

fintech 

Banking Product Factory 3.1

User Guide

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Overview

The Banking Product Factory allows you to create and maintain banking products. A banking product can further be used in FintechOS digital journeys for processes such as loan origination or a hybrid journey for applying for more products. The banking products are configured from a graphical user interface while Banking Product Factory automatically populates and maintains the underlying data in a consistent data model. Consequently, you have a reliable data model for your product portfolio that you can reference when building digital journeys. Thus you can manage your product portfolio at will, without having to re-code your digital journeys every time a banking product is added, updated, or retired.

For instance, you can use Banking Product Factory to create a loan type with a specific amount interval, availability period, interest rate, commission, credit scoring criteria, etc. You can then use this type of loan as one of the options that are available to the applicant in a loan application digital journey. As your product portfolio evolves and you add new types of loans, modify some of the conditions for your products, or retire products, the options that show up (or no longer show up) in the loan application digital journey change automatically.

Banking Products Features

Banking Product Factory allows you to customize the product features. Here are some of the customizable features:

- Adjustable interest rates and commissions depending on commercial conditions or participation in campaigns;
- Full versioning functionality;
- Clone a banking product to create a new product based on an existing one;
- Product classification;
- Payment schedules;

- Guarantees;
- Availability periods;
- Scoring rules.

Integration with Formula Engine

Banking Product Factory leverages the capabilities of the [Formula Engine](#) to implement complex decision modeling for product availability, risk scoring, or insurance rules.

Applications

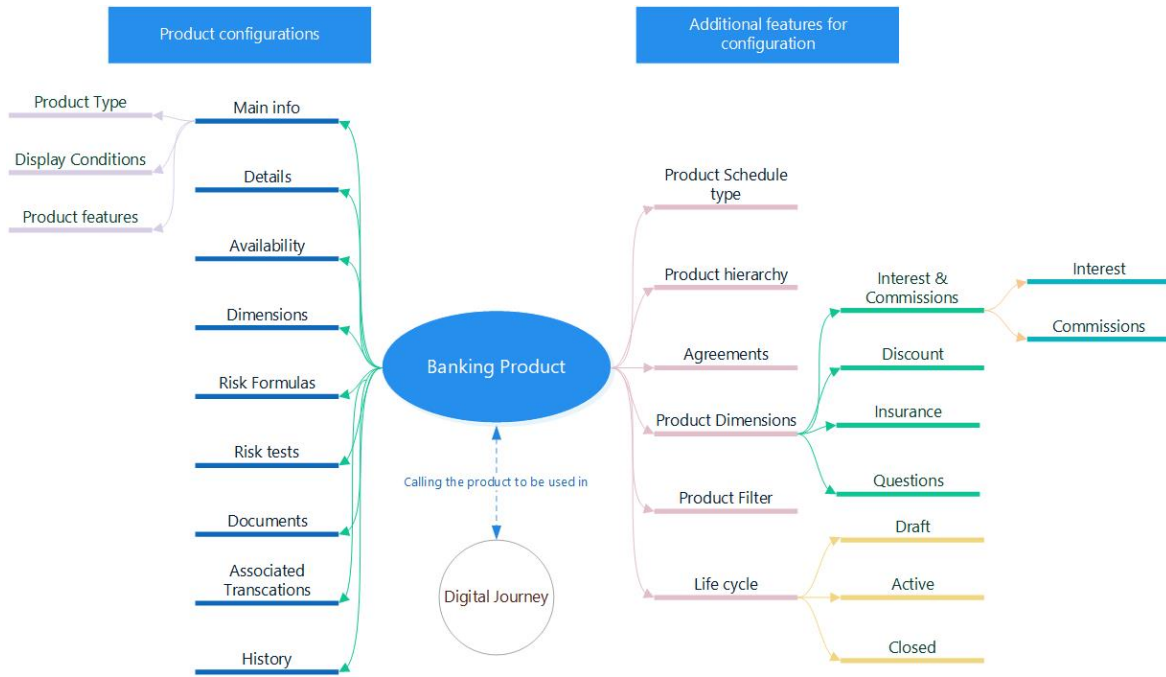
The Banking Product Factory can facilitate business processes, such as:

- Digital onboarding;
- Loan origination;
- Product portfolio management;
- Approval flows.

Configurations

The diagram below exhibits the extensive configurations applicable when creating a complete and esthetically pleasing banking product. The documentation explains the ramifications drawn below. You can start by establishing the product configurations for an individual product or by setting up the additional features and attaching them to a product.

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Installing Banking Product Factory 3.1

Follow the steps described below to perform an automatic installation of the Banking Product Factory. This is a process of running a script, the `install_SysPack.bat` file, on your environment. The script automatically imports the content of the **Banking Product Factory v3.1** into your Innovation Studio.

IMPORTANT!

You must run the script on the machine where Innovation Studio is installed. Make sure you have access rights to Studio's database.

Dependencies

In order to install **Banking Product Factory v3.1**, first you need to install the following:

- **Innovation Studio** minimum version **v21.2.2.2**
- **Standard SysPack** minimum version **v21.2.2000**.

IMPORTANT!

If you are installing **Banking Product Factory v3.1** on top of another version of Banking Product then you must previously run a **correction package**, named `BPFixInit.zip`. Find this package in the same **Banking Product Factory v3.1** archive file.

Pre-Installation Checklist

The SysPack has unique constraints on some of the standard entities like: FTOS_DFP_FlowSettings , FTOS_DFP_ProcessorSettings, FTOS_VersionSettings, FTOS_VersionSettingsItem, FTOS_EntityStatusSettings, FTOS_MKT_AudienceSegments, FTOS_MKT_Audience, and for all Banking Product entities.

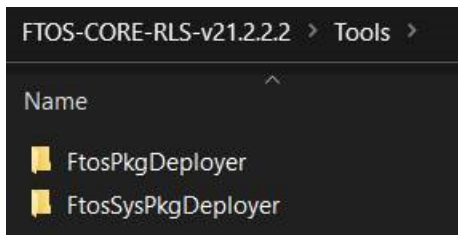
If you have already moved data using the **Configuration Data Deployment Package** menu, then you probably have already configured some unique constraints.

Before running the script, make sure you:

1. Disable the constraints that you have created on your environment, allowing the system to create the new ones after the Banking Product Factory v3.1 is imported.
2. Use the new **Configuration Data Definitions** imported with the Banking Product Factory v3.1 file when you export the data.

Installation Steps

1. Unzip your Banking_Product_factory - v3.1.zip archive file.
2. Locate the *FtosSysPkgDeployer* folder in the FintechOS installation kit (the path is <unzipped_install_archive>\Tools\FtosSysPkgDeployer). You need it to install the Banking Product Factory v3.1.



3. Select and copy the *FtosSysPkgDeployer* folder.

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4. Navigate to the location where you have unzipped the Banking_Product_factory - v3.1.zip (let's call this location *<pckg_deployer_dir>*), then paste the *FtosSysPkgDeployer* folder there, within each and every zip file that comes with the package.

Banking Product v3.1			
Name	Size	Date modified	Type
01.BPFixInit v3.1		2/3/2022 10:22 AM	File folder
02.Backup Settings v3.1		2/3/2022 10:22 AM	File folder
03.Banking Product Factory v3.1		2/3/2022 10:23 AM	File folder

01.BPFixInit v3.1		
Name	Size	Date modified
BPF_InitFix		1/25/2022 2:38 PM
FtosSysPkgDeployer		1/25/2022 2:44 PM
BPF_FixInit.zip	2 KB	1/25/2022 2:38 PM

02.Backup Settings v3.1		
Name	Size	Date modified
Backup Restore Settings		1/25/2022 2:38 PM
FtosSysPkgDeployer		1/25/2022 2:44 PM
Backup Settings.zip	4 KB	1/25/2022 2:38 PM

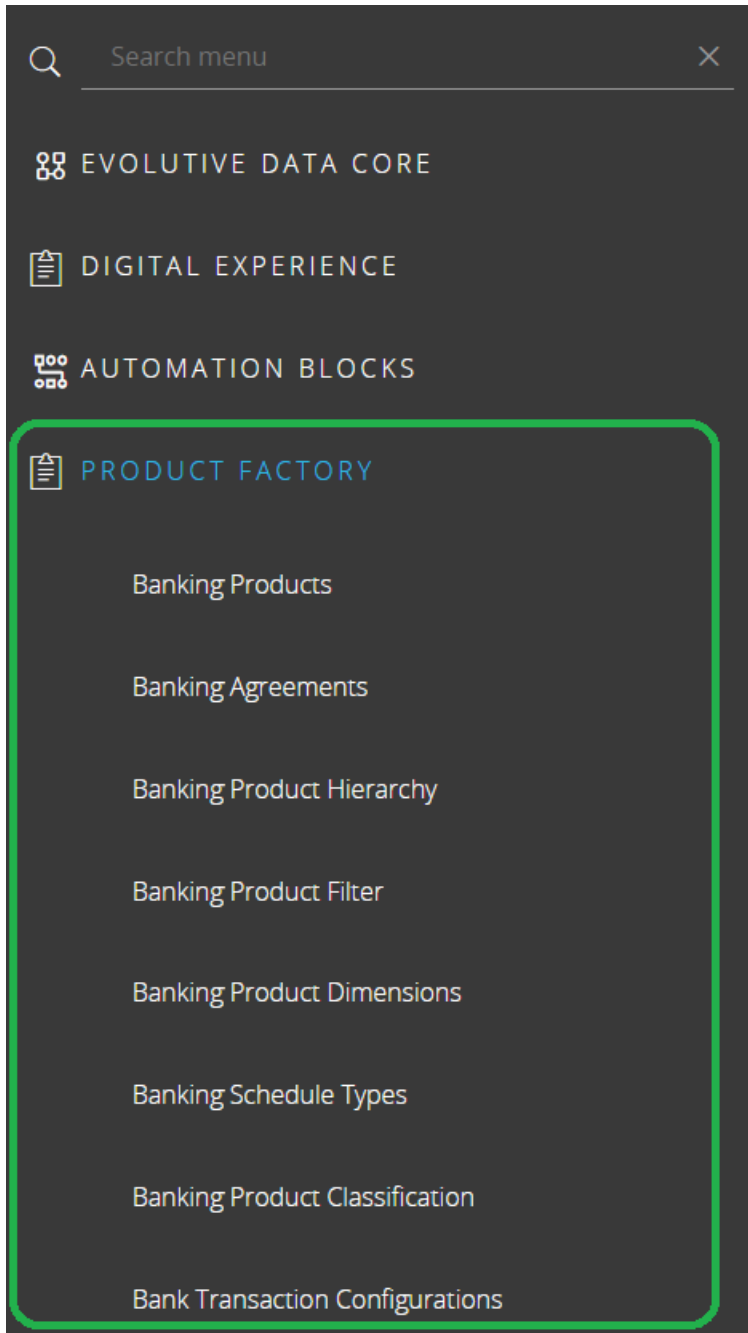
03.Banking Product Factory v3.1		
Name	Size	Date modified
Banking Product Factory SDK		1/25/2022 2:38 PM
FtosSysPkgDeployer		1/25/2022 2:46 PM
Banking_Product_Factory.zip	350 KB	1/25/2022 2:38 PM
README_install_dependencies.txt	1 KB	1/25/2022 2:57 PM
README_ReleaseNotes.txt	1 KB	1/25/2022 2:58 PM

IMPORTANT!

Each zip file within the **Banking_Product_factory - v3.1.zip** must be extracted and installed separately, in the given order!

5. Edit the `install_Syspack.bat` file. Replace the parameters described in the "[install_SysPack.bat Parameters Explanation](#)" on page 15 section with your own values. Save and close the file.
6. Right-click `install_SysPack.bat` » Run as administrator.

The script starts running in your Windows console. Wait for it to finish. If your parameter values were correct, Innovation Studio has the **Banking Product** menu items visible after a refresh:



The `install_SysPack.bat` file allows you to import both the data model and the data:

install_SysPack.bat syntax for Data Model import

```
FtosSysPkgDeployer.exe -i -s "<StudioLink>" -u <AdminStudioUser> -p
<user_password> -z <DataBaseServer> -v <DB_user> -k <DB_user_
password> -d "<TheNameOfTheDataBase>" -r "<syspack_path>\01
DeploymentPackages\*.zip"
```

install_SysPack.bat syntax for Data import

```
FtosSysPkgDeployer.exe -g -s "<StudioLink>" -u <AdminStudioUser> -p
<user_password> -r "<syspack_path>\02
ConfigurationDataDeploymentPackages\*.zip"
```

NOTE

The syntax presented here is for information purposes only. Please run the actual `install_SysPack.bat` file.

install_SysPack.bat Parameters Explanation

- `<StudioLink>` - The web URL of the Innovation Studio installation, for example `http://localhost/ftos_studio`.
- `<AdminStudioUser>` - The username of the Innovation Studio user under which this import is executed. The user has to exist in Innovation Studio prior to this operation.
- `<user_password>` - The password for the Innovation Studio user.
- `<DataBaseServer>` - The name of the database server where the FintechOS installation database was created.
- `<DB_user>` - The username of the SQL Server user with administration rights on the FintechOS installation database.
- `<DB_user_password>` - The password for the above mentioned SQL user.
- `<TheNameOfTheDataBase>` - The name of the database where the Banking Product Factory v3.0 is deployed.

- `<syspack_path>` - The physical path to the unzipped Banking Product Factory v3.0 previously downloaded.

HINT

For more information about the script, please run `FtosSysPackageDeployer.exe` without any arguments to see the built-in help.

IMPORTANT!

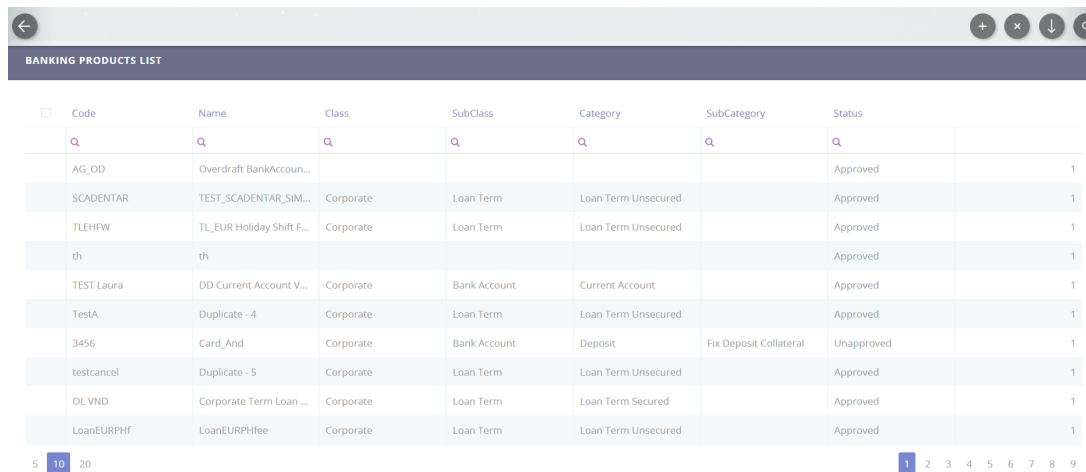
If you're using **SQL Server Integrated Authentication**, make sure that the Windows user used for running the script has access to the FTOS database, with read/ write rights. Run the command without the SQL username/ password parameters.
If you're using **SQL Server Build In Authentication**, make sure that the SQL Server user has read/ write access to the FTOS database. Run the command with the SQL username/ password parameters.

Managing Banking Products

There is a great variety of banking products and hybrid products created in order to offer the best service to a customer. Our Banking Product List offers a global view of every product created in your High Productivity Fintech Infrastructure, allowing you to visualize and manage them. Based on viewing rights, a user has access to the existing products.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.
4. Click **Banking Products** to open the **Banking Products List** page.



Code	Name	Class	SubClass	Category	SubCategory	Status	
AG_OD	Overdraft BankAccoun...					Approved	1
SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
TLEHPW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
th	th					Approved	1
TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
TestA	Duplicate -4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
testcancel	Duplicate -5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

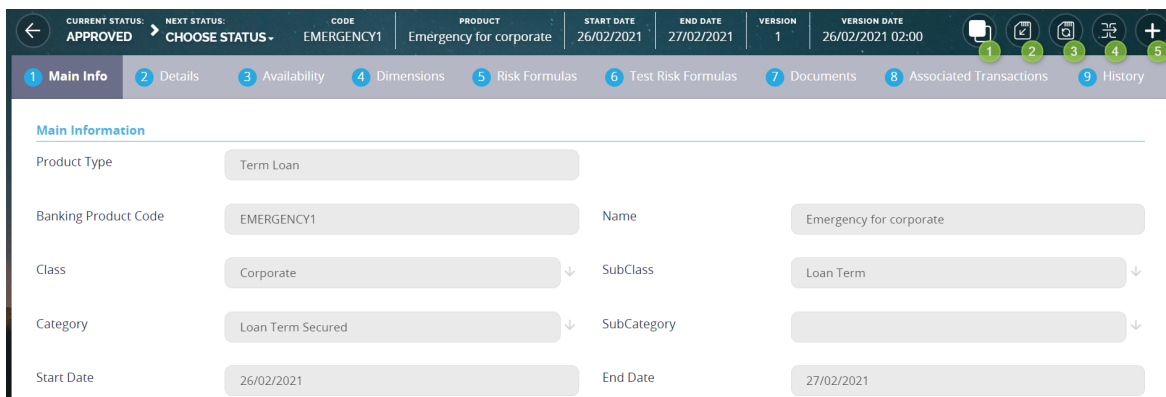
NOTE

For banking products in Active status, you can't change any of their related entities (such as features, discounts, product guarantee, interest or commission item, formula, test scenario, product covenant, product disbursement, product availability item filter). To change any of the product's related entities, create a new version of the banking product record.

Actions

Due to the overwhelming number of possible products that can be created, the High Productivity Fintech Infrastructure has buttons that help shorten the processes of creating or managing a product. Such actions aid the user to quickly streamline several processes.

In the selected banking product's page, in the top right corner, a series of buttons (depicted below in green) trigger different actions.



- Button 1 triggers the **duplicate product** action. Thus, a new banking product with the current product's configurations is created. Both products are usable in a digital journey. For the duplicated product, the Banking Product code and Name should be changed according to your business needs.
- Button 2 is the **Save and close** button.
- Button 3 is the **Save and reload** button.
- Button 4 opens the **Banking Product Business Workflow Transitions List**.

- Button 5 creates a **new version of the exiting product**. The new version has to be approved before you start using it. If it is not approved, then the initial version can still be used.

The following pages exhibit the possible major types of banking products.

Bank Accounts

The basic product for any bank is an account. Below are the possible configurations for a complete account, functional in any digital journey.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.
4. Click **Banking Products** to open the **Banking Products List** page.

<input type="checkbox"/>	Code	Name	Class	SubClass	Category	SubCategory	Status	
<input type="checkbox"/>	AG_OD	Overdraft BankAccoun...					Approved	1
<input type="checkbox"/>	SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
<input type="checkbox"/>	TLEHPW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
<input type="checkbox"/>	th	th					Approved	1
<input type="checkbox"/>	TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
<input type="checkbox"/>	TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
<input type="checkbox"/>	3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
<input type="checkbox"/>	testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
<input type="checkbox"/>	OLVND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
<input type="checkbox"/>	LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.

- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

NOTE

For banking products in **Active** status, you can't change any of their related entities (such as features, discounts, product guarantee, interest or commission item, formula, test scenario, product covenant, product disbursement, product availability item filter). To change any of the product's related entities, create a new version of the banking product record.

Creating Bank Accounts

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.

8. **History** - This tab displays the versions of the product, along with workflow status and the user who modified the product.

Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

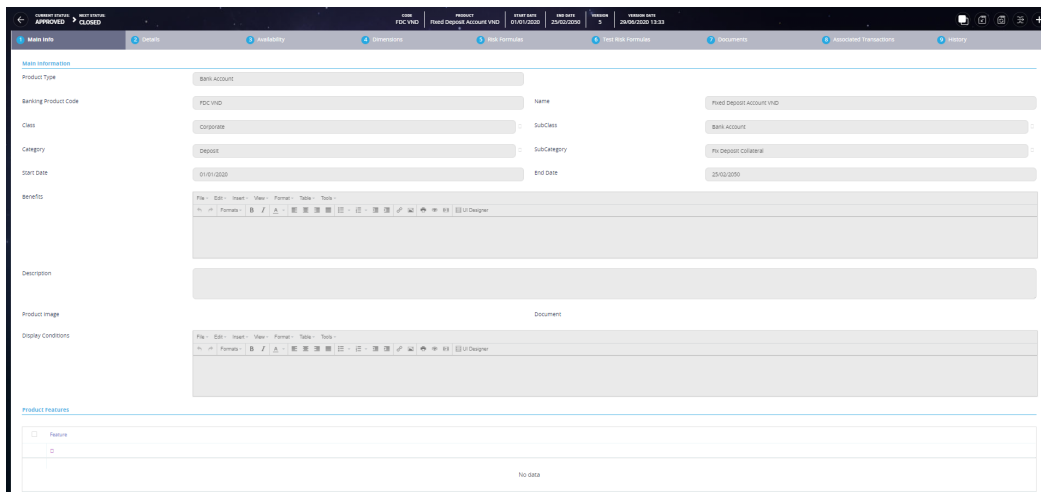
Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> • Bank Account • Term Loan • Card • Overdraft • Leasing • Mortgage • Credit Card • Deposit <div style="background-color: #e1eef6; padding: 10px; border-radius: 5px;"> <p>NOTE Your product type selection greatly influences the next steps. It is important to choose the right type of product to build.</p> </div>

Field	Required	Data Type	Details
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see " Product Hierarchy " on page 343
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see " Product Hierarchy " on page 343
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see " Product Hierarchy " on page 343
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see " Product Hierarchy " on page 343
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.

Field	Required	Data Type	Details
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

IMPORTANT! For bank accounts, select Product Type = **Bank Account**.



In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.

Field	Details
Valid To	The date until which the classification item is valid.

Details

The **Details** tab requires further elements such as interest, payment type, top-ups and withdrawals.

For the **General Data** section, the following fields are available:

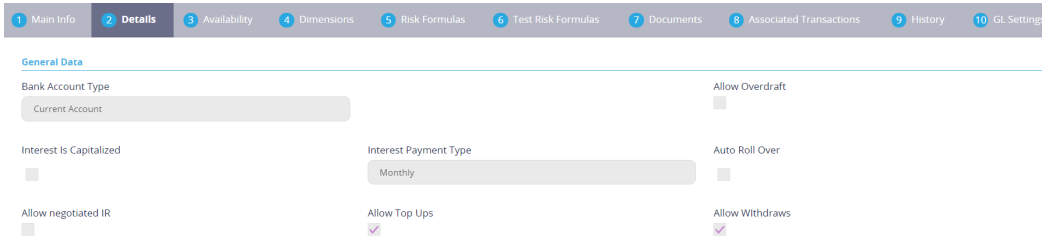
Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	Choose one from the following: <ul style="list-style-type: none"> • Current Account • Savings Account • Fixed Deposit Account • Term Deposit Account • Loan Term Account.
Allow Overdraft	No	Bool	Only displayed for current account type bank accounts. Select the checkbox if the current account has an overdraft functionality attached to it. Follow the information available on the Current Account with Overdraft page.
Interest is capitalized	Yes	Bool	Only applicable if there is an interest rate. Select the checkbox if true.

Field	Required	Data Type	Details
Interest payment type	Yes	Option set	Choose one from the following: <ul style="list-style-type: none"> • Monthly • Maturity • Yearly • Daily • Quarterly.
Auto Rollover	Yes	Bool	If the checkbox is selected, the contract is automatically prolonged. This is used mostly for deposits or any product that can undergo the extension of contract.
Allow negotiated IR	No	Bool	Select the checkbox if the interest rate is negotiable for this product.
Allow Top Ups	No	Bool	Select the checkbox if sum you can top up the sum of money.
Allow Withdrawals	No	Bool	Select the checkbox if the customer can withdraw money for this product.

NOTE

If you select the **Allow Top Ups** and **Allow Withdrawals** checkboxes, then the Top Up Account, Transfer between my bank accounts and Withdraw transaction types are automatically attached in the **Associated Transactions** tab.

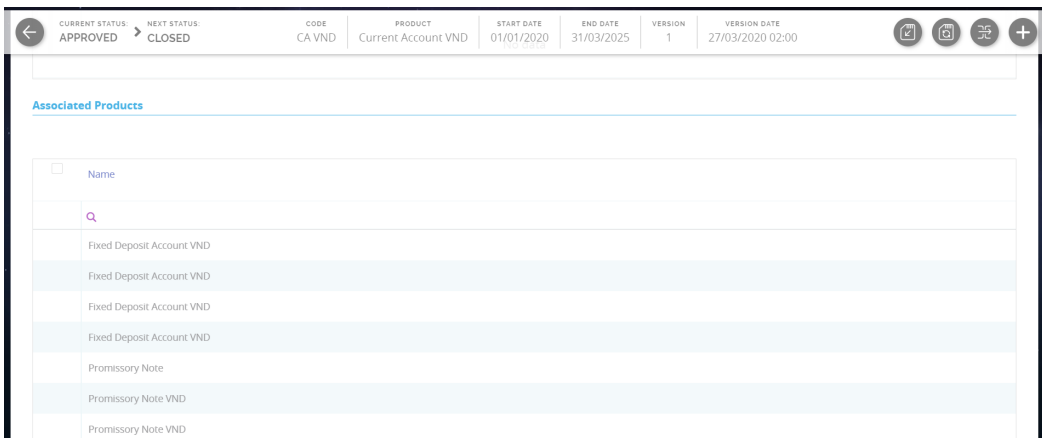
Click the **Save and Reload** button at the top right corner of the page.



The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.



Click the **Save and Reload** button at the top right corner of the page.

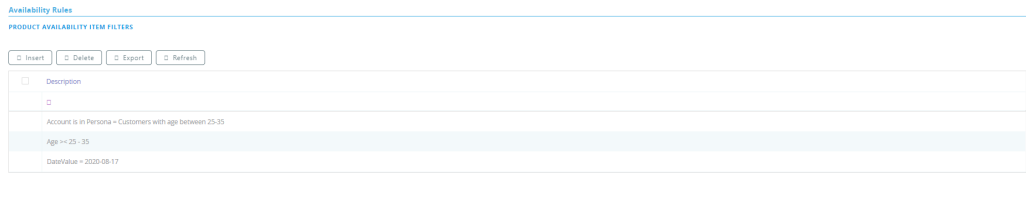
Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.
Period Type	No	Option set	Choose one: <ul style="list-style-type: none"> • Days • Weeks • Months • Years • Once.
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see "[Product Filter](#)" on page 339.



Click the **Save and Reload** button at the top right corner of the page.

The **Mandatory Roles** section allows you to add the roles of the participants that are mandatory to exist at the contract level for contracts based on this banking product. In other words, when creating contracts based on banking products with Merchant role in this section, you must add a customer with the same Merchant role as contract participant, otherwise, the contract cannot be approved. When **Search Limit** is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role, in this case Merchant Exposure.



In the **Mandatory Roles** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Lookup	The banking product for which you define mandatory roles. This is automatically completed with the current banking product.
Role	Yes	Option set	Select the beginning value/ date for the filter.
Search Limit	Yes	Boolean	When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role.

Click the **Save and Reload** button at the top right corner of the page.

Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.

Field	Required	Data Type	Details
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the Save and Reload button. The values/ dates inserted above are turned into an expression.
For Lookup attributes			
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.

Field	Required	Data Type	Details
Grid of Options	No	Grid	This field is automatically filled in after clicking the Save and Reload button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter:

OptionSet:

Description:

Name	Display Name
<input checked="" type="checkbox"/> High school	Bacalaureat
<input checked="" type="checkbox"/> No studies / Primary school	Fara studii sau scoala primara
<input checked="" type="checkbox"/> Gymnasium studies	Gymnasium studies
<input checked="" type="checkbox"/> High school	High school
<input checked="" type="checkbox"/> Higher education	Licenta
<input type="checkbox"/> Higher Education	Licenta universitara
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CPA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.

Field	Required	Data Type	Details
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount . Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount . Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount . Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.

Field	Required	Data Type	Details
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> • text • numeric • option set.
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

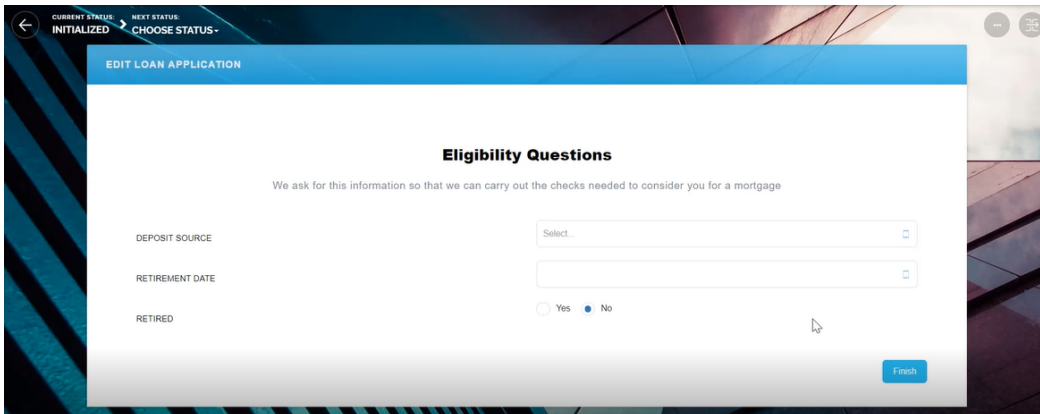
The **Banking Products List** shows where the question is used.

IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:



Risk Formulas

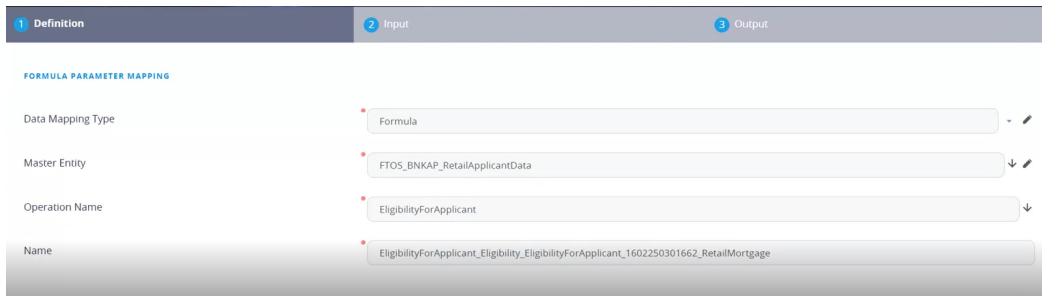
The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

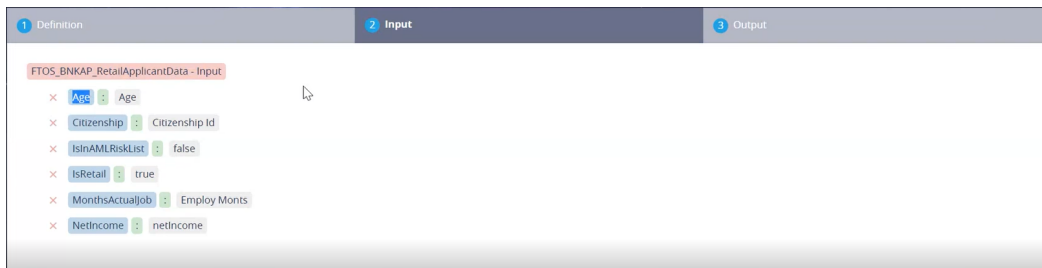
In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. <div style="border: 1px solid #ccc; background-color: #f9cb9c; padding: 10px; margin-top: 10px;"> <p>IMPORTANT! The formula must be activated before attaching it to a product.</p> </div>

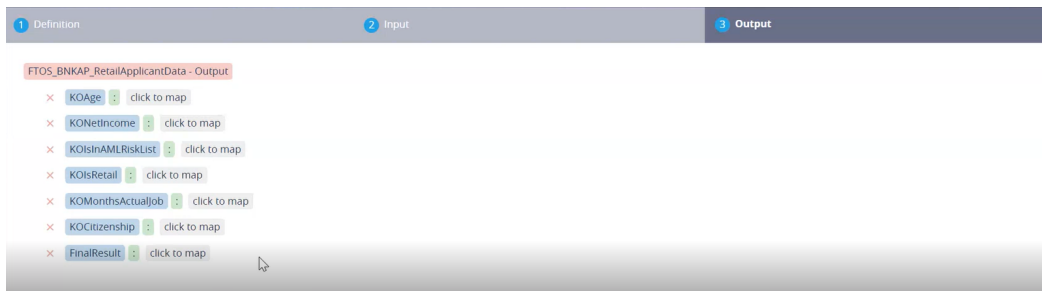
After selecting the desired formula, click **Save and reload**, then click **Map Data**.



In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

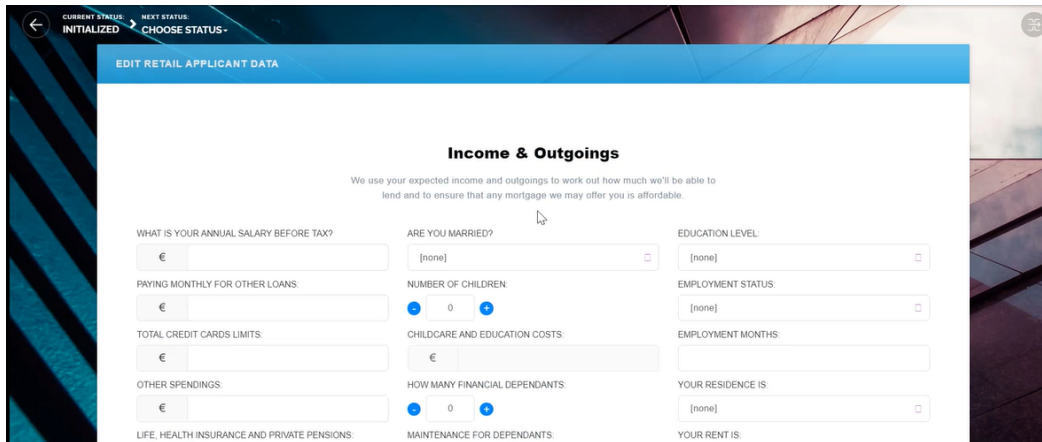


Click **Output** and configure the output for the formula.



Click the **Save and Close** button at the top right corner of the page.

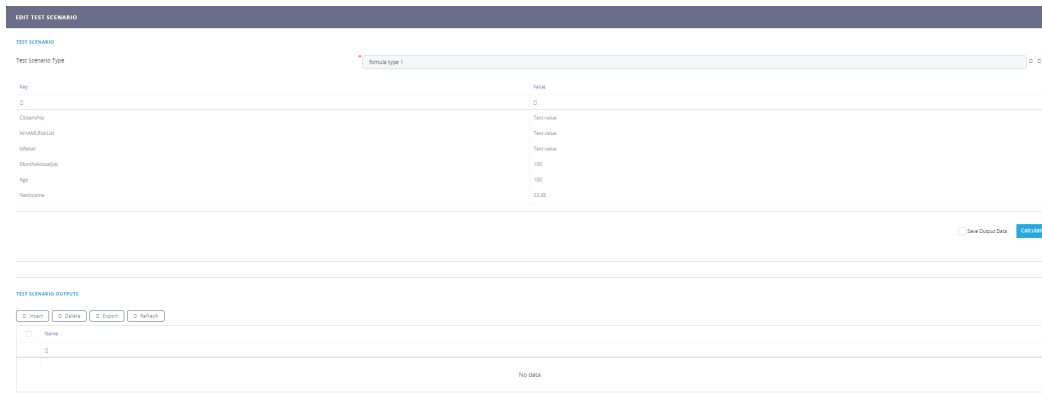
Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.



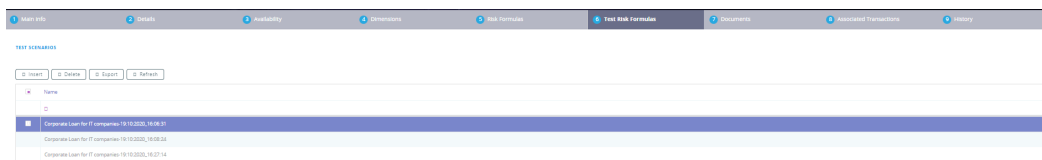
Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.



Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.



Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see "[Banking Products' Life Cycle](#)" on page 373).

Current Accounts with Overdraft

A current account with an attached overdraft functionality allows customers to withdraw funds from the account even if the available balance goes below zero. If there is a prior agreement with the account provider for an overdraft, and the amount

overdrawn is within the authorized overdraft limit, then interest is normally charged at the agreed rate. If the negative balance exceeds the agreed terms, then additional fees may be charged and higher interest rates may apply. The customer may use the account beyond their available balance (credit balance) and may have a debit balance as low as the approved overdraft/ limit. The overdraft can be added on top of existing current accounts.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.
4. Click **Banking Products** to open the **Banking Products List** page.

Code	Name	Class	SubClass	Category	SubCategory	Status	
AG_OD	Overdraft BankAccoun...					Approved	1
SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
TLEHFW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
th						Approved	1
TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

NOTE

For banking products in **Active** status, you can't change any of their related entities

(such as features, discounts, product guarantee, interest or commission item, formula, test scenario, product covenant, product disbursement, product availability item filter). To change any of the product's related entities, create a new version of the banking product record.

Creating Current Accounts with Overdraft

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.
8. **History** - This tab displays the versions of the product, along with workflow status and the user who modified the product.

Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> • Bank Account • Term Loan • Card • Overdraft • Leasing • Mortgage • Credit Card • Deposit <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE Your product type selection greatly influences the next steps. It is important to choose the right type of product to build.</p> </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.

Field	Required	Data Type	Details
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

IMPORTANT! For current accounts with overdraft functionality, select Product Type = **Bank Account**.

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring .
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

Details

The **Details** tab requires further elements such as interest, payment type or product destination types.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	From the list of possible values, choose Current Account , otherwise you can't attach the overdraft functionality to the account.

Field	Required	Data Type	Details
Allow Overdraft	No	Bool	<p>Only displayed for current account type bank accounts. This is where you specify that the account has an overdraft functionality attached to it, so select the checkbox. The Payment Schedule Types section is displayed after selecting this checkbox.</p>
Interest is capitalized	Yes	Bool	<p>Only applicable if there is an interest rate.</p> <ul style="list-style-type: none"> • If the checkbox is not selected, the interest is paid in the account specified on the contract. • If selected, then the interest is added over the product amount, so that on the next payment date the customer receives the interest applied on both interest and product amount.

Field	Required	Data Type	Details
Interest Payment Type	Yes	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> • Monthly • Maturity • Yearly • Daily • Quarterly.
Auto Rollover	Yes	Bool	<p>If the checkbox is selected here at banking product level, the contract is renewed at maturity date in exactly the same conditions.</p> <p>If the checkbox remains unchecked, the contract is automatically closed at maturity date.</p>

Field	Required	Data Type	Details
Allow negotiated IR	No	Bool	<p>Select if the interest rate is negotiable for this product at the contract level.</p> <ul style="list-style-type: none"> • If selected, the Total Interest Rate field from the banking contract is automatically completed with the value configured on the banking product, but it is editable, so that the bank can change this value and insert the negotiated one. • If not selected, the Total Interest Rate field from the banking contract is automatically completed with the value configured on the banking product, but the value is read-only and cannot be changed.

BANKING PRODUCT FACTORY USER GUIDE

Field	Required	Data Type	Details

Field	Required	Data Type	Details
Allow Top Ups	No	Bool	<p>Select if the amount can be topped up with a sum of money.</p> <ul style="list-style-type: none"> If selected, the Top Up Account transaction is automatically loaded , which means that the customer is allowed to make top ups at the contract level. When a top up transaction is recorded in a contract, at the next maturity date the interest is calculated for the initial amount up until the top up date, plus the interest for the full amount (initial amount + top up amount) proportional from top up to payment

Field	Required	Data Type	Details
			date. <ul style="list-style-type: none">• If not selected, the top up transaction is not allowed at the contract level.

Field	Required	Data Type	Details
Allow Withdrawals	No	Bool	<p>Select if the customer can take out money for this product.</p> <ul style="list-style-type: none"> • If selected, the Withdraw and Transfer between my bank accounts transactions are automatically loaded , which means that the customer is allowed to make withdrawals at the contract level. • If not selected, the Withdraw and Transfer between my bank accounts transactions are not loaded, thus these transaction types are not allowed at the contract level.

NOTE

If you select the **Allow Top Ups** and **Allow Withdrawals** checkboxes, then the Top Up Account, Transfer between my bank accounts and Withdraw transaction types are automatically attached in the **Associated Transactions** tab.

Click the **Save and Reload** button at the top right corner of the page.

The screenshot shows the 'Details' tab of the Banking Product Factory interface. It is divided into two main sections: 'General Data' and 'Payment Schedule Types'.
General Data:
- Bank Account Type: Current Account
- Interest Is Capitalized:
- Allow negotiated IR:
- Allow Top Ups:
- Allow Withdrawals:
- Interest Payment Type: Monthly
- Auto Roll Over:
- Allow Overdraft:
Payment Schedule Types:
- Periodicity Type: [Dropdown menu]
- Repayment Allocation Method: [Dropdown menu]
- Holiday Shift For Repayment Installments:
- Holiday Shift Method: Forward
- Defer Due Date:

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> • Once (the whole amount is paid at maturity) • Weekly • Monthly • Bimonthly • Trimestrial • 4 Weeks • Semestrial • Annual • 30Days. <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #ccc; margin-top: 10px;"> <p>NOTE If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The repayment allocation method represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a0c4ff;"> <p>NOTE The Country Calendars section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> • None - the due date is not shifted. • Forward - the due date is shifted to the last working day before the initially calculated due date. • Backward - the due date is shifted to the next working day after the initially calculated due date. <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>
Grace Days for Repayment	No	Whole number	<p>Insert the number of days for which the grace period applies.</p>

Click the **Save and Reload** button at the top right corner of the page.

In the **Country calendars** section, you can insert or delete calendars. You can work with multiple calendars as well. Click the **Insert Existing** button and add the country's name. If the maturity date coincides with a holiday, it is allocated automatically on the next business day.

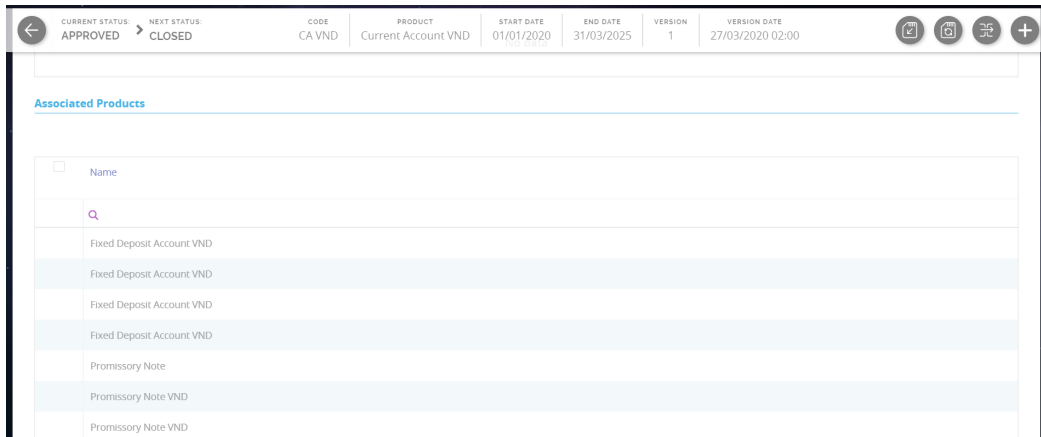
In the **Payment Schedule Types** section, you can associate/ delete payment schedule types to/ from the banking product. To associate a payment schedule type to the banking product, click **Insert Existing** and select one of the already defined types. For example, for current accounts with overdraft functionality, select OverdraftCurrentAccount. Go to "[Payment Schedule Types](#)" on page 350 to read more about this.

Click the **Save and Reload** button at the top right corner of the page.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

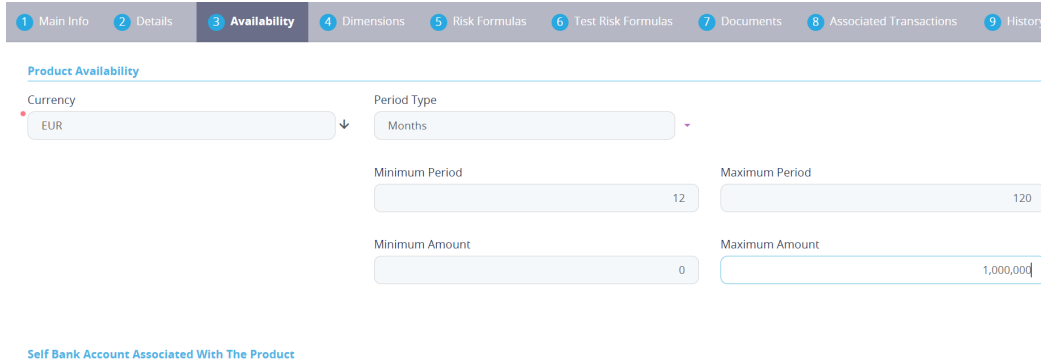
The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.



Click the **Save and Reload** button at the top right corner of the page.

Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.



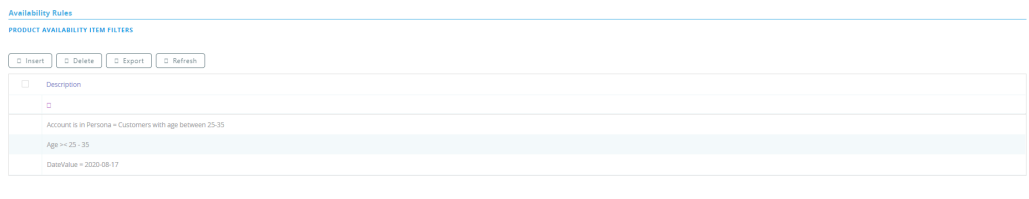
The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.

Field	Required	Data Type	Details
Period Type	No	Option set	<p>Choose one:</p> <ul style="list-style-type: none"> • Days • Weeks • Months • Years • Once. <div style="border: 1px solid black; background-color: #e1eef6; padding: 10px; margin-top: 10px;"> <p>NOTE The period type must be the same as the measurement unit of the Periodicity Type selected in the Details tab.</p> </div>
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.
Start Period For Unusage After Activation (Months)	No	Whole Number	The number of months after contract activation when the amount unused from the contract starts to be charged with unusage fees.

Field	Required	Data Type	Details
Expire period for Overdraft (Months)	Yes	Whole Number	The number of months after which the overdraft feature of the current account expires and the banking product starts behaving like a simple current account.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see "[Product Filter](#)" on page 339.



Click the **Save and Reload** button at the top right corner of the page.

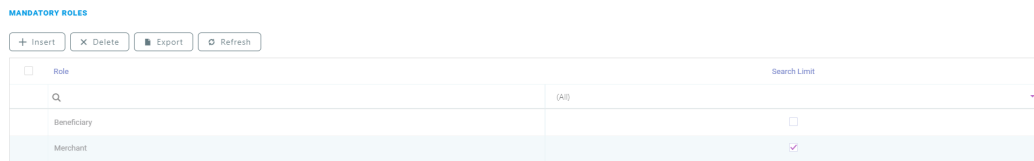
In the **Product Covenants** section you can set certain conventions that applicants must abide by after getting the loan. This is usually applicable for corporate clients that must meet certain requirements in order to continue to receive disbursements. Click the **Insert** button to add a covenant to the product. You can select from 3 possible covenants:

- *Borrowers should perform tax obligations:* the lenders expect the borrowers to perform their tax obligations to both the business and towards their employees. This covenant is of type affirmative.
- *Lender can monitor borrower's current ratio:* the lender may continuously monitor the borrower's current ratio to ensure it stays relatively attractive and promising. This covenant is of type financial.
- *Lender posses the right to prevent merges or acquisitions:* a clear stipulation that the lender possesses the right to prevent merges of acquisitions without proper notification or full knowledge of the process. This covenant is of type negative.

Each covenant can be attributed a value, an availability period, and a review frequency in months.

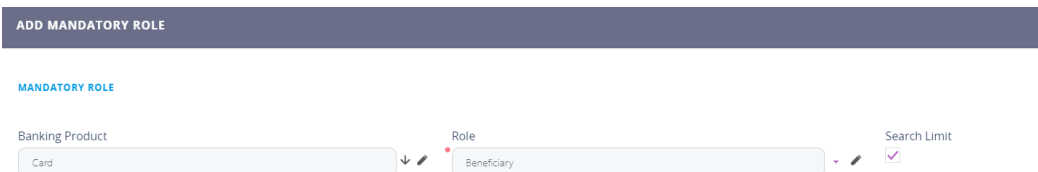
After all configurations are done, click the **Save and Reload** button.

The **Mandatory Roles** section allows you to add the roles of the participants that are mandatory to exist at the contract level for contracts based on this banking product. In other words, when creating contracts based on banking products with Merchant role in this section, you must add a customer with the same Merchant role as contract participant, otherwise, the contract cannot be approved. When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role, in this case Merchant Exposure.



In the **Mandatory Roles** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Lookup	The banking product for which you define mandatory roles. This is automatically completed with the current banking product.
Role	Yes	Option set	Select the beginning value/ date for the filter.
Search Limit	Yes	Boolean	When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role.



Click the **Save and Reload** button at the top right corner of the page.

Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the Save and Reload button. The values/ dates inserted above are turned into an expression.
For Lookup attributes			
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.
Grid of Options	No	Grid	This field is automatically filled in after clicking the Save and Reload button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter:

OptionSet:

Description:

Name	DisplayName
<input type="checkbox"/> Highschool	Baccalaureat
<input type="checkbox"/> No studies / Primary school	Fara studii sau scoala primara
<input type="checkbox"/> Gymnasium studies	Gymnasium studies
<input type="checkbox"/> High school	High school
<input type="checkbox"/> Higher education	Licenta
<input type="checkbox"/> higherEducation	Licenta universitara
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CPA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.

Field	Required	Data Type	Details
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount . Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount . Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount . Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.

Field	Required	Data Type	Details
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> • text • numeric • option set.
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

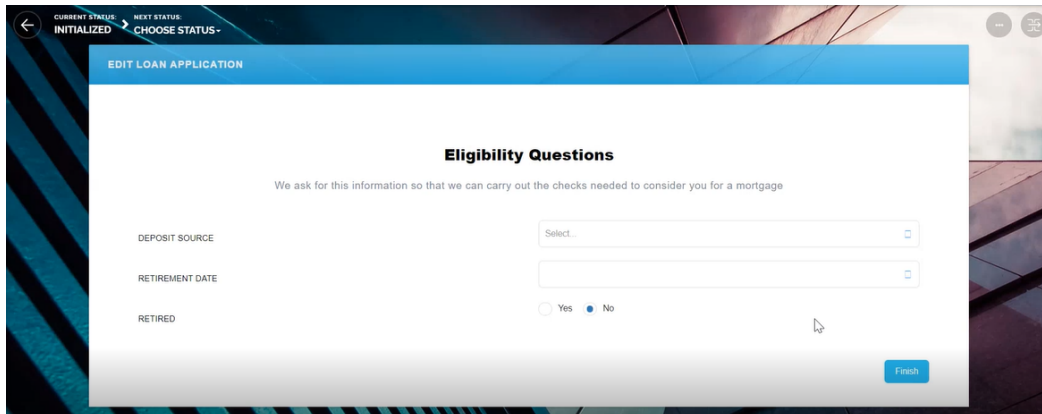
Click the **Save and Reload** button at the top right corner of the page.

The **Banking Products List** shows where the question is used.

IMPORTANT!
 The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:



Risk Formulas

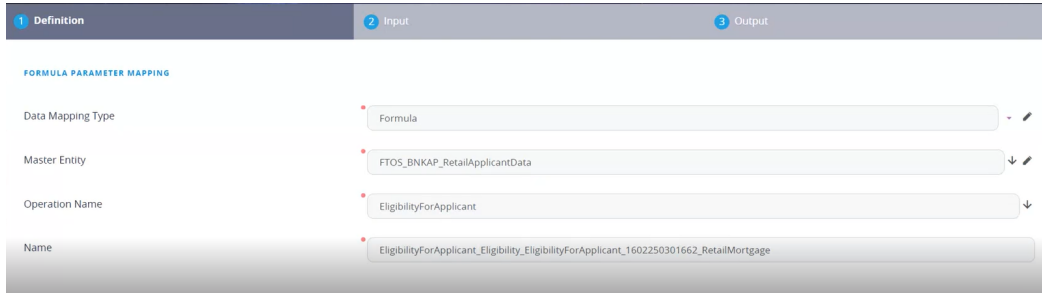
The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

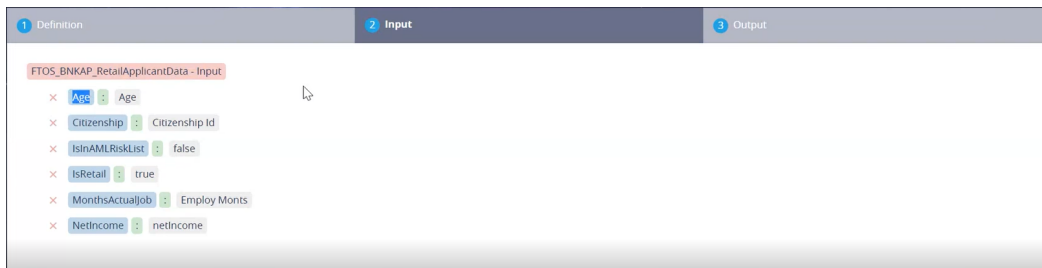
In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. <div style="border: 1px solid #ccc; background-color: #f9e79f; padding: 10px; margin-top: 10px;"> <p>IMPORTANT! The formula must be activated before attaching it to a product.</p> </div>

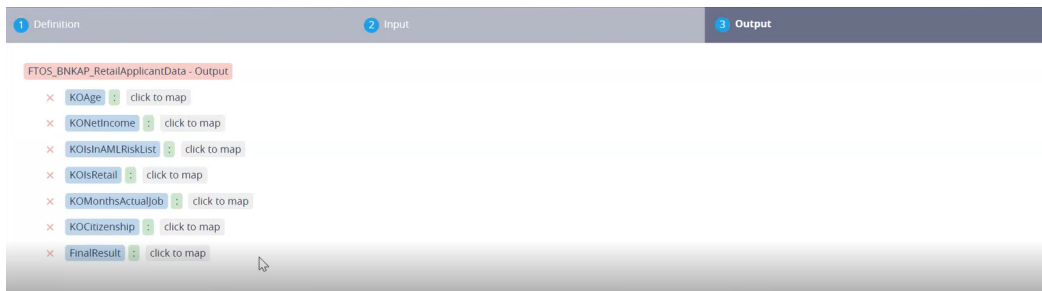
After selecting the desired formula, click **Save and reload**, then click **Map Data**.



In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

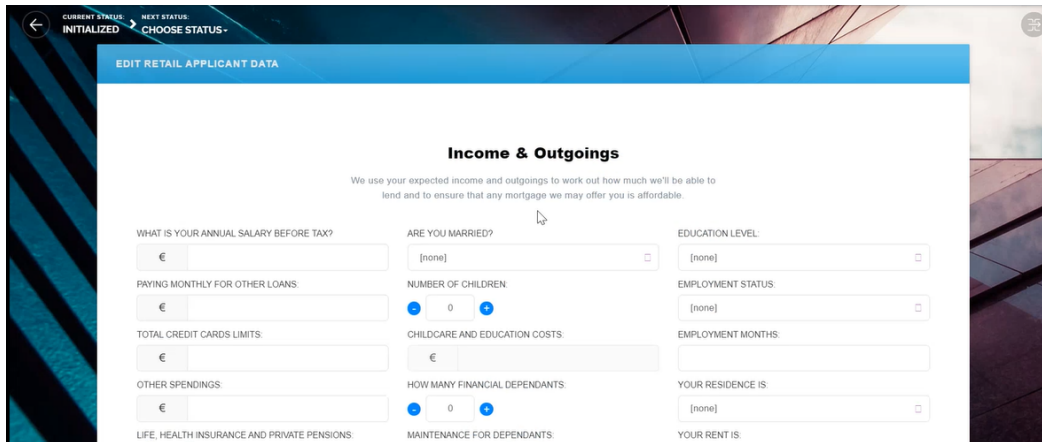


Click **Output** and configure the output for the formula.



Click the **Save and Close** button at the top right corner of the page.

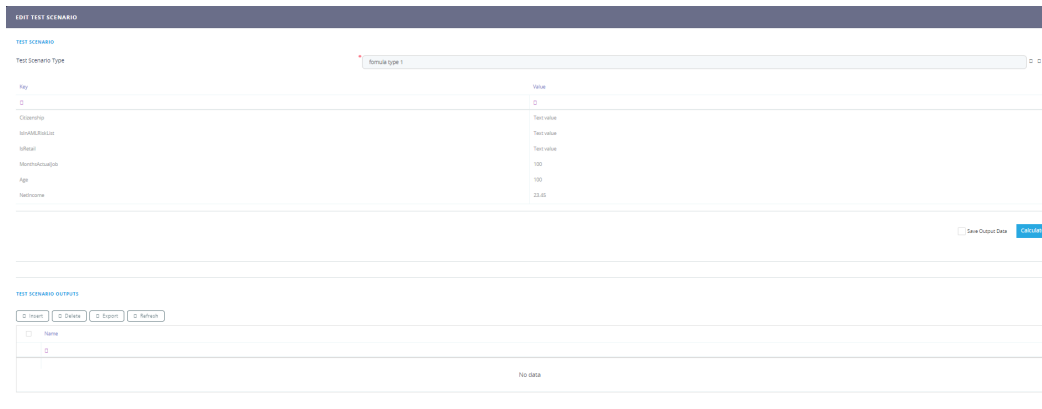
Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.



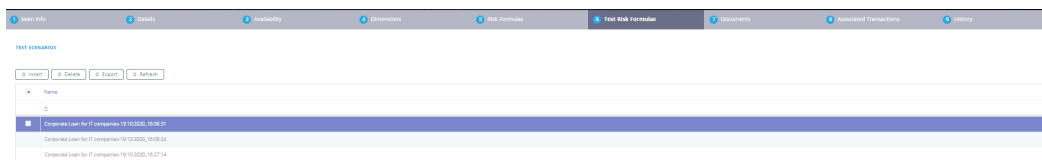
Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.



Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.



Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

1 Main Info 2 Details 3 Availability 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 **Documents** 8 Associated Transactions 9 History

Banking Product Document

+ Insert X Delete Export Refresh

Reportid	Banking Copies No	Operation Code
ACContractLG	1	
LoanContract	2	

Banking Product Agreement

+ Insert X Delete Export Refresh

Code

To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

ADD BANKING PRODUCT DOCUMENT

Banking Product Document

Operation Code: 113559 Banking Copies No: 2 Report: Document Type: Credit Application

Is Mandatory: Yes No Includes Debtor: Yes No Includes Coborrower: Yes No Requires Signature: Yes No

Is Accord: Yes No

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

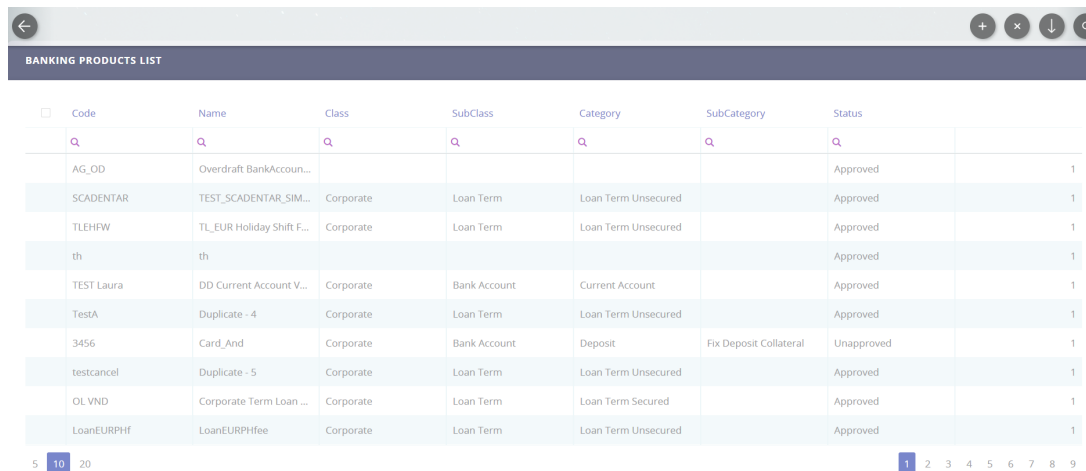
Here you can track the product's life cycle and review older versions that are no longer active (for details, see "[Banking Products' Life Cycle](#)" on page 373).

Cards

A card is a payment card issued by a bank. Cards let customers access funds in checking or savings accounts or make purchases.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.
4. Click **Banking Products** to open the **Banking Products List** page.



<input type="checkbox"/>	Code	Name	Class	SubClass	Category	SubCategory	Status	
	AG_OD	Overdraft BankAccoun...					Approved	1
	SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	TLEHPW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	th	th					Approved	1
	TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
	TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
	testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
	LoanEURPHF	LoanEURPHFee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

NOTE

For banking products in **Active** status, you can't change any of their related entities

(such as features, discounts, product guarantee, interest or commission item, formula, test scenario, product covenant, product disbursement, product availability item filter). To change any of the product's related entities, create a new version of the banking product record.

Creating Cards

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.
8. **History** - This tab displays the versions of the product, along with workflow status and the user who modified the product.

Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> • Bank Account • Term Loan • Card • Overdraft • Leasing • Mortgage • Credit Card • Deposit <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a6c9ec;"> <p>NOTE Your product type selection greatly influences the next steps. It is important to choose the right type of product to build.</p> </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.

Field	Required	Data Type	Details
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

IMPORTANT! For cards, select Product Type = **Card**.

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

Details

The **Details** tab requires further elements such as interest, payment type, top-ups and withdrawals.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> • Current Account • Savings Account • Fix Deposit Account • Term Deposit Account • Loan Term Account.
Is Revolving	No	Bool	Allows a business to borrow money as needed for funding working capital needs and continuing operations such as meeting payroll and payables.
Auto Disbursement	Yes	Bool	Specifies if the disbursement is automatically performed when the contract is approved.
Max No Disbursements	No	Whole number	The maximum number of disbursements that can be configured for this product.
Is Guaranteed	Yes	Bool	<p>This checkbox marks the product as secured or unsecured.</p> <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE The Collateral Cover Percent field appears when you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Activation Tranches On Document Submission	No	Bool	Tranches to be granted after certain documents are submitted.
Allow Collateral Partial Release	No	Bool	A partial release is a mortgage provision that allows some of the collateral to be released from a mortgage after the borrower pays a certain amount of the loan.
Collateral Cover Percent	No	Whole number	The percent that the collateral person on the contract pays. It usually is over 100%.
Allow CoDebtor	No	Bool	Select if another debtor exists for this product.
Allow Refinancing	No	Bool	Select if the account can be refinanced for this product.
Maximum Number of CoDebtors	No	Text	Set the maximum number of debtors possible for this product.
Interest Is Capitalized	No	Bool	Only applicable if there is an interest rate. Select if true.
Interest Payment Type	No	Option Set	Select the regularity of interest payments. Select one from the following: <ul style="list-style-type: none"> • Once (the whole interest amount is paid at maturity) • Monthly • Trimester • Semestrial • Annual.

Field	Required	Data Type	Details
Auto Rollover	No	Bool	If the checkbox is selected, the contract is renewed at maturity date in exactly the same conditions. If it remains unchecked, the contract is automatically closed at maturity date. The field is used mostly for deposits or any product that can undergo the extension of contract.
Allow Negotiated IR	No	Bool	Select if for this product the interest rate is negotiable.
Allow Top Ups	No	Bool	Select if the amount can be topped up with a sum of money.
Allow Withdrawals	No	Bool	Select if the customer can take out money for this product.

Click the **Save and Reload** button at the top right corner of the page.

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> • Once (the whole amount is paid at maturity) • Weekly • Monthly • Bimonthly • Trimestrial • 4 Weeks • Semestrial • Annual • 30Days. <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #ccc; margin-top: 10px;"> <p>NOTE If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The repayment allocation method represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE The Country Calendars section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> • None - the due date is not shifted. • Forward - the due date is shifted to the last working day before the initially calculated due date. • Backward - the due date is shifted to the next working day after the initially calculated due date. <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>
Grace Type	No	Option set	<p>Select one from the list:</p> <ul style="list-style-type: none"> • Both • Principle • Interest.

Field	Required	Data Type	Details
Product Grace	No	Option set	Select one from the list.
Grace Days for Repayment	No	Whole number	Select one from the list. Insert the number of days for which the grace applies.

In the **Country calendars** section, you can insert or delete calendars. You can work with multiple calendars as well. Click the **Insert Existing** button and add the country's name. If the maturity date coincides with a holiday, it is allocated automatically on the next business day.

In the **Payment Schedule Types** section, you can associate/ delete payment schedule types to/ from the banking product. To associate a payment schedule type to the banking product, click **Insert Existing** and select one of the already defined types. Go to "[Payment Schedule Types](#)" on page 350 to read more about this.

Click the **Save and Reload** button at the top right corner of the page.

In the **Disbursement Matrix** section, create or insert existing disbursement tranches, configured to fit the product. Usually used for corporate loans, such dividend payments or cash outflows are not done in equal amounts and usually trigger a recalculation in terms of interest. Add multiple such disbursements by clicking the **Insert** button. You can add:

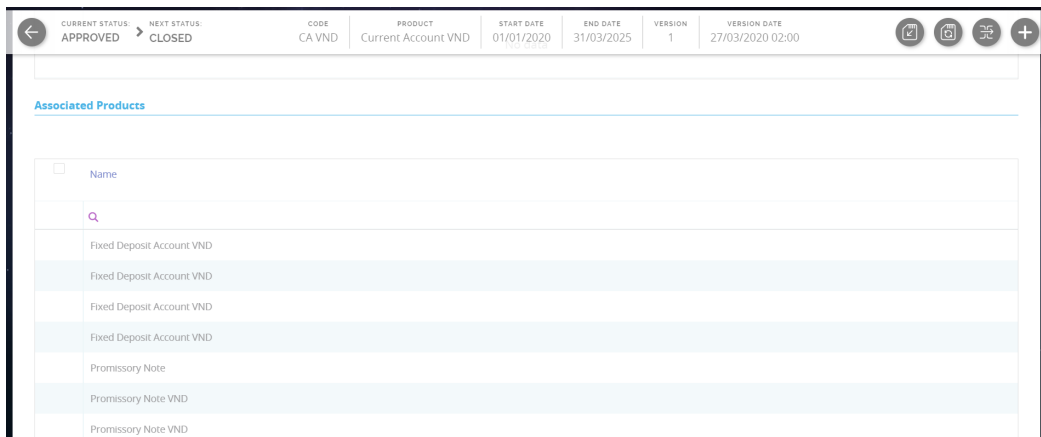
- Name.
- Tranche Percent (%): the percentage of the final amount that goes towards the disbursement.
- Start Month From Activation: the start month for the disbursement. It can be any month in the loan availability period.
- Interest Percent (%): the interest percent for that particular disbursement.
- Unusage Commission Percent (%): a commission paid for the loan amount unused.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing

destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.



Click the **Save and Reload** button at the top right corner of the page.

Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

BANKING PRODUCT FACTORY USER GUIDE

1 Main Info 2 Details 3 **Availability** 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 Documents 8 Associated Transactions 9 History

Product Availability

Currency: EUR

Period Type: Months

Minimum Period: 12

Maximum Period: 120

Minimum Amount: 0

Maximum Amount: 1,000,000

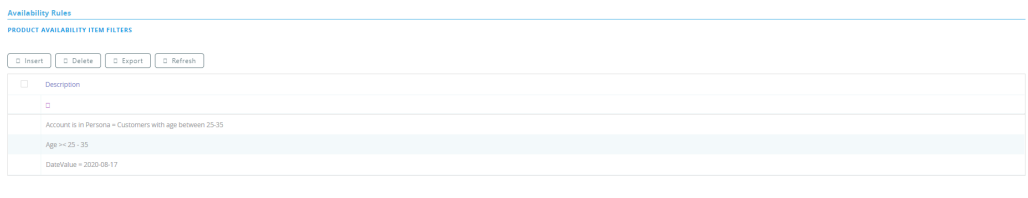
Self Bank Account Associated With The Product

The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.
Period Type	No	Option set	Choose one: <ul style="list-style-type: none"> • Days • Weeks • Months • Years • Once. <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE The period type must be the same as the measurement unit of the Periodicity Type selected in the Details tab.</p> </div>
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.

Field	Required	Data Type	Details
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see "[Product Filter](#)" on page 339.



Click the **Save and Reload** button at the top right corner of the page.

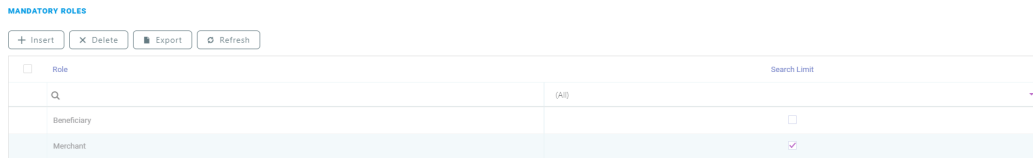
In the **Product Covenants** section you can set certain conventions that applicants must abide by after getting the loan. This is usually applicable for corporate clients that must meet certain requirements in order to continue to receive disbursements. Click the **Insert** button to add a covenant to the product. You can select from 3 possible covenants:

- *Borrowers should perform tax obligations*: the lenders expect the borrowers to perform their tax obligations to both the business and towards their employees. This covenant is of type affirmative.
- *Lender can monitor borrower's current ratio*: the lender may continuously monitor the borrower's current ratio to ensure it stays relatively attractive and promising. This covenant is of type financial.
- *Lender posses the right to prevent merges or acquisitions*: a clear stipulation that the lender possesses the right to prevent merges of acquisitions without proper notification or full knowledge of the process. This covenant is of type negative.

Each covenant can be attributed a value, an availability period, and a review frequency in months.

After all configurations are done, click the **Save and Reload** button.

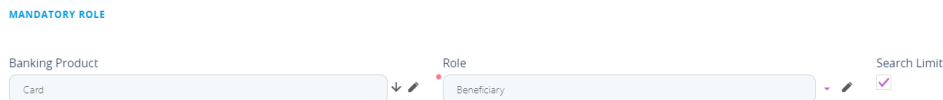
The **Mandatory Roles** section allows you to add the roles of the participants that are mandatory to exist at the contract level for contracts based on this banking product. In other words, when creating contracts based on banking products with Merchant role in this section, you must add a customer with the same Merchant role as contract participant, otherwise, the contract cannot be approved. When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role, in this case Merchant Exposure.



In the **Mandatory Roles** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Lookup	The banking product for which you define mandatory roles. This is automatically completed with the current banking product.
Role	Yes	Option set	Select the beginning value/ date for the filter.
Search Limit	Yes	Boolean	When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role.

ADD MANDATORY ROLE



Click the **Save and Reload** button at the top right corner of the page.

Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the Save and Reload button. The values/ dates inserted above are turned into an expression.
For Lookup attributes			
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.
Grid of Options	No	Grid	This field is automatically filled in after clicking the Save and Reload button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter: EducationLevel

OptionSet: Education Type

Description

Refresh

Name	DisplayName
Highschool	Baccalaureat
No studies / Primary school	Fara studii sau scoala primara
Gymnasium studies	Gymnasium studies
High school	High school
Higher education	Licenta
higherEducation	Licenta universitara
postgraduate	Master/MBA/EMBA/Dr.
Postgraduate studies (MBA, MA, ACCA, CFA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.

Field	Required	Data Type	Details
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount . Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount . Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount . Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.

Field	Required	Data Type	Details
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> • text • numeric • option set.
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

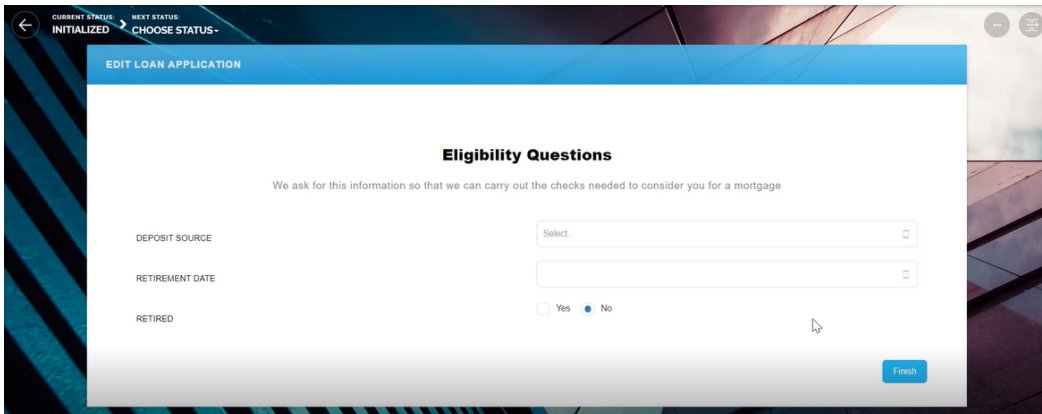
The **Banking Products List** shows where the question is used.

IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:



Risk Formulas

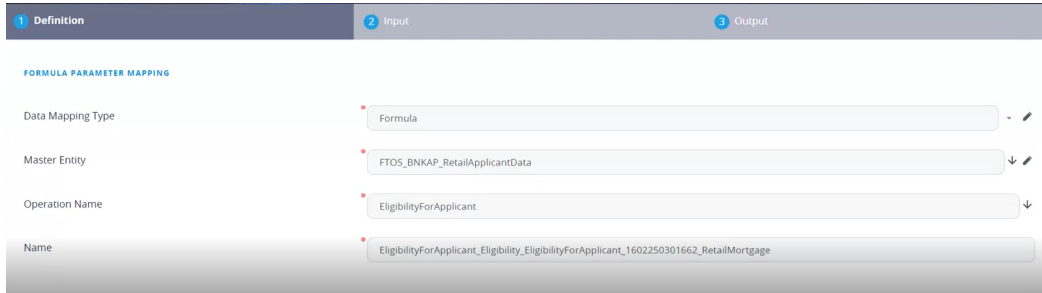
The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

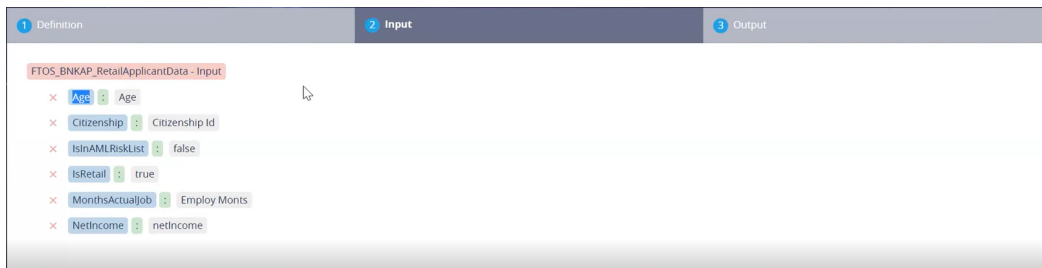
In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. <div style="border: 1px solid #ccc; background-color: #f9e79f; padding: 10px; margin-top: 10px;"> <p>IMPORTANT! The formula must be activated before attaching it to a product.</p> </div>

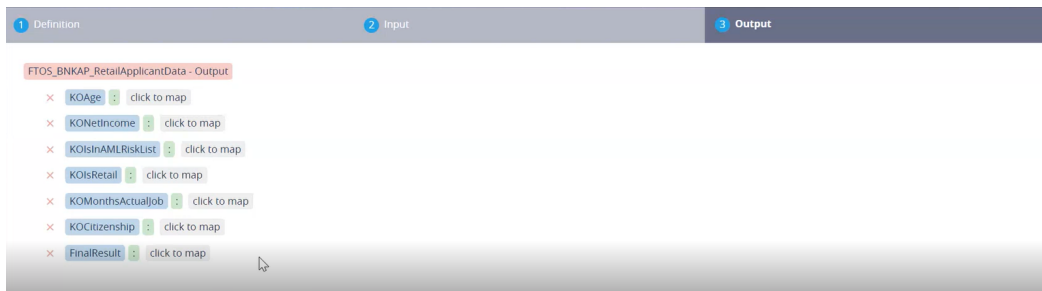
After selecting the desired formula, click **Save and reload**, then click **Map Data**.



In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

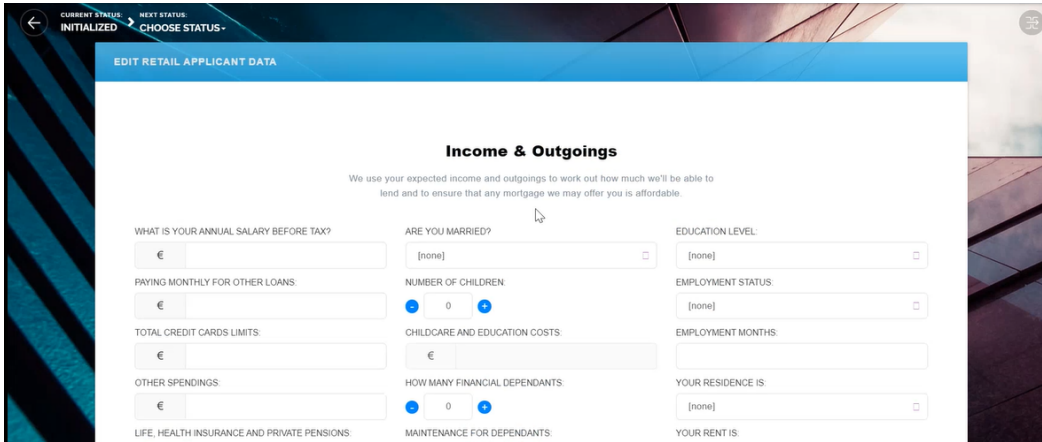


Click **Output** and configure the output for the formula.



Click the **Save and Close** button at the top right corner of the page.

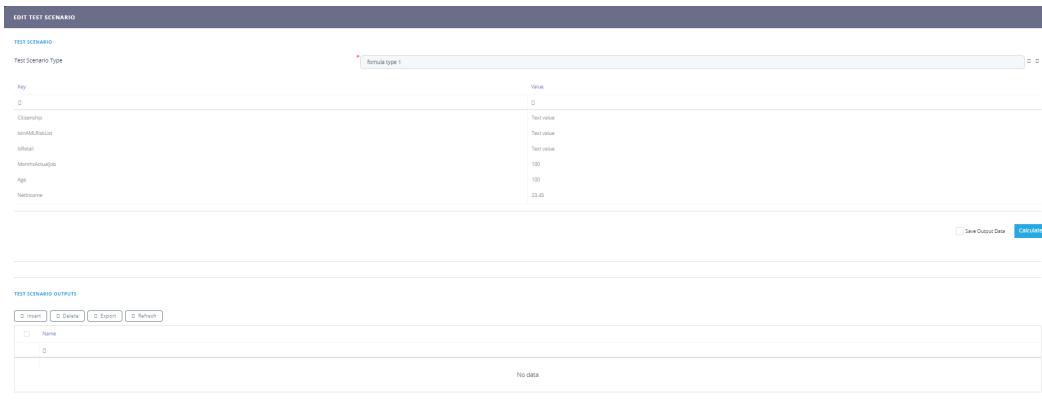
Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.



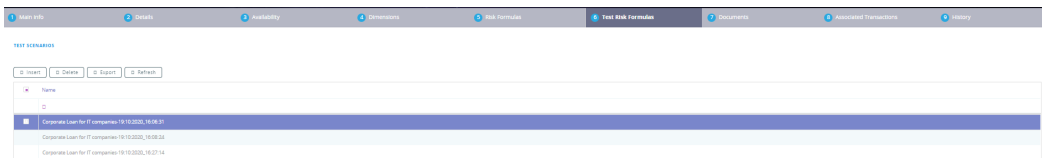
Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.



Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.



Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see "[Banking Products' Life Cycle](#)" on page 373).

Credit Cards

A credit card allows the customer to make purchases without bringing out any amount of cash. Instead, the customer borrows funds from the issuing bank, to make purchases.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.
4. Click **Banking Products** to open the **Banking Products List** page.

Code	Name	Class	SubClass	Category	SubCategory	Status	
AG_OD	Overdraft BankAccoun...					Approved	1
SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
TLEHFW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
th	th					Approved	1
TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
TestA	Duplicate -4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
testcancel	Duplicate -5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
LoanEURPHf	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

NOTE

For banking products in **Active** status, you can't change any of their related entities (such as features, discounts, product guarantee, interest or commission item, formula, test scenario, product covenant, product disbursement, product availability item filter). To change any of the product's related entities, create a new version of the banking product record.

Creating Credit Cards

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.
8. **History** - This tab displays the versions of the product, along with workflow status and the user who modified the product.

Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> • Bank Account • Term Loan • Card • Overdraft • Leasing • Mortgage • Credit Card • Deposit <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a0c4ff;"> <p>NOTE Your product type selection greatly influences the next steps. It is important to choose the right type of product to build.</p> </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.

Field	Required	Data Type	Details
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

IMPORTANT!For credit cards, select Product Type = **CreditCards**.

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.

Field	Required	Data Type	Details
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

Details

The **Details** tab requires further elements such as interest, payment type, top-ups and withdrawals.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	Choose one from the following: <ul style="list-style-type: none"> • Current Account • Savings Account • Fixed Deposit Account • Term Deposit Account • Loan Term Account.
Is Revolving	No	Bool	Allows a business to borrow money as needed for funding working capital needs and continuing operations such as meeting payroll and payables.

Click the **Save and Reload** button at the top right corner of the page.

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> • Once (the whole amount is paid at maturity) • Weekly • Monthly • Bimonthly • Trimestrial • 4 Weeks • Semestrial • Annual • 30Days. <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a6c9ec;"> <p>NOTE If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>
Capital Percent (%)	No	Numeric	Enter the percent of capital that must be paid back on the selected periodicity type basis.

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The repayment allocation method represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div style="background-color: #e1eef6; padding: 10px; border-radius: 5px;"> <p>NOTE The Country Calendars section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> • None - the due date is not shifted. • Forward - the due date is shifted to the last working day before the initially calculated due date. • Backward - the due date is shifted to the next working day after the initially calculated due date. <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>
Grace Type	No	Option set	<p>Select one from the list:</p> <ul style="list-style-type: none"> • Both • Principle • Interest.

Field	Required	Data Type	Details
Product Grace	No	Option set	Select one from the list.
Grace Days for Repayment	No	Whole number	Select one from the list. Insert the number of days for which the grace applies.

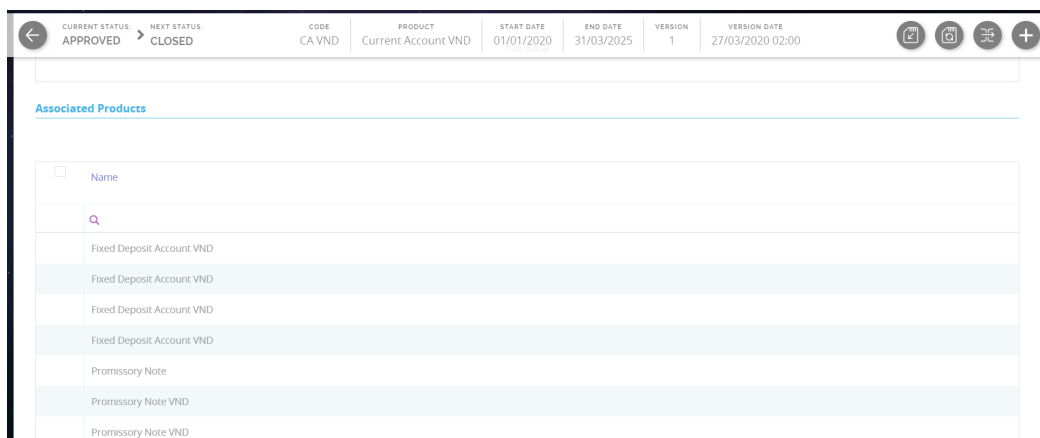
In the **Payment Schedule Types** section, you can associate/ delete payment schedule types to/ from the banking product. To associate a payment schedule type to the banking product, click **Insert Existing** and select one of the already defined types. Go to "[Payment Schedule Types](#)" on page 350 to read more about this.

Click the **Save and Reload** button at the top right corner of the page.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.



Click the **Save and Reload** button at the top right corner of the page.

Availability

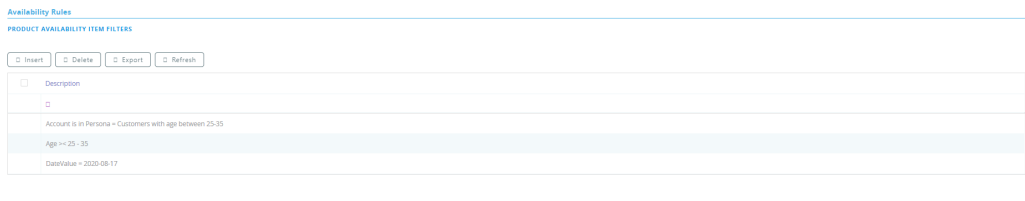
The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.

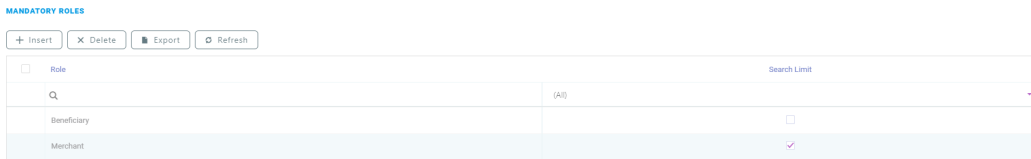
Field	Required	Data Type	Details
Period Type	No	Option set	<p>Choose one:</p> <ul style="list-style-type: none"> • Days • Weeks • Months • Years • Once. <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE The period type must be the same as the measurement unit of the Periodicity Type selected in the Details tab.</p> </div>
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see "[Product Filter](#)" on page 339.



Click the **Save and Reload** button at the top right corner of the page.

The **Mandatory Roles** section allows you to add the roles of the participants that are mandatory to exist at the contract level for contracts based on this banking product. In other words, when creating contracts based on banking products with Merchant role in this section, you must add a customer with the same Merchant role as contract participant, otherwise, the contract cannot be approved. When **Search Limit** is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role, in this case Merchant Exposure.



In the **Mandatory Roles** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Lookup	The banking product for which you define mandatory roles. This is automatically completed with the current banking product.
Role	Yes	Option set	Select the beginning value/ date for the filter.
Search Limit	Yes	Boolean	When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role.

Click the **Save and Reload** button at the top right corner of the page.

Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.

Field	Required	Data Type	Details
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the Save and Reload button. The values/ dates inserted above are turned into an expression.
For Lookup attributes			
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.

Field	Required	Data Type	Details
Grid of Options	No	Grid	This field is automatically filled in after clicking the Save and Reload button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter:

OptionSet:

Description:

Name	Display Name
<input checked="" type="checkbox"/> High school	Bacalaureat
<input checked="" type="checkbox"/> No studies / Primary school	Fara studii sau scoala primara
<input checked="" type="checkbox"/> Gymnasium studies	Gymnasium studies
<input checked="" type="checkbox"/> High school	High school
<input checked="" type="checkbox"/> Higher education	Licenta
<input type="checkbox"/> Higher Education	Licenta universitara
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CPA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.

Field	Required	Data Type	Details
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount . Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount . Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount . Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.

Field	Required	Data Type	Details
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> • text • numeric • option set.
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

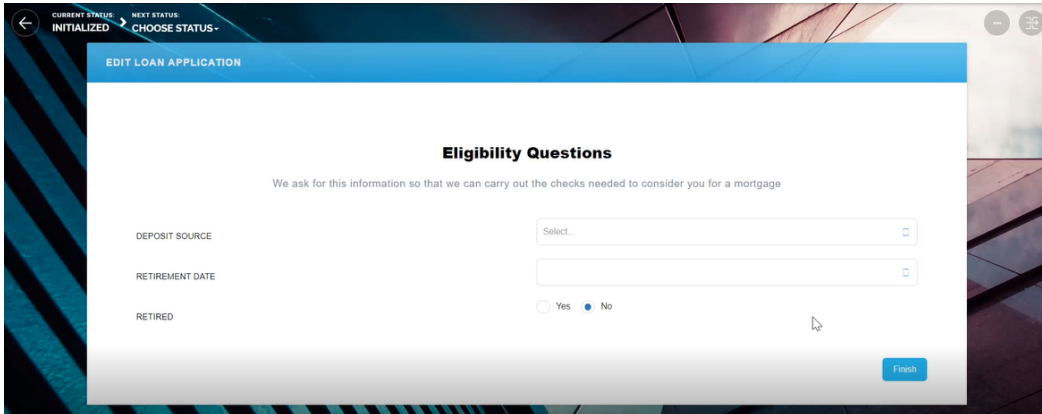
The **Banking Products List** shows where the question is used.

IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:



Risk Formulas

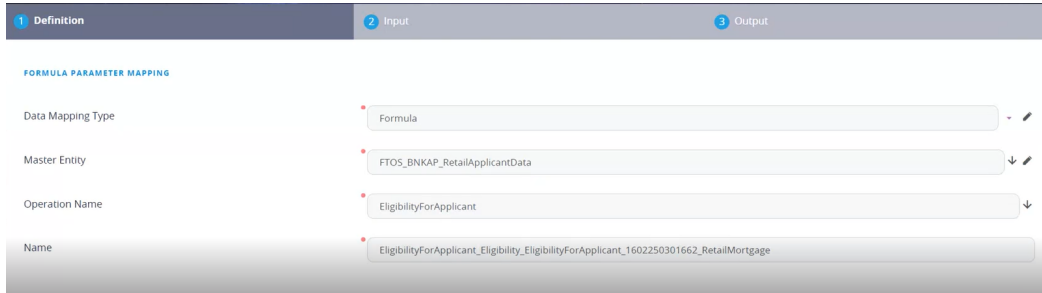
The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

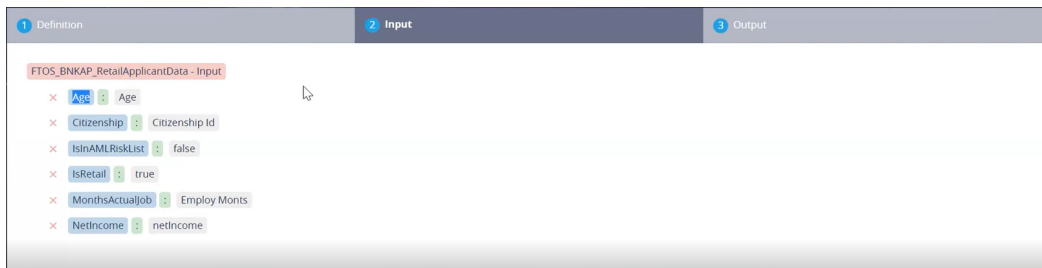
In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. IMPORTANT! The formula must be activated before attaching it to a product.

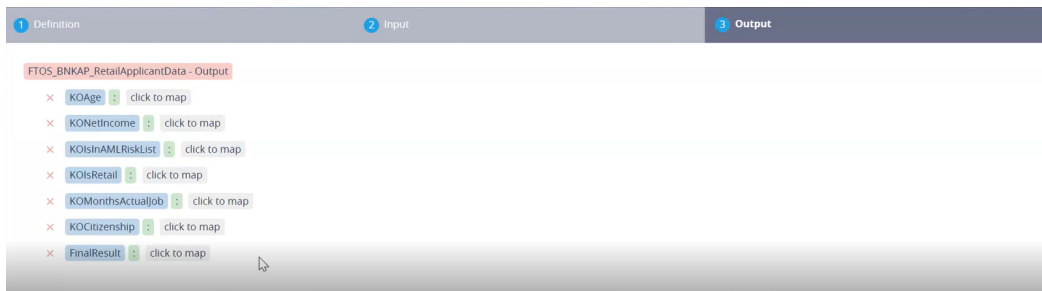
After selecting the desired formula, click **Save and reload**, then click **Map Data**.



In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

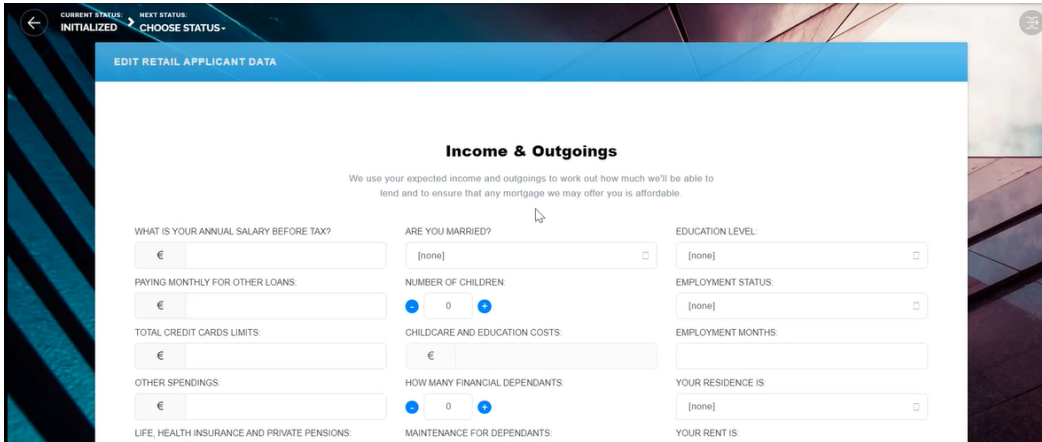


Click **Output** and configure the output for the formula.



Click the **Save and Close** button at the top right corner of the page.

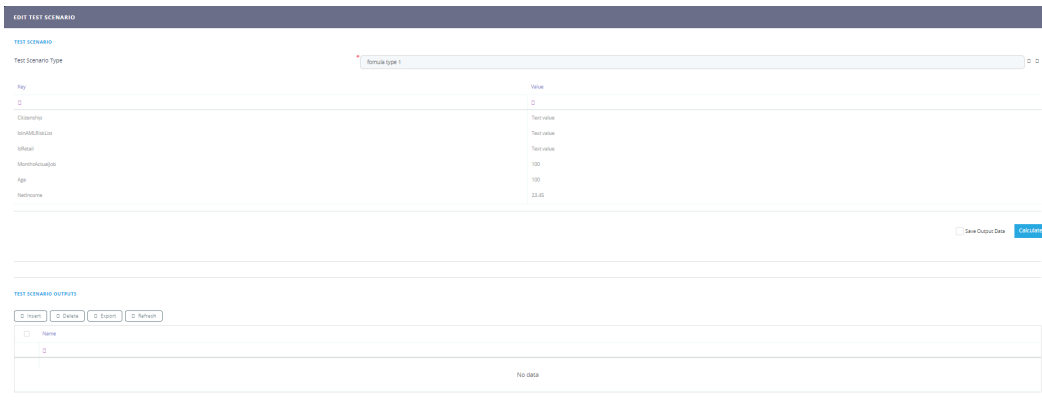
Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.



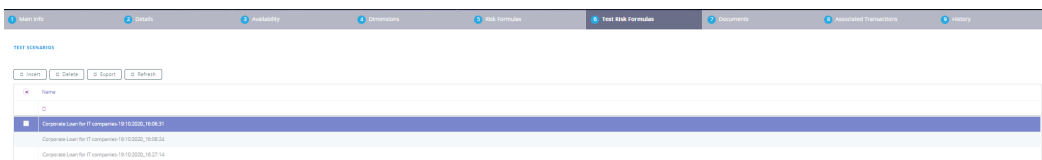
Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.



Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.



Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

1 Main Info 2 Details 3 Availability 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 **Documents** 8 Associated Transactions 9 History

Banking Product Document

+ Insert X Delete Export Refresh

Reportid	Banking Copies No	Operation Code
ACContractLG	1	
LoanContract	2	

Banking Product Agreement

+ Insert X Delete Export Refresh

Code

To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

ADD BANKING PRODUCT DOCUMENT

Banking Product Document

Operation Code: 113559 Banking Copies No: 2 Report: Document Type: Credit Application

Is Mandatory: Yes No Includes Debtor: Yes No Includes Coborrower: Yes No Requires Signature: Yes No

Is Accord: Yes No

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see "[Banking Products' Life Cycle](#)" on page 373).

Deposits

A deposit account is a bank account maintained by a financial institution in which a customer can deposit and withdraw money. Deposit accounts can be current accounts/ transactional accounts, savings accounts, deposit collateral accounts or term deposits accounts.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.
4. Click **Banking Products** to open the **Banking Products List** page.

<input type="checkbox"/>	Code	Name	Class	SubClass	Category	SubCategory	Status	
	AG_OD	Overdraft BankAccoun...					Approved	1
	SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	TLEHPW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	th	th					Approved	1
	TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
	TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
	testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	OLVND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
	LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

NOTE

For banking products in **Active** status, you can't change any of their related entities (such as features, discounts, product guarantee, interest or commission item, formula, test scenario, product covenant, product disbursement, product availability item filter). To change any of the product's related entities, create a new version of the banking product record.

Creating Deposits

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determine the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.
8. **History** - The last tab displays the versions of the product, along with workflow status and the user who modified the product.

Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> • Bank Account • Term Loan • Card • Overdraft • Leasing • Mortgage • Credit Card • Deposit <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a0c4ff; margin-top: 10px;"> <p>NOTE Your product type selection greatly influences the next steps. It is important to choose the right type of product to build.</p> </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.

Field	Required	Data Type	Details
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

IMPORTANT!For deposits, select Product Type = **Deposit**.

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

Details

The **Details** tab requires further elements such as interest, payment type or product destination types.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> • Current Account • Savings Account • Fix Deposit Account • Term Deposit Account • Loan Term Account. <p>Each bank account type have different configuration and behavior, but these won't be impacted by the values selected in the bank account type list. This information is useful in grouping the bank accounts and for Operational Ledger records. The products that have the Product Type field set to Fix Deposit Account can be registered in the collateral register in order to become a guarantee for a secured loan banking product.</p>
Is Revolving	No	Bool	Allows a business to borrow money as needed for funding working capital needs and continuing operations such as meeting payroll and payables.
Auto Disbursement	Yes	Bool	Specifies if the disbursement is automatically performed when the contract is approved.

Field	Required	Data Type	Details
Max No Disbursements	No	Whole number	The maximum number of disbursements that can be configured for this product.
Is Guaranteed	Yes	Bool	<p>This checkbox marks the product as secured or unsecured.</p> <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE The Collateral Cover Percent field appears when you select this checkbox.</p> </div>
Allow Collateral Partial Release	No	Bool	A partial release is a mortgage provision that allows some of the collateral to be released from a mortgage after the borrower pays a certain amount of the loan.
Collateral Cover Percent	No	Whole number	The percent that the collateral person on the contract pays. It usually is over 100%.
Allow CoDebtor	No	Bool	Select if another debtor exists for this product.
Allow Refinancing	No	Bool	Select if the account can be refinanced for this product.
Maximum Number of CoDebtors	No	Text	Set the maximum number of debtors possible for this product.

Field	Required	Data Type	Details
Interest Is Capitalized	No	Bool	<p>Only applicable if there is an interest rate.</p> <ul style="list-style-type: none"> • If the checkbox is not selected, the interest is paid in the account specified on the contract. • If selected, then the interest is added over the product amount, so that on the next payment date the customer receives the interest applied on both interest and product amount.
Interest Payment Type	No	Option Set	<p>Select the regularity of interest payments. Select one from the following:</p> <ul style="list-style-type: none"> • Once (the whole interest amount is paid at maturity) • Monthly • Trimester • Semestrial • Annual.

Field	Required	Data Type	Details
Auto Rollover	No	Bool	<p>If the checkbox is selected, the contract is renewed at maturity date in exactly the same conditions.</p> <p>If it remains unchecked, the contract is automatically closed at maturity date. The field is used mostly for deposits or any product that can undergo the extension of contract.</p>

Field	Required	Data Type	Details
Allow Negotiated IR	No	Bool	<p>Select if the interest rate is negotiable for this product at the contract level.</p> <ul style="list-style-type: none"> • If selected, the Total Interest Rate field from the banking contract is automatically completed with the value configured on the banking product, but it is editable, so that the bank can change this value and insert the negotiated one. • If not selected, the Total Interest Rate field from the banking contract is automatically completed with the value configured on the banking product, but the value is read-only and cannot be changed.

Field	Required	Data Type	Details
Allow Top Ups	No	Bool	<p>Select if the amount can be topped up with a sum of money.</p> <ul style="list-style-type: none"> If selected, the Top Up Account transaction is automatically loaded , which means that the customer is allowed to make top ups at the contract level. When a top up transaction is recorded in a contract, at the next maturity date the customer receives the interest for the initial amount up until the top up date, plus the interest for the full amount (initial amount + top up amount) proportional from top up to payment date. If not selected, the

BANKING PRODUCT FACTORY USER GUIDE

Field	Required	Data Type	Details
			top up transaction is not allowed at the contract level.

Field	Required	Data Type	Details
Allow Withdrawals	No	Bool	<p>Select if the customer can take out money for this product.</p> <ul style="list-style-type: none"> • If selected, the Withdraw and Transfer between my bank accounts transactions are automatically loaded , which means that the customer is allowed to make withdrawals at the contract level. • If not selected, the Withdraw and Transfer between my bank accounts transactions are not loaded, thus these transaction types are not allowed at the contract level. In order to have access to the funds before maturity date, the customer has to

Field	Required	Data Type	Details
			liquidate the deposit. In this case the interest is not paid.

Click the **Save and Reload** button at the top right corner of the page.

The screenshot shows the 'Details' tab of the Banking Product Factory interface. The 'General Data' section includes the following fields:

- Bank Account Type:** Term Deposit Account
- Is Revolving:**
- Auto Disbursement:**
- Max No Disbursements:** [Input field]
- Is Guaranteed:**
- Allow Collateral Partial Release:**
- Allow CoDebtor:**
- Allow Refinancing:**
- Max No. Of CoDebtors:** [Input field]
- Interest Is Capitalized:**
- Interest Payment Type:** Monthly
- Auto Roll Over:**
- Allow negotiated IR:**
- Allow Top Ups:**
- Allow Withdrawals:**

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> • Once (the whole amount is paid at maturity) • Weekly • Monthly • Bimonthly • Trimestrial • 4 Weeks • Semestrial • Annual • 30Days. <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a6c9ec; margin-top: 10px;"> <p>NOTE If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The repayment allocation method represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a0c4ff;"> <p>NOTE The Country Calendars section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> • None - the due date is not shifted. • Forward - the due date is shifted to the last working day before the initially calculated due date. • Backward - the due date is shifted to the next working day after the initially calculated due date. <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>

Field	Required	Data Type	Details
Grace Type	No	Option set	If you wish to grant a grace period for the product, select the applicable type of grace from the list: <ul style="list-style-type: none"> • Both • Principle • Interest.
Product Grace	No	Option set	Select one from the list.
Grace Days for Repayment	No	Whole number	Insert the number of days for which the grace period applies.

In the **Country calendars** section, you can insert or delete calendars. You can work with multiple calendars as well. Click the **Insert Existing** button and add the country's name. If the maturity date coincides with a holiday, it is allocated automatically on the next business day.

In the **Payment Schedule Types** section, you can associate/ delete payment schedule types to/ from the banking product. To associate a payment schedule type to the banking product, click **Insert Existing** and select one of the already defined types. Go to "[Payment Schedule Types](#)" on page 350 to read more about this.

Click the **Save and Reload** button at the top right corner of the page.

In the **Disbursement Matrix** section, create or insert existing disbursement tranches, configured to fit the product. Usually used for corporate loans, such dividend payments or cash outflows are not done in equal amounts and usually trigger a recalculation in terms of interest. Add multiple such disbursements by clicking the **Insert** button. You can add:

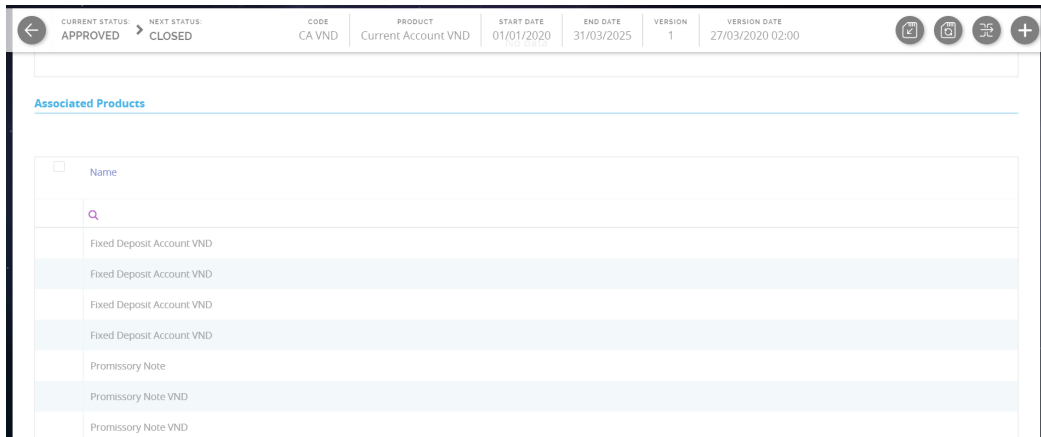
- Name.
- Tranche Percent (%): the percentage of the final amount that goes towards the disbursement.
- Start Month From Activation: the start month for the disbursement. It can be any month in the loan availability period.

- Interest Percent (%): the interest percent for that particular disbursement.
- Unusage Commission Percent (%): a commission paid for the loan amount unused.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.



Click the **Save and Reload** button at the top right corner of the page.

Availability

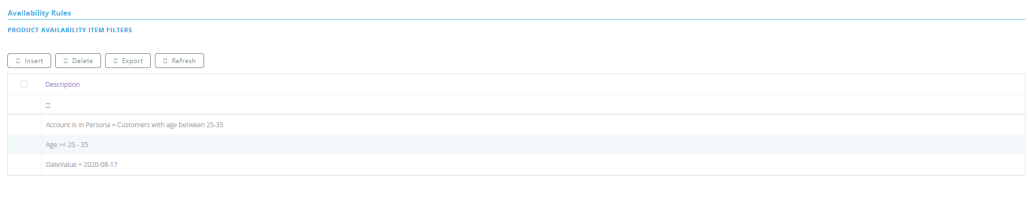
The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.
Period Type	No	Option set	Choose one: <ul style="list-style-type: none"> • Days • Weeks • Months • Years • Once. <div style="background-color: #e1eef6; padding: 10px; margin-top: 10px;"> <p>NOTE The period type must be the same as the measurement unit of the Periodicity Type selected in the Details tab.</p> </div>

Field	Required	Data Type	Details
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see ["Product Filter" on page 339](#).



Click the **Save and Reload** button at the top right corner of the page.

In the **Product Covenants** section you can set certain conventions that applicants must abide by after getting the loan. This is usually applicable for corporate clients that must meet certain requirements in order to continue to receive disbursements. Click the **Insert** button to add a covenant to the product. You can select from 3 possible covenants:

- *Borrowers should perform tax obligations:* the lenders expect the borrowers to perform their tax obligations to both the business and towards their employees. This covenant is of type affirmative.
- *Lender can monitor borrower's current ratio:* the lender may continuously monitor the borrower's current ratio to ensure it stays relatively attractive and promising. This covenant is of type financial.
- *Lender posses the right to prevent merges or acquisitions:* a clear stipulation that the lender possesses the right to prevent merges of

acquisitions without proper notification or full knowledge of the process. This covenant is of type negative.

Each covenant can be attributed a value, an availability period, and a review frequency in months.

After all configurations are done, click the **Save and Reload** button.

The **Mandatory Roles** section allows you to add the roles of the participants that are mandatory to exist at the contract level for contracts based on this banking product. In other words, when creating contracts based on banking products with Merchant role in this section, you must add a customer with the same Merchant role as contract participant, otherwise, the contract cannot be approved. When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role, in this case Merchant Exposure.



In the **Mandatory Roles** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Lookup	The banking product for which you define mandatory roles. This is automatically completed with the current banking product.
Role	Yes	Option set	Select the beginning value/ date for the filter.
Search Limit	Yes	Boolean	When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role.

Click the **Save and Reload** button at the top right corner of the page.

Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.

Field	Required	Data Type	Details
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the Save and Reload button. The values/ dates inserted above are turned into an expression.
For Lookup attributes			
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.

Field	Required	Data Type	Details
Grid of Options	No	Grid	This field is automatically filled in after clicking the Save and Reload button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter:

OptionSet:

Description:

Name	Display Name
<input checked="" type="checkbox"/> High school	Bacalaureat
<input checked="" type="checkbox"/> No studies / Primary school	Fara studii sau scoala primara
<input checked="" type="checkbox"/> Gymnasium studies	Gymnasium studies
<input checked="" type="checkbox"/> High school	High school
<input checked="" type="checkbox"/> Higher education	Licenta
<input type="checkbox"/> Higher Education	Licenta universitara
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CPA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.

Field	Required	Data Type	Details
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount . Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount . Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount . Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.

Field	Required	Data Type	Details
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> • text • numeric • option set.
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

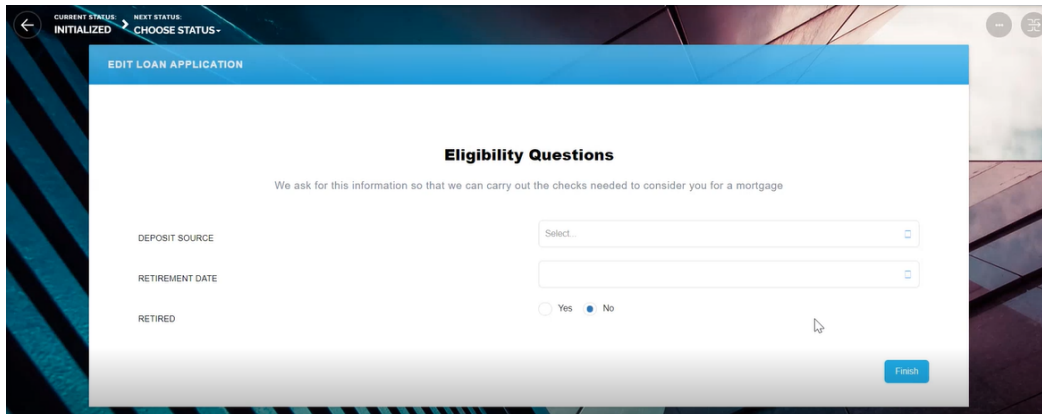
The **Banking Products List** shows where the question is used.

IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:



Risk Formulas

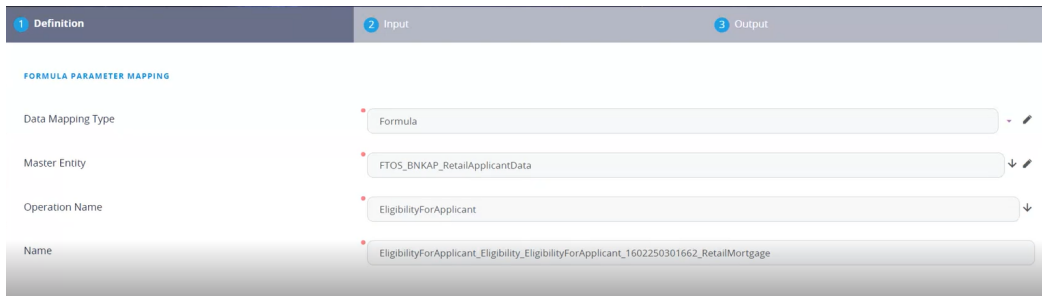
The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

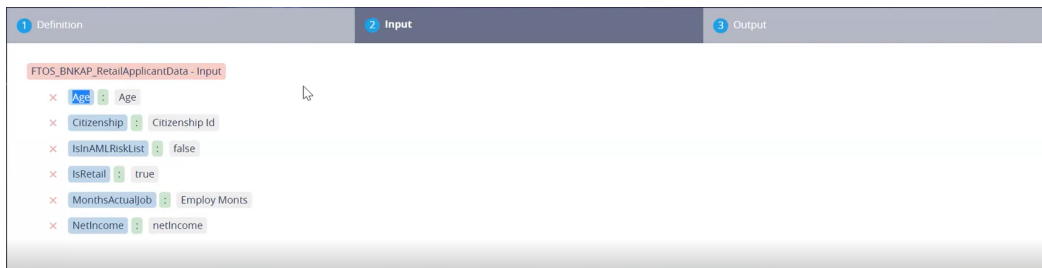
In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. IMPORTANT! The formula must be activated before attaching it to a product.

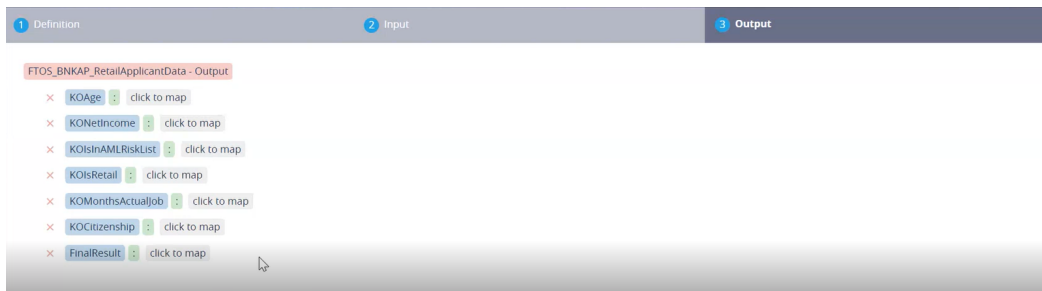
After selecting the desired formula, click **Save and reload**, then click **Map Data**.



In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

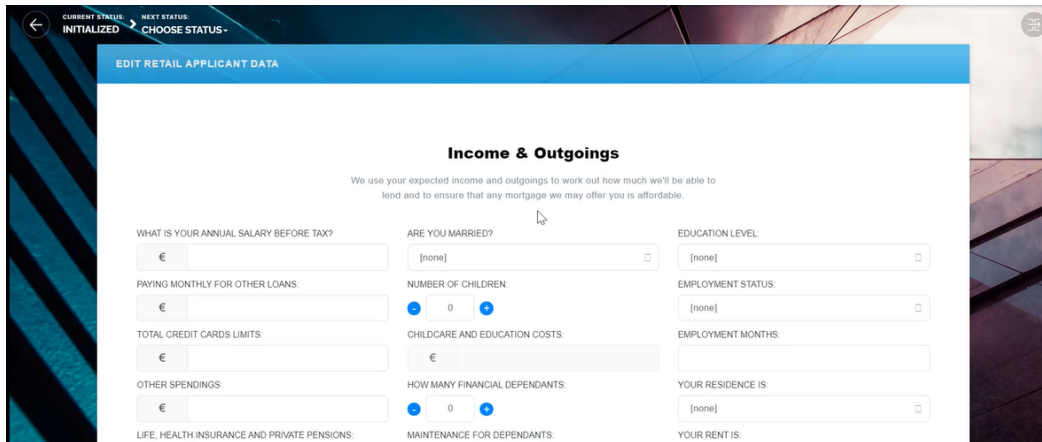


Click **Output** and configure the output for the formula.



Click the **Save and Close** button at the top right corner of the page.

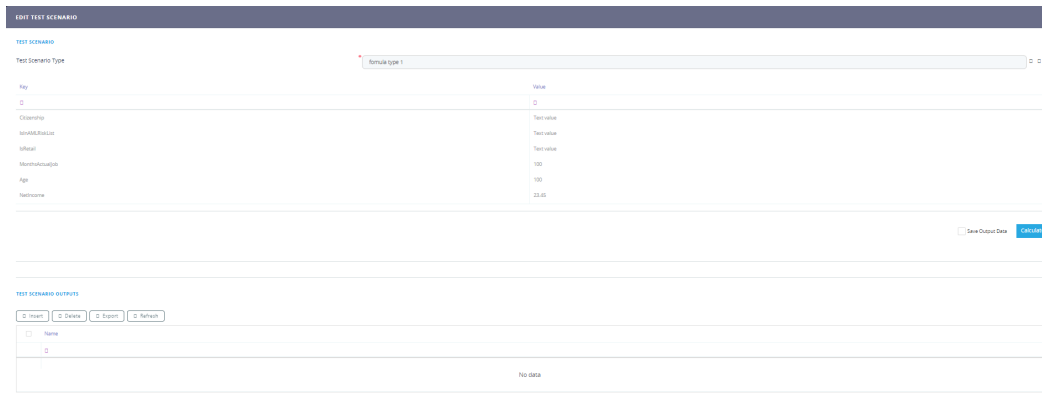
Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.



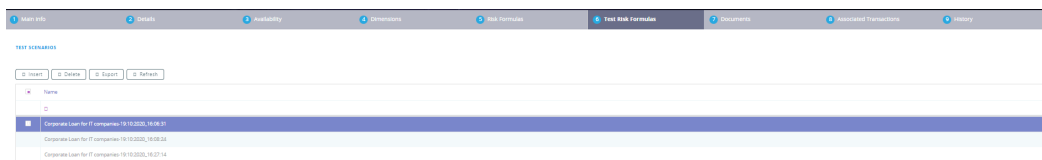
Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.



Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.



Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

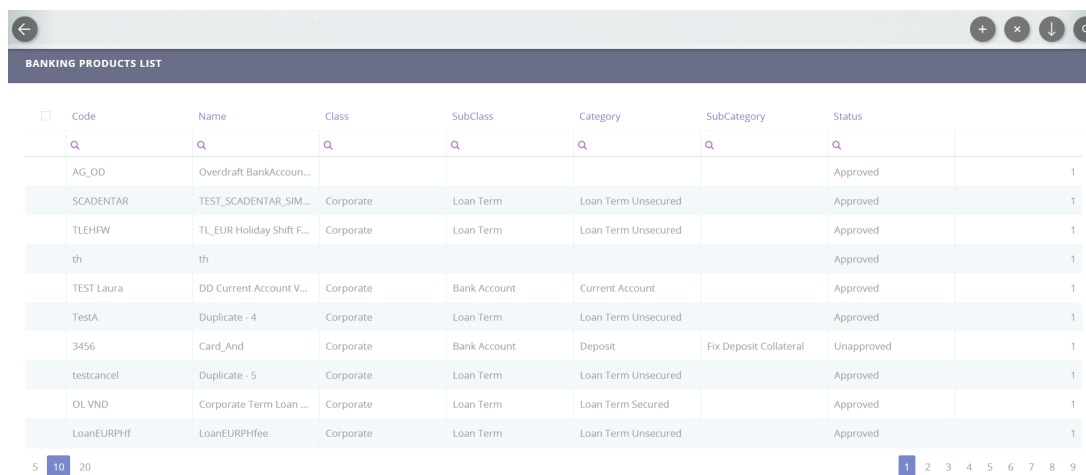
Here you can track the product's life cycle and review older versions that are no longer active (for details, see "[Banking Products' Life Cycle](#)" on page 373).

Leasings

A lease is a written agreement specifying the conditions under which a lessor accepts to let out a property to be used by a lessee. The agreement promises the lessee use of the property for an agreed length of time while the owner is assured consistent payment over the agreed period.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.
4. Click **Banking Products** to open the **Banking Products List** page.



Code	Name	Class	SubClass	Category	SubCategory	Status	
AG_OD	Overdraft BankAccoun...					Approved	1
SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
TLEHPW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
th	th					Approved	1
TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

NOTE

For banking products in **Active** status, you can't change any of their related entities (such as features, discounts, product guarantee, interest or commission item, formula, test scenario, product covenant, product disbursement, product availability item filter). To change any of the product's related entities, create a new version of the banking product record.

Creating Leasings

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.
8. **History** - This tab displays the versions of the product, along with workflow status and the user who modified the product.

Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> • Bank Account • Term Loan • Card • Overdraft • Leasing • Mortgage • Credit Card • Deposit <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a0c4ff; margin-top: 10px;"> <p>NOTE Your product type selection greatly influences the next steps. It is important to choose the right type of product to build.</p> </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.

Field	Required	Data Type	Details
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

IMPORTANT! For leasings, select Product Type = **Leasing**.

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

Details

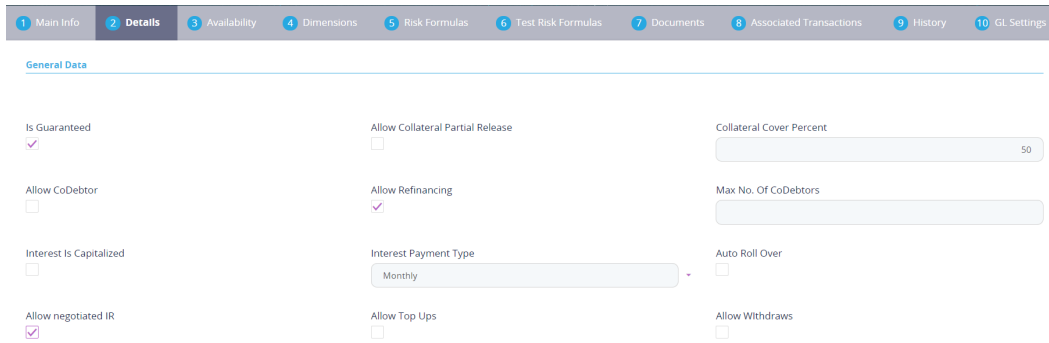
The **Details** tab requires further elements such as interest, payment type, top-ups and withdrawals.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Is Guaranteed	Yes	Bool	<p>This checkbox marks the product as secured or unsecured.</p> <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE The Collateral Cover Percent field appears when you select this checkbox.</p> </div>
Allow Collateral Partial Release	No	Bool	A partial release is a mortgage provision that allows some of the collateral to be released from a mortgage after the borrower pays a certain amount of the loan.
Collateral Cover Percent	No	Whole number	The percent that the collateral person on the contract pays. It usually is over 100%.
Allow CoDebtor	No	Bool	Select if another debtor exists for this product.
Allow Refinancing	No	Bool	Select if the account can be refinanced for this product.
Maximum Number of CoDebtors	No	Text	Set the maximum number of debtors possible for this product.
Interest Is Capitalized	No	Bool	Only applicable if there is an interest rate. Select if true.

Field	Required	Data Type	Details
Interest Payment Type	No	Option Set	<p>Select the regularity of interest payments. Select one from the following:</p> <ul style="list-style-type: none"> • Once (the whole interest amount is paid at maturity) • Monthly • Trimester • Semestrial • Annual.
Auto Rollover	No	Bool	<p>If the checkbox is selected, the contract is renewed at maturity date in exactly the same conditions.</p> <p>If it remains unchecked, the contract is automatically closed at maturity date. The field is used mostly for deposits or any product that can undergo the extension of contract.</p>
Allow Negotiated IR	No	Bool	Select if for this product the interest rate is negotiable.
Allow Top Ups	No	Bool	Select if the amount can be topped up with a sum of money.
Allow Withdrawals	No	Bool	Select if the customer can take out money for this product.

BANKING PRODUCT FACTORY USER GUIDE



1 Main Info 2 **Details** 3 Availability 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 Documents 8 Associated Transactions 9 History 10 GL Settings

General Data

Is Guaranteed <input checked="" type="checkbox"/>	Allow Collateral Partial Release <input type="checkbox"/>	Collateral Cover Percent 50
Allow CoDebtor <input type="checkbox"/>	Allow Refinancing <input checked="" type="checkbox"/>	Max No. Of CoDebtors
Interest Is Capitalized <input type="checkbox"/>	Interest Payment Type Monthly	Auto Roll Over <input type="checkbox"/>
Allow negotiated IR <input checked="" type="checkbox"/>	Allow Top Ups <input type="checkbox"/>	Allow Withdraws <input type="checkbox"/>

Click the **Save and Reload** button at the top right corner of the page.

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> • Once (the whole amount is paid at maturity) • Weekly • Monthly • Bimonthly • Trimestrial • 4 Weeks • Semestrial • Annual • 30Days. <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #ccc; margin-top: 10px;"> <p>NOTE If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The repayment allocation method represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a0c4ff;"> <p>NOTE The Country Calendars section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> • None - the due date is not shifted. • Forward - the due date is shifted to the last working day before the initially calculated due date. • Backward - the due date is shifted to the next working day after the initially calculated due date. <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>
Grace Type	No	Option set	<p>Select one from the list:</p> <ul style="list-style-type: none"> • Both • Principle • Interest.

Field	Required	Data Type	Details
Product Grace	No	Option set	Select one from the list.
Grace Days for Repayment	No	Whole number	Select one from the list. Insert the number of days for which the grace applies.

In the **Payment Schedule Types** section, you can insert or create a payment schedule for the leasing product. To insert a new associated payment schedule type, click **Insert Existing** and select one of the existing types. Go to ["Payment Schedule Types" on page 350](#) to read more about this.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Guarantees** section, presented if the **Is Guaranteed** checkbox was selected earlier, you can insert or delete guarantees. To insert a guarantee, click the **Insert Existing** button and select one of the following:

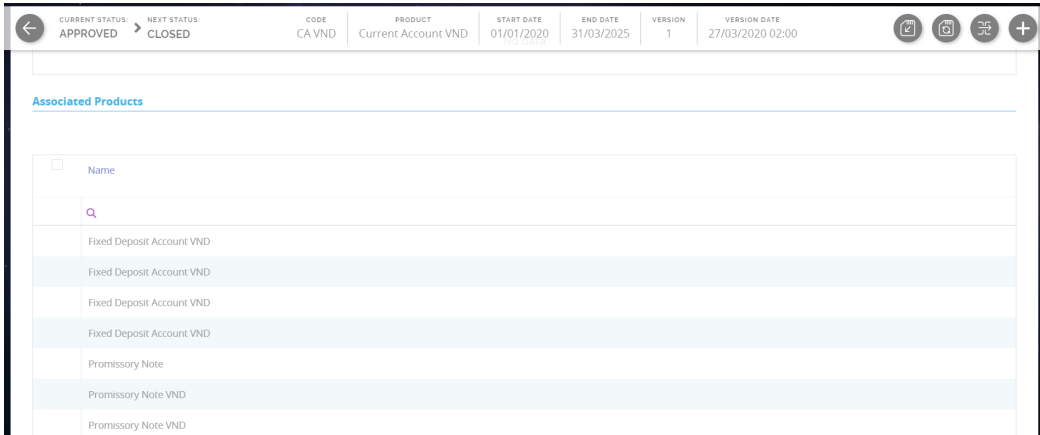
- Cash collateral
- Real estate.

To insert a new guarantee, click **Insert** and fill in the name, code and select the guarantee type.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

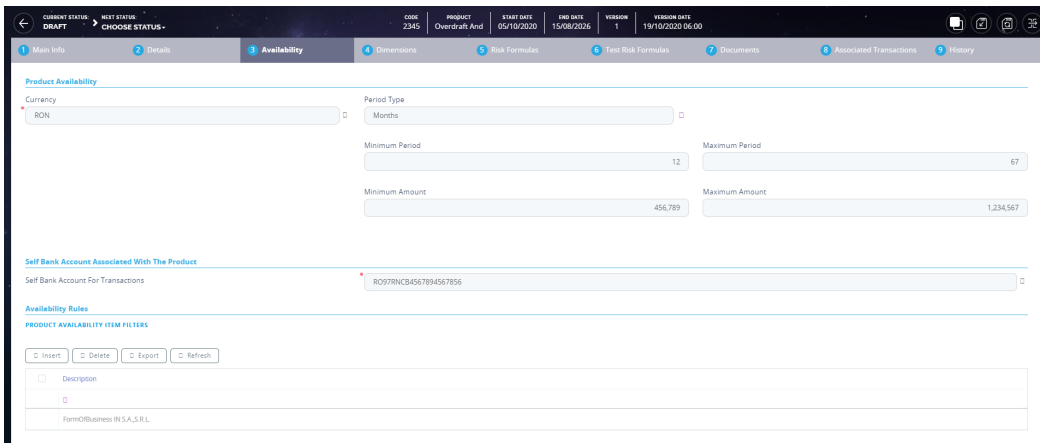
The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.



Click the **Save and Reload** button at the top right corner of the page.

Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.



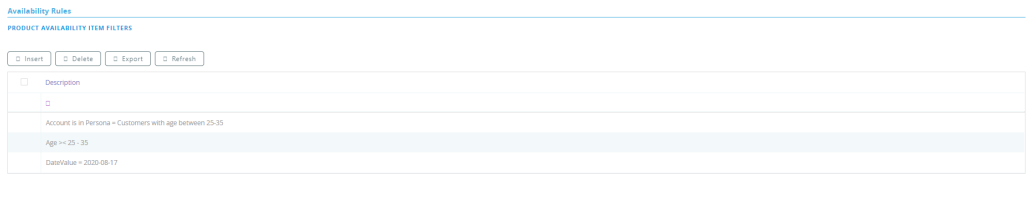
The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.

Field	Required	Data Type	Details
Period Type	No	Option set	<p>Choose one:</p> <ul style="list-style-type: none"> • Days • Weeks • Months • Years • Once. <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE The period type must be the same as the measurement unit of the Periodicity Type selected in the Details tab.</p> </div>
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.
Start Period For Unusage After Activation (Months)	No	Whole Number	The start period for unused amount after the activation.

Field	Required	Data Type	Details
Minimum Advance (%)	No	Whole Number	The minimum down payment that must be paid for the leasing contract to be signed.
Maximum Advance (%)	No	Whole Number	The maximum advance that can be paid for the leasing contract to be signed.
Minimum Residual Value (%)	No	Whole Number	An estimate on the minimum amount the car or product is worth at the end of the lease term.
Maximum Residual Value (%)	No	Whole Number	An estimate on the maximum amount the car or product is worth at the end of the lease term.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see "[Product Filter](#)" on page 339.



Click the **Save and Reload** button at the top right corner of the page.

In the **Product Covenants** section you can set certain conventions that applicants must abide by after getting the loan. This is usually applicable for corporate clients that must meet certain requirements in order to continue to receive disbursements. Click the **Insert** button to add a covenant to the product. You can select from 3 possible covenants:

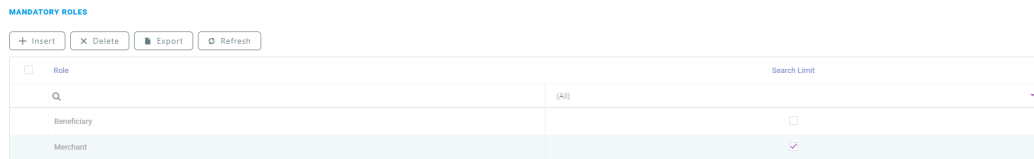
- *Borrowers should perform tax obligations:* the lenders expect the borrowers to perform their tax obligations to both the business and towards their employees. This covenant is of type affirmative.
- *Lender can monitor borrower's current ratio:* the lender may continuously monitor the borrower's current ratio to ensure it stays relatively attractive and promising. This covenant is of type financial.

- *Lender possesses the right to prevent merges or acquisitions:* a clear stipulation that the lender possesses the right to prevent merges of acquisitions without proper notification or full knowledge of the process. This covenant is of type negative.

Each covenant can be attributed a value, an availability period, and a review frequency in months.

After all configurations are done, click the **Save and Reload** button.

The **Mandatory Roles** section allows you to add the roles of the participants that are mandatory to exist at the contract level for contracts based on this banking product. In other words, when creating contracts based on banking products with Merchant role in this section, you must add a customer with the same Merchant role as contract participant, otherwise, the contract cannot be approved. When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role, in this case Merchant Exposure.



In the **Mandatory Roles** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Lookup	The banking product for which you define mandatory roles. This is automatically completed with the current banking product.
Role	Yes	Option set	Select the beginning value/ date for the filter.
Search Limit	Yes	Boolean	When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role.

Click the **Save and Reload** button at the top right corner of the page.

Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.

Field	Required	Data Type	Details
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the Save and Reload button. The values/ dates inserted above are turned into an expression.
For Lookup attributes			
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.

Field	Required	Data Type	Details
Grid of Options	No	Grid	This field is automatically filled in after clicking the Save and Reload button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter:

OptionSet:

Description:

Name	Display Name
<input checked="" type="checkbox"/> High school	Bacalaureat
<input checked="" type="checkbox"/> No studies / Primary school	Fara studii sau scoala primara
<input checked="" type="checkbox"/> Gymnasium studies	Gymnasium studies
<input checked="" type="checkbox"/> High school	High school
<input checked="" type="checkbox"/> Higher education	Licenta
<input type="checkbox"/> Higher Education	Licenta universitara
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CPA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.

Field	Required	Data Type	Details
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount . Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount . Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount . Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.

Field	Required	Data Type	Details
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> • text • numeric • option set.
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

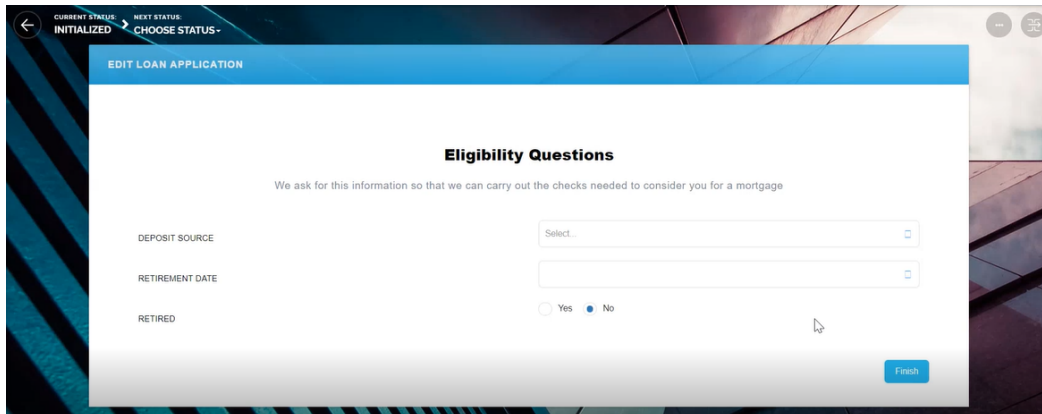
The **Banking Products List** shows where the question is used.

IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:



Risk Formulas

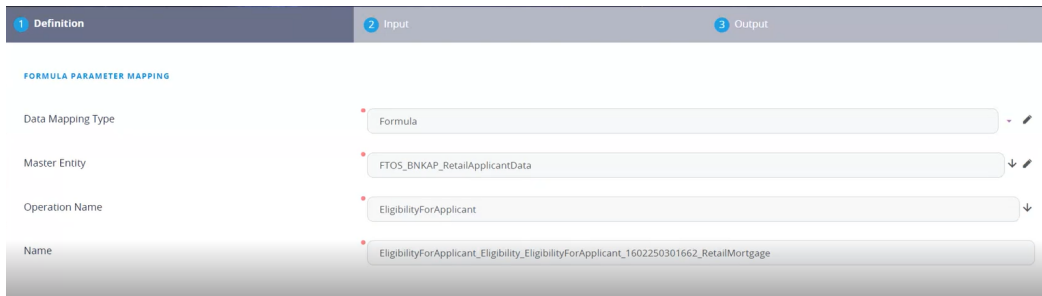
The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

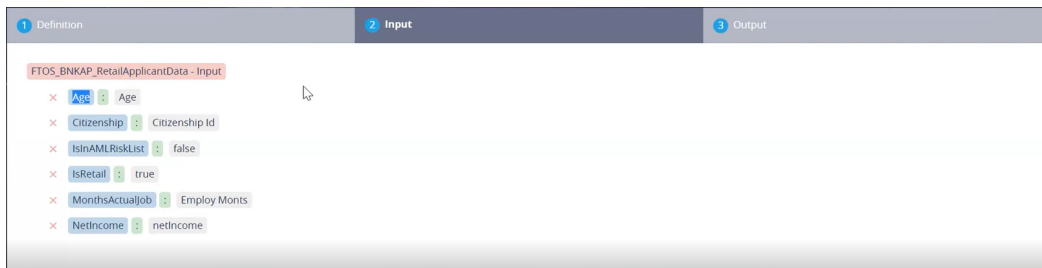
In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. <div style="border: 1px solid #ccc; background-color: #f9cb9c; padding: 10px; margin-top: 10px;"> <p>IMPORTANT! The formula must be activated before attaching it to a product.</p> </div>

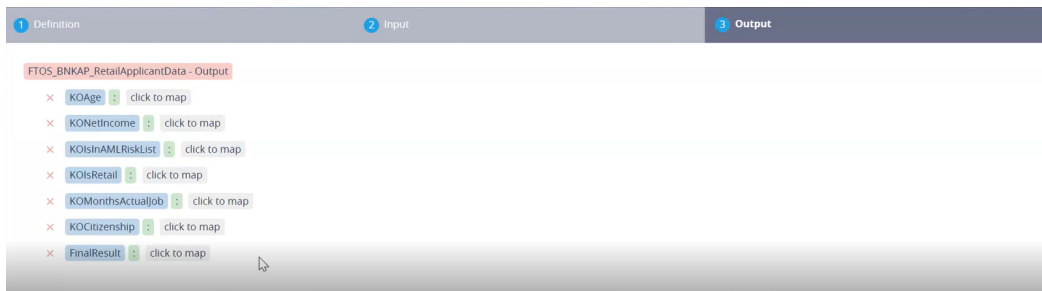
After selecting the desired formula, click **Save and reload**, then click **Map Data**.



In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

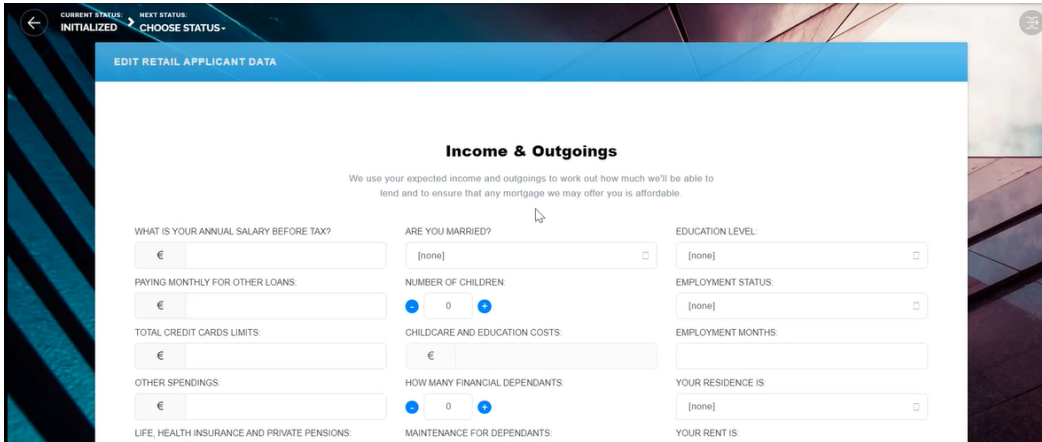


Click **Output** and configure the output for the formula.



Click the **Save and Close** button at the top right corner of the page.

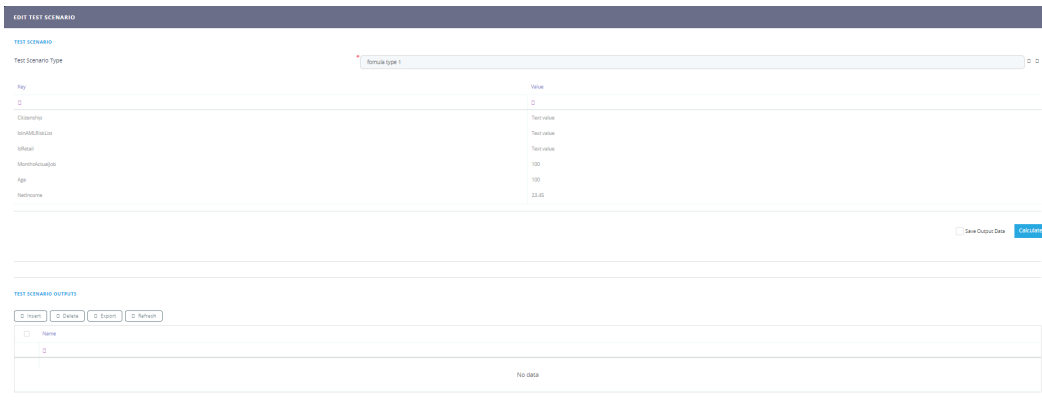
Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.



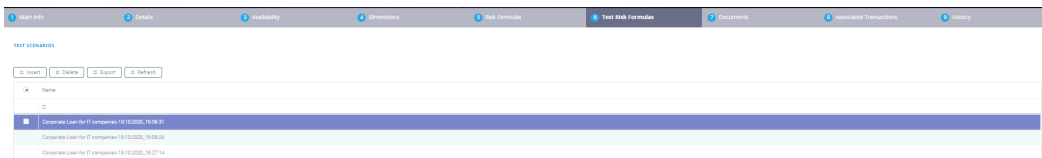
Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.



Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.



Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see "[Banking Products' Life Cycle](#)" on page 373).

Mortgage Loans

A mortgage is a type of financial product in the form of a loan taken out to buy property or land. In general, mortgages run for a period of 25 or 30 years, but that depends on the applicant applying for the loan. Such types of loans are secured against the value of the property or land until it's paid off.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.
4. Click **Banking Products** to open the **Banking Products List** page.

Code	Name	Class	SubClass	Category	SubCategory	Status	
AG_OD	Overdraft BankAccoun...					Approved	1
SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
TLEHPW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
th	th					Approved	1
TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

NOTE

For banking products in Active status, you can't change any of their related entities (such as features, discounts, product guarantee, interest or commission item, formula, test scenario, product covenant, product disbursement, product availability item filter). To change any of the product's related entities, create a new version of the banking product record.

Creating Mortgage Loans

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.
8. **History** - This tab displays the versions of the product, along with workflow status and the user who modified the product.

Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> • Bank Account • Term Loan • Card • Overdraft • Leasing • Mortgage • Credit Card • Deposit <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a6c9ec; margin-top: 10px;"> <p>NOTE Your product type selection greatly influences the next steps. It is important to choose the right type of product to build.</p> </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.

Field	Required	Data Type	Details
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see "Product Hierarchy" on page 343
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

IMPORTANT! For mortgage loans, select Product Type = **Mortgage**.

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.

Field	Required	Data Type	Details
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

Details

The **Details** tab requires further elements such as interest, payment type, refinancing and guarantees.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> • Current Account • Savings Account • Fixed Deposit Account • Term Deposit Account • Loan Term Account.
Is Revolving	No	Bool	Allows a business to borrow money as needed for funding working capital needs and continuing operations such as meeting payroll and payables.
Auto Disbursement	Yes	Bool	Specifies if the disbursement is automatically performed when the contract is approved.
Max No Disbursements	No	Whole number	The maximum number of disbursements that can be configured for this product.
Is Guaranteed	Yes	Bool	<p>This checkbox marks the product as secured or unsecured.</p> <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE The Collateral Cover Percent field appears when you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Allow Collateral Partial Release	No	Bool	A partial release is a mortgage provision that allows some of the collateral to be released from a mortgage after the borrower pays a certain amount of the loan.
Collateral Cover Percent	No	Whole number	The percent that the collateral person on the contract pays. It usually is over 100%.
Allow CoDebtor	No	Bool	Select if another debtor exists for this product.
Allow Refinancing	No	Bool	Select if the account can be refinanced for this product.
Max Number of CoDebtors	No	Text	Set the maximum number of debtors possible for this product.

1 Main Info 2 **Details** 3 Availability 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 Documents 8 Associated Transactions 9 History

General Data

Bank Account Type
 Is Revolving

Auto Disbursement
 Max No Disbursements

Is Guaranteed Allow Collateral Partial Release

Allow CoDebtor Allow Refinancing Max No. Of CoDebtors

Payment Schedule Types

Periodicity Type Holiday Shift For Repayment Installments Repayment Allocation Method

Grace Type Product Grace Grace Days for Repayment

Click the **Save and Reload** button at the top right corner of the page.

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> • Once (the whole amount is paid at maturity) • Weekly • Monthly • Bimonthly • Trimestrial • 4 Weeks • Semestrial • Annual • 30Days. <div style="background-color: #e1eef6; padding: 10px; margin-top: 10px;"> <p>NOTE If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The repayment allocation method represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a0c4ff;"> <p>NOTE The Country Calendars section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> • None - the due date is not shifted. • Forward - the due date is shifted to the last working day before the initially calculated due date. • Backward - the due date is shifted to the next working day after the initially calculated due date. <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>
Grace Type	No	Option set	<p>Select one from the list:</p> <ul style="list-style-type: none"> • Both • Principle • Interest.

Field	Required	Data Type	Details
Product Grace	No	Option set	Select one from the list.
Grace Days for Repayment	No	Whole number	Select one from the list. Insert the number of days for which the grace applies.

In the **Payment Schedule Types** section, you can associate/ delete payment schedule types to/ from the banking product. To associate a payment schedule type to the banking product, click **Insert Existing** and select one of the already defined types. Go to "[Payment Schedule Types](#)" on page 350 to read more about this.

IMPORTANT!

When creating a new Term Loan, Mortgage, or Overdraft banking product, you must select at least one payment schedule type, otherwise you can't approve the product. If the **Payment Schedule Types** section has no records, an error message is displayed upon transitioning the product into the **Approved** status: "At least one Payment schedule type definition must be selected for approval!"

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Guarantees** section, presented if the **Is Guaranteed** checkbox was selected earlier, you can insert or delete guarantees. To insert a guarantee, click the **Insert Existing** button and select one of the following:

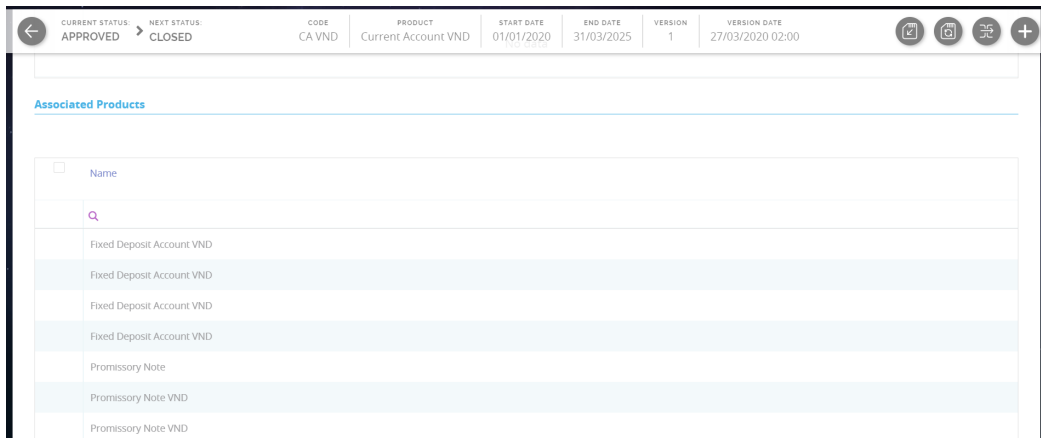
- Cash collateral
- Real estate.

To insert a new guarantee, click **Insert** and fill in the name, code and select the guarantee type.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.



Click the **Save and Reload** button at the top right corner of the page.

Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

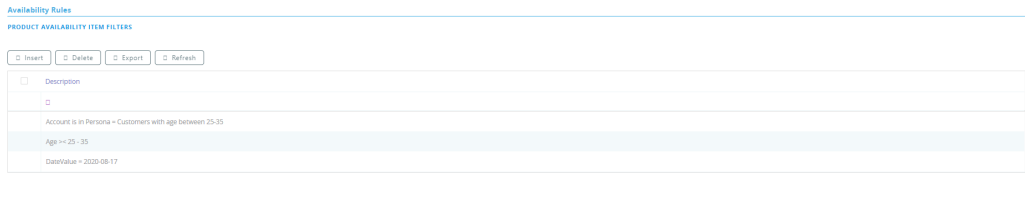
The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.

Field	Required	Data Type	Details
Period Type	No	Option set	<p>Choose one:</p> <ul style="list-style-type: none"> • Days • Weeks • Months • Years • Once. <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE The period type must be the same as the measurement unit of the Periodicity Type selected in the Details tab.</p> </div>
Maximum Period For Disbursement After Activation (Months)	No	Whole Number	The maximum period of disbursement after the this option is set. The number of months during which the disbursement must be made.
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Principal For Early Repayment	No	Whole Number	The minimum principal for when early repayments are made.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.

Field	Required	Data Type	Details
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.
Start Period For Unusage After Activation (Months)	No	Whole Number	The start period for unused amount after the activation.
Minimum Advance (%)	No	Whole Number	The minimum down payment that must be paid for the leasing contract to be signed.
Maximum Advance (%)	No	Whole Number	The maximum advance that can be paid for the leasing contract to be signed.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see "[Product Filter](#)" on page 339.



Click the **Save and Reload** button at the top right corner of the page.

In the **Product Covenants** section you can set certain conventions that applicants must abide by after getting the loan. This is usually applicable for corporate clients that must meet certain requirements in order to continue to receive disbursements. Click the **Insert** button to add a covenant to the product. You can select from 3 possible covenants:

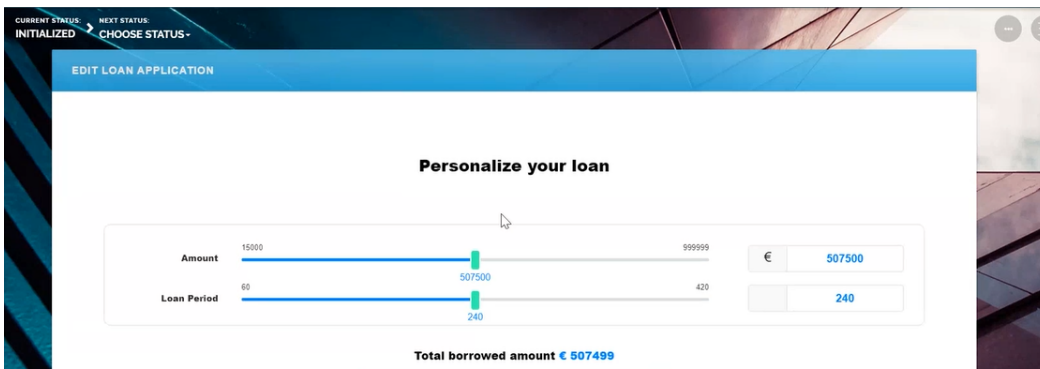
- *Borrowers should perform tax obligations:* the lenders expect the borrowers to perform their tax obligations to both the business and towards their employees. This covenant is of type affirmative.
- *Lender can monitor borrower's current ratio:* the lender may continuously monitor the borrower's current ratio to ensure it stays relatively attractive and promising. This covenant is of type financial.

- *Lender possesses the right to prevent merges or acquisitions:* a clear stipulation that the lender possesses the right to prevent merges of acquisitions without proper notification or full knowledge of the process. This covenant is of type negative.

Each covenant can be attributed a value, an availability period, and a review frequency in months.

After all configurations are done, click the **Save and Reload** button.

For example, once displayed in a Digital Journey, this is how the product looks like:



The **Mandatory Roles** section allows you to add the roles of the participants that are mandatory to exist at the contract level for contracts based on this banking product. In other words, when creating contracts based on banking products with Merchant role in this section, you must add a customer with the same Merchant role as contract participant, otherwise, the contract cannot be approved. When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role, in this case Merchant Exposure.



In the **Mandatory Roles** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Lookup	The banking product for which you define mandatory roles. This is automatically completed with the current banking product.
Role	Yes	Option set	Select the beginning value/ date for the filter.
Search Limit	Yes	Boolean	When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role.

ADD MANDATORY ROLE

MANDATORY ROLE

Banking Product: Card

Role: Beneficiary

Search Limit:

Click the **Save and Reload** button at the top right corner of the page.

Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.

Field	Required	Data Type	Details
Description	No	Text area	This field is automatically filled in after clicking the Save and Reload button. The values/ dates inserted above are turned into an expression.
For Lookup attributes			
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.
Grid of Options	No	Grid	This field is automatically filled in after clicking the Save and Reload button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter:

OptionSet:

Description:

Name	Displayname
<input checked="" type="checkbox"/> High school	Bacillerat
<input checked="" type="checkbox"/> No studies / Primary school	Fara studii sau scoala primara
<input checked="" type="checkbox"/> Gymnasium studies	Gymnasium studies
<input checked="" type="checkbox"/> High school	High school
<input checked="" type="checkbox"/> Higher education	Licenta
<input type="checkbox"/> Higher education	Licenta universitara
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CFA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.

Field	Required	Data Type	Details
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount. Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.

Field	Required	Data Type	Details
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> • text • numeric • option set.

Field	Required	Data type	Description
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

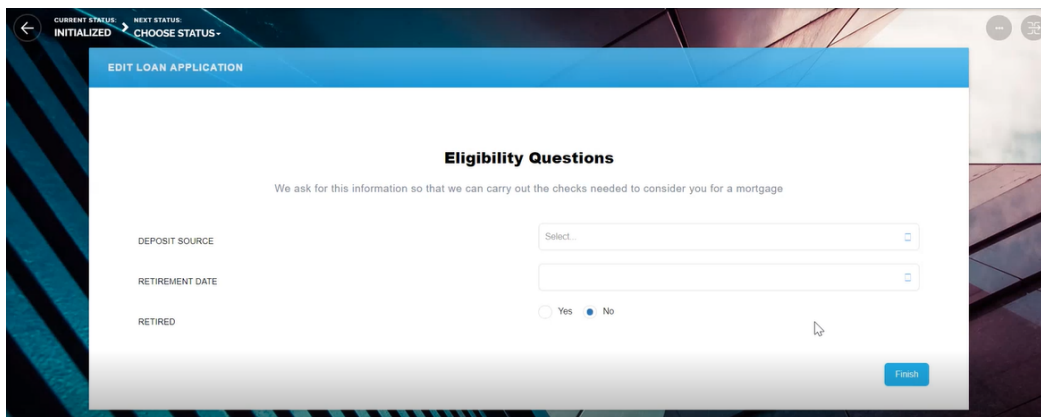
The **Banking Products List** shows where the question is used.

IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:



Risk Formulas

The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

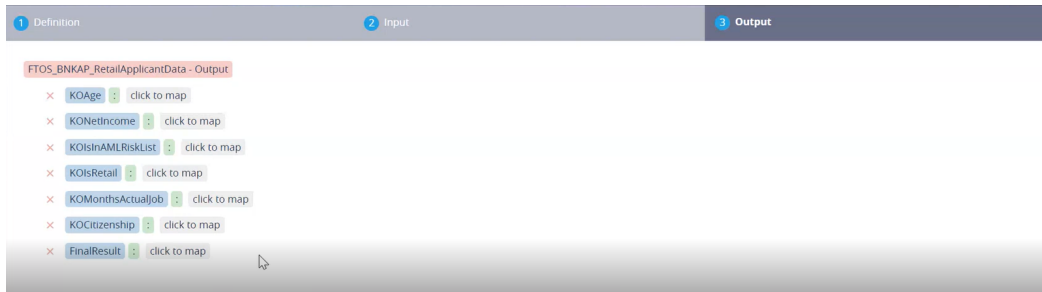
In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. <div style="border: 1px solid #ccc; background-color: #f9cb9c; padding: 10px; width: fit-content; margin: 10px auto;"> <p>IMPORTANT! The formula must be activated before attaching it to a product.</p> </div>

After selecting the desired formula, click **Save and reload**, then click **Map Data**.

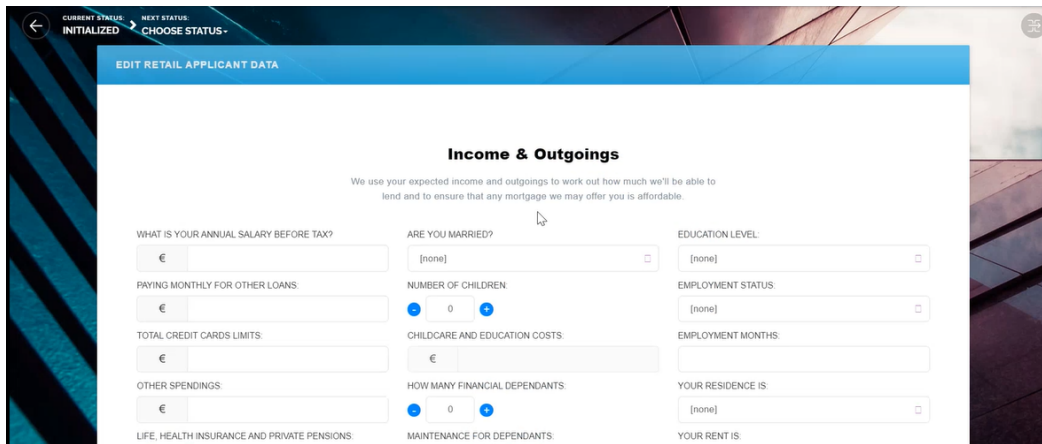
In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

Click **Output** and configure the output for the formula.



Click the **Save and Close** button at the top right corner of the page.

Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.

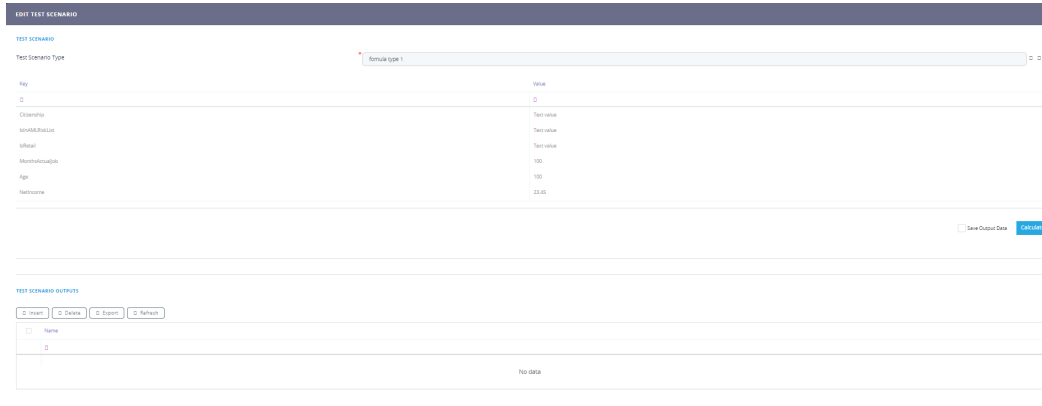


Test Risk Formulas

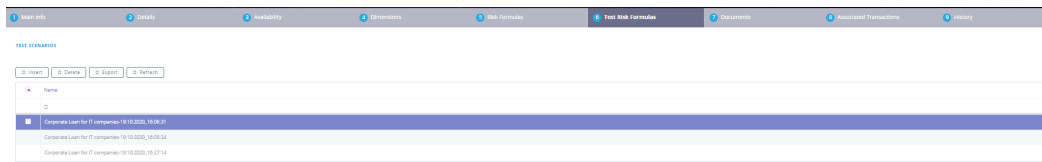
A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.

BANKING PRODUCT FACTORY USER GUIDE

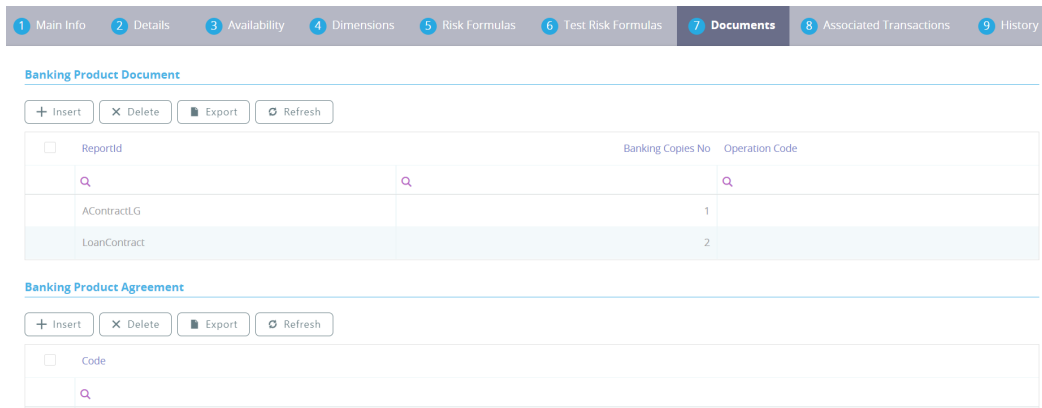


Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.



Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.



To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

ADD BANKING PRODUCT DOCUMENT

Banking Product Document

Operation Code: 113559

Banking Copies No: 2

Report: [dropdown]

Document Type: Credit Application

Is Mandatory: Yes No

Includes Debtor: Yes No

Includes Coborrower: Yes No

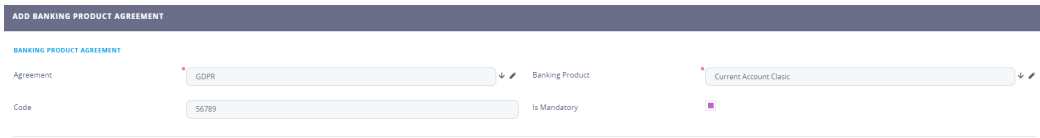
Requires Signature: Yes No

Is Accord: Yes No

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.



Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see "[Banking Products' Life Cycle](#)" on page 373).

Overdrafts

An overdraft is an extension of credit from a lending institution that is granted when an account reaches zero. The overdraft allows the account holder to continue withdrawing money even when the account has no funds in it or has insufficient funds to cover the amount of the withdrawal.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.

4. Click **Banking Products** to open the **Banking Products List** page.

<input type="checkbox"/>	Code	Name	Class	SubClass	Category	SubCategory	Status	
	AG_OD	Overdraft BankAccoun...					Approved	1
	SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	TLEHFW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	th	th					Approved	1
	TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
	TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
	testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
	LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

NOTE

For banking products in **Active** status, you can't change any of their related entities (such as features, discounts, product guarantee, interest or commission item, formula, test scenario, product covenant, product disbursement, product availability item filter). To change any of the product's related entities, create a new version of the banking product record.

Creating Overdrafts

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.
8. **History** - This tab displays the versions of the product, along with workflow status and the user who modified the product.

Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

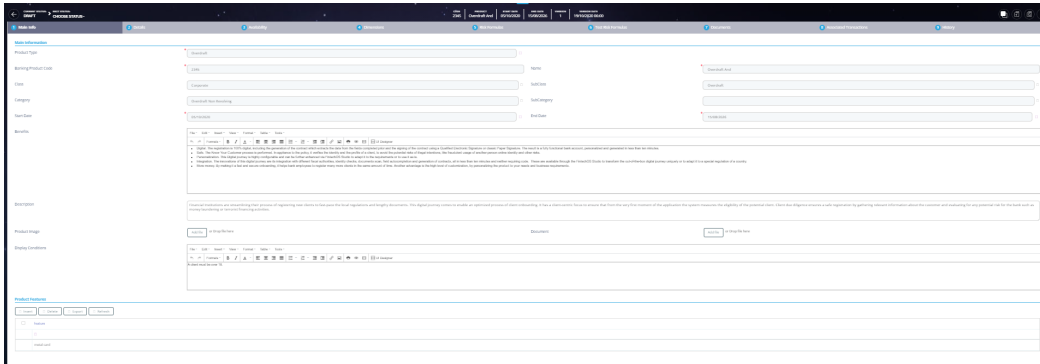
The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> • Bank Account • Term Loan • Card • Overdraft • Leasing • Mortgage • Credit Card • Deposit <div style="border: 1px solid #ccc; background-color: #e1eef6; padding: 10px; margin-top: 10px;"> <p>NOTE Your product type selection greatly influences the next steps. It is important to choose the right type of product to build.</p> </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.

Field	Required	Data Type	Details
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see " Product Hierarchy " on page 343
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see " Product Hierarchy " on page 343
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see " Product Hierarchy " on page 343
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see " Product Hierarchy " on page 343
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

IMPORTANT!For overdrafts, select Product Type = **Overdraft**.



In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.

Field	Required	Data Type	Details
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

Details

The **Details** tab requires further elements such as interest, payment type, top-ups and withdrawals.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> • Current Account • Savings Account • Fix Deposit Account • Term Deposit Account • Loan Term Account.
Is Revolving	No	Bool	Allows a business to borrow money as needed for funding working capital needs and continuing operations such as meeting payroll and payables.
Auto Disbursement	Yes	Bool	Specifies if the disbursement is automatically performed when the contract is approved.
Max No Disbursements	No	Whole number	The maximum number of disbursements that can be configured for this product.
Is Guaranteed	Yes	Bool	<p>This checkbox marks the product as secured or unsecured.</p> <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE The Collateral Cover Percent field appears when you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Activation Tranches On Document Submission	No	Bool	Tranches to be granted after certain documents are submitted.
Allow Collateral Partial Release	No	Bool	A partial release is a mortgage provision that allows some of the collateral to be released from a mortgage after the borrower pays a certain amount of the loan.
Collateral Cover Percent	No	Whole number	The percent that the collateral person on the contract pays. It usually is over 100%.
Allow CoDebtor	No	Bool	Select if another debtor exists for this product.
Allow Refinancing	No	Bool	Select if the account can be refinanced for this product.
Number of CoDebtors	No	Text	Set the maximum number of debtors possible for this product.

1 Main Info 2 **Details** 3 Availability 4 Dimensions 5 Risk Formulas 6 Test Risk Formulas 7 Documents 8 Associated Transactions 9 History 10 Gl. Settings

General Data

Bank Account Type

 Is Revolving
 Allow Overdraft

Auto Disbursement

 Max No Disbursements
 Activation Tranches On Document Submission

Is Guaranteed
 Allow Collateral Partial Release
 Collateral Cover Percent

Allow CoDebtor
 Allow Refinancing
 Max No. Of CoDebtors

Click the **Save and Reload** button at the top right corner of the page.

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> • Once (the whole amount is paid at maturity) • Weekly • Monthly • Bimonthly • Trimestrial • 4 Weeks • Semestrial • Annual • 30Days. <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #ccc; margin-top: 10px;"> <p>NOTE If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The repayment allocation method represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a0c4ff;"> <p>NOTE The Country Calendars section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> • None - the due date is not shifted. • Forward - the due date is shifted to the last working day before the initially calculated due date. • Backward - the due date is shifted to the next working day after the initially calculated due date. <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>
Grace Type	No	Option set	<p>Select one from the list:</p> <ul style="list-style-type: none"> • Both • Principle • Interest.

Field	Required	Data Type	Details
Product Grace	No	Option set	Select one from the list.
Grace Days for Repayment	No	Whole number	Select one from the list. Insert the number of days for which the grace applies.

In the **Payment Schedule Types** section, you can associate/ delete payment schedule types to/ from the banking product. To associate a payment schedule type to the banking product, click **Insert Existing** and select one of the already defined types. Go to "[Payment Schedule Types](#)" on page 350 to read more about this.

IMPORTANT!

When creating a new Term Loan, Mortgage, or Overdraft banking product, you must select at least one payment schedule type, otherwise you can't approve the product. If the **Payment Schedule Types** section has no records, an error message is displayed upon transitioning the product into the **Approved** status: "At least one Payment schedule type definition must be selected for approval!"

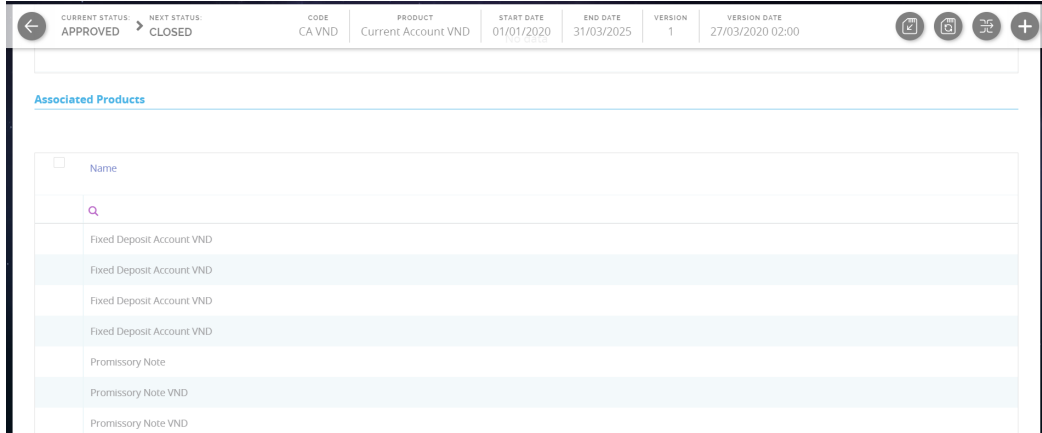
In the **Country calendars** section, you can insert or delete calendars. You can work with multiple calendars as well. Click the **Insert Existing** button and add the country's name. If the maturity date coincides with a holiday, it is allocated automatically on the next business day.

Click the **Save and Reload** button at the top right corner of the page.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

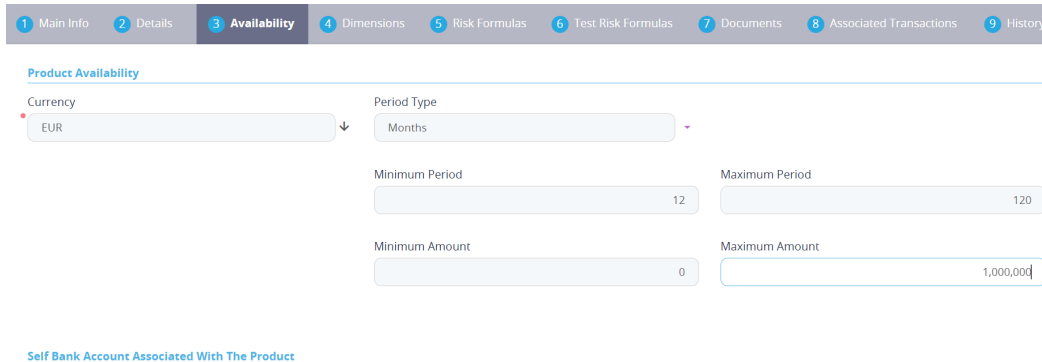
The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.



Click the **Save and Reload** button at the top right corner of the page.

Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

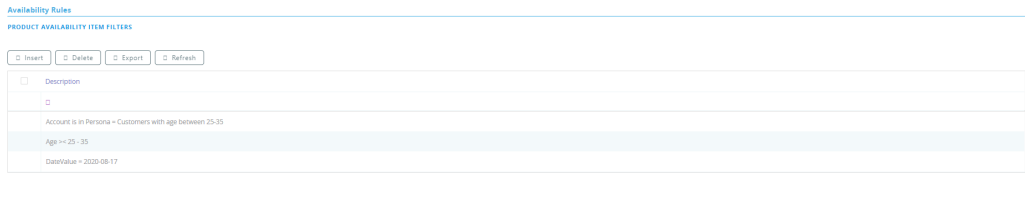


The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.

Field	Required	Data Type	Details
Period Type	No	Option set	<p>Choose one:</p> <ul style="list-style-type: none"> • Days • Weeks • Months • Years • Once. <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE The period type must be the same as the measurement unit of the Periodicity Type selected in the Details tab.</p> </div>
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see "[Product Filter](#)" on page 339.



Click the **Save and Reload** button at the top right corner of the page.

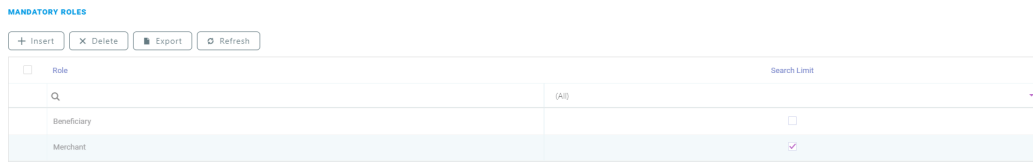
In the **Product Covenants** section you can set certain conventions that applicants must abide by after getting the loan. This is usually applicable for corporate clients that must meet certain requirements in order to continue to receive disbursements. Click the **Insert** button to add a covenant to the product. You can select from 3 possible covenants:

- *Borrowers should perform tax obligations*: the lenders expect the borrowers to perform their tax obligations to both the business and towards their employees. This covenant is of type affirmative.
- *Lender can monitor borrower's current ratio*: the lender may continuously monitor the borrower's current ratio to ensure it stays relatively attractive and promising. This covenant is of type financial.
- *Lender posses the right to prevent merges or acquisitions*: a clear stipulation that the lender possesses the right to prevent merges of acquisitions without proper notification or full knowledge of the process. This covenant is of type negative.

Each covenant can be attributed a value, an availability period, and a review frequency in months.

After all configurations are done, click the **Save and Reload** button.

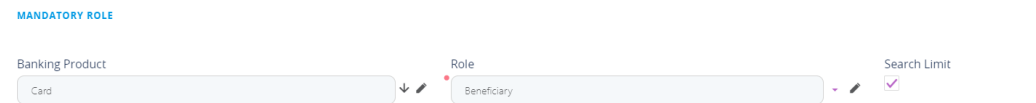
The **Mandatory Roles** section allows you to add the roles of the participants that are mandatory to exist at the contract level for contracts based on this banking product. In other words, when creating contracts based on banking products with Merchant role in this section, you must add a customer with the same Merchant role as contract participant, otherwise, the contract cannot be approved. When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role, in this case Merchant Exposure.



In the **Mandatory Roles** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Lookup	The banking product for which you define mandatory roles. This is automatically completed with the current banking product.
Role	Yes	Option set	Select the beginning value/ date for the filter.
Search Limit	Yes	Boolean	When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role.

ADD MANDATORY ROLE



Click the **Save and Reload** button at the top right corner of the page.

Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the Save and Reload button. The values/ dates inserted above are turned into an expression.
For Lookup attributes			
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.
Grid of Options	No	Grid	This field is automatically filled in after clicking the Save and Reload button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter

OptionSet

Description

Name	Display Name
<input checked="" type="checkbox"/> High school	Bacalaureat
<input checked="" type="checkbox"/> No studies / Primary school	Fara studii sau scoala primara
<input checked="" type="checkbox"/> Gymnasium studies	Gymnasium studies
<input checked="" type="checkbox"/> High school	High school
<input checked="" type="checkbox"/> Higher education	Licenta
<input type="checkbox"/> Higher Education	Licenta universitara
<input type="checkbox"/> postgraduate	Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CFA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

The screenshot shows the 'EDIT INSURANCE ITEM' form. It includes the following fields and values:

- Banking Product:** Docs_Test
- Code:** 123
- Item Name:** Docs_Test_Insurance
- Insurance List:** Text_Insurance
- Start Date:** 23/01/2021
- End Date:** 24/01/2022
- Details:** (Empty text area)

The 'INSURANCE ITEM FILTERS' section includes buttons for '+ Insert', 'X Delete', 'Export', and 'Refresh'. Below these is a table with a search filter:

Description
Docs_Test => 18-05

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.

Field	Required	Data type	Description
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.

Field	Required	Data Type	Details
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount. Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount. Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.

Field	Required	Data Type	Details
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the <code>Is optional discount?</code> checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the <code>Is optional discount?</code> checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.

Field	Required	Data type	Description
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> • text • numeric • option set.
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

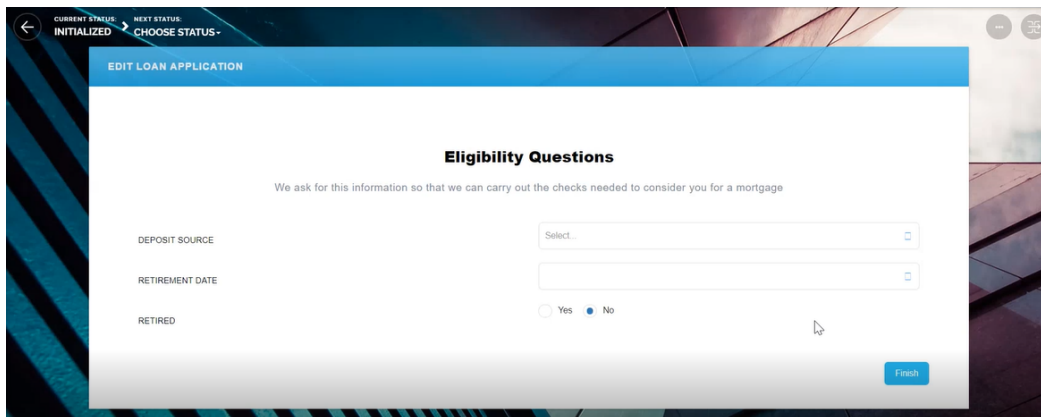
Click the **Save and Reload** button at the top right corner of the page.

The **Banking Products List** shows where the question is used.

IMPORTANT!
The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:



Risk Formulas

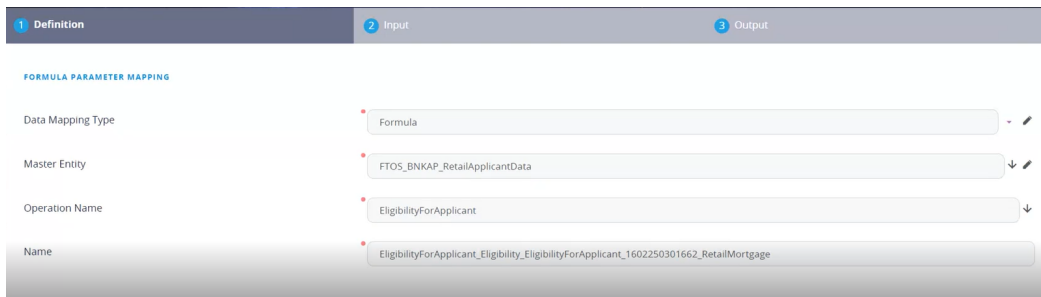
The **Risk Formulas** tab keeps formulas built with **Formula Engine** for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

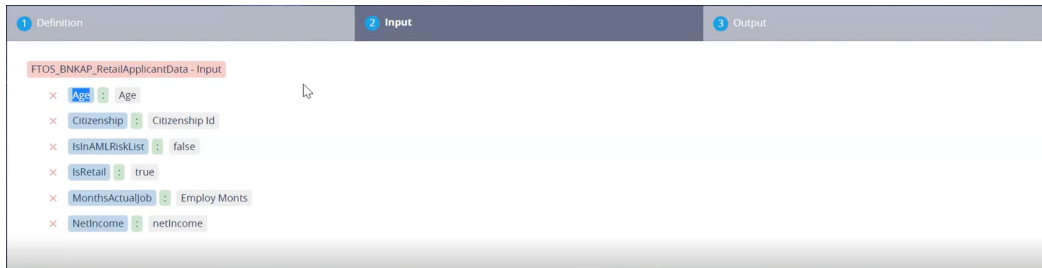
In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. <div style="border: 1px solid #ccc; background-color: #f9cb9c; padding: 10px; margin-top: 10px;"> <p>IMPORTANT! The formula must be activated before attaching it to a product.</p> </div>

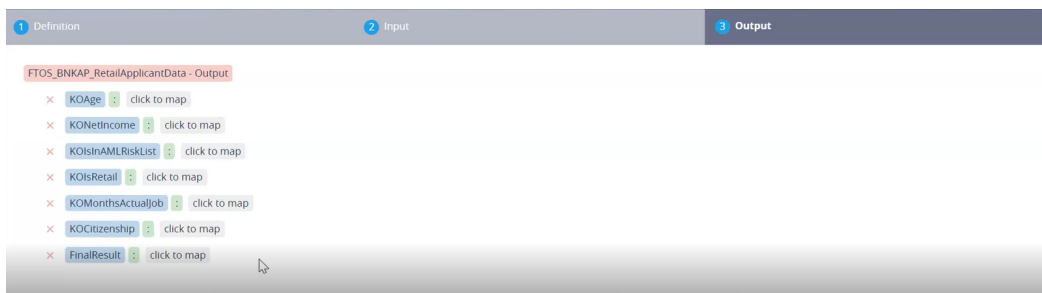
After selecting the desired formula, click **Save and reload**, then click **Map Data**.



In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

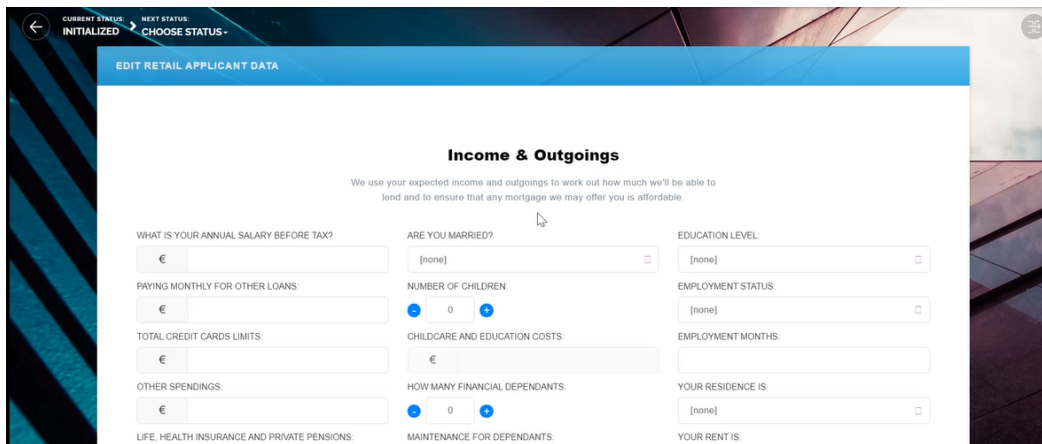


Click **Output** and configure the output for the formula.



Click the **Save and Close** button at the top right corner of the page.

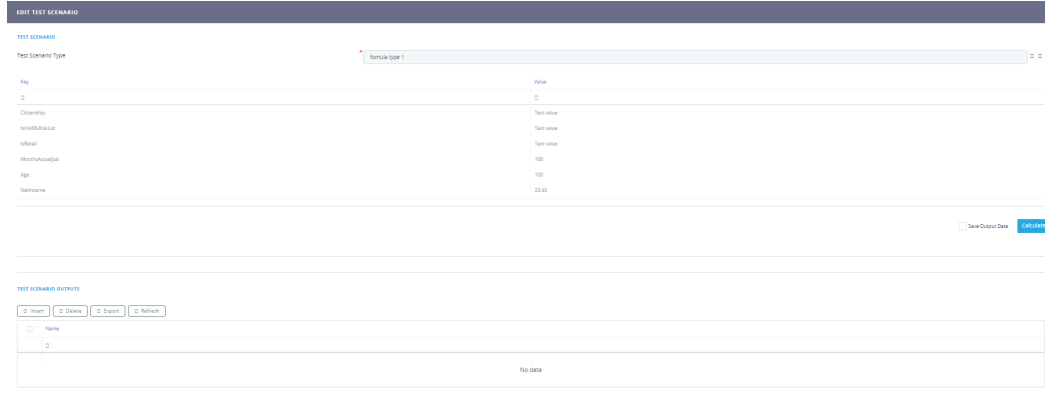
Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.



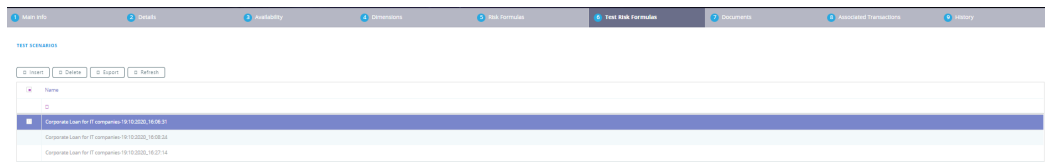
Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.

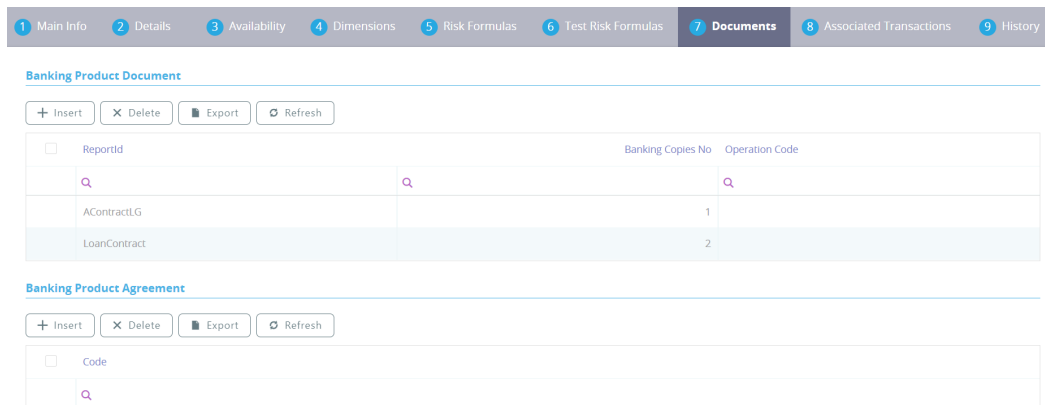


Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.



Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.



To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

ADD BANKING PRODUCT DOCUMENT

Banking Product Document

Operation Code: 113559

Banking Copies No: 2

Report: [Dropdown]

Document Type: Credit Application

Is Mandatory: Yes No

Includes Debtor: Yes No

Includes Coborrower: Yes No

Requires Signature: Yes No

Is Accord: Yes No

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.

ADD BANKING PRODUCT AGREEMENT

BANKING PRODUCT AGREEMENT

Agreement: GDPR

Banking Product: Current Account Classic

Code: 56789

Is Mandatory:

Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see "[Banking Products' Life Cycle](#)" on page 373).

Term Loans

A term loan is a banking product which defines a loan for a specific amount that has a specified repayment schedule and either a fixed or floating interest rate.

To manage banking products:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, click **Product Factory**.

4. Click **Banking Products** to open the **Banking Products List** page.

<input type="checkbox"/>	Code	Name	Class	SubClass	Category	SubCategory	Status	
	AG_OD	Overdraft BankAccoun...					Approved	1
	SCADENTAR	TEST_SCADENTAR_SIM...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	TLEHFW	TL_EUR Holiday Shift F...	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	th	th					Approved	1
	TEST Laura	DD Current Account V...	Corporate	Bank Account	Current Account		Approved	1
	TestA	Duplicate - 4	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	3456	Card_And	Corporate	Bank Account	Deposit	Fix Deposit Collateral	Unapproved	1
	testcancel	Duplicate - 5	Corporate	Loan Term	Loan Term Unsecured		Approved	1
	OL VND	Corporate Term Loan ...	Corporate	Loan Term	Loan Term Secured		Approved	1
	LoanEURPHF	LoanEURPHfee	Corporate	Loan Term	Loan Term Unsecured		Approved	1

In the **Banking Products List** page, you can:

- Add a new banking product by clicking the **Insert** button at the top right corner.
- Edit an existing banking product from the list by double clicking it.
- Delete a banking product by selecting it and clicking the **Delete** button at the top right corner.

NOTE

For banking products in **Active** status, you can't change any of their related entities (such as features, discounts, product guarantee, interest or commission item, formula, test scenario, product covenant, product disbursement, product availability item filter). To change any of the product's related entities, create a new version of the banking product record.

Creating Term Loans

To create a new banking product, click the **Insert** button on the top right side of the page. A new page opens, with a series of tabs that assist you in configuring the banking product:

1. **Main Info** - The first tab requires the basic elements for the creation of a product such as product type, name, code, hierarchy and features.
2. **Details** - This tab requires further elements that build on the first tab such as interest, payment type, top-ups, withdrawals and associated products.
3. **Availability** - This tab determines the monetary range and the time frame when the product is available for customers.
4. **Dimensions** - This tab displays the interests, commissions, insurances, discounts and questions valid for a product.
5. **Risk Formulas** - In this tab, you can attach a formula that triggers calculations to determinate the eligibility of a customer, for example.
6. **Test Risk Formulas** - Use this tab to test the formula attached above before displaying it in a digital journey.
7. **Documents** - This tab contains all the attached documents available for a product.
8. **History** - This tab displays the versions of the product, along with workflow status and the user who modified the product.

Main Info

The **Main Info** tab requires the basic elements for the creation of a product such as name, code, image and features.

The following fields are available:

Field	Required	Data Type	Details
Product Type	Yes	Option Set	<p>Choose one for the following:</p> <ul style="list-style-type: none"> • Bank Account • Term Loan • Card • Overdraft • Leasing • Mortgage • Credit Card • Deposit <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a6c9ec;"> <p>NOTE Your product type selection greatly influences the next steps. It is important to choose the right type of product to build.</p> </div>
External Code	No	Text	The code of the product imported from an external system, if applicable. It can have 10 characters and it is not used in the contract.
Banking Product Code	Yes	Text	The code of the product. It can have 10 characters and it is used in the contract. It uses a sequencer and the code of the product type.
Name	Yes	Text	The name of the product.

Field	Required	Data Type	Details
Class	No	Option set	This field is used to place the product in a hierarchy. For more information, see " Product Hierarchy " on page 343
Subclass	No	Option set	This field is used to place the product in a hierarchy. For more information, see " Product Hierarchy " on page 343
Category	No	Option set	This field is used to place the product in a hierarchy. For more information, see " Product Hierarchy " on page 343
Subcategory	No	Option set	This field is used to place the product in a hierarchy. For more information, see " Product Hierarchy " on page 343
Start Date	Yes	Date	The date when the product becomes available.
End Date	Yes	Date	The last date from when the product is available. From that date forward, the product is no longer available.
Benefits	No	Text area	Insert the advantages of owning the banking product. You can format the text in the text editor window.
Description	No	Text area	Write any description or additional text here.
Product Image	No	File	Insert an image representative for the product.
Document	No	File	Insert the document representative for the product.
Display Conditions	No	Text area	Insert the conditions for the applicant, e.g. age limit, annual turnover, education level, income, registration documents.

Click the **Save and Reload** button at the top right corner of the page.

IMPORTANT! For term loans, select Product Type = **Term Loan**.

In the **Product Features** section, you can insert, delete or export features. To add a feature, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	No	Option set	Choose the name of the product.
Is main feature	No	Bool	Select the checkbox if it is the major feature.
Feature	No	Text	The name of the feature.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Classifications** section, you can insert or remove existing product classification items. To add a product classification item, click **Insert Existing** and select an already existing item, or create a new one by clicking **Insert** and filling in the following fields:

Field	Required	Data Type	Details
Classification Type	Yes	Option set	Choose the classification type of the item. Possible values: Regulatory, Restructuring.
Name	Yes	Text	Enter the name of the classification item.
Code	Yes	Text	Enter the unique code of the classification item.
Is Default	Yes	Boolean	Select the checkbox if this classification item is default.

Field	Required	Data Type	Details
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

Details

The **Details** tab requires further elements such as interest, payment type, top-ups and withdrawals.

For the **General Data** section, the following fields are available:

Field	Required	Data Type	Details
Bank Account Type	Yes	Option set	Choose one from the following: <ul style="list-style-type: none"> • Current Account • Savings Account • Fixed Deposit Account • Term Deposit Account • Loan Term Account.

Field	Required	Data Type	Details
Is Revolving	No	Bool	<p>Allows a business to borrow money as needed for funding working capital needs and continuing operations such as meeting payroll and payable.</p> <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a0c4ff;"> <p>NOTE If a term loan is revolving, its attached limit must also be revolving, meaning that the Available Amount of the limit is replenished either on each repayment of the principal or on loan contract closure.</p> </div>
Auto Disbursement	Yes	Bool	Specifies if the disbursement is automatically performed when the contract is approved.
Max No Disbursements	No	Whole number	The maximum number of disbursements that can be configured for this product.

Field	Required	Data Type	Details
Is Guaranteed	Yes	Bool	<p>This checkbox marks the product as secured or unsecured.</p> <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE The Collateral Cover Percent field appears when you select this checkbox.</p> </div>
Activation Tranches On Document Submission	No	Bool	Tranches to be granted after certain documents are submitted.
Allow Collateral Partial Release	No	Bool	A partial release is a mortgage provision that allows some of the collateral to be released from a mortgage after the borrower pays a certain amount of the loan.
Collateral Cover Percent	No	Whole number	The percent that the collateral person on the contract pays. It usually is over 100%.
Allow CoDebtor	No	Bool	Select if another debtor exists for this product.
Allow Refinancing	No	Bool	Select if the account can be refinanced for this product.
Number of CoDebtors	No	Text	Set the maximum number of debtors possible for this product.

BANKING PRODUCT FACTORY USER GUIDE

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General Data

Bank Account Type * Loan Term Account	Is Revolving <input type="checkbox"/>	
Auto Disbursement * <input checked="" type="checkbox"/>	Max No Disbursements <input type="text"/>	
Is Guaranteed * <input checked="" type="checkbox"/>	Allow Collateral Partial Release <input checked="" type="checkbox"/>	Collateral Cover Percent <input type="text" value="120"/>
Allow CoDebtor <input type="checkbox"/>	Allow Refinancing <input checked="" type="checkbox"/>	Max No. Of CoDebtors <input type="text"/>

In the **Payment Schedule Types** section, the following fields are available:

Field	Required	Data Type	Details
Periodicity Type	Yes	Option set	<p>Select the regularity of payments. Select one from the following:</p> <ul style="list-style-type: none"> • Once (the whole amount is paid at maturity) • Weekly • Monthly • Bimonthly • Trimestrial • 4 Weeks • Semestrial • Annual • 30Days. <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #ccc; margin-top: 10px;"> <p>NOTE If the measurement unit of the selected Periodicity Type = Days, then Holiday Shift For Repayment Installments = False and it cannot be changed.</p> </div>

Field	Required	Data Type	Details
Repayment Allocation Method	Yes	Option set	The repayment allocation method represents the recovery order of amounts from repayment notifications. You can specify if charges should be recovered with priority or maybe interest or principal. You can also split order by number of days overdue. Select a repayment allocation method from the list.
Holiday Shift For Repayment Installments	Yes	Bool	<p>This checkbox marks if the holidays are considered for the calculation of the maturity schedule.</p> <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #a0c4ff;"> <p>NOTE The Country Calendars section appears if you select this checkbox.</p> </div>

Field	Required	Data Type	Details
Holiday Shift Method	No	Option set	<p>Select from the list the method to be used when calculating the due date if that date falls to a holiday. The due date can be shifted before or after the holiday.</p> <p>Possible values:</p> <ul style="list-style-type: none"> • None - the due date is not shifted. • Forward - the due date is shifted to the last working day before the initially calculated due date. • Backward - the due date is shifted to the next working day after the initially calculated due date. <p>Default value: Forward.</p>
Defer Due Date	Yes	Bool	<p>If you select the checkbox, the payment schedule calculates the next payment amount as if the due date has not changed even when the due date falls on a holiday.</p> <p>This checkbox is selected by default.</p>
Grace Type	No	Option set	<p>Select one from the list:</p> <ul style="list-style-type: none"> • Both • Principle • Interest.

Field	Required	Data Type	Details
Product Grace	No	Option set	Select one from the list.
Grace Days for Repayment	No	Whole number	Select one from the list. Insert the number of days for which the grace applies.
Penalty for grace period	No	Bool	<p>If you select the checkbox, the penalty interest is applied on the loan contract without taking into consideration the grace period defined at contract level, being calculated for the difference between system date - due date, if the grace period passed and the customer didn't pay the due amounts.</p> <p>If you leave this checkbox unselected, the penalty interest is applied on the loan contract taking into consideration the grace period defined at contract level, being calculated for system date - due date + grace days for repayment.</p>

In the **Payment Schedule Types** section, you can associate/ delete payment schedule types to/ from the banking product. To associate a payment schedule type to the banking product, click **Insert Existing** and select one of the already defined types. Go to "[Payment Schedule Types](#)" on page 350 to read more about this.

IMPORTANT!

When creating a new Term Loan, Mortgage, or Overdraft banking product, you must select at least one payment schedule type, otherwise you can't approve the product. If the **Payment Schedule Types** section has no records, an error message is displayed upon transitioning the product into the **Approved** status: "At least one Payment schedule type definition must be selected for approval!"

In the **Country calendars** section, you can insert or delete calendars. You can work with multiple calendars as well. Click the **Insert Existing** button and add the country's name. If the maturity date coincides with a holiday, it is allocated automatically on the next business day.

In the **Product Guarantees** section, presented if the **Is Guaranteed** checkbox was selected earlier, you can insert or delete guarantees. To insert a guarantee, click the **Insert Existing** button and select one of the following:

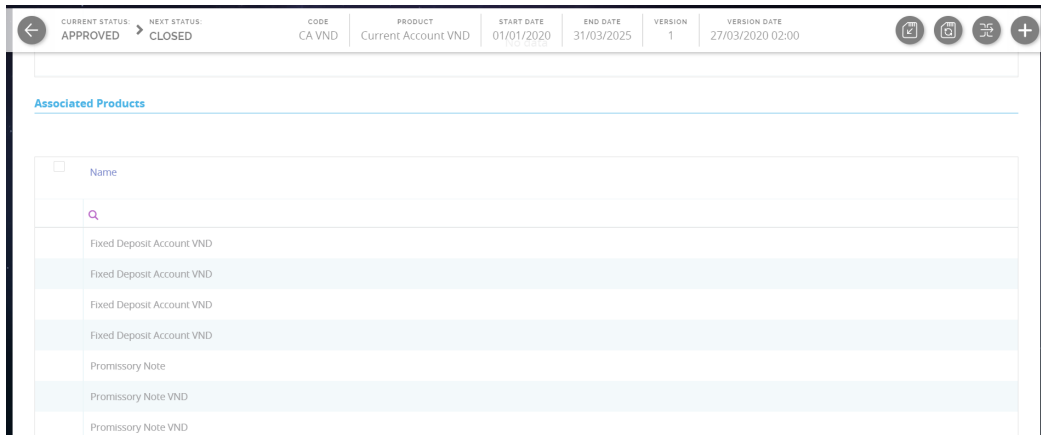
- Cash collateral
- Real estate.

To insert a new guarantee, click **Insert** and fill in the name, code and select the guarantee type.

The **Product Destination Types** section allows for insertion or removal of existing destinations. Click **Insert existing** and select one of the existing destination types, or insert a new one. To create a new destination type, insert a name and specify if it is default. For this case, the following have been configured:

- Loan Collateral
- Loan disbursements
- Personal
- Repayments.

The **Associated Products** section allows for insertion or removal of existing products. It is especially useful when you wish to create a link between two products. You can insert or remove a product from the list or create a new one.



Click the **Save and Reload** button at the top right corner of the page.

In the **Disbursement Matrix** section, create or insert existing disbursement tranches, configured to fit the product. Usually used for corporate loans, such dividend payments or cash outflows are not done in equal amounts and usually trigger a recalculation in terms of interest. Add multiple such disbursements by clicking the **Insert** button. You can add:

- Name.
- Tranche Percent (%): the percentage of the final amount that goes towards the disbursement.
- Start Month From Activation: the start month for the disbursement. It can be any month in the loan availability period.
- Interest Percent (%): the interest percent for that particular disbursement.
- Unusage Commission Percent (%): a commission paid for the loan amount unused.

Availability

The **Availability** tab determines the monetary range and the time frame when the product is available for customers.

BANKING PRODUCT FACTORY USER GUIDE

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Product Availability

Currency: EUR | Period Type: Months

Maximum Period For Disbursement After Activation (Months): 12 | Minimum Period: 1 | Maximum Period: 60

Minimum Principal For Early Repayment: 1,000 | Minimum Amount: 1,000 | Maximum Amount: 200,000

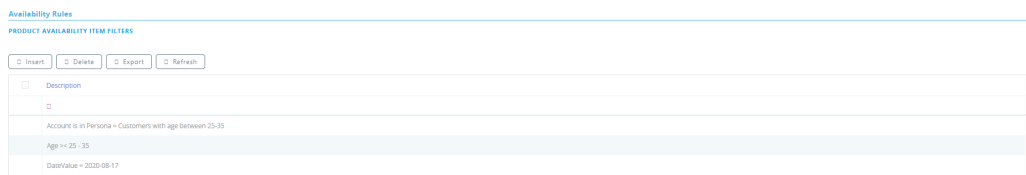
Start Period For Unusage After Activation(Months): 1 | Minimum Advance (%): 20 | Maximum Advance (%): 50

The following fields are available:

Field	Required	Data Type	Details
Currency	Yes	Option set	Choose the currency for this banking product.
Period Type	No	Option set	Choose one: <ul style="list-style-type: none"> • Days • Weeks • Months • Years • Once. <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE The period type must be the same as the measurement unit of the Periodicity Type selected in the Details tab.</p> </div>
Maximum Period For Disbursement After Activation (Months)	No	Whole Number	The maximum period of disbursement after the this option is set. The number of months during which the disbursement must be made.

Field	Required	Data Type	Details
Minimum Period	No	Whole Number	The minimum duration of the product mentioned in the contract.
Maximum Period	No	Whole Number	The maximum duration of the product mentioned in the contract.
Minimum Principal For Early Repayment	No	Whole Number	The minimum principal for when early repayments are made.
Minimum Amount	No	Whole Number	The minimum amount of the product for which the bank opens a contract.
Maximum Amount	No	Whole Number	The maximum amount of the product for which the bank opens a contract.
Start Period For Unusage After Activation (Months)	No	Whole Number	The start period for unused amount after the activation.
Minimum Advance (%)	No	Numeric	The minimum advance percentage from the contract's financed value applicable at the contract level.
Maximum Advance (%)	No	Numeric	The maximum advance percentage from the contract's financed value applicable at the contract level.

In the **Availability Rules** section you can select the item filters for the banking product. For more details, see "[Product Filter](#)" on page 339.



Click the **Save and Reload** button at the top right corner of the page.

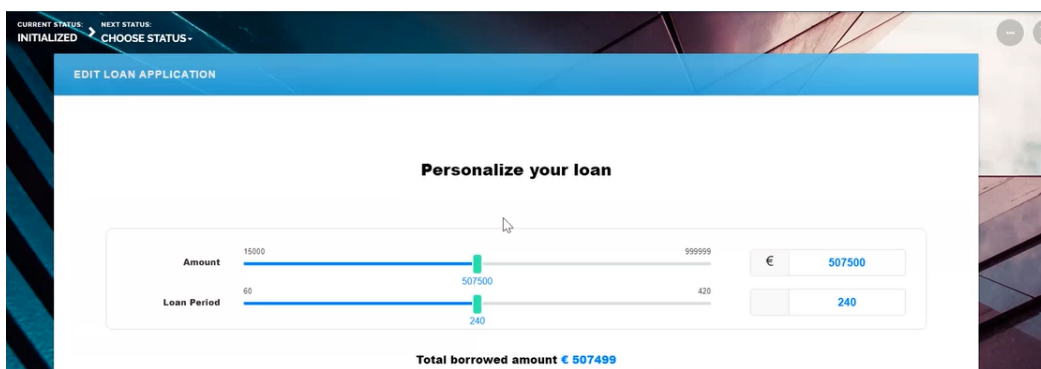
In the **Product Covenants** section you can set certain conventions that applicants must abide by after getting the loan. This is usually applicable for corporate clients that must meet certain requirements in order to continue to receive disbursements. Click the **Insert** button to add a covenant to the product. You can select from 3 possible covenants:

- *Borrowers should perform tax obligations:* the lenders expect the borrowers to perform their tax obligations to both the business and towards their employees. This covenant is of type affirmative.
- *Lender can monitor borrower's current ratio:* the lender may continuously monitor the borrower's current ratio to ensure it stays relatively attractive and promising. This covenant is of type financial.
- *Lender posses the right to prevent merges or acquisitions:* a clear stipulation that the lender possesses the right to prevent merges of acquisitions without proper notification or full knowledge of the process. This covenant is of type negative.

Each covenant can be attributed a value, an availability period, and a review frequency in months.

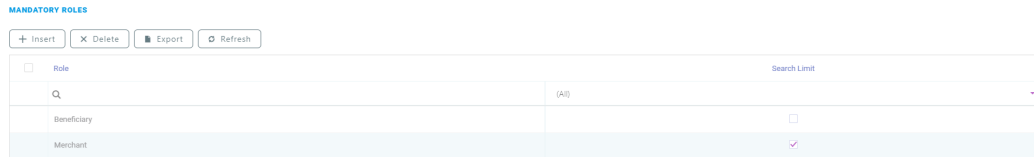
After all configurations are done, click the **Save and Reload** button.

For example, this is how it displays within a Digital Journey in the FintechOS Portal:



The **Mandatory Roles** section allows you to add the roles of the participants that are mandatory to exist at the contract level for contracts based on this banking product. In other words, when creating contracts based on banking products with Merchant role in this section, you must add a customer with the same Merchant role as contract participant, otherwise, the contract

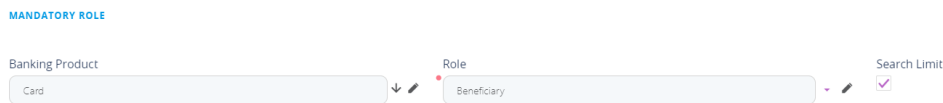
cannot be approved. When **Search Limit** is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role, in this case **Merchant Exposure**.



In the **Mandatory Roles** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Lookup	The banking product for which you define mandatory roles. This is automatically completed with the current banking product.
Role	Yes	Option set	Select the beginning value/ date for the filter.
Search Limit	Yes	Boolean	When Search Limit is selected for a role on a banking product, Core Banking checks if the contract participant with this role has an attached limit configured with a limit type associated to the same role.

ADD MANDATORY ROLE



Click the **Save and Reload** button at the top right corner of the page.

Dimensions

The **Dimensions** tab displays the interests, commissions, insurances, discount and questions valid for a product.

You can insert, delete or export interest, commissions, insurances, discounts or questions. To add a new one, click **Insert** and fill-in the fields detailed in the sections below.

NOTE

To configure the interest and commissions separately, navigate to **Main > Banking Product Factory > Banking Product Dimensions menu** which contains several other embedded menus.

Interest & Commissions

Click **Insert**. In the **Interest & Commission Item** page, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Enter a code for this particular interest/ commission.
Item Name	Yes	Text	Enter a name.
Start Date	No	Date	The start date when the interest/ commission becomes effective.
End Date	No	Date	The end date for the interest/ commission.
Interest List	No	Option set	Select from which list the interest is a part of.
Commissions List	No	Option set	Select from which list the commission is a part of.
Minimum Interest Rate (%)	No	Numeric	Enter the percent applicable as a minimum interest rate at the contract level.
Is Negotiable	No	Bool	Select the checkbox to specify that every interest, commission or margin field at the contract level is negotiable and can be edited.

Click the **Save and Reload** button at the top right corner of the page.

In the **Interest & Commission Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
Until Value/ Until Date	No	Text/Date	Select the maximum value/ date for the filter.
Description	No	Text area	This field is automatically filled in after clicking the Save and Reload button. The values/ dates inserted above are turned into an expression.
For Lookup attributes			
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Option Set	No	Option set	It is automatically filled in with the option set name created for the attribute.
Description	No	Text area	It is left blank. Add a description if needed.
Grid of Options	No	Grid	This field is automatically filled in after clicking the Save and Reload button. The values of the option set are displayed. Select the bool for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter: EducationLevel

OptionSet: Education Type

Description

Refresh

Name	DisplayName
Highschool	Baccalaureat
No studies / Primary school	Fara studii sau scoala primara
Gymnasium studies	Gymnasium studies
High school	High school
Higher education	Licenta
postgraduate	Licenta universitara
Postgraduate studies (MBA, MA, ACCA, CFA, etc.)	Master/MBA/EMBA/Dr.

Click the **Save and Reload** button at the top right corner of the page.

Insurance

For any banking product, you can select a pre-existing insurance or create a new one. To add a new one, fill in the following fields:

Field	Required	Data Type	Details
Banking Product	Yes	Option set	Select the banking product.
Code	No	Text	Insert a code for this particular insurance.
Item Name	Yes	Text	Insert a name.
Start Date	No	Date	It is the start date when the insurance becomes effective.
End Date	No	Date	It is the end date for the insurance.
Details	No	Text area	It is left blank. Add a description if needed.
Insurance List	No	Option set	Select from which list the insurance is a part of.

Click the **Save and Reload** button at the top right corner of the page.

In the **Insurance Item Filters** section, click **Insert** and fill in the following fields:

Field	Required	Data type	Description
Filter	Yes	Option set	The name inserted earlier.
Value	Yes	Text	The starting value for the attribute.
Until Value	Yes	Text	The ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

Click the **Save and Close** button at the top right corner of the page.

Discounts

For any banking product, you can add discounts of any nature. You can select a pre-existing discount or create a new one.

Click the **Insert** button. In the **Details** page, fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Discount	No	Option set	Choose one of the pre-configured types of discounts or create a new one. According to the selected type, new fields appear on the page requiring to be filled in.
Value discount	No	Numeric	Insert the value of the discount to be applied, e.g. 15.

Field	Required	Data Type	Details
Start date	Yes	Date	It is the start date when the discount becomes effective.
End date	Yes	Date	It is the end date for the discount.
Applied to dimension	No	Option set	Specifies for which product dimension this discount is applicable (interest, commission or insurance). This is autocompleted by the selected discount's dimension.
Commission type	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount . Specifies for which commission type this discount is applicable. This is autocompleted by the selected discount's default commission type.
Commission	No	Lookup	This field appears if the selected discount = Commission discount or Management Fee Discount . Specifies for which commission this discount is applicable. This is autocompleted by the selected discount's default commission.
Insurance class	No	Lookup	This field appears if the selected discount = Discount Life Insurance or Interest Discount . Specifies for which insurance class this discount is applicable (credit, home, life or other insurance class). This is autocompleted by the selected discount's insurance class.

Field	Required	Data Type	Details
Insurance	No	Lookup	This field appears if the selected discount = Discount Life Insurance. Specifies for which insurance this discount is applicable. This is autocompleted by the selected discount's insurance.
Interest type	No	Lookup	This field appears if the selected discount = Interest discount. Specifies for which interest type this discount is applicable.
Use Banking Formula	No	Bool	If you select this checkbox, the discount is calculated using the Banking Formula engine.
Is optional discount?	No	Bool	Selecting this checkbox results in the discount being applied only if the customer agrees to the discount.
Is percentage	No	Bool	If you select this checkbox, the discount is calculated as a percentage from the contract's amount.
Destination entity	No	Option set	Select the entity where to register the discount. This field opens when the Is optional discount? checkbox is selected.
Destination entity attribute	No	Option set	Select the attribute where to register the discount. This field opens when the Is optional discount? checkbox is selected.

Click the **Save and Reload** button at the top right corner of the page.

In the **Product Discount Item Filter** section, click **Insert** and fill in the fields as specified in the [Product Filter page](#). The fields displayed depend on the selected filter.

Click the **Save and Reload** button at the top right corner of the page.

Questions

Choose one or more questions to add to the banking product, or insert a new one.

To insert a new question, click **Insert existing**, then click **Insert**. In the **Add Banking Product Question** page, fill in the following fields:

Field	Required	Data type	Description
Question	No	Text	Enter the appropriate name.
Answer Type	No	Option set	Select the type of answer the customer has to give: <ul style="list-style-type: none"> • text • numeric • option set.
Answer Entity	No	Option set	Select the entity where the answer is stored.
Answer Field	No	Option set	Select the attribute where the answer is stored.

Click the **Save and Reload** button at the top right corner of the page.

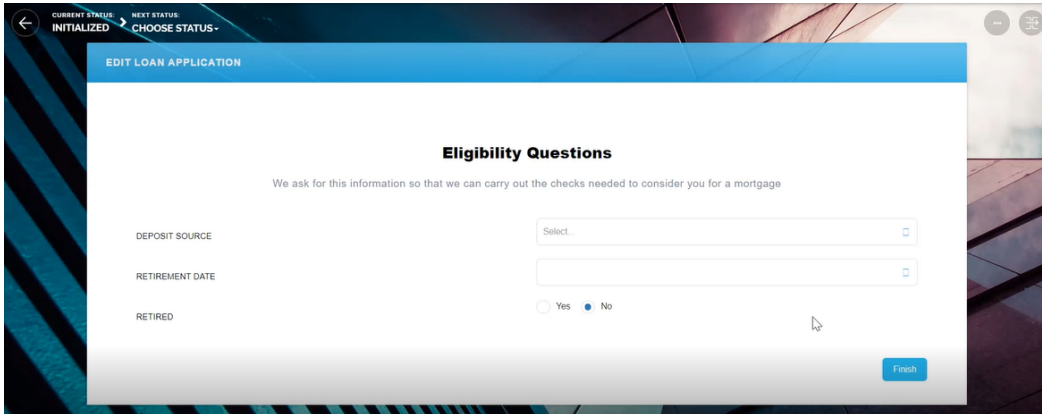
The **Banking Products List** shows where the question is used.

IMPORTANT!

The question has to be activated in order for it to be added to the banking product.

Click the **Save and Close** button at the top right corner of the page.

For example, this is how a question is displayed in a digital journey in the FintechOS Portal:



Risk Formulas

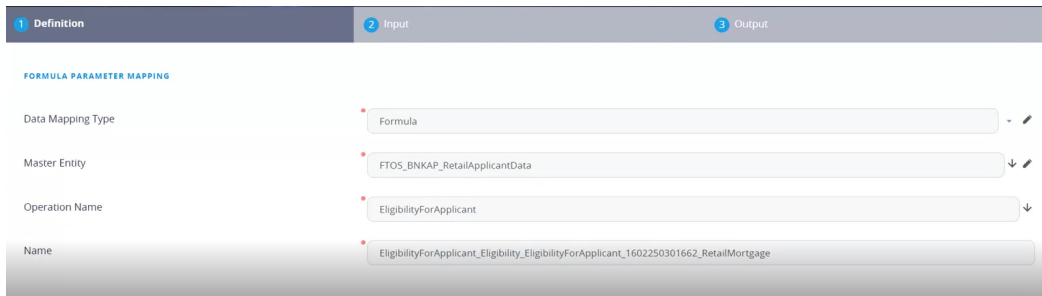
The **Risk Formulas** tab keeps formulas built with [Formula Engine](#) for the banking product. Such formulas can be used to determine the eligibility of a customer.

In the **Banking Product Formula** section, choose an already defined formula or click **Insert** to configure a new one, for example a formula for eligibility or scoring purposes. For information on how to build a formula, see [Define Formula Inputs](#).

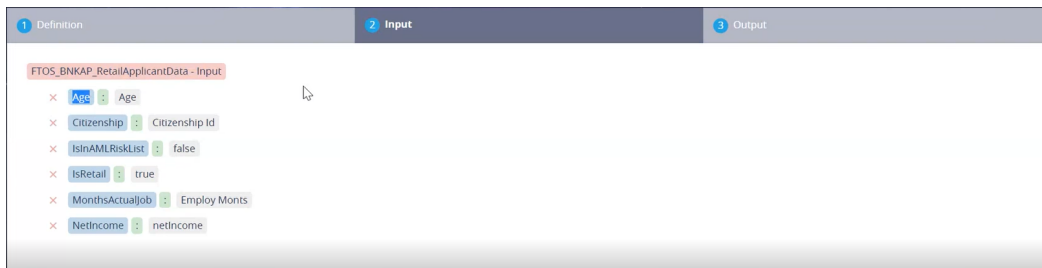
In the **Add Banking Product Formula** page, fill in the following fields:

Field	Required	Data type	Description
Name	No	Text	Enter an appropriate name.
Banking Product	No	Option set	The name of the banking product is inserted automatically.
Formula Type	Yes	Option set	Select the type of formula configured before, e.g. scoring /eligibility.
Formula	Yes	Option set	Select the previously configured formula. <div style="border: 1px solid #ccc; background-color: #f9e79f; padding: 10px; margin-top: 10px;"> <p>IMPORTANT! The formula must be activated before attaching it to a product.</p> </div>

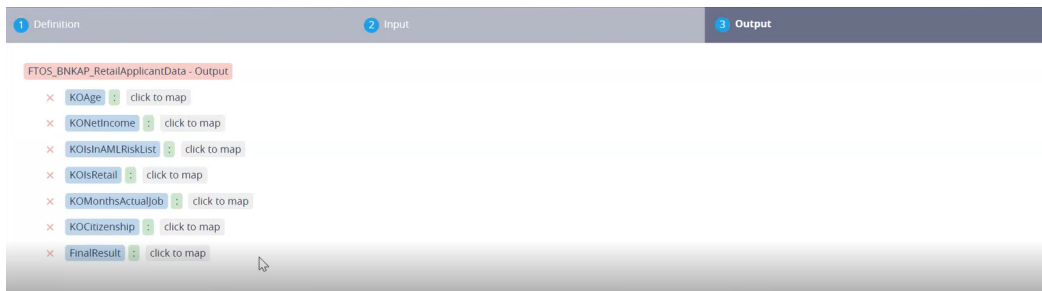
After selecting the desired formula, click **Save and reload**, then click **Map Data**.



In the **Formula Mapping** page, click **Input** and configure the input data for the formula.

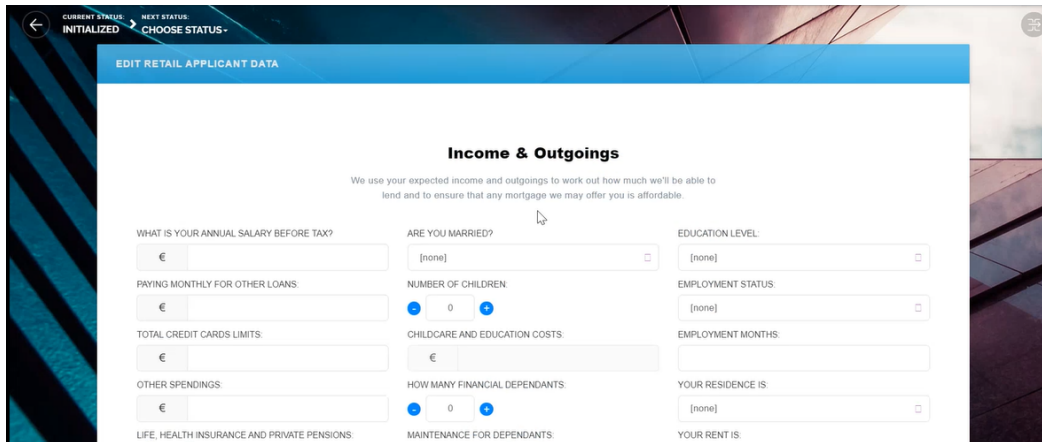


Click **Output** and configure the output for the formula.



Click the **Save and Close** button at the top right corner of the page.

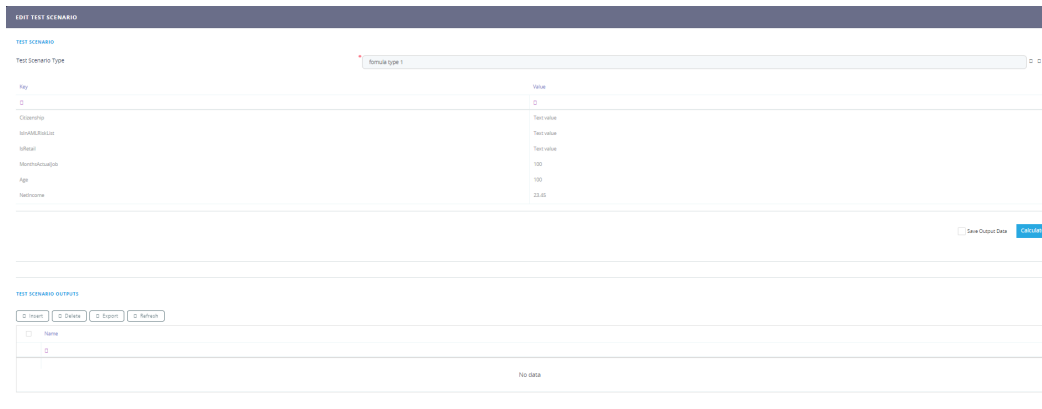
Such formulas can be used in digital journey steps, for example when the customer inserts their financial data.



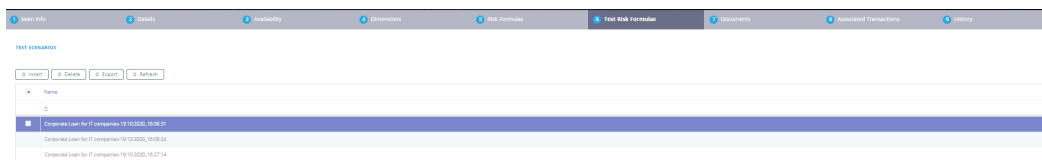
Test Risk Formulas

A good practice is to test the formula before displaying it in a digital journey. You can do that in the **Test Risk Formulas** tab.

Insert **Test Scenario Type** from the option set. The keys and the values are shown. Click the **Save and Reload** button at the top right corner of the page.



Click the **Calculate** button. The outputs are displayed in the **Test Scenario Outputs** section. These outputs can be saved by selecting the **Save Output Data** checkbox next to **Calculate**.



Documents

The **Documents** tab contains all the attached documents available for a product. The previously associated documents are displayed in the **Banking Product Documents** section.

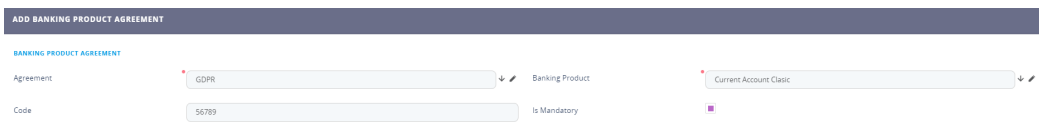
To attach a new document to the banking product, click **Insert** and fill in the following fields:

Field	Data Type	Description
Operation Code	Whole number	Enter a code for the document.
Banking Copies No	Whole number	Insert the number of copies made.
Report	Lookup	Select a document from the list.
Document Type	Option set	Select a document type from the list.
Is Mandatory	Bool	Select if the document is mandatory.
Includes Debtor	Bool	Select if the document includes the debtor.
Includes Coborrower	Bool	Select if the document includes the co-borrower.
Requires Signature	Bool	Select if the document requires to be signed.
Is accord	Bool	Select if the document represents the accord.

Click the **Save and Close** button at the top right corner of the page.

The agreements that a customer needs to go through are displayed in the **Banking Products Agreement** section. To attach a new agreement to the banking product, click **Insert** and fill in the following fields:

Field	Required	Data Type	Description
Agreements	Yes	Option set	Select an agreement from the list.
Banking Product	Yes	Option set	It is automatically filled in.
Code	No	Whole number	Insert the corresponding code.
Is Mandatory	No	Bool	Select if the agreement is mandatory for the product.



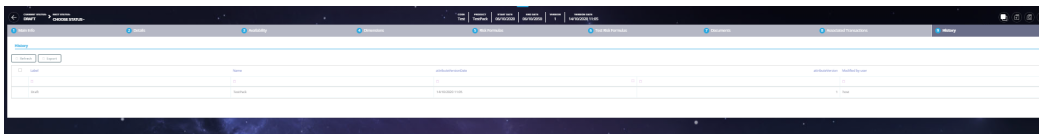
Click the **Save and Close** button at the top right corner of the page.

For more information on how to configure a contract or an agreement, see the [Digital Document Processor](#).

History

The **History** tab displays the versions of the banking product, their workflow status and the user who modified the product.

Here you can track the product's life cycle and review older versions that are no longer active (for details, see "[Banking Products' Life Cycle](#)" on page 373).



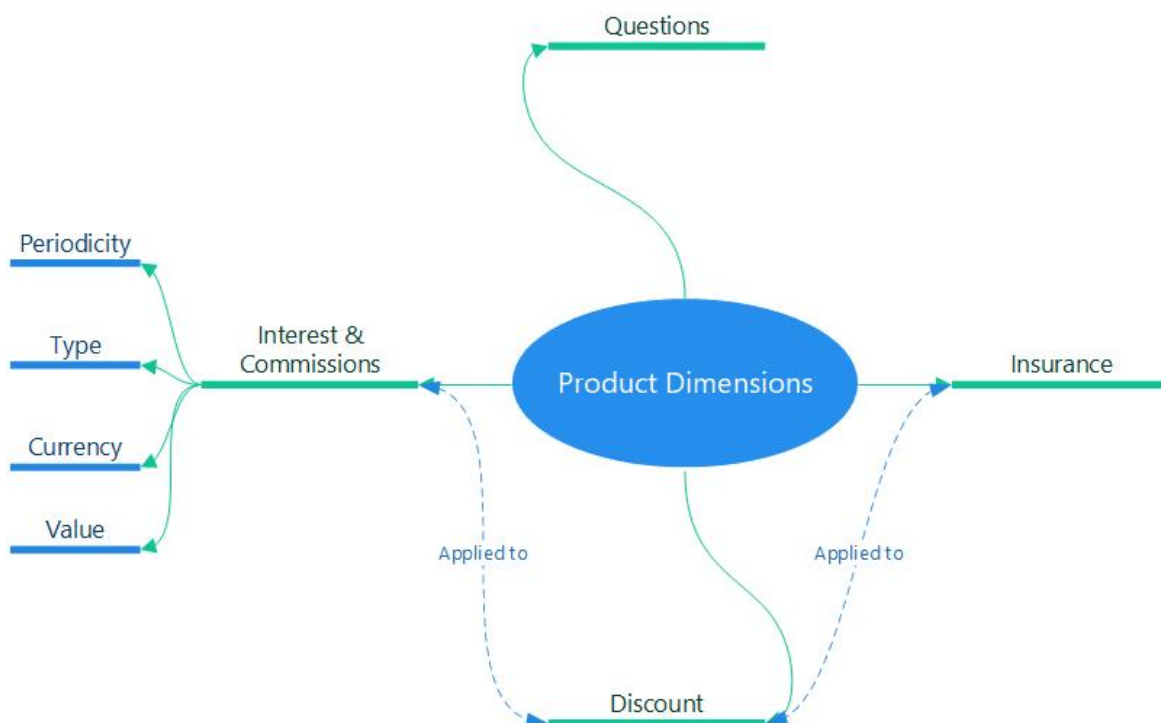
Product Dimensions

Product dimensions group together the notions of interest and commissions. Such notions transcend the banking product offered to a customer, presenting the configurations for the finance world. The **Product Dimensions** menu in Innovation Studio is a convenient place to manage the variety of interest rates and the multitude of commissions used for different banking products.

Since inflation affects the interest, it is mandatory to keep track of the changes, to register any new values for the rates and apply them to customers. Commissions are equally important, they represent the fees the bank has for offering a product or service. Fees keep the business going, being a steady flow of money to the bank's revenue. To stay competitive, banks apply discounts to the two mentioned above. For contracting a loan, for example, a customer takes on an insurance. This insurance is part of the product dimensions. Lastly, to determine important details about a customer when they are applying for a product, it is important to have questions for the "Know Your Customer" process to determine their eligibility.

The **Product Dimensions** menu allows you to manage the following dimensions:

- Commissions
- Commissions list
- Interest
- Interest list
- Insurance
- Insurance list
- Discounts
- Questions.



There are two possible options for building the product dimensions:

- Expand the **Banking Product Dimensions** menu and configure each of the items enumerated above with its respective menu in the Innovation Studio.
- Another option is to start building the banking product and configure the dimensions in the banking product's page > **Dimensions** tab.

Managing Interests and Commissions

Interests and commissions are set up independently from the banking products. They are available in banking products in the form of interest lists or commission lists respectively, after they have been grouped together based on their use.

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Commission Definition Best Practices 314

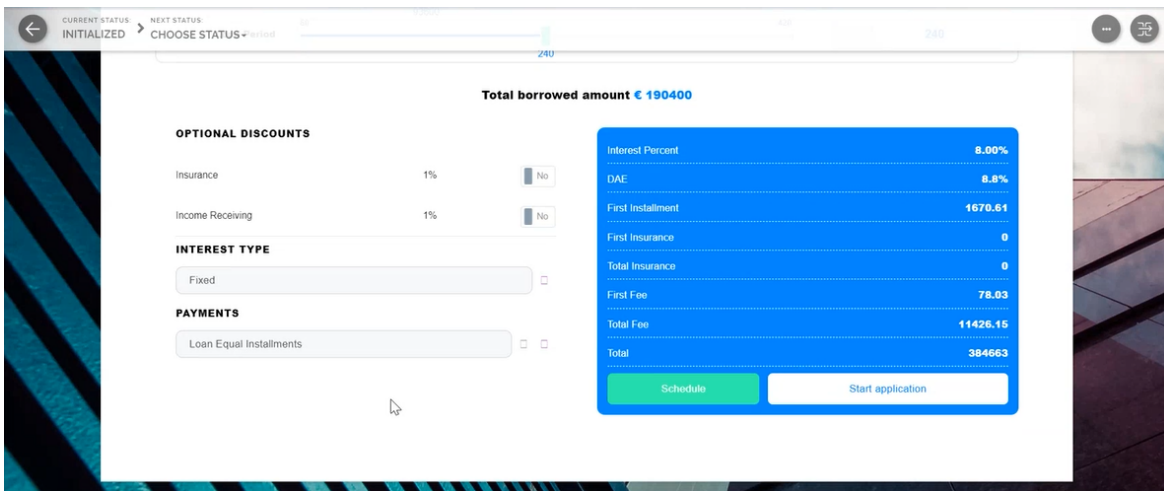
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Interests

Innovation Studio has a dedicated menu item, **Interests**, to aid the users in creating and updating interests and applying them to a product. There are three main types of interests: fixed, base and variable. Banks can set up variable interests for loans and also calculate the amount each customer has to pay.

The following picture illustrates how the interests can be shown in a loan origination digital journey:



To manage interests:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory-> Banking Product Dimensions**.

4. Click **Interests** to open the **Interest List** page.

INTEREST LIST				
<input type="checkbox"/>	Code	Name	Interest Type	Base Interest
	Q	Q	Q	Q b
	asdsa	as	Variable	BIBOR 2 Month
	FB12M	Corporate Floating BIBOR 1 Year	Variable	BIBOR 1 YEAR
	FB1M	Corporate Floating BIBOR 1M	Variable	BIBOR 1 Month
	FBM2	Corporate Floating BIBOR 2M	Variable	BIBOR 2 Month
	FB3M	Corporate Floating BIBOR 3M	Variable	BIBOR 3 Month
	FB6M	Corporate Floating BIBOR 6M	Variable	BIBOR 6 Month
	CC11	Credit Card Interest1	Variable	BIBOR 3 Month

5. In the **Interest List** page, you can:

- Add a new interest by clicking the **Insert** button at the top right corner.
- Edit an existing interest from the list by double clicking it.
- Delete an interest by selecting it and clicking the **Delete** button at the top right corner.

The **Edit Interest** page allows you to configure interest settings.

EDIT INTEREST

INTEREST

Code: Name: Is Default: Use Banking Formula:

Interest Type: Reference Interest Period:

Is Penalty: For Sight Deposit:

Is Credit Line Interest: Is Debit Order Interest:

Description:

HINT
 Read about how and when to use each interest type on the dedicated [Interest Definition Best Practices](#) page.

Adding Interests

To create a new interest, click the **Insert** button on the top right side of the page. In the newly opened **Add Interest** page, fill in the following fields from the **Interest** section:

Field	Required	Data Type	Details
Code	Yes	Text	Insert a code for this particular interest.
Name	Yes	Text	Insert a name.
Is Default	No	Bool	Select the checkbox if the interest is a default one.
Use Banking Formula	No	Bool	Select the checkbox if the interest is of type Banking Formula.

Field	Required	Data Type	Details
Interest Type	Yes	Option set	<p>Select the type of interest:</p> <ul style="list-style-type: none"> • Fixed - the interest has one value during the validity period. • Base Type - used for calculating the variable type, i.e. ROBOR. • Variable - an interest rate formed from a Base Type interest + a variable percent, e.g. EURIBOR + 4%. • Collection - a combination of previously defined fixed and/or variable interest rates. • Banking Formula - an interest rate that can be defined as a banking formula from the Formula Engine. • Banded - an interest rate that can be defined as a collection of values that is applied depending on the amount. For example, the bank wants to apply an

BANKING PRODUCT FACTORY USER GUIDE

Field	Required	Data Type	Details
			<p>interest rate of 5% for borrowed amount between 1 and 10,000, an interest rate of 4.5 % for the amounts between 10,001 and 20,000, and an interest rate of 4% for amounts surpassing 20,001.</p> <div data-bbox="966 766 1369 1230" style="background-color: #f4b084; padding: 10px; border: 1px solid #ccc;"> <p>IMPORTANT! If you choose Variable, a new field Base Interest is displayed.</p> <p>Banded interest can be used only for Current Account with Overdraft banking products.</p> </div>
Base Interest	Yes	Lookup	Only displayed for variable interest types. Select (or insert) the base type interest used for calculating the variable interest.

BANKING PRODUCT FACTORY USER GUIDE

Field	Required	Data Type	Details
Reference Interest Period	No	Option set	<p>Choose the interest reference period (where M = months, Y = years):</p> <ul style="list-style-type: none"> • 1M • 1Y • 2M • 3M • 6M
For Sight Deposit	No	Bool	Used only for deposits when the interest is at sight. It is used when a customer wishes to end a deposit before the maturity date (end date). The customer does not receive the full interest, but a sight interest because the deposit has not reached its maturity.
Is For Overdraft	No	Bool	If this interest is an interest applicable to the overdraft amount of a contract based on a banking product that allows overdraft operations, select this checkbox.
Is Penalty	No	Bool	<p>If this interest is a penalty interest, select this checkbox. Penalty interests are only possible for loans.</p> <div style="border: 1px solid black; background-color: #f4a460; padding: 10px; margin-top: 10px;"> <p>IMPORTANT! If you select this checkbox, two new fields, Is General and Apply to Loan Item (If Overdue) are displayed.</p> </div>

Field	Required	Data Type	Details
Is General	Yes	Bool	<p>Only displayed for interests applicable as penalties. If selected, this penalty interest is applied to all the loan contract's operation items that are overdue for payment, instead of having to define different penalty interests for each operation item that is subject to penalty interest calculation on a contract. This can be useful when you need to define one mass penalty interest to be applied to all the overdue amounts subject to penalty interest calculation resulting from repayment schedule processing.</p> <p>If a banking product has in its attached interests list an interest with Is General = True, then at the contract level the penalty percent is applied to all operation items that are overdue and are marked with Include In Penalty Calculation = True.</p> <div data-bbox="966 1444 1369 1810" style="background-color: #e1eef6; padding: 10px; border: 1px solid #a0c4ff;"> <p>NOTE You can specify which operation items should be used by Core Banking for penalty interest calculation within the Add/ Edit</p> </div>

Field	Required	Data Type	Details
			<p>Operation Item pages, selecting the Include In Penalty Calculation checkbox and then selecting an item from the Penalty Item (for Repayment Notification) list. Read more about operation items in the Core Banking user guide.</p> <p>An interest list cannot contain a penalty interest with Is General = True and another penalty interest with Is General = False.</p>
Applied To Loan Item (If Overdue)	Yes	Bool	Only displayed for interests applicable as penalties that have Is General = False . Select the operation item of the loan contract for which the penalty interest is applied.
Is Credit Line Interest	No	Bool	Interest that is applicable to the credit line.
Is Debit Order Interest	No	Bool	Interest that is applicable at each debit order.
Description	No	Text area	Insert a description for the interest.

Click the **Save and Reload** button at the top right corner of the page.

Interest Value

The **Interest Value** section is available only for Fixed, Base Type, and Variable interest rates . Insert the values (usually the interest rate index to your margin) by filling in the following fields:

Field	Data Type	Description
Value	Numeric	Interest rate percentage.
Status	Option set	Select either Active or Draft to enable or disable the interest rate.
Begin Date	Date	Select the day when the interest rate becomes applicable.
End Date	Date	Select the last day when the interest rate is applicable.
Shock	Whole Number	Percentage threshold at which the interest no longer follows the base value, e.g. if the interest increases by 5%, that 5% is the shock suffered and the interest no longer is calculated at base value.

The screenshot shows a form titled "EDIT INTEREST VALUE". It contains the following fields and values:

- Value:** 1.15
- Status:** Active
- Valid From:** 06/02/2020
- Valid To:** 06/02/2020
- Shock:** (empty field)

NOTE

The margin is placed in a variable interest.

Click the **Save and Reload** button at the top right corner of the page.

Interest Rates Collections

The **Interest Rates Collections** section is available only for **Collection** type interests. Such collections can hold more than one interest types, each with its own start period and installment. This is useful for example, when applying a fixed interest rate for the first 7 years of a mortgage loan, and applying a variable interest rate for the remaining period.

Insert the values in the section fields:

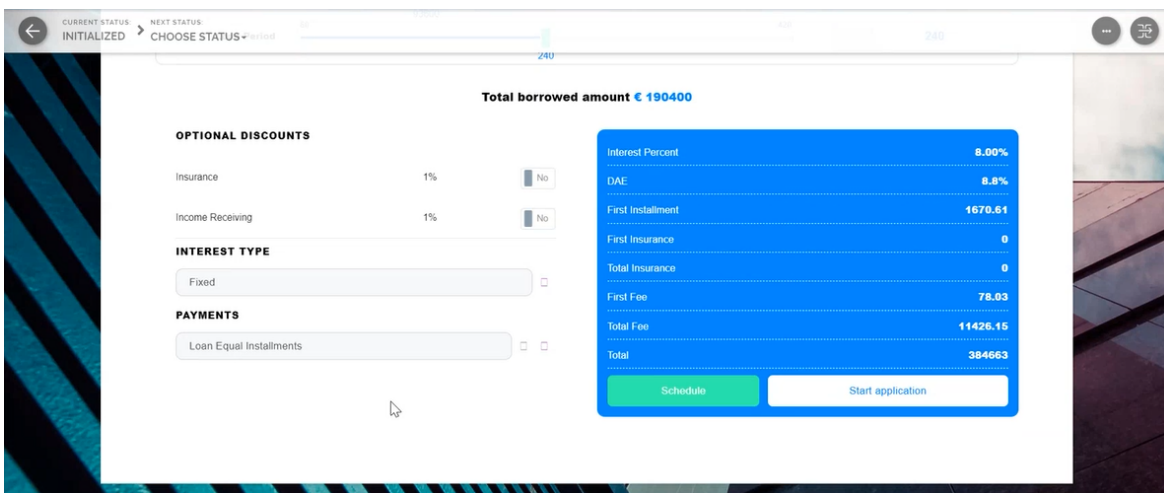
Field	Data Type	Description
Master Interest	Text	The name of the interest.
Interest	Option set	Select a previously defined interest.

Field	Data Type	Description
Collection Item Start Date	Date	Select the day when the interest rate becomes applicable.
Collection Item End Date	Date	Select the last day when the interest rate is applicable.
Start Period (Installment No)	Whole Number	Select the first installment when the interest rate becomes applicable.
End Period (Installment No)	Whole Number	Select the last installment when the interest rate is applicable.

Banking Formula Interest Rate

When creating an interest rate based on a banking formula, the **Use Banking Formula** checkbox is selected. In addition, the **Banking Formula Type** field allows you to pick from already defined banking formulas. Click the arrow next to the field. A list of available banking formulas opens. Click the **Insert** button to create a new banking formula. Add a name for the banking formula. Insert or create an interest, banking product formulas, and test scenarios.

After all configurations are made, the interest options are displayed in a Digital Journey in the following way:



Interest Definition Best Practices

This page presents a series of recommendations about defining interests to be used in conjunction with banking products and contracts based on these banking products. For step by step instructions on how to add interests and how to fill in each field on the page, please read the dedicated [Interests](#) page.

General Notes

- The validity period of an interest (the period between the values entered in the Valid from and Valid to fields) is taken into consideration when searching for the values of each interest.
- The system performs validations to ensure that the time intervals for interest validity do not overlap. It also ensures that the interest has a valid value at any given time of a contract's life cycle.
- Penalty calculations are applied to overdue payment amounts in contracts, while interests are applied to remaining payment amounts. You can specify that an interest is penalty if you select the **Is Penalty** checkbox in the **Interest** page:

INTEREST

Code EU 6M	Name Euribor 6M	Is Default <input type="checkbox"/>	Use Banking Formula <input type="checkbox"/>
Interest Type Variable	Base Interest Euribor 6M Reference		
Is Penalty <input type="checkbox"/>		For Sight Deposit <input type="checkbox"/>	
Is For Overdraft <input type="checkbox"/>	Is Credit Line Interest <input type="checkbox"/>	Is Debit Order Interest <input type="checkbox"/>	
Description			

IMPORTANT!

We advise against defining collection interests for penalties. Instead, create interests for penalties using [Business Formulas](#).

The following sections display examples of each interest type's typical definition:

Fixed Interest

The fixed interest has one value during the validity period.

Define fixed interests by selecting Interest Type = Fixed and entering values for determined intervals of time.

The following picture shows how the value of a fixed interest differs depending on its validity period:

INTEREST

Code: FI6 Name: Corporate Fix Interest 6% Is Default: Use Banking Formula:

Interest Type: Fixed

Is Penalty: For Sight Deposit:

Is For Overdraft: Is Credit Line Interest: Is Debit Order Interest:

Description:

INTEREST VALUE

+ Insert X Delete Export Refresh

	Value	Status	Valid From	Valid To
	6.00	Active	01/01/2019	31/10/2019
	2.25	Active	01/11/2019	31/12/2019
	6.00	Active	01/01/2020	31/12/2021

Base Type Interest

The base type interest is used for calculating the variable type, i.e. EURIBOR or IRCC. The EURIBOR base type interest is updated on a daily bases by the European Central Bank.

Define base type interests by selecting Interest Type = Base Type and entering values for determined intervals of time.

The following picture shows how the value of a base type interest differs depending on its validity period:

INTEREST

Code: BIB1M Name: BIBOR 1 Month Is Default: Use Banking Formula:

Interest Type: Base Type (highlighted) Reference Interest Period: 1M

Is Penalty: For Sight Deposit:

Is For Overdraft: Is Credit Line Interest: Is Debit Order Interest:

Description:

INTEREST VALUE

+ Insert X Delete Export Refresh

Value	Status	Valid From	Valid To
1.30	Active	02/01/2020	05/02/2020
1.06	Active	07/02/2020	31/03/2020
1.26	Active	01/04/2020	31/05/2020
1.08	Active	06/02/2020	06/02/2020

Variable Interest

The variable interest is an interest rate formed from a Base Type interest + a variable percent, e.g. EURIBOR + 4%.

Define variable interests by selecting Interest Type = Variable, selecting a predefined base interest from the list, then entering values for the variable percents for determined intervals of time.

The following picture shows how the value of a variable interest differs depending on its validity period:

INTEREST

Code: FB1M

Name: Corporate Floating BIBOR 1M

Is Default:

Use Banking Formula:

Interest Type: Variable

Base Interest: BIBOR 1 Month

Is Penalty:

For Sight Deposit:

Is For Overdraft:

Is Credit Line Interest:

Is Debit Order Interest:

Description:

INTEREST VALUE

+ Insert X Delete Export Refresh

Value	Status	Valid From	Valid To
2.00	Active	01/01/2020	01/01/2022
1.90	Active	01/07/2019	31/12/2019
1.80	Active	01/01/2019	30/06/2019

Collection Interest

The collection interest is a combination of previously defined fixed and/ or variable interest rates. It can be used for fixed to float interest contracts. The validation of each composing interest is performed on intervals. For example, for a term loan contract, the bank may apply a fixed interest for the first 12 months of the contract, then for the second and third year another fixed interest, and then for the remaining period a variable interest rate.

Define collection interests by selecting Interest Type = Collection, then selecting predefined interests as elements of the collection that are applicable on specific time intervals and depending on the contract's number of installment. The system performs validations to ensure that the time intervals and the installment intervals do not overlap and no time or installment interval is left undefined.

The following picture shows how the value of a collection interest differs depending on the contract's number of the installments:

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INTEREST

Code: FixFloat

Name: FixToFloat

Is Default:

Use Banking Formula:

Interest Type: **Collection**

Is For Overdraft:

Is Credit Line Interest:

Is Debit Order Interest:

Description:

INTEREST RATES COLLECTIONS

+ Insert X Delete Export Refresh

<input type="checkbox"/>	Interest	Collection Item Start Date	Collection Item End Date	Start Period (Installment No)	End Period (Installment No)
<input type="checkbox"/>	Corporate Fix Interest 6%	01/01/2021	31/01/2050	1	12
<input type="checkbox"/>	Corporate Floating BIBOR 3M	01/01/2021	31/01/2050	13	300

Banded Interest

The banded interest, applicable for contracts based on current account with overdraft banking products, can be defined as a collection of values that is applied depending on the amount. For example, the bank wants to apply an interest rate of 5% for borrowed amount between 1 and 999.99, an interest rate of 3 % for the amounts between 1000 and 3999.99, and an interest rate of 4.9% for amounts surpassing 4000.

Example of a banded interest:

FromValue	ToValue	InterestRate
0	999.99	5
1000	3999.99	3
4000	1000000	4.9

Define several banded interests by selecting Interest Type = Banded and entering values for determined intervals of time. Later, create a collection type interest, select the **Is For Overdraft** checkbox, and use the previously defined banded interests to define the specify the values applicable for overdraft amount intervals.

The following picture shows how three banded interests are used within a collection type interest to define bands of different value to be applied for different amounts of overdraft contracts:

BANKING PRODUCT FACTORY USER GUIDE

INTEREST

Code: Name:

Interest Type:

Is For Overdraft:

BANDED INTERESTS

Interest	Min Utilized Amount	Max Utilized Amount	Collection Valid From	Collection Valid To
BandedEUR_C1	0.00	999.99	01/01/2021	31/12/2021
BandedEUR_C3	4,000.00	10,000,000.00	01/01/2021	31/12/2021
BandedEUR_C2	1,000.00	3,999.99	01/01/2021	31/12/2021

INTEREST

Code: Name:

Interest Type: Base Interest:

Description:

INTEREST VALUE

Value	Status	Valid From	Valid To
5.00	Active	01/01/2021	31/12/2021

INTEREST

Code: Name:

Interest Type: Base Interest:

Description:

INTEREST VALUE

Value	Status	Valid From	Valid To
1.00	Active	01/01/2021	31/12/2021

IMPORTANT!
Banded interest can be used only for **Current Account with Overdraft** banking products.

Interest Lists

An interest list allows you to group multiple interests into a collection of interests that you can use in a banking product. You can group under the same umbrella the following types of interests created individually in the ["Interests" on page 286](#): variable interest, base type and fixed interest.

To manage interest lists:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory** -> **Banking Product Dimensions**.
4. Click **Interest List** to display the **Interest List List** page.

INTEREST LIST LIST

Name
Q
Corporate Current Account
Corporate Fix Deposit Interest USD
Corporate Fix Deposit Interest VND
Corporate Interest 10
Corporate Interest VND
Corporate Overdraft Line
Credit Card Interet List

5. In this page, you can:
 - Add a new interest list by clicking the **Insert** button at the top right corner of the page.
 - Edit an interest list from the section by double clicking it.

- Delete an interest list from the section by selecting it and clicking the **Delete** button at the top right corner of the page.

The **Edit Interest List** page allows you to configure interest list settings.

Name	Code	Description
Corporate Current Account	Co CA	

Adding Interest Lists

To create a new interest list, follow these steps:

1. Click the **Insert** button on the top right side of the page. The **Add Interest List** page is displayed.
2. Enter a **Name** for the interest list.
3. Click the **Save and Reload** button at the top right corner of the page.
4. Click the **Insert existing** button to add the applicable interests in the **Interest** section.
5. Click the **Save and Close** button at the top right corner of the page.

Commission Types

Commission types are used to categorize **commissions** according to their intended usage. For example, there are administration fee type commissions, front-end fee type commissions, payment holiday fee type commissions and so on.

To manage commission types:

BANKING PRODUCT FACTORY USER GUIDE

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory-> Banking Product Dimensions**.
4. Click **Commission Types** to open the **Commission Types List** page.

COMMISSION TYPES LIST	
<input type="checkbox"/> Name	Periodicity Type
Administration Fee	Monthly
Commission Undrawn Amount (overdraft) Monthly	Monthly
Commission Undrawn Amount (overdraft) Once	Once
Commission Unusage Monthly	Monthly
Commission Unusage Once	Once

5 10 20 1 2 3

5. In the **Commission Types List** page, you can:
 - Add a new commission type by clicking the **Insert** button at the top right corner of the page.
 - Edit an existing commission type by double-clicking it.
 - Delete a commission type by selecting it and clicking the **Delete** button at the top right corner of the page.

The **Edit Commission Type** page allows you to configure commission type settings.

EDIT COMMISSION TYPE	
COMMISSION TYPE	
Commission Schema	Payment Holiday ↓ ↗
Name	Payment Holiday Fee
Periodicity Type	Once ⊗ -
Operation Item	Payment Holiday Fee ↓ ↗

Adding Commission Types

To create a new commission type, click the **Insert** button on the top right side of the page. In the newly opened **Add Commission Type** page, fill in the following fields from the **Commission Type** section:

Field	Data Type	Details
Commission Schema	Lookup	Select the schema to which this commission type belongs, if any.
Name	Text	Enter the name of the commission type.
Periodicity type	Option set	Automatically filled-in when you choose the commission type.
Operation Item	Lookup	Select the operation item to which this commission type should be applied.

Click the **Save and Reload** button at the top right corner of the page. The new commission type is created and ready to be used.

Commissions

Commissions are the fees taken by the bank for offering a product or service such as opening an account, for cash withdrawals, for transfers, for making payments in certain countries, for exchanging currencies, for emitting debit cards, for handling documents etc. These commissions vary from bank to bank, based on their policy. Innovation Studio has a dedicated menu for managing commissions in order for a bank to build its network of commissions. These commissions are grouped into lists and attached to banking products, so they reach the contracts.

To manage commissions:

BANKING PRODUCT FACTORY USER GUIDE

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory-> Banking Product Dimensions**.
4. Click **Commissions** to open the **Commission List** page.

COMMISSION LIST						
<input type="checkbox"/>	Name	Commission Type	Currency	Commission Percent Appli...	Periodicity Type	Commission Value Is Perc...
<input type="checkbox"/>	CA Administration Fee	Administration Fee	RON		Monthly	<input type="checkbox"/>
<input type="checkbox"/>	Cancel Fee	Payment Holiday Fee	EUR		Once	<input type="checkbox"/>
<input type="checkbox"/>	ComFormulaPercentage	Management Fee	USD	Remaining Value	Monthly	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Commission Unused Amo...	Commission Unusage	EUR	Unused Amount	Once	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Corporate Current Acccou...	Management Fee	VND			<input type="checkbox"/>

5. In the **Commission List** page, you can:
 - Add a new commission by clicking the **Insert** button at the top right corner of the page.
 - Edit an existing commission by double-clicking it.
 - Delete a commission by selecting it and clicking the **Delete** button at the top right corner of the page.

The **Edit Commission** page allows you to configure commission settings.

EDIT COMMISSION					
COMMISSION					
Name	Corporate Loan Term Front-End Fee VND	Commission Type	Front-end Fee		
Periodicity Type	Once	Currency	VND	Status	Active
Is For Unusage	<input type="checkbox"/>	Commission Value Is Percentage	<input checked="" type="checkbox"/>	Commission Percent Applied To	Financed Value
Is Included Into Repayment Schedule Installment	<input type="checkbox"/>	Automatic Load On Contract	<input checked="" type="checkbox"/>	Mandatory For Applicant	<input checked="" type="checkbox"/>
Use Banking Formula	<input type="checkbox"/>				
COMMISSION VALUE					
<input type="checkbox"/>	<input type="button" value="Insert"/>	<input type="button" value="Delete"/>	<input type="button" value="Export"/>	<input type="button" value="Refresh"/>	
<input type="checkbox"/>	Commission Percent	Commission Value	Valid From	Valid To	Status
<input type="checkbox"/>	2.00		01.01.2020	31.12.2020	Active

IMPORTANT!

The value of a commission used in active contracts cannot be edited. Instead, you can modify the value's validity and add a new value with a future validity period. For details, see the [Editing The Value Of A Commission Already In Use](#) section.

HINT

Read about how and when to use commissions based on their periodicity type on the dedicated [Commission Definition Best Practices](#) page.

Adding Commissions

To create a new commission, click the **Insert** button on the top right side of the page. In the newly opened **Add Commission** page, fill in the following fields from the **Commission** section:

Field	Data Type	Details
Name	Text	Enter the name of the commission.

Field	Data Type	Details
Commission type	Option set	<p>Choose one from the following:</p> <ul style="list-style-type: none"> • Administration Fee • Commission Undrawn Amount (overdraft) Monthly • Commission Undrawn Amount (overdraft) Once • Commission Unusage Monthly • Commission Unusage Once • Commission Usage Monthly • Commission Usage Once • Front-end Fee • Management Fee • Payment Holiday Fee • Repayment Fee. <div style="background-color: #f4a460; padding: 10px; border-radius: 5px; margin-top: 10px;"> <p>IMPORTANT! The types have a periodicity already set: once/ monthly/ trimester etc.</p> </div>
Periodicity type	Option set	Automatically filled-in when you choose the commission type.
Status	Option set	Select either Active or Draft to enable or disable the commission.
Currency	Option set	Select the currency of the commission from the drop-down.
Is For Unusage	Bool	Select this checkbox if the commission is applied for amount unused from the contract's amount. Usually this commission is applied for unused overdraft amounts.

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Field	Data Type	Details
Commission value is percentage	Bool	Select this checkbox if the commission is measured by percentage, not as a fixed value.

Field	Data Type	Details
Commission percent applied to	Option set	<p>Only displayed if you select the checkbox next to the Commission value is percentage field. Choose one of the following:</p> <ul style="list-style-type: none"> • Remaining value - the percentage applies to the contract's remaining to be repaid value . • Financed value - the percentage applies to the contract's financed value. • Paid value - the percentage applies to the anticipated payment performed on the contract. • Unused amount - the percentage applies to the contract's unused amount from the granted value. • Used amount - the percentage applies to the contract's used amount from the granted value. • Overdraft limit amount - the percentage applies to the contract's overdraft limit amount. • Amount - the percentage applies to the contract's amount. <p>For Term Loan, Mortgage or Overdraft banking products the calculation method is as follows: If percentAppliedTo =</p>

Field	Data Type	Details
		<p>financedAmount, then $\text{financedAmount} = \text{amountDue} - \text{advanceAmount};$ If percentAppliedTo = amount, then $\text{financedAmount} = \text{amountDue};$ If percentAppliedTo = remainingValue, then, if Contract Status = ContractVersionDraft, then $\text{financedAmount} = (-1) * \text{mainBankAccountBalance}.$ No negative values are allowed, so if the result is negative, then $\text{financedAmount} = \text{null}.$ Default value $\text{financedAmount} = \text{null}.$</p> <p>For Current Account with Overdraft banking products the calculation method is as follows: If percentAppliedTo = overdraftLimitAmount, then $\text{financedAmount} = \text{overdraftLimitAmount};$ If percentAppliedTo = usedAmount, then if (periodType == Once), $\text{financedAmount} = \text{overdraftLimitAmount} - \text{availableAmountForOverdraft},$ else $\text{financedAmount} = \text{null}.$ Default value $\text{financedAmount} = \text{null}.$</p>
Is included in repayment schedule installment	Bool	<p>If true and the Periodicity Type is not Once, the commission is included into the Repayment Schedule (should be provided with a column where to put this Commission).</p>

Field	Data Type	Details
Automatically load on contract	Bool	Select this checkbox if the commission should be automatically loaded on the contracts based on banking products using this commission.
Mandatory for applicant	Bool	This checkbox makes the commission mandatory to be paid by a customer. If the bank negotiated with a customer to not pay this commission, put the value zero.
Use Banking Formula	Bool	Select the checkbox if the commission is to be defined with an attached business formula for value.
Is For Contract Version	Bool	<p>Select the checkbox if the commission is applied when a new version of the contract is created.</p> <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin-top: 10px;"> <p>NOTE</p> <p>If a version for a contract is created more than once on the same day, then all commissions with Is For Contract Version = True that were not notified yet for each previous version are deleted. At the end of the day, there is only one commission for the latest version.</p> </div>

Click the **Save and Reload** button at the top right corner of the page.

In the **Commission value** section, insert or delete the values of the commission.

EDIT COMMISSION VALUE

COMMISSION VALUE

Commission Percent Commission Value

Valid From Valid To

Status

To add a new commission value, click **Insert** and fill in the following fields in the newly opened **Commission** page:

Field	Data Type	Details
Commission percent	Numeric	The percent representing the commission.
Commission value	Numeric	The value of the commission.
Valid from	Date	Select the day when the commission value becomes applicable.
Valid to	Date	Select the last day when the commission value is applicable.
Status	Option set	Select either Active or Draft to enable or disable the commission.

Click the **Save and Close** button at the top right corner of the page.

Commission Definition Best Practices

This page presents a series of recommendations about defining commissions to be used in conjunction with banking products and contracts based on these banking products. For step by step instructions on how to add commissions and how to fill in each field on the page, please read the dedicated [Commissions](#) page.

General Notes

- Each commission type has a specific periodicity. Some commissions are taken once within a contract, others can occur monthly, and others when a specific contract event occurs. When you select the **Commission Type**, the **Periodicity Type** is automatically filled in by the system.
- If you select the **Is Included Into Repayment Schedule Installment** checkbox for a commission and the **Periodicity Type** is different than **Once**, then the commission is included into the repayment schedule. Note that the repayment schedule should be provided with a column to place the commission.

Let's say you define an Administration Fee or a Management Fee with the Is Included Into Repayment Schedule Installment checkbox selected:

COMMISSION

Name: DFUNITS Commission Type: Administration Fee

Periodicity Type: Monthly Currency: EUR Status: Active

Is For Unusage: Commission Value Is Percentage: Commission Percent Applied To: Financed Value

Is Included Into Repayment Schedule Installment: Automatic Load On Contract: Mandatory For Applicant:

Use Banking Formula: Is For Contract Version:

When defining the payment schedule type detail, you only need to select the fee type and not the actual fee:

PAYMENT SCHEDULE TYPE DETAIL

Title: dfunit

Column Type: Fee Dimension Column Repayment Schedule: AdministrationFee Calculation Method: Effective Rate

Fee: Fee Type: Administration Fee Source: SourcePercent

Is Calculated In Advance?: Totalization For Grace Period:

Operation Item: Loan Admin Fee Is calculated Upfront:

- Please only define maximum one commission of each type with the Is Included Into Repayment Schedule Installment checkbox selected for every banking product.
- If you select the Mandatory for Applicant checkbox for a commission, then, at contract level, the commission cannot be deleted, but its value can be edited.
- If you select the Is For Unusage checkbox for a commission, then you are defining a commission for the unused amount of a contract and the Commission Percent Applied To field is automatically completed with the Unused Amount value.

- If you select the **Commission Value Is Percentage** checkbox for a commission, then the values of the commission can only be percentages. In this case, you must select the contract's operation item to which the commission's percent must be applied. The operation item must be selected from the **Commission Percent Applied To** drop-down. If you deselect the **Commission Value Is Percentage** checkbox, then the values of the commission can only be numeric values.
- The validity period of a commission (the period between the values entered in the **Valid from** and **Valid to** fields) is taken into consideration when searching for the values of each commission type.
- The system performs validations to ensure that the time intervals for the same commission's validity do not overlap. It also ensures that the commission has a valid value at any given time of a contract's life cycle.

Editing The Value Of A Commission Already In Use

The system does not allow you to modify the value of a commission already in use in active contracts. However, the bank may decide to alter its commission values starting next month, so the new values must be entered into the system.

The following instructions show how to edit the value of a commission attached to a banking product with **Approved** status and having contracts based on that banking product.

1. On the **Commission List** page, double-click the commission whose value has to be changed. The **Edit Commission** page is displayed.
2. In the **Commission Value** section, select the value that is in its validity period and double-click it.

BANKING PRODUCT FACTORY USER GUIDE

COMMISSION

Name: DFADVANCE Commission Type: Front-end Fee

Periodicity Type: Once Currency: EUR Status: Active

Is For Unusage: Commission Value Is Percentage: Commission Percent Applied To: Financed Value

Is Included Into Repayment Schedule Installment: Automatic Load On Contract: Mandatory For Applicant:

Use Banking Formula: Is For Contract Version:

COMMISSION VALUE

+ Insert X Delete Export Refresh

Commission Percent	Commission Value	Valid From	Valid To	Status
10.00		14/06/2021	30/06/2021	Active

3. On the newly displayed **Edit Commission Value** page, change the date from the **Valid To** field into the last day when this commission value should be used in contracts.

EDIT COMMISSION VALUE

COMMISSION VALUE

Commission Percent: 10 Commission Value:

Valid From: 14/06/2021 Valid To: 31/07/2021

Status: Active

4. Click the **Save and Close** button at the top right corner of the page.
5. Back in the **Commission List** page, in the **Commission Value** section, click the **Insert** button. The **Add Commission Value** page is displayed.
6. Complete the fields for the new commission value record, filling in the new **Commission Percent** or **Value**. Make sure the date entered in the **Valid From** field is the next day after the previous commission value is not active anymore. Enter a date further in the future for the **Valid To** field. Select the **Active** status for the new commission value record.

ADD COMMISSION VALUE

COMMISSION VALUE

Commission Percent: 12.5 Commission Value:

Valid From: 01/08/2021 Valid To: 31/12/2021

Status: Active

7. Click the **Save and Close** button at the top right corner of the page.

8. Back in the **Commission List** page, in the **Commission Value** section, observe the newly added commission value, valid starting the next day after the previously existent commission value ends its validity.

COMMISSION VALUE

+ Insert X Delete Export Refresh

Commission Percent	Commission Value	Valid From	Valid To	Status
10.00		14/06/2021	31/07/2021	Active
12.50		01/08/2021	31/12/2021	Active

Contracts created after the new commission value's **Valid From** date automatically use the new commission value.

The following sections display examples of the typical definition commissions grouped on their periodicity:

One Time Fee (Once) Commissions

One time fees are commissions that the bank requires to be paid once and not on a regular basis during the contract's life cycle.

NOTE

For Once periodicity type commissions applied to loan contracts, the Percentage commission values should not be applied to **Used** or **Unused Amount**.

For **Front-End Fee** commission types with default Once periodicity type, the Percentage commission values should not be applied to **Remaining Value**.

For Once periodicity type commissions with the **Is For Contract Version** checkbox selected, the commission is posted on new contract versions if the **Automatic Load On Contract** checkbox is also selected. For commissions thus defined, the Percentage commission values can be applied to **Remaining Value**, but not to **Used Amount** or **Unused Amount**.

Other than the previously described situation, we advise against defining Once periodicity type commissions with the **Is For Contract Version** checkbox selected.

The following example illustrates a one time fee of 0.02% applied to the paid value of early repayment on contracts. The commission is not included into the repayment schedule of installments, it is not automatically loaded on the contract or mandatory for the applicant:

BANKING PRODUCT FACTORY USER GUIDE

COMMISSION

Name: Commission Type:

Periodicity Type: Currency: Status:

Is For Unusage: Commission Value Is Percentage: Commission Percent Applied To:

Is Included Into Repayment Schedule Installment: Automatic Load On Contract: Mandatory For Applicant:

Use Banking Formula: Is For Contract Version:

COMMISSION VALUE

<input type="checkbox"/>	Commission Percent	Commission Value	Valid From	Valid To	Status
<input type="checkbox"/>	0.02		01/01/2021	31/12/2031	Active

IMPORTANT!

All the Front-End Fee commission types with Once periodicity type applied to a contract are notified and must be paid when the contract is approved. The [Core Banking system parameter FrontEndFee](#) defines the type of commission that is automatically notified at the contract approval.

CURRENT STATUS: APPROVED | NEXT STATUS: CLOSED | CONTRACT NUMBER: 3569 | ACTIVATION DATE: 20/08/2021 | CREATED BY: vladb | VERSION: 2 | VERSION DATE: 20/08/2021 03:00 | CONTRACT CATEGORY: Normal

FEES & COMMISSIONS

Fee	Currency	Fee Date	Percent Fee	Value Fee	Periodicity Type
Commission Applied To Amount	EUR	20/08/2021	10.0000	12.50	Monthly
Corporate Loan Term Front-End Fee EUR	EUR	20/08/2021	4.0000	51.00	Once
RepaymentFee EUR	EUR	20/08/2021		18.50	Once

EDIT REPAYMENT NOTIFICATION

REPAYMENT NOTIFICATION

No.: 199204 | Contract: 3569 | Currency: EUR

Notification Date: 20/08/2021 | Maturity Date: 20/08/2021 | Total Amount: 276

REPAYMENT NOTIFICATION DETAILS

Operation Item	Value	RemainingValue	Is Paid
Front-end Fee	51.00	0.00	<input checked="" type="checkbox"/>
Advance	225.00	0.00	<input checked="" type="checkbox"/>

PAYMENT ALLOCATIONS

Payment No.	Payment Date	Operation Item	Allocated Amount	DueDate	Delay (days)
9828	20/08/2021	Front-end Fee	51.00	20/08/2021	0
9828	20/08/2021	Advance	225.00	20/08/2021	0

Periodical Commissions

Periodical commissions are required to be paid on a regular basis during the contract's life cycle, monthly or every 3 months depending on the commission type's defined periodicity. For such commissions, the `Is Included Into Repayment Schedule Installment` checkbox is automatically selected and the commission is included into the repayment schedule. The repayment schedule template should be provided with a column to place this commission type.

For periodical type commissions, such as commissions with `Periodicity Type = Monthly`, if you leave the `Commission Value Is Percentage` checkbox unselected, then the commission values are defined as straight forward values. Make sure that the formula in the repayment schedule template has the following types defined: fixed value, linear, linear on year.

If you select the `Commission Value Is Percentage` checkbox, then you can select the contract's operation item to which the percentage must be applied. The possible options are those listed in the drop-box next to `Commission Percent Applied To` field:

- `Remaining value` - the percentage applies to the contract's remaining to be repaid value .
- `Financed value` - the percentage applies to the contract's financed value.
- `Paid value` - the percentage applies to the anticipated payment performed on the contract.
- `Unused amount` - the percentage applies to the contract's unused amount from the granted value.
- `Used amount` - the percentage applies to the contract's used amount from the granted value.
- `Overdraft limit amount` - the percentage applies to the contract's overdraft limit amount.
- `Amount` - the percentage applies to the contract's amount.

NOTE

For term loan, mortgage, current account and deposit contracts, do not define commissions with Commission Percent Applied To = Overdraft limit amount.

Define and use commissions with Commission Percent Applied To = Overdraft limit amount for contracts based on current account with overdraft banking products.

The following example illustrates a monthly 0.15% commission applied to the unused amount of contracts. The commission is included into the repayment schedule of the monthly installments and it is automatically loaded on the contract:

COMMISSION

Name: Commission Undrawn Amount (overdraft) EUR Monthly Commission Type: Commission Undrawn Amount (overdraft) Monthly

Periodicity Type: Monthly Currency: EUR Status: Active

Is For Unusage: Commission Value Is Percentage: Commission Percent Applied To: Unused Amount

Is Included Into Repayment Schedule Installment: Automatic Load On Contract: Mandatory For Applicant:

Use Banking Formula: Is For Contract Version:

COMMISSION VALUE

+ Insert X Delete Export Refresh

Commission Percent	Commission Value	Valid From	Valid To	Status
0.15		01/01/2021	31/12/2021	Active

Commissions Attached to Contract Transactions

The banks can define commissions for performing certain transactions (events) on contracts.

These commissions can also be defined with straight forward values or as percentages.

NOTE

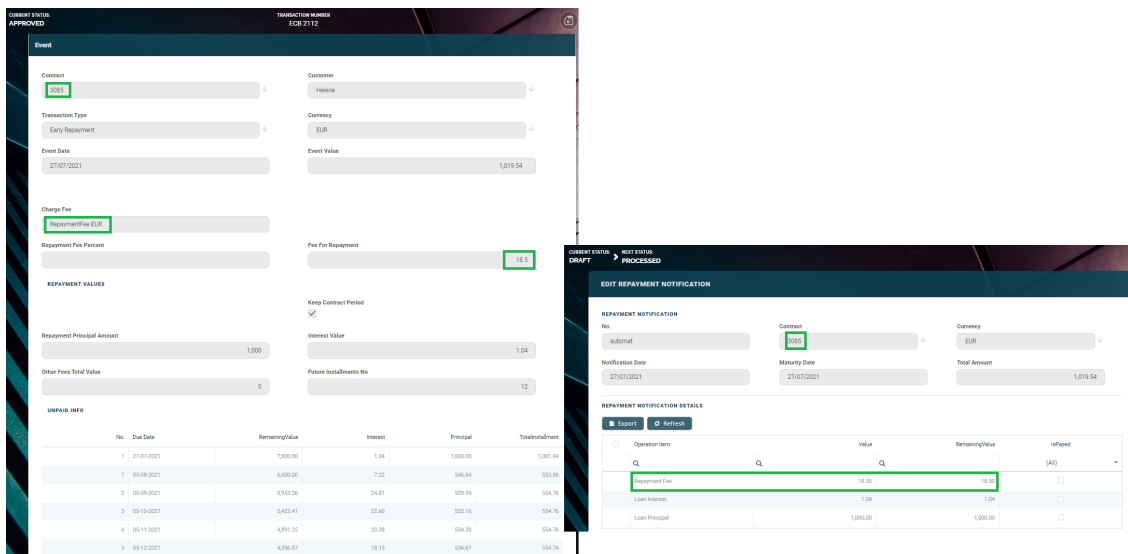
For commissions attached to contract transactions, do not select the Automatically load on contract checkbox.

For such commissions, the Percentage commission values should not be applied to

Used Amount or Unused Amount.

If the Is Negotiable checkbox is selected at product level when adding an interest & commission item, then at transaction level the value or percentage of the commission brought from the banking product level can be edited, otherwise the commission cannot be changed.

The following example illustrates a commission applied to an early repayment contract event. You can see the same commission mentioned as a repayment notification detail after approving the event:



As you see below, when performing an early repayment contract event and on the banking product's commissions list there is a commission with the same type as the commission placed in the event, then the event automatically retrieves the commission from the list defined at the banking product level:

BANKING PRODUCT FACTORY USER GUIDE

EDIT INTEREST & COMMISSION ITEM

INTEREST & COMMISSION ITEM

Banking Product: TLAUTODISB

Code: OLIC Item Name: Onboarding Loan I&C

Start Date: 27/01/2020 End Date: 04/04/2050

Interest List: TermLoan Eur Commission List: Term Loan Eur

Minimum Interest Rate (%): 4 Is Negotiable:

EDIT COMMISSION LIST

COMMISSION LIST

Name: Term Loan Eur

COMMISSION

+ Insert existing X Remove existing

<input type="checkbox"/>	Name
<input type="checkbox"/>	Commission Applied To Amount
<input type="checkbox"/>	Commission to Remaining Value
<input type="checkbox"/>	Corporate Loan Term Front-End Fee EUR
<input type="checkbox"/>	New Contract Version Commission
<input type="checkbox"/>	Payment Holiday Fee
<input checked="" type="checkbox"/>	RepaymentFee EUR

The commission used within the example presented above is defined as follows:

COMMISSION

Name: RepaymentFee EUR Commission Type: Repayment Fee

Periodicity Type: Once Currency: EUR Status: Active

Is For Unusage: Commission Value Is Percentage:

Is Included Into Repayment Schedule Installment: Automatic Load On Contract: Mandatory For Applicant:

Use Banking Formula: Is For Contract Version:

COMMISSION VALUE

+ Insert X Delete Export Refresh

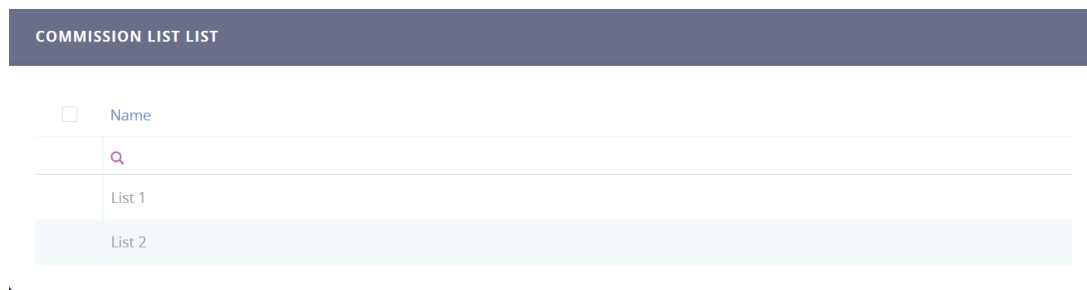
<input type="checkbox"/>	Commission Percent	Commission Value	Valid From	Valid To	Status
<input type="checkbox"/>		18.50	01/01/2021	31/12/2031	Active

Commission Lists

A commission list allows you to group multiple commissions into a collection of commissions that you can use in a banking product. It is possible to group under the same umbrella the following types of commissions created individually in the ["Commissions" on page 306](#) menu: Front-end fee & Management fee & Repayment fee.

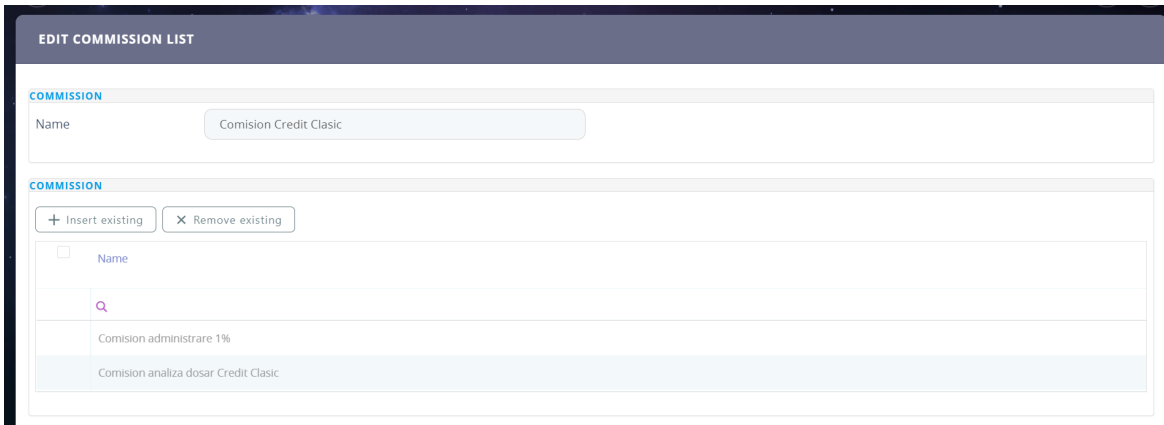
To manage commission lists:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory -> Banking Product Dimensions**.
4. Click **Commissions List** to display the **Commission List List** page.



5. In this page, you can:
 - Add a new commission list by clicking the **Insert** button at the top right corner of the page.
 - Edit a commission list from the section by double clicking it.
 - Delete a commission list from the section by selecting it and clicking the **Delete** button at the top right corner of the page.

The **Edit Commission List** page allows you to configure commission list settings.



Adding Commission Lists

To create a new commission list, follow these steps:

1. Click the **Insert** button on the top right side of the page. The **Add Commission List** page is displayed.
2. Enter a **Name** for the commission list.
3. Click the **Save and Reload** button at the top right corner of the page.
4. Click the **Insert existing** button to add the applicable commission in the **Commission** section.
5. Click the **Save and Close** button at the top right corner of the page.

Item Filters

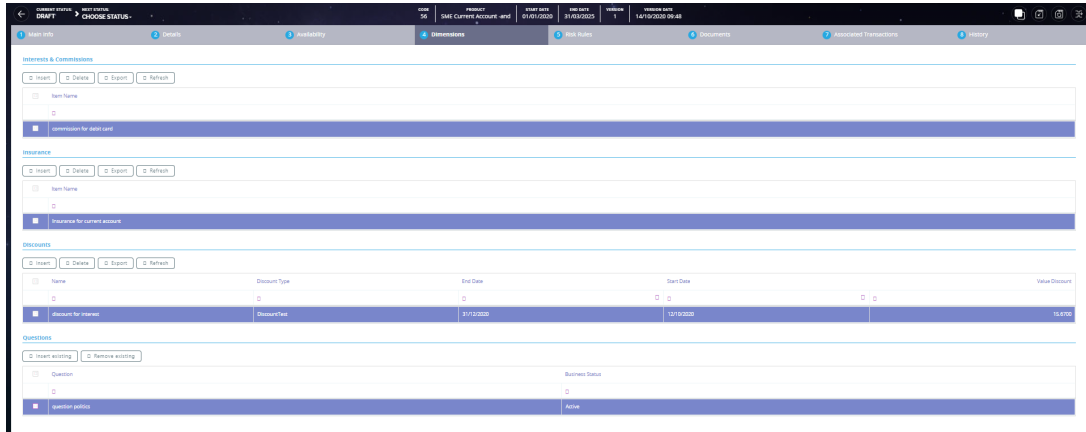
You can define filtering criteria for your interests and commissions which you can later on call in your banking products.

To manage filtering criteria:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory**.

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- Click **Banking Product** to open the **Product List** page. Select the product where you want to add the filter.
- In the **Dimensions** tab, insert or edit an interest or a commission.



- In the **Interest & Commission Item Filters** section, click **Insert**.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter:

Value: Until Value:

Description:

Field	Required	Data Type	Details
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Value/ Date	No	Text/Date	Select the beginning value/ date for the filter.
until Value/ until Date	No	Text/Date	Select the maximum value/ date for the filter.

Field	Required	Data Type	Details
Description	No	Text area	This field is automatically filled in after the Save and Reload button is clicked. The values/ dates inserted above are turned into an expression.
For Lookup attributes			
Filter	Yes	Option set	Select a filter created earlier in the " Product Filter " on page 339 .
Option set	No	Option set	Automatically filled in with the option set name created for the attribute.
Description	No	Text area	Add a description if needed.
grid of options	No	grid	This field is automatically filled in after the Save and Reload button is clicked. The values of the option set are displayed. Select the checkbox for the values you wish to include in the filter.

EDIT INTEREST & COMMISSION ITEM FILTER

INTEREST & COMMISSION ITEM FILTER

Filter:

OptionSet:

Description:

<input type="checkbox"/> Name	<input type="checkbox"/> DisplayName
<input checked="" type="checkbox"/> High school	<input checked="" type="checkbox"/> Scăzătorie
<input checked="" type="checkbox"/> No studies / Primary school	<input checked="" type="checkbox"/> Fara studii sau scoala primara
<input checked="" type="checkbox"/> Gymnasium studies	<input checked="" type="checkbox"/> Gymnasium studies
<input checked="" type="checkbox"/> High school	<input checked="" type="checkbox"/> High school
<input checked="" type="checkbox"/> Higher education	<input checked="" type="checkbox"/> Licenta
<input type="checkbox"/> Higher Education	<input type="checkbox"/> Licenta universitara
<input type="checkbox"/> postgraduate	<input type="checkbox"/> Master/MBA/EMBA/Dr.
<input type="checkbox"/> Postgraduate studies (MBA, MA, ACCA, CPA, etc.)	<input type="checkbox"/> Master/MBA/EMBA/Dr.

7. Click the **Save and Close** button at the top right corner of the page.

Insurance

When building a product, it may require to add an insurance to it such as a credit insurance, life insurance, house insurance etc.

For any banking product it is possible to select an existing insurance or to create a new one. To add a new one, follow these steps:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory-> Banking Product Dimensions**.
4. Click **Insurances** to open the **Insurances List** page.

INSURANCES LIST

Name

5. In the **Insurances List** page, you can:

- Add a new insurance by clicking the **Insert** button at the top right corner of the page.
- Edit an existing insurance by double clicking it.
- Delete an insurance by selecting it and clicking the **Delete** button at the top right corner of the page.

Adding Insurances

To create a new insurance, click the **Insert** button on the top right side of the page. In the newly opened **Add Insurance** page, fill in the following fields from the **Insurance** section:

Field	Data Type	Details
Code	Text	Insert a code for the insurance.
Name	Text	Insert a suggestive name for the insurance. Make sure it is a unique name.
Period Type	Option set	Select the type of period for the insurance: <ul style="list-style-type: none"> • Once • Monthly • Trimestrial • Semestrial • Annual.
Currency	Option set	Select the corresponding currency for the insurance.
Insurer	Option set	Insert the name of the company that issues the insurance.
Operation item	Option set	Select the corresponding operation item responsible for notification
Is mandatory for applicant	Bool	If selected, then the insurance is mandatory for the customer.

Field	Data Type	Details
Is mandatory for debtor	Bool	If selected, the insurance is mandatory for the debtor.
Is Included Into Repayment Schedule Installment	Bool	If selected, the insurance is included in the payment installments.
Class	Option set	Select the class of insurance for this specific insurance: <ul style="list-style-type: none"> • Credit insurance • Home insurance • Life insurance • Other insurance.
Insurance Value is Percentage	Bool	If selected, the insurance value is a percentage from the banking product's value.
Description	Text area	Insert a suggestive description for the insurance.

Click the **Save and Reload** button at the top right corner of the page.

The screenshot shows the 'EDIT INSURANCE' interface. It contains several input fields and checkboxes. The 'INSURANCE VALUES' section at the bottom features a table with the following data:

Begin Date	End Date	Percent	Value	Interest Discount
21/07/2020	21/07/2022	3.5000		1.00

In the **Insurance value** section, insert or delete the values of the insurance.

To add a new insurance value, click **Insert** and fill in the following fields in the newly opened **Add Insurance Value** page:

Field	Data type	Description
Begin date	Date	Select a date when the value is valid for the insurance.
End date	Date	Select the end date when the value is no longer valid.
Percent	Numeric	Select the percentage for the insurance.
Value	Numeric	Select the value for the insurance.
Interest discount	Numeric	Select the discount to be applied to the insurance.

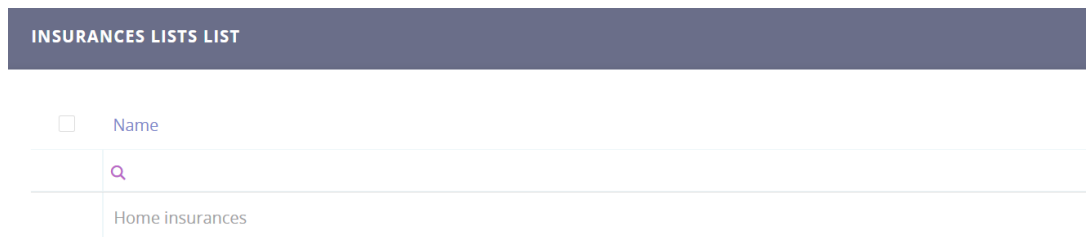
Click the **Save and Close** button.

Insurance Lists

An insurance list allows you to group multiple insurances into a collection that you can use in a banking product. It is possible to group under the same umbrella the following classes of insurances created individually in the ["Insurance" on page 328](#) menu: Credit, Home, Life, and Other insurances.

To manage commission lists:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory -> Banking Product Dimensions**.
4. Click **Insurance List** to display the **Insurances Lists List** page.



5. In this page, you can:
 - Add a new insurance list by clicking the **Insert** button at the top right corner of the page.
 - Edit an insurance list from the section by double clicking it.
 - Delete an insurance list from the section by selecting it and clicking the **Delete** button at the top right corner of the page.

The **Edit Insurance List** page allows you to configure insurance list settings.

EDIT INSURANCE LIST

INSURANCE LIST

Name

BPAINsTest

INSURANCES

+ Insert existing

X Remove existing

<input type="checkbox"/>	Name
	Q
	Life Insurance

Adding Insurance Lists

To create a new insurance list, follow these steps:

1. Click the **Insert** button on the top right side of the page. The **Add Insurance List** page is displayed.
2. Enter a **Name** for the insurance list.
3. Click the **Save and Reload** button at the top right corner of the page.
4. Click the **Insert existing** button to add the applicable insurance in the **Insurances** section.
5. Click the **Save and Close** button at the top right corner of the page.

Discounts

Banks can offer discounts of any nature for any banking product. You can either select an existing discount or create a new one.

To add a new discount, follow these steps:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory-> Banking Product Dimensions**.
4. Click **Discounts** to open the **Discounts List** page.

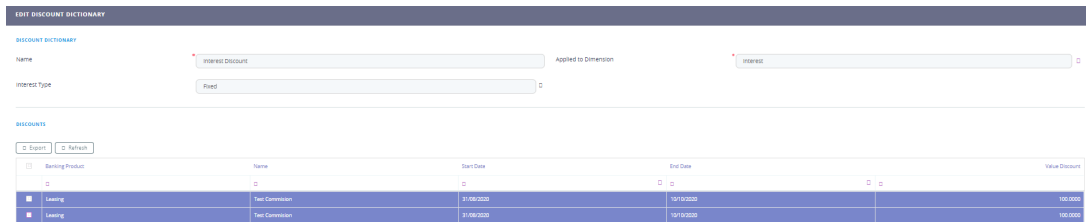
Here you can add a new discount by clicking the **Insert** button, or delete an existing discount by clicking the **Delete** button on the right.

5. Click **Insert** and fill in the following fields:

Field	Required	Data Type	Details
Name	Yes	Text	Insert the appropriate name for the discount.
Applied to dimension	Yes	Option set	Select one of the dimensions: <ul style="list-style-type: none"> • Interest • Commission • Insurance.
Interest			
Interest Type	Yes	Option set	Select one type from the list.
Interest	No	Option set	Select the exact interest configured in the "Interests" on page 286 menu.
Commission			
Commission Type	Yes	Option set	Select one type from the list.
Commission	No	Option set	Select the exact commission configured in the "Commissions" on page 306 menu.
Insurance			

Field	Required	Data Type	Details
Insurance Class	Yes	Option set	Select one from the list.
Insurance	No	Option set	Select the exact insurance configured in the "Insurance" on page 328 menu.

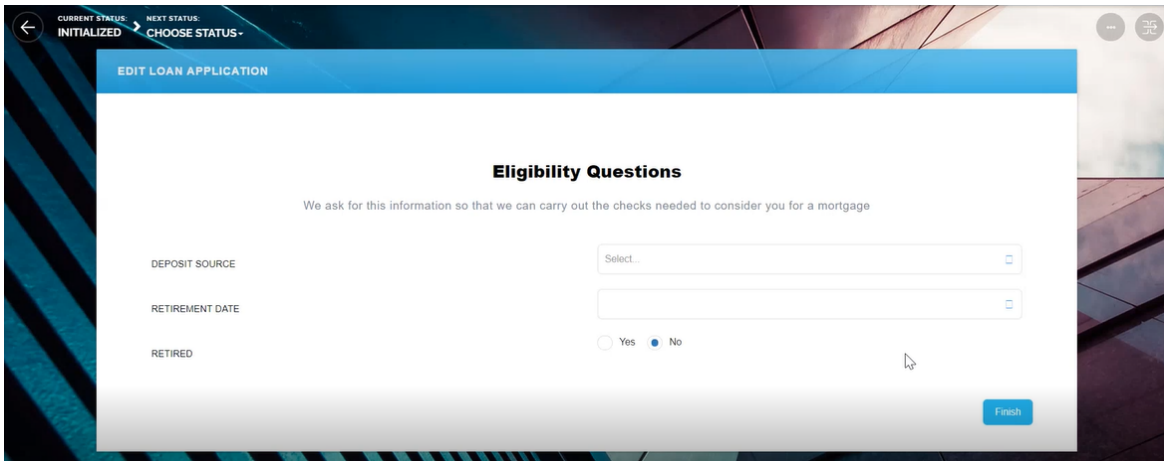
6. Click the **Save and Reload** button at the top right corner of the page.
7. In the **Discount** section, the products where the discount is attached is displayed. If it is empty, there is no banking product associated.



8. Click the **Save and Close** button at the top right corner of the page.

Questions

The **Questions** menu helps you build interactive questions for a banking product to which a customer should respond. The questions are further used to determine the eligibility of a customer or their scoring. All questions are held in the [FTOS_BP_Question](#) entity. The questions can later be added to a digital journey as well. For example, here's a digital journey with a question in the Loan Origination, displayed to determine the customer's eligibility.



Adding Questions

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory**-> **Banking Product Dimensions**.
4. Click **Questions** to open the **Banking Product Questions List** page.
Here you can add a new question by clicking the **Insert** button, or delete an existing question by clicking the **Delete** button on the right.
5. Click **Insert** and fill in the following fields:

BANKING PRODUCT QUESTION

Question:

Question Type:

Is for solicitant? Is for coborrower?

Answer Entity: Answer Field:

BANKING PRODUCTS

Name	Product Type	Banking Product Code
bank account	Bank Account	bank accou
Corporate Loan for IT companies	Term Loan	123456

Field	Required	Data type	Description
Question	Yes	Text	Insert the appropriate name.
Question Type	Yes	Option set	Select the type of answer the client has to give: <ul style="list-style-type: none"> • text • numeric • option set.
Is for solicitant?	No	Bool	If selected, then the question is aimed at the customer soliciting the banking product.
Is for coborrower?	No	Bool	If selected, then the question is aimed at the customer who is coborrower for a banking product.

Field	Required	Data type	Description
Answer entity	No	Option set	<p>Select the entity where the answer should go.</p> <div style="background-color: #e1eef6; padding: 10px; border: 1px solid #d9e1f2;"> <p>NOTE</p> <p>The entity must be directly related to the entity on which the questions are posted. If the two entities are not related, the question is not displayed in the flow.</p> </div>
Answer Field	No	Option set	Select the attribute of the previously selected entity where the answer is recorded.

6. Click the **Save and Reload** button at the top right corner of the page.

IMPORTANT!

In order for the question to be added to the banking product, the status must be changed from draft to active.

7. The **Banking Products** section displays the products which use the question. If the section is empty, there is no associated product to the question. To add a question to a banking product, see ["Bank Accounts" on page 19](#)
8. Click the **Save and Close** button at the top right corner of the page.

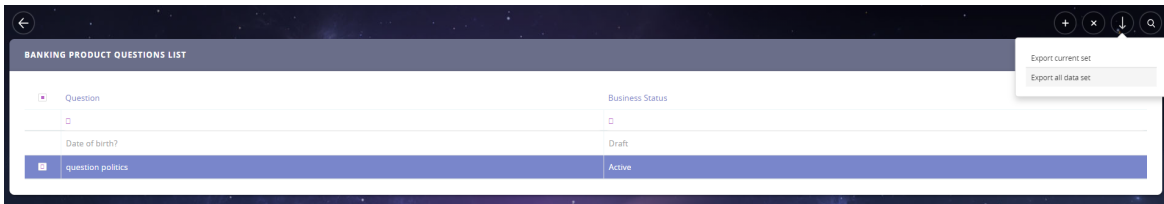
Deleting Questions

Delete a question by selecting it and clicking the **Delete** button at the top right corner of the page.

Exporting Questions

To export the questions locally, click the **Export** icon and select between export current set or export all data set. The first exports the selected question, the other exports all the questions.

The exported file is an Excel file downloaded locally. It includes the name of the question and its business statuses.



Product Filter

To aid in the creation, analysis and categorization of banking products, Innovation Studio has a dedicated functionality for product filtering. Its purpose is to aid users navigate through the list of products based on a filtering scope.

The following sections in each **Availability** tab of a banking or insurance product page assist you in filtering through the attributes: **Product Availability Item Filters**, **Interest & Commissions Item Filters** and **Insurance Item Filters**.

Adding Product Filters

1. Log into Innovation Studio in Developer mode.
2. In the main menu, expand **Product Factory**.
3. Click **Banking Product Filter** to open the **Banking Product Filters List** page.

Here you can add a new filter by clicking the **Insert** button, or delete an existing filter by clicking the **Delete** button on the right.

4. Click **Insert** and fill in the following fields:

The screenshot displays the 'EDIT BANKING PRODUCT FILTER' interface. It features three main sections for filter configuration:

- BANKING PRODUCT FILTER:** Includes fields for Name (containing 'Varsta'), Filter Scope (containing 'Availability'), and Filter Type (containing 'Numeric Interval').
- PRODUCT AVAILABILITY ITEM FILTERS:** A table with columns for 'Description' and 'Filter Type'. A search icon is present. One filter is listed: 'Varsta >< 19 - 55'.
- INTEREST & COMMISSION ITEM FILTERS:** A section with 'Delete' and 'Refresh' buttons.

A dropdown menu is open for the 'Filter Type' field, showing the following options: [none], Text Value, Numeric Value, Numeric Interval (highlighted), Date Value, Date Interval, OptionSet, and LookUp.

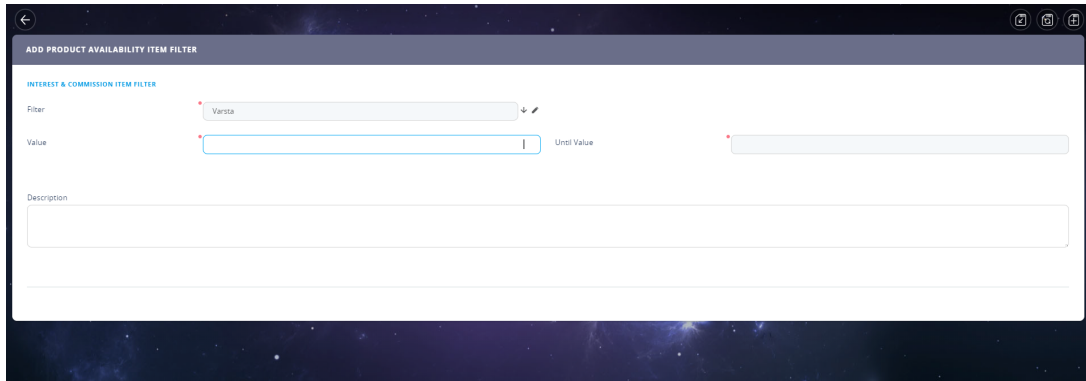
Field	Required	Data type	Description
Name	No	Text	Insert a name for the filter you are building.
Filter Scope	Yes	Option set	Choose one of the attributes for filtering: <ul style="list-style-type: none"> • Availability • InterestCommissions • Insurance • All
Filter Type	Yes	Option set	Choose one of the dedicated types: <ul style="list-style-type: none"> • Text Value • Numeric Value • Numeric Interval • Date Value • Date Interval • OptionSet • LookUp

For OptionSet and LookUp attributes, you can add multiple values.

If you select LookUp attribute, two new fields are displayed: Entity and Entity View. For more details, see [Views](#).

5. Click the **Save and Reload** button at the top right corner of the page.

6. Fill in the following fields in the **Product Availability Item Filter** section:

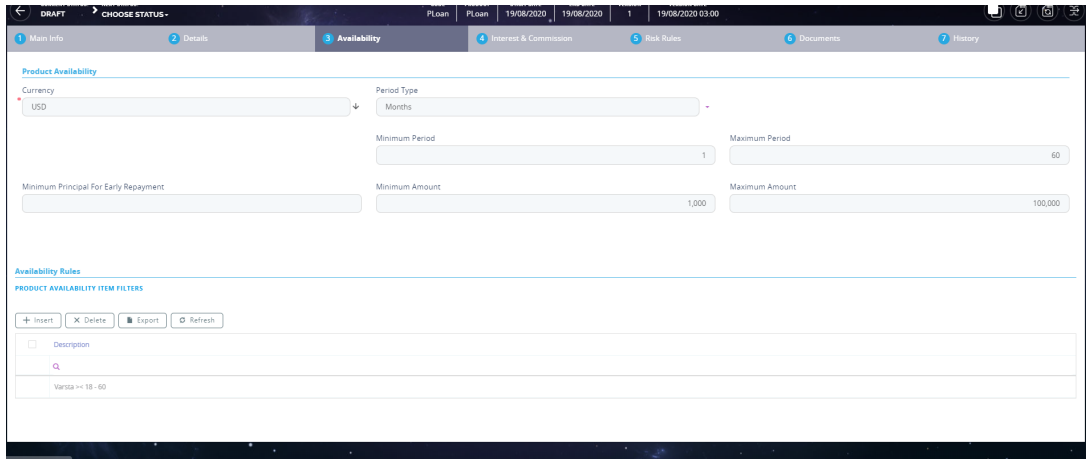


Filter	Required	Data type	Description
Filter	Yes	Option set	This is the name inserted earlier.
Value	Yes	Text	This is the starting value for the attribute.
Until value	Yes	Text	This is the ending value of the interval.
Description	No	Text area	Insert the proper description for the availability filter.

7. Click the **Save and Close** button at the top right corner of the page.

HINT

The data inserted here is shown in tab **3. Availability** in the **Product Availability Item Filter** section of the Banking Product page.



Deleting Product Filters

To delete a Product Filter:

1. Open the **Product Filter** menu. Click on the filter to be deleted.
2. Click the **Delete** button on the right-side of the corner. Confirm the deletion.

IMPORTANT!

If the filter is used, the following error message is displayed:

Cannot delete record of type ProductFilter_1. Other data is related to it. This could be a cascading item.

Product Hierarchy

The banking system has developed numerous products and services to tend to their customers' needs and to stay competitive ahead of times. To aid consultants and developers manage these products, Innovation Studio offers a dedicated menu, **Banking Product Hierarchy**, where a hierarchy can be built

There are two ladders available with two levels. The organization is purely liberal to the bank.

Product Class

This ladder is designed to categorize the major banking products any bank offers. For example purposes, here is a demonstrative structure:

- Personal
- Corporate
- Public Limited Companies
- Non Profit organizations.

Adding Product Classes

1. Open the Innovation Studio, expand the **Product Factory** menu, click **Banking Product Hierarchy** and choose **Product Class** menu item.
2. The **Banking Product Classes List** page is displayed. It shows all the existing classes configured so far. To add a new class, click the **Insert** button.
3. Enter a Class Name. Choose an appropriate name for your banking hierarchy.
4. Click the **Save and Reload** button at the top right corner of the page.

5. Four sections are displayed: **Banking Product Subclasses**, **Banking Product Categories**, **Banking Product Subcategories**, and **Banking Products**. Add the associated subclasses, categories, subcategories and products in each respective section.

Product Subclass

These are subordinated to the classes above. For example, some subclasses for banking products are:

- authenticated
- unauthenticated
- teenagers/ students.
- existing, authenticated customer
- existing, un-authenticated customer
- new, un-authenticated customer
- new, authenticated customer.

Adding Product Subclasses

1. Open the Innovation Studio, expand the **Product Factory** menu, click **Banking Product Hierarchy** and choose **Product Subclass** menu item.
2. The **Banking Product Subclasses List** page is displayed. It shows all the existing subclasses configured so far. To add a new subclass, click the **Insert** button.
3. Choose from the option set one for the subclasses pre-existing or insert a new subclass.
4. Enter a Subclass Name.
5. Click the **Save and Reload** button at the top right corner of the page.

6. Two new sections are displayed: **Banking Product Categories** and **Banking Product Subcategories**. Add the associated category and subcategory in each respective section.

Product Category

Here is a possible structure for category:

- saving
- investing.

Adding Product Categories

1. Open the Innovation Studio, expand the **Product Factory** menu, click **Banking Product Hierarchy** and choose **Product Category** menu item.
2. The **Banking Product Categories List** page is displayed. It shows all the existing categories configured so far. To add a new category, click the **Insert** button.
3. Choose from the option set one for the classes pre-existing or insert a new class.
4. Choose from the option set one of the subclasses pre-existing or insert a new subclass.
5. Enter a Category Name.
6. Enter a Code for the category.
7. Click the **Save and Reload** button at the top right corner of the page.
8. The **Banking Product Subcategories** section is displayed. Insert an associated subcategory in this section.

Product Subcategory

For example, here is a structure for subcategory:

- savings account
- term deposit
- direct equity
- equity mutual funds
- debt mutual funds.

Adding Product Subcategories

1. Open the Innovation Studio, expand the **Product Factory** menu, click **Banking Product Hierarchy** and choose **Product Subcategory** menu item.
2. The **Banking Product Subcategories List** page is displayed. It shows all the existing subcategories configured so far. To add a new subcategory, click the **Insert** button.
3. Choose from the option set one for the classes pre-existing or insert a new class.
4. Choose from the option set one of the subclasses pre-existing or insert a new subclass.
5. Choose from the option set one of the category pre-existing or insert a new category.
6. Enter a Subcategory Name.
7. Click the **Save and Close** button at the top right corner of the page.

Banking Product Classification

If a bank has to classify its product offer, Banking Product Factory has an inbuilt feature, accessible through the **Banking Product Classification** menu item, which allows you to manage classification items. Once defined, a product classification can be attached to different products, and then the contracts based on these products further inherit the same classification. Banking product classification has no business functionality implications, being intended only for the bank's internal segmentation needs.

Adding Product Classifications

1. Log into Innovation Studio in Developer mode.
2. In the main menu, expand **Product Factory**.
3. Click **Banking Product Classification** to open the **Banking Product Classifications List** page.

Here you can add a new classification by clicking the **Insert** button, or delete an existing classification by clicking the **Delete** button on the right.

- Click **Insert** and fill in the following fields in the newly displayed **Add Product**

Classification page:

Field	Required	Data type	Description
Classification Type	Yes	Lookup	Select the type of classification for the new banking product classification record.
Name	Yes	Text	Insert a name for the new classification item.
Is Default	Yes	Boolean	If this checkbox is selected, then this becomes the default banking product classification item.
Code	Yes	Text	Insert a unique code for the new classification item.
Valid From	Yes	Invariant Date	Select the date from which the product classification item is valid.
Valid To	Yes	Invariant Date	Select the date until when the product classification item is valid.

- Click the **Save and Reload** button at the top right corner of the page.

The **Banking Products Classification Section** is displayed after saving the classification item record and allows you to insert existing banking products that will be classified with this new classification item. The following information is displayed here:

Field	Details
Code	The code of the banking product added to the product classification item.
Name	The name of the banking product.
Class	The class of the banking product.
SubClass	The subclass of the banking product.
Category	The category of the banking product.
SubCategory	The subcategory of the banking product.
Status	The status of the banking product record.

The **Contract Classifications Section** is displayed after saving the classification item record and allows you to insert existing contracts that will be classified with this new classification item. The following information is displayed here:

Field	Details
Contract	The number of the contract using this classification.
Code	The code of the classification item.
Name	The name of the classification item.
Classification Type	The type of the classification.
Valid From	The date from which the classification item is valid.
Valid To	The date until which the classification item is valid.

HINT

The data inserted here is shown in tab **1. Main Info** in the **Product Classification** section of each Banking Product page.

Payment Schedule Types

The **Banking Schedule Types** menu creates payment schedules, a quintessential part of a loan. Its menu items help you configure the installments, dates and calculations.

Schedule Element Class

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory**, click **Banking Schedule Types**, and open the **Schedule Element Class** menu item.
4. Click the **Insert** button to add a new class.
5. In the newly opened **Add Scheduled Element Class**, select an **Element Type**: Insurance or Commission.
6. Add a name for the element class.
7. Click the **Save and close** button. Repeat as many times as needed.

Payment Schedule Types

In Innovation Studio, payment schedule types come with a business workflow attached in order to block changes to schedule types that are actively used on banking products. Read more about [Business Workflows](#).

In order to do that, the following statuses are available:

- **Draft** - first, default, every field is editable;
- **Active** - manually selected, fields are no longer editable. The **Duplicate** button is visible. By pressing this button the current schedule type gets duplicated in a draft new schedule type that can be further edited. Only active schedule types can be added to a banking product;
- **Draft** - not manually selected. It is available when a **New Version** button is visible;
- **Closed** - manually selected.

When transitioning a schedule type from Draft to Active, the following server-side validations are being performed:

- The **Interest** column needs to be calculated after the calculation of the **RemainingValue** column. Please change the order in the grid.
- The column {0-ex.TotalInstallment} with formula {1-ex.Principal+Interest} has column {2-ex.Principal} calculated after formula. Change the order in the grid.

NOTE A set of out-of-the-box schedule type templates are available with the Active status in Innovation Studio. The templates contain only the mandatory fields, no commissions or interests are defined.

Follow the steps below to create a new payment schedule type:

1. Log into Innovation Studio in Developer mode.
2. Click the main menu icon at the top left corner.
3. In the main menu, expand **Product Factory**, click **Banking Schedule Types**, and open the **Payment Schedule Types** menu item. The **Payment Schedule Types List** page is displayed, showing all the already created schedule types.
4. Click the **Insert** button to add a new type.
5. In the newly opened **Add Payment Schedule Type** page, fill in the following fields:

Field	Required	Data Type	Details
Name	No	Text	Insert a suggestive name for the type.
Payment schedule code	No	Numeric	Insert a code for the type to keep track of them.
Product Type	No	Option set	Select a product type to associate with the payment schedule type. Depending on the Product Type, different calculation rules are triggered. For example, the product type Overdraft has only the payment at maturity.

Field	Required	Data Type	Details
Schedule Interest Calculation Type	No	Option set	<p>Select from the list a type of calculation for the interest.</p> <p>When an annual interest rate is specified, in order to calculate the Installment for an interval of days, first the annual interest rate should be transformed into a daily base. To make this transformation, there are some accepted conventions. Innovation Studio implemented the following conventions: 30/360, 30/365, Actual/Actual, where Actual for years can be either 365 or 366. Other schedule interest calculation types can also be defined, as needed. In practice may be also encountered the Actual/360 or Actual/365. Here are some of the implemented schedule interest calculation types:</p> <ul style="list-style-type: none"> • Equal Installment Monthly 30/360 - this generates a payment schedule of equal installments where every period

Field	Required	Data Type	Details
			<p>is a month of 30 days, and every year has 360 days;</p> <ul style="list-style-type: none"> • Equal Installment Monthly 30/365 - this generates a payment schedule of equal installments where every period is a month of 30 days, and every year has 365 days; • Equal Installment Monthly 30/366 (30/Actual) - this generates a payment schedule of equal installments where every period is a month of 30 days, and every year has 366 days; • Equal Installment Monthly Actual/365 - this generates a payment schedule of equal installments where every period is a month with actual days (28,29, 30, or 31 days), and every year has 365 days; • Equal Installment

Field	Required	Data Type	Details
			<p>Monthly Actual/366 (Actual/Actual) - this generates a payment schedule of equal installments where every period is a month with actual days (28,29, 30, or 31 days), and every year has 366 days;</p> <ul style="list-style-type: none"> • Equal Principal Monthly 30/360 - this generates a payment schedule of equal principal where every period is a month of 30 days, and every year has 360 days; • Equal Principal Monthly 30/365 - this generates a payment schedule of equal principal where every period is a month of 30 days, and every year has 365 days; • Equal Principal Monthly 30/366 (30/Actual) - this generates a payment schedule of equal principal where every period is a

Field	Required	Data Type	Details
			<p>month of 30 days, and every year has 366 days;</p> <ul style="list-style-type: none"> • Equal Principal Monthly Actual/365 - this generates a payment schedule of equal principal where every period is a month with actual days (28,29, 30, or 31 days), and every year has 365 days; • Equal Principal Monthly Actual/366 (Actual/Actual) - this generates a payment schedule of equal principal where every period is a month with actual days (28,29, 30, or 31 days), and every year has 366 days. <div data-bbox="1003 1360 1369 1724" style="background-color: #e1eef6; padding: 10px; border: 1px solid #ccc;"> <p>NOTE The payment schedule projection takes into consideration</p> </div>

Field	Required	Data Type	Details
			<p>both the payment schedule type defined at the banking product level, and whether to collect the interest accrued on the contract until the date of an early repayment event, thus repaying the accrued interest, or not, thus adding the accrued interest to the repayment amount. Set the Collect accrued interest field in the Event page at the contract level to False to add the accrued interest to the repayment</p>

Field	Required	Data Type	Details
			amount.
Is With Equal Installments	No	Bool	Select the checkbox if the installments are equal. If there are Commissions that appear on the Payment Schedule, these Commissions are added to the equal Installments, not included within.

Field	Required	Data Type	Details
Installment Value Custom	No	Bool	<p>If you select the checkbox, with multiple disbursements, the Principal component of the installments is the one calculated for the entire Financed Amount, even if it was not entirely disbursed.</p> <p>For example, if Financed Amount is 10.000 EURO and the value calculated for Principal component of the Installments is 800 EURO, and the customer disburses only 5.000 EURO, the Principal component remains 800, but the Interest is calculated for 5.000 EURO that were disbursed.</p> <p>If Installment Value Custom = False, then the Is Manual Value and Royalty/ Initial Principal Value fields at the contract level are read only.</p> <p>If Installment Value Custom = True, then the Is Manual Value field at the contract level is editable, with False default value.</p>

Field	Required	Data Type	Details
Use Fix Maturity Date (from Activation Date)	Yes	Bool	<p>If you select the checkbox, then the Maturity Date equals to Activation Date plus the Contractual Period in Months, i.e. the number of installments depends on the Activation Date.</p> <p>If the checkbox remains unselected, the number of installments are fixed, the Maturity Date is equal to the First Installment plus the Contractual Period in Months, e.g. Installment date is on the first day of the month, this results in the Maturity day to be the first day of the month.</p> <div data-bbox="1003 1060 1369 1346" style="background-color: #e6f2ff; padding: 10px; border: 1px solid #ccc;"> <p>NOTE This is only valid for Period Type = Months.</p> </div>
Measurement Unit	Yes	Option set	<p>Select from the list the type of measurement unit applicable for the payment schedule type.</p> <p>Possible values: Days, Weeks, Months, Years, Once.</p> <p>Default value: Months.</p>

BANKING PRODUCT FACTORY USER GUIDE

EDIT PAYMENT SCHEDULE TYPE

PAYMENT SCHEDULE TYPE

Name: Equal principal Weekly Payment schedule code: EPW

Product Type: Term Loan Schedule Interest Calculation Type: 52 weeks

Is With Equal Installments: Adjust First Installment: Installment Value Custom: Use Fix Maturity Date:

PAYMENT SCHEDULE TYPE DETAILS

<input type="checkbox"/>	Column Repayment Schedule	Calculation Method	Fee	Insurance class	Source	Display
<input type="checkbox"/>	RemainingValue	RemainingFormula				<input checked="" type="checkbox"/>
<input type="checkbox"/>	Interest	Effective Rate				<input checked="" type="checkbox"/>
<input type="checkbox"/>	Principal	Linear				<input checked="" type="checkbox"/>
<input type="checkbox"/>	TotalInstallment	ColumnFormula				<input checked="" type="checkbox"/>

6. Click the **Save and reload** button.

7. In the newly displayed **Payment Schedule Type Details** section, add the information needed, according to the table below.

The fields change according to the selection of **Column Type** and **Calculation Method**.

ADD PAYMENT SCHEDULE TYPE DETAIL

PAYMENT SCHEDULE TYPE DETAIL

Title: Docs_Testinstallment

Column Type: Payment Schedule Dimension Column Repayment Schedule: TotalInstallment Calculation Method: ColumnFormula

Is Calculated in Advance? Adjust Last Installment:

Operation Item:

Formula: Principal-interest:ResidualRate

Field	Required	Data Type	Details
Title	Yes	Text	Insert a suitable title for the detail.

Field	Required	Data Type	Details
Column type	Yes	Option set	<p>Select one of the types:</p> <ul style="list-style-type: none"> • Payment Schedule Dimension • Fee Dimension <div data-bbox="972 541 1369 888" style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin: 10px 0;"> <p>NOTE New option set fields are displayed, Fee, Fee Type and Source.</p> </div> <ul style="list-style-type: none"> • Insurance Dimension. <div data-bbox="972 982 1369 1383" style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 10px; margin: 10px 0;"> <p>NOTE New option set fields are displayed, Insurance class and Source.</p> </div> <p>The selected type triggers changes in the displayed fields.</p>
Column Repayment Schedule	Yes	Option set	<p>Select one of the columns that is assigned in the Payment Schedule.</p>

Field	Required	Data Type	Details
Calculation Method	Yes	Option set	<p>Select a method. It triggers changes in the fields.</p> <p>There are the predefined values that are taken into consideration when calculating the Interest:</p> <ul style="list-style-type: none"> • Linear: calculated as Amount / Number of Installments. • Effective Rate: percent applied to the Source field (see below), usually to the Remaining Value. • Fixed Value: a constant value that is completed in the Payment Schedule. • Column Formula: formulas having other columns as parameters. Formula used is specified in the field Formula that is displayed when this option is set. • Remaining Formula: specific to a column of Remaining. • Once: the value is paid once. • LinearOnYear: a value calculated based on the Remaining Value at the

Field	Required	Data Type	Details
			<p>beginning of the credit year and a given percentage, divided in installments with the specified periodicity.</p> <ul style="list-style-type: none"> • FeeOnce: takes into account a fee that is paid once. • ProductLevelFixedValue: method that calculates the capital percent defined for cards and credit cards type of products. <p>The selected calculation method triggers changes in the displayed fields.</p>
Operation Item	No	Option set	It is the item allocated to a column in the Payment Schedule on which the amount calculated at this step is allocated. Select an item from the list.
Fee	No	Option set	Select a fee configured in the Product Dimensions.
Fee Type	Yes	Option set	Select a fee type configured in the Product Dimensions. This is helpful when, for different banking products, there are different values applicable for the same type of fee.

Field	Required	Data Type	Details
Source	No	Option set	It is the source element from the JSON file returned by the Payment Schedule calculation from where to take the value.
Insurance type	No	Option set	Select an insurance type.
Is Calculated In Advance?	No	Bool	Select the checkbox if the calculation is done in advance.
Is calculated Upfront	No	Bool	Option available for Insurance Dimension and Fee Dimension. Select the checkbox for insurance or commissions that need to be paid at the activation of the lending contract. <div style="background-color: #e6f2ff; padding: 10px; border: 1px solid #003366; border-radius: 5px;"> <p>NOTE This is only valid for products with Period Type = Months.</p> </div>
Totalization For Grace Period	No	Bool	This checkbox is available when the Calculation method is set to Effective Rate or Fixed Value. If selected, then the values that are not applied during Grace period are added to the first non-grace installment.

Field	Required	Data Type	Details
Adjust Last Installment	No	Bool	This checkbox should be true most of the time, as rounding loses of precision can exist, and the sum of Principal paid monthly should be exactly the same as the Financed Amount.
Operation Item	No	Option set	Select the operation item from the list for which this schedule type details should apply.
Formula	No		This checkbox is available when the Calculation method is set to Column Formula or Remaining Formula or Once or LiniarOnYear. The formula can use other Schedule Details Names. For example, for a total installment calculated as Principal+Interest+ManagementFee that were added to Payment Schedule Type Details earlier.

- Click the **Save and close** button. Repeat to add more details.

NOTE

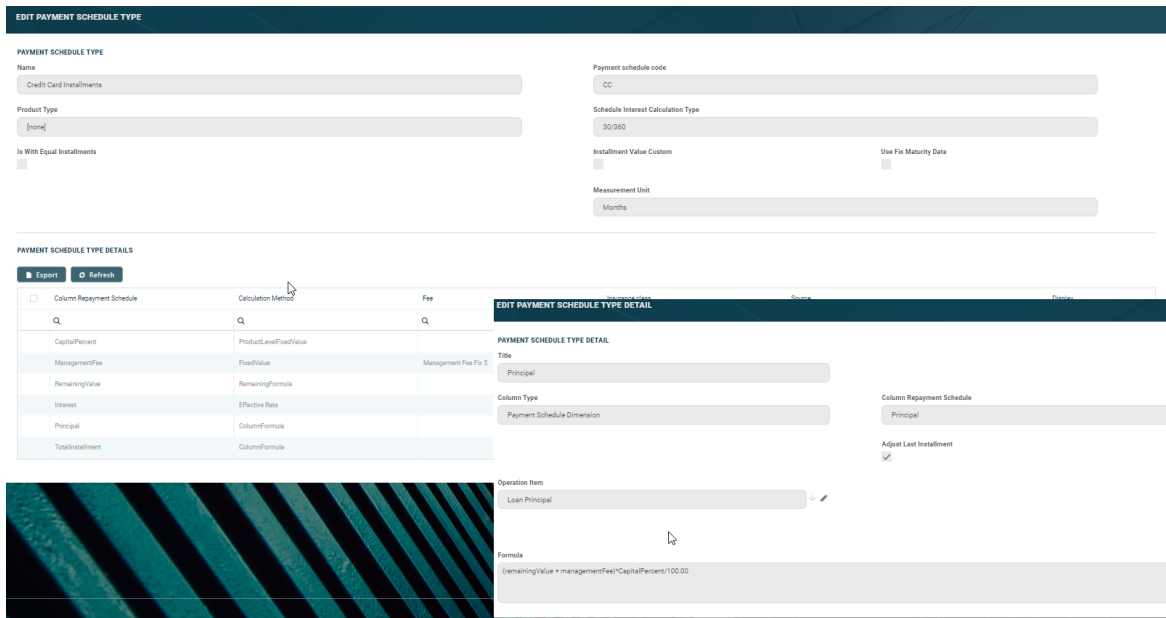
The first installment can be adjusted in situations when the algorithm forces an equal installment, by adjusting the Principal paid in the first interval.

For a Payment Schedule with equal installments, the first installment interest is calculated for the number of days between Activation Date and First Installment Date.

Normally, for this first installment, the number of days can be lower or higher than

the normal interval, so the Interest calculated makes the first installment to be different than the others.

The following picture illustrates the payment schedule type and the details defined for Credit Card Installments calculation:



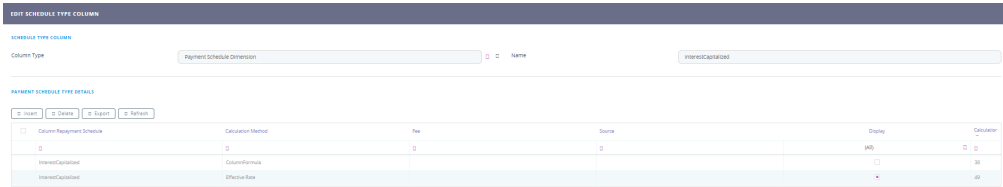
Payment Schedule Type Column

The **Payment Schedule Type Column** menu helps you configure the calculation steps. The order of the steps is determined by the **Calculation column**.

1. Log into Innovation Studio in Developer mode.
2. In the main menu, expand **Product Factory**, click **Banking Schedule Types**, and open the **Payment Schedule Type Columns** menu item. The **Schedule Type Column List** page is displayed, showing all the already created schedule type columns.
3. Click the **Insert** button to add a new column type.

4. In the newly opened **Add Schedule Type Column** page, select a column type from the list:

- Payment Schedule Dimension
- Fee Dimension
- Insurance Dimension.



5. Enter a Name for the column.

6. Click the **Save and reload** button.

7. A new section is displayed:

Field	Required	Data Type	Details
Title	Yes	Text	Insert a suitable title for the Payment Schedule element.
Column type	Yes	Option set	Select one of the types: <ol style="list-style-type: none"> 1. Payment Schedule Dimension 2. Fee Dimension 3. Insurance Dimension.
Column Repayment Schedule	Yes	Option set	Select a product schedule type column.
Calculation Method	Yes	Option set	Select a calculation method.

8. Click the **Save and reload** button.

9. The **Payment Schedule Type Details** section is displayed. Fill in the fields as indicated above in the [Payment Schedule Types](#) chapter.

ADD PAYMENT SCHEDULE TYPE DETAIL

PAYMENT SCHEDULE TYPE DETAIL

Title
Docs

Column Type
Payment Schedule Dimension

Column Repayment Schedule
Interest

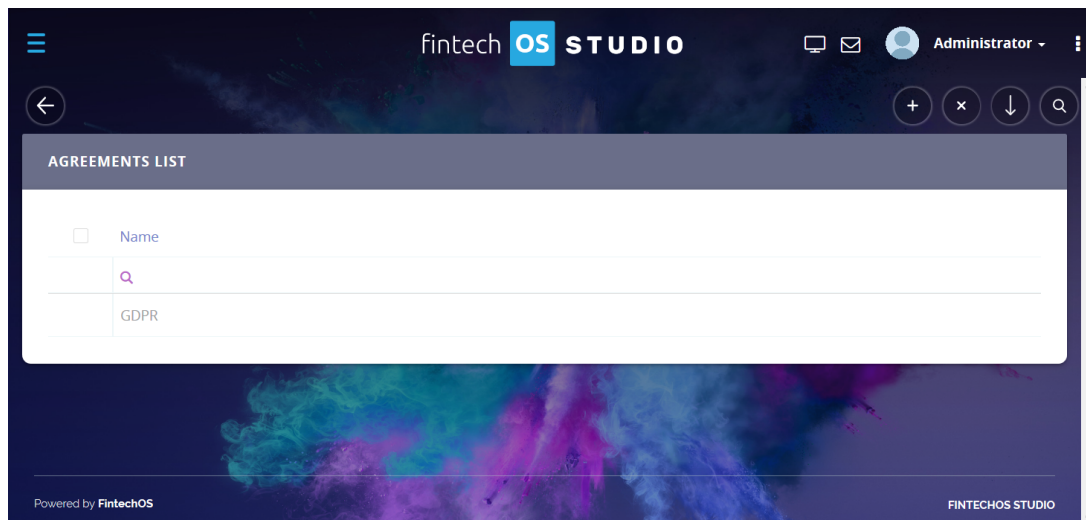
Calculation Method
ColumnFormula

Agreements

Agreements are set up independently from the banking products because a product may require multiple types of agreements, while a certain type of agreement can be required by multiple products.

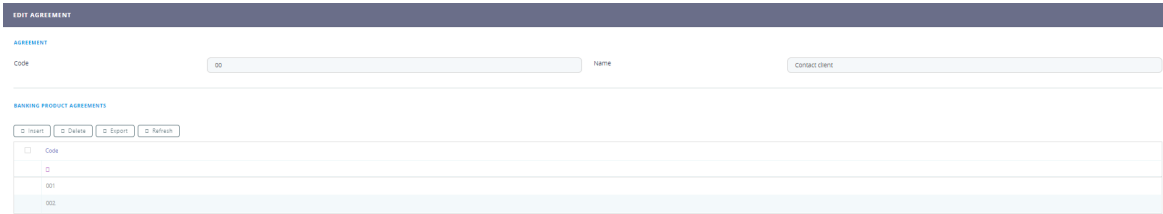
To manage agreements:

1. Log into Innovation Studio in Developer mode.
2. In the main menu, expand **Product Factory**.
3. Click **Banking Agreements** to open the **Agreements List** page.



4. In this page, you can:
 - Add a new agreement by clicking the **Insert** button at the top right corner of the page.
 - Edit an agreement from the section by double clicking it.
 - Delete an agreement from the section by selecting it and clicking the **Delete** button at the top right corner of the page.

The **Edit Agreement** page allows you to configure agreement settings.

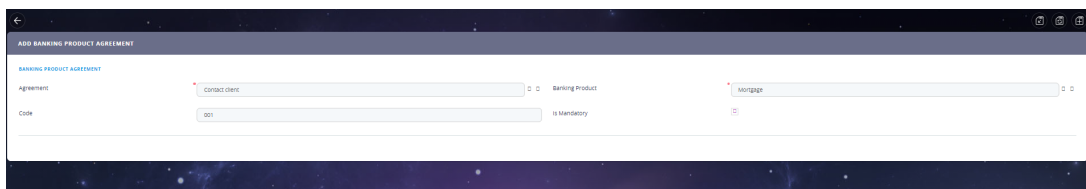


Adding Agreements

1. To create a new agreement, click the **Insert** button on the top right side of the page. In the newly opened **Add Agreement** page, fill in the following fields from the **Agreement** section:

Field	Details
Name	Name of the agreement. The name must be unique.
Display Name	The display name of the agreement.
Code	Code of the agreement. The code must be unique.

2. Click the **Save and Reload** button at the top right corner of the page. The **Banking Product Agreements section** is displayed.
3. Click the **Insert** button to attach an agreement to the banking product.



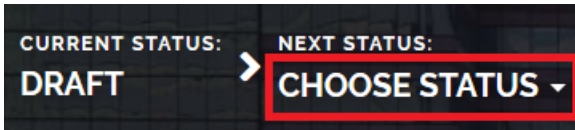
Banking Product Agreements

The **Banking Product Agreements** section allows you to associate the agreement with banking products (see "[Managing Banking Products](#)" on page 17 for details) and specify if the association is mandatory.

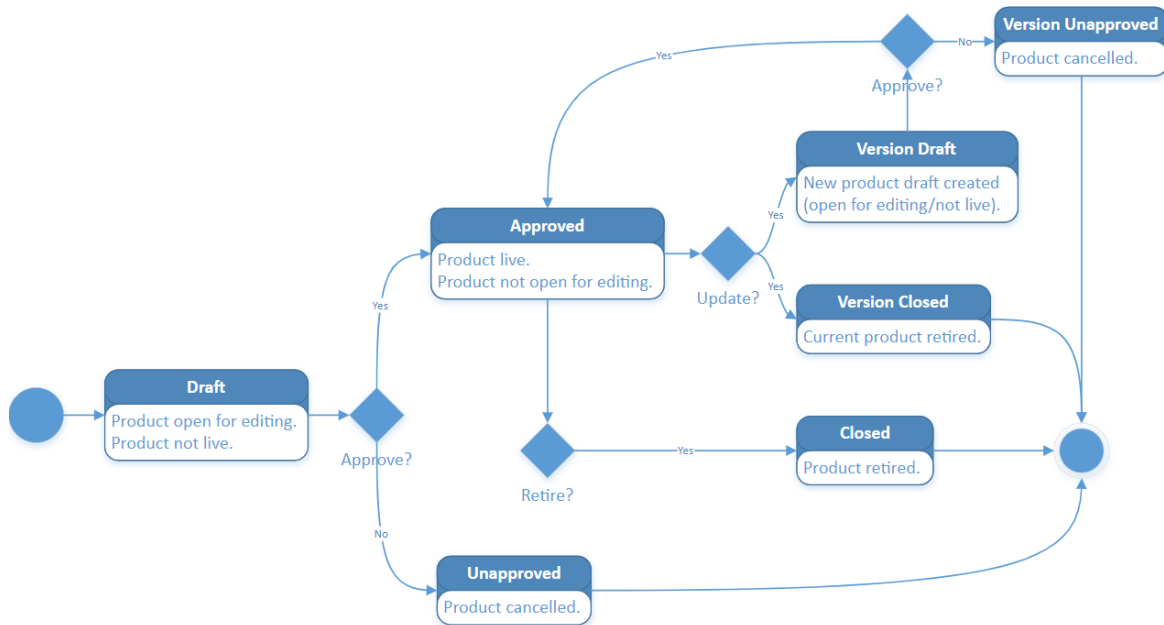
NOTE You can also associate banking products with agreements from a banking product (see [Documents tab in a banking product page](#) for details).

Banking Products' Life Cycle

You can manage a banking product's life cycle by changing its status from the top right corner of the screen.



The product status transitions are illustrated below:



Note that:

- Once a product is live, its settings can no longer be modified.
- If you want to update a live product, you must create a new product version.
- When you create a new product version, the current version is retired.
- Every product version starts in a draft state and must go through an approval process before going live.
- Only one version of a product can be live at one time.

Using Banking Products in Digital Journeys

IMPORTANT!

This page contains information about endpoints available for previous versions of the Banking Product Factory. For information about the updated endpoints available for versions starting with v3.1, please consult the [Banking Product Factory Developer Guide](#).

The new versions of the endpoints are backwards compatible, thus your existing integrations within digital journey are not affected.

To use a banking product built previously in a Form Driven Flow, a consultant or developer has to create an endpoint with a script. Later, in the **Advanced** tab of a digital journey, they must call the endpoint and add the product to the journey.

In the **Advanced** tab of a digital journey, apply the code example in `FTOS_BP_GetBankingProductDetails`, but changing the Banking product ID.

In this entity all information regarding a banking product is stored, therefore, all fields configured prior are available.

The endpoints are configured during the installation process. For more, details see [Creating Endpoints](#).

The following are the endpoints that call the information built in a banking product:

FTOS_BP_GetDiscountDetail

Returns the discount information.

Inputs:

- **productDiscountId** - from FTOS_BP_BankingProductDiscount;
- **bankingProductId** - from FTOS_BP_BankingProduct (attribute: FTOS_BP_BankingProductid); optional/ provided for formula association;
- **formulaInputId** - id of any entity used as master entity in data mapping input/ output at the formula setup; optional;
- **discountInput** - json for formula input if necessary when no mapping was done for formula. The form of this json should look like the one in test formula.

Outputs:

Object with details about the provided discount from FTOS_BP_BankingProductDiscount and associated FTOS_BP_Discount. If use Banking Formula is checked, then the value is equal to the formula result.

Call example:

```

1 //with formula
2 var data = {
3   "productDiscountId": "32d391e4-9f26-4315-9c1d-
4   ebd54bfa4e1d",
5   "bankingProductId": "25b9efdf-6ca5-48c5-8507-
6   5543a22377b2",
7   "discountInput": {
8     "Amount": 6000.00
9   }
10 };
11 ebs.callActionByName("FTOS_BP_GetDiscountDetail", data,
12 function(s){ if(s.UIResult){console.log
13 (s.UIResult.Data.discountDetail);}});
14 /*
15 [
16   {
17     "id": "32d391e4-9f26-4315-9c1d-ebd54bfa4e1d",
18     "name": "discountAAAA",
19     "discountTypeId": "f0da4a04-a513-4394-8b60-
20     96d0a9409d7c",
21     "value": 5.3,
22     "startDate": {
23       "invariantDate": "2021-03-01"
24     }
25   },

```

```

21         "endDate": {
22             "invariantDate": "2021-12-31"
23         },
24         "appliedToDimension": "a16d6728-76ac-4d72-8fa7-
a992e9a6a63f",
25         "interestTypeId": "3a5ffd12-bfc6-4826-bb81-
7e49d2f1c2c6",
26         "commissionTypeId": null,
27         "insuranceClassId": null,
28         "insuranceId": null,
29         "isOptionalDiscount": false,
30         "isPercentage": true,
31         "useFormula": true,
32         "formulaTypeId": "a0dd56a6-a0b9-446b-8e1d-
b2c052cafe0b"
33     }
34 ]
35 */
36 //without formula (value only)
37 var data = {
38     "productDiscountId": "32d391e4-9f26-4315-9c1d-
ebd54bfa4e1d"
39 };
40 ebs.callActionByName("FTOS_BP_GetDiscountDetail", data,
41 function(s){ if(s.UIResult){console.log
(s.UIResult.Data.discountDetail);}});
42
43 /*
44 [
45     {
46         "id": "32d391e4-9f26-4315-9c1d-ebd54bfa4e1d",
47         "name": "discountAAAA",
48         "discountTypeId": "f0da4a04-a513-4394-8b60-
96d0a9409d7c",
49         "value": 5,
50         "startDate": {
51             "invariantDate": "2021-03-01"
52         },
53         "endDate": {
54             "invariantDate": "2021-12-31"
55         },
56         "appliedToDimension": "a16d6728-76ac-4d72-8fa7-
a992e9a6a63f",
57         "interestTypeId": "3a5ffd12-bfc6-4826-bb81-
7e49d2f1c2c6",

```



```

58 |         "commissionTypeId": null,
59 |         "insuranceClassId": null,
60 |         "insuranceId": null,
61 |         "isOptionalDiscount": false,
62 |         "isPercentage": true,
63 |         "useFormula": false,
64 |         "formulaTypeId": null
65 |     }
66 | ]
67 | */

```

FTOS_BP_GetAvailableProductImage

Returns the product image.

Input:

- **bakingProductId** - from FTOS_BP_BankingProduct (attribute: FTOS_BP_BankingProductId)

Output:

- **productImage** - from FTOS_BP_BankingProduct (attribute: productImage)

Call example:

```

1 | ebs.callActionByNameAsync("FTOS_BP_
  | GetAvailableProductImage", { bakingProductId :
  | "f625e5e5-bc51-4bf8-8ff0-b8a295694a23" })
2 |     .then(function (e) {
3 |         var img = e.UIResult.Data;
4 |     }).catch(function (err) {
5 |         console.log(err);
6 |     });

```

FTOS_BP_GetBankingProductDetails

Returns the product details.

Input:

- **bakingProductId** - from FTOS_BP_BankingProduct (attribute: FTOS_BP_BankingProductId)

Output:

Section with the following fields:

- **product.Name** - from FTOS_BP_BankingProduct (attribute: Name)
- **product.ProductImage** - from FTOS_BP_BankingProduct (attribute: productImage)
- **product.Benefits** - from FTOS_BP_BankingProduct (attribute: Benefits)
- **product.DisplayConditions** - from FTOS_BP_BankingProduct (attribute: displayConditions)
- **product.NoOfDebtor** - from FTOS_BP_BankingProduct (attribute: NoOfDebtor)

Call example:

```

1 | ebs.callActionByNameAsync('FTOS_BP_
   | GetBankingProductDetails', { bankingProductId :
   | "f625e5e5-bc51-4bf8-8ff0-b8a295694a23"})
2 | .then(function (res) {
3 |     res = res.UIResult;
4 | }).catch(function (err) {
5 |     console.log(err);
6 | })

```

FTOS_BP_GetAvailabilityFiltersOnProduct

Returns the availability filters configured on a product.

Input:

- **BankingProductId** - from FTOS_BP_BankingProduct (attribute: FTOS_BP_BankingProductId)

Output:

- **filterName** - from FTOS_BP_ProductAvailabilityItemFilter (attribute: name)
- **FilterValue** - from FTOS_BP_ProductAvailabilityItemFilter (attribute: textValue)

Call example:

```

1 | ebs.callActionByNameAsync('FTOS_BP_
   | GetAvailabilityFiltersOnProduct', { bankingProductId :
   | "f625e5e5-bc51-4bf8-8ff0-b8a295694a23"})
2 | .then(function (res) {
3 |     res = res.UIResult;
4 | }).catch(function (err) {
5 |     console.log(err);
6 | })

```

FTOS_BP_GetProductType

Returns the types of banking product in which there are active banking products.

Input:

- **currentDate** - new Date();

Output:

- function **getProductType** from library BankingProductHelper.Utils - returns an object with product types.

Call example:

```

1 | var p = {};
2 | p.currentDate = new Date();
3 | ebs.callActionByNameAsync("FTOS_BP_GetProductType",
   | p).then(function (e) {
4 |     var type = e.UIResult.Data;
5 |     }).catch(function (err) {
6 |         console.log(err);
7 |     });

```

FTOS_BP_GetAvailableProductFeatures

Returns the product features.

Input:

- **BankingProductId** - from FTOS_BP_BankingProduct (attribute: FTOS_BP_BankingProductid)

Output:

- section with all features from FTOS_BP_Feature for the sent banking product.

Call example:

```
1 ebs.callActionByNameAsync("FTOS_BP_
  GetAvailableProductFeatures", { bankingProductId :
  "f625e5e5-bc51-4bf8-8ff0-b8a295694a23"})
2 .then(function (e) {
3     var features = e.UIResult.Data;
4 });
```

FTOS_BP_GetAvailableProductsExtra

Returns the product extras.

Input:

- **currentDate** - date
- **productTypeId** - ID of banking product Type - from FTOS_BP_BankingProduct (attribute: bpProductTypeId)

Output:

```
bankingProductCode: "HOUSE"
bankingProductId: "bd47d581-e67f-44f7-9be1-ff0b051a73cc"
bankingProductName: "1st House"
bankingProductType: "MG"
bankingProductTypeId: "e9f52e35-1faa-4cb7-b4bc-d685f326c907"
  features: Array(4)
    > 0: {base_name: "3.50% Fixed Annual IR"}
    > 1: {base_name: "Instant approval"}
    > 2: {base_name: "No Fees"}
    > 3: {base_name: "Only 5% Downpayment"}
    length: 4
    __proto__: Array(0)
  productImg: [{"Name": "m-2.png", "RealName": "m-2_43b8271f-a8a0-47b2-a0fb-28dd9dd2fe48.png"}]
  __proto__: Object
> 1: {bankingProductId: "5a326c60-7672-4e45-bafe-0e7cb02cf2dd", bankingProductName: "Construction Loan", bankingProductCode: "PERSONAL", bankingProductTypeId: "e9f52e35-1faa-4cb7-b4bc-d685f326c907"}
> 2: {bankingProductId: "51423eee-6202-48d7-997e-99ae55a7c3de", bankingProductName: "Mortgage", bankingProductCode: "MORTGAGE", bankingProductTypeId: "e9f52e35-1faa-4cb7-b4bc-d685f326c907"}
```

Call example:

```

1 | var p = {}
2 | p.currentDate = new Date();
3 | p.productId = "E9F52E35-1FAA-4CB7-B4BC-D685F326C907"
4 | p.filterList = [{ "name": "age", "value": 25 }];
5 | ebs.callActionByNameAsync("FTOS_BP_
   | GetAvailableProductsExtra", p).then(function (e) {
6 |     var data = e.UIResult.Data.products;
7 | });

```

FTOS_BP_GetPrimaryAttribute

Returns the primary attribute.

Input:

- **FromEntity** - entity ID

Output:

- the name of Primary attribute from current entity.

Call example:

```

1 | var p={};
2 | p.FromEntity = "9a9ec886-296b-487d-aff9-30b8e1eb43b8";
   | //ID of FTOS_BP_BankingProduct entity
3 | ebs.callActionByNameAsync("FTOS_BP_GetPrimaryAttribute",
   | p).then(function (s) {
4 |     if (s.UIResult.Data) {
5 |         var primaryattribute =
   | s.UIResult.Data.Records[0].Name;
6 |     }
7 | });
8 |
9 | //Returns "Name"

```

FTOS_BP_GetProductDocuments

Returns the documents on a banking product.

Input:

- **bankingProductId** - from FTOS_BP_BankingProduct (attribute: FTOS_BP_BankingProductid)

Output:

- section with data from FTOS_BP_BankingProductDocument for the current banking product.

Call example:

```

1 | var p = {};
2 | p.bankingProductId = "f625e5e5-bc51-4bf8-8ff0-
   | b8a295694a23";
3 | ebs.callActionByNameAsync('FTOS_BP_GetProductDocuments',
   | p).then(function (res) {
4 |     res = res.UIResult;
5 | });

```

FTOS_BP_GetInterestDetail

Returns the interest details.

Input:

- **interestListId** - from FTOS_BP_InterestList (attribute: FTOS_BP_InterestListid);
- **interestId** - from FTOS_BP_Interest (attribute: FTOS_BP_Interestid);
- **bankingProductId** - from FTOS_BP_BankingProduct (attribute: FTOS_BP_BankingProductid) - optional/ provided for formula association;
- **formulaInputId** - id of any entity used as master entity in data mapping input/ output at the formula setup; optional;
- **interestInput** - json for formula input if necessary when no mapping was done for formula. The form of this json should look like the one in test formula.

The scope of the endpoint can be an `interestListId` returning all interests in that list or an `interestId` returning all the details for a specific interest.

Output:

- object with details about all the interests in the interest list from FTOS_BP_Interest and FTOS_BP_InterestValue. If interest type is BankingFormula, then interestRate is equal to the formula result.

Call example:

- **minimal:**

```

1 | var data = {};
2 | data.interestListId = "c7a1b28c-e3f4-4259-b8e5-
  | 638b21bb69a7";
3 | ebs.callActionByName("FTOS_BP_GetInterestDetail", data,
4 | function(s){ if(s.UIResult){console.log
  | (s.UIResult.Data);}});

```

- **maximal:**

```

1 | var data = {
2 |   "interestListId": "a8d82639-82e3-464f-aa40-
  | e6592daf6bd1",
3 |   "bankingProductId": "3438f5a5-fd00-4745-bb77-
  | 820baeffe3f6",
4 |   "formulaInputId": "2872f33f-b757-48b2-a1d1-
  | 203bef75813d",
5 |   "interestInput": {
6 |     "Amount": 6000.00
7 |   }
8 | };
9 | ebs.callActionByName("FTOS_BP_GetInterestDetail", data,
10 | function(s){ if(s.UIResult){console.log
  | (s.UIResult.Data);}});

```

FTOS_BP_GetCommisionDetail

Returns details from the commission.

Input:

- **commissionListId** - from FTOS_BP_CommissionList (attribute: FTOS_BP_CommissionListid);
- **commissionId** - from FTOS_BP_Commission (attribute: FTOS_BP_Commissionid);
- **bankingProductId** - from FTOS_BP_BankingProduct (attribute: FTOS_BP_BankingProductid); optional/ provided for formula association;
- **formulaInputId** - id of any entity used as master entity in data mapping input/ output at the formula setup; optional;
- **commissionInput** - json for formula input if necessary when no mapping was done for formula. The form of this json should look like the one in test formula.

The scope of the endpoint can be a commissionListId returning all interests in that list, or a commissionId returning all the details for a specific commission.

Output:

- object with details about all the commissions in the commission list from FTOS_BP_Commission and FTOS_BP_CommissionValue. If use Banking Formula is selected, then commission value or commission percent is equal to the formula result.

Call example:

```

1  var data = {
2      "commissionListId": "86309408-6bf6-4550-9bb8-
    6d49919175bd",
3      "bankingProductId": "25b9efdf-6ca5-48c5-8507-
    5543a22377b2",
4      "commissionInput": {
5          "Amount": 6000.00
6      }
7  };
8  ebs.callActionByName("FTOS_BP_GetCommissionDetail",
    data,
9  function(s){ if(s.UIResult){console.log
    (s.UIResult.Data.commissionList);}});
10

```



```

11  /*
12  [
13      {
14          "id": "01c0ad2e-21bd-4290-aba5-5230a6c184e8",
15          "name": "TC1",
16          "commissionTypeId": "6e2653aa-73ee-452a-b6d6-
17      8c0a8cdb89cb",
18          "periodicityTypeId": "1cc04a28-88e0-46df-a089-
19      31d04bbde6df",
20          "currencyId": "fc9c53a8-31c6-41ff-a979-
21      9c7788d32fb0",
22          "entityStatusId": "faccc388-151a-4c83-8953-
23      cbac7d6c442a",
24          "isForUnusage": false,
25          "valueIsPercent": false,
26          "includedInRepaymentSchedule": true,
27          "percentAppliedTo": "f87376c8-15fc-45cc-b8c2-
28      7786b03593aa",
29          "automaticLoadOnContract": false,
30          "mandatoryForApplicant": true,
31          "useFormula": true,
32          "formulaTypeId": "a0dd56a6-a0b9-446b-8e1d-
33      b2c052cafe0b",
34          "commissionValue": 5.3,
35          "commissionPercent": null,
36          "rateValidFrom": null,
37          "rateValidTo": null
38      }
39  ]
40  */
41
42  var data = {
43      "commissionId": "01c0ad2e-21bd-4290-aba5-
44      5230a6c184e8",
45      "bankingProductId": "25b9efdf-6ca5-48c5-8507-
46      5543a22377b2",
47      "commissionInput": {
48          "Amount": 15000.00
49      }
50  };
51  ebs.callActionByName("FTOS_BP_GetCommissionDetail",
52  data,
53  function(s){ if(s.UIResult){console.log
54  (s.UIResult.Data.commissionList);}});

```

```

46 |
47 | /*
48 | [
49 |   {
50 |     "id": "01c0ad2e-21bd-4290-aba5-5230a6c184e8",
51 |     "name": "TC1",
52 |     "commissionTypeId": "6e2653aa-73ee-452a-b6d6-
53 | 8c0a8cdb89cb",
54 |     "periodicityTypeId": "1cc04a28-88e0-46df-a089-
55 | 31d04bbde6df",
56 |     "currencyId": "fc9c53a8-31c6-41ff-a979-
57 | 9c7788d32fb0",
58 |     "entityStatusId": "faccc388-151a-4c83-8953-
59 | cbac7d6c442a",
60 |     "isForUnusage": false,
61 |     "valueIsPercent": false,
62 |     "includedInRepaymentSchedule": true,
63 |     "percentAppliedTo": "f87376c8-15fc-45cc-b8c2-
64 | 7786b03593aa",
65 |     "automaticLoadOnContract": false,
66 |     "mandatoryForApplicant": true,
67 |     "useFormula": true,
68 |     "formulaTypeId": "a0dd56a6-a0b9-446b-8e1d-
69 | b2c052cafe0b",
70 |     "commissionValue": 5.1,
71 |     "commissionPercent": null,
72 |     "rateValidFrom": null,
73 |     "rateValidTo": null
74 |   }
75 | ]
76 | */

```

FTOS_BP_CallFormula

Call a formula from banking product.

Input:

- **formulaType** - from FTOS_BP_Formula (attribute: formulaTypeId);
- **bankingProductId** - from FTOS_BP_BankingProduct (attribute: FTOS_BP_BankingProductid);
- **id** - input ID.

Call example:

```

1 | ebs.callActionByNameAsync("FTOS_BP_CallFormula",
2 | {
3 |     "formulaType": FORMULA_TYPE_ID,
4 |     "bankingProductId": BANKING_PRODUCT_ID,
5 |     "id": RECORD_ID
6 | })
7 | .then(function (result) { console.log(JSON.stringify
   | (result))})

```

FTOS_BP_Simulate

Get a simulation from PaymentSchedule with different parameters.

Input:

Mandatory inputs:

- **Amount**
- **LoanPeriod**
- **BankingProductId**
- **ScheduleType.**

Optional inputs:

- **InterestType** - Fixed, Variable, Collection, BankingFormula
- **Optional** - list of selected optional product discounts (ex: [{"Name":"Insurance","ProductDiscountId":"35b36b84-24e0-409c-9799-7426d4273c9e"}])
- **InterestCommission** - list of filtered interest list and commission list (ex: [{"interestListId":"0e096545-f9f2-4a24-8cf9-12b39e8af039","interestListName":"ListaPL2","commissionListId":"a2e435ed-4998-4750-ab0d-e89cb81d2ecb","commissionListName":"AdminFee"}])

- **Insurance** - list of the selected or filtered insurances: (ex: [{"insuranceListId":"dbfc46f3-9f5c-4f89-ba15-383210c4cd48"}])
- **interestCommissionFilterList** - interest/ commission filter list
- **insuranceFilterList** - insurance filter list
- **discountFilterList** - discount filter List
- **givenInterestRate** - a given interest rate that overwrites Interest Rate from product for Fixed interest type
- **givenInterestMargin** - a given interest margin that overwrites Interest Margin from product for interest type Variable
- **jsonMultipleInterestRates** - the list of interests to use for repayment plan Calculation (ex: [{"InterestRate":8.000000, "FromInstNo":1, "ToInstNo":5}, {"InterestRate":10.00000, "FromInstNo":6, "ToInstNo":300}])
 - "InterestRate": 8.000000 interest percent defined as interest type = Collection on the banking product/Dimensions/InterestList/Interes
 - from-to installment numbers defined as interest type = Collection on the banking product/Dimensions/InterestList/Interest
- **ProductField**
 - used currently only for CreditCard product
 - you can use it as bellow, multiple numeric attributes defined at the banking product level
 - "FieldName": "CapitalPercent" - percentage field defined at the banking product level / Details section, representing a percentage to be applied as formula for the schedule detail principal column
 - "FieldValue": 6 - if provided, its value is considered for calculation. If not provided the value is read from the banking product configuration.
- **jsonInputFormula** - it is usually provided when interest type is BankingFormula or Collection and represents the formula input json

(just like test formula). It can contain inputs for interest/commission/insurance/discount

```

1 | "jsonInputFormula": {
2 |     "interestInput": {
3 |         "Amount": 6000.00
4 |     }
5 | }

```

Call example:

- The reduced version:

```

ebs.callActionByNameAsync("FTOS_BP_Simulate",
{
  "Amount":640000,"LoanPeriod":240,"BankingProductId":"2c835f00-3afb-4ab6-ae7e-0ce08b4394b","ScheduleType":"Loan Equal Installments"
})
.then(function (result) { console.table(result)})

```

- The full version:

```

1 | ebs.callActionByNameAsync("FTOS_BP_Simulate", {
2 |   "bankingProductId": "3783c622-c15a-476a-8834-
   d0850d5e8ca2",
3 |   "amount": 712000,
4 |   "downPayment": 356000,
5 |   "loanPeriod": 240,
6 |   "interestType": "f37646db-739c-477c-91df-
   f294737b59bd",
7 |   "recordId": "bcd1358c-ae7-4e13-bc91-c3f6e56885f3",
8 |   "scheduleType": "Loan Equal Installments",
9 |   "optional": [
10 |     {
11 |       "Name": "Income Receiving",
12 |       "ProductDiscountId": "8c1cf49e-9aff-4353-8341-
   9daed8e9fa88"
13 |     }
14 |   ],
15 |   "discount": [
16 |     {
17 |       "Name": "Interest Discount",
18 |       "ProductDiscountId": "de770415-9bfe-4a7f-8425-
   02c0ebd1a5e7"
19 |     }
20 |   ],

```

```

21     "jsonFilterCommission": [
22     {
23         "name": "FinancedAmount",
24         "value": 356000
25     }
26 ],
27     "jsonInsuranceFilter": [
28     {
29         "name": "FinancedAmount",
30         "value": 356000
31     }
32 ],
33     "jsonDiscountFilter": [
34     {
35         "name": "FinancedAmount",
36         "value": 356000
37     }
38 ]
39 })
40 .then(function (result) {
41     console.log(result.UIResult.Data.Records[0]);
42 });

```

- Another example for Interest Type = Banking Formula:

```

1  ebs.callActionByNameAsync("FTOS_BP_Simulate", {
2      "bankingProductId": "3783c622-c15a-476a-8834-
d0850d5e8ca2",
3      "amount": 712000,
4      "downPayment": 356000,
5      "loanPeriod": 240,
6      "interestType": "f37646db-739c-477c-91df-
f294737b59bd",
7      "scheduleType": "Loan Equal Installments",
8      "optional": [{
9          "Name": "Income Receiving",
10         "ProductDiscountId": "8c1cf49e-9aff-4353-8341-
9daed8e9fa88",
11     }],
12     "jsonFilterCommission": [],
13     "jsonInsuranceFilter": [],
14     "jsonDiscountFilter": [],
15     "jsonInputFormula": {
16         "interestInput": {

```

```

17         "Amount": 6000.00
18     }
19 }
20 })
21 .then(function (result) {
22     console.table(result.UIResult.Data.Records[0]);
23 });
    
```

VM1073:22

(index)	Value
InterestPercent	'7.00%'
IRR	'7.23%'
FirstInstallment	2760.06
FirstInsurance	0
TotalInsurance	0
FirstFee	0
TotalFee	0
Total	662416.57
ScheduleJson	'{"paymentSchedule":[{"InstallmentNo":1,...
InterestId	'c6f87d91-c625-4acb-9ec0-31f5864ca609'
InterestListId	'0e096545-f9f2-4a24-8cf9-12b39e8af039'
cntInterestId	2
InterestCommissionItemId	'edbe876f-06e6-499d-b9a5-33939962a067'
cntInterestCommissionItemId	2
CommissionListId	'a2e435ed-4998-4750-ab0d-e89cb81d2ecb'
OutputInterestJson	'{"BaseInterestPercent":8.0000, "Interes...
OutputCommissionJson	null
OutputInsuranceJson	null

- Another example for Interest Type = Collection and child interest as formula:

```

1 ebs.callActionByNameAsync("FTOS_BP_Simulate", {
2     "bankingProductId": "3783c622-c15a-476a-8834-
  d0850d5e8ca2",
3     "amount": 700000.00,
4     "downPayment": 350000,
5     "loanPeriod": 240,
6     "interestType": "f37646db-739c-477c-91df-
  f294737b59bd",
7     "scheduleType": "Loan Equal Installments",
8     "optional": [{
    
```

```

9         "Name": "Income Receiving",
10        "ProductDiscountId": "8c1cf49e-9aff-4353-8341-
11        9daed8e9fa880",
12    }],
13    "jsonFilterCommission": [],
14    "jsonInsuranceFilter": [],
15    "jsonDiscountFilter": [],
16    "jsonInputFormula": {
17        "interestInput":{
18            "Amount": 700000.00
19        }
20    })
21    .then(function (result) {
22        console.table(result.UIResult.Data.Records[0]);
23    });

```

VM1078:22

(index)	Value
InterestPercent	'7.00%'
IRR	'7.23%'
FirstInstallment	2713.55
FirstInsurance	0
TotalInsurance	0
FirstFee	0
TotalFee	0
Total	651250.27
ScheduleJson	'{"paymentSchedule":[{"InstallmentNo":1,"...
InterestId	'c6f87d91-c625-4acb-9ec0-31f5864ca609'
InterestListId	'0e096545-f9f2-4a24-8cf9-12b39e8af039'
cntInterestId	2
InterestCommissionItemId	'edbe876f-06e6-499d-b9a5-33939962a067'
cntInterestCommissionItemId	2
CommissionListId	'a2e435ed-4998-4750-ab0d-e89cb81d2ecb'
OutputInterestJson	'{"BaseInterestPercent":8.0000, "Interest...
OutputCommissionJson	null
OutputInsuranceJson	null

▶ Object

> |

FTOS_BP_GetInsuranceDetail

Returns details from an insurance.

Input:

- **insuranceListId** - from FTOS_BP_InsuranceList (attribute: FTOS_BP_InsuranceListid);
- **insuranceId** - from FTOS_BP_Insurance (attribute: FTOS_BP_Insuranceid);
- **bankingProductId** - from FTOS_BP_BankingProduct (attribute: FTOS_BP_BankingProductid) - optional/ provided for formula association;
- **formulaInputId** - id of any entity used as master entity in data mapping input/ output at the formula setup; optional;
- **insuranceInput** - json for formula input if necessary when no mapping was done for formula. The form of this json should look like the one in test formula.

The scope of the endpoint can be an `interestListId` returning all interests in that list or an `interestId` returning all the details for a specific interest.

Output:

Object with details about all the insurances in the insurance list from FTOS_BP_Insurance and FTOS_BP_InsuranceValue. If use Banking Formula is selected, then insurance value or insurance percent is equal to the formula result.

Call example:

```

1  var data = {
2      "insuranceListId": "bf2c45ba-3ea4-4447-9c96-
   45a708fc94c8",
3      "bankingProductId": "25b9efdf-6ca5-48c5-8507-
   5543a22377b2",
4      "insuranceInput": {
5          "Amount": 6000.00
6      }
7  };
8  ebs.callActionByName("FTOS_BP_GetInsuranceDetail", data,
9  function(s){ if(s.UIResult){console.log
   (s.UIResult.Data.insuranceList);}}});
10

```

```

11  /*
12  [
13    {
14      "id": "f93416a9-c3f9-4824-9d72-05160c3666bc",
15      "name": "Test Insurance Formula1",
16      "code": "testI_F1",
17      "description": null,
18      "insurer": "ASIROM",
19      "isMandatoryForApplicant": true,
20      "isMandatoryForDebtor": false,
21      "valueIsPercent": false,
22      "periodicityTypeId": "1cc04a28-88e0-46df-a089-
31d04bbde6df",
23      "currencyId": "fc9c53a8-31c6-41ff-a979-
9c7788d32fb0",
24      "useOnPaymentSchedule": true,
25      "scheduleElementClassId": "d74c21fe-bb12-413f-
83d7-26ab40f34226",
26      "operationItemId": null,
27      "useFormula": true,
28      "formulaTypeId": "a0dd56a6-a0b9-446b-8e1d-
b2c052cafe0b",
29      "insuranceValue": 5.3,
30      "insurancePercent": null,
31      "interestDiscount": null,
32      "rateValidFrom": null,
33      "rateValidTo": null
34    },
35    {
36      "id": "24284701-7d60-4a80-8589-5ab867f9db81",
37      "name": "TestInsurance_Values2_Percentage",
38      "code": "testI_V2P",
39      "description": null,
40      "insurer": "Generali",
41      "isMandatoryForApplicant": true,
42      "isMandatoryForDebtor": false,
43      "valueIsPercent": false,
44      "periodicityTypeId": "1cc04a28-88e0-46df-a089-
31d04bbde6df",
45      "currencyId": "fc9c53a8-31c6-41ff-a979-
9c7788d32fb0",
46      "useOnPaymentSchedule": true,
47      "scheduleElementClassId": "d74c21fe-bb12-413f-
83d7-26ab40f34226",
48      "operationItemId": null,

```

```

49     "useFormula": false,
50     "formulaTypeId": null,
51     "insuranceValue": 146,
52     "insurancePercent": null,
53     "interestDiscount": null,
54     "rateValidFrom": "2021-03-07T22:00:00Z",
55     "rateValidTo": "2021-12-30T22:00:00Z"
56   }
57 ]
58 */
59
60 var data = {
61   "insuranceId": "f93416a9-c3f9-4824-9d72-
62   05160c3666bc",
63   "bankingProductId": "25b9efdf-6ca5-48c5-8507-
64   5543a22377b2",
65   "insuranceInput": {
66     "Amount": 6000.00
67   }
68 };
69 ebs.callActionByName("FTOS_BP_GetInsuranceDetail", data,
70 function(s){ if(s.UIResult){console.log
71 (s.UIResult.Data.insuranceList);}});
72
73 /*
74 [
75   {
76     "id": "f93416a9-c3f9-4824-9d72-05160c3666bc",
77     "name": "Test Insurance Formula1",
78     "code": "testI_F1",
79     "description": null,
80     "insurer": "ASIROM",
81     "isMandatoryForApplicant": true,
82     "isMandatoryForDebtor": false,
83     "valueIsPercent": false,
84     "periodicityTypeId": "1cc04a28-88e0-46df-a089-
85     31d04bbde6df",
86     "currencyId": "fc9c53a8-31c6-41ff-a979-
87     9c7788d32fb0",
88     "useOnPaymentSchedule": true,
89     "scheduleElementClassId": "d74c21fe-bb12-413f-
90     83d7-26ab40f34226",
91     "operationItemId": null,
92     "useFormula": true,

```

```

87     "formulaTypeId": "a0dd56a6-a0b9-446b-8e1d-
      b2c052cafe0b",
88     "insuranceValue": 5.3,
89     "insurancePercent": null,
90     "interestDiscount": null,
91     "rateValidFrom": null,
92     "rateValidTo": null
93   }
94 ]
95 */

```

FTOS_BP_CalculatePMT

Returns the value for the calculated PMT, or payment terms for a loan or investment.

Input:

Mandatory input parameters:

- **InstallmentsNo** - The number of installments
- **PeriodicityType** - The type of periodicity for PMT calculation. The possible values are the names of the records from the [FTOS_CB_PeriodicityType](#) entity.
- **InterestCalculationMethod** - The method to be used for interest calculation. The possible values are the names of the records from the [FTOS_BP_InterestCalculationType](#) option set.

Optional input parameters:

- **FinancedAmount** - The loan's financed amount
- **InterestPercent** - The annual interest percentage
- **GracePeriodPrincipal** - If the value is 1, then the installment is skipped at the beginning. If the parameter is not present, its value is considered 0.
- **FutureValue** - The balloon value. If the parameter is not present, its value is considered 0.

- **InterestType** - The type of calculation for the interest, with 0 for InArrears and 1 for InAdvance.

Output:

- **PMTValue** - the calculated value of the PMT
- **PrincipalValue** - the principal value.

Call example:

```
1 ebs.callActionByNameAsync('FTOS_BP_CalculatePMT', {
2   "jsonParam": {
3     "FinancedAmount": 10000,
4     "InterestPercent": 5,
5     "InstallmentsNo": 12,
6     "GracePeriodPrincipal": 1,
7     "PeriodicityType": "Monthly",
8     "FutureValue": 1000,
9     "InterestCalculationMethod": "30/360",
10    "InterestType":0
11  }
12 }).then(function (o) {
13   console.table(o.UIResult.Data)
14 });
```

```

> ebs.callActionByNameAsync('FTOS_CB_CalculatePMT
', {
  "jsonParam": {
    "FinancedAmount": 10000,
    /* Loan Financed Amount*/
    "InterestPercent": 5,
    /* Annual interest percentage*/
    "InstallmentsNo": 12,
    /* Mandatory, Number of installments */
    "GracePeriodPrincipal": 1,
    /* Installment skipped at the
begining, if not present it is considered 0 */
    "PeriodicityType": "Monthly",
    /* Mandatory, Possible Values: 30Days, 4
Weeks, Annual, Bimonthly, Monthly, Once,
Semestrial, Trimestrial, Weekly*/
    "FutureValue": 1000,
    /* advance amount - if not present it
is considered to be 0 */
    "InterestCalculationMethod": "30/360",
    /* Mandatory, Possible Values: 30Days,
30/365, 30/360, 52 weeks, Actual/365(366),
30/Actual, 52 weeks/2 */
  }
}).then(function (o) {
  console.table(o.UIResult.Data)
});
< ▶ Promise {<pending>}

```

VM1214:19

(index)	PMTValue	PrincipalValue
0	842.95	1000

▶ Array(1)

>

FTOS_BP_CalculateRepaymentSchedule

Returns an array of json records representing the installments of a repayment schedule, that must be stored and presented as in the picture below, customized for every project:

CONTRACT REPAYMENT SCHEDULE DETAILS

No.	Due Date	Remaining	Interest	Principal	ResidualValue	Total
1	15-08-2020	10,000.00	50.00	746.42		796.42
2	15-09-2020	9,253.58	46.27	750.15		796.42
3	15-10-2020	8,503.43	42.52	753.90		796.42
4	15-11-2020	7,749.53	38.75	757.67		796.42
5	15-12-2020	6,991.86	34.96	761.46		796.42
6	15-01-2021	6,230.40	31.15	765.27		796.42
7	15-02-2021	5,465.13	27.33	769.09		796.42
8	15-03-2021	4,696.04	23.48	772.94		796.42

Input:

Mandatory input parameters:

- **ScheduleType** - the name of the Payment Schedule found in the [FTOS_BP_PaymentScheduleType](#) entity
- **InterestPercent** - the interest rate for the calculation, defined at the banking product level. The interest rate must be annual, so if you are using a monthly interest rate, you must transform it into an annual rate, multiplying it with 12.
- **Amount** - the financed amount, usually also containing the residual value if present, but not the advance value
- **InstallmentsNo** - the number of installments
- **PeriodicityType** - the periodicity of the schedule. The possible values are the names of the records from the [FTOS_CB_PeriodicityType](#) entity.
- **InstallmentDay** - the day of month for each installment

Optional input parameters:

- **AdvanceAmount** - the advance value, where
 $\text{AdvanceAmount} + \text{Amount} = \text{CreditValue}$
- **GracePeriodInterest** - the number of installments having grace period applied on the Interest column
- **GracePeriodPrincipal** - the number of installments having grace period applied on the Principal column
- **LastDueDate** - the date of the last installment unmodified for recalculation
- **BlockInstallmentNo** - the installment number that is blocked for recalculation
- **BlockAmount** - the value of the capital that is blocked for recalculation
- **ActivationDate** - the activation date of the contract. This is considered at the adjustment of the first installment for the columns that have Effective Rate as calculation method.
- **FirstDueDate** - the due date of the first installment
- **BlockInterestAmount** - the value of the interest for the grace period if recalculation includes the grace period
- **HolidayShift** - the system takes into account not working days/national holidays, according to the sent value. If true and Sunday or Saturday are defined as nonworking days, then the DueDate excepts these dates.
- **CalculateDAE** - specifies whether to show the effective annual interest rate: for 0 or null, the DAE is not displayed; for 1, only the DAE percent is displayed, and for 2, the original schedule containing a column with DAE percent is displayed.
- **installmentValue** - if there is a locked value for installments, this value should be provided here (equal installments)

- **principalValue** - if there is a locked value for principal, this value should be provided here (equal principal)
- **InstallmentMethod** - the method for calculating the installment (Actual Month or Next Month)
- **MaturityDate** - the date for the end of the contract
- **InterestCapitalization** - specifies if the interest is capitalized for deposit calculation
- **UpFrontValue** - the amount for upfront commissions, taxes, insurances paid once at the beginning of the contract
- **ResidualValue** - the residual value amount for insurance business
- **ResidualInInstallment** - the method of display for the residual value: for 0, it is displayed in a new schedule line, for 1, it is displayed in the last schedule line
- **Commission** - an array [] of commissions with periodicity different than Once.

[

- **SourceValue** - the value of the commission when the commission is defined as a value. Mandatory if the line is present.
- **SourcePercent** - the percent of the commission when the commission is defined as a percentage. Mandatory if the line is present.
- **FeePeriodicityType** - the periodicity of the commission. Mandatory if the line is present.
- **GracePeriodFee** - it can have its own grace period for a number of installments
- **BlockFeeAmount** - the blocked amount in case of recalculation

- **FeeDate** - the date of the fee being applied to the contract. Mandatory if the line is present.
- **FeeId** - the fee from the FTOS_BP_Commission entity selected from the banking product level. Mandatory if the line is present.
- **IsUpfront** - for commissions that are included into the payment schedule and the first commission value is paid at the activation date. Possible values: 0,1. The parameter is optional and if it is not included into the JSON request, the value comes from payment schedule detail column setting.

]

- **Insurance** - an array [] of insurances with periodicity different than Once.

[

- **SourceValue** - the value of the insurance when the insurance is defined as value. Mandatory if the line is present, and mutually exclusive if the SourcePercent is present.
- **SourcePercent** - the percent of the insurance when the insurance is defined as a percentage. Mandatory if the line is present, and mutually exclusive if the SourceValue is present.
- **InsurancePeriodicityType** - the periodicity of the insurance. Mandatory if the line is present.
- **GracePeriodInsurance** - it can have its own grace period for a number of installments
- **BlockInsuranceAmount** - the blocked amount is case of recalculation
- **InsuranceDate** - the date of the insurance applied to the contract. Mandatory if the line is present.
- **InsuranceId** - the insurance from the FTOS_BP_Insurance entity selected from the banking product. Optional if InsuranceClassId is present.

- **InsuranceClassId** - the insurance class from the FTOS_BP_ScheduleElementClass entity selected on the FTOS_BP_Insurance entity when defining the insurance. Optional if InsuranceId is present.
- **IsUpfront** - for insurances that are included into the payment schedule and the first commission value is paid at the activation date. Possible values: 0,1. The parameter is optional and if it is not included into the JSON request, the value comes from payment schedule detail column setting.

]

- **MultipleInterestRates** - an array [] of interest rates

[

- **InterestRate** - the interest percent defined as interest type = Collection on the banking product **Dimensions > Interest List > Interest** level
- **FromInstNo** - the From installment number defined as interest type = Collection on the banking product **Dimensions > Interest List > Interest** level
- **ToInstNo** - the To installment number defined as interest type = Collection on the banking product **Dimensions > Interest List > Interest** level

]

- **CapitalPercent** - the percentage field defined at the banking product level (Credit Card) in the **Details** tab, representing a percentage to be applied as a formula to the schedule detail principal column.

Input variables example:

```

1  {
2    "ScheduleType":
   "Loan Equal Principal Actual with ResidualValue",
3    "InterestPercent": 6,
4    "Amount": 10000,
5    "InstallmentsNo": 13,

```

```

6      "AdvanceAmount": 400,
7      "GracePeriodInterest": null,
8      "GracePeriodPrincipal": 0,
9      "PeriodicityType": "Monthly",
10     "LastDueDate": "2020-8-12",
11     "BlockInstallmentNo": 0,
12     "BlockAmount": 0,
13     "ActivationDate": "2020-8-12",
14     "FirstDueDate": "2020-8-12",
15     "BlockInterestAmount": 0,
16     "HolidayShift": true,
17     "HolidayCountry": "Country:Thailand",
18     "CalculateDAE": 2,
19     "installmentValue": 796.42,
20     "principalValue": null,
21     "InstallmentDay": 15,
22     "InstallmentMethod": "ActualMonth",
23     "MaturityDate": "2021-8-12",
24     "InterestCapitalization": 0,
25     "UpFrontValue": 400.00,
26     "ResidualValue": 200,
27     "ResidualInInstallment": 0,
28     "Commission": [
29         {
30             "SourceValue": 1,
31             "SourcePercent": 0.01,
32             "FeePeriodicityType": "Trimestrial",
33             "GracePeriodFee": 0,
34             "BlockFeeAmount": 0,
35             "FeeDate": "2020-8-12",
36             "FeeId": "c86d68e5-2b48-439f-9bc6-
37 38df317bff2a",
38             "IsUpfront": 0
39         }
40     ],
41     "Insurance": [
42         {
43             "SourceValue": 10,
44             "SourcePercent": null,
45             "InsurancePeriodicityType": "Trimestrial",
46             "GracePeriodInsurance": 0,
47             "BlockInsuranceAmount": 0,
48             "InsuranceDate": "2020-8-12",
49             "InsuranceId": "66128D6D-C2AA-4B5C-932B-
50 7502C2E18288",

```

```

49         "InsuranceClassId": "61D36493-3DF9-44F0-
B372-BAC569346E80",
50         "IsUpfront": 0
51     }
52 },
53 ],
54 "MultipleInterestRates": [{
55     "InterestRate": 8.000000,
56     "FromInstNo": 1,
57     "ToInstNo": 3
58 }],
59 "CapitalPercent": 6
60 }
    
```

Output:

An array of json records representing the installments of a repayment schedule.

Case Studies

Loan Equal Installment - Minimal Call

The screenshot shows a configuration page for 'Loan Equal Installments'. At the top, there are fields for 'Name' (Loan Equal Installments), 'Payment schedule code' (CLEQS), 'Product Type' (Term Loan), and 'Schedule Interest Calculation Type' (30/360). Below these are four checkboxes: 'Is With Equal Installments' (checked), 'Adjust First Installment' (unchecked), 'Installment Value Custom' (unchecked), and 'Use Fix Maturity Date' (checked). A 'PAYMENT SCHEDULE TYPE DETAILS' section contains a table with columns for 'Column Repayment Schedule', 'Calculation Method', 'Fee', 'Source', 'Display', and 'Calculation'. The table lists five rows: RemainingValue, PMT, Interest, Principal, and Totalinstallment, each with its respective calculation method and formula type.

Column Repayment Schedule	Calculation Method	Fee	Source	Display	Calculation
RemainingValue	RemainingFormula			<input type="checkbox"/>	13
PMT	FixedValue			<input type="checkbox"/>	18
Interest	Effective Rate			<input type="checkbox"/>	19
Principal	ColumnFormula			<input type="checkbox"/>	24
Totalinstallment	ColumnFormula			<input type="checkbox"/>	26

Call example:

```

1  var jp = {
2    "ScheduleType": "Loan Equal Installments",
3    "InterestPercent": 6,
4    "Amount": 10000,
5    "InstallmentsNo": 13,
6    "PeriodicityType": "Monthly",
7    "ActivationDate": "2020-8-12",
8    "InstallmentDay": 15
9  };
10 ebs.callActionByName("FTOS_BP_
    CalculateRepaymentSchedule", {jsonParam:jp},
11 function(s){ if(s.UIResult){console.log
    (s.UIResult.Data);}}});

```

Returned data:


```

},
{
  "InstallmentNo": 12,
  "DueDate": "2021-07-15T00:00:00",
  "NoDays": 30,
  "InstallmentTypeId": "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d",
  "remainingValue": 1581.02,
  "pMT": 796.42,
  "interest": 7.91,
  "principal": 788.51,
  "totalInstallment": 796.42,
  "ScheduleTypeId": "af636c50-9c0b-4e74-8a7a-a8cc91c258a5",
  "isEarlyRepayment": "false"
},
{
  "InstallmentNo": 13,
  "DueDate": "2021-08-15T00:00:00",
  "NoDays": 30,
  "InstallmentTypeId": "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d",
  "remainingValue": 792.51,
  "pMT": 796.42,
  "interest": 3.96,
  "principal": 747.51,
  "totalInstallment": 751.47,
  "ScheduleTypeId": "af636c50-9c0b-4e74-8a7a-a8cc91c258a5",
  "isEarlyRepayment": "false"
}
],
"ReturnValue": 0
}
=== end message ===

▼ (13) [{"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}, {"-", "-"}]
▶ 0: {InstallmentNo: 1, DueDate: "2020-08-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 10000, -}
▶ 1: {InstallmentNo: 2, DueDate: "2020-09-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 9253.58, -}
▶ 2: {InstallmentNo: 3, DueDate: "2020-10-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 8503.43, -}
▶ 3: {InstallmentNo: 4, DueDate: "2020-11-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 7749.53, -}
▶ 4: {InstallmentNo: 5, DueDate: "2020-12-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 6991.86, -}
▶ 5: {InstallmentNo: 6, DueDate: "2021-01-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 6230.4, -}
▶ 6: {InstallmentNo: 7, DueDate: "2021-02-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 5465.13, -}
▶ 7: {InstallmentNo: 8, DueDate: "2021-03-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 4696.04, -}
▶ 8: {InstallmentNo: 9, DueDate: "2021-04-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 3923.1, -}
▶ 9: {InstallmentNo: 10, DueDate: "2021-05-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 3146.3, -}
▶ 10: {InstallmentNo: 11, DueDate: "2021-06-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 2365.61, -}
▶ 11: {InstallmentNo: 12, DueDate: "2021-07-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 1581.02, -}
▶ 12: {InstallmentNo: 13, DueDate: "2021-08-15T00:00:00", NoDays: 30, InstallmentTypeId: "8bcd977d-5b3c-46a9-8e3e-c343ed2a956d", remainingValue: 792.51, -}

```

Loan Equal Principal Actual with Fees and Insurances

PAYMENT SCHEDULE TYPE Tooltips On 

Loan Equal Principal Actual CLEQPA

Product Type: [none] Schedule Interest Calculation Type: Actual/365(366)

Is With Equal Installments: Adjust First Installment: Installment Value Custom: Use Fix Maturity Date:

PAYMENT SCHEDULE TYPE DETAILS

+ Insert ✕ Delete 📄 Export 🔄 Refresh

<input type="checkbox"/>	Column Repayment Schedule	Calculation Method	Fee	Source	Display	Calculation
<input type="checkbox"/>	RemainingValue	RemainingFormula			<input checked="" type="checkbox"/> (All)	1
<input type="checkbox"/>	Interest	Effective Rate			<input checked="" type="checkbox"/>	2
<input type="checkbox"/>	Principal	Liniar			<input checked="" type="checkbox"/>	3
<input type="checkbox"/>	LifeInsurance	Effective Rate		SourcePercent	<input checked="" type="checkbox"/>	4
<input type="checkbox"/>	HomeInsurance	Liniar		SourceValue	<input checked="" type="checkbox"/>	5
<input type="checkbox"/>	ManagementFee	Effective Rate	Annual Admin Fee	SourcePercent	<input checked="" type="checkbox"/>	6
<input type="checkbox"/>	TotalInstallment	ColumnFormula			<input checked="" type="checkbox"/>	7

The actual Annual Admin Fee must be defined within the FTOS_BP_ Commission entity, and also the Insurances within the FTOS_BP_ Insurance entity, Make sure you have at least one insurance with class Life Insurance, Monthly, defined as percentage, and one with class HomeInsurance, Monthly, defined as value. These Commissions and Insurances are called by Id within the request of the FTOS_BP_ CalculateRepaymentSchedule endpoint.

Call example:

```

1  var jp = {
2    "ScheduleType": "Loan Equal Principal Actual",
3    "InterestPercent": 6,
4    "Amount": 10000,
5    "InstallmentsNo": 13,
6    "PeriodicityType": "Monthly",
7    "ActivationDate": "2020-8-12",
8    "InstallmentDay": 15,
9    "InstallmentMethod": "ActualMonth",
10   "Commission": [
11     {

```

```

12         "SourceValue": null,
13         "SourcePercent": 2,
14         "FeePeriodicityType": "Monthly",
15         "GracePeriodFee": 0,
16         "BlockFeeAmount": 0,
17         "FeeDate": "2020-8-12",
18         "FeeId": "6ab39765-f535-4560-be0b-
24c92755946c"
19     }
20 ],
21     "Insurance": [
22     {
23         "SourceValue": 5,
24         "SourcePercent": null,
25         "InsurancePeriodicityType": "Monthly",
26         "GracePeriodInsurance": 0,
27         "BlockInsuranceAmount": 0,
28         "InsuranceDate": "2020-8-12",
29         "InsuranceId": "a2f2230e-ec59-44ad-bf73-
39556b2ed15d" ,
30         "InsuranceClassId": null
31     },
32     {
33         "SourceValue": null,
34         "SourcePercent": 1.5,
35         "InsurancePeriodicityType": "Monthly",
36         "GracePeriodInsurance": 0,
37         "BlockInsuranceAmount": 0,
38         "InsuranceDate": "2020-8-12",
39         "InsuranceId": "1c67cf62-032d-49d1-bfa1-
e36299ace050" ,
40         "InsuranceClassId": null
41     }
42 ]
43 };
44 ebs.callActionByName("FTOS_BP_
CalculateRepaymentSchedule", {jsonParam:jp},
45 function(s){ if(s.UIResult){console.log
(s.UIResult.Data);}}});

```

Part of the returned data:


```

    "DueDate": "2021-08-15T00:00:00",
    "NoDays": 31,
    "InstallmentTypeId": "de9ebf4e-d541-4742-8979-55182a4ff3ef",
    "remainingValue": 769.24,
    "interest": 3.91,
    "principal": 769.24,
    "lifeInsurance": 0.98,
    "homeInsurance": 0.38,
    "managementFee": 1.30,
    "totalInstallment": 775.81,
    "ScheduleTypeId": "627e27ba-7d07-4e0c-b043-770b86a05cde",
    "isEarlyRepayment": "false"
  }
],
"ReturnValue": 0
}
=== end message ===

```

▼ (13) [{"-"}, {"-"}, {"-"}, {"-"}, {"-"}, {"-"}, {"-"}, {"-"}, {"-"}, {"-"}, {"-"}, {"-"}, {"-"}] ⓘ

```

▼ 0:
  DueDate: "2020-08-15T00:00:00Z"
  InstallmentNo: 1
  InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef"
  NoDays: 3
  ScheduleTypeId: "627e27ba-7d07-4e0c-b043-770b86a05cde"
  homeInsurance: 0.38
  interest: 4.92
  isEarlyRepayment: "false"
  lifeInsurance: 1.23
  managementFee: 1.64
  principal: 769.23
  remainingValue: 10000
  totalInstallment: 777.4
  ▶ __proto__: Object
▼ 1:
  DueDate: "2020-09-15T00:00:00Z"
  InstallmentNo: 2
  InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef"
  NoDays: 31
  ScheduleTypeId: "627e27ba-7d07-4e0c-b043-770b86a05cde"
  homeInsurance: 0.38
  interest: 46.91
  isEarlyRepayment: "false"
  lifeInsurance: 11.73
  managementFee: 15.64
  principal: 769.23
  remainingValue: 9230.77

```

Loan Equal Installments with Residual Value

PAYMENT SCHEDULE TYPE Tooltips On

Name: Payment schedule code:

Product Type: Schedule Interest Calculation Type:

Is With Equal Installments: Adjust First Installment: Installment Value Custom: Use Fix Maturity Date:

PAYMENT SCHEDULE TYPE DETAILS

+ Insert ✕ Delete 📄 Export 🔄 Refresh

<input type="checkbox"/>	Column Repayment Schedule	Calculation Method	Fee	Source	Display	Calculation
<input type="checkbox"/>	Q	Q	Q	Q	(All) ▾	Q
<input type="checkbox"/>	RemainingValue	RemainingFormula			<input checked="" type="checkbox"/>	2
<input type="checkbox"/>	PMT	FixedValue			<input type="checkbox"/>	3
<input type="checkbox"/>	Interest	Effective Rate			<input checked="" type="checkbox"/>	4
<input type="checkbox"/>	Principal	ColumnFormula			<input checked="" type="checkbox"/>	5
<input type="checkbox"/>	ResidualValue	FixedValue			<input checked="" type="checkbox"/>	9
<input type="checkbox"/>	TotalInstallment	ColumnFormula			<input checked="" type="checkbox"/>	10

Call example:

```

1  var jp = {
2    "ScheduleType": "Loan Equal Installments with
3    ResidualValue",
4    "InterestPercent": 6,
5    "Amount": 10000,
6    "InstallmentsNo": 13,
7    "AdvanceAmount": 400,
8    "GracePeriodInterest": null,
9    "GracePeriodPrincipal": 0,
10   "PeriodicityType": "Monthly",
11   "LastDueDate": "2020-8-12",
12   "BlockInstallmentNo": 0,
13   "BlockAmount": 0,
14   "ActivationDate": "2020-8-12",
15   "FirstDueDate": "2020-8-12",
16   "BlockInterestAmount": 0,
17   "HolidayShift": true,
18   "HolidayCountry": "Country:Thailand",
19   "CalculateDAE": 2,
20   "installmentValue": 796.42,
21   "principalValue": null,
22   "InstallmentDay": 15,

```

```

22 |     "InstallmentMethod": "ActualMonth",
23 |     "MaturityDate": "2021-8-12",
24 |     "InterestCapitalization": 0,
25 |     "UpFrontValue": 0.00,
26 |     "ResidualValue": 200,
27 |     "ResidualInInstallment": 0,
28 |     "Commission": [],
29 |     "Insurance": []
30 | };
31 | ebs.callActionByName("FTOS_BP_
    CalculateRepaymentSchedule", {jsonParam:jp},
32 | function(s){ if(s.UIResult){console.log
    (s.UIResult.Data);}}});
    
```

Part of the returned data:

```

    "interest": 4.88,
    "principal": 731.66,
    "residualValue": 0.00,
    "totalInstallment": 736.54,
    "dae": 11.2416973,
    "ScheduleTypeId": "b4c75678-6c12-494e-b257-6aba21flac46",
    "isEarlyRepayment": "false"
  },
  {
    "InstallmentNo": 14,
    "DueDate": "2021-08-12T00:00:00",
    "NoDays": 30,
    "InstallmentTypeId": "02fa5f7e-ad27-4672-9a23-a7849c77953b",
    "remainingValue": 0.00,
    "pmt": 0.00,
    "interest": 0.00,
    "principal": 0.00,
    "residualValue": 200.00,
    "totalInstallment": 200.00,
    "dae": 11.2416973,
    "ScheduleTypeId": "b4c75678-6c12-494e-b257-6aba21flac46",
    "isEarlyRepayment": "false"
  }
],
"ReturnValue": 0
}
}
=== end message ===

(15) [Array(15)]
  > 0: {InstallmentNo: 0, DueDate: "2020-08-12T00:00:00", NoDays: 30, InstallmentTypeId: "0e1bac06-b521-44ac-8a29-803d4683182d", remainingValue: 0, ...}
  > 1: {InstallmentNo: 1, DueDate: "2020-08-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 10000, ...}
  > 2: {InstallmentNo: 2, DueDate: "2020-09-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 9268.51, ...}
  > 3: {InstallmentNo: 3, DueDate: "2020-10-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 8533.36, ...}
  > 4: {InstallmentNo: 4, DueDate: "2020-11-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 7794.54, ...}
  > 5: {InstallmentNo: 5, DueDate: "2020-12-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 7052.02, ...}
  > 6: {InstallmentNo: 6, DueDate: "2021-01-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 6305.79, ...}
  > 7: {InstallmentNo: 7, DueDate: "2021-02-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 5555.83, ...}
  > 8: {InstallmentNo: 8, DueDate: "2021-03-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 4802.12, ...}
  > 9: {InstallmentNo: 9, DueDate: "2021-04-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 4044.64, ...}
  > 10: {InstallmentNo: 10, DueDate: "2021-05-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 3283.37, ...}
  > 11: {InstallmentNo: 11, DueDate: "2021-06-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 2518.3, ...}
  > 12: {InstallmentNo: 12, DueDate: "2021-07-15T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 1749.4, ...}
  > 13: {InstallmentNo: 13, DueDate: "2021-08-12T00:00:00", NoDays: 30, InstallmentTypeId: "de9ebf4e-d541-4742-8979-55182a4ff3ef", remainingValue: 976.66, ...}
  > 14: {InstallmentNo: 14, DueDate: "2021-08-12T00:00:00", NoDays: 30, InstallmentTypeId: "02fa5f7e-ad27-4672-9a23-a7849c77953b", remainingValue: 0, ...}
  length: 15
  > __proto__: Array(0)
    
```

Data Visualization Example

No.	Due Date	Remaining	Interest	Principal	ResidualValue	Total	
1	15-08-2020	10,000.00	50.00	746.42		796.42	
2	15-09-2020	9,253.58	46.27	750.15		796.42	\$
3	15-10-2020	8,503.43	42.52	753.90		796.42	\$
4	15-11-2020	7,749.53	38.75	757.67		796.42	\$
5	15-12-2020	6,991.86	34.96	761.46		796.42	\$
6	15-01-2021	6,230.40	31.15	765.27		796.42	\$
7	15-02-2021	5,465.13	27.33	769.09		796.42	\$
8	15-03-2021	4,696.04	23.48	772.94		796.42	\$
9	15-04-2021	3,923.10	19.62	776.80		796.42	\$
10	15-05-2021	3,146.30	15.73	780.69		796.42	\$
11	15-06-2021	2,365.61	11.83	784.59		796.42	\$

Code:

```
<div class="row" data-template-id="row_11">
  <div class="col-xs-12">
    <div id="payment-details">&nbsp;</div>
  </div>
</div>
```

Call example:

```
1 var stId = ebs.getCurrentEntityData
  ().scheduleTypeId; // stId = Schedule Type Id
2 function unCapitalize(string) {
3   return string[0].toLowerCase() + string.slice(1);
4 }
5 var status = '';
6 function compareValues(key, order = 'asc') {
7   return function innerSort(a, b) {
8     if (!a.hasOwnProperty(key) || !b.hasOwnProperty
(key)) {
9       return 0;
10    }
11
12    const varA = (typeof a[key] === 'string')
13      ? a[key].toUpperCase() : a[key];
14    const varB = (typeof b[key] === 'string')
15      ? b[key].toUpperCase() : b[key];
```

```

16
17     let comparison = 0;
18     if (varA > varB) {
19         comparison = 1;
20     } else if (varA < varB) {
21         comparison = -1;
22     }
23     return (
24         (order === 'desc') ? (comparison * -1) :
comparison
25     );
26 };
27 }
28 showRepaymentSchedule ();
29 function showRepaymentSchedule () {
30     //here we have used other entities contract,
ContractRepaymentSchedule,
ContractRepaymentScheduleDetail (basically this last
entity contain the schedule details)
31     //so this endpoint bellow is arbitrary and usually
get replaced by something else
32     ebs.callActionByName('FTOS_CB_
PaymentScheduleFields', { scheduleId:
ebs.getCurrentEntityId(), scheduleTypeId: stId },
function (rsp) {
33         var columnsFields = [];
34         rsp.UIResult.Data.fields.map(function (o) {
35             columnsFields.push(o);
36         });
37         columnsFields.sort(compareValues('order'));
38         var values = rsp.UIResult.Data.values;
39
40         columnsFields.unshift({ name: 'DueDate',
display: 'Due Date', cap: false });
41         columnsFields.unshift({ name: 'InstallmentNo',
display: 'No.', cap: false, decimal: false });
42
43         paymentDetail(columnsFields, values,
hasButton);
44     }
45     function paymentDetail(fields, values, hasButton) {
46         var dataSource = [];
47
48         values.forEach(function (v) {
49             var obj = JSON.parse(v.json);

```

```

50     var dateToFormat = new Date
(obj.DueDate.invariantDate);
51     obj.DueDate = (dateToFormat.getDate() < 10 ?
'0' + dateToFormat.getDate() : dateToFormat.getDate())
+ '-' + ((dateToFormat.getMonth() + 1) < 10 ? '0' +
(dateToFormat.getMonth() + 1) : (dateToFormat.getMonth
() + 1)) + '-' + dateToFormat.getFullYear()
52     obj.InstallmentTypeId = v.sd_installmentTypeId_
displayname;
53     obj.id = v.id;
54     obj.payed = v.payed;
55     obj.notification = v.notificationId;
56     dataSource.push(obj);
57     });
58
59     var columns = [];
60
61     fields.forEach(function (o) {
62         var object = {
63             dataField: typeof o.cap === 'undefined' ?
unCapitalize(o.name) : o.name,
64             caption: o.display,
65             format: typeof o.decimal !== 'undefined' ?
{} : { type: "fixedPoint", precision: 2 }
66         };
67         columns.push(object);
68     });
69
70     if (hasButton) {
71         columns.push({
72             type: "buttons",
73             width: 110,
74             buttons: [{
75                 hint: "Pay Installssment",
76                 icon: "money",
77                 visible: function (e) {
78                     return e.row.data.notification ===
null;
79                 },
80                 onClick: function (e) {
81                     //custom code on pay installment
82                 });
83             }
84         }]
85     });

```

```

86     }
87     $("#payment-details").dxDataGrid({
88         rowAlternationEnabled: true,
89         showColumnHeaders: true,
90         alignment: "left",
91         repaintChangesOnly: true,
92         paging: {
93             pageSize: 10000
94         },
95         onCellPrepared: function (e) {
96             //console.Log(e)
97             if (e.rowType === 'data' &&
e.row.data.payed === true) {
98                 //console.Log(e.row.data.payed)
99                 e.cellElement[0].className += " payed";
100             }
101         },
102         columnAutoWidth: false,
103         columns: columns,
104         dataSource: {
105             store: dataSource,
106             reshapeOnPush: true
107         }
108     });
109 }

```

Credit Card Schedule

Name: Payment schedule code:

Product Type: Schedule Interest Calculation Type:

Is With Equal Installments
 Adjust First Installment
 Installment Value Custom
 Use Fix Maturity Date

PAYMENT SCHEDULE TYPE DETAILS

<input type="checkbox"/>	Column Repayment Schedule	Calculation Method	Fee	Insurance class	Source	Display	Calculator
<input type="checkbox"/>	CapitalPercent	ProductLevelFixedValue				<input type="checkbox"/>	1
<input type="checkbox"/>	ManagementFee	FixedValue	Management Fee Fix 5		SourceValue	<input type="checkbox"/>	2
<input type="checkbox"/>	RemainingValue	RemainingFormula				<input checked="" type="checkbox"/>	3
<input type="checkbox"/>	Interest	Effective Rate				<input checked="" type="checkbox"/>	4
<input type="checkbox"/>	Principal	ColumnFormula				<input checked="" type="checkbox"/>	5
<input type="checkbox"/>	TotalInstallment	ColumnFormula				<input checked="" type="checkbox"/>	6

Call example:

FTOS_BP_GetBankingProductByCode

Returns the banking product information based on its product code. If more versions are available, only the approved one is taken into consideration.

Input:

Mandatory input parameters:

- **BankingProductCode** - string, from FTOS_BP_BankingProduct (attribute: BankingProductCode).

Optional input parameters:

- **displayBPDetails** - boolean, specifies whether to show the details of the banking product, such as general data, calendars, associated products or payment schedule types, product guarantees or destination types. Possible values: true, false. The **Details** section of the output is only displayed for true value. To display only the desired information from all the details, the following flags can be set to true or false within the **Details** section:
 - **displayCountryCalendars** - boolean, specifies whether to show the country calendars of the banking product. Possible values: true, false, default value true. The **CountryCalendar** section of the output is only displayed for true value.
 - **displayPaymentScheduleTypes** - boolean, specifies whether to show the associated payment schedule types of the banking product. Possible values: true, false, default value true. The **AssociatedPaymentScheduleTypes** section of the output is only displayed for true value.
 - **displayProductGuarantees** - boolean, specifies whether to show the product guarantees of the banking product. Possible values: true, false, default value true. The **ProductGuarantees** section of the output is only displayed for true value.
 - **displayProductDestinationTypes** - boolean, specifies whether to show the product destination types of the banking product. Possible values: true, false, default value true. The

ProductDestinationTypes section of the output is only displayed for true value.

- **displayDisbursementMatrix** - boolean, specifies whether to show the disbursement matrix of the banking product. Possible values: true, false, default value true. The **DisbursementMatrix** section of the output is only displayed for true value.
- **displayAssociatedProducts** - boolean, specifies whether to show the associated products of the banking product. Possible values: true, false, default value true. The **AssociatedProducts** section of the output is only displayed for true value.
- **displayBPAvailability** - boolean, specifies whether to show the availability information of the banking product, such as currency, period, minimum and maximum amounts and advances, item filters, or covenants. Possible values: true, false. The **Availability** section of the output is only displayed for true value. To display only the desired information from all the details, the following flags can be set to true or false within the **Availability** section:
 - **displayAvailabilityItemFilters** - boolean, specifies whether to show the availability item filters of the banking product. Possible values: true, false, default value true. The **AvailabilityItemFilters** section of the output is only displayed for true value.
 - **displayProductCovenants** - boolean, specifies whether to show the product covenants of the banking product. Possible values: true, false, default value true. The **ProductCovenants** section of the output is only displayed for true value.
- **displayBPDimensions** - boolean, specifies whether to show the dimensions information of the banking product, such as interests and commissions, insurances, discounts or questions. Possible values: true, false. The **Dimensions** section of the output is only displayed for true value. Only the active values for interests and for commissions are returned within the response. Filters for Interests&Commissions, Insurance, and Discounts are not included in the response. To display only the desired information from all the

details, the following flags can be set to true or false within the **Dimensions** section:

- **displayInterestsAndCommissions** - boolean, specifies whether to show the interests and commissions of the banking product. Only the active values for interests and for commissions are returned within the response. Possible values: true, false, default value true. The **InterestsAndCommissions** section of the output is only displayed for true value.
- **displayInsurance** - boolean, specifies whether to show the insurances of the banking product. Possible values: true, false, default value true. The **Insurance** section of the output is only displayed for true value.
- **displayDiscounts** - boolean, specifies whether to show the discounts of the banking product. Possible values: true, false, default value true. The **Discounts** section of the output is only displayed for true value.
- **displayQuestions** - boolean, specifies whether to show the questions of the banking product. Possible values: true, false, default value true. The **Questions** section of the output is only displayed for true value.

Output:

Object with details about a specific banking product from the FTOS_BP_BankingProduct entity. The data enclosed in Banking Product is returned by default. The data within Details, Availability and Dimensions is returned only if their corresponding flags are set to true.

Call example:

```

1 | var data = {
2 |     "BankingProductCode": "APICodeTst",
3 |     "displayBPDDetails": true,
4 |     "displayBPAvailability": true,
5 |     "displayBPDDimensions": true
6 | };
7 |
8 | ebs.callActionByName("FTOS_BP_GetBankingProductByCode",
   | data, function(response) {

```

```

9     if (response.UIResult) {
10         console.log(response.UIResult.Data);
11     }
12 });

```

Returned data:

```

1 // API Response example below:
2 {
3     "BankingProduct": {
4         "BankingProductCode": "APICodeTst",
5         "Name": "APIName",
6         "StartDate": "Fri Oct 08 2021 00:00:00 GMT+03:00",
7         "EndDate": "Thu Mar 31 2022 00:00:00 GMT+03:00"
8     },
9     "Details": {
10        "GeneralData": {
11            "BankAccountType": "LoanTermAccount",
12            "IsRevolving": true,
13            "AutoDisbursement": false,
14            "MaxNoDisbursements": 12,
15            "ActivationTranchesOnDocumentSubmission": false,
16            "IsGuaranteed": true,
17            "AllowCollateralPartialRelease": true,
18            "AllowCoDebtor": false,
19            "AllowRefinancing": true,
20            "MaxNoOfCodebtors": 5,
21            "PeriodicityType": "Monthly",
22            "RepaymentAllocationMethod": "CostOrder",
23            "HolidayShiftForRepaymentInstallments": true,
24            "HolidayShiftMethod": "Forward",
25            "DeferDueDate": true,
26            "GraceType": "Interest",
27            "ProductGrace": "FiveDaysGrace",
28            "GraceDaysForRepayment": 123,
29            "PenaltyForGracePeriod": false
30        },
31        "CountryCalendars": [
32            {
33                "CountryName": "Belgium"
34            },
35            {
36                "CountryName": "Thailand"
37            }

```

```

38     ],
39     "AssociatedPaymentScheduleTypes": [
40     {
41         "PaymentScheduleTypeId": "99b65307-8e55-46d0-
8114-859cda40c21d",
42         "PaymentScheduleTypeName": "Credit Card
Installments",
43         "PaymentScheduleCode": "CC",
44         "ProductType": null,
45         "ScheduleInterestCalculationType": "30/360",
46         "IsWithEqualInstallments": false,
47         "InstallmentValueCustom": false,
48         "UseMaturityDate": false,
49         "MeasurementUnit": "Months",
50         "PaymentScheduleTypeDetails": [
51         {
52             "PaymentScheduleTypeDetailId": "78c80e1a-
36ec-4132-8aa5-2030709789cb",
53             "ColumnRepaymentSchedule":
"TotalInstallment",
54             "CalculationMethod": "ColumnFormula",
55             "Fee": null,
56             "InsuranceClass": null,
57             "Source": null,
58             "Display": true
59         },
60         {
61             "PaymentScheduleTypeDetailId": "30cd5e82-
a80e-4db1-afda-39164ed56ed8",
62             "ColumnRepaymentSchedule":
"CapitalPercent",
63             "CalculationMethod":
"ProductLevelFixedValue",
64             "Fee": null,
65             "InsuranceClass": null,
66             "Source": null,
67             "Display": false
68         },
69         {
70             "PaymentScheduleTypeDetailId": "8230780c-
7c93-441a-9993-4a178a3fa1b3",
71             "ColumnRepaymentSchedule": "MgtFee",
72             "CalculationMethod": "FixedValue",
73             "Fee": "Management Fee Fix 5",
74             "InsuranceClass": null,

```

```

75         "Source": "SourceValue",
76         "Display": true
77     },
78     {
79         "PaymentScheduleTypeDetailId": "e05b4a1d-
b365-42ce-9d5a-4d86753610a2",
80         "ColumnRepaymentSchedule":
"RemainingValue",
81         "CalculationMethod": "RemainingFormula",
82         "Fee": null,
83         "InsuranceClass": null,
84         "Source": null,
85         "Display": true
86     },
87     {
88         "PaymentScheduleTypeDetailId": "55c5c8ee-
9b41-47e9-8eee-9a56561245bc",
89         "ColumnRepaymentSchedule": "Principal",
90         "CalculationMethod": "ColumnFormula",
91         "Fee": null,
92         "InsuranceClass": null,
93         "Source": null,
94         "Display": true
95     },
96     {
97         "PaymentScheduleTypeDetailId": "76835b60-
9fee-4152-a393-aa40829413a7",
98         "ColumnRepaymentSchedule": "Dobanda",
99         "CalculationMethod": "EffectiveRate",
100        "Fee": null,
101        "InsuranceClass": null,
102        "Source": null,
103        "Display": true
104    }
105 ]
106 }
107 ],
108 "ProductGuarantees": [
109     {
110         "ProductGuaranteeName": "APICodeTst-CA",
111         "GuaranteeType": "Cash",
112         "MaxAcceptedCoveringPercent": 50
113     }
114 ],
115 "ProductDestinationTypes": [],

```

```

116     "DisbursementMatrix": [
117     {
118         "Name": "DisbMatrixAPITest",
119         "TranchePercent": 100,
120         "InterestPercent": 13,
121         "StartMonthFromActivation": 8,
122         "UnusageCommissionPercent": 14
123     }
124 ],
125     "AssociatedProducts": [
126     {
127         "AssociatedProductName": "TLVlad",
128         "AssociatedProductCode": "TLVlad"
129     },
130     {
131         "AssociatedProductName": "TLVladAutoCommLoad",
132         "AssociatedProductCode": "TLVladAC"
133     }
134 ]
135 },
136     "Availability": {
137         "Currency": "RON",
138         "PeriodType": "Months",
139         "MaxPeriodForDisbursement": 1,
140         "MinimumPeriod": 2,
141         "MaximumPeriod": 3,
142         "MinimumEarlyRepaymentValue": 4,
143         "MinimumAmount": 500,
144         "MaximumAmount": 50000,
145         "UnusageStartPeriod": 5,
146         "MinimumAdvance": 10,
147         "MaximumAdvance": 90,
148         "AvailabilityItemFilters": [
149         {
150             "Filter": "Account",
151             "FilterScope": "All",
152             "FilterType": "LookUp",
153             "Description": "Account Filter API TEST"
154         }
155     ],
156         "ProductCovenants": [
157         {
158             "Name": "Lender can monitor borrower's current
159             ratio",
159             "Type": "Financial",

```

```

160     "Value": 12345,
161     "ValidFrom": {
162         "invariantDate": "2021-10-08"
163     },
164     "ValidTo": {
165         "invariantDate": "2022-02-28"
166     },
167     "ReviewFrequencyMonths": 12
168 }
169 ]
170 },
171 "Dimensions": {
172     "InterestsAndCommissions": [
173     {
174         "InterestCommissionItemName": "TestAPIIntCom",
175         "CommissionListName": null,
176         "InterestListName": "Corporate Interest 10",
177         "Commissions": [],
178         "Interests": [
179             {
180                 "Name": "Corporate Overdue Principal",
181                 "Code": "CoOvP",
182                 "AppliedToLoanItemIfOverdue": "Loan
Principal",
183                 "Description": null,
184                 "IsDefault": false,
185                 "UseBankingFormula": false,
186                 "Type": "Fixed",
187                 "IsPenalty": true,
188                 "IsGeneral": null,
189                 "IsForSightDeposit": false,
190                 "IsForOverdraft": null,
191                 "IsCreditLine": false,
192                 "IsDebitOrder": false,
193                 "Values": [
194                     {
195                         "Value": 12,
196                         "ValueStatus": "Active",
197                         "ValueValidFrom": {
198                             "invariantDate": "2021-01-01"
199                         },
200                         "ValueValidTo": {
201                             "invariantDate": "2031-12-31"
202                         }
203                     }

```



```

204     ],
205     "CollectionInterests": []
206   },
207   {
208     "Name": "Corporate Overdue Interest",
209     "Code": "CoOvI",
210     "AppliedToLoanItemIfOverdue": "Loan
Interest",
211     "Description": null,
212     "IsDefault": false,
213     "UseBankingFormula": false,
214     "Type": "Fixed",
215     "IsPenalty": true,
216     "IsGeneral": null,
217     "IsForSightDeposit": false,
218     "IsForOverdraft": null,
219     "IsCreditLine": false,
220     "IsDebitOrder": false,
221     "Values": [
222       {
223         "Value": 10,
224         "ValueStatus": "Active",
225         "ValueValidFrom": {
226           "invariantDate": "2021-01-01"
227         },
228         "ValueValidTo": {
229           "invariantDate": "2031-12-31"
230         }
231       }
232     ],
233     "CollectionInterests": []
234   },
235   {
236     "Name": "Corporate Fix 10",
237     "Code": "FI10",
238     "AppliedToLoanItemIfOverdue": null,
239     "Description": null,
240     "IsDefault": false,
241     "UseBankingFormula": false,
242     "Type": "Fixed",
243     "IsPenalty": false,
244     "IsGeneral": null,
245     "IsForSightDeposit": false,
246     "IsForOverdraft": null,
247     "IsCreditLine": false,

```

```

248         "IsDebitOrder": false,
249         "Values": [
250             {
251                 "Value": 10,
252                 "ValueStatus": "Active",
253                 "ValueValidFrom": {
254                     "invariantDate": "2020-01-01"
255                 },
256                 "ValueValidTo": {
257                     "invariantDate": "2050-12-31"
258                 }
259             }
260         ],
261         "CollectionInterests": []
262     },
263     {
264         "Name": "Corporate Floating BIBOR 3M",
265         "Code": "FB3M",
266         "AppliedToLoanItemIfOverdue": null,
267         "Description": null,
268         "IsDefault": false,
269         "UseBankingFormula": false,
270         "Type": "Variable",
271         "IsPenalty": false,
272         "IsGeneral": null,
273         "IsForSightDeposit": false,
274         "IsForOverdraft": null,
275         "IsCreditLine": false,
276         "IsDebitOrder": false,
277         "Values": [
278             {
279                 "Value": 2.5,
280                 "ValueStatus": "Active",
281                 "ValueValidFrom": {
282                     "invariantDate": "2021-01-01"
283                 },
284                 "ValueValidTo": {
285                     "invariantDate": "2050-01-31"
286                 }
287             }
288         ],
289         "CollectionInterests": [],
290         "BaseInterestName": "BIBOR 3 Month",
291         "BaseInterestValue": 4.5
292     },

```

```

293     {
294         "Name": "Corporate Floating BIBOR 1M",
295         "Code": "FB1M",
296         "AppliedToLoanItemIfOverdue": null,
297         "Description": null,
298         "IsDefault": false,
299         "UseBankingFormula": false,
300         "Type": "Variable",
301         "IsPenalty": false,
302         "IsGeneral": null,
303         "IsForSightDeposit": false,
304         "IsForOverdraft": null,
305         "IsCreditLine": false,
306         "IsDebitOrder": false,
307         "Values": [
308             {
309                 "Value": 2,
310                 "ValueStatus": "Active",
311                 "ValueValidFrom": {
312                     "invariantDate": "2020-01-01"
313                 },
314                 "ValueValidTo": {
315                     "invariantDate": "2022-01-01"
316                 }
317             }
318         ],
319         "CollectionInterests": []
320     }
321 ]
322 },
323 ],
324 "Insurance": [
325     {
326         "Name": "InsuranceAPITEst",
327         "Code": null,
328         "StartDate": {
329             "invariantDate": "2021-10-08"
330         },
331         "EndDate": {
332             "invariantDate": "2022-02-28"
333         },
334         "InsuranceListName": "RON",
335         "Insurances": [
336             {
337                 "InsuranceCode": "IFP",

```

```

338         "InsuranceName":
"InsuranceFormulaPercentage",
339         "PeriodicityType": "Trimestrial",
340         "Currency": "USD",
341         "Insurer": "INSURERAPI",
342         "OperationItem": "Repayment Fee",
343         "IsMandatoryForApplicant": true,
344         "IsMandatoryForDebtor": false,
345         "IncludedIntoRepaymentScheduleInstallment":
true,
346         "Class": "Credit Insurance",
347         "UseBankingFormula": true,
348         "ValueIsPercentage": true,
349         "Description": "test",
350         "BankingFormulaType": "com&ins ByAmount"
351     },
352     {
353         "InsuranceCode": "LI",
354         "InsuranceName": "Life Insurance",
355         "PeriodicityType": "Monthly",
356         "Currency": "USD",
357         "Insurer": null,
358         "OperationItem": "Life Insurance",
359         "IsMandatoryForApplicant": true,
360         "IsMandatoryForDebtor": null,
361         "IncludedIntoRepaymentScheduleInstallment":
true,
362         "Class": "Life Insurance",
363         "UseBankingFormula": null,
364         "ValueIsPercentage": true,
365         "Description": "description",
366         "BankingFormulaType": null
367     }
368 ]
369 }
370 ],
371 "Discounts": [
372     {
373         "Name": "DiscountAPIFull",
374         "Discount": "ManagementFeeDiscount",
375         "DiscountValue": null,
376         "StartDate": {
377             "invariantDate": "2021-09-01"
378         },
379         "EndDate": {
380             "invariantDate": "2022-05-31"

```

```

381     },
382     "AppliedToDimension": "Commission",
383     "CommissionType": "Management Fee",
384     "Commission": "ComFormulaPercentage",
385     "InterestType": null,
386     "InsuranceClass": null,
387     "Insurance": null,
388     "UseBankingFormula": true,
389     "BankingFormulaType": "fomula type 1",
390     "IsOptionalDiscount": true,
391     "DestinationEntity": "Account",
392     "DestinationEntityAttribute": "NrOfChildren",
393     "IsPercentage": true
394 },
395 {
396     "Name": "LifeInsurance",
397     "Discount": "Discount Life Insurance",
398     "DiscountValue": 12,
399     "StartDate": {
400         "invariantDate": "2021-09-01"
401     },
402     "EndDate": {
403         "invariantDate": "2022-04-30"
404     },
405     "AppliedToDimension": "Insurance",
406     "CommissionType": null,
407     "Commission": null,
408     "InterestType": null,
409     "InsuranceClass": "Life Insurance",
410     "Insurance": "Life Insurance",
411     "UseBankingFormula": false,
412     "BankingFormulaType": null,
413     "IsOptionalDiscount": true,
414     "DestinationEntity": "AccountRelBusiness",
415     "DestinationEntityAttribute": "modifiedOn",
416     "IsPercentage": false
417 },
418 {
419     "Name": "interestdiscount",
420     "Discount": "Interest Discount",
421     "DiscountValue": 14,
422     "StartDate": {
423         "invariantDate": "2021-08-02"
424     },
425     "EndDate": {

```

```

426         "invariantDate": "2022-04-30"
427     },
428     "AppliedToDimension": "Interest",
429     "CommissionType": null,
430     "Commission": null,
431     "InterestType": "Fixed",
432     "InsuranceClass": null,
433     "Insurance": null,
434     "UseBankingFormula": false,
435     "BankingFormulaType": null,
436     "IsOptionalDiscount": false,
437     "DestinationEntity": null,
438     "DestinationEntityAttribute": null,
439     "IsPercentage": false
440 },
441 {
442     "Name": "DiscountAPITest",
443     "Discount": "Commission discount",
444     "DiscountValue": 100,
445     "StartDate": {
446         "invariantDate": "2021-10-08"
447     },
448     "EndDate": {
449         "invariantDate": "2022-01-31"
450     },
451     "AppliedToDimension": "Commission",
452     "CommissionType": "Front-end Fee",
453     "Commission": null,
454     "InterestType": "Variable",
455     "InsuranceClass": null,
456     "Insurance": null,
457     "UseBankingFormula": false,
458     "BankingFormulaType": null,
459     "IsOptionalDiscount": false,
460     "DestinationEntity": null,
461     "DestinationEntityAttribute": null,
462     "IsPercentage": false
463     }
464 ],
465 "Questions": [
466     {
467         "Name": "Question2",
468         "QuestionType": null,
469         "IsForSolicitant": null,
470         "IsForCoborrower": null,

```

```
471         "AnswerEntity": "AccountRelEmployer",
472         "AnswerField": "Details"
473     },
474     {
475         "Name": "Question1",
476         "QuestionType": "Test",
477         "IsForSolicitant": false,
478         "IsForCoborrower": false,
479         "AnswerEntity": "Account",
480         "AnswerField": "Phone"
481     }
482 ]
483 }
484 }
```