possible to opt out without risking major problems with your Bilinfo integration. Minor versions, however, are fully optional, but may contain new fields, which may enrich the experience and value of your Bilinfo integration.

To assist Partners in upgrading their Bilinfo integration with minimal efforts, each major version will be associated with a *migration chapters* added to this document. Minor version changes are specified primarily in the Version History and is subject to the reader to adhere to the changes.

Deprecation Policy and Supported Versions

Bilinfo Services will support older versions for a grace period appropriate to the contractual obligations. After that time, integrations based on older versions may no longer work or experience severe operational issues.

C. Migrating from Finance Offer On Platform v1 to v2

The following guide describes the main changes going from version 1 to version 2 of the Finance Offer On Platform Architecture and how to migrate your version 1 integration to work in the new architecture.

Keep in mind that the the Finance Offer On Platform Architecture is a dynamic solution, which – based on our Partners needs – will be updated continuously with new fields and data from Bilinfo.net, but rarely require specific Partner actions.

Version 2 of the Finance Offer On Platform Architecture enables calculation of finance offers on loan periods. This enables the end users to browse for the loan offer that suits them the best, based on a combination of down payment and loan period.

Major version changes for version 2 are found in:

- [Calculation Matrix API](#)
 - Move the Period property from outer response body to the inner [LoanOfferItem](#) type. This enables LoanOfferItem to have different loan periods.

1. Introduction

1.1 Purpose and Scope

This document will present the technical specifications for implementing a *Finance Offer On Platforms* integration for Bilinfo.net

Due to the technical nature of this document, readers seeking information pertaining to the user interaction should refer to the [Bilinfo Finance Offer On Platforms \(User journey\)](#) document.

1.2 References

Documents relevant to the reading of this document are listed here. Links and other external resources accessible via the internet are referenced via footnotes relative to the term or technology. You should have access to every document mentioned in this list. If that is not the case, contact Bilinfo.

Table 1-1: Document references

Document name	Description	Link
Bilinfo Auth Services (Integration)	Describes how to integrate into the Bilinfo Auth Services, SSO and OAuth2.0, needed to respectively authenticate and authorize access to Bilinfo.net.	TBA
Bilinfo Shared Services (Integration)	Describes a number of services made available to integrating party, enabling access to additional information to e.g. Dealers.	TBA
Bilinfo Finance Offer On Platforms (User journey)	Describes the User Journey and User Experience (UX) of a Finance Offer On Platforms integration in Bilinfo.net	TBA
Bilinfo Brands and Products (Integration)	Contains the specification for the Brands and Products API needed by Case Plugin and Finance Offer On Platform integrations	TBA

1.3 Definitions and acronyms

The definitions and acronyms defined in Table 1-2 cover frequently used concepts, terms and acronyms used throughout this document. It is suggested that the reader acquaints him- or herself with the key concepts and refer to this list, when in doubt.

Table 1-2: Definitions and acronyms

Term/acronym	Definition
Bilinfo Services	Includes – but not limited to – Bilinfo Auth Services, Bilinfo Shared Services, Bilinfo Finance Offer On Platform integrations and Bilinfo Case Plugin integrations.
Partner	Synonym for the integrating party.
Finance Offer On Platforms	Infrastructure component which enables managing Finance Banners in Bilbasen and DBA platforms via Bilinfo.net
Bilinfo Data Services	Aggregate term for API and Data Services provided by Bilinfo to external Partners and integrations.
Platforms	Shorthand of the platforms with support for Finance Offers, i.e. DBA, Bilbasen and CMS services.

2. System overview

This chapter will provide an overview of how Finance Offer On Platforms elements integrate into the context of Bilinfo.net.

2.1 System context

A Finance Offer On Platforms integration consists of two REST API's made available to Bilinfo.net: a Brands & Products API and Calculation Matrix API.

Figure 2-1 describes the overall context of the API's in the Bilinfo.net finance offer flow.

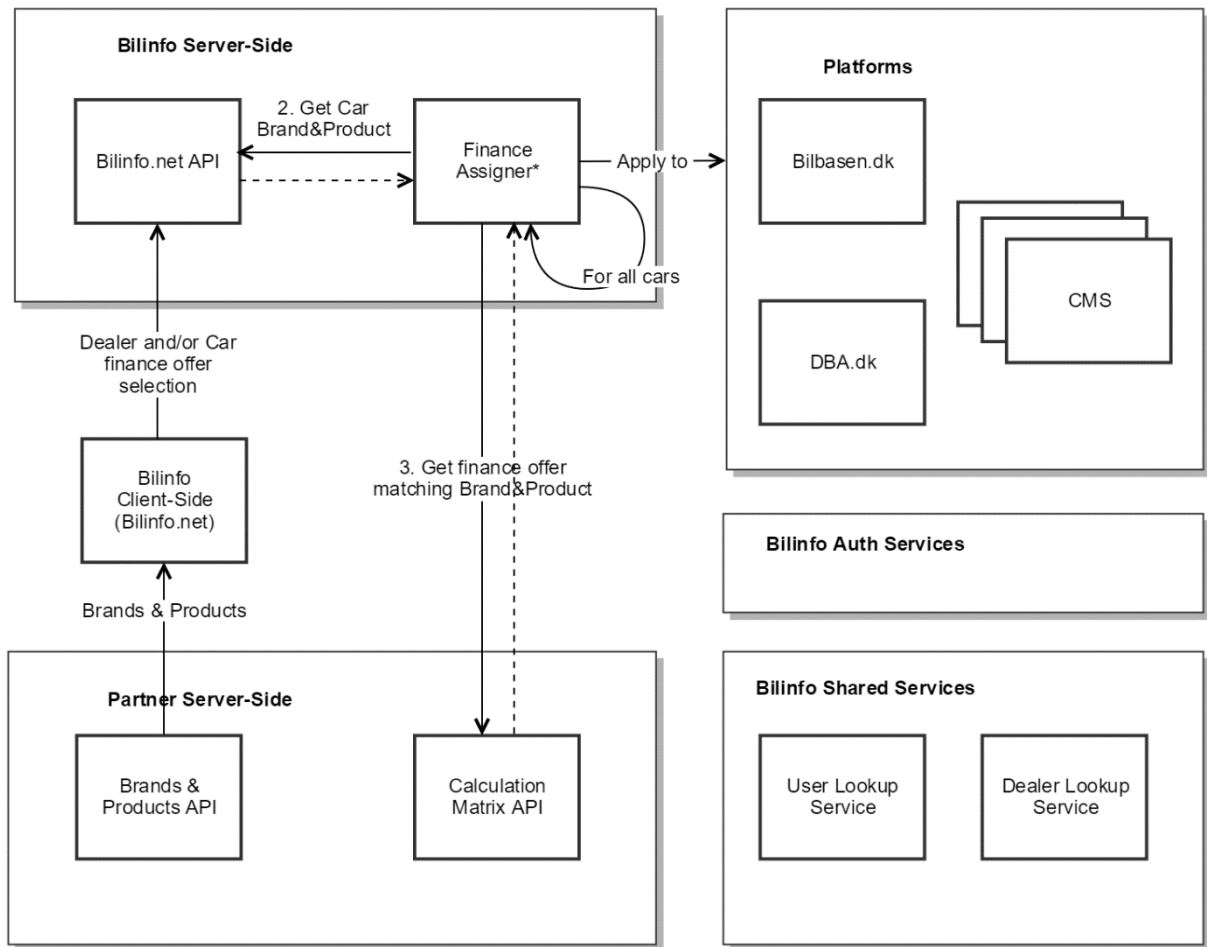


Figure 2-1: Finance Offer On Platforms context diagram

The Finance Offer On Platforms API's in unison enable a Dealer to select a Finance Offer (Brand&Product) to apply to a specific Car. To ensure finance offers on Cars, if non is specified then the Dealers default will be used. Based on the selections, an internal job will query the Partner for financial details relative to the Brand&Product and Car informations.

3. Prerequisites

This chapter describes the preliminary information and tasks you should get under way before starting any development. These tasks are dependent on external parties and may take some time to complete.

3.1 Security

All Bilinfo service API's use SSL/TLS (HTTPS) and OAuth 2.0 for authorization. It is expected that the Partner API's follow the same standards for Transport Layer Security and equivalent for Authorization (at least Basic authentication).

3.2 Separate environments

Two instances of the Partner Server-Side should be available, one for Production and one for QA.

3.3 Onboarding

The Finance Offer On Platforms integration works by polling information from Partner API's and funneling that information through Bilinfo.nets infrastructure and onwards to the respective platforms.

Providing Bilinfo with the following information will enable Bilinfo engineers to complete the onboarding process more quickly.

- Base URL for QA and PROD environments, respectively
- Brands & Products API path
- Calculation Matrix API path

4. Partner Server-Side

This chapter will cover the Partner Server-Side components that must be implemented in order to enable a Finance Offer On Platforms integration.

It is strongly recommended to supply both the Brands & Products API and Calculation Matrix API. Prerequisites chapter.

4.1 Brands & Products API

The Brands & Products API component of the Partner Server-Side and serves two purposes within the *Finance Offer On Platforms* context: context:

- Enable Partner to manage a number of finance Products (and group them under a Brands) outside of Bilinfo.net system
- Enable Dealers to select appropriate finance Products for specific Cars or define a Default for the entire dealership.

Be advised that the Brands & Products API may also be used for a *Case Plugin integration*. Please contact Bilinfo for more information on the Case Plugin integration.

For more information regarding the Brands & Products API specification, consult the [Bilinfo Brands and Products \(Integration\)](#) referenced in section [1.2 References](#).

Important to note is that for Brands and Products to be usable for Finance Offer On Platforms, the `allowFinanceOfferOnMarketplaces` on the Brand type must be set to `TRUE`.

4.2 Calculation Matrix API

The *Calculation Matrix API* is called by Bilinfo to calculate multiple offers that the Finance Company wants advertised on the platforms.

The calculation returns as many offers as possible of the following combination of down payment and loan period:

Down payments: 50%, 40%, 30%, 20%, 10%, 0%

Loan periods (in months): 12, 24, 36, 48, 60, 72, 84, 96, 108, 120 (1 to 10 years).

The calculation should use default administration fees etc.

This enables the end users to dive into the different combination of loan offers on the advertising platforms.

The following sections describes the HTTP interface, which must be provided by the Calculation Matrix API. The specification is split into an *Input* and an *Output* segment.

4.2.1 Input

The *Input* must be accepted via a HTTP POST request with a JSON formatted body following the specification described in Table 4-1 and Table 4-2.

Table 4-1: Calculation Matrix API interface input specification

Field	Type	Description
brandId	number	The brand id as returned by the Brands & Products API
productId	string	The product id, as returned by the Brands & Products API.
carType	number	Value from CarType
retailPrice	number	Retail price
deliveryCost	number	Delivery costs
licenseplateCost	number	License plate cost (Nummerplade pris)
firstRegistrationDate	date	First registration date of the car
dealerId	string	Bilinfo dealer id
mileage	number	Car mileage

CarType

Table 4-2: Calculation Matrix API CarType type specification

Value	Type	Description
-1	number	Unknown
0	number	VanExVat
1	number	VanInclVat
2	number	PrivateCar

4.2.2 Output

The *Output* is expected to be in JSON format and follow the specification described in Table 4-3, Table 4-4 and Table 4-5.

Table 4-3: Calculation Matrix API output data specification

Field	Type	Description
interestType	number	Value of InterestType
payoff	string	Classifieds payoff text
brandName	string	
brandLogoUrl	string	Url for the brand logo using https scheme
companyLogoUrl	string	Url for the company logo using https scheme. Preferably in an SVG format or dimensions 320x35
loanOfferItems	array	An array containing up to 60 items of type LoanOfferItem Should be empty if allowFinanceOfferOnMarketplaces on the brand is false.

InterestType

Table 4-4: Calculation Matrix API output InterestType type specification

Value	Type	Description
0	number	Fixed
1	number	Variable

LoanOfferItem

Table 4-5: Calculation Matrix API output LoanOfferItem data specification

Field	Type	Description
period	number	Loan period in months (løbetid)
downpaymentCash	number	Downpayment in cash
downpaymentPercent	number	Downpayment in percent
totalExpenses	number	Total credit cost (Samlet finansieringsomkostninger)
debtorInterest	number	Nominal interest rate (Debitorrente)
internalRateOfReturn	number	Annual percentage rate (ÅOP)
payment	number	Gross payment per month (Ydelse/md.)