Creatio Academy

Business logic

Version 8.0

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Set up a new business rule

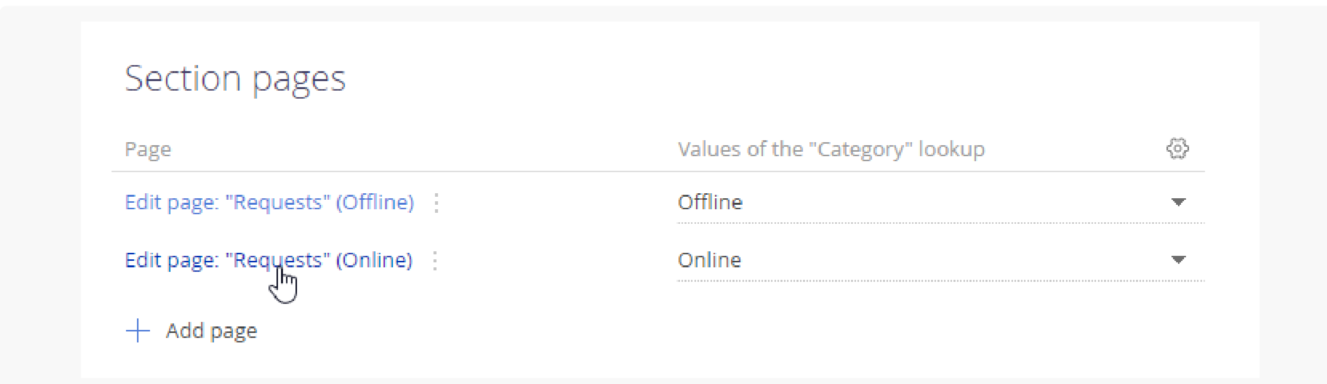
PRODUCTS: ALL CREATIO PRODUCTS

You can configure the basic business logic of the record pages by adding or modifying **business rules**. Business rules affect the behavior of fields of the page.

To access business rule configuration in a section page:

1. Open the section where you want to customize the business logic.
2. In the section, click [*View*] → [***Open Section Wizard***].
3. In the “Section pages” block of the Section Wizard:
    a. if you have only one edit page in your section, click **[*Edit page*];**
    b. if you have several edit pages in your section, click **the link of a corresponding page** in the list (Fig. 1).

Fig. 1 Selecting a section edit page from the list



4. Go to the [***Business rules***] tab. As a result, the list of business rules for the current page (Fig. 2) will open.

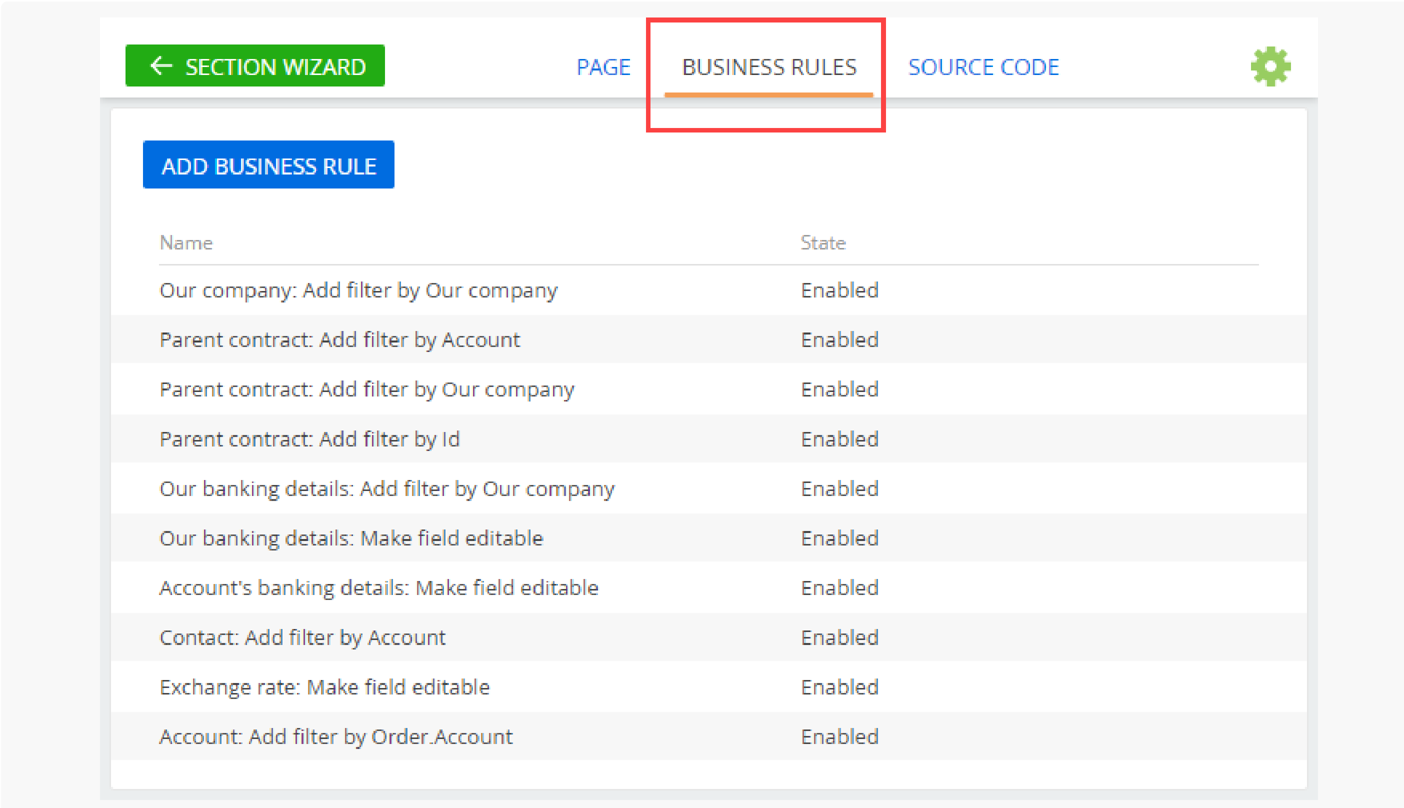
> **Note.** Business rules are available for all section pages, detail pages, as well as custom pages designed as part of business processes.

5. To add a new business rule, click [***Add business rule***]. The business rule setup page will open.

View the list of page business rules

You can set up several business rules for a page. All business rules display on the [*Business rules*] tab of the Page Designer (Fig. 2).

Fig. 2 The [*Business rules*] tab of the Page Designer



- Click [*Add business rule*] to create a new business rule.
- Select a rule in the list and click [*Disable*]/[*Enable*] to deactivate or activate it.

Note. Your Creatio configuration may have a “legacy” hard-coded business rules. Creatio will attempt to convert them to the regular rules, but it may not always be possible due to the implementation of the “legacy” rules. Creatio will attempt to convert them to the regular rules, but it may not always be possible due to the implementation of the “legacy” rules. If a hard-coded business rule was not recognized by the section wizard, then the name of this business rule will contain the message "(Incorrect rule)." The rule will be executed, but it cannot be opened or disabled in the section wizard. You only will be able to delete this rule with custom tools.

Business rule conditions

Conditions in business rules are similar to advanced filters: they match a set if actual (current) values against the target values. If the values match, the condition is deemed fulfilled. On the business rule edit page, the conditions are grouped under the [*IF*] node.

The table below lists the types of elements that can be matched against each other in a business rule condition:

Type of value	Notes
Field	A column in an object that is the data source of the current page. For example, the data source of the [*Accounts*] section record page is the “Account” object. You can select columns of the linked objects (e.g., use the data of the account’s primary contact).
System setting	A system setting, that in this context is treated as a field with a certain value. Be sure to specify the system setting code (as opposed to its localizable title). You will need to specify the system setting code manually. The list of system settings is available in a separate article. Business rules work only with system settings that have [*Cached*] checkbox selected.
System variable	A system variable that in this context is treated as a field with a certain value that changes dynamically. For example, the “Current Date” variable is a “Date” type field that always contains the current date. Available system variables: • “Current Time” • “Current Date” • “Current Time and Date” • “Current user” (the current user account, stored in the SysAdminUnit object) • “Current user contact” (the contact specified on the current user’s page in the [*System users*] section) • “Current user account”
Attribute	The attribute value (for example, a virtual column). This option is intended for developer customization and requires development tools.
Constant	A static value of the following types: text, integer, decimal, date and time, date, time, lookup, Boolean. Use constants to match field values, system settings, system variables and attributes against a static value. A constant can be of any of the field data types supported in the section.

The conditions for execution of business rules are combined using common logical operators: "AND" / "OR." A business rule can have only one logical operator, which applies to all conditions of the business rule. The logical “AND” operator is used if the rule must be executed only if all conditions are met. Apply the “OR” logical operator if the rule must match at least one of the conditions.

A condition for executing a business rule usually consists of three parts: the left side, the type of comparison and the right side of the condition.

Business rule actions

Actions apply “on the fly,” whenever a business rule conditions are satisfied. Business rules can apply actions that implement the following behavior of the page fields:

Type of action	Notes
Show field on the page	Show and hide a page field. An active business rule with this action shows the specified field on the page if the conditions of the rule are fulfilled. Otherwise, the field will be hidden.
Make field required	[*Make field required*] – indicates that field is required when the conditions are met.
Make field editable	Lock and unlock a page field (make it grayed-out or editable). An active business rule will make the field editable, as long as the conditions of the rule are fulfilled. If the conditions of the rule are not met, the field will become grayed-out. If the conditions of the rule are not met, the field will become grayed-out.
Add field values filter	Filter the options in drop-down lists of lookup fields. An active business rule will apply the filter to the values available in the drop-down list of the lookup field. This type of action does not require a condition and will always apply to the page, as long as the corresponding business rule is enabled.
Set field value	Fills the specified field with the value of the specified Creatio object. If the conditions of the rule are not met, the field will not be populated automatically.

Show/hide an element on page

PRODUCTS: ALL CREATIO PRODUCTS

You can set up a business rule that will make certain elements on record pages visible or hidden under specific conditions. These elements include: fields, details, field groups and tabs.

Case . Show the [*Sick leave, days left*] field on a request page for all requests whose [*Originator type*] is an employee.

To implement this, you need to make the [*Sick leave, days left*] field visible only if the value in the request [*Status*] field is “In progress.” To do this:

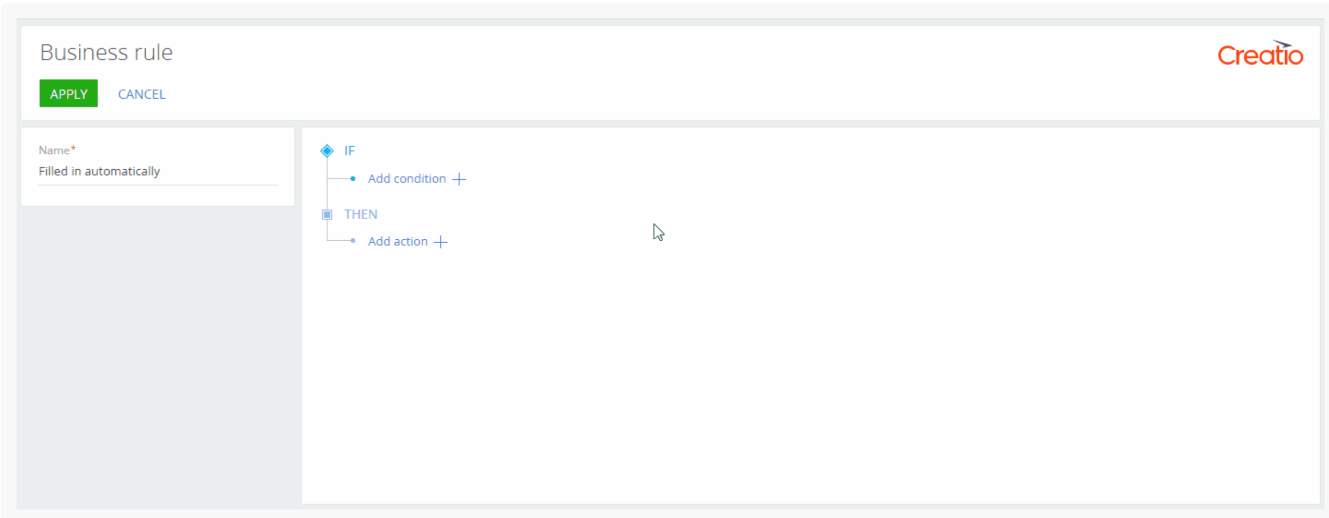
1. Open the needed section (e.g., the [*Requests*] custom section) and add a new business rule.. You can learn more about adding and setting up a new business rule in the Set up a new business rule article.
2. In the “**IF**” block of the business rule, set the filter to define the conditions for triggering the business rule. For example, to apply a rule to the requests with the “Employee” originator type:
    a. Click **Add condition.**

b. In the field that appears, select the **"Originator type" column** as the lookup value. Note that boolean fields cannot be used for setting up the condition since they equal either "true" or "false," i.e., they are always filled in.

c. Leave the "=" (equal) sign as it is.

d. Click the <?> icon and select the **"Lookup" field type** in the drop-down list. A set of fields for specifying lookup values will appear to the right. Select **"Employee"** as the lookup value from the drop-down list.

Show/hide field - configuring the "IF" condition of the business rule



3. In the "**THEN**" block of the business rule, set up the action that would implement the needed business logic.

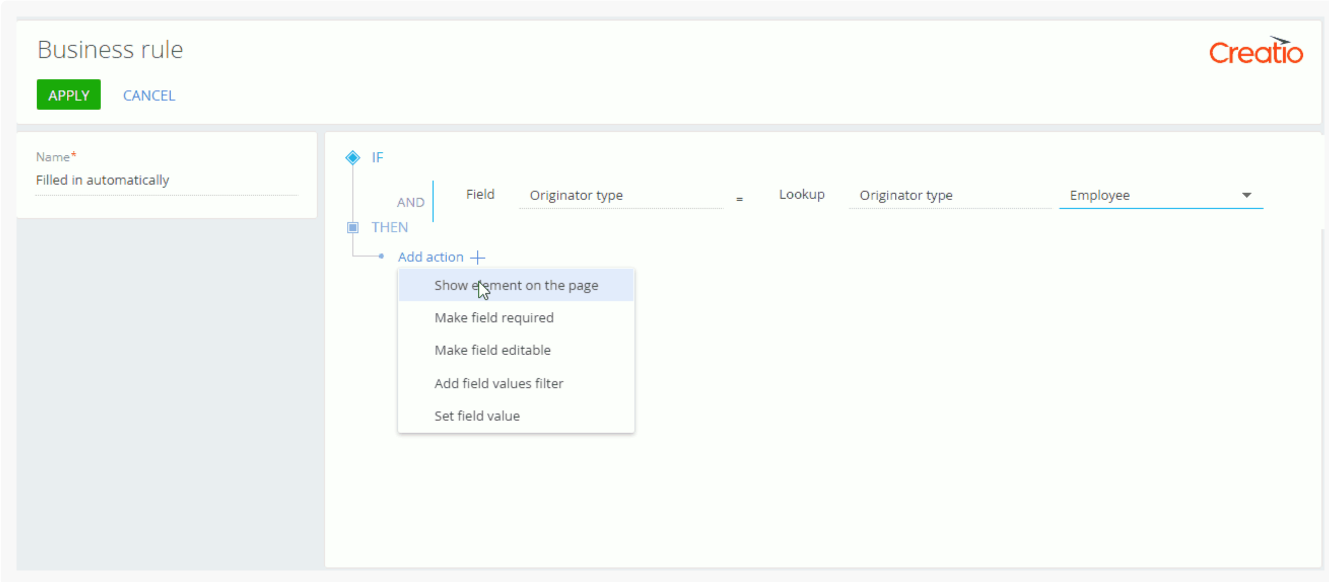
a. Click [*Add action*] → "**Show element on the page.**"

b. In the [*Which element will be shown?*] block, select the element type to show. For example, leave the [*Field*] element type as it is.

c. Select field to display on the page, e.g., **Sick leave, days left**.

d. Click [*Apply*] → [*Section Wizard*] → **Save**.

Show/hide field - configuring the "THEN" condition of the business rule



As a result, the [*Sick leave, days left*] field will display only for requests where the [*Originator type*] field contains "Employee." If the [*Originator type*] field contains any other value, the [*Sick leave, days left*] field will be hidden.

Make a page field editable or locked

PRODUCTS: ALL CREATIO PRODUCTS

You can set up a business rule that will make certain fields locked or editable on a record page under specific conditions.

> **Example.** In the [*Requests*] section, the users must not be able to change the applicant of completed requests. The users must still be able to change the applicants of requests that are in any other status.

To implement the logic of the case, you need to make the [*Applicant*] field editable only for those requests where the value in the [*Status*] field is "New," "Under evaluation," "In progress," "Canceled" or "Denied." This will automatically lock the [*Applicant*] field for any requests where the value in the [*Status*] field is "Completed." To set up this business rule:

1. Open the needed section (e.g., the [*Requests*] custom section) and add a new business rule. You can learn more about adding and setting up a new business rule in the "Set up a new business rule" article.
2. In the "**IF**" block of the business rule, set the filter to define the conditions for triggering the business rule. For example, to apply a rule to the requests with the "Completed" status (Fig. 1):
    a. Click **Add condition.**
    b. In the field that appears, select the **"Status"** column as the lookup value.
    c. Hover your cursor over the "=" (equal) sign and click the arrow that appears next to it to open the drop-down menu. Select the "≠" (not equal) option from the drop-down menu.

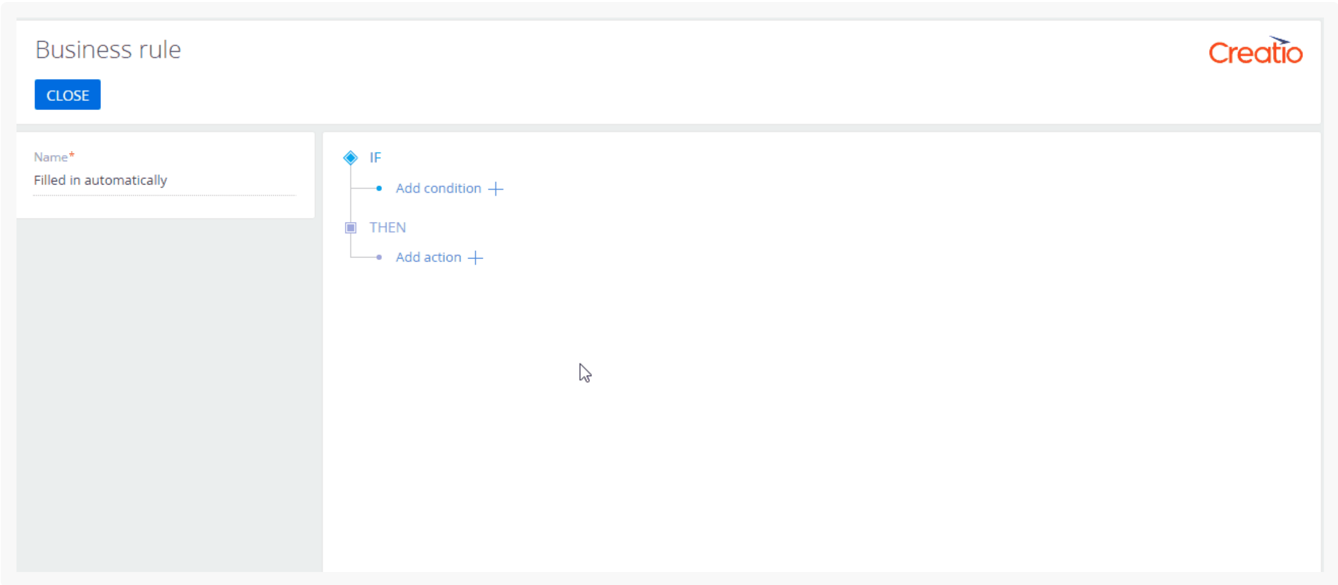
Note. You can use the “Make field editable” business rule to both lock and unlock fields. Whenever the IF condition of the rule is fulfilled, the field will be editable. Otherwise, the field will be locked.

d. Click the <?> icon and select the **“Lookup” field type** in the drop-down list.

A set of fields for specifying lookup values will appear to the right.

e. Select “**Completed**” as the lookup value from the drop-down list.

Fig. 1 Make field editable/locked - configuring the “IF” condition of the business rule



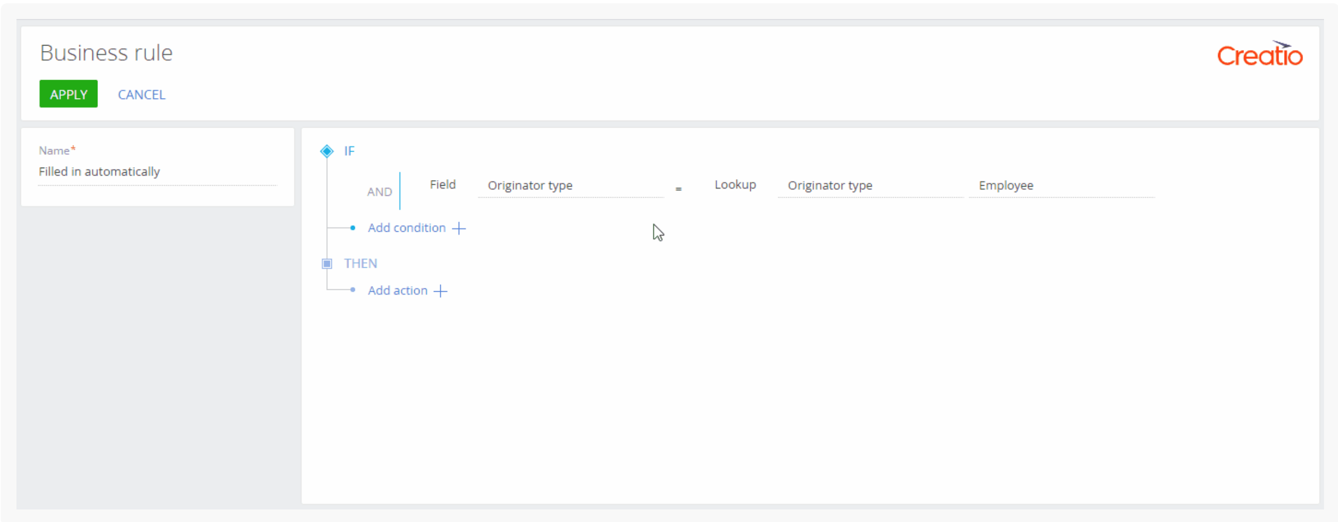
3. In the “**THEN**” block of the business rule, set up the action that would implement the needed business logic (Fig. 2):

a. Click [*Add action*] → “**Make field editable.**”

b. In the [*Which field will be editable*] field, select the field to lock/unlock, e.g., **Applicant**

c. Click [*Apply*] → [*Section Wizard*] → **Save**.

Fig. 2 Make field editable/locked - configuring the “THEN” condition of the business rule



As a result, the [*Applicant*] field will be editable if the request status is not equal to "Completed" – i.e., "New," "Under evaluation," "In progress," "Canceled" or "Denied." If the request status is "Completed," the [*Applicant*] field will be locked.

Make a page field required or optional

PRODUCTS: ALL CREATIO PRODUCTS

You can set up a business rule that will disable saving records if certain fields are not populated.

Example. Make the [*Description*] field required for all new records in the custom [*Requests*] section.

To implement the logic of the case, you need to make the [*Description*] field required if the value in the [*Status*] field is "New." To do this, add a separate business rule and set up its conditions:

1. Open the needed section (e.g., the [*Requests*] custom section) and add a new business rule.. You can learn more about adding and setting up a new business rule in the "[Set up a new business rule]" article.
2. In the "**IF**" block of the business rule, set the filter to define the conditions for triggering the business rule. For example, to apply a rule to the requests with the "New" status (Fig. 1):
    a. Click **Add condition.**
    b. In the field that appears, select the **"Status"** column as the lookup value.
    c. Leave the "=" (equal) sign as it is.
    d. Click the <?> icon and select the **"Lookup" field type** in the drop-down list.

    A set of fields for specifying lookup values will appear to the right.

    e. Select "**New**" as the lookup value from the drop-down list.

Fig. 1 Make field required - configuring the "IF" condition of the business rule

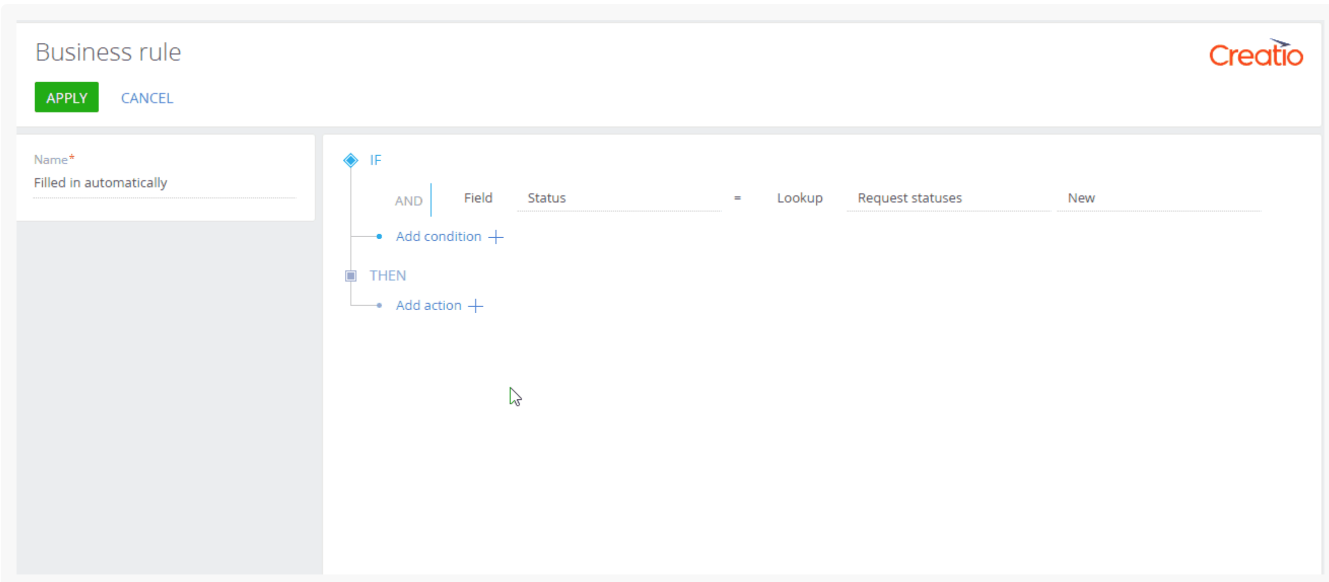
3. In the “**THEN**” block of the business rule, set up the action that would implement the needed business logic (Fig. 2):

    a. Click [*Add action*]. In the drop-down menu of possible actions, select “**Make field required.**”

    b. In the [*Which field will be required*] field, select the field that should be made mandatory, e.g., **Description**

    c. Click [*Apply*] → [*Section Wizard*] → **Save**.

Fig. 2 Making a page field required/optional: configuring the “THEN” condition of the business rule



As a result, the [*Description*] field will be required if the request status is “New.” Creatio will not let you save a record unless you populate the [*Description*] field.

Filter values in a lookup field

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You can set up a business rule that will apply filter to the list of values in the lookup field. This will make the list shorter.

Example. Implement the following logic in the custom [*Requests*] section: only contacts with the “Employee” type are available in the [*Owner*] field.

To implement the logic of the case, add a business rule that would filter the values in the [*Owner*] lookup field. To do this:

1. Open the needed section (e.g., the [*Requests*] custom section) and add a new business rule. You can learn more about adding and setting up a new business rule in the “[Set up a new business rule]” article.
2. In the “THEN” block of the business rule, set up the action that would implement the needed business logic (Fig. 1):

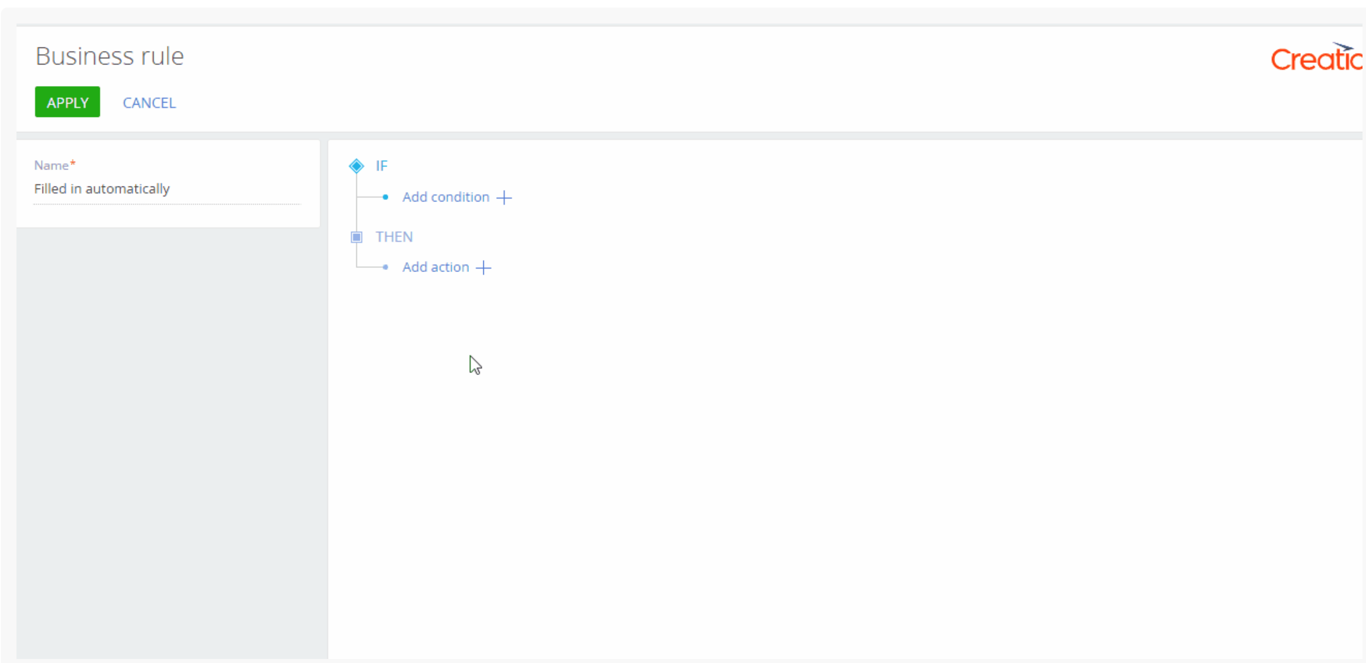
a. Click **Add action.**
b. In the drop-down menu of possible actions, select “**Add field values filter.**”

> **Note.** The “Add field values filter” business rule action is unconditional. When you select this action, the “IF” block of the business rule becomes grayed out and cannot be edited.

c. In the [*Which field to filter and which connection in this field’s lookup to use for filtering?*] field, click .
d. In the opened window, click + next to “Requests” → select **Owner** as the connected object field.
e. In the [*Column*] field, select [*Type*] from the drop-down list → click [*Select*].
f. Click the icon and select the **“Lookup”** in the drop-down list. A set of fields for specifying lookup values will appear to the right.
g. In the [*Which field to filter by*] filed to the right, select **“Employee”**.

3. Click [*Apply*] → [*Section Wizard*] → **Save**.

Fig. 1 Filter lookup values - configuring the “THEN” condition of the business rule



As a result, only the contacts of the “Employee” type will be available for selection in the [*Owner*] field of the request page.

Clear and populate fields automatically

When working with filtering values in Creatio, you can automatically clear and populate fields on a record page.

For example, you can set up a business rule that will automatically populate the [Account] field on a request page if the request owner is specified. This rule will also filter the owners by the account if the [Account] field is populated on a request page.

Additionally, you can set up clearing the [Owner] field on a request page automatically if the account value is changed.

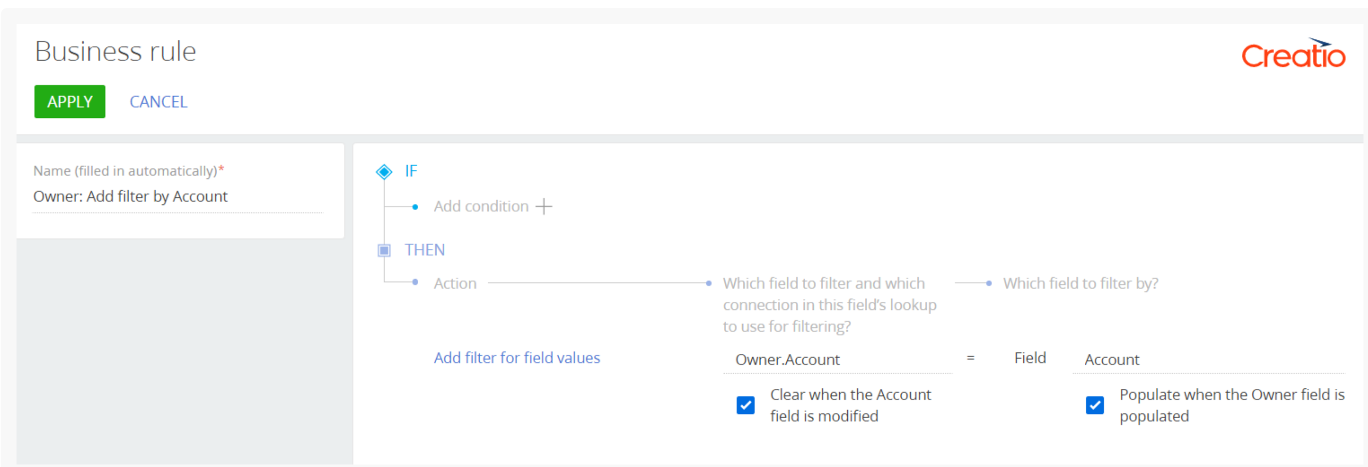
To implement this logic:

1. Open the needed section (e.g., the [Requests] custom section) and add a new business rule. You can learn more about adding and setting up new business rules in the “Set up a new business rule” article.
2. In the “THEN” block of the business rule, set up the action that would implement the needed business logic:
    a. Click **[Add action]**.
    b. In the drop-down menu, select “**Add field values filter**.”

    > **Note.** The “Add field values filter” business rule action is unconditional. When you select this action, the “IF” block of the business rule becomes grayed out and cannot be edited.

    c. In the [Which field to filter and which connection in this field’s lookup to use for filtering?] field, click .
    d. In the opened window, click “+” next to “Requests” → select **[Owner]** as the connected object.
    e. In the [Column] field, select [Account] from the drop-down list → click [Select].
    f. Click the icon and select “**Field**” in the drop-down list.
    g. In the [Select field] window that pops up, select “Account” on the [Requests fields] tab.
3. Select the [Clear when the Account field is modified] checkbox to clear the [Owner] field on a request page automatically if the account value for this specific contact is changed.
4. Select the [Populate when the Owner field is populated] checkbox to populate the [Account] field on a request page automatically if the request owner is specified.

Setting up a business rule for clearing and populating fields automatically



As a result, the [Owner] field on the request page will be cleared each time the account is changed for the corresponding contact. The [Account] field will be populated automatically if the owner of the request is specified.

Set field value

Set field value

PRODUCTS: ALL CREATIO PRODUCTS

You can set up a business rule that will automatically populate page fields using the "Set field value" business rule. You can populate the field with a value from another field, or calculate the value dynamically, using a formula.

Note. Business rules represent "page" (i. e., UI-level) logic. This means that the "Set field value" business rule only sets values in the page fields; it does not update the database column values. The user still needs to save the changes on the page to apply them to the database. Likewise, business rules can only be triggered by the changes made on the page. For example, changes made to the database column values through integration logic will not trigger business rules.

Populate a field with the value from another field

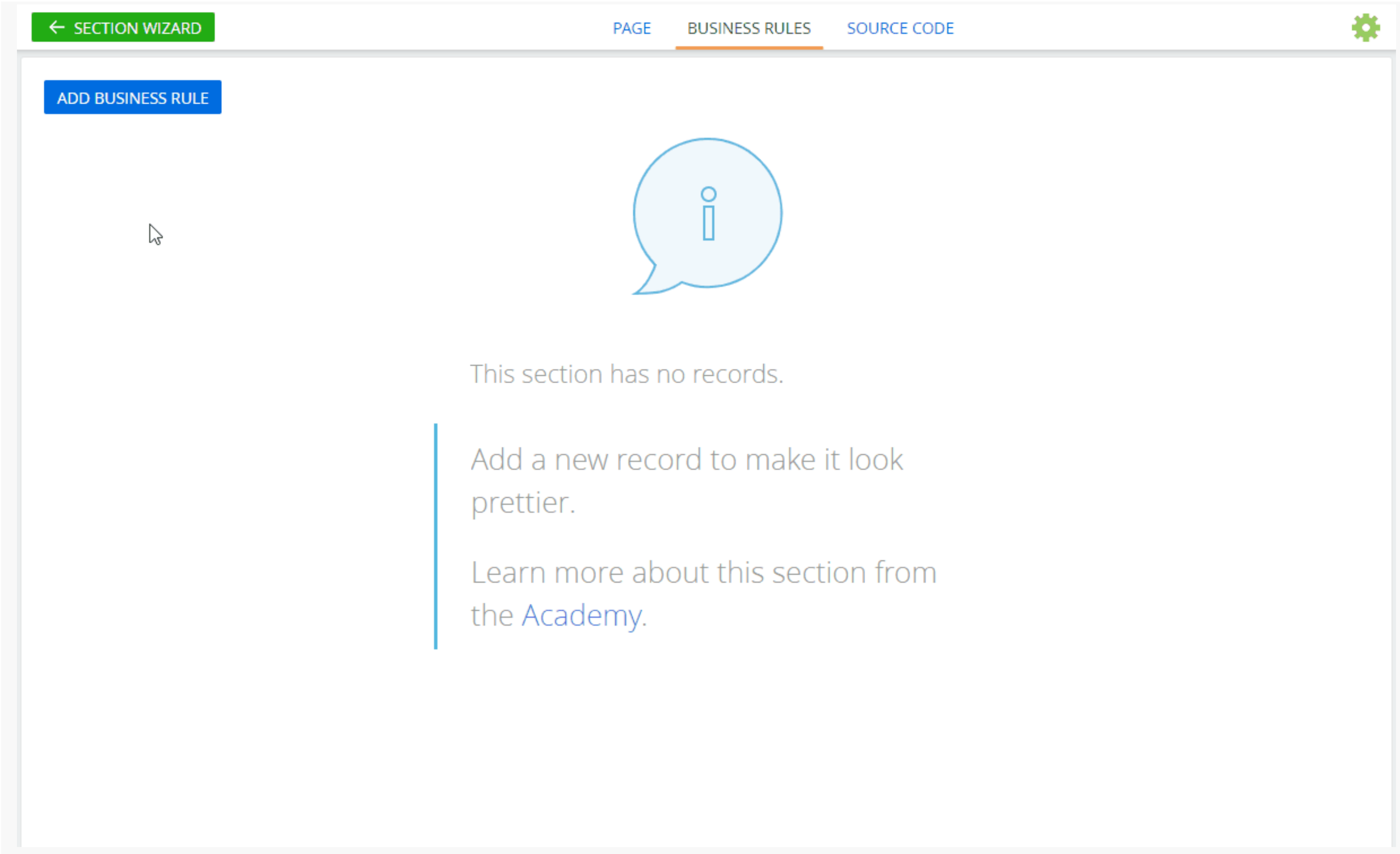
You can use the “Set field value” business rule to automatically populate a field with a value from another field of the current section or a field from an object linked to the current section.

Example. A custom section has a [*Contact*] lookup field and a [*Mobile phone*] text field. Implement the following business logic: whenever the [*Contact*] field is populated, populate the [*Mobile phone*] field with the mobile phone of that contact.

To implement the logic of the example, add a “Set field value” business rule and set up its conditions:

1. Open the needed section (e. g., the custom [*Requests*] section) and add a new business rule. Learn more about adding and setting up new business rules in a separate article: Set up a new business rule.
2. Specify the conditions that trigger the business rule in the “[*IF*]” block of the business rule if needed. For example, to apply a “Contact is filled in” rule to the requests with the [*Contact*] field populated:
   a. Click [*Add condition*]. A new field appears.
   b. Select “**Contact**” in the [*Field*] field. Note that boolean fields cannot be used for setting up the condition since they are always deemed populated.
   c. Click the [=] and select [*is filled in*] in the drop-down menu.
3. Set up the action that triggers the needed business logic in the “[*THEN*]” block of the business rule:
   a. Click [*Add action*]. In the action drop-down menu, select [*Set field value*].
   b. Select the field to populate automatically in the [*Select field to populate*] field. For example, [*Mobile phone*].
   c. Fill out the [*Specify the value to set*] field: click → [*Related objects*] → [*Contact*] → [*Mobile phone*] → [*Select*].
4. Click [*Apply*] → [*Section Wizard*] → [*Save*].

Fig. 1 Setting the field value



As a result, if a user fills out the [*Contact*] field with a contact who has a mobile phone number, Creatio will populate the [*Mobile phone*] field of the request page with the corresponding number.

Populate a field using a formula

You can use formulas when setting up the “Set field value” business rules. This enables you to implement custom calculation logic for numeric or date field values on record pages and populate such fields automatically.

Using formulas for setting field values lets you implement advanced business logic, for example:

- calculate the product cost based on its price and the stock volume
- calculate the order sum in the base currency based on the current exchange rate and the order sum in the local currency
- calculate the actual duration of a task completion
- calculate the date of the next invoice payment, etc.

Learn more about formulas in a separate article: [Formulas in business logic and pivot tables](#).

Example. Implement the following business logic for calculating the product price including tax: whenever the [*Tax rate*] field is populated in on a product page, the [*Price incl. tax*] field for this product is populated automatically.

1. Open the [*Products*] section and add a new business rule. Learn more about adding and setting up new business rules in a separate article: [Set up a new business rule](#).

2. Specify the connection fields and set the condition that triggers the business rule in the “[*IF*]” block of the business rule.

   > **Note.** To use formulas with the date fields (e. g., for calculating the date difference), make sure both date fields are specified as “filled in” for the business rule. If one of the fields is not populated in Creatio, the business rule will not calculate the value.

   For example, to apply a “Price is filled in” and “Tax rate,% is filled in” rule to the product records with the [*Price*] and [*Tax rate, %*] fields populated:

   a. Click [*Add condition*]. A new field appears.
   b. Select “**Price**” in the [*Field*] field. Note that boolean fields cannot be used for setting up the condition since they are always deemed populated.
   c. Click [=] and select [*is filled in*] in the drop-down menu.
   d. Repeat the same settings for the [*Tax rate, %*] column.

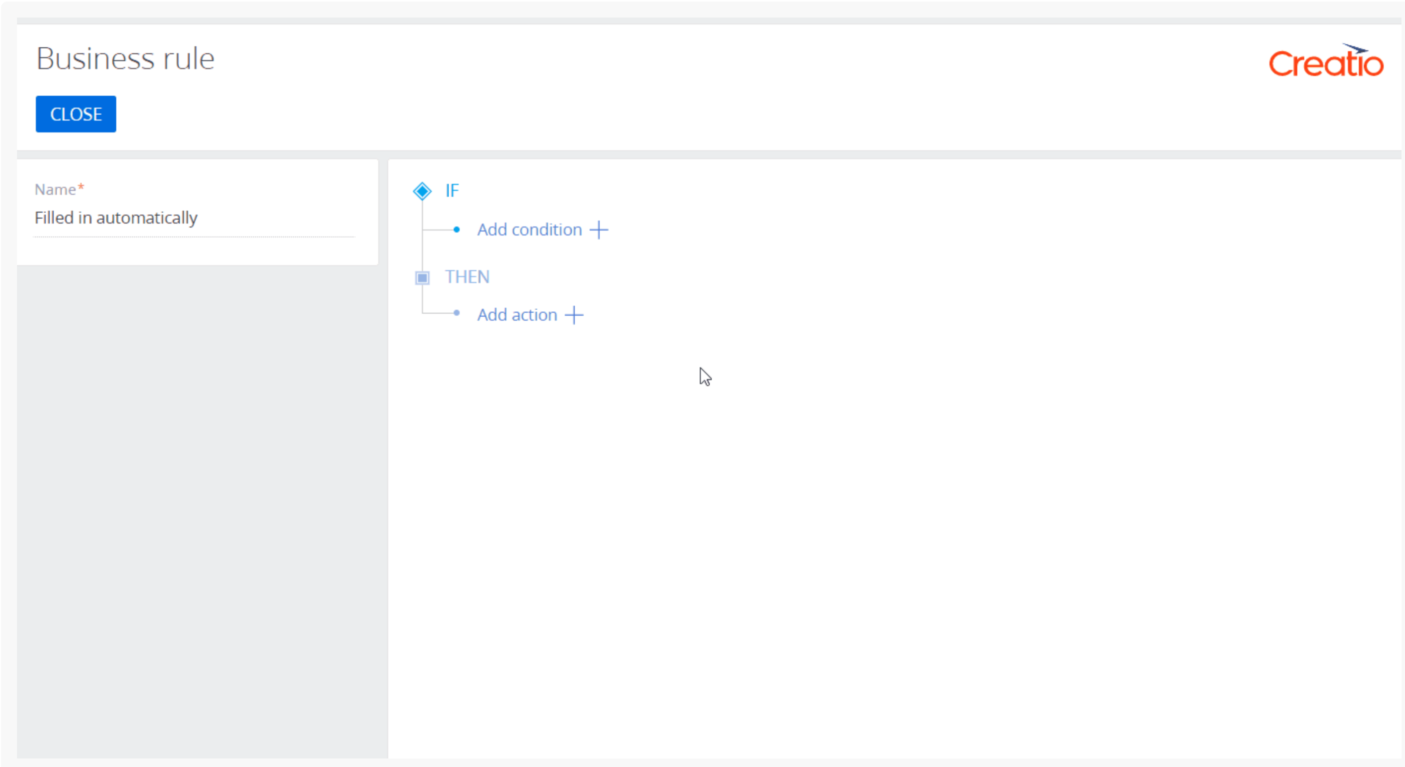
3. Set up the action that triggers the needed business logic in the [*THEN*] block of the business rule:

   a. Click [*Add action*]. In the action drop-down menu, select [*Set field value*].
   b. Select the field to populate automatically in the [*Select field to populate*] field. For example, [*Price incl. tax*].
   c. Fill out the [*Specify the value to set*] field: click → [*Formula*] → set up the formula in the [*Formula expression*] box that opens. Use the [*Parameter*] menu in the formula box to add numeric and date fields from the current page to your formula. For example, set up the formula for calculating the value in the [*Price incl. tax*] field based on the [*Price*] and [*Tax rate, %*] fields.

4. Click [*Apply*] → [*Section Wizard*] → [*Save*].

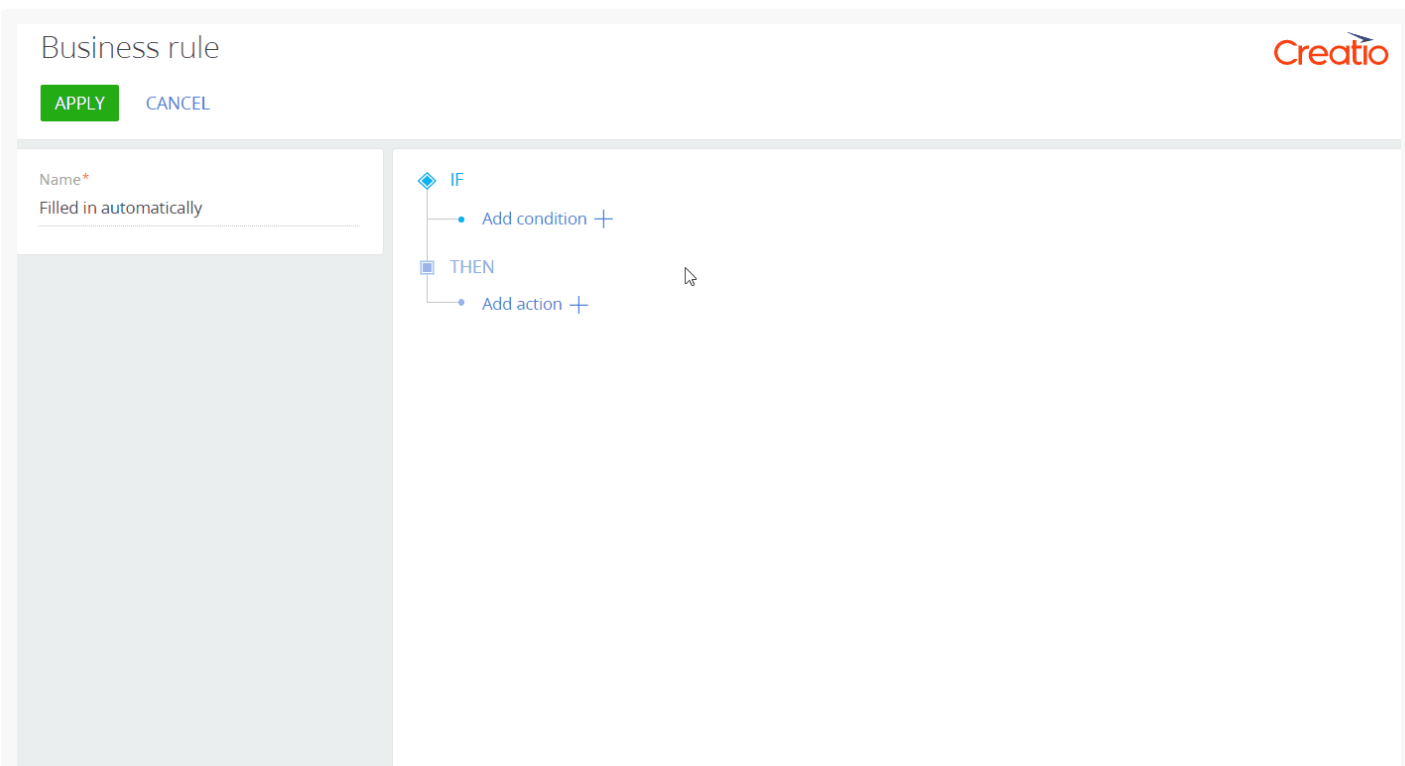
As a result, the [*Price incl. tax*] field on the product page will be populated with the calculated value automatically, if the [*Tax rate, %*] field value is populated.

Fig. 2 Setting up a business rule for calculating a product price including tax



Similarly, you can set up a formula for calculating a time period. For example, calculate task duration based on its start and end time.

Fig. 3 Setting up a business rule for calculating a time period using a formula

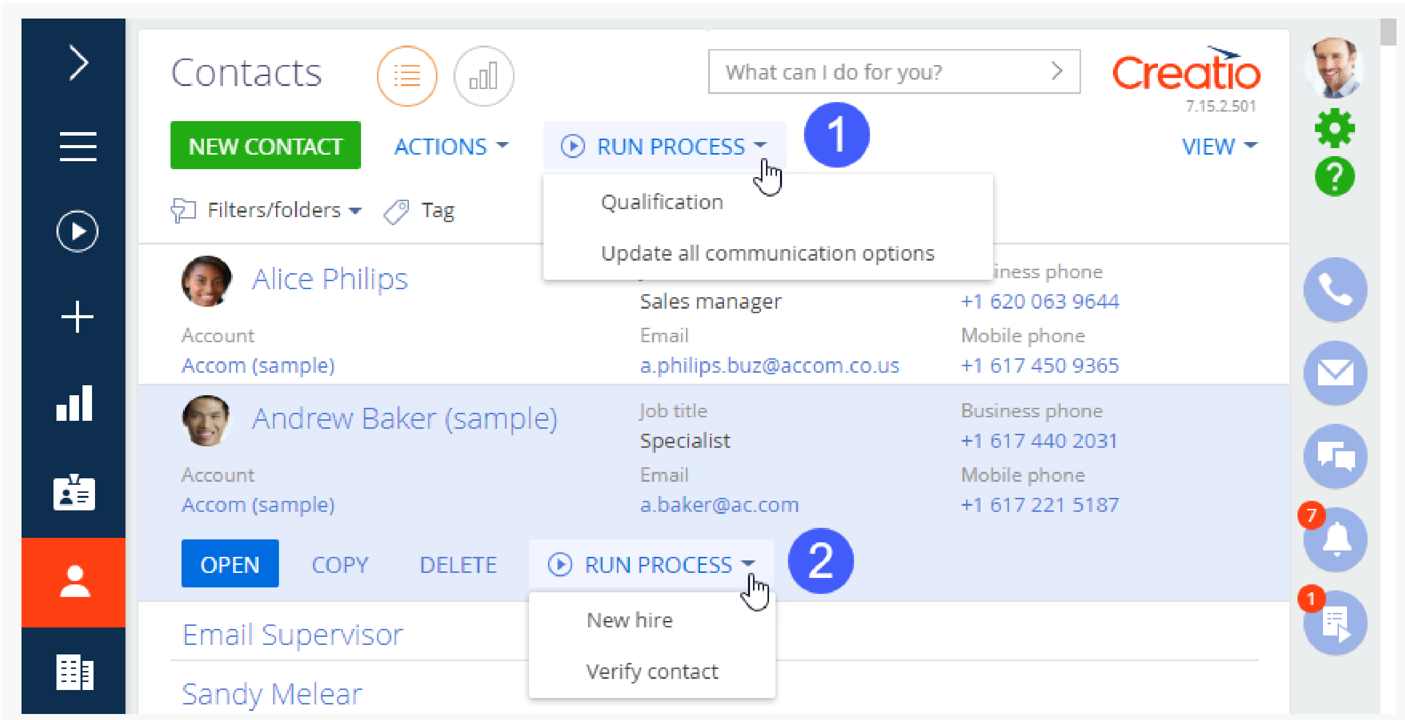


Add a BPMN business process to a section

PRODUCTS: ALL CREATIO PRODUCTS

You can integrate your business processes with standard sections. As a result, the section users will be able to run integrated business processes in two modes (Fig. 1):

Fig. 1 Running a process integrated into a section



- **Regardless of section records** (1). You can add any business process to the [*Run process*] menu of any standard section.
- **For a specific record** (2), using the record's data in the process flow.

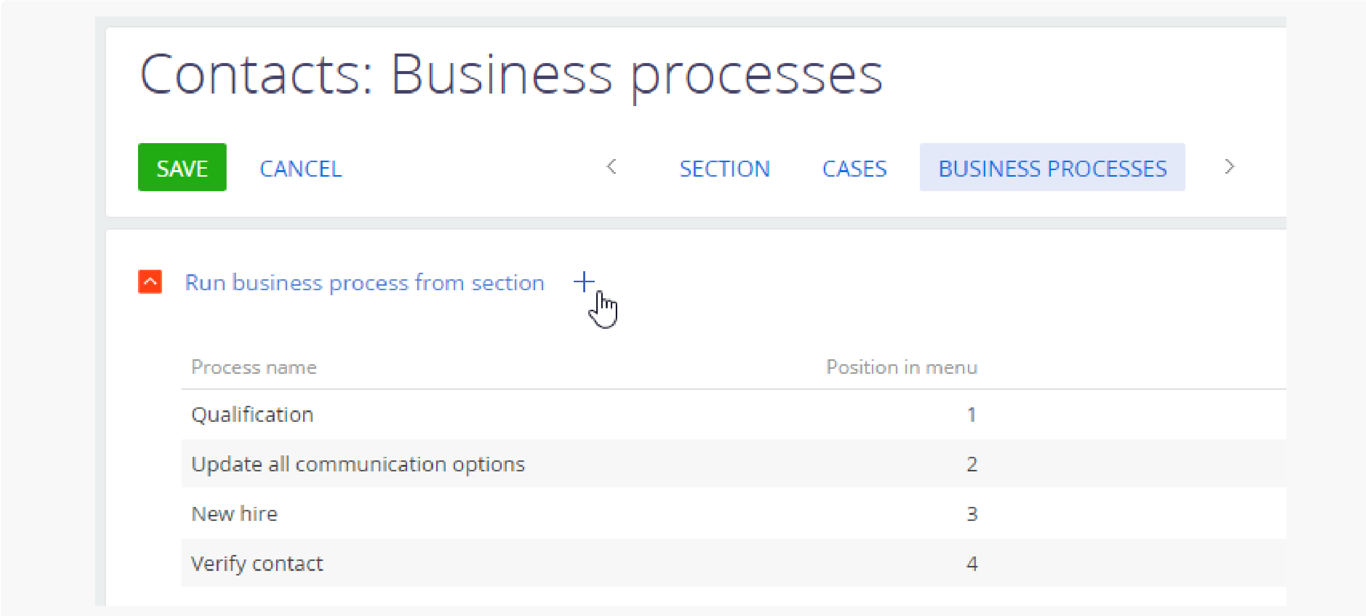
Note. To be able to run a business process, a user must have access to the [*Can run business processes*] (CanRunBusinessProcesses) system operation.

To add a business process that runs by a specific record, you need to modify the process by adding a parameter that would receive the unique identifier of the section record by which the process is run. The instructions on how to do this are available in the "Run business processes for section records" article of the Business process management guide.

To integrate a business process in a section:

1. Open the needed section.
2. Click [*View*] > [***Open section wizard***].
3. Click [***Business process***].
4. Under [*Run business process from section*], click + (Fig. 2).

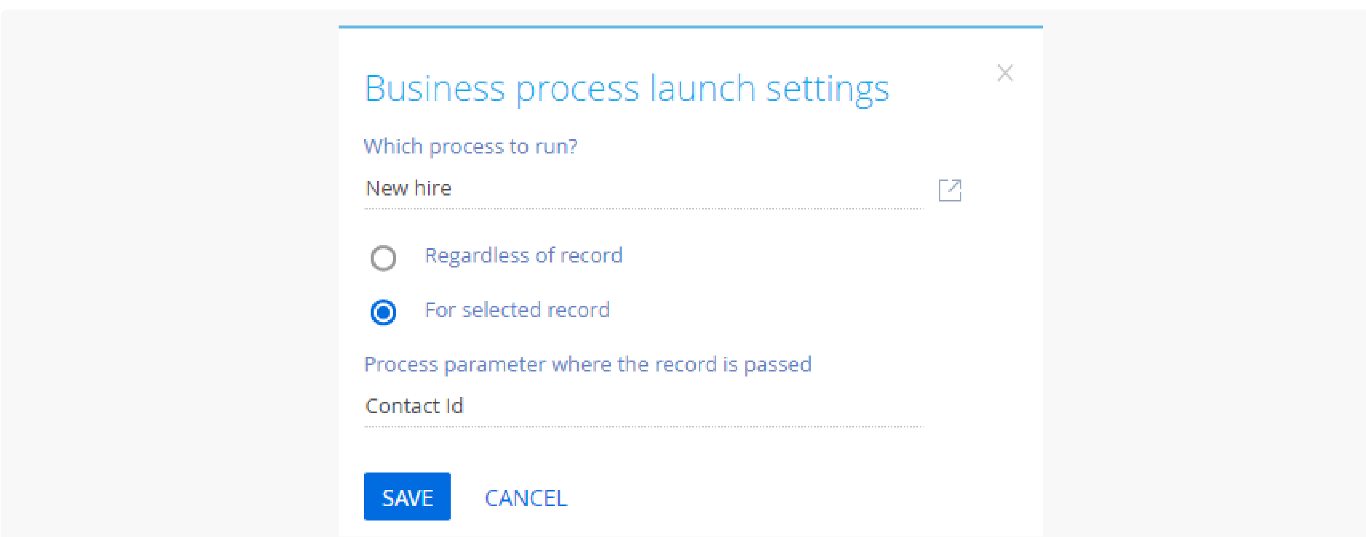
Fig. 2 Adding a business process to a section



5. Select the necessary process in the [*Which process to run*] field (Fig. 3).
6. In the opened pop-up, select how the process should run:
   a. To run the process regardless of section record, select [*Regardless of record*].
   b. To run the process for separate section records, select the [*For selected record*].
7. If you chose [*For selected record*], select the parameter where Creatio should pass the unique Id of the selected section record in the [*Process parameter where the record is passed*] field.

Note. If the process already has a lookup parameter that uses the section object as a lookup, it will be selected automatically. If there are two or more parameters, you will need to select the correct one.

Fig. 3 Configuring the launch of a business process



8. Save all changes in the Section Wizard and clear the cache to apply changes in Creatio.

   As a result, the process will become available in the [*Run process*] menu of the section next time you log in.

Formulas in business logic and pivot tables

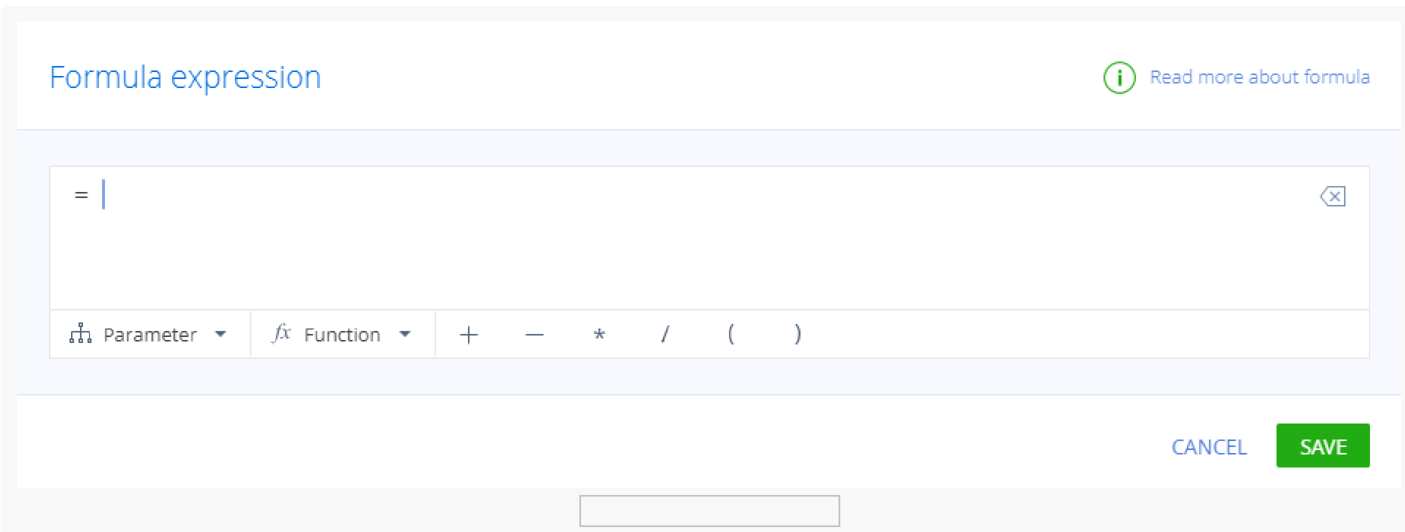
PRODUCTS: ALL CREATIO PRODUCTS

Save time your employees spend on data processing by automatically calculating dates and numeric values in section pages and pivot tables. For instance, you can calculate a product price after taxes, an ETA for a task or a contract amendment date. To set up these calculations, use formulas in the “Set field value” business rule and in pivot table settings. You can navigate to the formula setup window:

- by clicking when setting up the Set field value business rule;
- by clicking [*Add calculated field*] in the pivot table settings.

This will open the formula setup window (Fig. 1).

Fig. 1 Formula setup window



All formulas start with “=”. They can have the following elements:

- **Constants** and **variables**. For example, you can enter any number or you can use the page field values from the formula setup window's [*Parameter*] menu.
- **Mathematical operators** (+, –, *, /, brackets).
- There also are several **function groups** used with dates: Date difference, Add to date, Date part, CurrentDateTime. The function by itself is a valid formula, but you can also combine functions with other elements.

Date calculation functions for formulas

You can learn more about the functions and check if they are available for business rules and pivot tables below.

Function group	Description	Function	Pivot tables	Business Rules
		AddYear	+	+

Function group	Description	Function	Pivot tables	Business Rules
Add to date	Adds the specified number of years/weeks/hours, etc. to the date. The calculation result's data type is “Date/Time”.	AddQuarter	—	+
		AddMonth	+	+
		AddWeek	+	+
		AddDay	+	+
		AddHour	+	+
		AddMinute	—	+
Date difference	Calculates how many years/weeks/hours, etc. there are between the dates. The calculation result's data type is “Integer”. Creatio uses calendar boundaries to calculate the difference. For instance, DiffYear(2020-12-31, 2021-01-01) = 1 If the first date in the function is later than the second date, the calculation result will be negative.	DiffYear	+	+
		DiffQuarter	—	+
		DiffMonth	+	+
		DiffWeek	—	+
		DiffDay	+	+
		DiffHour	+	+
		DiffMinute	+	+
Date part	Determines the number of the original date's year/month/day, etc. The function always uses the 24-hour format. For instance, the date 02.16.2021 3:38 PM contains the following: • 2021th year, • 2nd month, • 8th week, • 3rd day of the week, • 16th day, • 15th hour. The calculation result has an “Integer” data type.	PartYear	+	—
		PartMonth	+	—
		PartWeek	+	—
		PartDay	+	—
		PartDayWeek	+	—
		PartHour	+	—
CurrentDateTime	Determines the current date	CurrentDateTime	—	+

Function group	Description	Function	Pivot tables	Business Rules
	and time. The calculation result's data type is "Date/Time". The function's brackets have to remain empty.			

Business tasks you can solve with formulas

Example. Calculate the sum of per diem payments to issue an employee.

```
Target field: [Sum to issue]
Variables: the values of fields [Per diem] and [Duration, days].
Formula: = [Per diem] * [Duration, days]
```

Example. Calculate the call duration.

```
Target field: [Duration]
Elements: the values of fields [Start date] and [End date].
Formula: = DiffMinute([End date], [Start date])
```

Example. Calculate how many years an employee has worked for the company.

```
Target field: [Works for the company, years]
Elements: the values of [Career start date] field and the current date.
Formula: = DiffYear(CurrentDateTime(), [Career start date])
```

Example: Calculate support agent's efficiency

```
Target field: [Efficiency, %]
Elements: [Cases closed during the month], [Cases processed during the month], [Cases escalated 
Formula: = (([Cases closed during the month] + Cases escalated during the month])/ [Cases proces
```