User Guide

Apparo Fast Edit

Qlik Sense

Version 3.2.2.0

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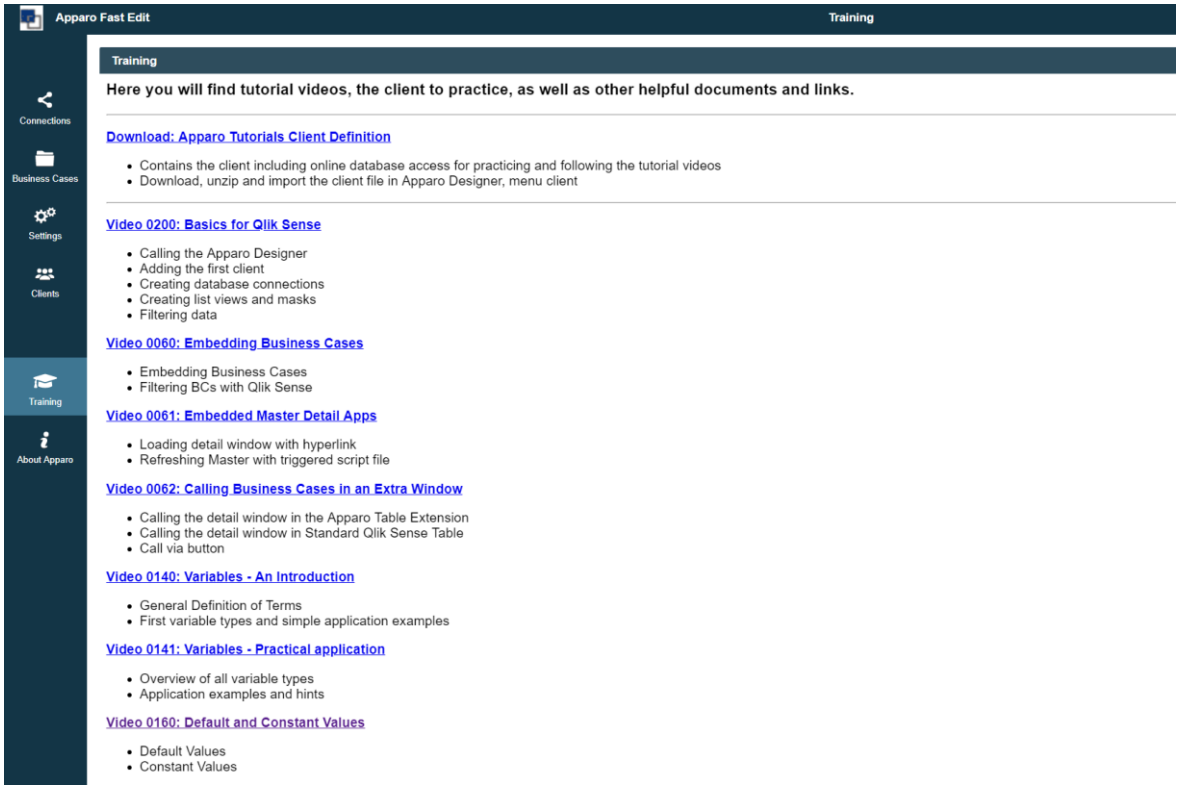
1 Premises

Apparo Fast Edit must be installed successfully and the Apparo Designer Extension

must be already installed.

2 Training

In chapter „**Training**“ you can find many **training movies**:



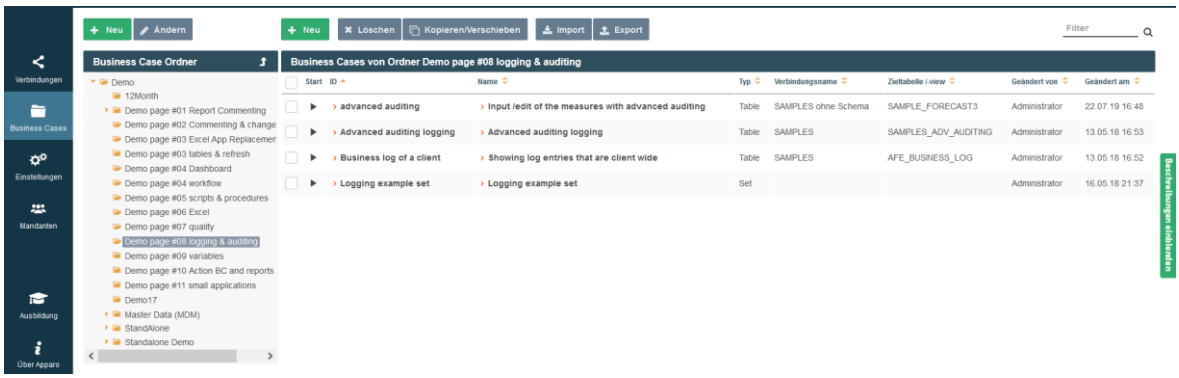
3 Designing Business Cases

Open the Apparo Designer by clicking the **Apparo Designer Button "Apparo Designer".**

This Apparo Extension will be defined by the Administrator during installation.

If you do not know where this link is located then ask the administrator who installed Apparo Fast Edit.

3.1 Start screen with a list of all Business Cases



At the start of the Apparo Designer, you will see a list of all Business Cases that are stored in the Apparo repository. If the Apparo repository does not contain any definition, this list will have no entries.

3.1.1 Definition

Each Business Case is an own application that can be called separately.

Business Cases can be linked together, so that from the user's perspective, a Business Case can also consist of several masks.

All Business Cases are stored in the Apparo repository, which is a separate database.

3.1.2 Buttons and Sorting

The following buttons are at your disposal:

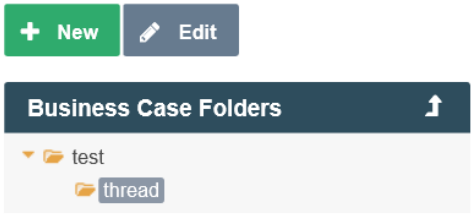
- New - creates a new Business Case
- Delete - deletes all selected Business Cases
- Copy - copies all selected Business Cases
- Import - imports Business Cases from a file
- Export - exports selected Business Cases into a file
- Filter - filters all Business Cases from the input string by its ID

The sort can be changed by clicking the orange arrows:

3.1.3 Folder

Business Cases can be grouped in folders. Inside the folder you can create subfolders.

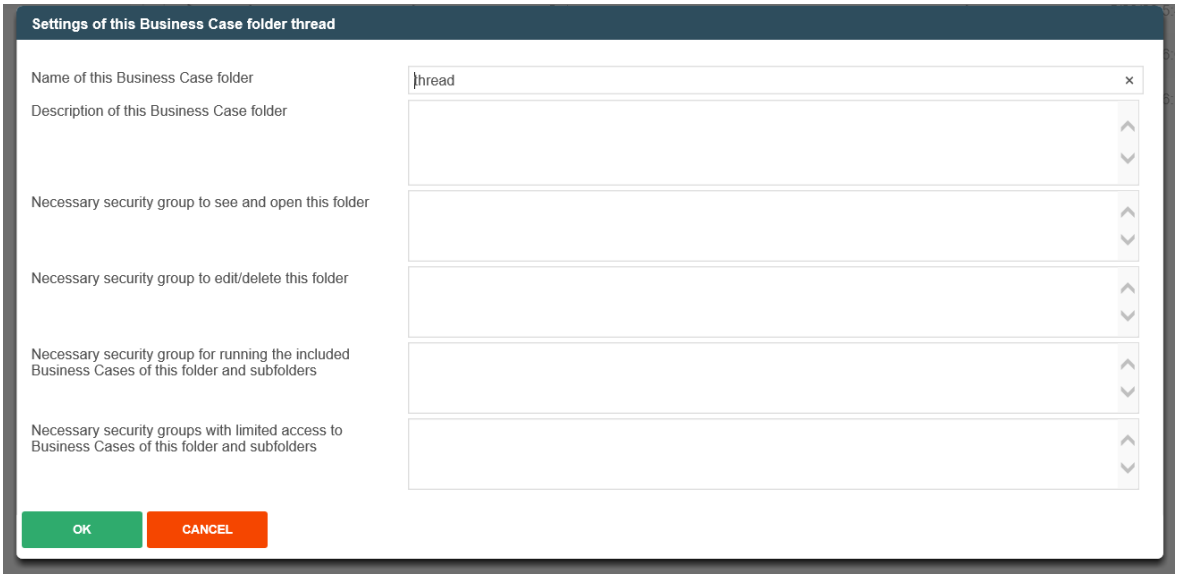
For the Folders pane, there are three buttons:



Depending on the given rights, the user can:

- Create new folders and subfolders
- Delete folder and its contents (subfolders, Business Cases)
- Change the properties of the folder

Folder properties:



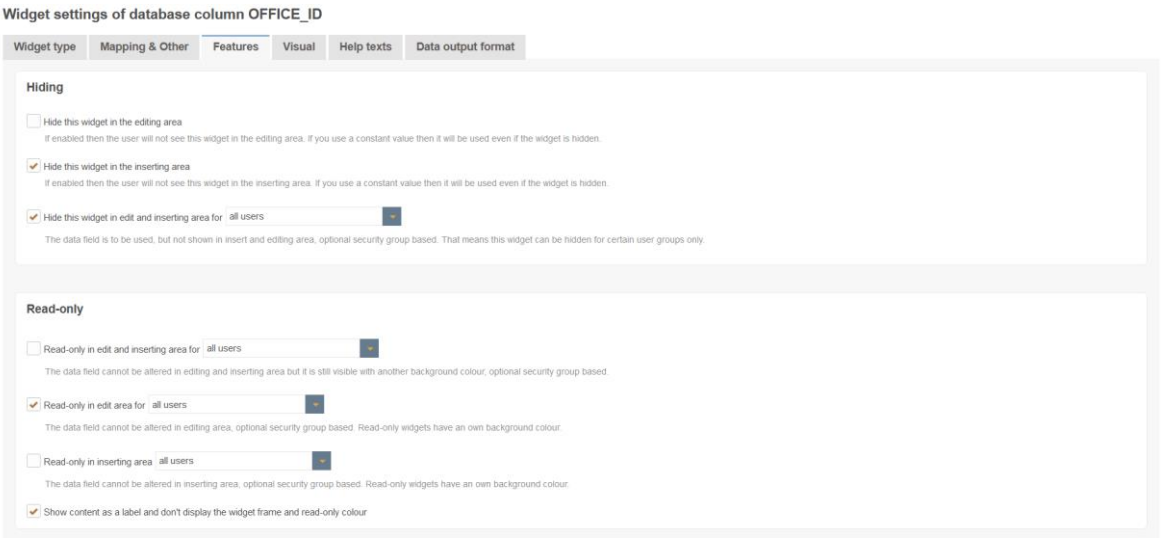
The following properties can be changed:

- Name of the folder
- The necessary security group to open the folder
- The necessary security group to edit the folder
- The necessary security group to execute containing Business Cases
- The necessary security group to execute containing Business Cases with limited access **(read only)**

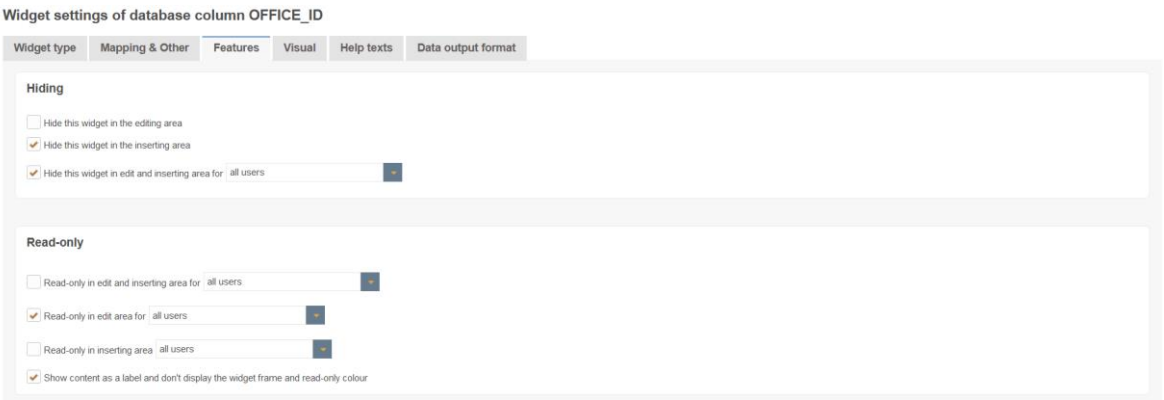
4 Description and normal mode

In the description mode most of the settings are explained briefly while the normal mode lacks these descriptions.

Example of the description mode:



The same page in normal mode:



The Designer is switching the mode by clicking the 

button on the right side of the screen.

5 Database & E-Mail connections

5.1 Database connections

5.1.1 Supported databases

Apparo Fast Edit can read data from the following databases:

- Oracle
- Oracle Client
- IBM DB/2
- IBM DB/2 Client
- IBM DB/2 i (iSeries, AS/400)
- IBM DB/2 z via IBM DB/2 Client
- MS SQL Server (optionally using Windows Authentication)
- MySQL
- Teradata from Version V2R6
- Exasol
- Informix
- SAP HANA
- SAP Sybase ASE and IQ
- Snowflake
- Greenplum
- PostgreSQL

As a technical access path JDBC type 4 is used or JDBC Type 2 for IBM DB/2 Client / Oracle Client.

5.1.2 Buttons

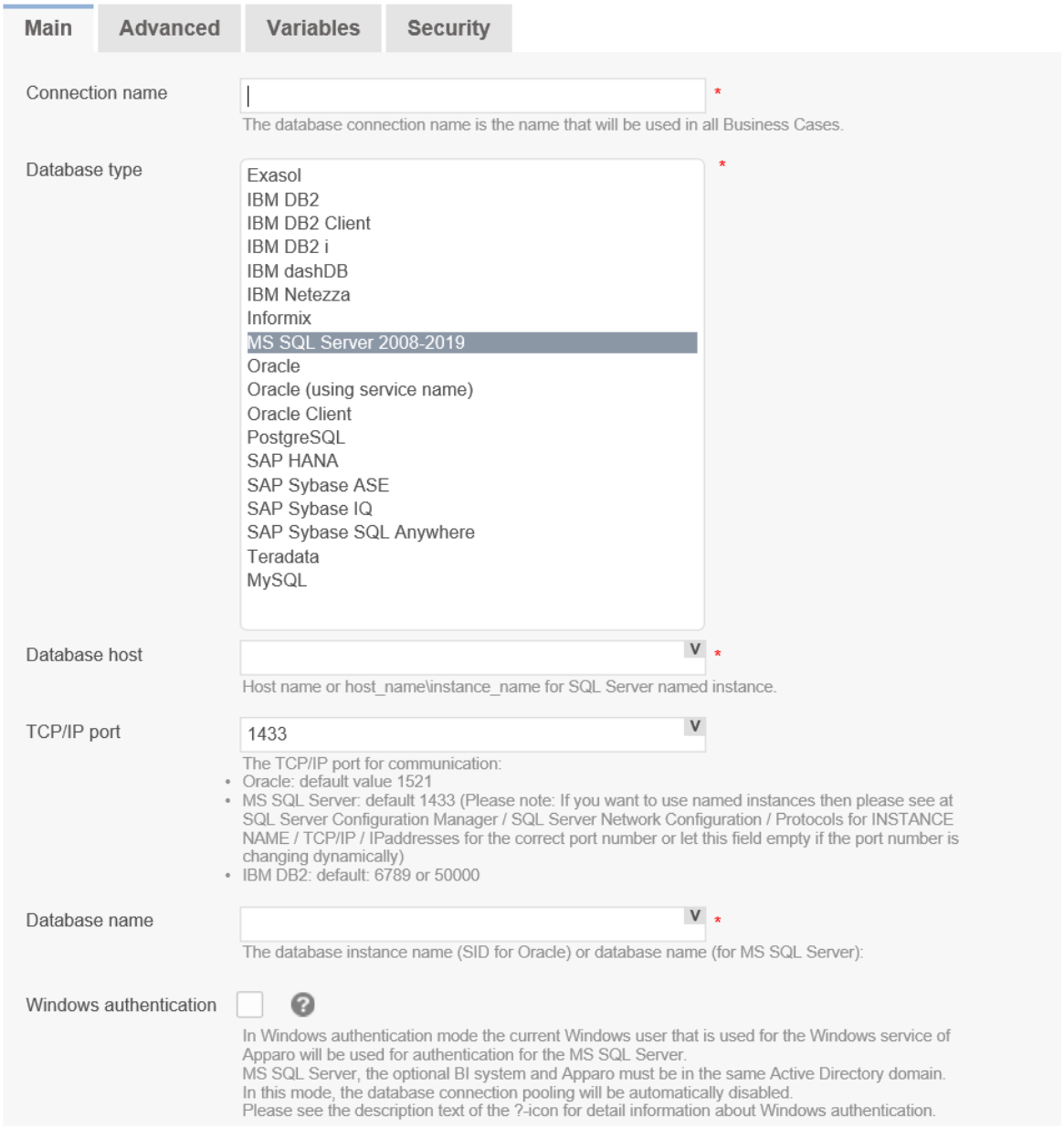
The following buttons are at your disposal:

- New - creates a new database connection
- Test DB-Connections - is testing all selected DB connections
- Import - imports DB connections from a file
- Export - exports all selected DB connections into a file

5.1.3 Creating a new database connection

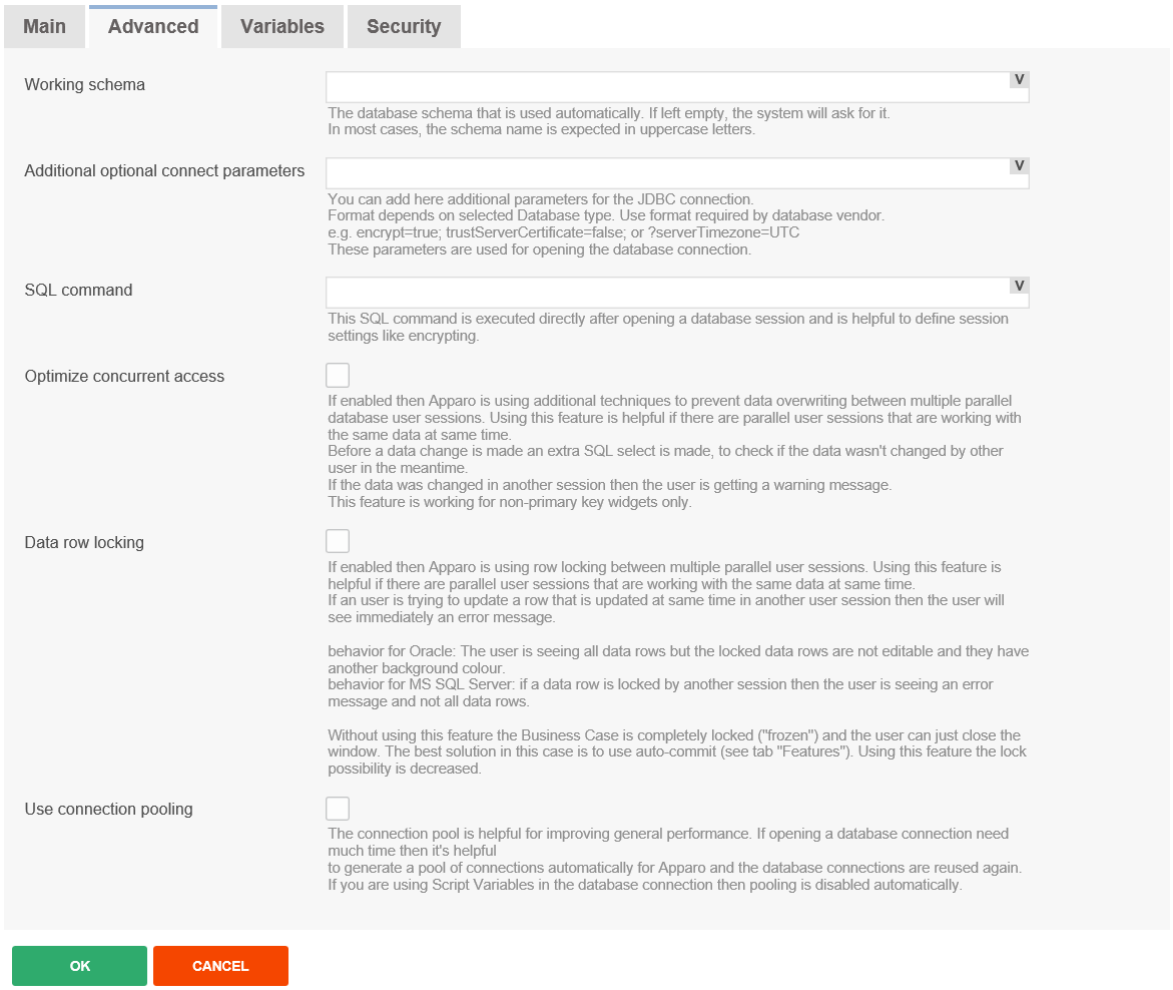
Click on the button 

5.1.3.1 Settings of the tab ‚Main‘



- Connection name - Freely selectable unique identifier for the connection
- Database type - select from list your database type
- Database host - IP address or host name of the database
- TCP/IP Port - listening port of the database
- Database name - Name of the DB
- Database user - user name of the login
- Password - password of the login

5.1.3.2 Settings of the tab ‚Advanced‘



The following settings can be made in the tab advanced:

Working schema
If entered then this schema will be used only and it can't be changed at Business Case design time.

SQL command
This SQL command is executed directly after opening a database session and is helpful to define session settings like encrypting.

Optimize concurrent access
If enabled then Apparo Fast Edit is using additional techniques to prevent data overwriting between multiple parallel database user sessions. Using this feature is helpful if there are parallel user sessions that are working with the same data at same time.
Before a data change is made an extra SQL select is made, to check if the data wasn't changed by other user in the meantime. If the data was changed in another session then the user is getting a warning message.

Use connection pooling
The connection pool is helpful for improving general performance. If opening a database connection need much time then it's better to generate a pool of connections and the database connections will be re-used again.
If you are using Script Variables in the database connection then pooling is disabled automatically.

Minimum pool size
Any positive value can be used. If zero is used then the size of connection pool is unlimited.

Maximum pool size
Any positive value can be used. If zero is used then the size of connection pool is unlimited.

Reconnect idle database session after (sec)
If this is a number greater than 0, pooling system will test all idle connections in the pool, every this number of seconds. Setting a fairly long value (hours), is an excellent, high-performance approach.
The testing is done by executing a metadata select into the database, therefore low values may slow down the application performance.

Discard idle database sessions after (sec)
Seconds a connection can remain pooled but unused before being discarded.
Zero means idle connections never expire.
If this number greater than 0, pooling system will close and remove from pool all connections that are idle for this number of seconds.
Low values may slow the application performance. Normally this value should be set to several hours.

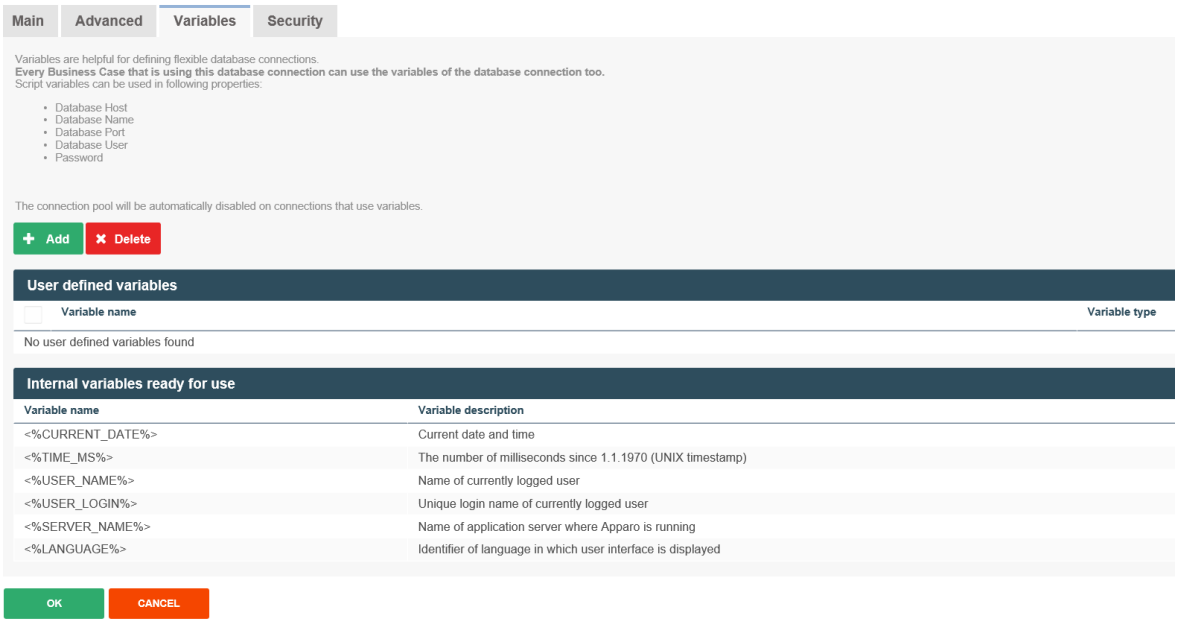
Max idle time of excess connections (sec)
Some users want their pools to release quickly unnecessary connections after a spike in usage that forced a large pool size.
You can achieve this by setting here a value much shorter than above, forcing connections over your set minimum size to be released if they sit idle for more than a short period of time.

Database session increment
This number must be greater than 1, determines how many connections at a time the pooling system tries to acquire when the pool is exhausted.

Maximum number of total cached statements
Defines the total number of prepared statements a database connection will cache.
The cache will destroy the least-recently-used prepared SQL statement when it hits this limit.

Maximum number of cached statements
Defines how many statements each pooled connection is allowed to own.

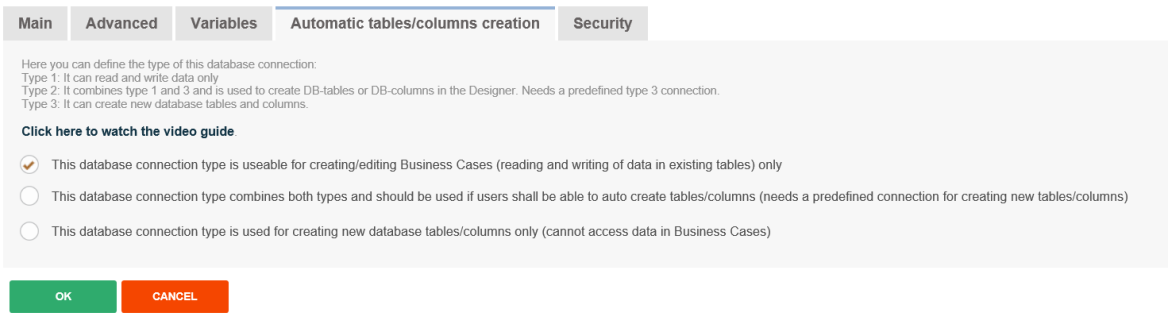
5.1.3.3 Variables



You can make database connections dynamically, using variables.

You have the ability to create your own JavaScript-based variables and have access to a selection of predefined variables.

5.1.3.4 Automatic tables/columns creation



If for the current client this function is activated (see client settings), you will see these options.

A connection for creating new database columns or tables, it requires to have the CREATE right granted. This database connection will be no longer used during the runtime of Business Cases.

Basically there are three types of DB connections:

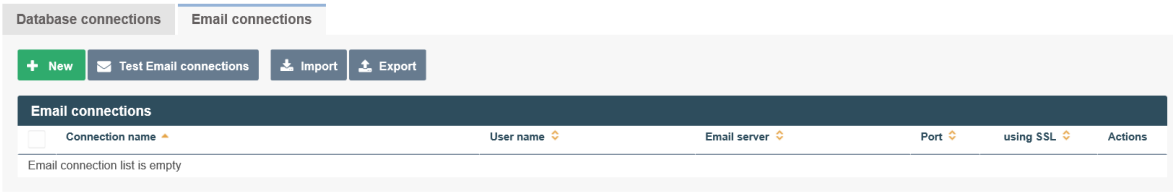
- **Database connections for reading and writing data**
- **Database connections for creating tables and columns**
- **Databse connection that combines both types**

5.1.3.5 Security

If not everybody should be able to use this database connection, then it is possible to restrict access to specific designer users.
Add all security groups that shall be able to use these database connections.
If these settings remain empty, then everybody can use this database connection.

5.2 Email connections

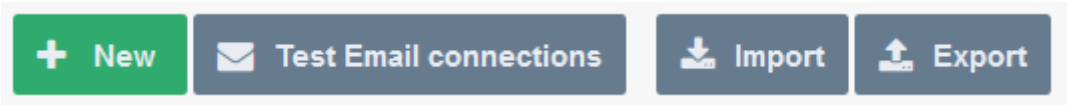
5.2.1 List of e-mail connections



5.2.2 Supported protocols

Incoming and outgoing e-mail connections use basically the POP or SMTP protocol.

5.2.3 Buttons



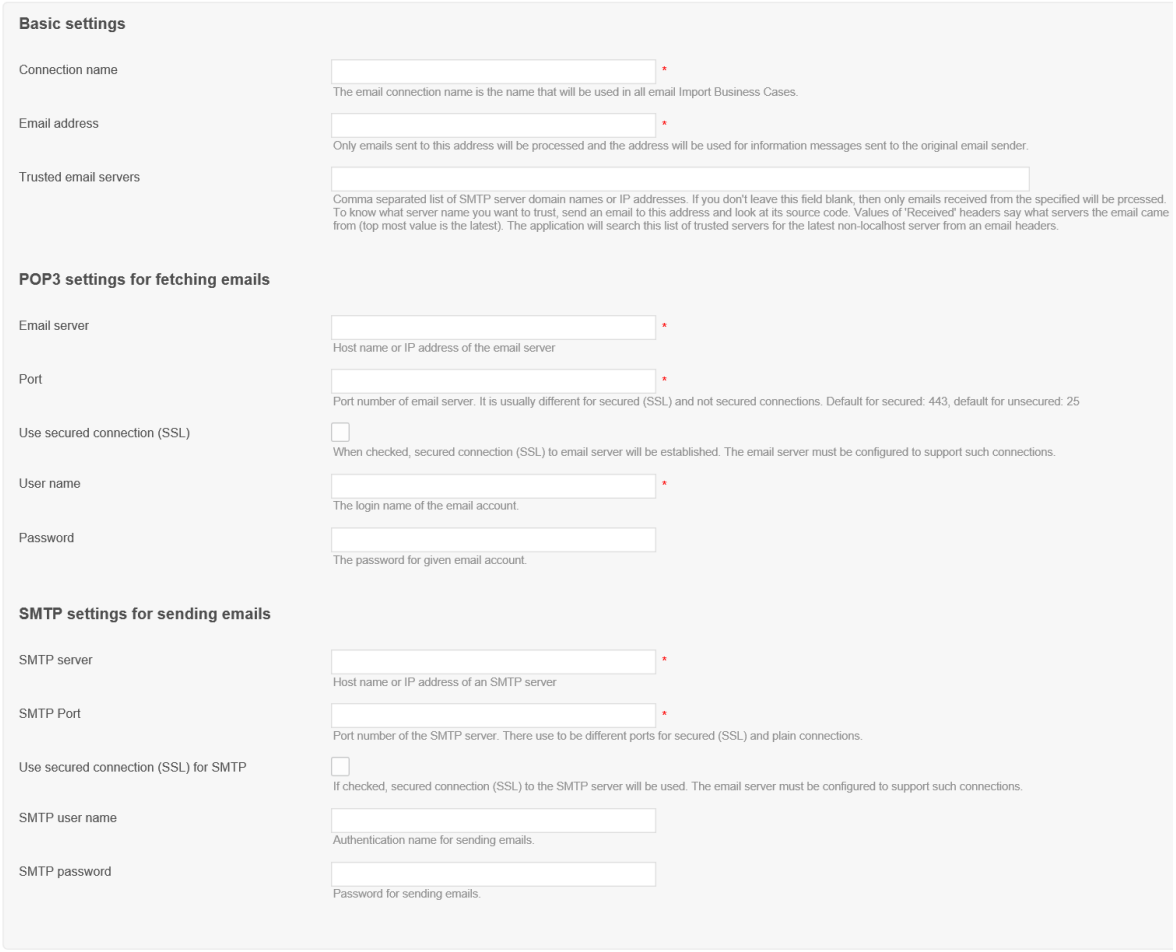
You can use the following buttons:

- New - creates a new e-mail connection
- Test Email connections - tests the selected email connection
- Import - imports e-mail connections from a file
- Export - exports e-mail connections into a file

5.2.4 Creating a new e-mail connection

Click on the button: 

5.2.4.1 Configuration



Basic settings

Connection name The name that will be used in all E-mail Import Business Cases.

Email address Only emails sent to this address will be processed and the address will be used for information messages sent back to the original email sender.

Trusted email servers Comma separated list of SMTP server domain names or IP addresses. If you don't leave this field blank, then only emails received from the specified will be processed. To know what server name you want to trust, send an email to this address and look at its source code. Values of 'Received' headers say what servers the email came from (top most value is the latest). The application will search this list of trusted servers for the latest non-localhost server.

POP3 settings for fetching emails

Email server Host name or IP address of the email server

Port Port the of e-mail server. It is usually different for secured (SSL) connections.

Use secured connection When checked, secured connection (SSL) to email server will be established. The mail server must be configured to support such connections.

User name The login name of the email account.

Password	The password for given email account.

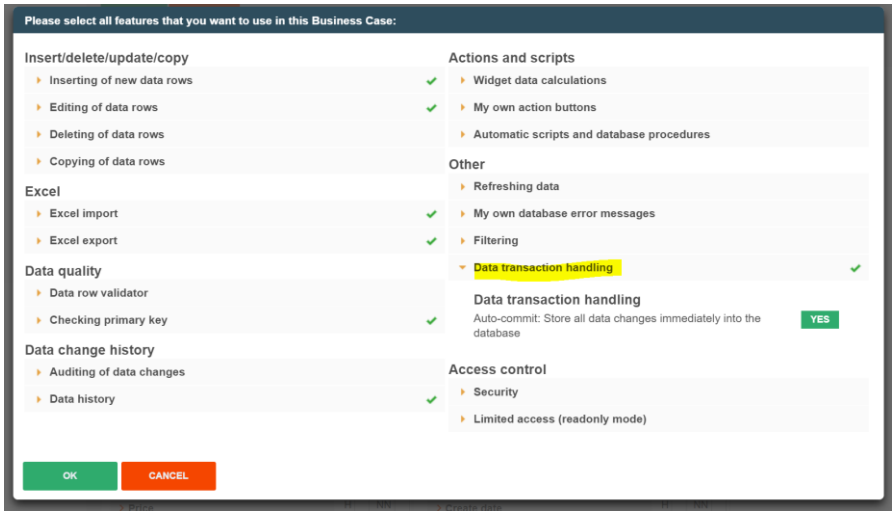
SMTP settings for sending emails

SMTP server	Host name or IP address of an SMTP server
SMTP Port	Port number of the SMTP server
Use secured connection	If checked, a secured connection (SSL) to the SMTP server will be used. The email server must be configured to support such connections.
SMTP user name	Authentication name for sending emails.
SMTP password	Password for sending emails.

6 Database transaction handling using OK/STORE/CLOSE/CANCEL buttons

All database changes are done in a database transaction.

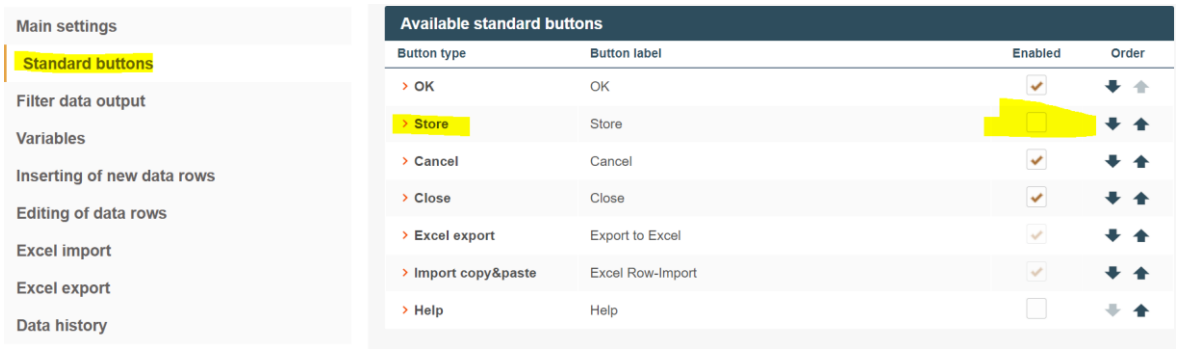
You can define the transaction behaviour for a Business Case with following setting:



If auto-commit is **enabled** then the data changes (inserts, update, deletes) are commited as soon as possible. That means database locks will disappear as soon as possible and the data is readable using different database session too. It is not possible to make a session rollback.

If auto-commit is **disabled** then there will be no automatic commit.

If the user wants to commit explicitely the data changes, then it is possible to enable a **STORE** button that is making a commit.



6.1 OK-Button behaviour without the CLOSE-Button

Using auto-commit:

With pressing the **OK**-button all data changes in the Business Cases are stored into the database table including commit. The Business Case is closed too.

Using **no** auto-commit:

With pressing the **OK**-button all data changes in the Business Cases are stored into the database table without commit. Without a **CLOSE**-Button the Business Case is making a commit and will be closed too.

6.2 OK-Button and CLOSE-Button behaviour

Using auto-commit:

With pressing the **OK**-button all data changes are stored in the database table including a **COMMIT.**

With pressing the **CLOSE**-button all data changes are stored in the database table with a following **COMMIT**. After that the Business Case is closed.

Using **no** auto-commit:

With pressing the **OK**-button all data changes are stored in the database table.

With pressing the **CLOSE**-buttons there is a **COMMIT**. After that the Business Case is closed.

6.3 Behaviour of the CANCEL-Buttons

Using auto-commit:

With pressing of the **CANCEL**-button the Business Case will be closed.
If there is no **CLOSE/OK**-button then the Business Case is closed after that.

Using **no** auto-commit:

With pressing of the **CANCEL**-button the database transaction is **roll backed**.
That means all changes are dropped and the old values are still in the database table.
If there is no **CLOSE/OK**-button then the Business Case is closed after that.

6.4 CLOSE-Button in an embedded Business Case

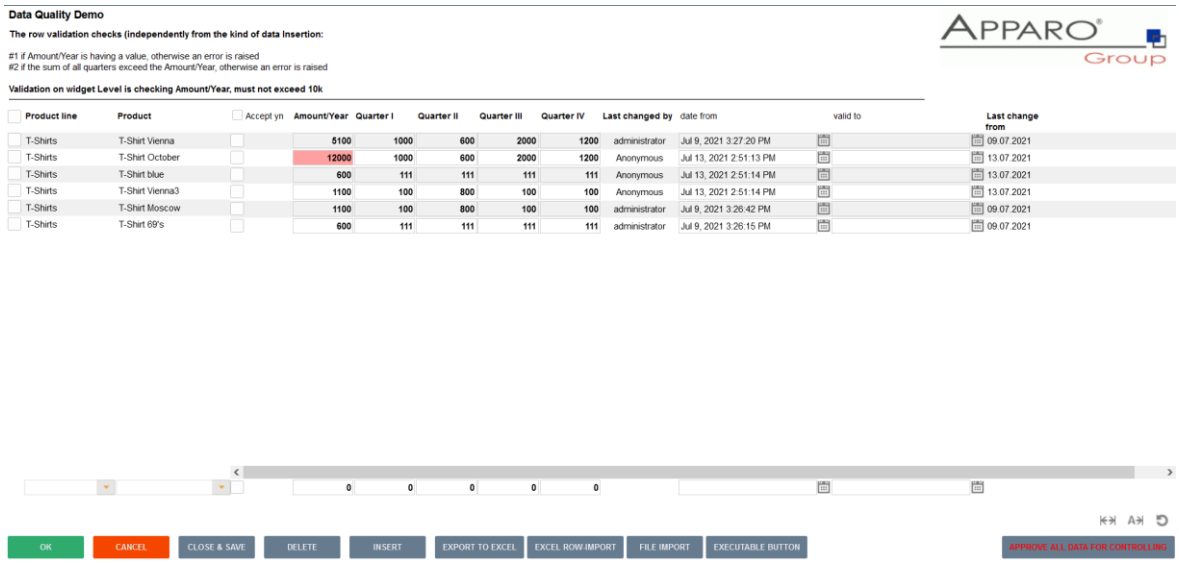
If a Business Case is **embedded** in a report or dashboard then the **CLOSE**-button is **hidden** automatically and the **CANCEL**-button is **not closing** the Business Case.

7 Table Business Cases (Table BC)

7.1 Definition

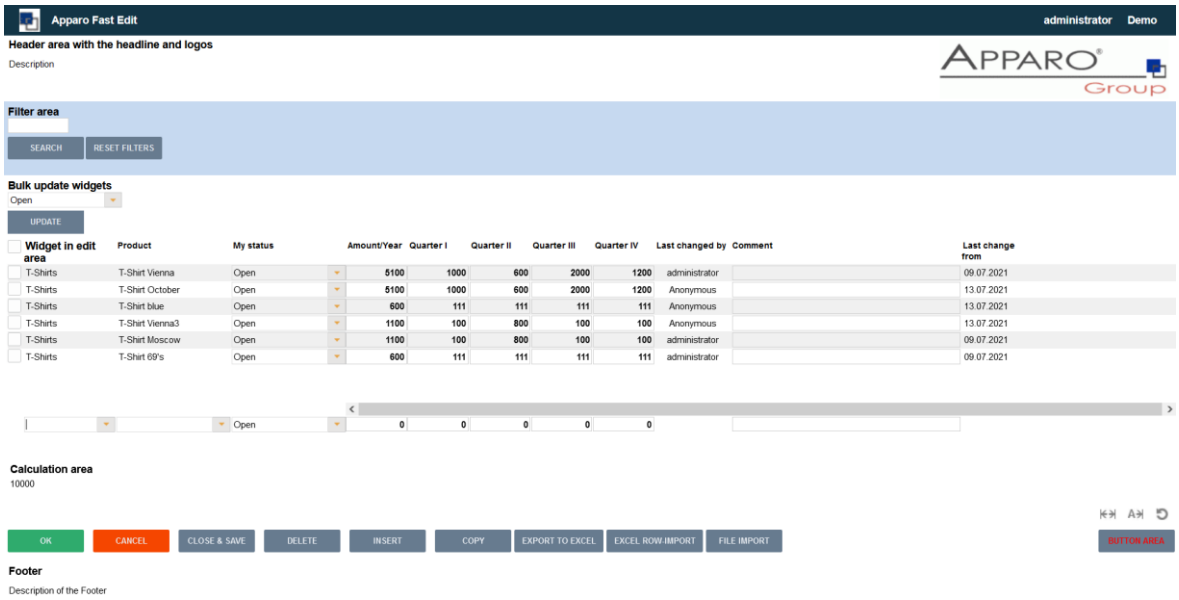
- In a table BC all records of the target table are displayed in the browser window.
- All individual elements on the form are so called widgets e.g. Input fields, check boxes, buttons, etc
- The navigation buttons can be used to scroll through the records page by page.
- This representation makes it possible to effectively carry out changes within a database table.

Example for a Table BC:



7.2 Areas of a Table Business Case

A Table Business Case consists of different (partially optional) areas

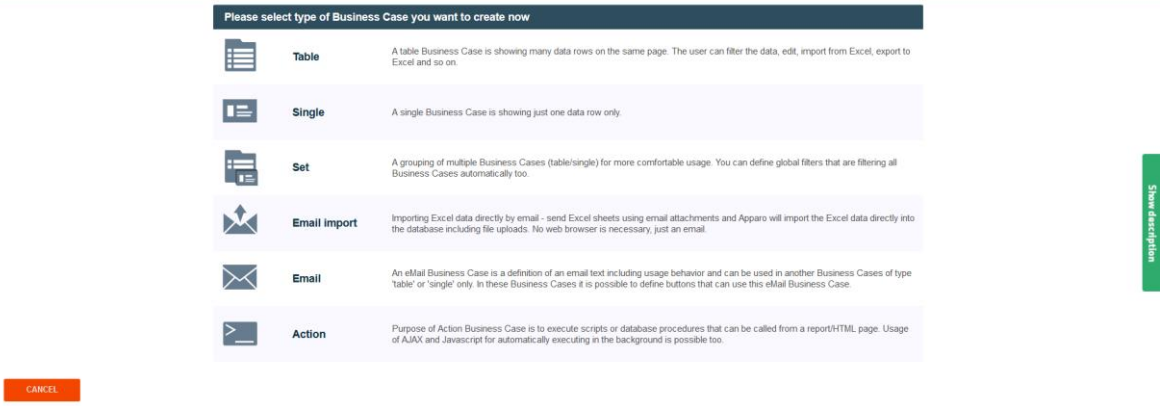


Application Header - optional, contains application name, user name and client name
Header area - includes the title and description
Filter area - for example, contains filter widgets to filter the data output
Bulk update area - mass update panel
Edit area - to modify existing data
Insert area - for adding new records
Calculation area - used to display information, such as text or calculations of variables
Navigation area - includes page counter, navigation and buttons for resizing
Button area - contains buttons
Footer area - comparable to the header area

7.3 Create a new Business Case

Click on the button: 

Now select the entry ‚Table‘

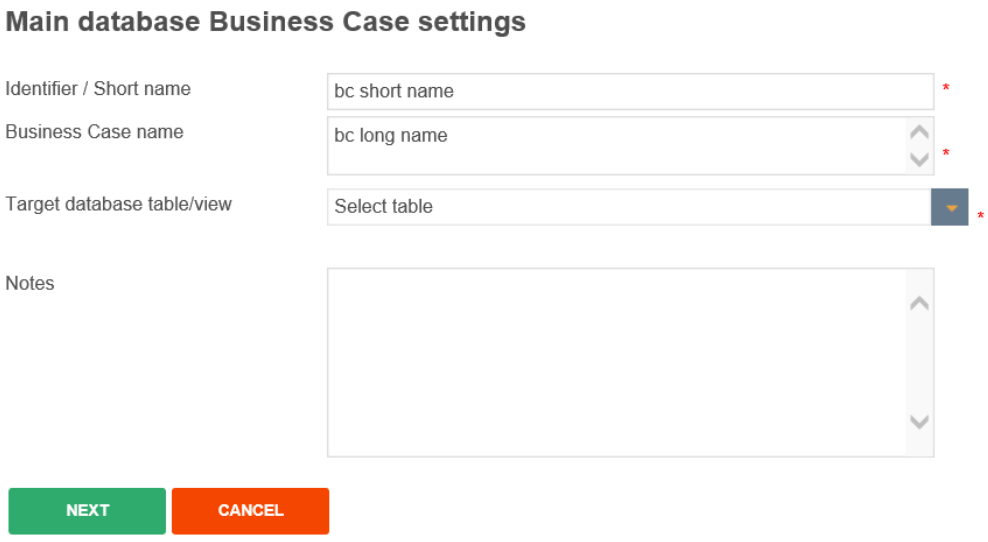


Business Case selection

Following, the general settings for the Business Case :

Please provide a unique short name (ID), a name and select the target table.
The description is optional and can contain declarations, release notes, or other information.

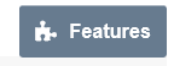
If multiple database connections are set up, this selection is automatically extended by the points ‘database connection' and 'database schema'.

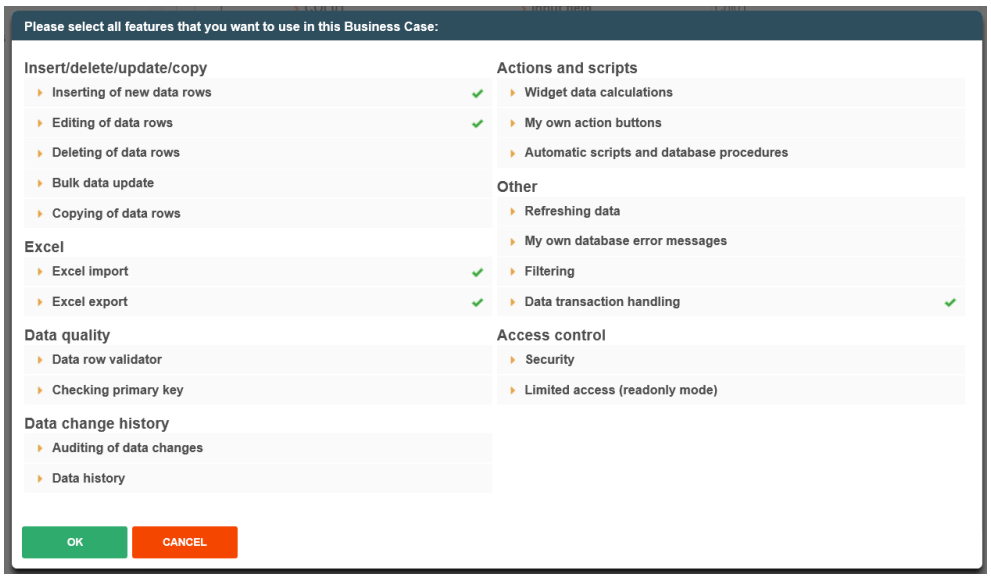


Main settings

7.4 Business Case features

The features of a Business Case open automatically after creating a Business Case .

If the Business Case is opened later for editing again, you can open the feature selection with the button on top right corner: 



The features are divided into seven sections. The various features can be enabled or disabled as needed. If a feature is activated, then the selection menu in the Business Case edit view will be extended accordingly.

The advantage of this activation is obvious, if the Business Case isopened for editing again after some time, then you can see with one look at the menu, which features are used in this Business Case.

7.4.1 Features areas and features

- **Insert/delete/update/copy**
  - Inserting of new data rows
  - Deleting of data rows
  - Bulk data update
  - Copying of data rows

- **Excel**
  - Excel Import
  - Excel Export

- **Data quality**
  - Data row validator
  - Checking primary key

- **Data change history**
  - Auditing of data changes
  - Data history

- **Actions and scripts**
  - Widget data calculations
  - My own action buttons
  - Automatic scripts and database procedures

- **Other**
  - Reloading reports
  - My own database error messages
  - Filtering
  - Data transaction handling

- **Access control**
  - Security
  - Limited access

A detailed description of the functions can be found in the section Business Case features.

7.5 Edit view of the Business Case

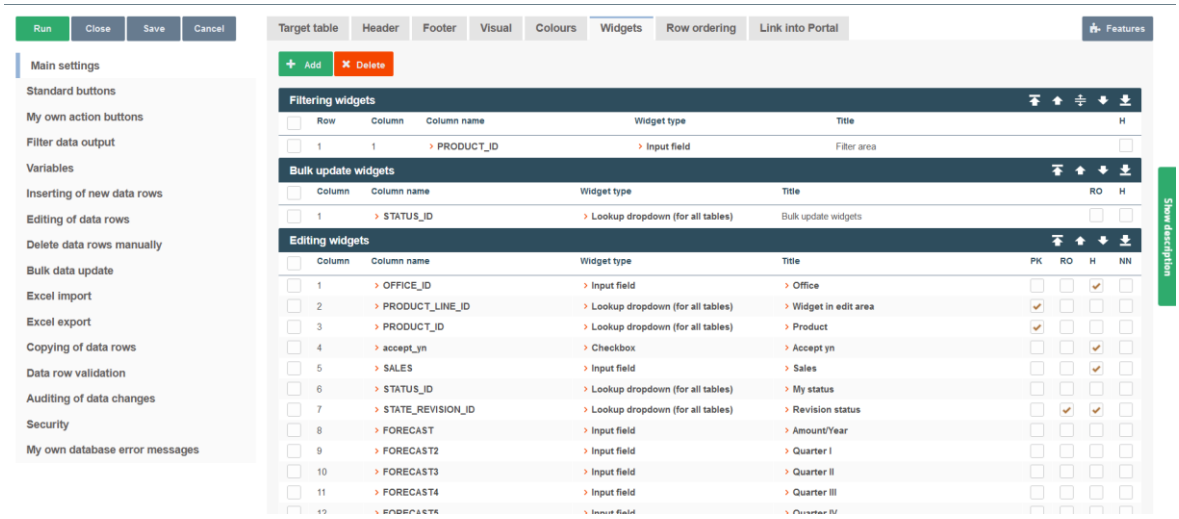
The edit screen is divided into two areas:

Menu bar, the buttons on the controller and all activated functions as menu items contains.

Buttons:

- **Start** - saves all changes and starts the Business Case
- **Close** - saves all changes and closes the edit view
- **Save** - saves all changes
- **Cancel** - discards any unsaved changes and closes the Business Case

Settings area, contains settings for the various functions and optionally divided again into tabs.



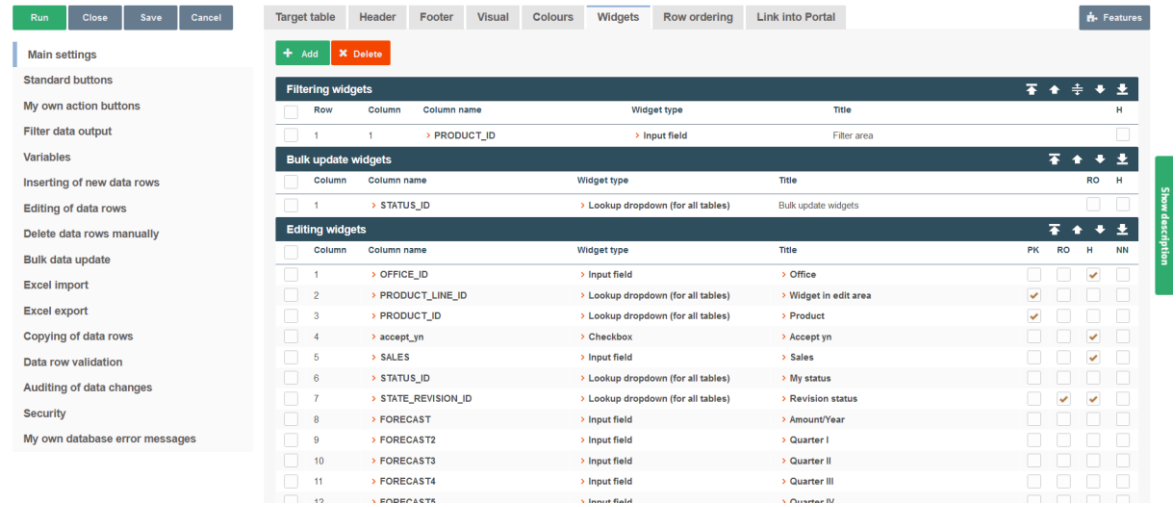
7.6 Business Case settings

7.6.1 Main settings

The main settings are divided into several tabs and are containing the settings of the data source and the optics of the Business Case. Above all, it contains the widget settings.

Widgets are the actual control and output elements of a Business Case. This can be a filter, input or selection fields, buttons and more.

Because of their importance are Widgets the first tab you see when you open the Main settings.



Main settings, Widgets

7.6.2 Widgets

This chapter covers the central area of a Business Case.

Here you can have different widgets that are normally connected with the target table, positioned in different areas.

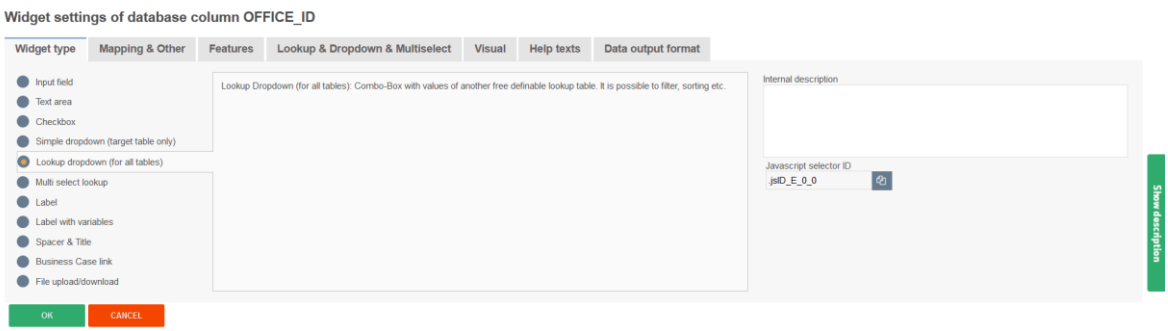
Each widget has its own individual settings.

7.6.3 Edit view

You can open the settings of an existing widget, by clicking on the column name or widget type:

Depending on the type of widget has the edit view different options, divided into tabs.

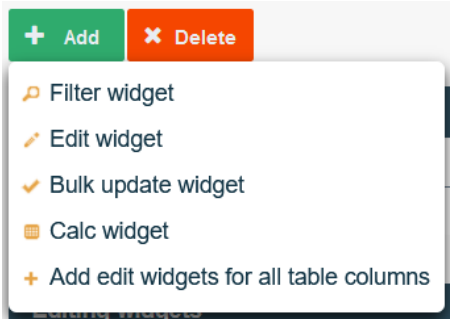
Widget edit view for the type ‚Input field'



Widget edit view for the type ‚Lookup dropdown (for all tables)'

7.6.4 Widget types and areas

When creating a new widget, you will first be asked for which area it is intended:



The option to add widgets for all database columns 'Add edit widgets for all table columns, is adding an 'input field' widget for each existing database column, if no widget is existing for this database column.

The corresponding areas for the widget types are:

- **Filter area**
- **Edit area**
- **Bulk update area**
- **Calculation area**

Based on the area for which the widget is thought, is there a selection of different widget types:

Input field - A standard entry field which allows the input of alphanumeric data
Text area - A multiline entry area that allows formatted text
Checkbox - Allows exactly two values, checked or not checked
Simple dropdown (for target table only) - Based on data in the target table
Lookup dropdown (for all tables) - Replaces numerical values with plain text from a 2nd table
Simple multiselect - Select multiple values
Lookup multiselect - Multiselect based on a lookup table
Label - Enables you to output text
Label with variables - Enables the output of text and values of variables
Spacer & Title - To set up void spaces between individual widgets
Business Case Link - To call e.g. detail BCs, data values are passed here
File Upload/Download - To attach files to data rows

Business Case Link and File Upload/Download can only be used in the edit area.

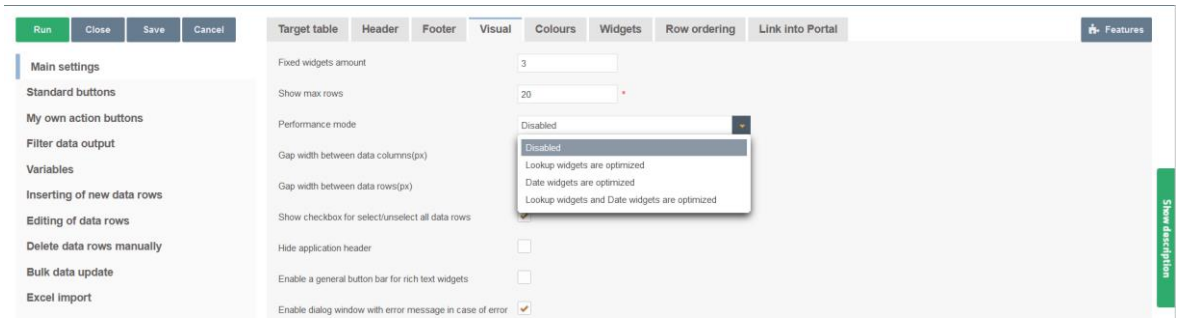
Performance improvements necessary?

If your Business Case is using many lookup widgets and many data rows (20 data rows and more) in the editing area for a page then performance troubles can occur. That means the loading of the page need much time, the behavior of the browser is slow.

Solution:

See in tab "Visual" the setting "Performance mode".

If this mode is active then all lookup widgets in the editing area are displayed as labels with a pen icon. This output is much faster.



7.6.5 Widgets in the Edit Area

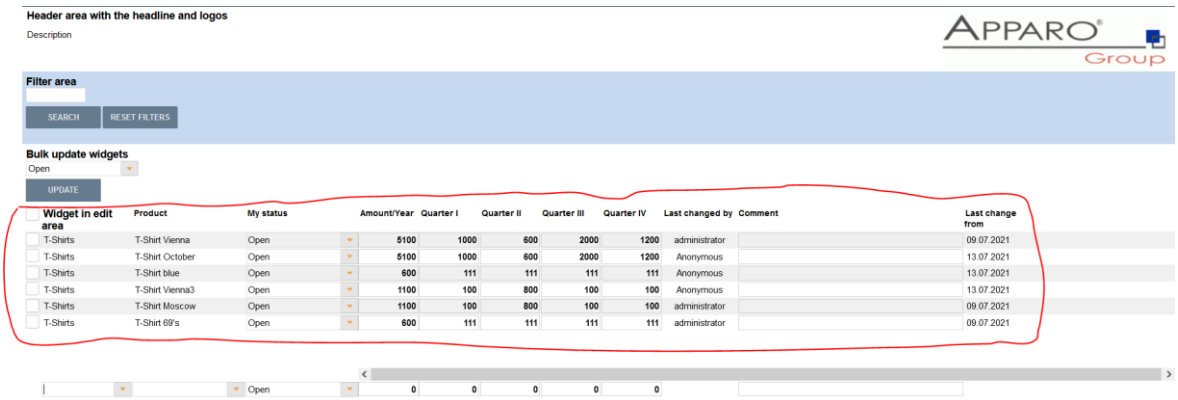
The edit area in a Table Business Case (TBC) is mainly used for displaying data in list form and gives users the ability to edit the data.

Editing widgets

	Column	Column name	Widget type	Title	PK	RO	H	NN
	1	OFFICE_ID	Input field	Office			✓	
	2	PRODUCT_LINE_ID	Lookup dropdown (for all tables)	Widget in edit area	✓			
	3	PRODUCT_ID	Lookup dropdown (for all tables)	Product	✓			
	4	accept_yn	Checkbox	Accept yn			✓	
	5	SALES	Input field	Sales			✓	
	6	STATUS_ID	Lookup dropdown (for all tables)	My status				
	7	STATE_REVISION_ID	Lookup dropdown (for all tables)	Revision status		✓	✓	
	8	FORECAST	Input field	Amount/Year				
	9	FORECAST2	Input field	Quarter I				
	10	FORECAST3	Input field	Quarter II				
	11	FORECAST4	Input field	Quarter III				
	12	FORECAST5	Input field	Quarter IV				
	13	FORECAST6	Input field	Plan6			✓	
	14	FORECAST7	Input field	Plan7			✓	

Widgets of an area are grouped.

Example for edit widgets in the user view:



In the edit area you can choose between these types of widgets:

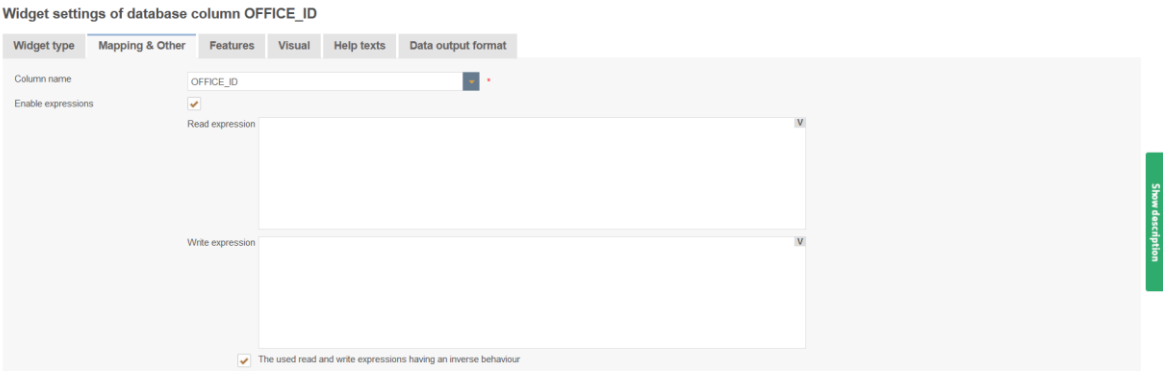
- **Input field** - A standard entry field which allows the input of alphanumeric data
- **Text area** - A multiline entry area that allows formatted text
- **Checkbox** - Allows exactly two values, checked or not checked
- **Simple dropdown** (for target table only) - Based on data in the target table
- **Lookup dropdown** (for all tables) - Replaces numerical values with plain text from a 2nd table
- **Label** - Enables you to output text
- **Label with variables** - Enables the output of text and values of variables
- **Spacer & Title** - To set up void spaces between individual widgets
- **Business Case Link** - To call e.g. detail BCs, data values are passed here
- **File Upload/Download** - To attach files to data rows

7.6.6 Special functions in the widget settings

There are some special functions in the widget settings:

7.6.6.1 Reading and writing expressions

Reading and writing expressions allow the usage of SQL to manipulate data before it is shown to users or stored to the database.



Variables are allowed here.

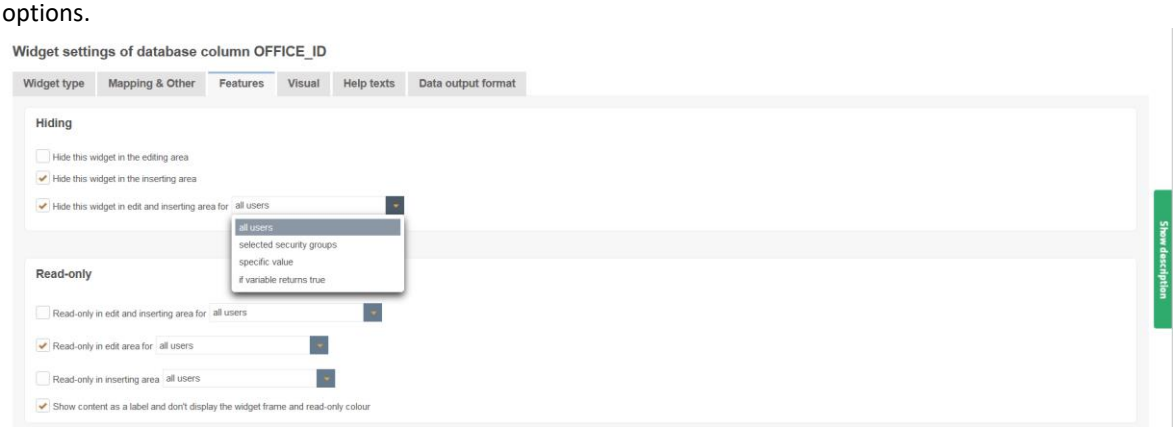
Common examples for expressions are:

TRIM() - Removes spaces from strings
UPPER() - Turns all letters into upper cases
LOWER() - Turns all letters into lower cases

7.6.6.2 Conditional options

Many functions can be controlled with reference to conditions.

Thus, there are e.g. for the function ‚Hidden', which hides a widget for the user when activated, several options.

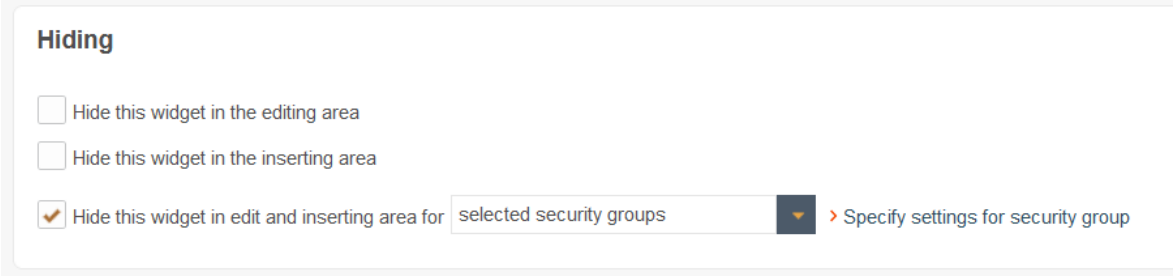


For all users

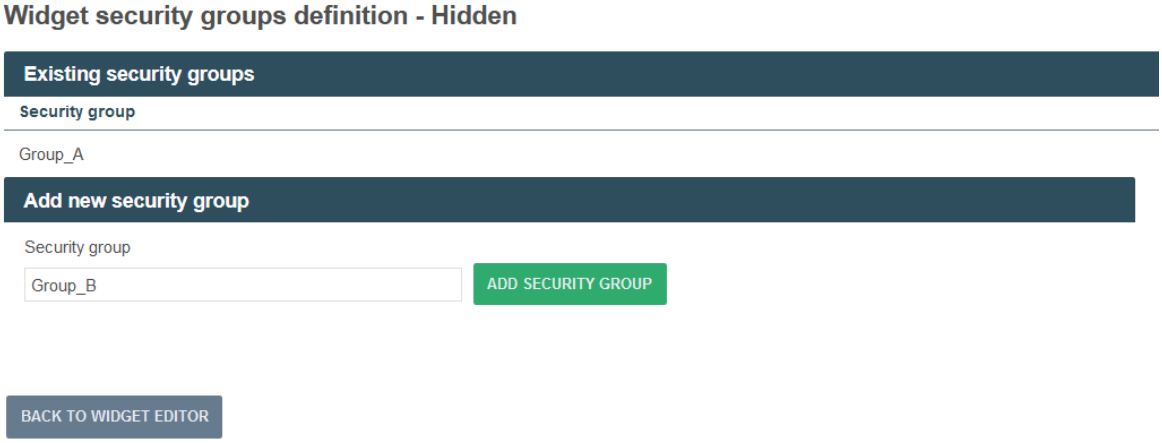
This option is set by default. It hides the widget for all users.

For selected security groups

This hides the widget, but only for users who are member of one of the entered user groups. Other users can see the widget.



Hide the widget for the selected user groups



Security group editor

For a specific value

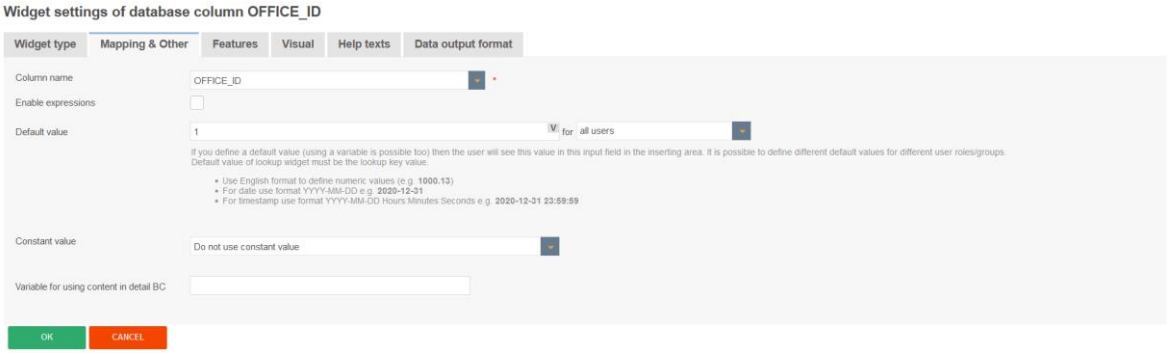
The option applies here as soon as the value of one of the columns in the target table in the corresponding data row matches with the stored value.
In our example, the widget would be hidden once in a data row in the product line column the value ‘3’ appears.

The values can also be configured dynamically by using variables. <%VARIABLE%>

7.6.7 Widget settings for the example ‚Input field'

Each widget type has its own settings. The following settings using the example of the widget type ‚input field' can be found in almost all widget types. Distinctive features of each widget type are described in the following chapter ‚More widget settings'

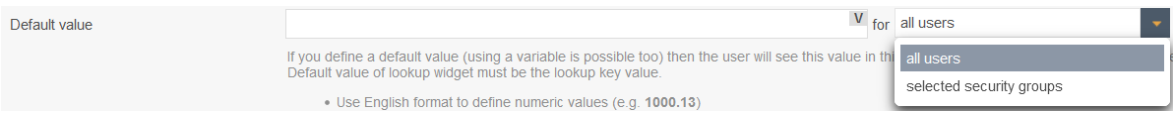
7.6.7.1 Mapping & Other



Column name
Here you can select the database column that is connected to this widget. The widget is reading the content of the column and is writing to this column. It is possible to use a variable in this column name too.

Default value
If you define a default value (using a variable is possible too) then the user will see this value in this input field in the inserting area. It is possible to define different default values for different user roles/groups. Use English format to define numeric or date values. Default value of lookup widget must be the lookup key value.

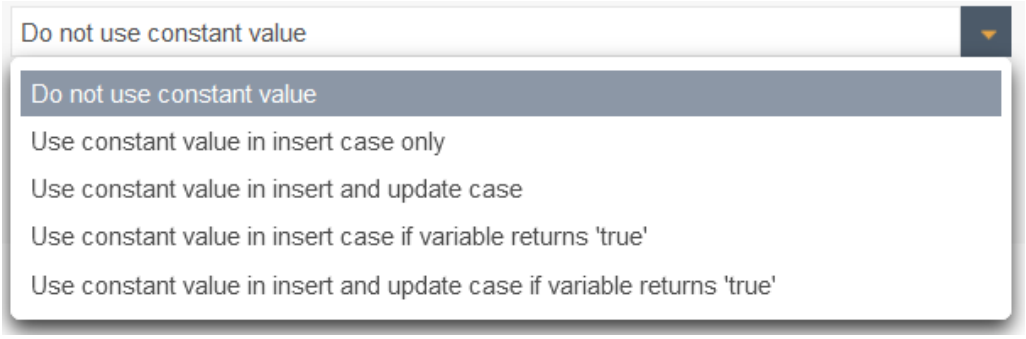
The function ‚constant value' has the following options:



You can set different default values for different user groups.

Constant value
A constant value is a value that will be always used for this widget. Even if the widget is hidden, read-only or if the user is inserting a value, then the constant value will be used. It is possible to define different constant values for different user roles/groups.

The function ‚constant value' has the following options:

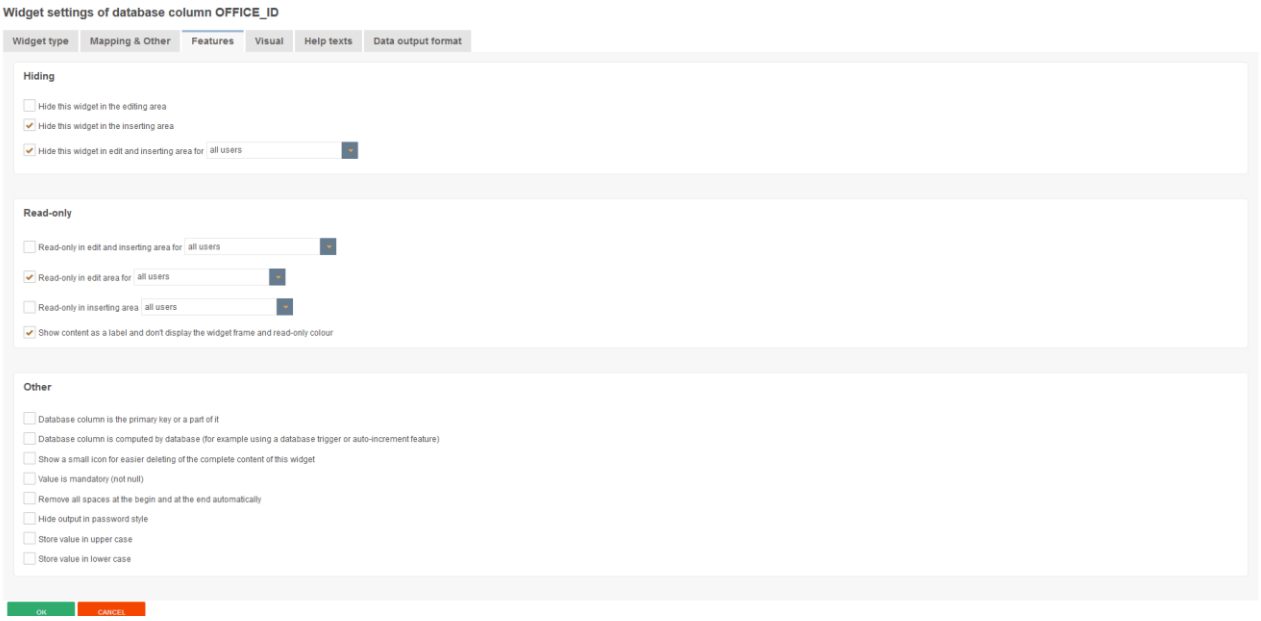


Variable for using content in detail BC
If this Business Case has a widget of type 'Business Case Link' for opening a detail Business Case , it is possible to define a variable that contains the value of the current widget.

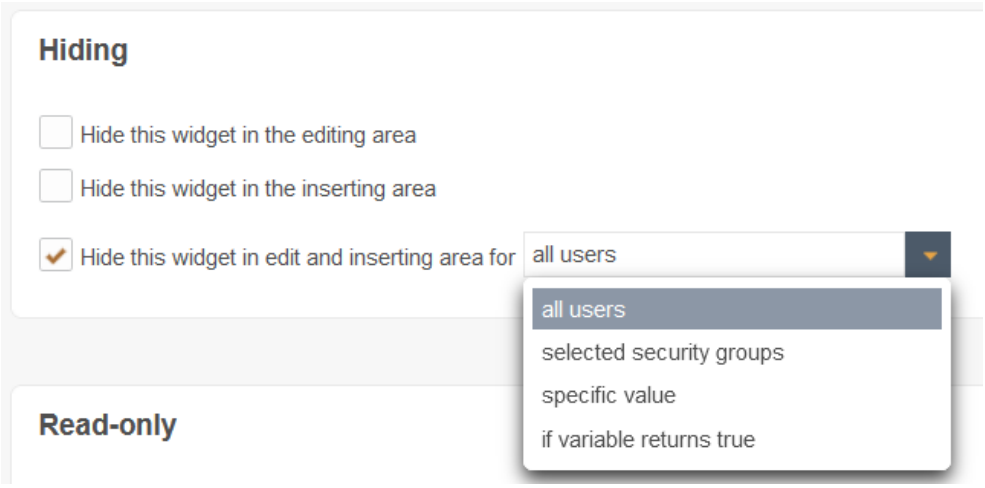
The detail Business Case can use this report variable with the current value of this widget for example for output.
Important: In the detail Business Case you must define this report variable in tab "Variables" too.

7.6.7.2 Features

In the tab Features you can control the behavior of the widget in detail.



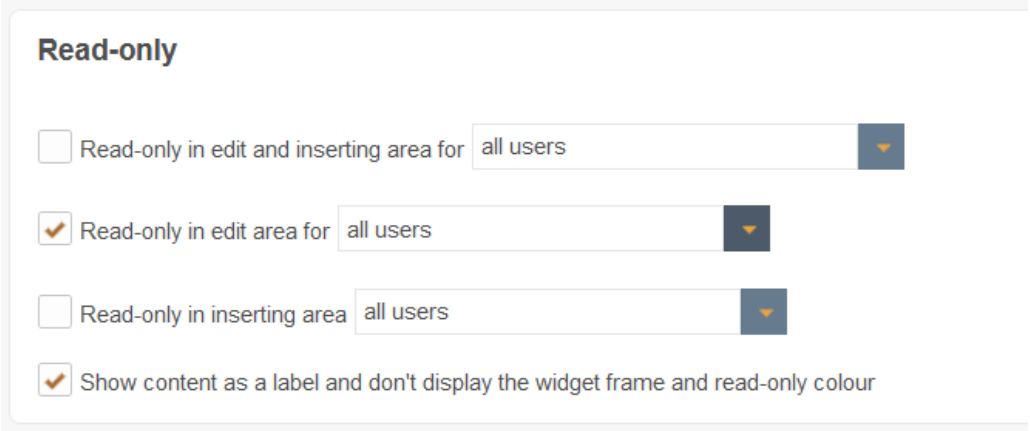
Hiding-Group
Includes options for hiding widgets.



Hide this widget in the inserting area
If enabled, the user will not see this widget in the inserting area. If you use a constant value then it will be used no matter if the widget is hidden or not.

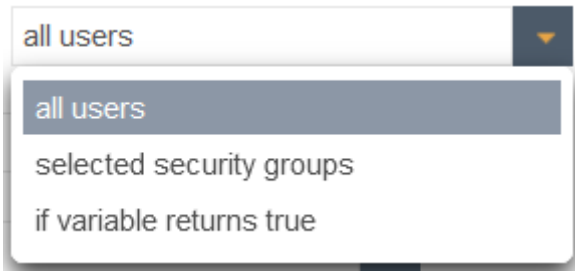
Hide this widget in edit and inserting area for
The data field is to be used, but not shown in insert and editing area, optional security group based. That means this widget can be hidden for certain user groups only.

Read only group
Includes options to disable the entering or changing of values in widgets



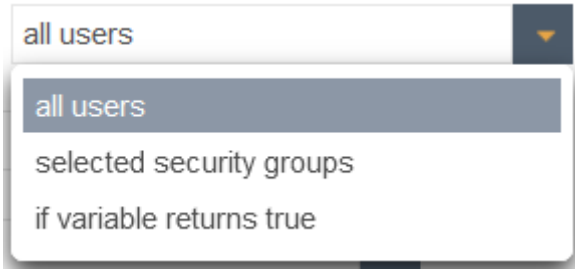
Read-only in edit and inserting area for
The data field cannot be altered in editing and inserting area but it is still visible with another background color, optional security group based.

Options:



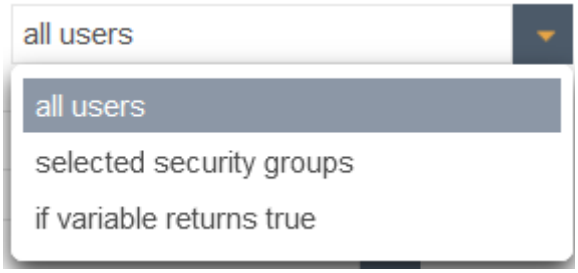
Read-only in edit area for
The data field cannot be altered in editing area, optional security group based. Read-only widgets have an own background color.

Options:



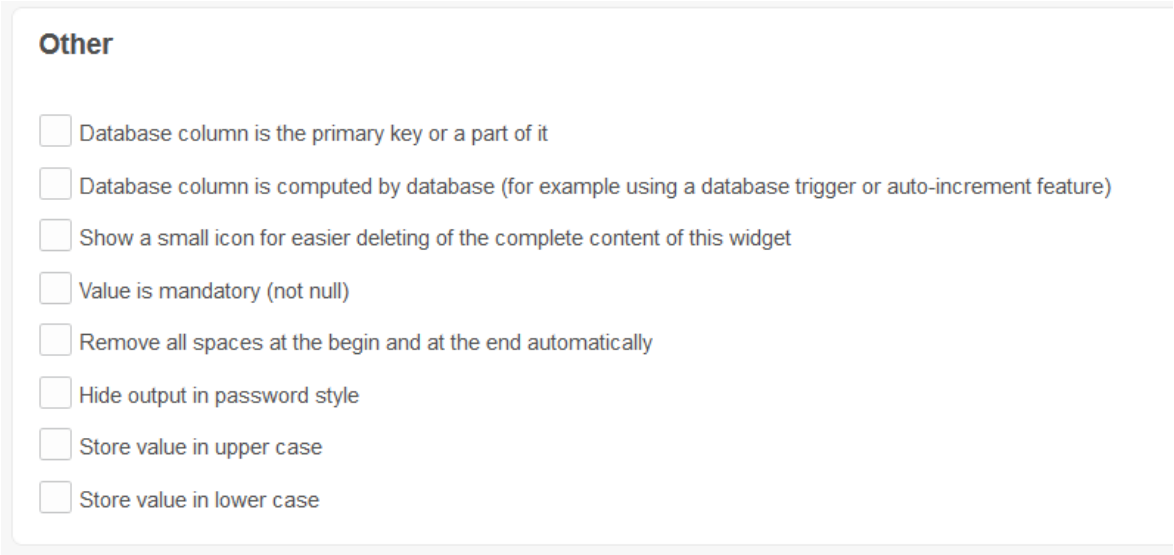
Read-only in inserting area
The data field cannot be altered in inserting area, optional security group based.

Options:



Other-Group

Contains all other settings



Database column is the primary key or a part of it
The widget is the primary key of the underlying table or is an part of the key (with combined keys). This definition is independent of the primary key definition in the database and at least one column must be defined as primary key. A primary key is identifying an unique data row of the target table/view.

Database column is computed by database (for example using a database trigger or auto-increment feature)
The database table column value is filled automatically by the database (e.g. with triggers, auto-increment field). Apparo Fast Edit is not changing this value in the target table.

Show a small icon for easier deleting of the complete content of this widget
Showing a small delete icon for deleting the widget content.

Value is mandatory (not null)
If a widget value is mandatory, the user must enter a value in this widget (or use a default or constant value). The definition of this behavior is independent of the definition of the target table column in the database.
If a filtering widget is mandatory, it is a good idea to define a default value for it as well. You will avoid some error messages when starting the business case.

Remove all spaces at the begin and at the end automatically
If enabled then all spaces at the begin and end are removed automatically before storing into database table

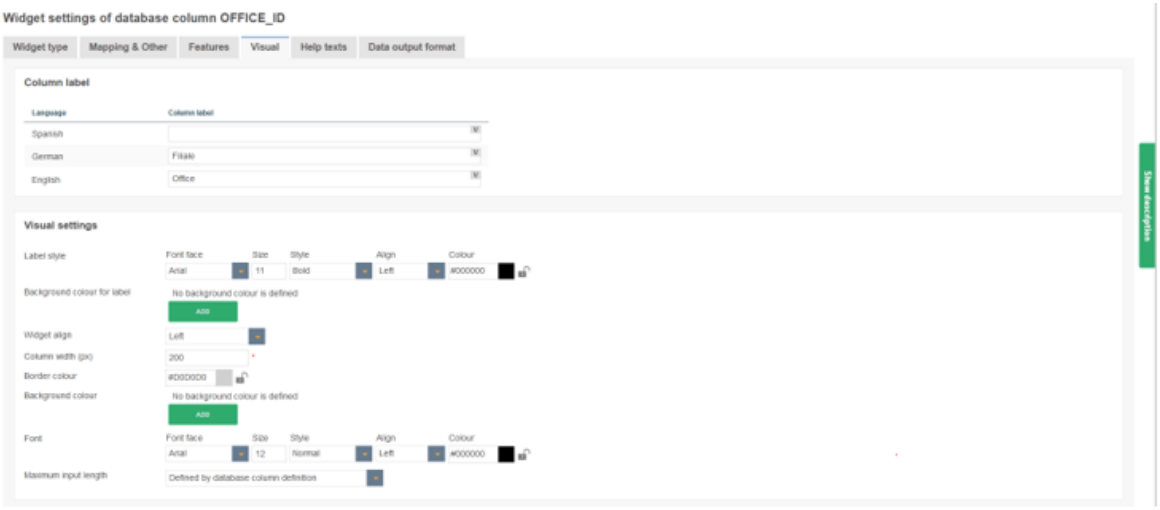
Hide output in password style
Entered characters are shown as dots only

Store value in upper case
If enabled then all characters are changed to upper case before storing into database table

Store value in lower case
If enabled then all characters are changed to lower case before storing into database table

7.6.7.3 Visual

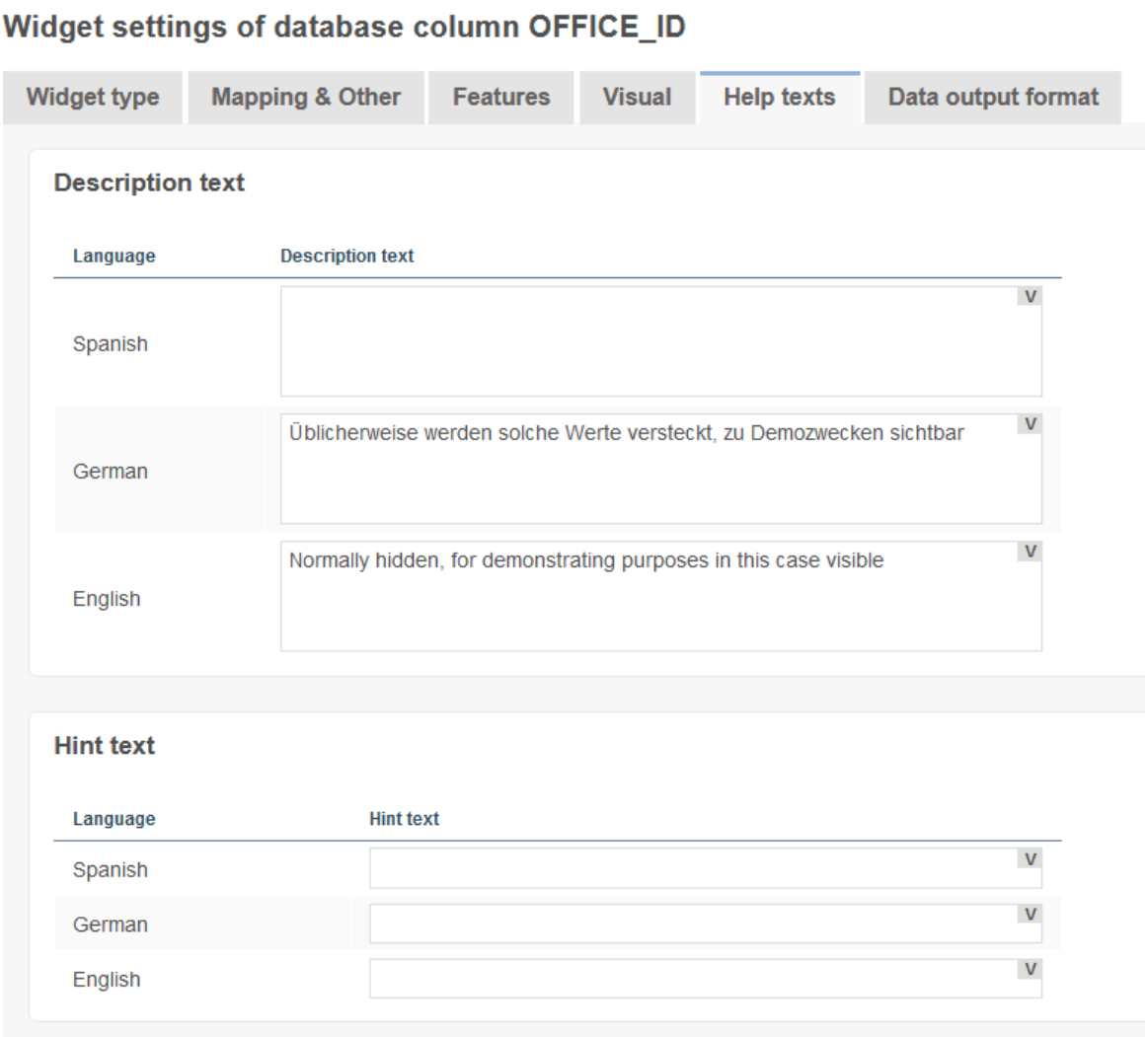
In the tab ‚Visual' you will find the header (column heading), and settings for the layout, and settings to limit the maximum allowed input length in this widget.
By default the maximum entry length is defined by the database column definition, for example Varchar(20) allows a maximum of 20 alphanumeric characters. This can be further limited by the input of an own value.



The layout can also be controlled by CSS.
To overwright global visual settings of the client settings, the lock symbol must be closed.

7.6.7.4 Visual help texts

Contains the settings for description and hint text



Description text

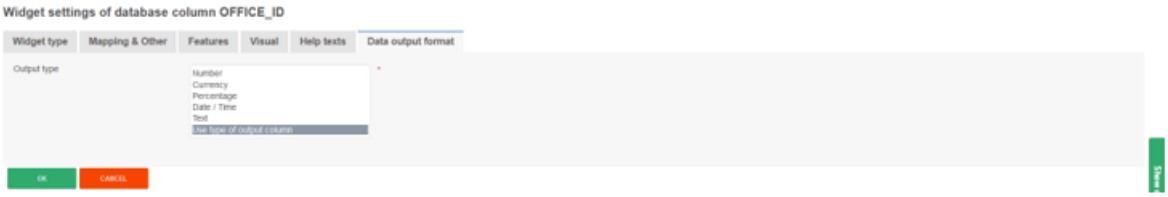
This text can describe the widget and can be helpful for the user. You can add a more detail description text for each installed language.
The user is seeing this text if he is pointing to the label of this widget.

Hint text

The hint text is displayed only if the widget has no value.
Is displayed in the input area in gray text, e.g. 'Enter date in the format: dd.MM.yy'

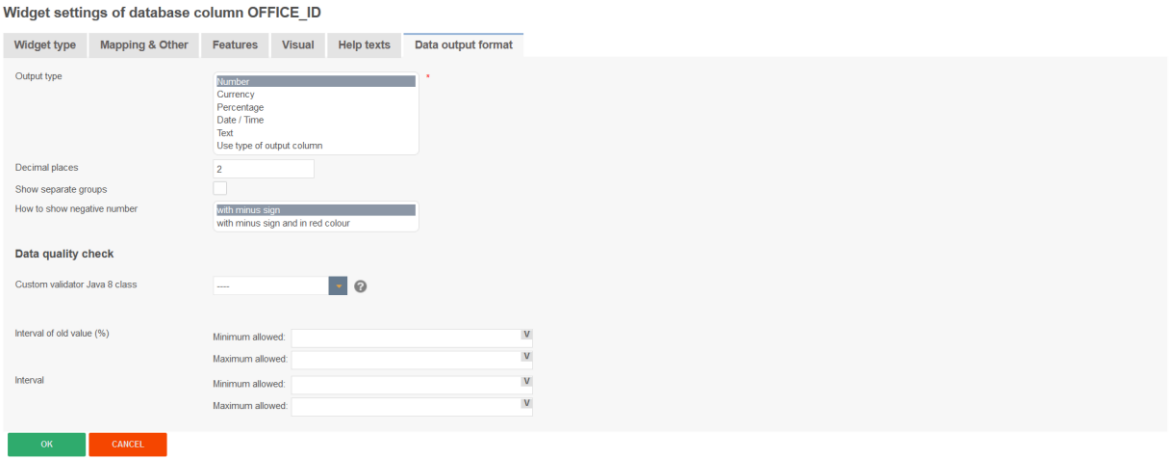
7.6.7.5 Data output format

Under data output format you will find several options for testing the validity of the data.
The default setting ‚Use type of output column data' and provides no further adjustments.
With this option, the definition in the database of the associated database column determines which data type is used.



Output types:

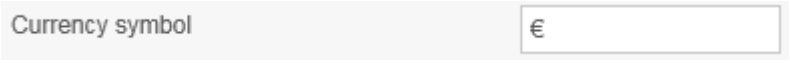
- **Number** - Requires a number
- **Currency** - Shows number values with currency symbol
- **Percentage** - Percentages, e.g. 12,34%
- **Date / Time** - Requires a date / time
- **Text** - To enter text, as a special validation option, there are regular expressions



Decimal places - You can set the number of decimal places displayed
Show separate groups - Serves for better readability of large numbers e.g. 1,000,000,000
How to show negative number - Negative numbers can only be viewed by a minus or colored red

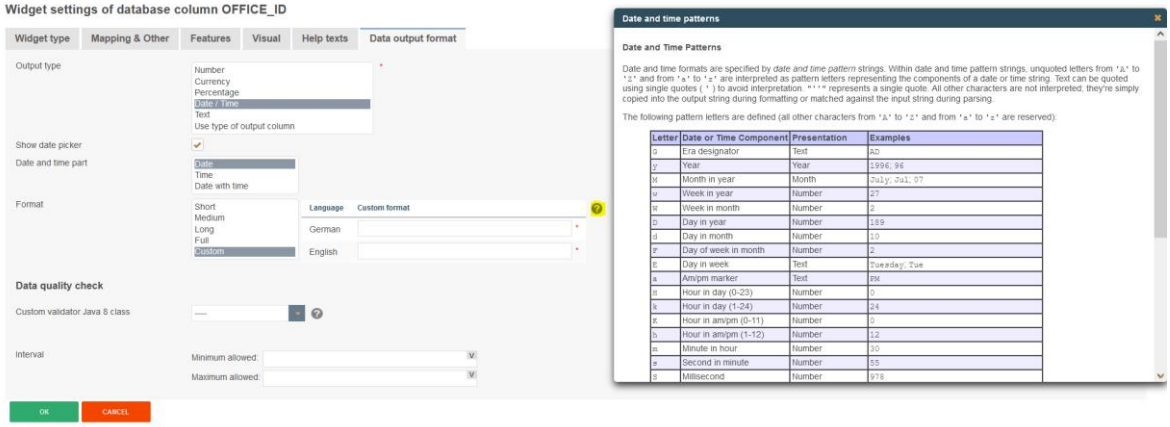
Output type ‚Currency'

Is identical to the output type ‚number', but contains as a further option the setting for a currency symbol

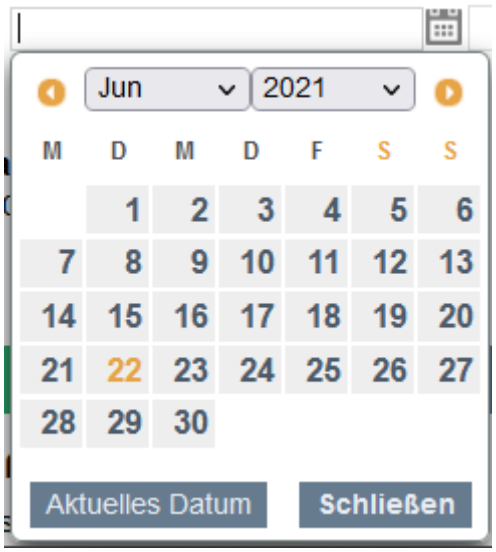


Output type ‚Date and Time‘

The grey question mark hides the help for custom date/time patterns.



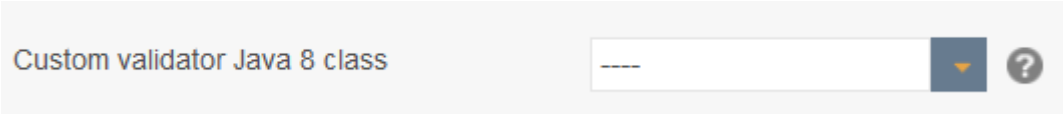
With ‚Show date picker‘ (default) users can easily pick a date.



The date picker prevents entry mistakes.

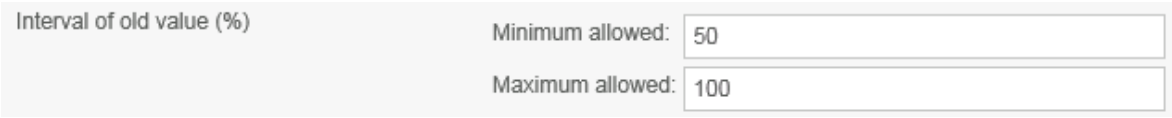
7.6.7.5.1 Data Quality check

Custom validator Java 8 class



Optional. A Java 8 class that is testing the input value. The file directory of this file is defined in the Apparo Configuration Manager. This class is called automatically before Apparo Fast Edit is updating or inserting this row.

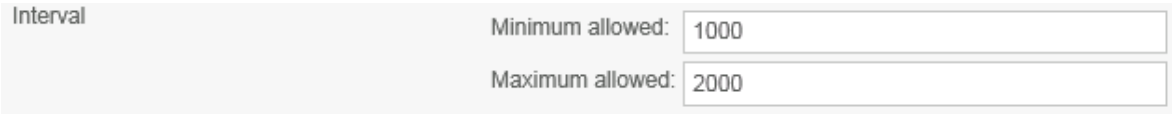
Interval of old value (%)



Hereby you limit the validity of the entered values based on the existing values.

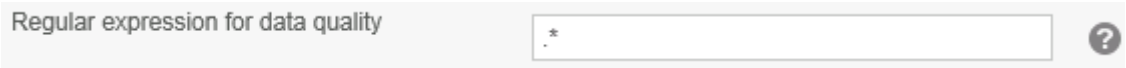
Example: In the widget, the value is 100. In this case, users may only enter values between 50% and 100% of the original value, so values between 50 and 100. Otherwise, the user receives an error message.

Interval



Limits the validity of entries based on an absolute interval. Permissible are values only from 1000 to 2000. Interval limits can be set dynamically with variables.

Regular Expression (Only for type ‚Text')



Using a regular expression is useful to define more complex input rules. For example, you can specify that the first character must be an 'A' and then only numbers are allowed. Click the '?' icon to see the detailed instructions.

Characters		
Character	**Description**	**Example**
Any character except `[\^$.|?*+()`	All characters except the listed special characters match a single instance of themselves.	`a` matches a
`\` (backslash) followed by any of `[\^$.|?*+()`	A backslash escapes special characters to suppress their special meaning.	`\+` matches +
`\xFF` where FF are 2 hexadecimal digits	Matches the character with the specified ASCII/ANSI value, which depends on the code page used. Can be used in character classes.	`\xA9` matches © when using the Latin-1 code page.
`\n` `\r` and `\t`	Match an LF character, CR character and a tab character respectively. Can be	`\r\n` matches a

7.6.8 Special settings other widget types

7.6.8.1 Widget type Text area

For the type text area you will find an extra block of settings in the tab ‘Visual’

Use HTML tags for flexible text design like bold, underline, etc.
With this feature the user can change the text style (for example bold, italic, colors underline,...).
In this case the input text is stored including HTML tags.

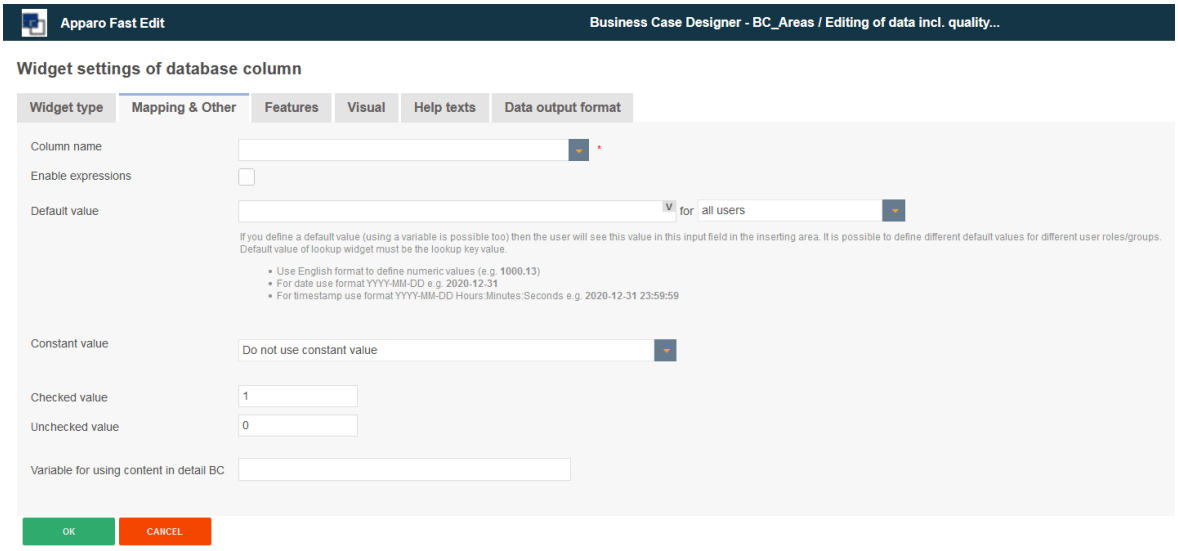
Show just bold, italic, underline and color icons in HTML editor
If enabled then just the most important buttons for text style are displayed

Store as plain text into column
Optional it is possible to save the input text without HTML tags in another column of the same target table.

7.6.8.2 Widget type Checkbox

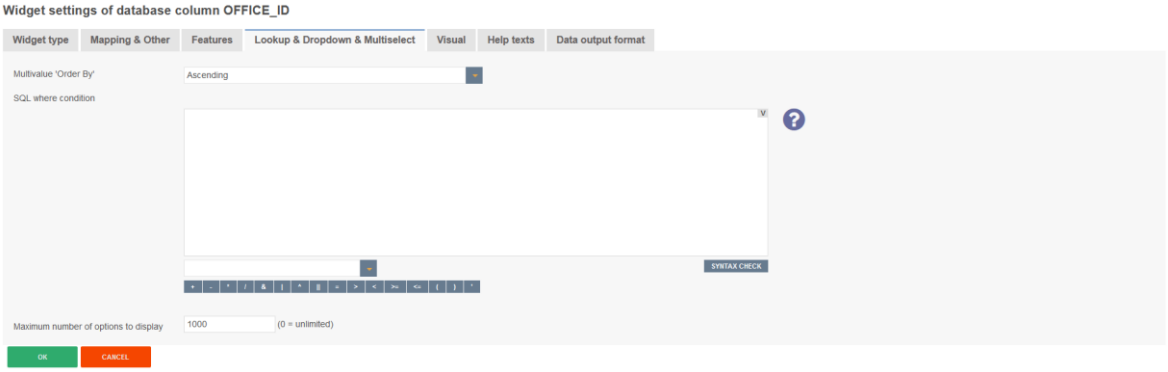
The additional options for this widget type, you will find in the tab ‘Other’:

- Value, if the checkbox is activated
- Value, if the checkbox is deactivated



7.6.8.3 Widget type Simple dropdown (target table only)

A simple Combo-Box with values. The values are loaded from the target table only. It is possible to filter and to sort etc.



Tab Lookup & Dropdown & Multiselect

Multivalue 'Order By'

The widget will display a list of values. With this setting the sorting order can be defined.

Items in multivalue will be sorted by:

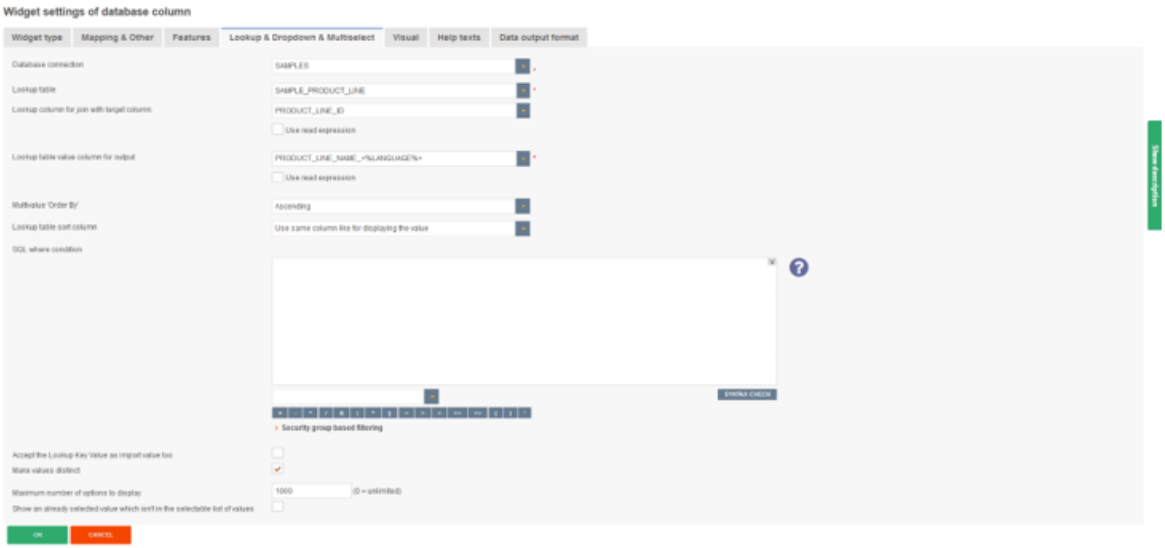
- None - no sorting for values (use default sorting order taken from database)
- Ascending - Ascending Value Sorting
- Descending - Descending Value Sorting

SQL where condition
You can filter the output of this widget using this setting. Usage of variables is possible. It is possible to filter the values of a lookup widget depending on the value of another widget.

Maximum number of options to display
This option determines number of dropdown options to be displayed.
0 = unlimited.

7.6.8.4 Lookup dropdown

The lookup dropdown behaves identically to ‚simple dropdown', but the plaintext comes from another table



The lookup dropdown, compared with the simple dropdown provides other options:

Database connection

With the database connection you can define how the Lookup Dropdown (for all tables) can read the selectable values. All database connections are stored in "Database Connections".

Lookup table

The lookup table is a database table that has a mapping, e.g. 1=white, 2=blue, 3=yellow.
In this case the number is the lookup key and the colour name is the lookup value. All possible and selectable values are stored in this database table/view.

Lookup table key column for comparing

The key column of the lookup table will be stored in the target table. This key column will be compared with the "Column Name" (see Mapping & Other). Be sure that both have the same data type.
If you must compare both columns in a more flexible way then you can use the "Reading Expression"

Lookup table value column for output

The value column of the lookup table is used for displaying only. It will be not stored in the target table.
If you want to change the output then it is possible to use "Reading Expression".
Variables, like <%LANGUAGE%> are allowed. This would output the Label text in the users language by automatically chosing the right column (e.g. PRODUCT_LINE_NAME_EN or PRODUCT_LINE_NAME_DE)

Multivalue 'Order By'

The widget displays a list of values. With this setting, the sorting order can be set.
Elements in the widget are sorted:

- None - No sorting for values (use default sort order from database).
- Ascending - Ascending value sort order
- Descending - Descending value sorting

Lookup table sort column

Normally the output is sorted alphabetically, but it is also possible to use another lookup column for sorting.

SQL where condition

With this setting you can filter the output of this widget. The use of variables is possible. It is also possible to filter the values of a lookup widget depending on the value of another widget.

Security group based filtering

Allows different SQL where conditions for different user groups

Accept the Lookup Key Value as import value too

Lookups accept both values: lookup key value and lookup output value

Make values distinct

Make duplicate values unique:
If there are many output values with different filter values, all filter values are used for filtering when the user selects the unique output designation.

Maximum number of options to display

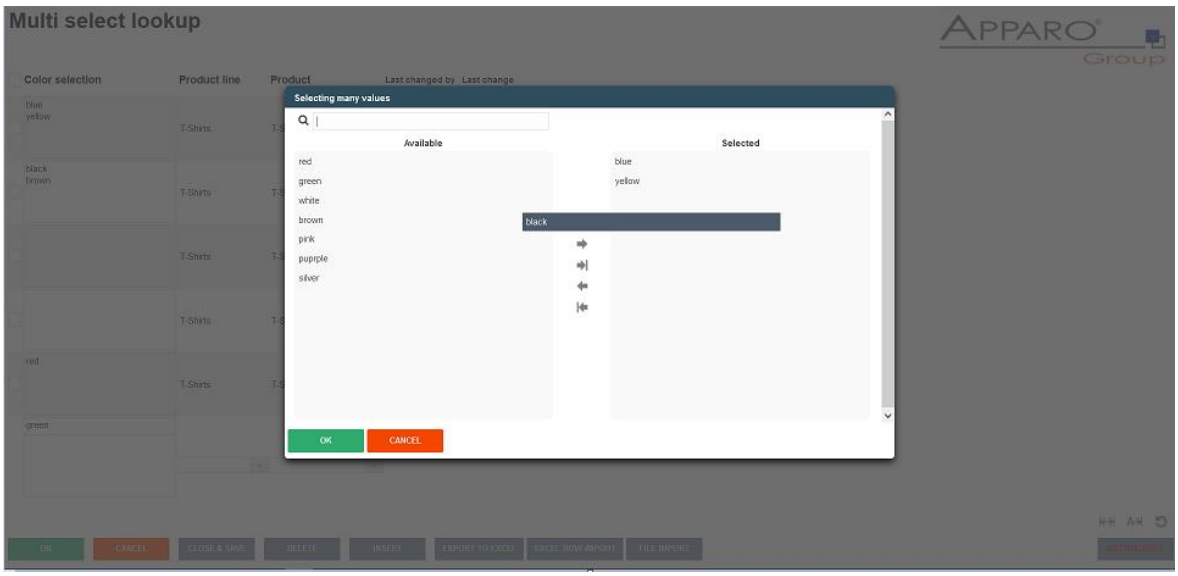
This option determines the number of drop-down values to be displayed. For all values, use 0.

Show an already selected value which isn't in the selectable list of values

Display a value that has already been selected, even if it is not in the current list of values (due to filter settings).

7.6.8.5 Widget type “Multi select lookup“

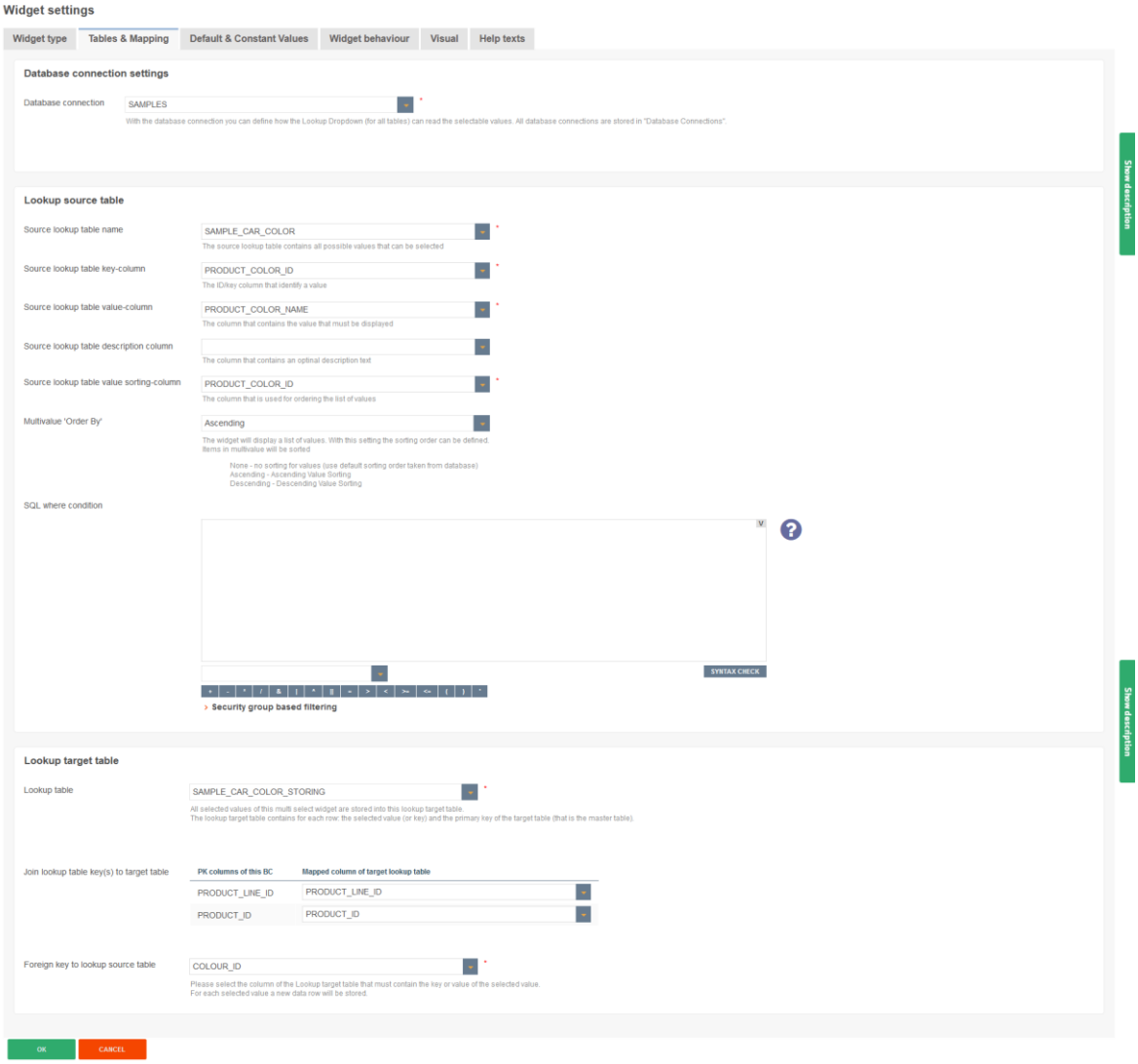
This widget type exists only in the edit area.
You can select many values which are stored in a detail database table.



This widget does not need an own column in the target table of the Business Case.

The lookup values are stored in the lookup table, while the used values are stored in a third table.

7.6.8.5.1 Tables & Mapping



7.6.8.5.2 Database connection settings

Database connection

You can freely specify any database connection that will be used for this widget.

7.6.8.5.3 Lookup source table

Is used to translate stored IDs into clear text output.
A color lookup table could look this way:

ID	Text
1	green
2	red
3	silver

Settings

Source lookup table name

The source lookup table contains all possible values that can be selected

Source lookup table key-column

The ID/key column that identify a value

Source lookup table value-column

The column that contains the value that must be displayed

Source lookup table description column

The column that contains an optional description text

Source lookup table value sorting-column

The column that is used for ordering the list of values

Multivalue 'Order By'

The widget will display a list of values. With this setting the sorting order can be defined.

Items in multivalue will be sorted

None - no sorting for values (use default sorting order taken from database)
Ascending - Ascending Value Sorting
Descending - Descending Value Sorting

SQL where condition

An optional filter for lookup values

7.6.8.5.4 Lookup target table

This table stores the set values and could look like this:

Product line id	▲ Product id	Colour id
2,00	60,00	4,00
2,00	60,00	2,00
2,00	70,00	6,00
2,00	70,00	7,00
2,00	440,00	1,00
2,00	480,00	10,00
2,00	480,00	8,00
2,00	480,00	3,00
2,00	480,00	9,00

Settings

Lookup table

All selected values of this multi select widget are stored into this lookup target table.
The lookup target table contains for each row: the selected value (or key) and the primary key of the target table (that is the master table).

Join lookup table key(s) to target table

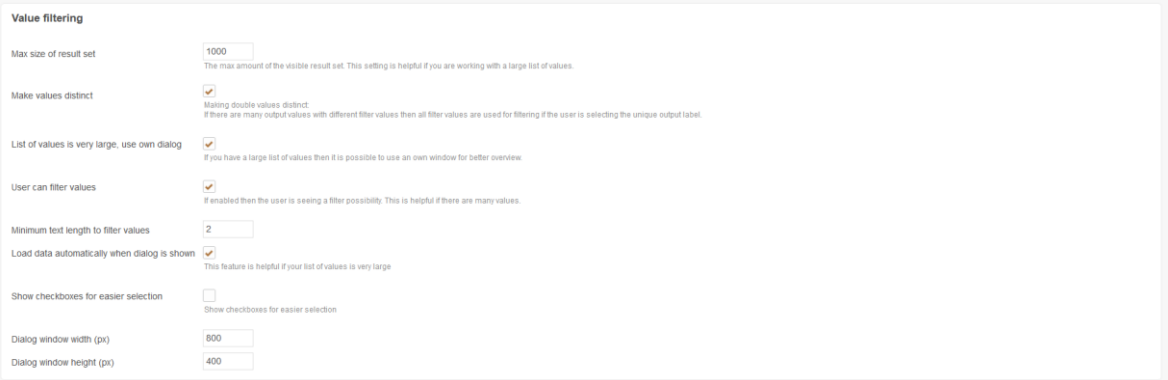
PK columns of this BC

Foreign key to lookup source table

This is the ID of the lookup table and will be stored along with the primary keys of the target table.
For each selected value a new data row will be stored.

7.6.8.5.5 Widget behavior

Contains special settings only for this widget type.



Value filtering

Max size of result set
The max amount of the visible result set. This setting is helpful if you are working with a large list of values.

Make values distinct
Making double values distinct:
If there are many output values with different filter values then all filter values are used for filtering if the user is selecting the unique output label.

List of values is very large, use own dialog
If you have a large list of values then it is possible to use an own window for better overview.

User can filter values
If enabled then the user is seeing a filter possibility. This is helpful if there are many values.

Minimum text length to filter values

Load data automatically when dialog is shown
This feature is helpful if your list of values is very large

Show checkboxes for easier selection

Dialog window width (px)

Dialog window height (px)

7.6.8.6 Widget type ‚Simple & Lookup multiselect‘

This widget type exists only in the filter area.
User can select multiple values simultaneously.

Usually, the settings are identical to those of the widget ‚dropdown'

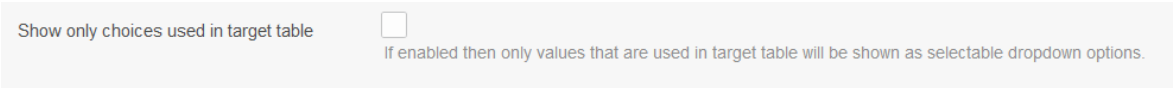
The specific settings for this widget types can be found in ‚Visual'

Visual Settings

Number of visible rows

Here you can set the number of displayed choices that appear without scroll bar. The default is a widget size of 8 lines.

And in Lookup & Dropdown & Multiselect

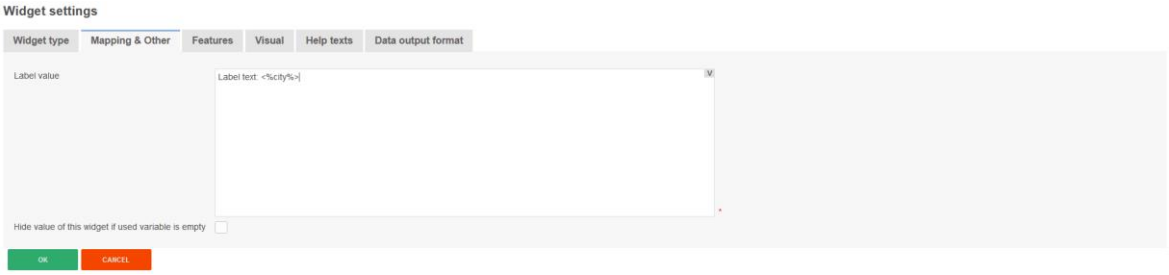


Show only choices used in target table

If enabled then only values that are used in target table will be shown as selectable dropdown options.

7.6.8.7 Widget type ‘Label with variables’

This type of widget provides no direct way to assign a database column.



Special options for label with variables:

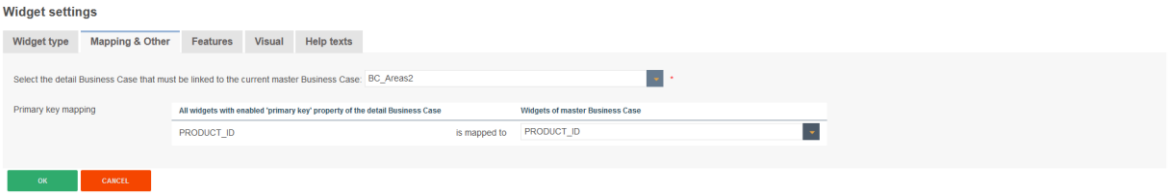
Label value
Usually contains Text and variables. HTML and all variables can be used in this field.

Hide value of this widget if used variable is empty
If one variable does not return a value, then the output is completely blocked

7.6.8.8 Widget type Business Case Link

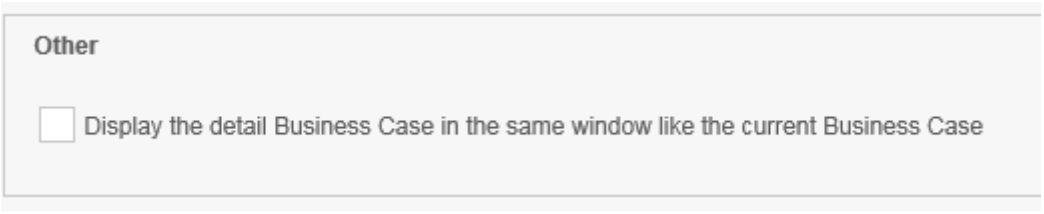
This type of widget is used to link multiple Business Cases. With a hyperlink in each row, you can e.g. display details in another Business Case.

Mapping & Other



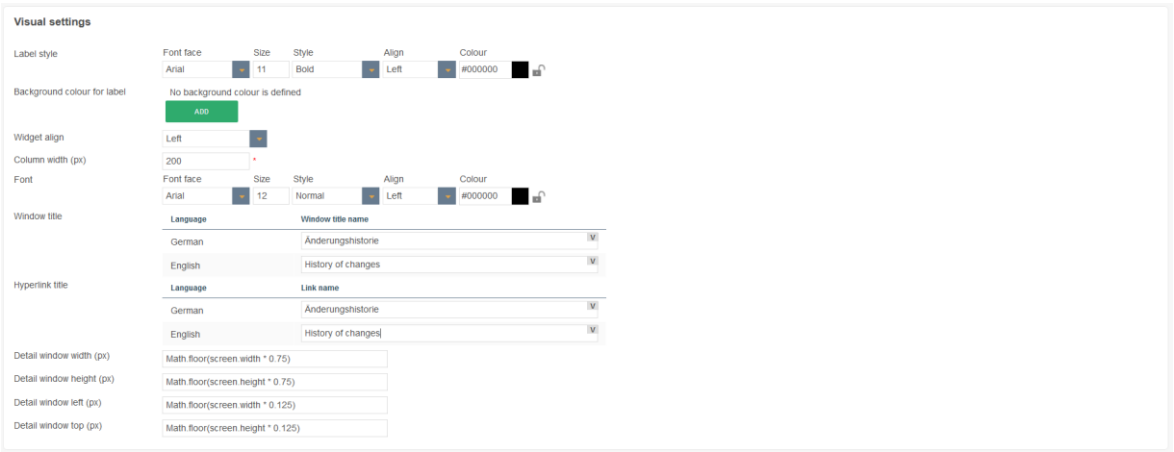
In 'Mapping & Other' you can choose a Business Case and assign a primary key.
The primary key mapping is used to filter the called Business Case .
Not assigned data is displayed unfiltered.

Features



In Features you will find another option. The default is to open the called Business Cases in a separate browser window. If this function is enabled, the called Business Case opened in the same browser window. If the called Business Case isclosed, then the calling Business Case is opened again.

Visual



In addition to the general options there are further options for this widget type in tab ‚Visual'

Window title

All variables can be used in this input field
Contains the window title name for all defined languages.

Hyperlink title

All variables can be used in this input field
Contains the name of the shown hyperlink

Detail window width (px) & Detail window height (px)

This property is used to setup the size of the browser window, which shows the called Business Case .
You can use JavaScript language to resolve window parameter.
If you use number, quote it with single quote mark e.g. '540'

Detail window left (px) & Detail window top (px)

Defines the location of the browser window (in pixel) from the left or the top of the screen.

7.6.8.9 Widget type File Upload/Download

This type of widget is used to attach files to data rows.
It is possible to execute scripts and forwarding the file to an existing DMS.

Special Variables of this type are:

<%UPLOADED_FILE_NAME%>	Name of the uploaded file
<%DISPLAY_FILE_NAME%>	Name of file as diplayed
<%DELETED_FILE_NAME%>	Name of the deleted file

There are 2 ways to store files:

File storage type This can be selected with this radio button (Database or File system)

Database - Files will be stored in the database.
(Supported: Oracle, IBM DB2, IBM dashDB, MS SQL Server, PostgreSQL, MySQL and and SAP HANA)

The unique setting for storing in the DB is:

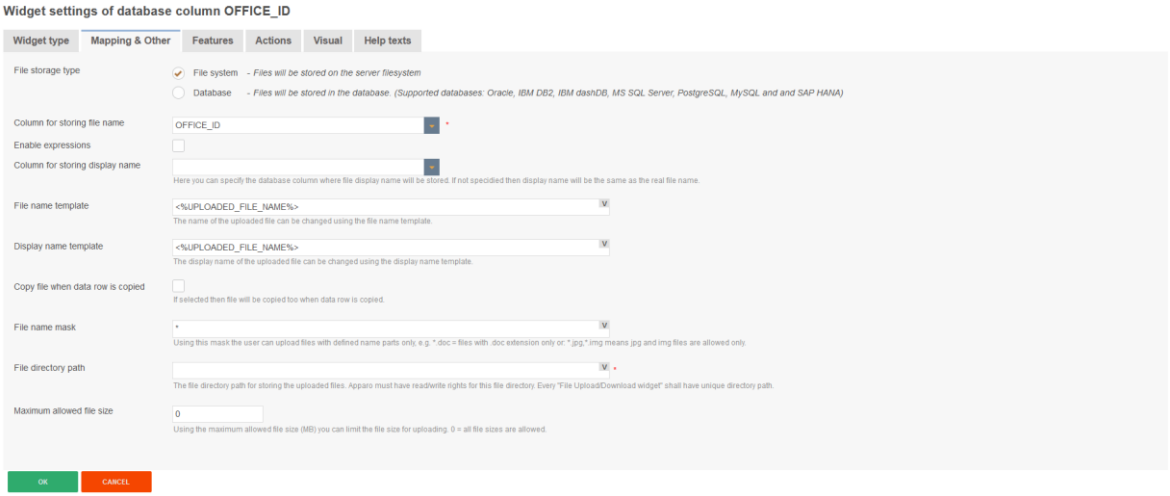
Column for storing file content

Database column where file will be stored. Supported types of the column are:

- ORACLE: BLOB
- IBM DB2: BLOB
- MS SQL SERVER: BINARY, VARBINARY
- PostgreSQL: BYTEA

File system - Files will be stored on the server filesystem:

Mapping & Other



Column for storing file name

DB column for storing the file name as set in the file name mask

Column for storing display name

DB column for storing the display name as set in the display name mask, usually the uploaded file name

File name template

The name of the uploaded file can be changed using the file name template.

Display name template

The name of the uploaded file can be changed using the display name template.

File name mask

Using this mask the user can upload files with defined name parts only, e.g. *.docx = files with .docx extension only. .excel allows all Excel types(csv, xls, xlsx)
Variables and wildcards (%, *, ?) are allowed.

File directory path

Path where the uploaded files are stored.
Apparo Fast Edit must have read/write rights for this file directory.
Every "File Upload/Download widget" should have a unique directory path.
Network pathes are allowed \\Server\Path\To\Folder, access rights are necessary.

Maximum allowed file size

Using the maximum allowed file size (MB) you can limit the file size for uploading.
0 = all file sizes are allowed.

Tab ‚Actions‘

After uploading the file, it is possible to start an action. This is useful when using a document management system.

Options:

- **Enable action after file upload**
- **Enable action before file download**
- **Enable action after file delete action**

Actions

- **Executing JavaScript commands**
- **Executing SQL commands**
- **Running a DB procedure**
- **Executing an anonymous block (acts like a stored procedues)**
- **Running a script (batch file, SQL or JavaScript file)**

Variables are allowed here

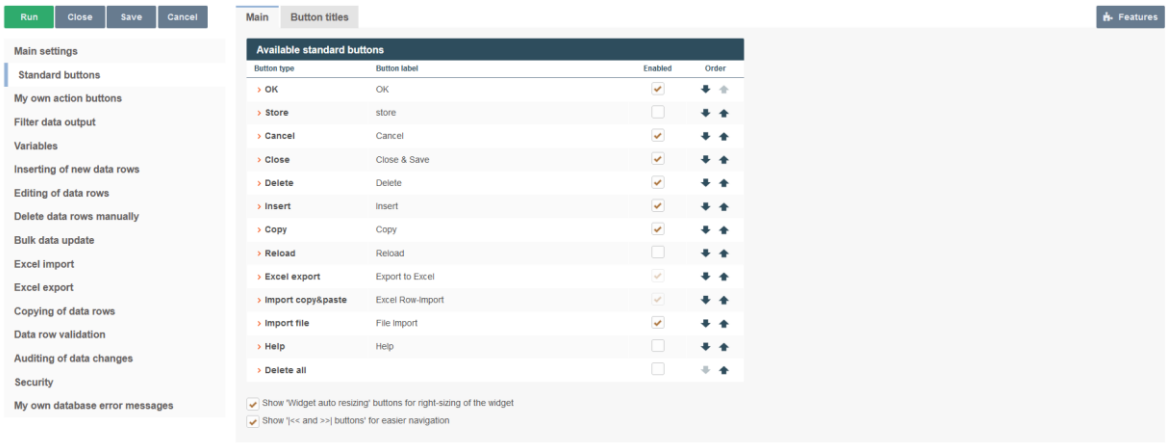
7.7 Business Case Functions

This chapter covers in detail all Business Case functions

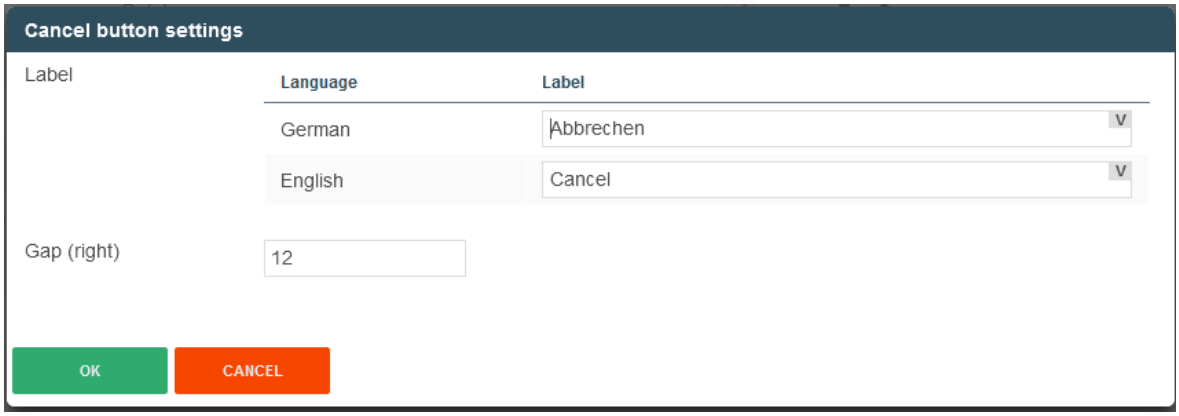
7.7.1 Standard Buttons

Main

All the preset by the system buttons can be enabled or disabled using checkboxes.
Information about the transaction handling of the buttons can be read in the chapter transaction handling



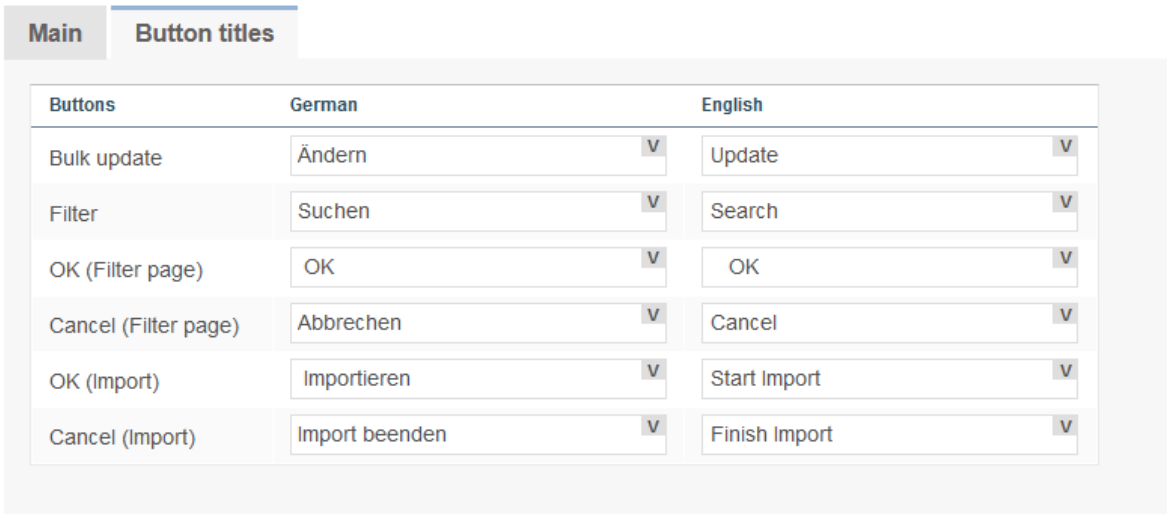
You can change the button title for all defined languages by clicking on the name of the type:



Gap defines the space to the next button (in pixel) to the right.

Button title

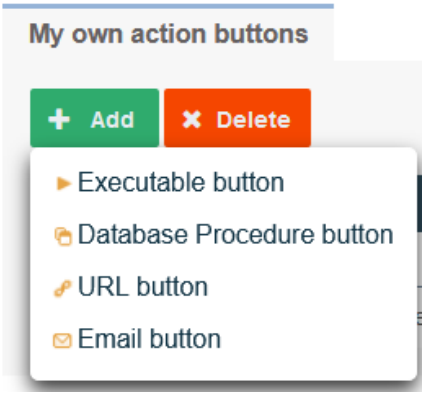
You can change the label of different standard buttons here:



7.7.2 Own action buttons

Action buttons can call executables files or scripts, database procedures, URLs and eMail Business Cases.

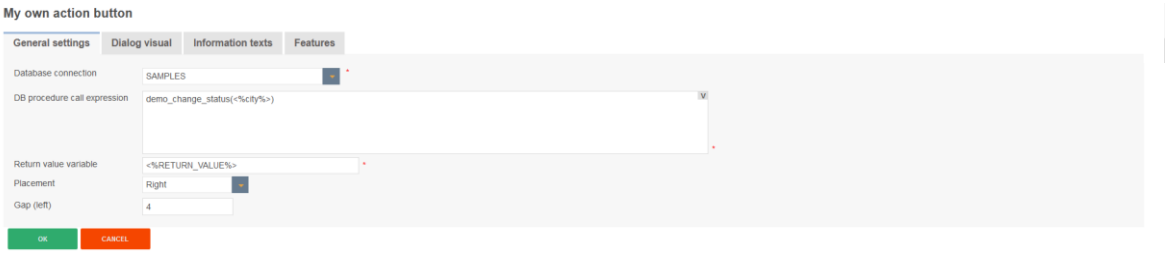
It is possible to specify different behavior patterns. For example, single call or a call for each selected row of data, etc.



7.7.2.1 Executable button

With Apparo Fast Edit you have several options for further processing of the data. With "Executable Button" you can add a button for processing (like.bat, .cmd, .sh, .sql). All files that are to be called up must be stored in the script file directory which was defined in the Apparo Configuration Manager.
Using the Apparo Configuration Manager it is possible to change the used file directory.

7.7.2.1.1 General Settings



Excutable filename
Here you can select the batch processing file (or sql, JavaScript file), which will be executed by this button.

Arguments
Optional you can use arguments (variables are allowed too) that will be delivered to the script or database procedure.

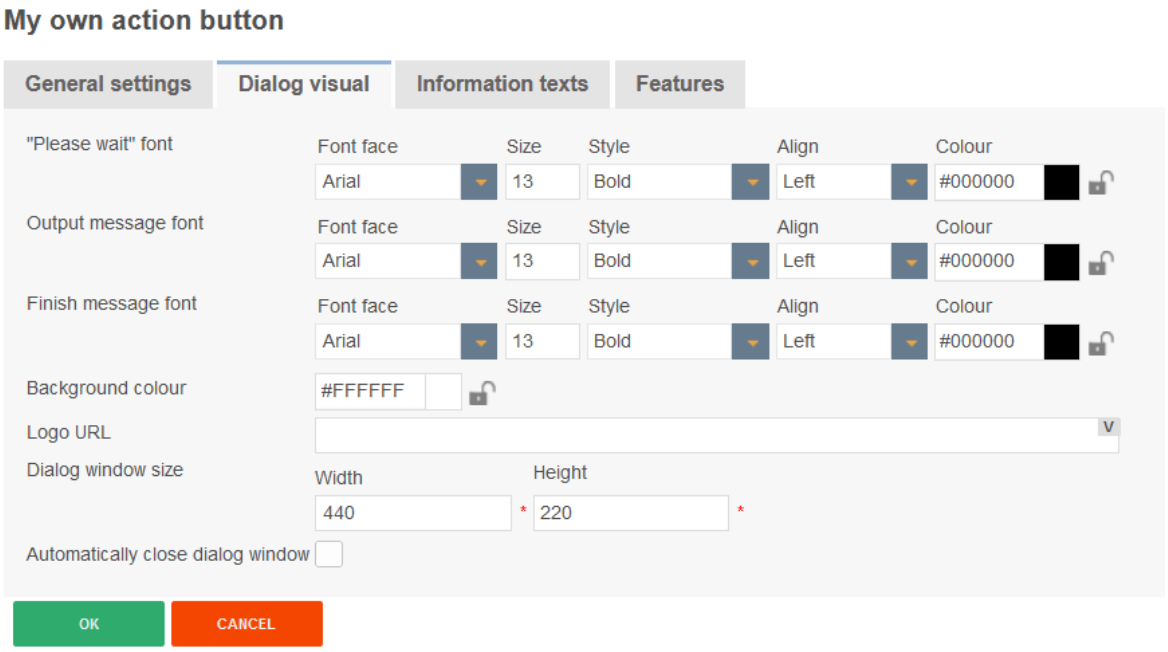
Return value variable
In this variable is the return value of the function/script stored.

Placement
Arrangement of buttons on the screen.

Gap
Space to the next button in pixel

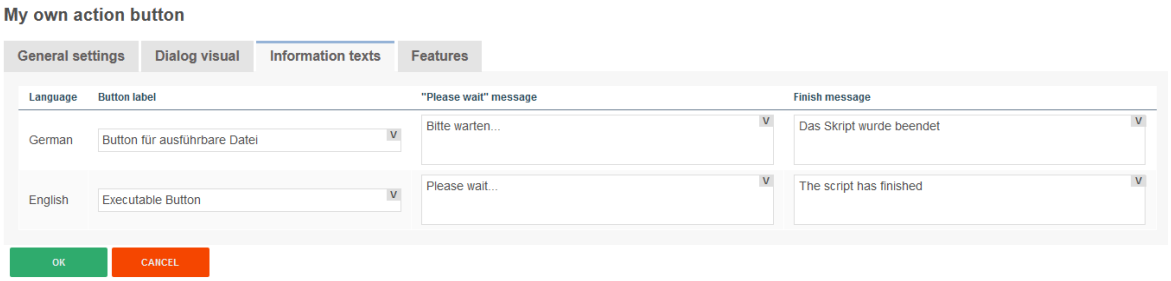
7.7.2.1.2 Dialog visual

Here you will find settings for the layout and behavior of the message window.



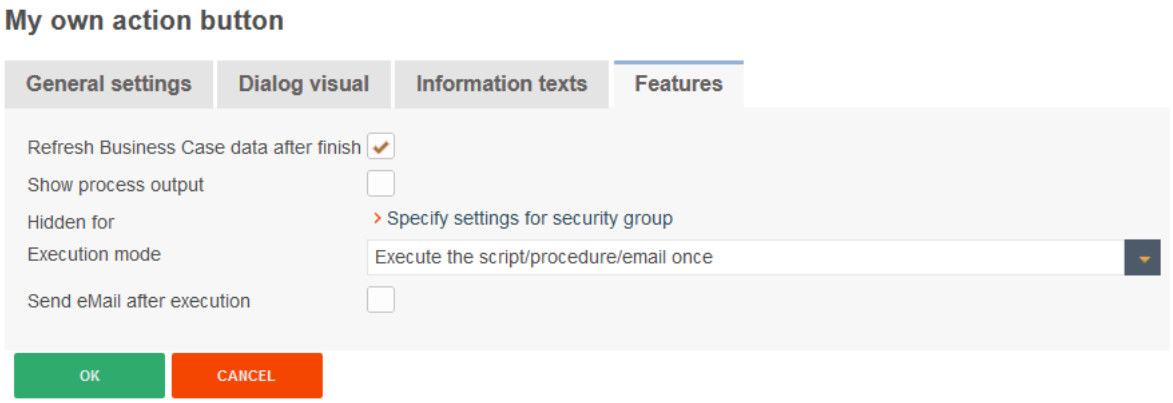
7.7.2.1.3 Information texts

At this point you can define a label for your button and individual texts for waiting and finishing.



7.7.2.1.4 Features

Here you can define the behavior of the button.

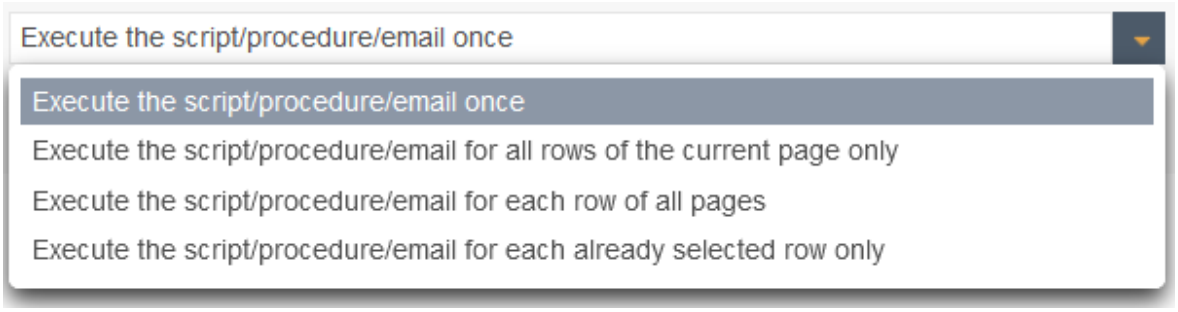


Refresh Business Case data after finish
If enabled, the Business Case isreloading the database data again after execution of the script/procedure. This is helpful if your script/procedure is changing data that must be displayed in the Business Case too.

Show process output
If enabled, the user will see the script output in a small window.

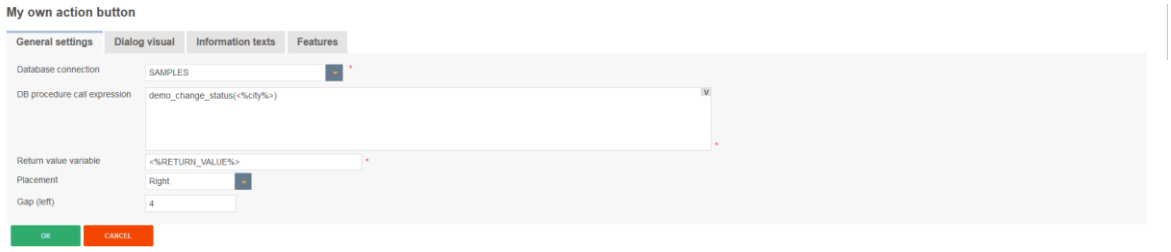
Hidden for
Hides the button for defined user groups

Execution mode
Execute the script/procedure/email once
Here you can define the exact behavior of this button. Your script/procedure can be called for each row, selected row or just once.



Send eMail after execution
After execution of a script or database procedure it is possible to send automatically an eMail. This eMail Business Case has access to all widget values of this Business Case .
That means that the eMail body can contain values of this current Business Case .

7.7.2.2 Database procedure button



Database connection
Here you can select the database connection on which the button will be proceeded.

DB procedure call expression
How to call a database function or procedure:

[Calling convention] procedure/function_name (argument1, argument2, ..., argumentN)

Please use same character cases for schema and procedure/function like defined in your database.

If the database connection of this procedure/function is same as the one for Business Case than the procedure/function is executed within the same database transaction.

The procedure must not commit or rollback the existing transaction, but is allowed to start its own inner (named) transaction (if supported by database) or use savepoint's.

For character or string argument use ' character to enclose argument.
Use at least one space between [Calling convention] and procedure name.

Your parameters may contain Apparo Fast Edit variables, for example: <%USER_NAME%>
Do not enclose Apparo Fast Edit variables with apostrophes or quotes.

Oracle or IBM DB2 database:
return - For calling a stored function that returns a value

MS SQL Server database:
Calling functions on SQL Server is not supported. It is possible to have a return value from procedure but [Calling convention] must be empty in this case.
Please use in your SQL Server procedure at the begin "SET NOCOUNT ON;" Then it is possible to use SQL commands in your procedure without having impact to the return value.

Sybase database:
select - For calling a stored function that returns a value

Teradata database:
return macro - For calling a Teradata macro that returns a value
macro - For calling Teradata macro that does not return a value
return - For calling a stored functions that returns a value

Return value variable
In this variable is the return of the function/script stored.

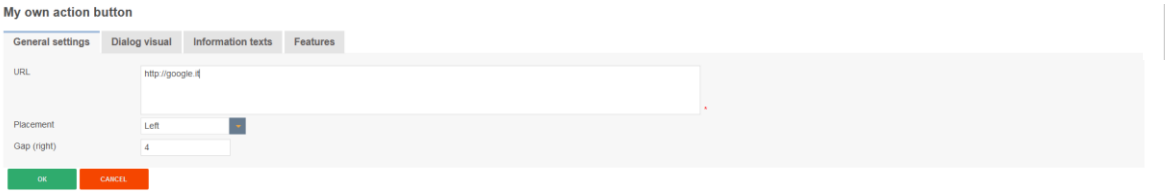
Placement
Here you can decide about the arrangement of buttons on the screen.

Gap
Space to the next button in pixel

7.7.2.3 URL buttons

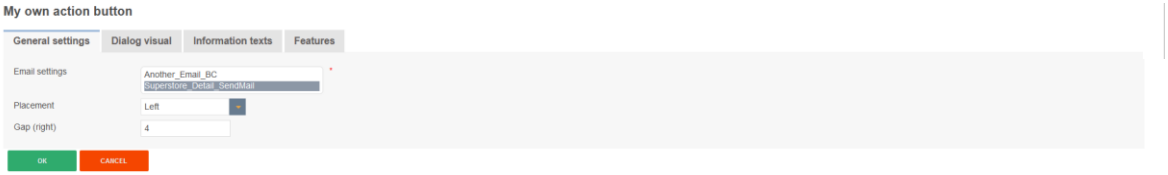
With these buttons you can call any URL:

- Web Sites & Portals
- Reports & Dashboards
- Business Cases



7.7.2.4 E-mail Buttons

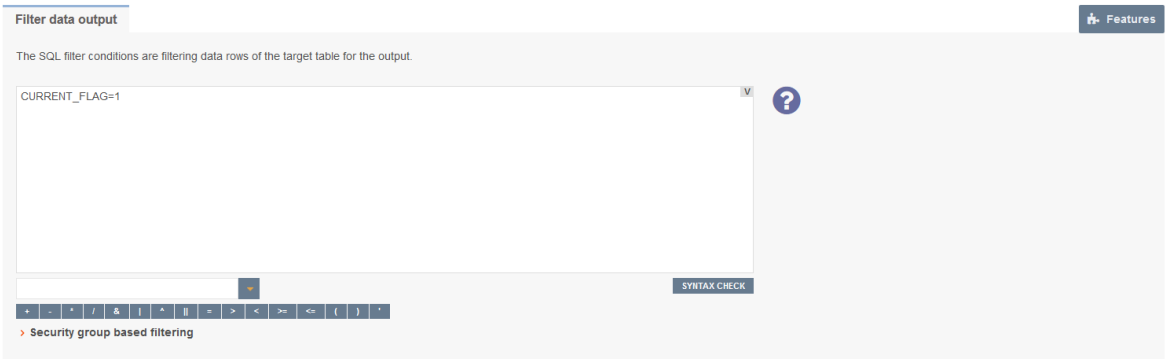
With these buttons you can send e-mails.



The settings for the e-mail you make in the selected e-mail Business Case .
All variables of the calling Business Case can be used.

7.7.3 Filter data output

The function filter data output represents the global filter of the Business Case.
Additional filters can be added through filter widgets.



You can create different filters for different security groups. If a user is a member of the security group, only the security group based filter is used instead of the global BC filter.

Variables are allowed.

Syntax

In the filter, you can use native SQL. It represents the Where clause of the SQL query and filters the output of the target table.

Example

SELECT * FROM target table WHERE **[=data output filter]**

7.7.4 Filter widgets

Contains the optical settings for the additional filter page and the settings for combining filter widgets

7.7.5 Combine Widgets with AND/OR

The function extends the filtering possibilities with filter widgets.

Standard type of searching is combining all used searching widgets with logical 'AND' operator.
If you want to combine them differently then you must use 'Advanced Type Of Searching'.In 'Search Expression' you can define your own combination of searching widgets.
You can combine them with operators 'AND' and 'OR' and you can also use brackets '(' and ')'

Each searching widget must be used exacly once in the search expression.

The following examples contain combinations of these four filters widgets

Examples

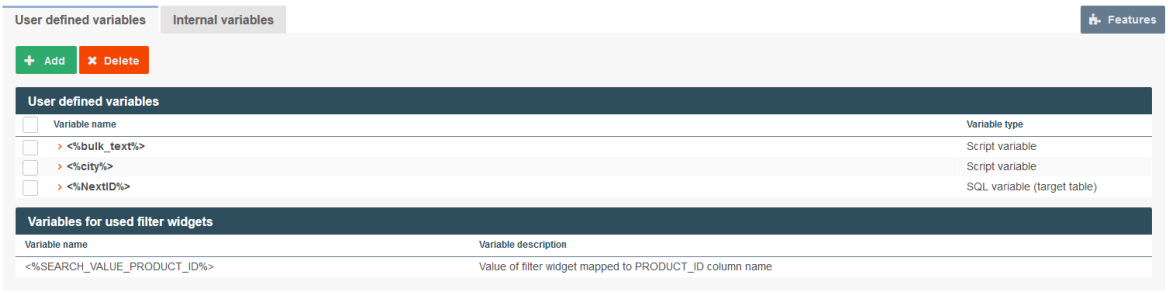
One of the set criteria is met:
<%SEARCH_VALUE_PRODUCT_ID%> or <%SEARCH_VALUE_PRODUCT_COLOUR%> or <%SEARCH_VALUE_PRODUCT_SIZE%> or <%SEARCH_VALUE_PRODUCT_LINE_ID%>

The product line and ONE of the other filter criteria is met:
<%SEARCH_VALUE_PRODUCT_LINE_ID%> and (<%SEARCH_VALUE_PRODUCT_ID%> or <%SEARCH_VALUE_PRODUCT_COLOUR%> or <%SEARCH_VALUE_PRODUCT_SIZE%>)

The product line or the combination of ALL other filter criteria are met:
<%SEARCH_VALUE_PRODUCT_LINE_ID%> or (<%SEARCH_VALUE_PRODUCT_ID%> and <%SEARCH_VALUE_PRODUCT_COLOUR%> and <%SEARCH_VALUE_PRODUCT_SIZE%>)

7.7.6 Variables

Syntax: <%Variable_name%>



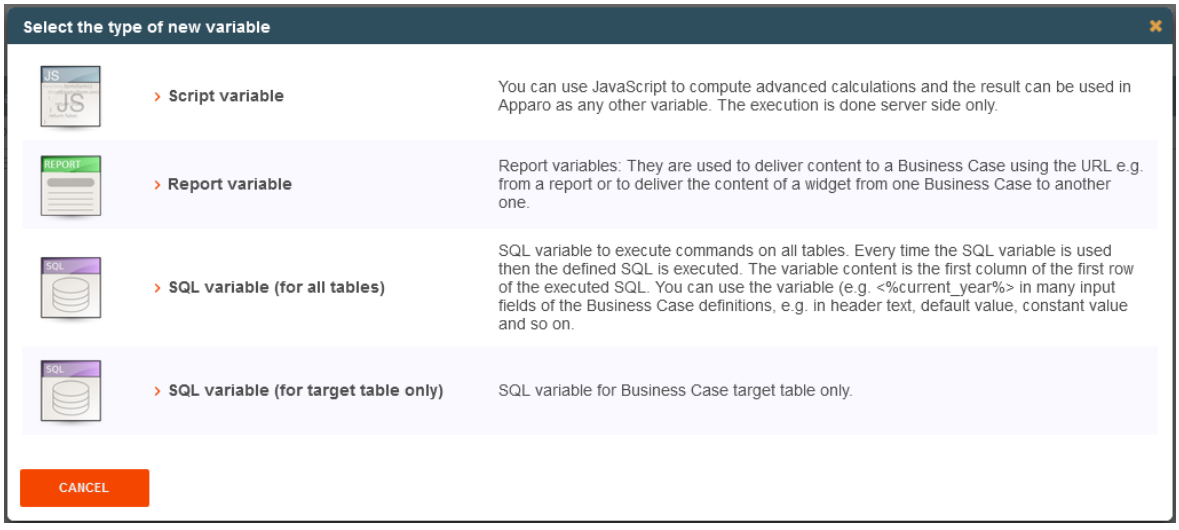
Basically, there are user-defined variables and internal variables.

Apparo Fast Edit supports 6 different types of variables:

Internal pre-defined variables
Operating system environment variables
Script variables
SQL variables
Report variables
Widget reference variables

Variables can be used in practically all settings and other variables

In Business Cases, you can create these types of variables:

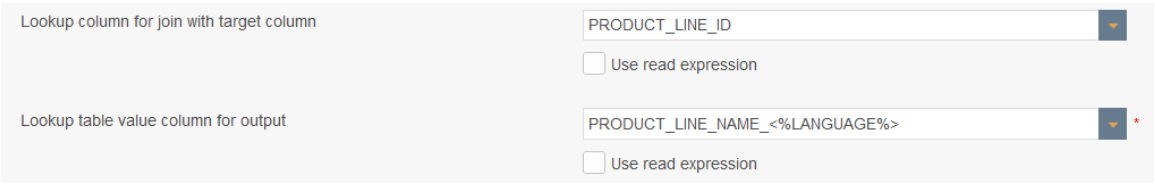


7.7.6.1 Use of variables in the Designer

Many widget settings can be made dynamic with variables.

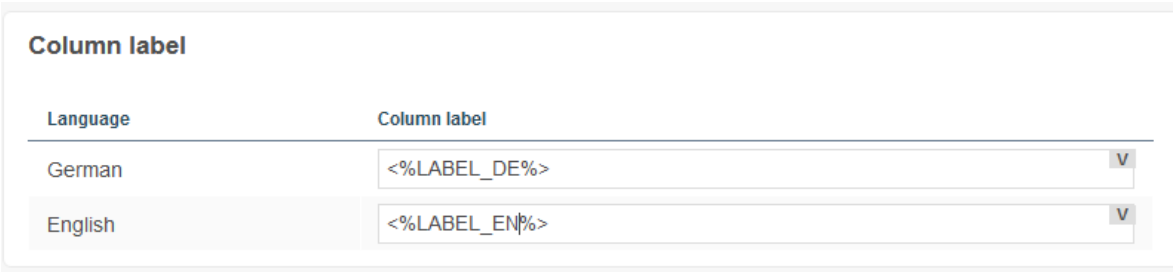
Examples:

Variables in lookup definitions



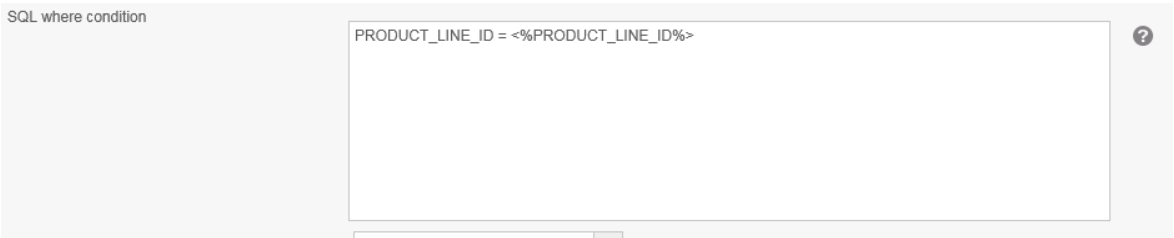
The associated database column is composed of, Name_ 'and the return value of the language used. German users are assigned to the column NAME_DE and English users to the NAME_EN column

Variables in labels, hint texts, the header and footer



In this example, the heading of the column is output by variables

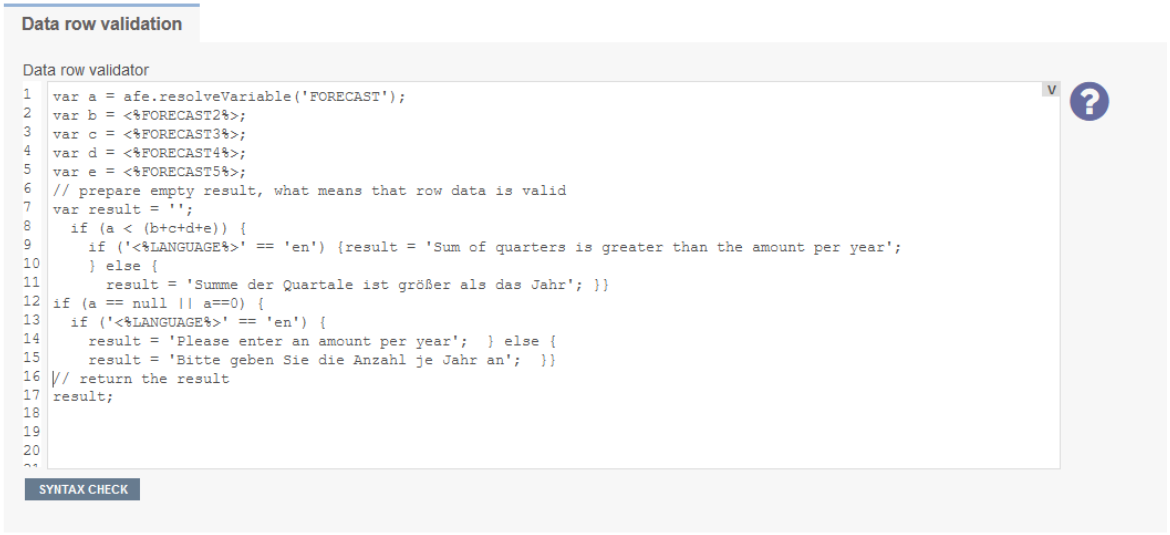
Variables in filter definitions



Dynamic SQL filter

Variables in variables and in the data row validator

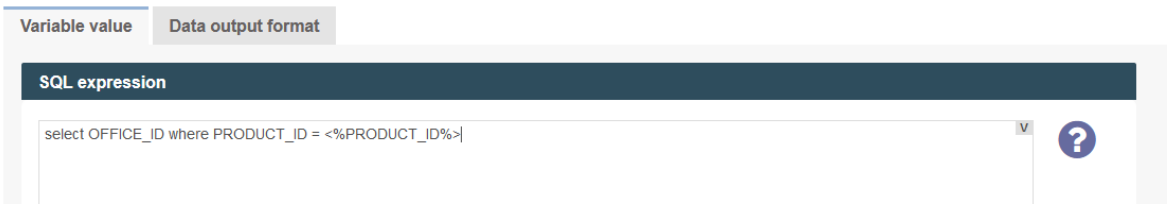
An example for the use of variables in the data row validation:



In this example widget reference variables, SQL variables and internal variables have been used

```
var result;
if(<%LANGUAGE%>=='en')
{result = 'Message text';}
else
{result = 'Nachrichtentext' ;}
result;
```

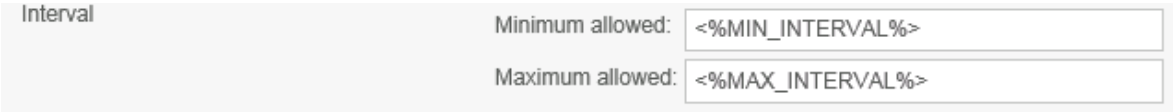
In this example, an internal variable is used in a JavaScript variable



Widget reference variables are often used in SQL variables. JavaScript variables are also possible.

An example, for the use of dynamic variables as interval:

In a widget of type "input field", the permissible range of values is restricted:



Example of dynamic intervals that restrict the values input by calculations.

Dynamic values are realized via variable:

Our SQL variable is of type SQL variable (target table only). This has the advantage that automatically all user-group-dependent filters are used.

The current line is identified by the value in the widget PRODUCT_ID. That PRODUCT_ID is a primary key.

The following sample SQL for SQL variable would be possible:

SELECT min_value FROM target_table WHERE product_id = <%PRODUCT_ID%>

In this case, <%PRODUCT_ID%> refers to the widget PRODUCT_ID in the Business Case and returns the current value.

The SELECT returns the value min_value of the current line and stores it in the new SQL variable "VAR_MIN_CALC ".

The SQL is executed every time when accessing the variable "VAR_MIN_CALC".

7.7.6.2 Internal variables

The following variables are predefined and can be used immediately:

Variable name	Variable description
<%AFE_HOME_DIR%>	Folder on the server which contains AFE settings
<%AFE_CLIENT_ID%>	Contains the client ID of the current client
<%AFE_BC_NAME%>	Name of currently opened Business Case
<%AFE_BC_ID%>	ID of currently opened Business Case
<%AFE_BC_FOLDER%>	The Designer path of this Business Case
<%SERVER_NAME%>	Name of server where Apparo Fast Edit is running
<%USER_NAME%>	Name of currently logged user
<%USER_LOGIN%>	Unique login name of currently logged user
<%USER_EMAIL%>	Email address (in upper case) of currently logged user
<%LANGUAGE%>	Identifier of language in which user interface is displayed
<%NEW_UNIQUE_VALUE%>	Unique value (everytime variable is resolved, its value will be unique)
<%FILE_CONTENT%>	Returns content of the file as a string. Syntax is: <%FILE_CONTENT(C:\myFile.txt)%>
<%CURRENT_DATE%>	Current date and time
<%CURRENT_DATE_STANDARD%>	Current date in the format "yyyy-MM-dd 00:00:00.000" e.g. "2021-02-28 00:00:00.000". This variable can be used for comparing with widget reference variables of type date.
<%CURRENT_TIMESTAMP_STANDARD%>	Current date and time in the format "yyyy-MM-dd HH:mm:ss.SSS" e.g. "2021-02-28 14:51:45.456". This variable can be used for comparing with widget reference variables of type date+time.
<%DATE%>	Current date
<%DATE_ISO%>	Current date formatted according 'yyyy-MM-dd' format
<%DATE_TIMESTAMP_SHORT%>	Current timestamp for file names etc.
<%TIMESTAMP%>	Current date and time
<%TIME_MS%>	The number of milliseconds since 1.1.1970 (UNIX timestamp)
<%CURRENT_TARGET_TABLE_NAME%>	Name of the current target table
<%PRIMARY_KEY%>	The primary key of current row
<%PRIMARY_KEYS%>	Comma delimited list of the used primary keys
<%ROW_EDIT_TYPE%>	Type of data modification. Output is of type string
<%SELECTED_ROWS_COUNT%>	This variable is helpful for output e.g. "Are you sure you want to delete X rows?"
<%ROWS%>	Count of current visible rows
<%BULK_UPDATED_ROWS%>	Count of all updated rows
<%INSERTED_ROWS%>	Count of all inserted rows during Excel import
<%UPDATED_ROWS%>	Count of all updated rows during Excel import
<%IMPORTED_ROWS%>	Count of all imported rows during Excel import
<%EXCEL_IMPORT_COLUMNS_COUNT%>	Contains current count of Excel columns of current Excel row of Excel import with copy & paste. This count is calculated for every Excel data row.
<%IMPORTED_FILE_NAME%>	Name of the currently imported Excel file
<%EXCEL_IMPORT_ID%>	Universally unique identifier (UUID) of type String of each Excel import
<%EXPECTED_COLUMNS%>	List of expected columns for Excel import

<%LINE%>	This variable is helpful for display error during import e.g. "Import error in line X:"
<%UPLOADED_FILE_NAME%>	Name of the uploaded file (file upload/download widget)
<%DISPLAY_FILE_NAME%>	Display name of the uploaded file (file upload/download widget)
<%DELETED_FILE_NAME%>	Name of the deleted file (file upload/download widget)
<%IMPORT_TICKET_ID%>	Ticket number of the current import process when importing data using Email Import Business Case
<%ORIG_EMAIL_SUBJECT%>	Subject of the users original email when importing data using Email Import Business Case
<%RETURN_VALUE%>	In this variable the return code of the function/script is stored.
<%CURRENT_WIDGET_NAME%>	The current widget name. Can be used for defining background colours, default values or constant values for many similar widgets
<%ACTIVE_COPY_WINDOW%>	Variable has value 'true' if the current window is the window for copying rows
<%COPY_ROW_MODE%>	Variable has value 'true' if the copy feature is applied. It is helpfull if you want to define a special widget behaviour in copy case.

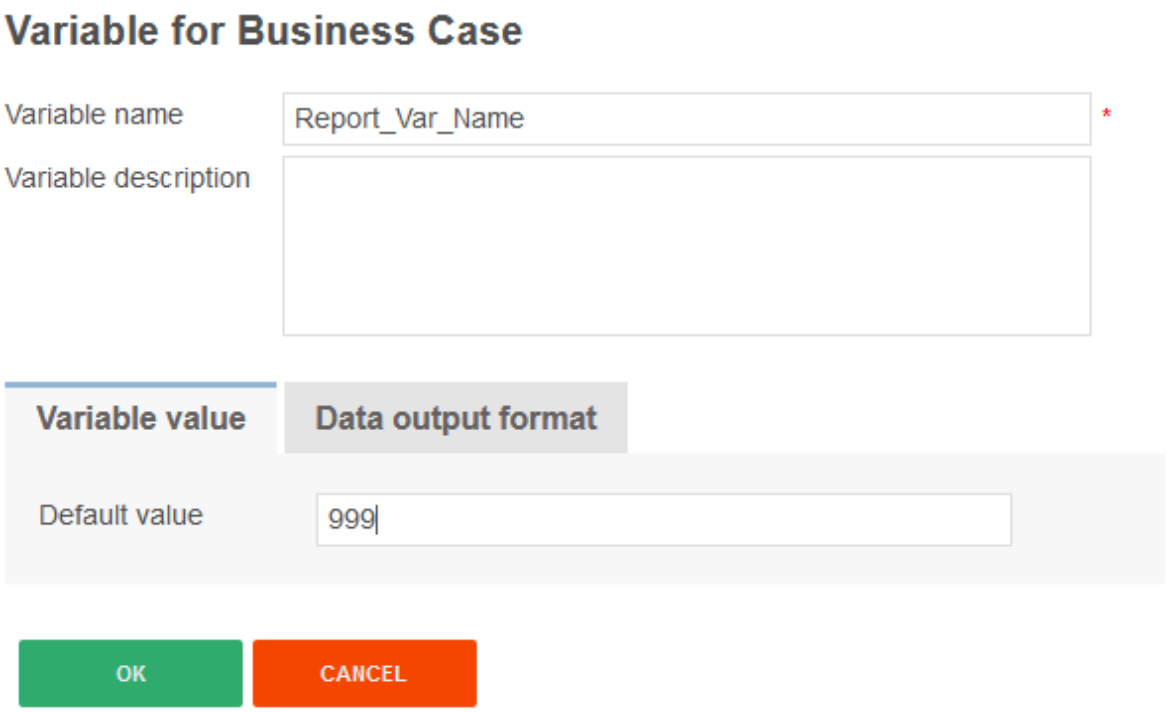
If the Business Case uses search fields, e.g. a filter lookup, then the matching variables are automatically defined for each search widget:

<%SEARCH_KEY_COLOR%>	Key-Value of the Lookup widget, mapped to column 'COLOR'
<%SEARCH_VALUE_COLOR%>	Value of the Lookup widgets, mapped to column 'COLOR'

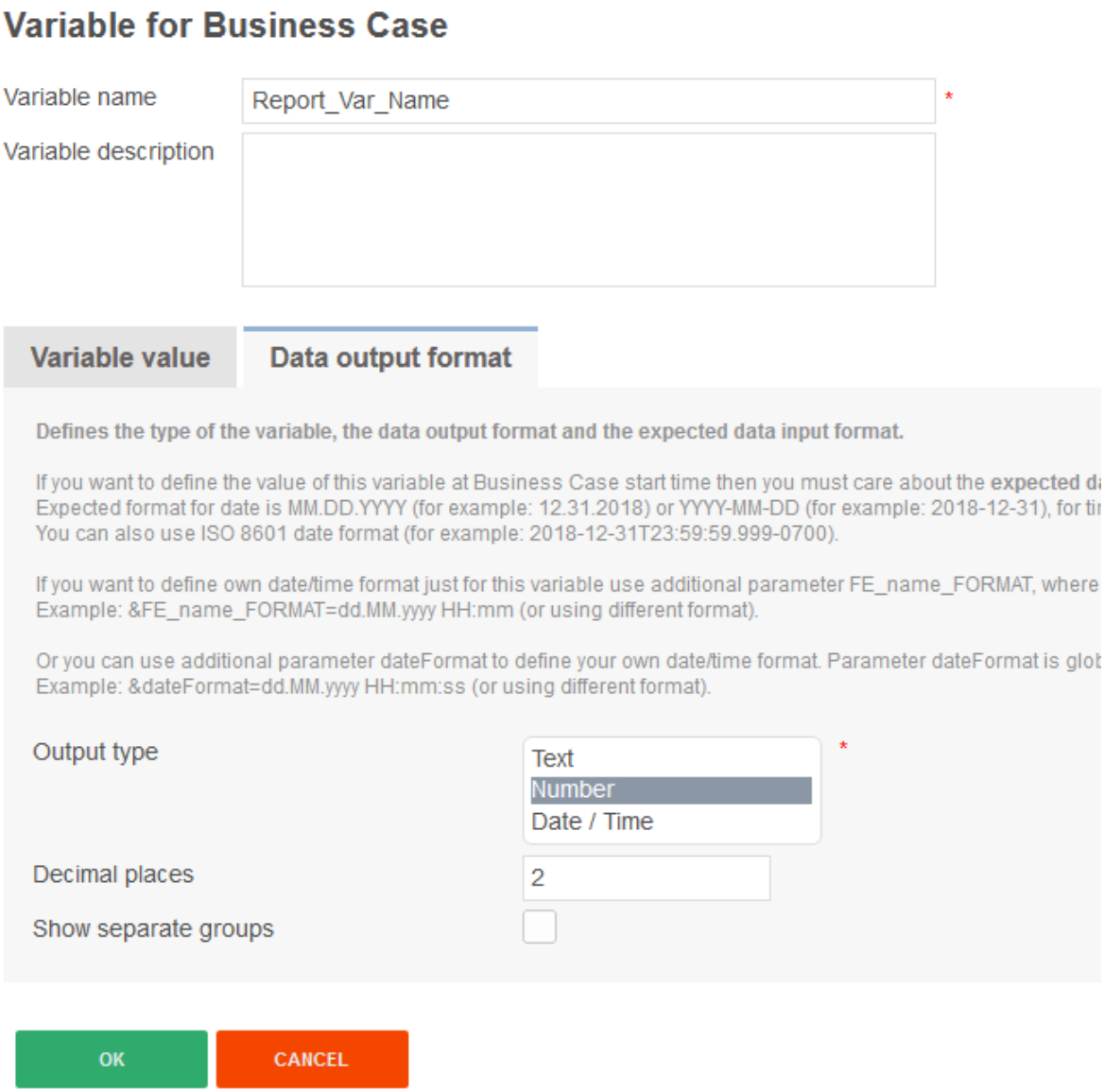
7.7.6.3 Report variables

They are used to deliver content to a Business Case using the URL e.g. from a report, web portal or any place where hyperlinks can be used or simply to deliver the content of a widget from one Business Case to another one.

The content of a report variable can be defined in a report in a column of a query.
Using a hyperlink in the report, the value can be transported to the connected Business Case .
A report variable in an URL has the syntax FE_name.



The default value is used only if the report does not provide a value for this variable.



In output format can set the data type.

Example of calling a Business Case with a URL:

http://localhost/apparo/pages/userInterface.jsf?bc=BCNAME**&FE_REPORT_VAR1=1234**&backLink=%2Fcontent%2Ffolder%5B%40name%3D%27Apparo+Fast+Edit+Demonstration%27%5D

In the URL has the report variable **REPORT_VAR1** the value **1234**

This report variable can now be used in the Business Case or further processed.

7.7.6.4 SQL Variables

There are 2 different types of SQL variables:

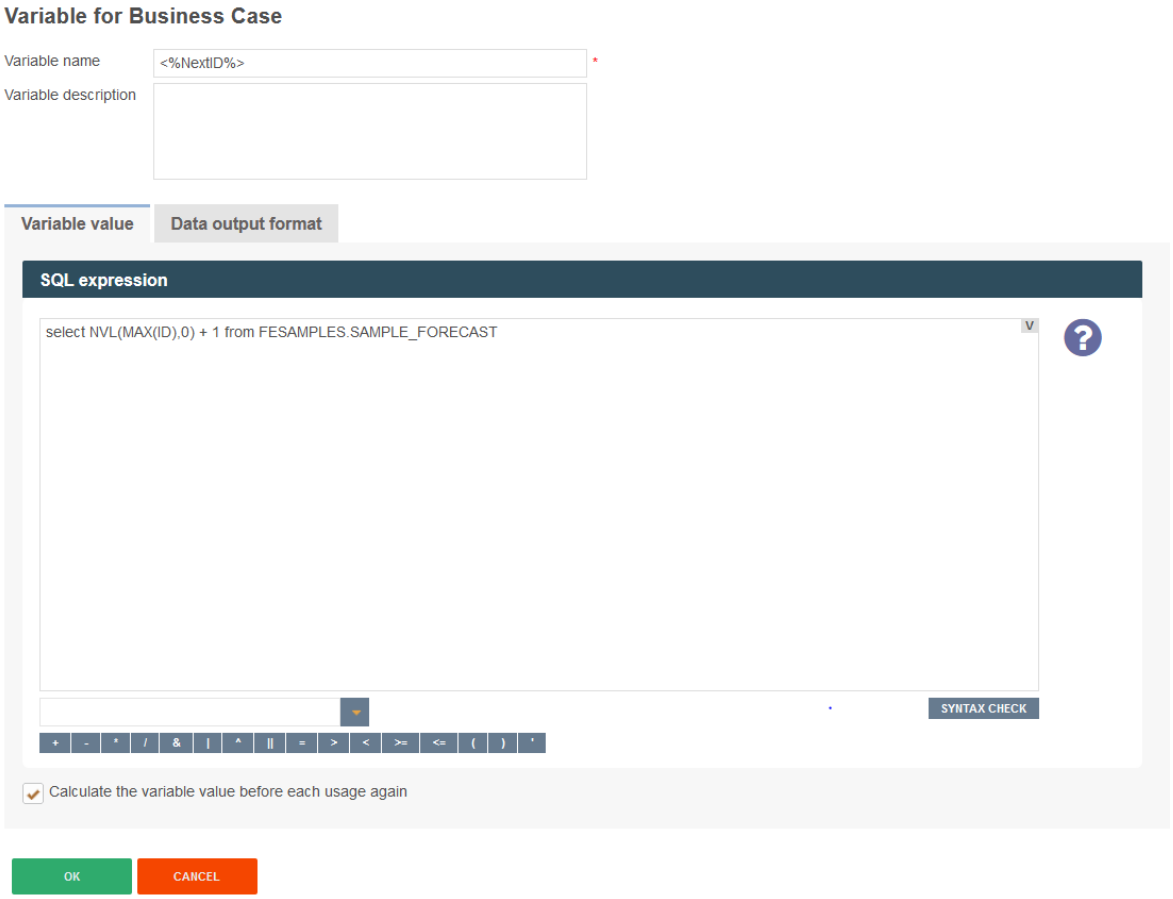
• SQL variable (for all tables)

SQL variable for executing commands in all tables. Each time you use the variable the associated SQL is executed. This variable contains the content of the first row, first column (depending on the SQL command)

• SQL variable (for target table only)

SQL variable for the Business Case target table. All filters of the Business Case are considered.

Example:



The main difference is that a **SQL-variable (for target table only)** automatic uses:

- The filter of the Business Case
- All security-dependent filters
- All Widget dependent filters

Therefore, the SQL of the variable must also use the target table so that the filter will also find the same column names.

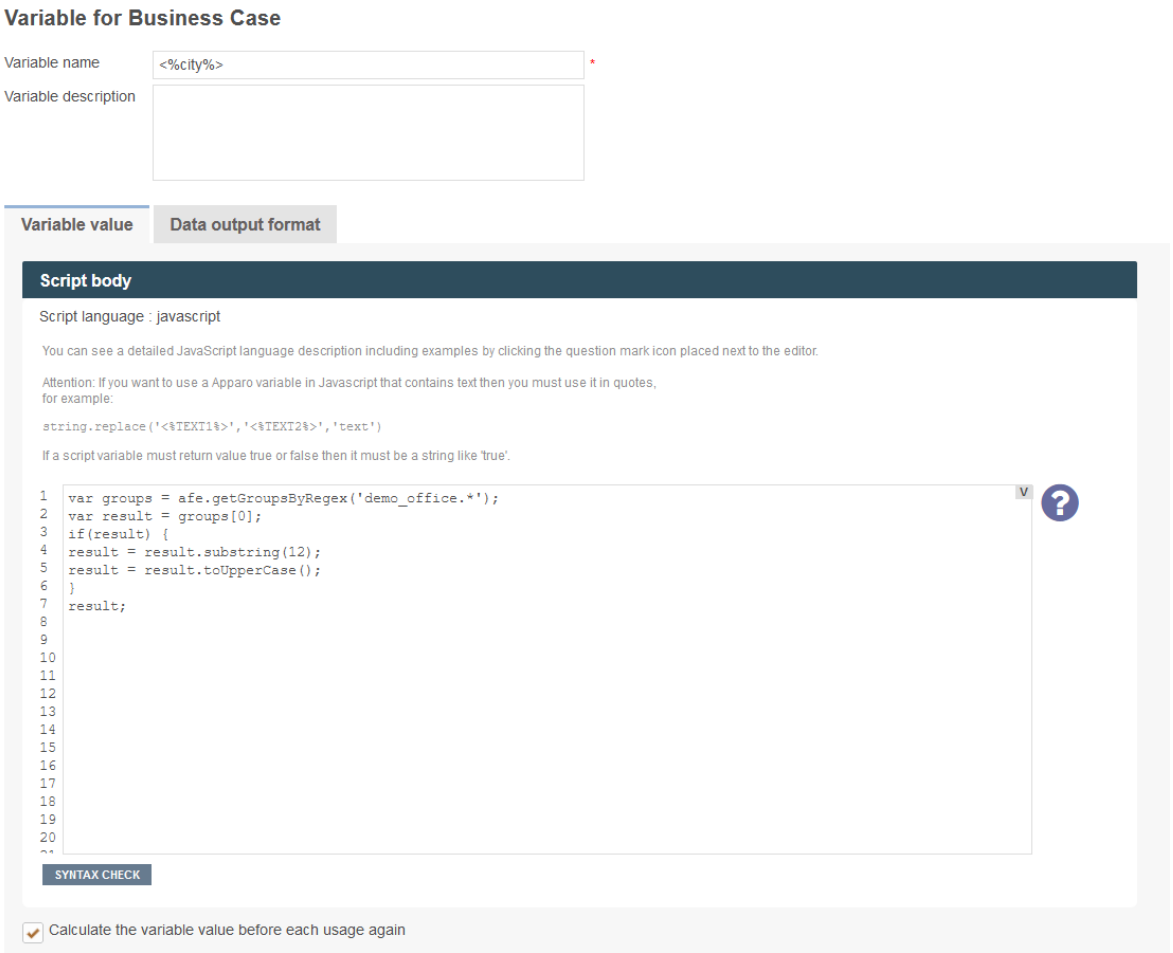
SQL variables (for target table only) are very useful for calculations that relate to the target table - e.g. sum of all sales, as all the used filters are considered automatically.

Since the output changes when using filter widgets, usually this dynamic filter restriction must also be considered.
In a **SQL variable (for target table only)** this is done automatically, in opposite to a SQL variable (for all tables).

An SQL variable is always executed when it is used.
As result, the first result value is used.

7.7.6.5 Script variables

A script variable is a routine that returns a value. It is not connected to a database session.



The calculated value is returned by ‚result‘

You can use in the JavaScript routine SQL variables, reference variables and internal variables too.
The Logic is defined by **JavaScript** and can be combined with SQL-Queries.

You can use scrip variables within database connection settings, but connection pooling will be disabled then.

Calculate the variable value before each usage again

If unchecked the variable will be calculated only once, when the BC starts

7.7.6.6 Extended JavaScript functions

Fast Edit offers the possibility to use advanced features besides from the standard syntax.
The corresponding examples can be found in the designer when you click on the question mark icon.

Custom script example returning a string value based on security group:

```
var groups = afe.getGroupsByRegex('.*');
var result = 'Security groups of the current user: ';
var i;
var group;
for(i = 0; i < groups.length; i++) {
  group = groups[i];
  result = result + group + ', ';
}
// returning the calculated result from script
result;
```

Custom function example returning a string value:

```
// declaring a function
function myCustomFunction() {
  var result = 'defaultStringValue';
  // complext algorithm to evaluate the result of the method
  return result;
}
// calling the declared function to return a value from script
myCustomFunction();
```

Example using custom functions declared in file

```
// If we have our custom functions declared in the text file we can use it in our script variable.
// In our example we have a file 'C:\scripts\myFunctions.js' with content: 'function myFunctionPlus(a, b)
{return a + b;}'
// We can 'include' this content into the script variable as follow:
<%FILE_CONTENT(C:\scripts\myFunctions.js)%>

// now we can use declared function
var x = myFunctionPlus(2, 1);

// variable 'x' now has value 3
x;
```

Example using Apparo variables:

```
// working with string variable, and adding a custom postifx
var result = '<%USER_NAME%>' + 'postfix';

// modifiying a result of sql variable returning a numeric variable
var result = <%SQL_COUNT_VAR%> / 100;
```

Example using Apparo LANGUAGE variable in a column name:

```
// In this example Apparo must read the content of the widget reference variable <%PRODUCT_EN%> or
<%PRODUCT_DE%>.
// PRODUCT_EN for a user with english language and
// PRODUCT_DE for a user with german language:

var rc;
rc = '<%PRODUCT_<%LANGUAGE%>%>';
```

Example for calling a java class with return value:

```
// In this example Apparo creates an instance of 'MyCustomClass' class and executes the
'myCustomMethod' method
var result = afe.callClassMethod('MyCustomClass', 'myCustomMethod');
result;
```

Example for calling a java class with arguments and return value:

```
// In this example Apparo creates an instance of 'MyCustomClass' class and executes the
'myCustomMethod' method
var args = [];        // create new array
args[0] = "stringValue";
args[1] = 256;       // passed to java as java.lang.Double
args[2] = (new Date()).getTime();    // passed to java as java.lang.Double

var result = afe.callClassMethod('MyCustomClass', 'myCustomMethod', args);
result;
```

Example for dynamic variable resolving:

```
// In this example Apparo creates an instance of array and set current number of milliseconds (since
1.1.1970) for each element separately.
var args = [];        // create new array
var i;
for(i = 0; i < 10; i++) {
 args[i] = afe.resolveVariable('TIME_MS');
}
```

Example for working with date widget variables:

```
// In this example we will compare current Date with widget Date
var my_date_widget = afe.resolveVariable('DATE_WIDGET');
var current_date = new Date();

//for explicit date usage, e.g. December 24, 2016 at 6:30pm use format: Date(year, month-1, day, hour,
minute, second, millisecond)
//var date = new Date(2016,11,24,18,30,0,0);

var text;

if (my_date_widget == null) {
 text = 'my date widget is empty';
}
else if (my_date_widget.getTime() > current_date.getTime()) {
 text = 'My date widget value is after current date';
}
else if (my_date_widget.getTime() < current_date.getTime()) {
 text = 'My date widget value is before current date';
}
else {
 text = 'The dates are equal';
}

text;
```

Example for getting the name and content of the current widget:

```
// In this example Apparo is reading the name and content of the current widget.
// This is helpful for defining the background colour of many similar widgets or defining default
value/constant value without creating many different variables.
var current_widget= '<%CURRENT_WIDGET_NAME%>';
var current_widget_content = afe.resolveVariable(current_widget);
var red_colour_background = 'false';

if (current_widget_content > 100) {
 red_colour_background = 'true';
}
else if (current_widget_content < 50 && current_widget == 'MEASURE1') {
 red_colour_background = 'true';
}

red_colour_background;
```

Example for storing content into a file:

```
// In this example Apparo store text content into 'myFile.txt' file.
var fileContent = 'This is file content.';
var success = afe.createFile('c:\\files\\myFile.txt', fileContent);
```

Example for executing a SQL query:

```
// In this example Apparo executes SQL query to retrieve 'user_id' value of 'John Smith' in table 'MyTable'.
var user_id = afe.executeSql("select id from MySchema.MyTable where sales_name='John Smith'");
```

Example for executing a SQL select:

```
// In this example Apparo executes SQL select to retrieve 'id', 'name' and 'price' values of all products in table 'MyProduct'.
var productsArray = afe.executeSqlSelect('select id, name, price from MySchema.MyProduct');
var i;
var rowData;
var id;
var name;
var price;

for(i = 0; i < productsArray.length; i++) {
  rowData = productsArray[i];
  id = rowData[0];
  name = rowData[1];
  price = rowData[2];
}
```

Example for executing a SQL select and storing result into XML file:

```
// In this example Apparo executes SQL select to retrieve 'id', 'name' and 'price' values of all products in table 'MyProduct' creates xml String and stores it into XML file.
var productsArray = afe.executeSqlSelect('select id, name, price from MySchema.MyProduct');
var i;
var rowData;
var xmlString = '<?xml version="1.0" encoding="UTF-8"?>\n<products>';
var xmlRow;

for(i=0; i < productsArray.length; i++) {
  rowData = productsArray[i];
  xmlRow = '\n\t<product id="' + rowData[0] + '" name="' + rowData[1] + '" price="' + rowData[2] + '" />';
  xmlString += xmlRow;
}

xmlString += '\n</products>';

var success = afe.createFile('c:\\myXmls\\products.xml', xmlString);
success;
```

Example for executing a SQL query with parameters:

```
// In this example Apparo executes SQL query with parameters.
var params = [];   // create new Array
params[0] = 'John Smith';
params[1] = 'Germany';
var user_id = afe.executeSql('select id from MySchema.MyTable where sales_name=? and country=?', params);
```

Example for executing a command:

```
// In this example Apparo executes command.
var returnValue = afe.executeCommand("c:\\scripts\\myfile.bat","c:\\scripts");
```

Example for making a row read-only:

```
// In this example we want to make a data row read-only when the PROJECT_COMPLETITION_DATE widget has value of a date in the past (the project is finished).
// First we must create a variable <%ROW_READONLY_VAR%> which will be used here.
// The goal is to return the same date as the widget if it is older then today, otherwise we will return dummy date.
// Returning date must be represented as string with proper format.

// dummy date in format of MM.dd.yyyy
var result='01.01.1990';

// today's date
var current_date = new Date();

// We need to read string value of PROJECT_COMPLETITION_DATE widget.
// If the widget is storing timestamp then it's string value has format 'yyyy-MM-dd HH:mm:ss.S'  e.g. '2015-12-24 18:00:00.0'
// If the widget is storing number then it can be e.g. '42' or '42.1'
var end_date_string = '<%PROJECT_COMPLETITION_DATE%>';

// If the PROJECT_COMPLETITION_DATE is not specified then we don't want to make row read-only.
// If it has value then we must compare that date with today's date.
if (end_date_string.length > 0) {

 // Here we are constructing the Date object from the string in order we can compare two dates.
 var end_date = new Date();

 // we must set correct Year, Month and Day from the end_date_string
 end_date.setFullYear(end_date_string.substring(0,4));
 // watch out here: months are calculated from 0 so we must decrease it's number
 end_date.setMonth(end_date_string.substring(5,7)-1);
 end_date.setDate(end_date_string.substring(8,10));

 // now we can compare the dates
 if (end_date < current_date)  {

   // again, we must use correct format: MM.dd.yyyy
   var end_date_string_EN_format = '';
   end_date_string_EN_format += end_date_string.substring(5,7);
   end_date_string_EN_format += '.';
   end_date_string_EN_format += end_date_string.substring(8,10);
   end_date_string_EN_format += '.';
   end_date_string_EN_format += end_date_string.substring(0,4);

   result = end_date_string_EN_format;
 }
}

// return the result
result;
```

Example for executing a SQL insert:

```
// In this example Apparo executes SQL insert and returns true if inserting is done successfully, otherwise returns false;

var x = afe.executeSqlInsert("insert into PRODUCTS(ID,DESCRIPTION) values (1, 'shirt')");
// variable 'x' is resolved as true if insert was done ok.
```

Example for reading Cognos session parameters

```
//In this example Apparo reads Cognos session parameter named 'userClassID'.

//Declaration of the result variable.
var result = '';

//Call Apparo function that reads all the Cognos session parameters and return them as 2-dimensional String array.
var sessionParameters = afe.getSessionParameters();

var i = 0;

//Iterating over all returned parameters
for(i; i < sessionParameters.length; i++) {

  //If parameter's name (second dimension with index 0) is 'userClassID' then we assign parameter's value (second dimension with index 1) into 'result' variable.
  if(sessionParameters[i][0] == 'userClassID') {
    result = sessionParameters[i][1];
  }
}

//Return the result
result;
```

Example for exporting all Business Case data to file:

```
// In this example Apparo exports all Business Case data to file on filesystem and returns whether operation was successful.
// Note: Backslash symbols must be escaped, i.e. '\\' must be used.

var result = afe.exportAllRows('C:\\Users\\Administrator\\Documents\\allDataExport-<%DATE_TIMESTAMP_SHORT%>.xlsx');
result;
```

Example for exporting selected Business Case data to file:

```
// In this example Apparo exports selected Business Case data to file on filesystem and returns whether operation was successful.
// Note: Backslash symbols must be escaped, i.e. '\\' must be used.

var result = afe.exportSelectedRows('C:\\Users\\Administrator\\Documents\\selectedDataExport-<%DATE_TIMESTAMP_SHORT%>.xlsx');
result;
```

Example for running Email Business Case:

// In this example Apparo sends an e-mail for each modified row of the Table Business Case.

// First we must create an Email Business Case (e.g. 'NotificationEmailBc') that will be used for email sending.
// We can use variables of the Table Business Case in the Email Business Case definition.

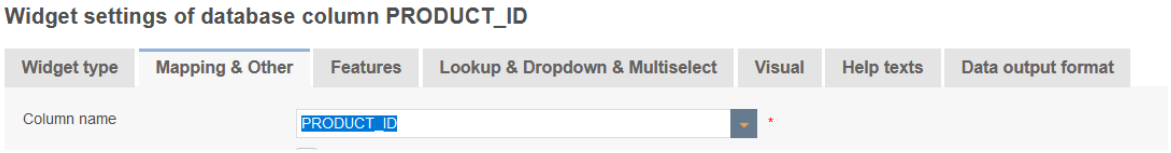
// Next we must create a script file (e.g. 'sendingEmailNotification.js') containing single line:
afe.runEmailBc('NotificationEmailBc');

// Then we must enable 'Enable Post row update execution' feature in the Table Business Case, set "Automatic execution of" to "Script on server"
// and choose the 'sendingEmailNotification.js' in the drop-down list 'Name'.

// With such Business Case setup an email will be send every time a row will be updated,
// including Excel import (manually or using automatic server-side import or Business Case Email Import)

7.7.6.7 Widget reference variables

It is possible to use the **current** content of a widget in within the filter of another widget. Other use cases are the usage within SQL and script variables or within labels.



The name of a widget reference variable is defined by the name of the column. Here: <%PRODUCT_ID%>

Example:

It's possible to filter the values of a lookup widget depending on the value of another widget.

A Business Case has 2 widgets:

#1 Widget **PLANT** with the current plant value

#2 Lookup-Widget **DEPARTMENT** that shows all departments of the current selected plant.

Therefore the filter of the widget DEPARTMENT must be used as:

PLANT_DEP = <%PLANT%>

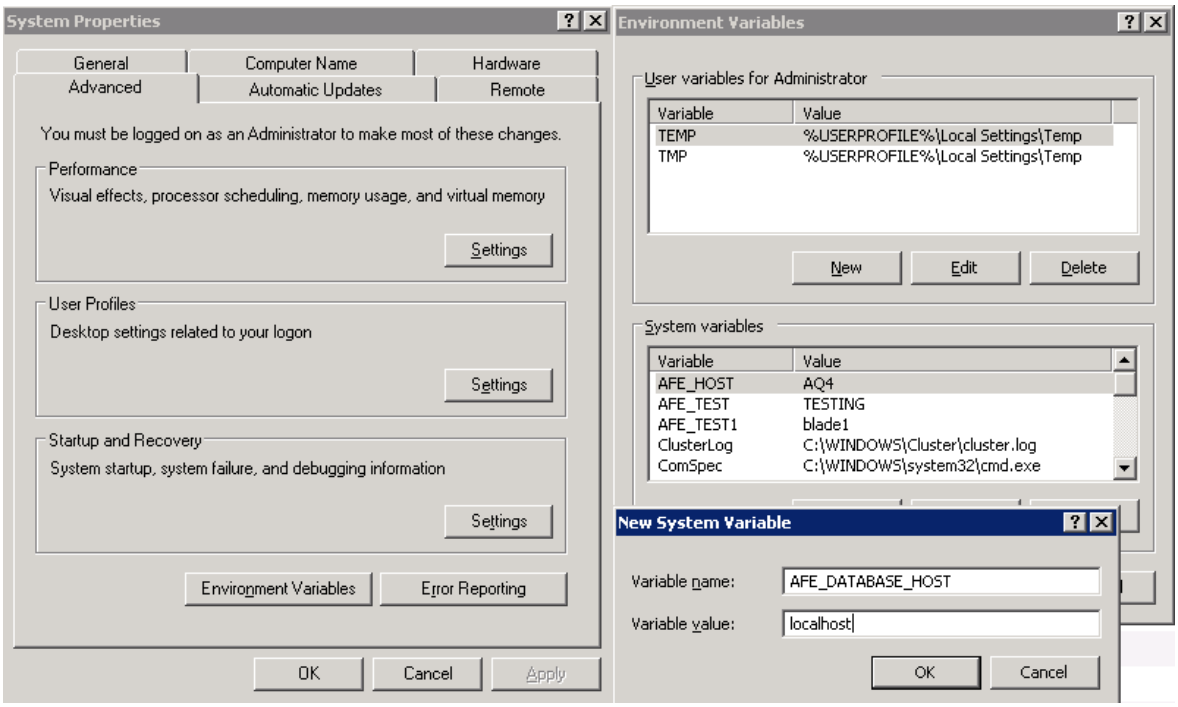
The column PLANT_DEP must be part of the lookup database table of widget DEPARTMENT.

7.7.6.8 Environment variables

All system variables starting with ‚AFE_' can be used within Business Cases and database connections.

You have to restart Apparo Fast Edit after defining the system variables.

Example for a Windows system variable:



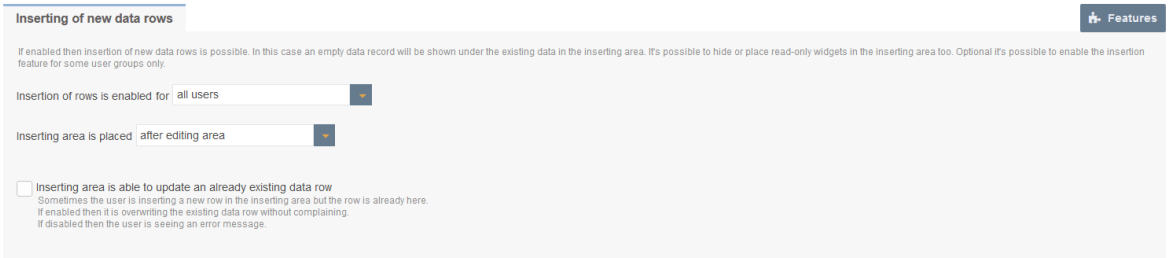
In Windows are environment variables named ‘System variables’

Variables that are containing __ (two underlines) in the name can be used too, but are not displayed in Apparo Designer in the variables list.

7.7.7 Inserting of new data rows

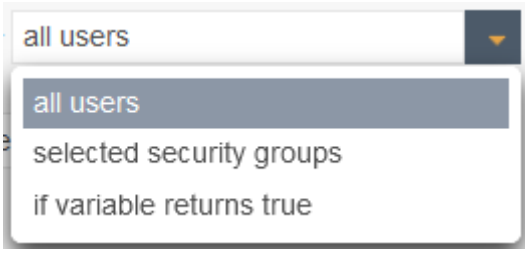
If enabled then insertion of new data rows is possible. In this case an empty data record will be shown below or above the existing data in the edit area.

It's possible to hide or place read-only widgets in the inserting area too. Optional it's possible to enable the insertion feature for certain user groups only.



Insertion of rows is enabled for

This provides three options, default is ‚all users'



Inserting area is placed

Controls the placement of the insert area

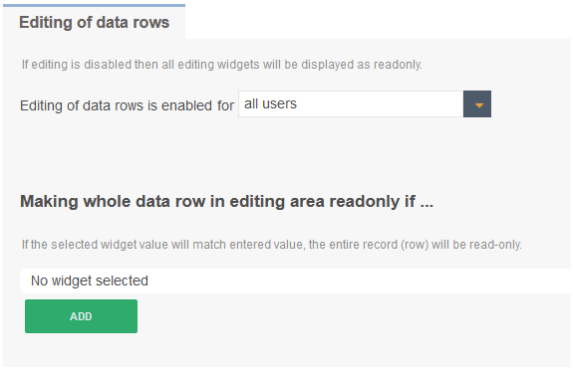
Inserting area is able to update an already existing data row

Sometimes the user is inserting a new row in the inserting area but there is already a row with the same primary key.

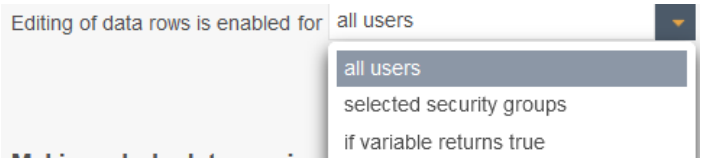
If enabled then it is overwriting the existing data row.
If disabld then the user is seeing an error message.

7.7.8 Editing of data rows

If editing is activated, it also activates this dialog here.



You can allow editing of data for all users, for certain user groups only or based on a variable check:

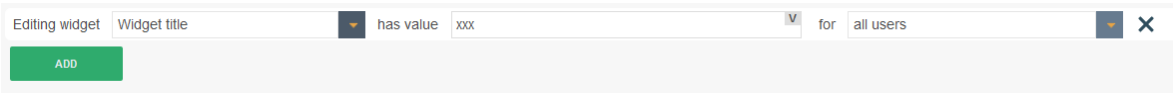


Making whole data row in editing area readonly if ...

If the selected widget value will match entered value, the entire record (row) will be read-only.
This feature is helpful if you work with different record states like 'open', 'closed' and just certain records must be updateable.
Use English format to define numeric or date values.

The Excel import with copy & paste is recognizing the read-only rows too if the Excel import is using the edit area settings.

By clicking the ADD button you can select widgets that sets the row to be read-only based on a widget value



The value can also be a fix value or calculated by a variable.

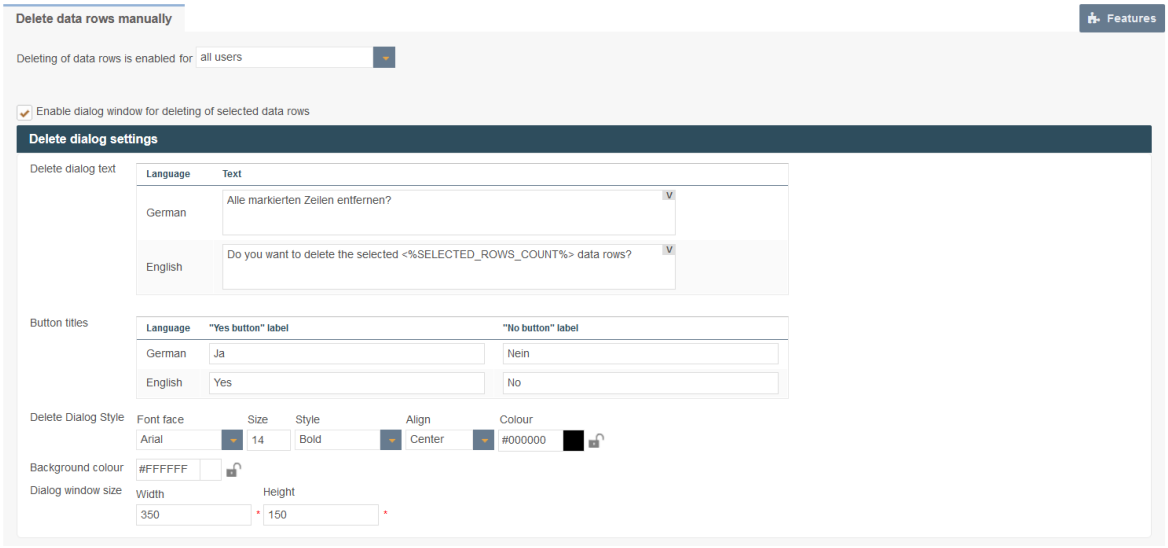
Example for a calculated read-only column:

You create a hidden column named e.g. check_column, with always contains the value ‘true’.
This can be done by using e.g. the string ‘true’ as constant value in insert & update case.

Now you can create a script variable to check different conditions and return the value ‘true’ if the conditions are met and the row shall be read-only.
Otherwise, the variable returns ‘false’ and users can edit this row.

7.7.9 Deleting of data rows

If deleting is activated, it is adding a delete button and selecting checkboxes.
You can also activate the output of a security dialog here.



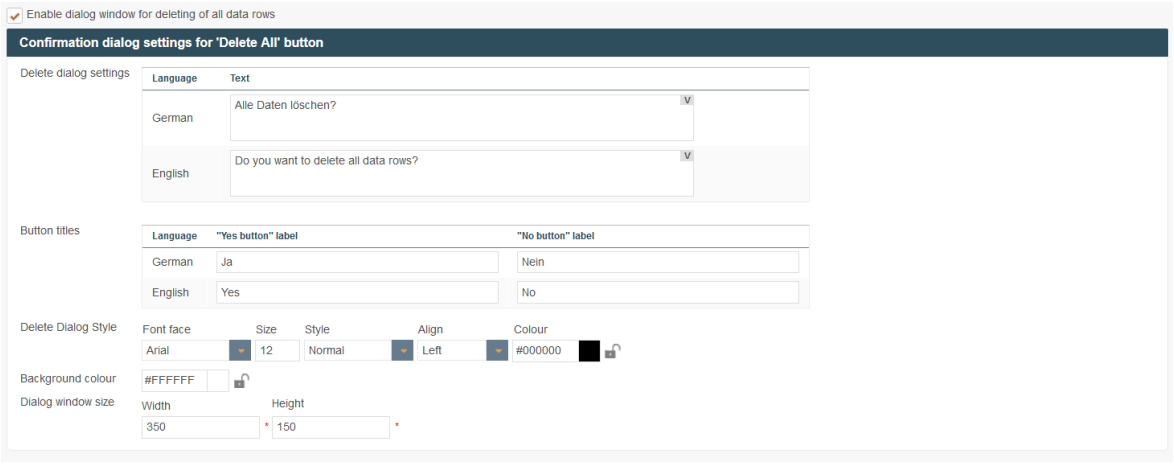
You can also change the text of the delete query and the label of the button.
Furthermore, it is possible to adapt the layout of the delete query.

Variables are allowed.

Example

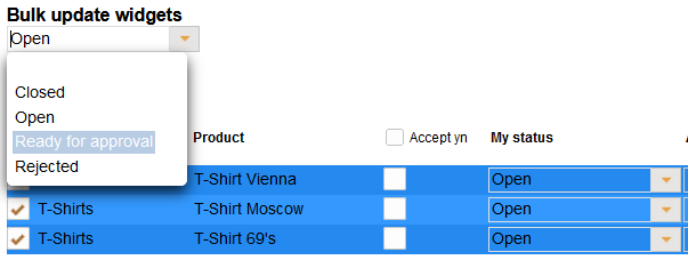
Do you really want to delete <%SELECTED_ROWS_COUNT%> rows?

If Delete all data rows on BC start is activated, the following dialog can be activated:

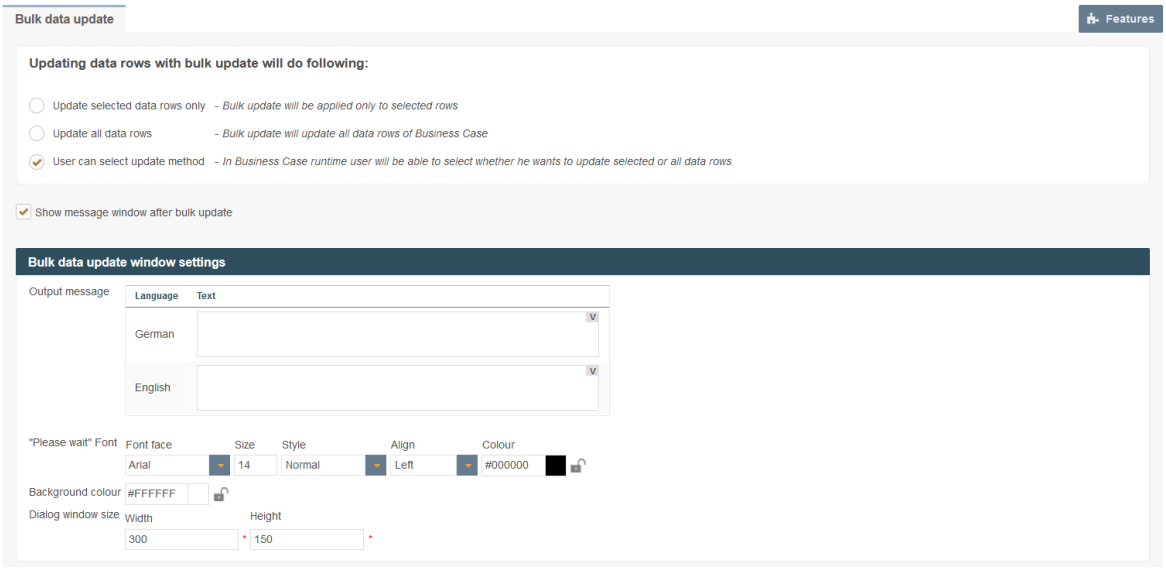


7.7.10 Bulk data update

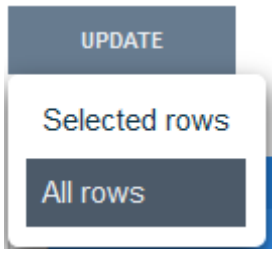
With the bulk update feature the user can update many rows with one mouse click. You can define bulk update widgets and with these widgets the user can set values for all selected rows. Hidden widgets can be updated/hidden bulk widgets with a constant value are allowed too.



In Designer, you can activate a message window after a successful bulk update.



You can choose the update option between Selected rows only or All rows, or leave it up to the user to decide:



The message window is displayed only if you define a text for the output message.

Variables are allowed.

Sample output message

<%BULK_UPDATED_ROWS%> records were updated.

7.7.11 Excel Import

Excel is still one of the most powerful data processing programs:
An ideal way to edit and present data in a simple way.

Unfortunately, Excel has disadvantages, the data is locked in a file.

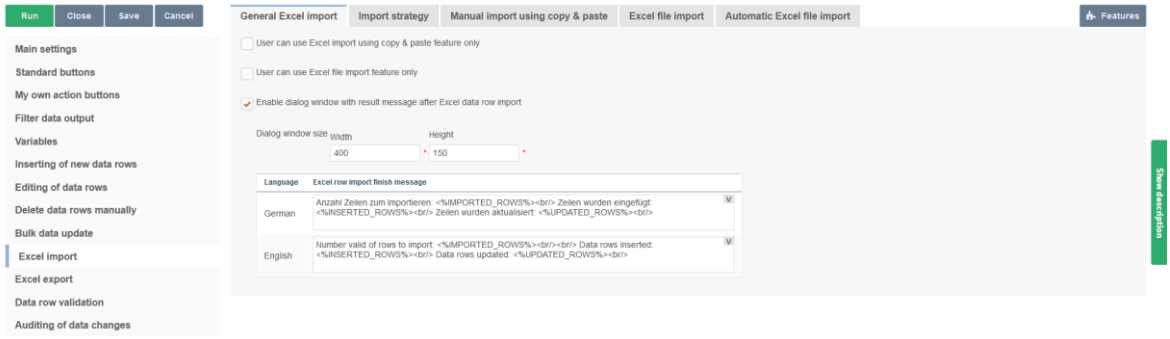
Apparo Fast Edit offers several ways for the Excel import. Thus, the data can be tested auditable for errors and transferred in appropriate media (databases).

Excel import options

- With copy & paste directly from an open Excel file (Manual Import)
- By file import via the browser (File Import)
- Through automatic import from defined directories (Auto Import)
- By importing e-mail attachments (E-Mail Import)

The automatic import and import via e-mail attachment always requires a table Business Case,
in which the settings for the (manual) import are defined.

7.7.11.1 General Excel Import



Options

User can use Excel import using copy copy & paste feature only

If this option is activated, the business case only has the Excel import function with copy and paste.
This means that immediately after starting the business case, the user only sees the Excel line import area, so this business case can only be used for Excel line import.
If this business case uses the same primary keys as defined in the database table, it is helpful to disable the "Check primary key constraints before saving" feature to improve import performance.

User can use Excel file import feature only

If this option is activated, the business case only has the import function for Excel files. The user can select an Excel file and import the data.
This means that immediately after starting the business case, the user only sees the Excel file import page. This business case can therefore only be used for the Excel file import.

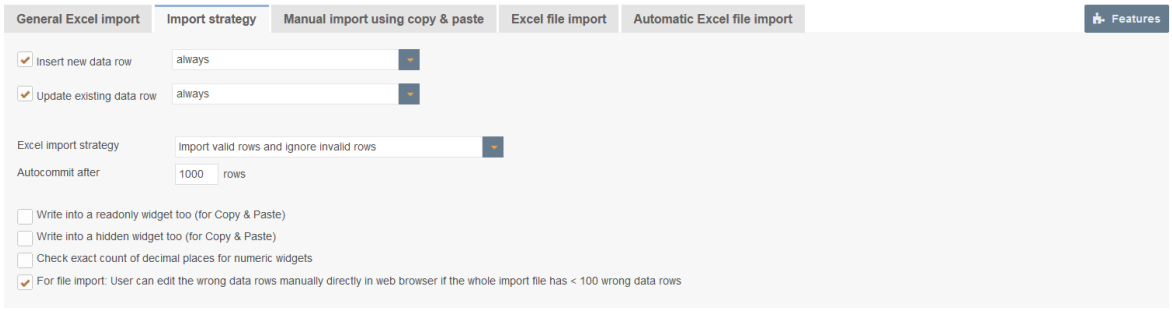
Enable dialog window with result message after Excel data row import

After an Excel import the user can see a small finishing message.
You can alter the text of this message here.

Special Import variables

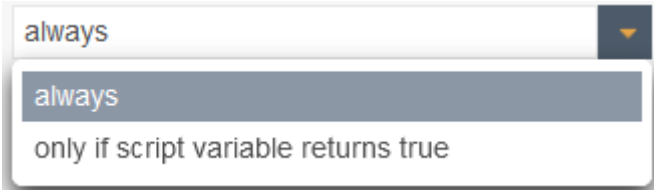
IMPORTED_ROWS	Count of processed rows
INSERTED_ROWS	Count of inserted rows
UPDATED_ROWS	Count of updated rows

7.7.11.2 Import strategy



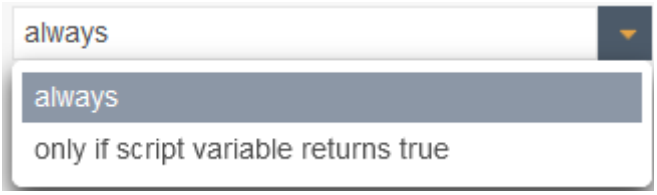
Insert new data row

If enabled then new data rows (the primary key values of this new data row are not found in the target table) are inserted
There are two options, either a new row is always inserted or only with the prior examination (via JavaScript variable)



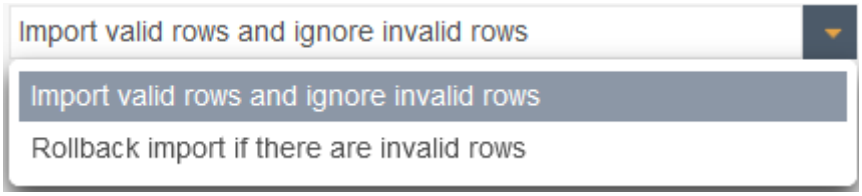
Update existing data row

If this is enabled, existing rows will be overwritten (if the primary key combination is used twice), either always or by variable checking.



Excel import strategy

With this feature you can configure the behavior of an Excel import.



You can select between a complete rollback if there is invalid content (no data will be imported) or whether only valid content will be imported.

Autocommit after 1000 rows

Apparo Fast Edit will commit the database transaction after defined number of rows has been processed in Excel import.
If value is 0 or no value is defined then this feature is disabled.
If the above setting is set to "rollback import if there are invalid rows" than this feature is disabled.

Write into a readonly widget too

If enabled then Excel import is overwriting the value of an read-only widget too

Write into a hidden widget too

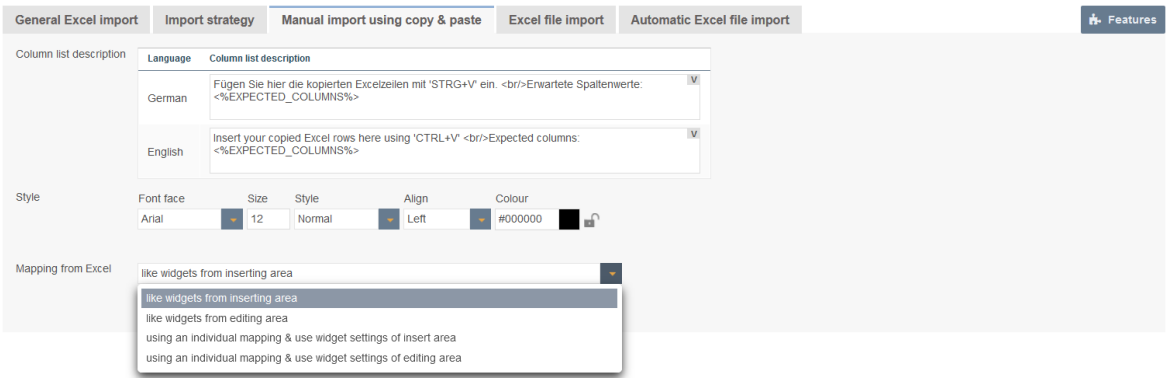
If enabled then Excel import is expecting a value for a hidden widget too

Check exact count of decimal places for numeric widgets

When enabled then numeric values to be imported must exactly match the specified count of decimal places defined in the widget's data output format setting (must be set to ''number'').

7.7.11.3 Manual Import using copy & paste

This function allows direct import of data rows from Excel by means of copy and paste into this business case. The user can select many Excel rows (even more than 100,000 rows are possible), press the Excel import button and paste them into the text area. Of course, the order of the Excel columns must be the same as in the Business Case. Read-only and hidden widgets are not used for mapping, but only if they have a constant value. It is not allowed to import Excel cell values that span multiple rows, use file import in this case.



Column list description

You can define a description text that is helpful for the user to know all expected Excel columns.
All variables are useable and HTML tags are possible too.
You can use the internal variable <%EXPECTED_COLUMNS> that has a list of all expected columns using the widget labels.
All hidden or read-only widgets are expecting no Excel column value but the default/constant values of the hidden/read-only widgets are used automatically

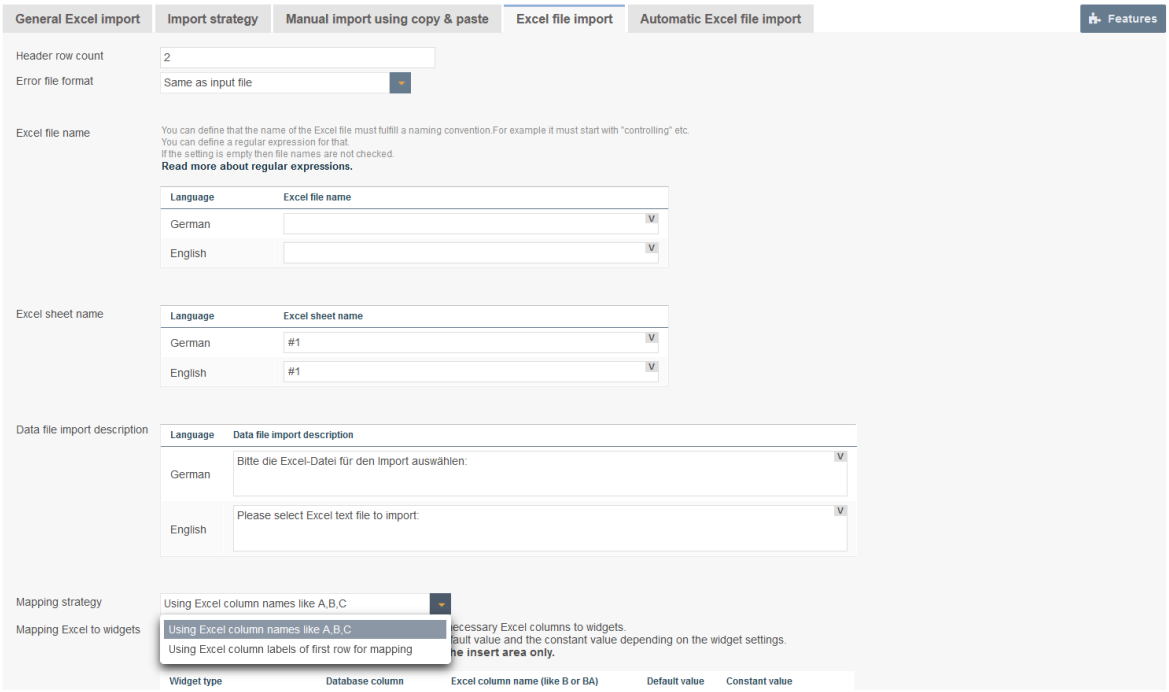
Mapping from Excel

If you want to important into different widgets than of the editing/inserting area then you can define an individual mapping for Excel file import too.

7.7.11.4 Excel file import

This feature enables a manual import of an Excel data file into Apparo Fast Edit. The user can select an Excel file and the Business Case is importing the complete file.

Important: You must define a mapping of Excel columns like A, B, C and the associated widget. Just define the Excel column name in the right widget. You can define the count of header rows that must be ignored in tab "Excel file import".



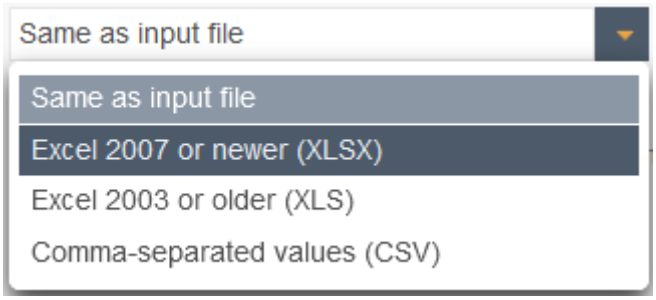
Options

Header row count

This number of rows are ignored during the imort

Error file format

Format of a file containing errors and their descriptions, a user can download after an import that finished with errors.



Excel file name

You can specify that the name of the Excel file must comply with a naming convention, e.g. it must begin with "Controlling", etc.
You can define a regular expression for this.
If the setting is empty, the file names are not checked.

Excel sheet name

An Excel document can contain many Excel worksheets.
If this setting is empty, the first (from left to right) worksheet is imported.
You can enter a worksheet name for each language and you can use * and ? Example: Turnover*
If there are many worksheets that match this name, the user must select the correct worksheet.
You can also use item numbers, e.g. #2 for the 2nd sheet or #1 for the first. You can also use variables.

Mapping Excel to widgets

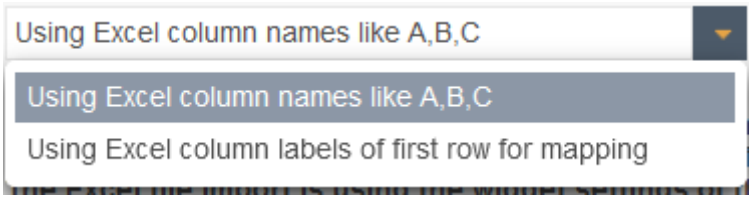
For the import a mapping necessary. This mapping is defining all Excel columns that must imported using this Business Case .
If you input for example Excel column F for the 1. widget then all values of Excel column F will be imported into 1. widget.
If the Excel document has no value in a cell and the mapped widget has a default value defined then Apparo Fast Edit is using automatically the default value.
If a widget has a constant value then this value will be used for import depending on the setting (use constant value in insert case only or in insert/update case).

Data file import description

Contains the text of the select file dialog

Mapping strategy

Lets you choose between Excel columns or header title for the mapping.



Mapping Excel to widgets

Widget type	Database column	Excel column name (like B or BA)	Default value	Constant value
Input field	OFFICE_ID		1	
Lookup dropdown (for all tables)	PRODUCT_LINE_ID	a		
Lookup dropdown (for all tables)	PRODUCT_ID	b		

To import data from an Excel file, it is necessary to assign all the required Excel columns to the widgets.
If a widget has no Excel assignment, it does not use the default value and the constant value depending on the widget settings.
The Excel file import only uses the widget settings of the insertion area.

The import requires a mapping between the Excel column and the widget. The mapping defines the Excel columns to be imported.
For example, if you enter an 'F' in the first widget, the Excel column F will be imported into the first widget.
Default values are only used if they are assigned to an Excel column and only when inserting a new data row.
Constant values are always used, regardless of the mapping to the Excel column. The setting for use, either only when inserting a new row or when inserting and updating, can be found in the widget settings.

Settings for a CSV file for importing

When importing CSV files additional settings are required.

Character set of import file

Contains a list of the available character sets.

Field separator

Definition of the field separator. Using the next setting it is possible to use an own separator for each used language.
Hint: If you need tab character as separator use "\t"

Use language defined separator

When checked then Apparo Fast Edit detects language type from file (for example from filename_en.xlsx as "en") and uses separator defined for detected language from language messages.

Quote mark

Definition of the quote mark - character used to enclose fields containing a separator, usually "

7.7.11.5 Automatic Excel file import

It is possible to automatically import files that the server can access (e.g. Excel files).
In this case, Apparo Fast Edit checks whether files according to a certain file mask exist in a file directory of your choice.

If so, these files are imported into the working directory. After the import, these files are stored in the history files directory.

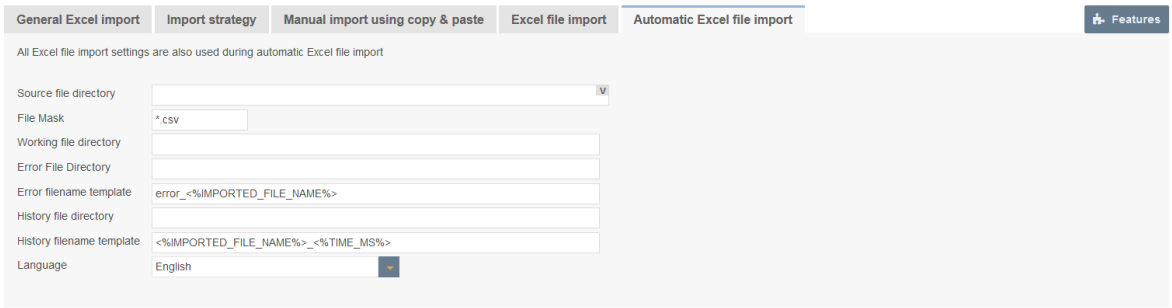
The settings "Field separator" and "Header number" are also used for manual file import.
The time interval for looking into the feed directory can be defined in the settings of the current client.

Automatic file import means that the business case does not have to be started manually. After activating the function, the import takes place within the entered time interval.

If the feed directory is located on a second server, the Windows user who starts Apparo Fast Edit must have the rights to access the directory on this second server.

If there are many files ready for import, the file with the oldest change timestamp will be imported first.

All Excel file import settings are also used during automatic Excel file import.



Options

Source file directory

Defines the file directory in which Apparo Fast Edit looks for files to import. It is looking after each 'n' seconds into this directory.

The path can be: \\servername\folder1\folder2 or x:\folder1\folder2 or <%VARIABLENAME%>\folder or <%VARIABLENAME%>. The variable must deliver a correct path.

If empty then no automatic import will occur on this Business Case .

File Mask

The importable files must have the defined file mask.
File mask can contain wildcards ? and *.
Example: *.xls
Caution: If the filename matches the file mask of multiple Business Cases,
the used Business Case will be random. If empty, no automatic import will occur on this Business Case .

Working file directory

Optionally Apparo Fast Edit is moving the files to the 'Working file directory' first and then the import process is starting.

If empty, working file and directory will be the same as the feed file.

Error File Directory

File directory for error files with the error messages. If empty, no error results will be stored.
Error filename template

Template file name for error files.

The usage of variables is possible, for example:
<%IMPORTED_FILE_NAME%>
name of the imported file (without path)
<%TIME_MS%>
numeric (UNIX) timestamp
If empty, no error results will be stored.

History file directory

After import the files are moved into this file directory. If empty, no history will be stored.

History filename template

Template file name for history files.
Mask can contain placeholders <%PlaceholderName%> where PlaceholderName is one of:

IMPORTED_FILE_NAME name of the imported file (without path)
TIME_MS numeric (UNIX) timestamp

If empty, no history will be stored.

Language

Language definition (important for formatting such as formatting of date).

7.7.12 Verify that all the files were imported

In a multistage import file, where e.g. the 2nd import step depends on the full completion of the 1st file import, you can ensure by a script that the first import step is complete and that No more files need to be imported.

Strategy:

1. All files for step 1 are copied to the respective source directories
2. Via the script “autoImportChecker” you are waiting until all files have been imported from Step 1, i.e. the import of Step 1 is complete
3. All files for step 2 will be copied to the relevant source file directories

[APPARO_HOME]\FastEdit\import\autoImportChecker.bat
[APPARO_HOME]/FastEdit/import/autoImportChecker.sh

Possible parameter:

-clientId <clientId> Example: -clientId QA
When using this optional parameter, only the client “QA” is checked

-- afeURL <URL> Example: -afeURL http://localhost:18000/apparo
When using this optional parameter, not the local installation is checked, but the one from the URL

Examples:

autoImportChecker.bat –clientId QA

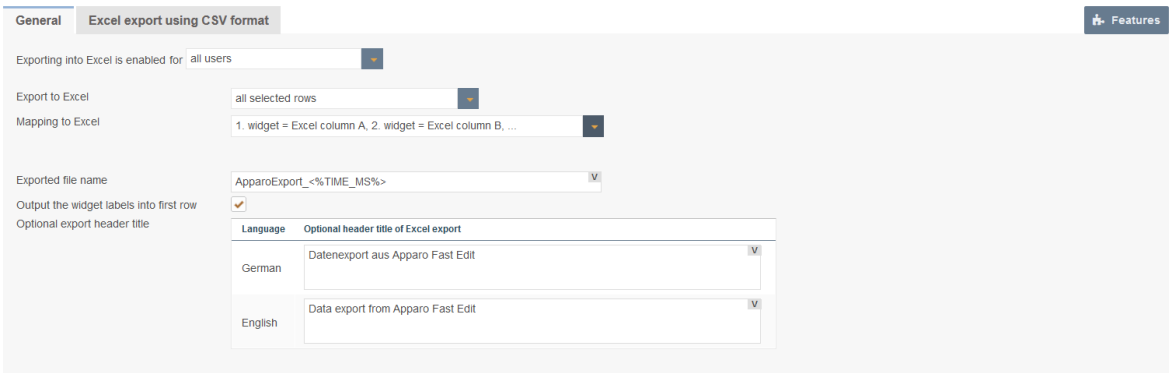
This call checks all Business Cases from client QA whether it will import files at the moment or in the future. Here, the local Apparo application server is queried.
The script is terminated only when no file imports are expected.

In the log file " autoImportcheckerResult.log" you will find the relevant log entries.

7.7.13 Excel export

With Excel row export the user can export data into an Excel file output and/or into the client clipboard. You can define an optional header, widget labels output, separation character and so on.

7.7.13.1 General



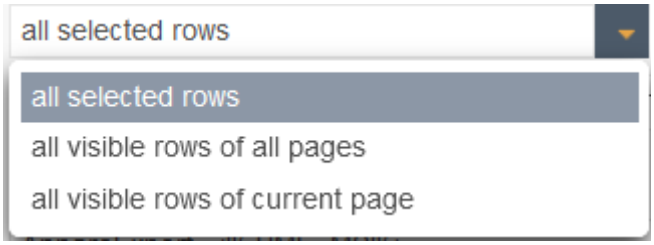
Options

Exporting into Excel is enabled for

The export can be disabled for all users or for selected security groups

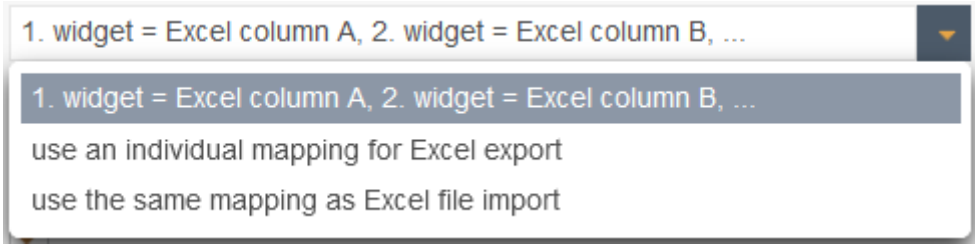
Export to Excel

Defines which rows shall be exported



Mapping to Excel

The mapping links Excel columns with the corresponding Database columns.



There are two different mapping strategies:

The first visible widget is mapped to Excel column A, the second visible widget to Excel column B, and so on

Individual mapping - you can define for each widget the target Excel column in the widget settings. In this way not all widget values must be exported and the ordering is free definable.

Exported file name

Template for the name of the exported file.
Variables can be used.
The file extension (XLS, XLSX, CSV) is added automatically.

Output into an Excel file (client side)

Exports the data in an Excel file

Output the widget labels into own row

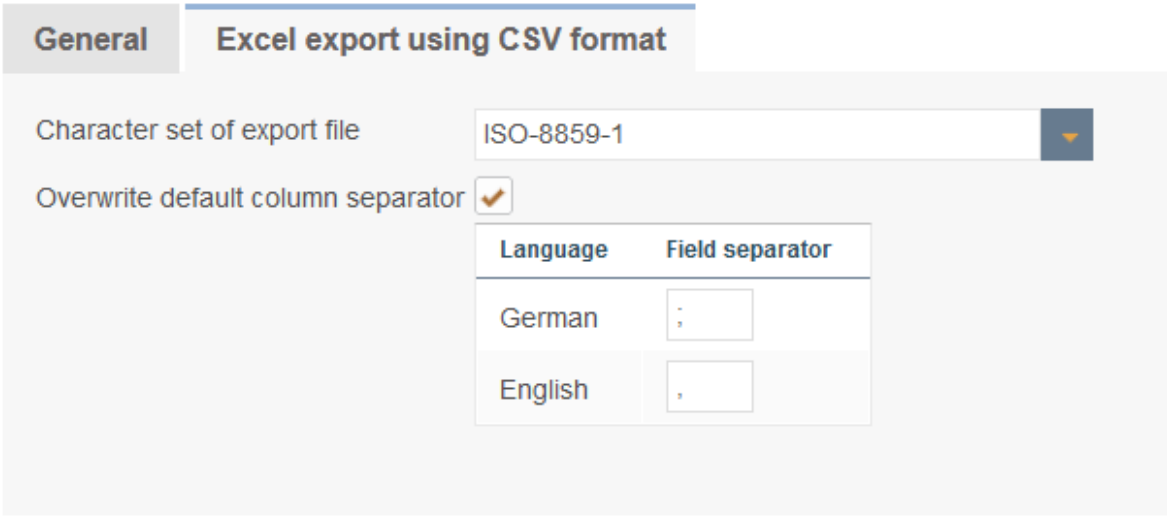
Shows an additional Excel row for the labels of the widgets

Optional Export header title

Is a headline defined, this will be displayed in the first Excel row. All variables can be used here.

7.7.13.2 Excel export using CSV format

For the Excel export to a CSV file, further options are available.



Character set of export file

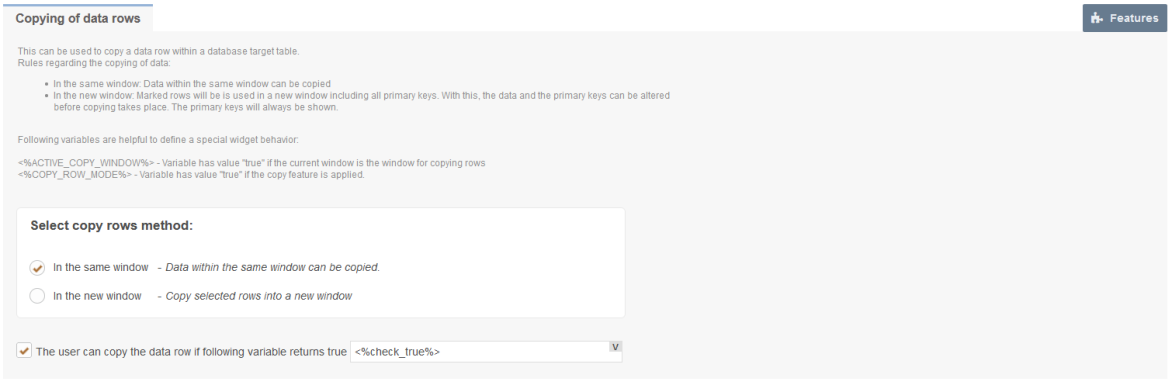
Contains a list of settable character sets.

Overwrite default column separator

Each installed language in Apparo Fast Edit has an own Excel column separator because Excel is using for some different languages different separators.
If the expected Excel column separator of your Excel version is not equal to the default separator of a language then you can here define the right Excel column separator, use \t for tabulator.

7.7.14 Copying of data rows

This can be used to copy rows within the target table.



In the same window:

Data within the same window can be copied

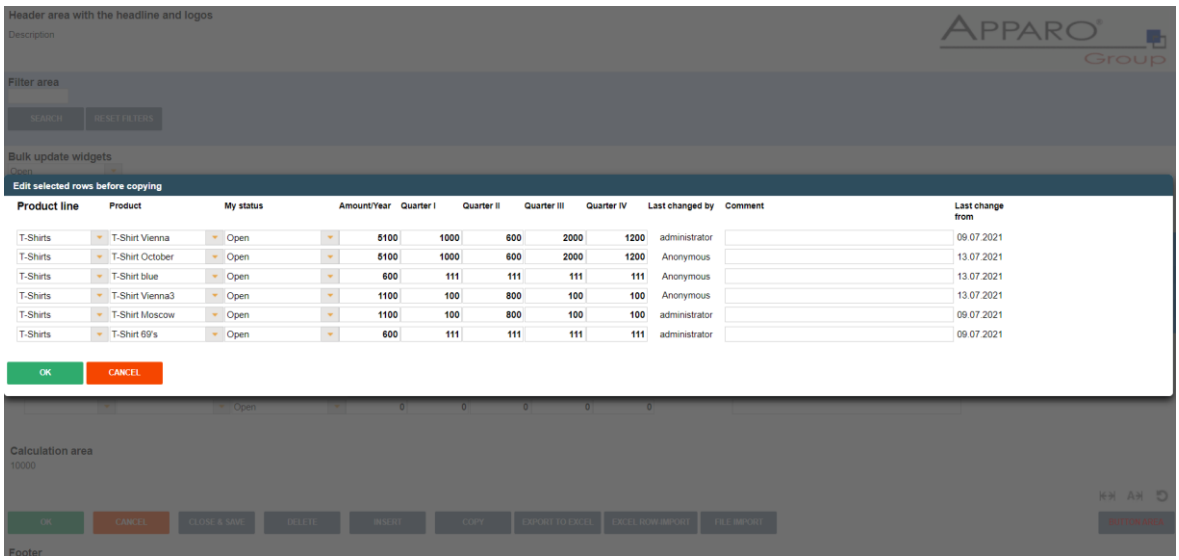
In the new window:

Marked rows will be is used in a new window including all primary keys.
With this, the data and the primary keys can be altered before copying takes place.
The primary keys are always shown.

Copy depending on a variable

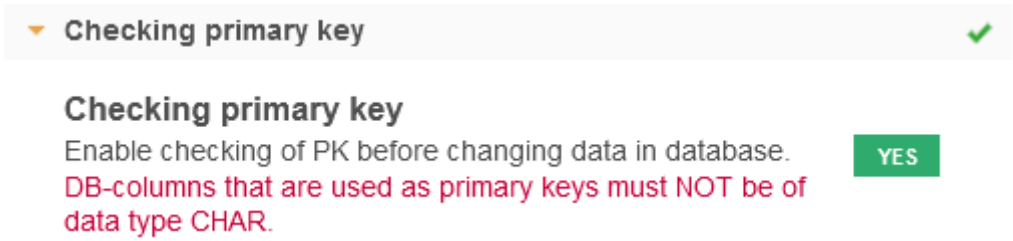
Permission to copy data lines can be made dependent on a variable that returns true if the conditions are met.

Users view



Before copying the records can be edited. It is recommended to change the primary key.

7.7.15 Checking primary key



Enable checking of PK before changing data in database

If enabled then the Business Case ischecking the primary key for being unique. That is helpful if the primary key has no own unique index/primary key constraint in the database table.

It is possible to use database tables that have no primary key defined in the table.
In this case this feature must be used to simulate a primary key.

Not activated:
A primary key can supply more than one hit, helpful, e.g. in denormalized tables.

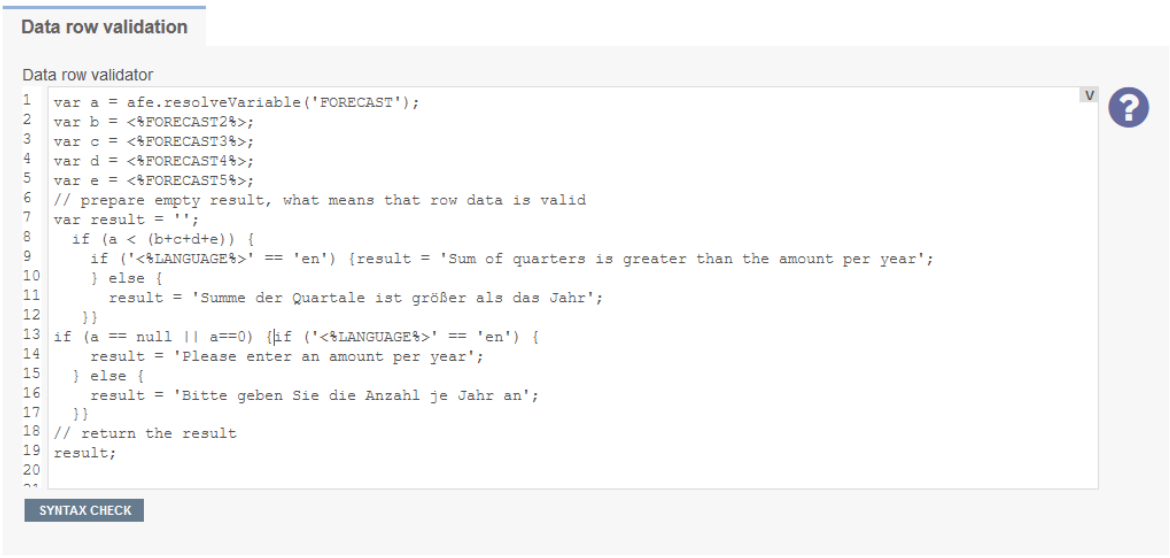
Warning: The primary key is used to uniquely identify the data row to be stored. If the key exists multiple times, the value of more than one line can be changed or deleted.

7.7.16 Data row validator

Enables validation of input when inserting or updating data

You can:

- Access all widget content via widget reference variables
- Use SQL variables
- Define own error texts, which are output automatically



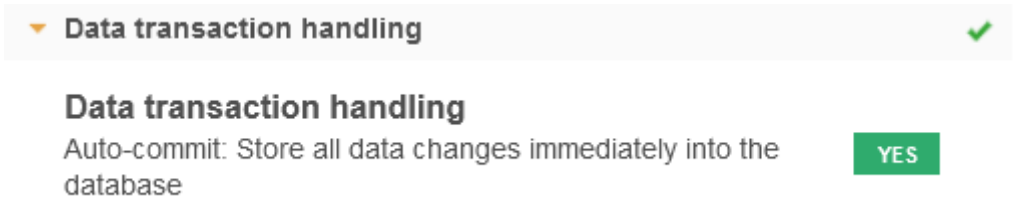
Technical:

You define a JavaScript routine that can access widget reference variable or SQL variable.
An example can be obtained by clicking the question mark icon.

If the data row contains an error, an appropriate error message will be displayed automatically.

Hint: There is tutorial video 0410 Data Quality which handles this feature in the Training menu of the Apparo Designer

7.7.17 Data transaction handling



Auto-commit: Store all data changes immediately into the database

All data changes are committed immediately. The user can't roll back data changes, if the user leaves the Business Case and closing the window with right upper corner x-icon, then all data changes are stored too.

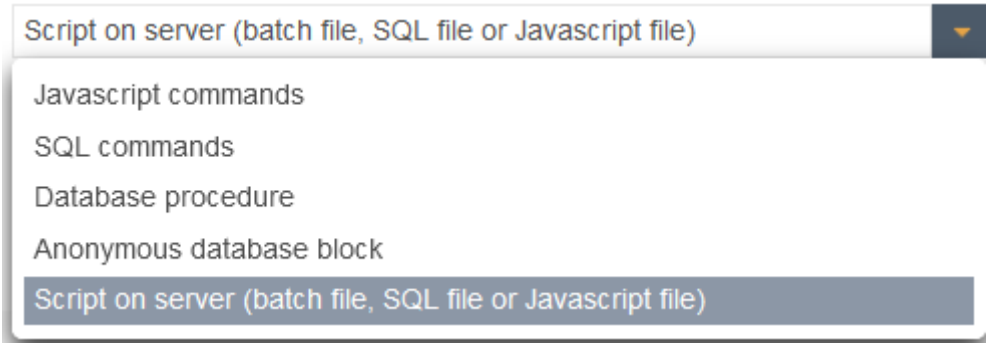
If this feature is enabled, then every change is stored ASAP (committed).
The Excel data import is committed only once at the end in success case, because of performance reasons.

7.7.18 Automatic scripts and database procedures

It is possible to start a shell-script, database function/procedure or SQL-script before Business Case /server side file import starts, and/or after it is finished before forced Excel row import starts, and/or after it is finished after the user has inserted or updated data row

With Pre/Post-Execution it is possible to run automatically a script or a database procedure/function at certain moments.

Other options are:



JavaScript commands

Allows you to enter JavaScript commands that will be executed when the event is triggered

SQL commands

Allows you to enter SQL commands that will be executed when the event is triggered

Database procedure

Allows you to run stored procedures or functions with parameters that will be executed when the event is triggered. Variables are allowed.
Return values can be stored within a variable and used within the Business Case, except for events after closing the Business Case.

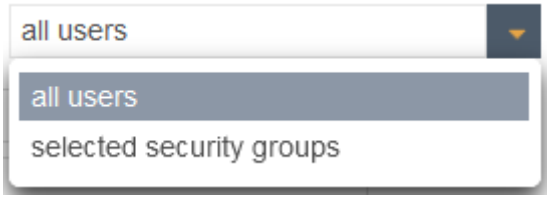
Anonymous database block

Is similar to a stored procedure, but can be entered directly within the Business Case. You don't need database access.
Allows you to run an anonymous database block with parameters that will be executed when the event is triggered. Variables are allowed.

Script on server

Allows you to run a script (batch- , SQL- or JavaScript file) with parameters that will be executed when the event is triggered. Variables are allowed.

This behavior can be defined for all or for users that are members of a specified group.
If the current user is member of a specified group then just the shell-script, database function/procedure, SQL-script or JavaScript file of this group is executed only.



In all other cases the default script/function/procedure is called only.

The commands are executed using the same database session like the Business Case and are separated by a semicolon.

Currently, Apparo Fast Edit is supporting Oracle, Microsoft SQL Server, IBM DB2, Sybase ASE/IQ (chained mode only) and Teradata databases.

7.7.18.1 Pre Business Case execution

Allows to run automatically a script or database function/procedure if the user is starting the Business Case

7.7.18.2 Post Business Case execution in success case

Allows to run automatically a script or database function/procedure after the user has closed tue Business Case with 'Ok' or 'Close' button

7.7.18.3 Post Business Case execution in failure case

Allows to run automatically a script or database function/procedure after the user has closed the Business Case with ‚CANCEL' or ‚X' button)
Fast Edit is checking the browser state by default every 180 seconds, it may take up to 3 minutes after closing the BC with ‚X' before the script/procedure is executed.

7.7.18.4 Post insert execution

Allows to run automatically a script or database function/procedure after a new row was inserted

This insert can be done:

- From inserting area (Table Business Case)
- From insert mode (Single Business Case)
- From Excel file import
- From Excel row import using copy and paste
- From automatic server import
- From automatic import of email data-file attachments
- By copying row/s in the same window

The procedure or script will **NOT be executed after modifying a row in edit area.**

7.7.18.5 Post update execution

Allows to run automatically a script or database function/procedure after a row was updated

This update can be done:

- From inserting area (Table Business Case)
- From insert mode (Single Business Case)
- From Excel file import
- From Excel row import using copy and paste
- From automatic server import
- From automatic import of email data-file attachments
- By copying row/s in the same window
- After modifying a row in edit area

Optionally, a query window to activate that appears when the user updates a row of data from the input area.

7.7.18.6 Post Excel import execution

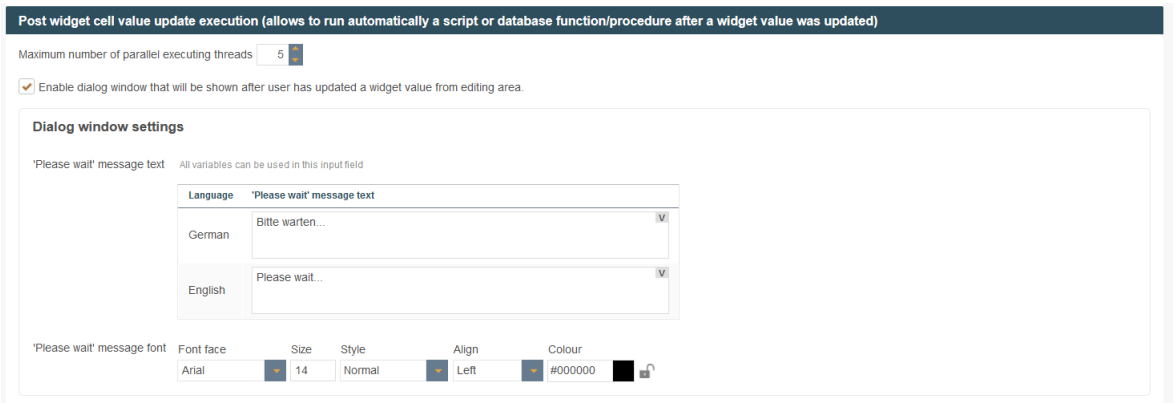
Allows to run automatically a script or database function/procedure after any kind of Excel import has finished

All Apparo Fast Edit variables can be used here, including:

- <%IMPORTED_ROWS%> count of imported rows
- <%INSERTED_ROWS%> count of inserted rows
- <%UPDATED_ROWS%> count of updated rows
- <%IMPORTED_FILE_NAME%> file name of the imported file (if applicable)
- <%EXCEL_IMPORT_ID%> An unique ID of type string for each Excel import

7.7.18.7 Post Widget cell value update

Allows to run automatically a script or database function/procedure if the user is changing a widget cell value (and leaving the widget)



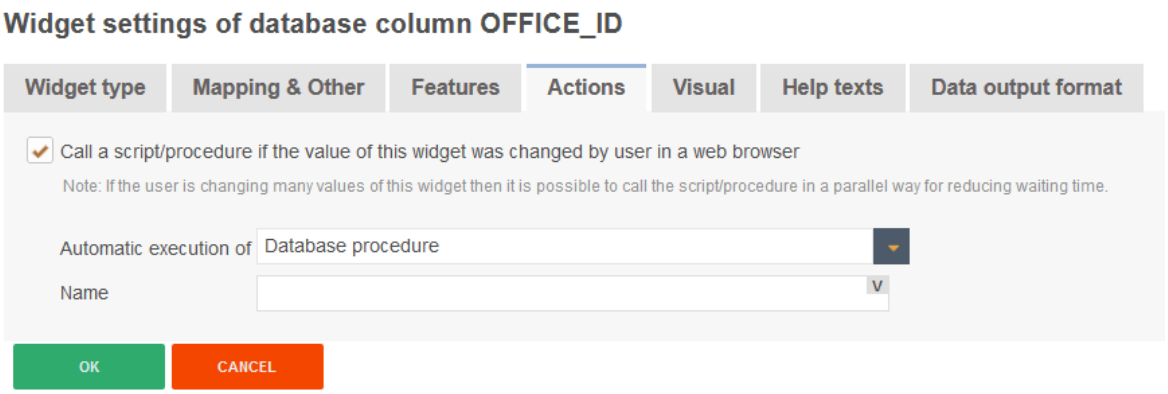
After the user changes a widget value, a script / database procedure / anonymous database block is called for this change.

The call is made per widget value, i.e. if the user changes 10 values, the action is called 10 times.

The calls can be made in parallel if multiple threads are allowed.
The maximum number of parallel threads can be set per Business Case.

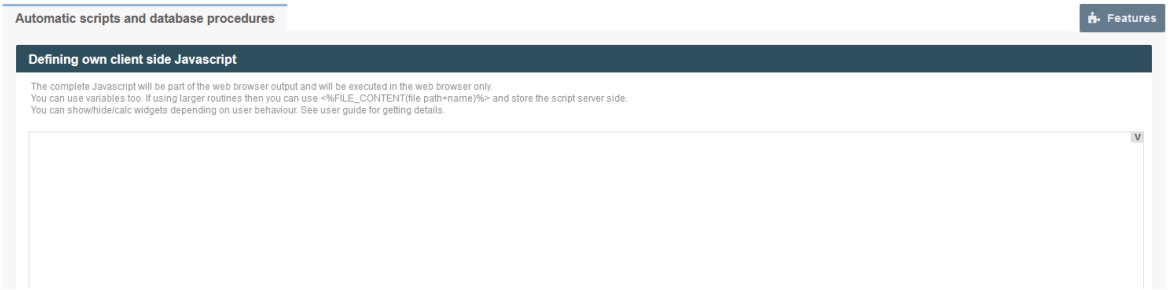
Optional a message window can be activated.

The action will be defined on widget level:



7.7.18.8 Defining own client side Javascript

Allows the us of client side custom JavaScript functions ad the use of special Apparo JavaScript methods like afe.callClassMethod as mentioned ealrier in this chapter.



Especially for this area you can use special methods to read and change widgets values
A video guide using this methods to implement a planning feature is available in the Apparo Deigner in the training menu or online on movies.apparo.solutions and also described later in this user guide in the chapter “Planning application using a Table Business Case”.

Special Apparo Methods

getAfeTableWidgetValue

Supported are

- getAfeTableWidgetNumValue – reads and handles the values as numeric values
- getAfeTableWidgetStringValue - reads and handles the values as string values

setAfeTableWidgetValue

Supported are

- setAfeTableWidgetNumValue – writes the values as numeric values
- setAfeTableWidgetStringValue - writes the values as string values

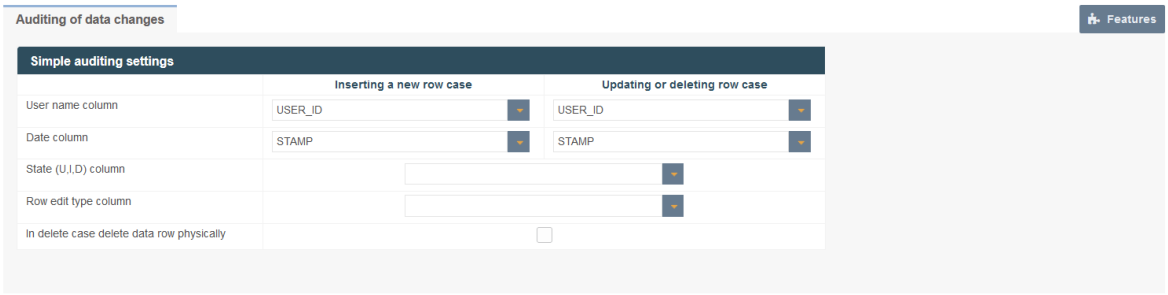
7.7.19 Auditing of data changes

The audit function you can use to document all data changes.

There are 2 different types of audit:

7.7.19.1 Simple Auditing

To save the audit information into the target table.



It is possible to save the user name, date and time and the type of change for each row in the target table.

There are 2 different types of changes possible:

- The user adds a new row
- The user deletes or modifies a row.

The following states are possible: U = Update, I = Insert, D = Delete

Options

User name column
Stores the name oft he user

Date column
Date column for storing update or insert date and time

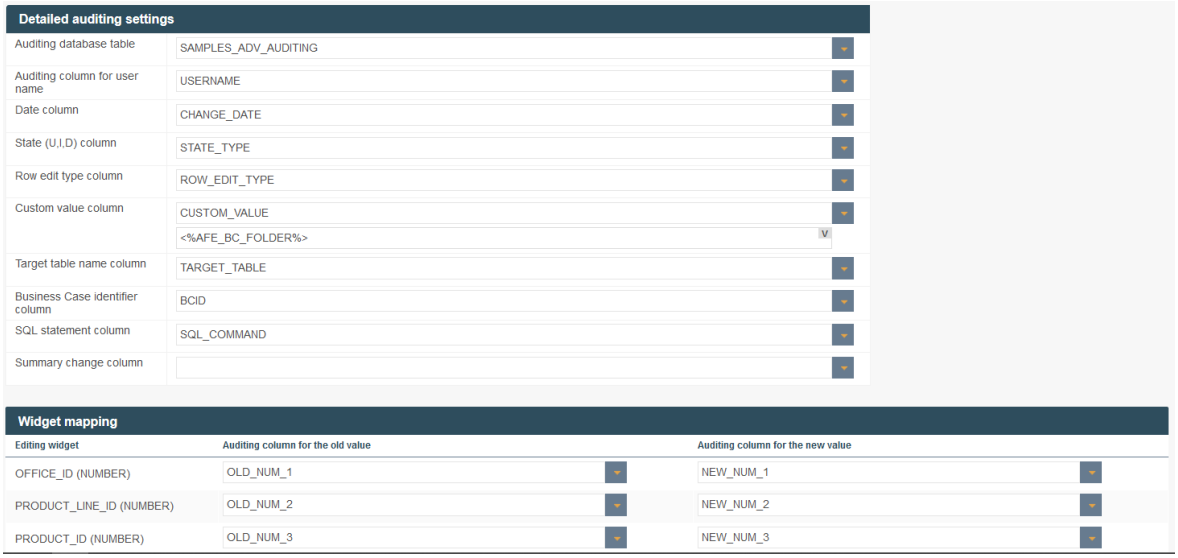
State (U, I, D) column
The database column in that the state (U=Update, I=Insert, D=Delete) will be stored.

Row edit type column
In this auditing column the row edit type can be stored. The row edit type (type of string) is describing the way of editing.

In delete case delete data row physically
Physically delete row(s) with 'D' flag from table. If disabled then all deleted rows get the state 'D' and are not physically deleted.

7.7.19.2 Detailed Auditing

Storing detailed audit information in a separate audit database table helpful if every small change (eg a column) with name, timestamp, old&new values etc. should be documented.



Options

Database schema
The database schema in that the auditing table is already stored.

Auditing database table
The database table for the auditing data.

Auditing column for user name
The database column of the auditing table in that the user name who has changed data will be stored.

Date column
The auditing column for storing the date/time of the data change.

State (U, I , D) column
The auditing table column in that the state must be stored (U=update, I=insert, D=delete).

Row edit type column
In this auditing column the row edit type can be stored.

Custom value column
In this auditing column a custom value with variables can be stored that is stored in the auditing table only.

Target table name column
In this auditing column the name of the target table of this Business Case can be stored.

Business Case identifier column
In this auditing column the Business Case ID (short name) can be stored.

SQL statement column
In this auditing column the SQL statement can be stored. Be sure that this column can store a long text.

Summary change column
This text contains all data changes in one string like oldValue=1, newValue=2,..

7.7.20 Data History

Apparo Fast Edit can historicize a record (slowly changing dimension type 1 and 2).
Information about "**Slowly changing dimension**", see:

http://en.wikipedia.org/wiki/Slowly_Changing_Dimensions

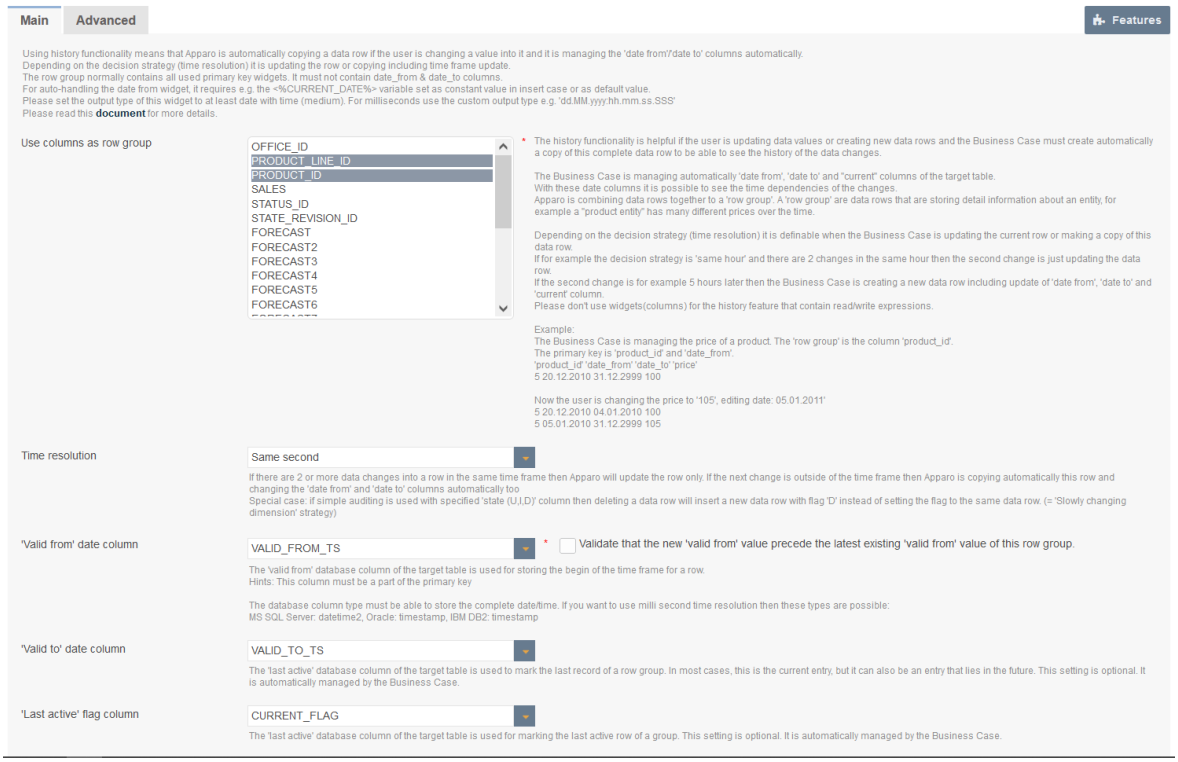
Note: For a historicizing the database must be able to perform "save points".

Since the Sybase / Teradata JDBC driver does not support this feature, the historicization of records within a Sybase or Teradata database is not possible.

This function automatically copies data rows when they are modified.
It automatically manages the current record and makes it possible to either overwrite or historicize records within time frame definitions.

The user usually sees only the current line and not the data changes or deletions (if only virtually), the new rows are simply copies of the original lines.

Hint: There is detailed description document with use case on our website under Docs or download it from <<here>>



The Business Case ismanaging automatically 'date from', 'date to' and "current" columns of the target table. With these date columns it is possible to see the time dependencies of the changes.

Background

Apparo Fast Edit is combining data rows together to a 'row group'. A 'row group' are data rows that are storing detail information about an entity, for example a "product entity" has many different prices over the time.

Please don't use widgets (columns) for the history feature that contain read/write expressions.

Time resolution

If there are 2 or more data changes into a row in the same time frame then Apparo Fast Edit will update the row only. If the next change is outside of the time frame then Apparo Fast Edit is copying automatically this row and changing the 'date from' and 'date to' columns automatically too.

'Valid from' date column

The 'valid from' database column of the target table is used for storing the begin of the time frame for a row.

Validate that the new 'valid from' value precede the latest existing 'valid from' value of this row group.

Useful for manually entered valid from values
HINT: this column must be a part of the primary key

'Valid to' date column

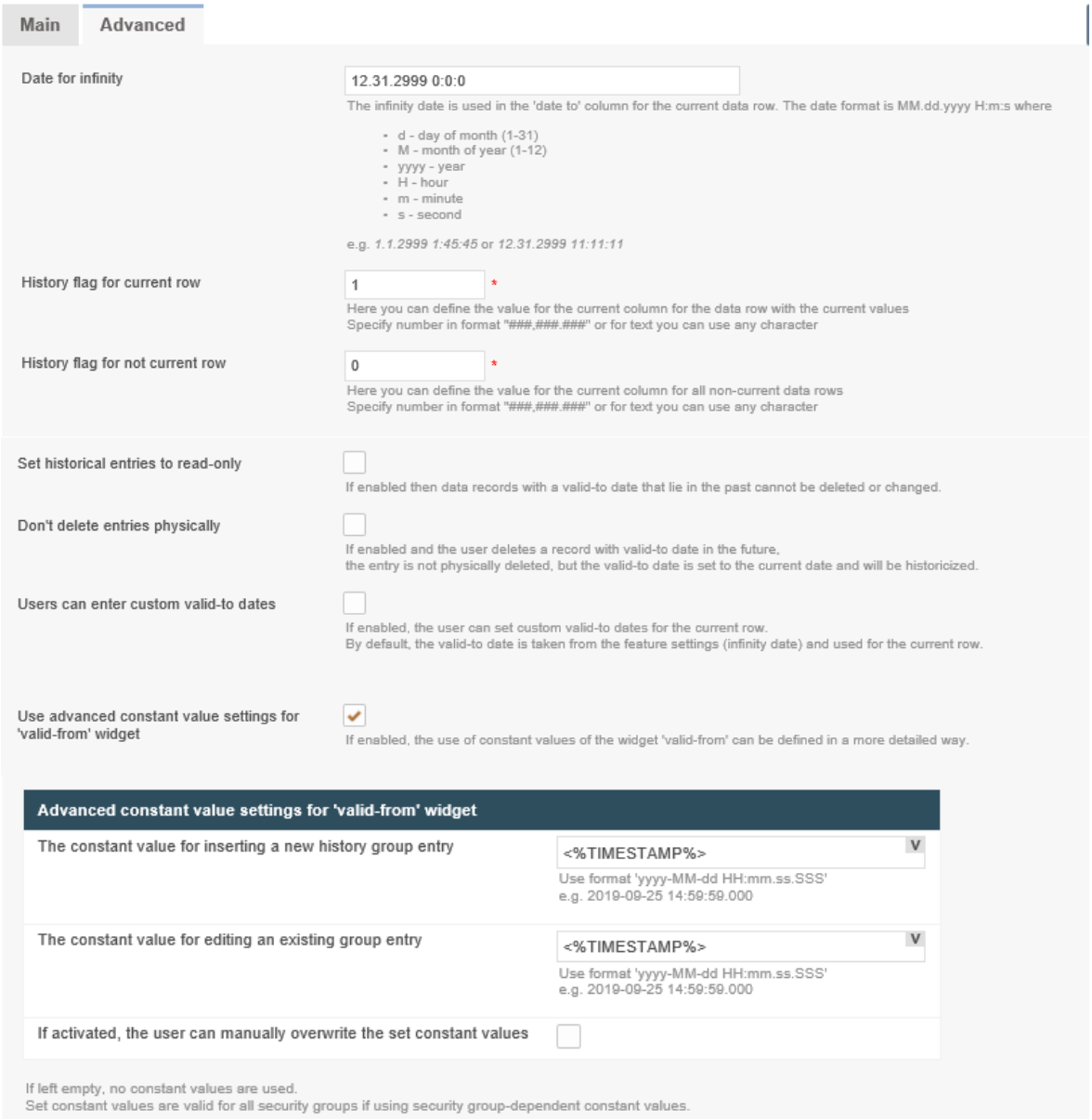
The 'valid to' database column of the target table is used for storing the end of the time frame for a row. This setting is optional. It is automatically managed by the Business Case .

Use for current flag

The 'current' database column of the target table is used for marking the current row of a group. This setting is optional. It is automatically managed by the Business Case .

Advanced settings

It contains the settings for the infinity date, the current flag and other settings.



Date for infinity

The infinity date is used in the 'date to' column for the current data row.
The date format is: MM.dd.yyyy H:m:s
Where

- d - day of month (1-31)
- M - month of year (1-12)
- yyyy - year
- H - hour
- m - minute
- s - second

e.g. 1.1.2999 1:45:45 or 12.31.2999 11:11:11

History flag for current row

Here you can define the value for the current column for the data row with the current values
Specify number in format "###,###.###" or for text you can use any character.

In most cases the value ‘1’ is used here.

History flag for not current row

Here you can define the value for the current column for all non-current data rows
Specify number in format "###,###.###" or for text you can use any character

In most cases the value ‘0’ is used here.

Set historical entries to read-only

If enabled then data records with a valid-to date that lie in the past turns to read-only and cannot be deleted or changed.

Don't delete entries physically

If enabled and the user deletes a record with valid-to date in the future,
the entry is not physically deleted. In this case the valid-to date is set to the current date instead and will be historicized.

Users can enter custom valid-to dates

If enabled, the user can set manually custom valid-to dates for the current row.
By default is the valid-to date taken from the feature settings (infinity date) and used for the current row automatically.

Use advanced constant value settings for 'valid-from' widget

If enabled, the use of constant values of the widget 'valid-from' can be defined in a more detailed way.
If this feature is activated, but the constant values for inserting and/or editing were left empty, then no constant values are used.
Set constant values are valid for all security groups if using security group-dependent constant values.

The advanced constant value settings for 'valid-from' widget offers three options:

1. *The constant value for inserting a new history group entry*

You can use custom or predefined variables here (e.g. <%TIMESTAMP%> or <%CURRENT_DATE%>) or a fix date value with the format 'yyyy-MM-dd HH:mm.ss.SSS'
e.g. 2019-09-25 14:59:59.000

2. *The constant value for editing an existing group entry*

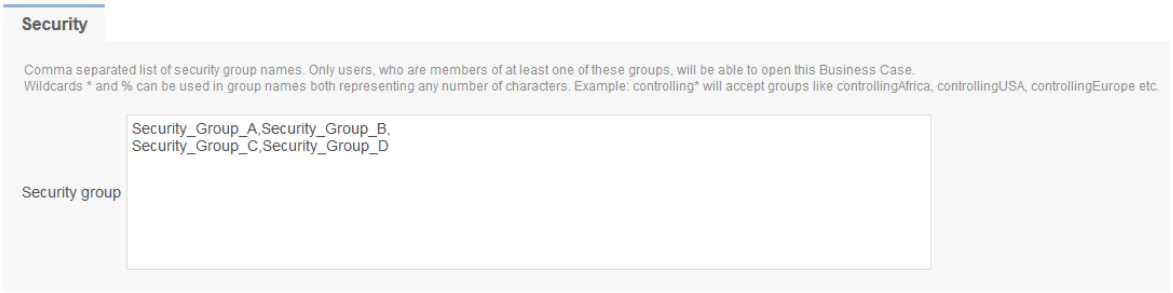
You can use custom or predefined variables here (e.g. <%TIMESTAMP%> or <%CURRENT_DATE%>) or a fix date value with the format 'yyyy-MM-dd HH:mm.ss.SSS'
e.g. 2019-09-25 14:59:59.000

3. *If activated, the user can manually overwrite the set constant values*

Users can enter manually custom values instead of using the given constant values.

7.7.21 Security

This limits the general access to the Business Case (whitelist).
Only users who are member of at least one of the entered groups can use this Business Case.
Security groups are to be entered separated by commas.



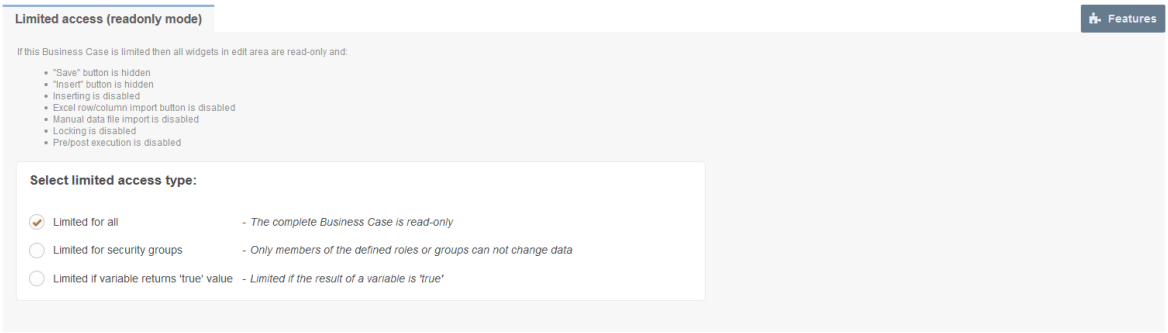
Wildcards * and % can be used in group names both representing any number of characters.
Example: controlling* will accept groups like controllingAfrica, controllingUSA, controllingEurope etc.

7.7.22 Limited Access

The limited access limits the possibilities of a Business Case to output data only.

In the limited access mode can:

- No data be entered or changed (neither manually, yet over the Excel Import)
- No scripts or database procedures (functions) get started
- Buttons only limited be used



The limited access may be restricted

- for specific security groups
- when a variable returns true (for example, to avoid entering of data during maintenance periods)

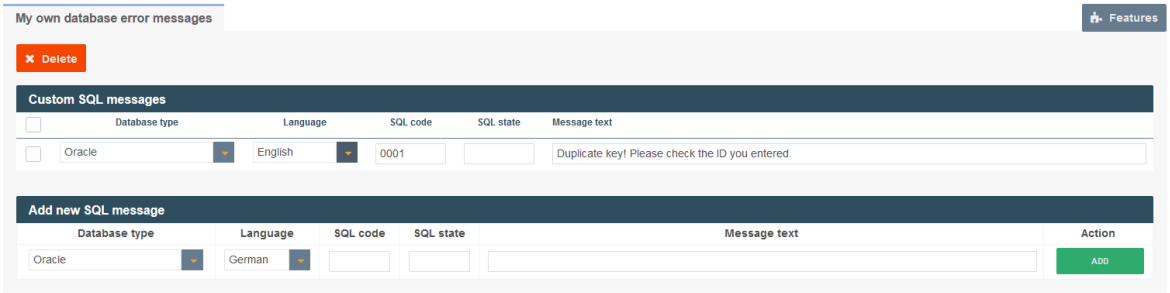
7.7.23 My own database error messages

When the database an error returned is the original message shown by default. With this feature you can define own more understandeble messages for your users.

The field SQL status is optional, but may help to group error messages.

If you want to define your own messages, you must first import the DB type template file, stored in the 'dbmessages' path.

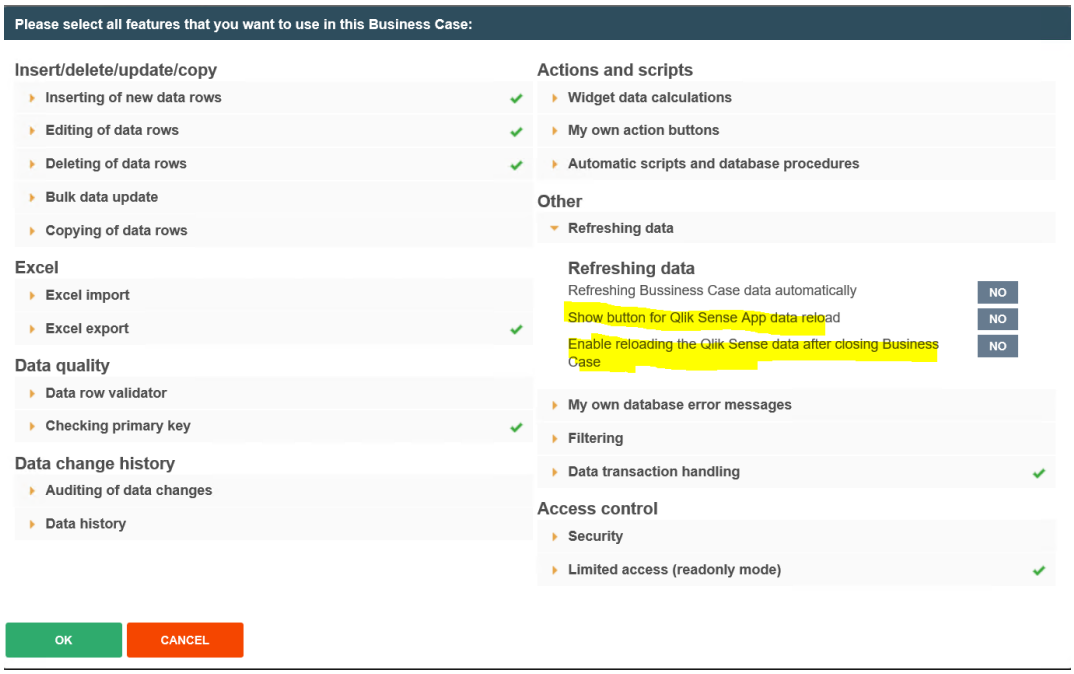
Example:
To define a custom message for Oracle Code ORA-02291 enter '02291' in the field "SQL Error Code".



7.7.24 Refreshing of the Qlik Sense App data

You can enable automatic refreshing of the Qlik Sense App and refreshing of the user interface output after closing the Business Case here.

For the refresh feature there are NO configuration steps for Qlik Sense or the App necessary.
The refresh is done asynchronous. That means it need some seconds before the refresh is starting.



Another possibility is to start a Qlik Sense task using a Script variable:

afe.startQlikSenseTask('Task-Name');

Where Task-Name is name of task defined in Qlik Management Console.

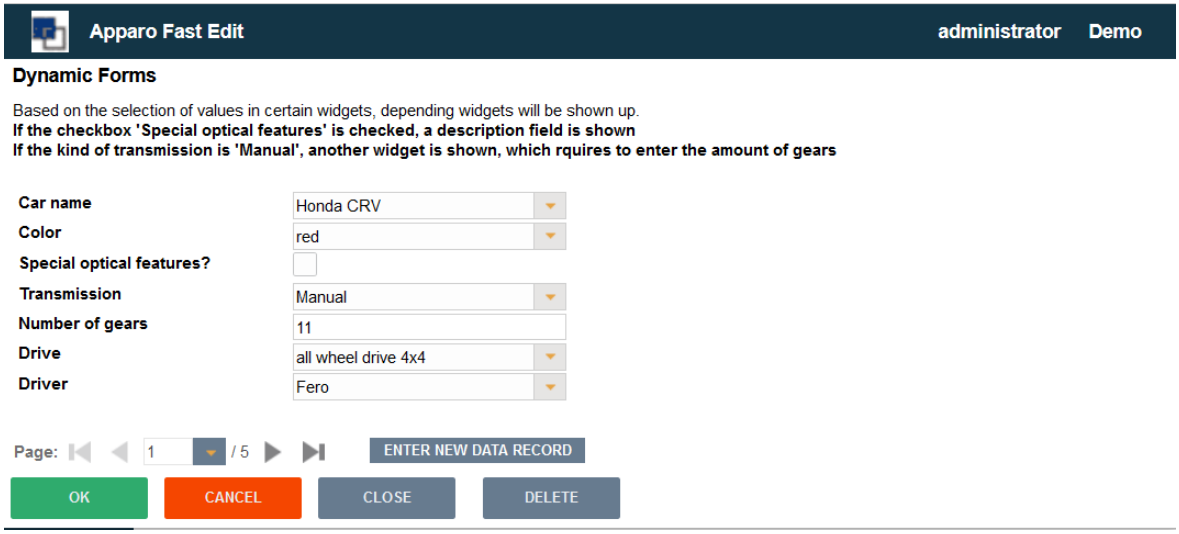
afe.stopQlikSenseTaskById(Id);

Using the ID of a task as parameter.

8 Single Business Cases (SBC)

A single Business Case (SBC) is used to represent a single data set (database row). A typical application is a data entry screen or a detailed view.

The functions and settings of the SBC are substantially identical to those of Table Business Cases.
This chapter focuses on the features and the settings that apply only to the single Business Case .



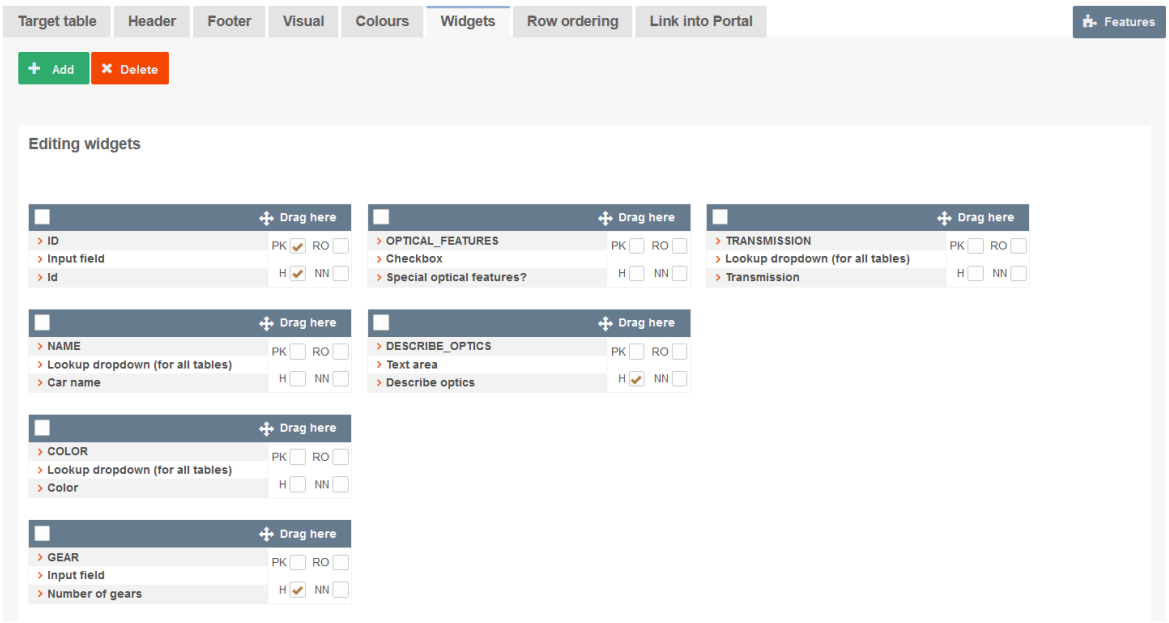
User view of a SBC, the widgets are visually divided into 2 columns.

8.1 Structure of the SBC

- **Header area** - with the title and description
- **Data area** - where the widgets are arranged in columns
- **Navigation pane** - used to navigate between records and the switch button for the data input mode
- **Button area** - contains the default and user-defined buttons
- Optional **footer area** - for info and graphics

8.2 Arrangement of the widgets in the SBC

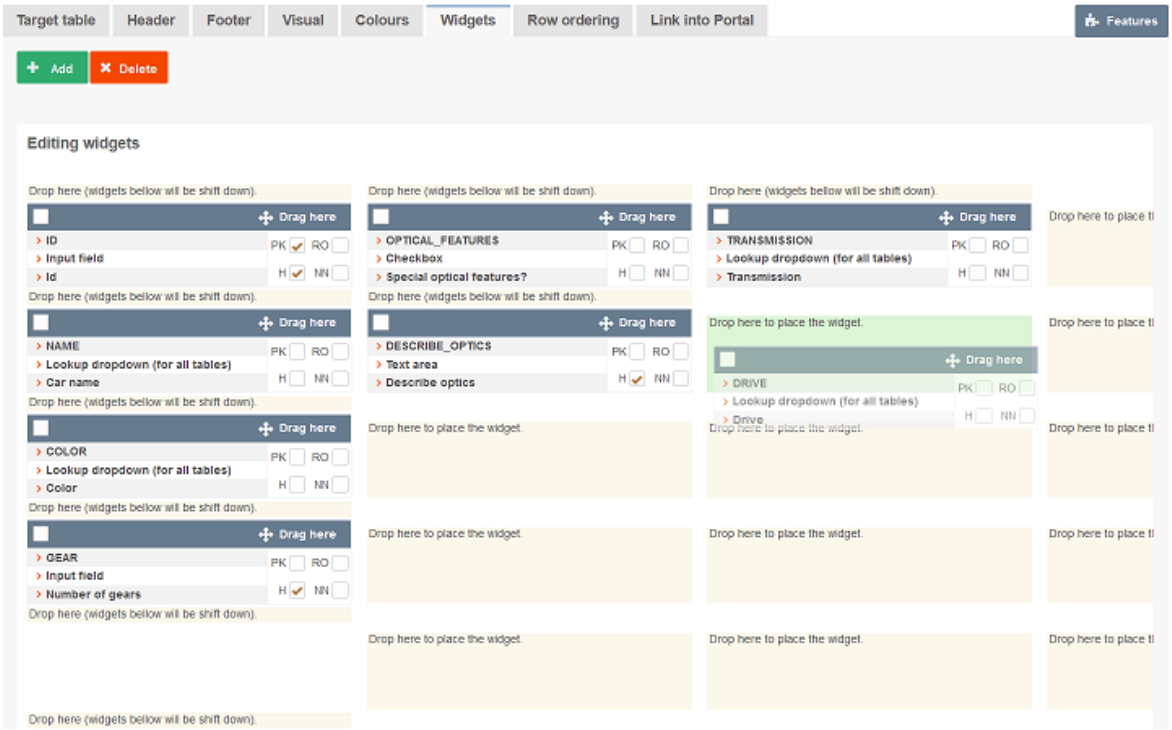
The widgets in the SBC can be output with multiple columns, the order is determined by the line.

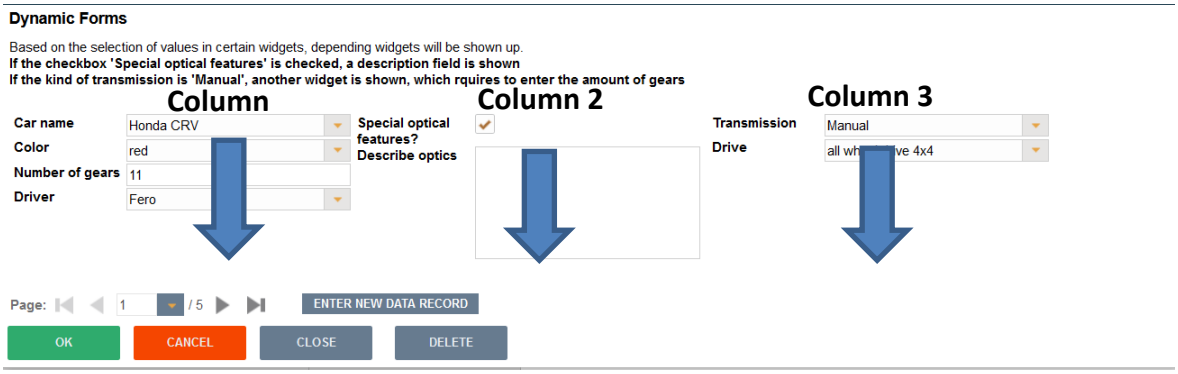


Designer view: The arrangement of the widget by columns and rows

Move widget(s) to another column

Use the mouse to drag the widget to the desired position

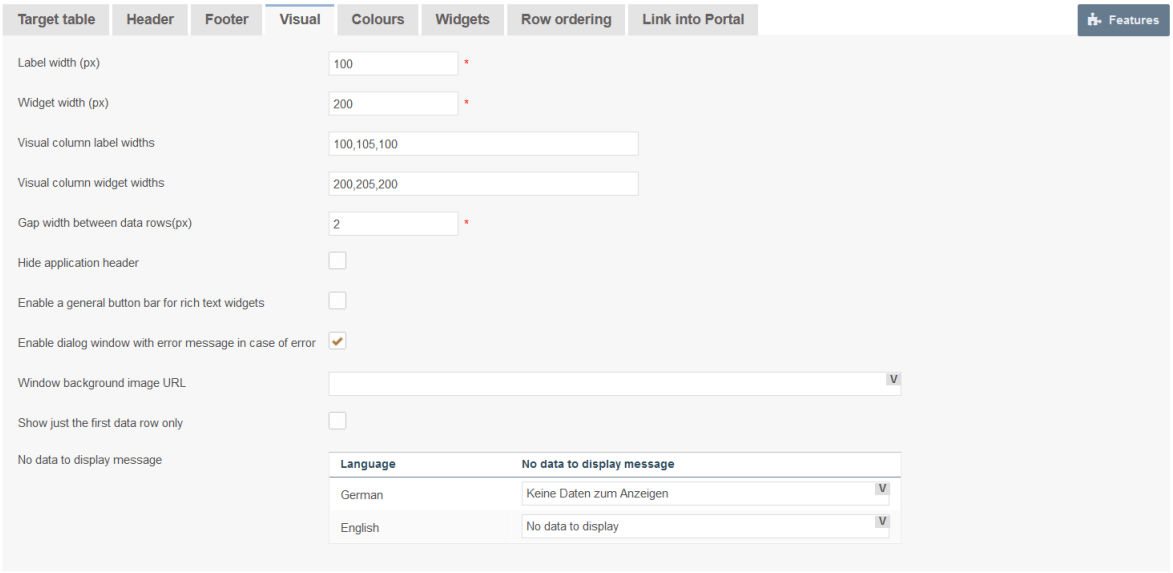



Dynamic Forms
Based on the selection of values in certain widgets, depending widgets will be shown up.
If the checkbox 'Special optical features' is checked, a description field is shown
If the kind of transmission is 'Manual', another widget is shown, which rquires to enter the amount of gears
Column
Column 2
Column 3
Row 1
Row 2
Row 3
Row 4
Car name
Honda CRV
Color
red
Number of gears
11
Driver
Fero
Special optical features?
Describe optics
Transmission
Manual
Drive
Page:
1
/ 5
ENTER NEW DATA RECORD
OK
CANCEL
CLOSE
DELETE

User view

8.3 Visual

Here you define the general optical settings for the single Business Case .
These settings are different from those in Table Business Case



Options

Label width (px)

Width of the label in pixels

Widget width (px) *

Width of the input area of the widget

Visual column label widths

Defines the visual column label widths. If no value is defined for visual column label width then 'Label Width' property is used as default value; e.g.

100,150,200	3 visual columns with label widths 100 (px), 150 (px) and 200 (px)
100,,200	3 visual columns with label widths 100 (px), 'Label Width' (px) and 200 (px)
,,200	3 visual columns with label widths 'Label Width' (px), 'Label Width' (px) and 200 (px)

IMPORTANT: Negative numbers are not valid.

Visual column widget widths

Defines the visual column widget widths. If no value is defined for visual column widget width then 'Widget Width' property is used as default value; e.g.

100,150,200	3 visual columns with widget widths 100 (px), 150 (px) and 200 (px)
100,,200	3 visual columns with widget widths 100 (px), 'Widget Width' (px) and 200 (px)
,,200	3 visual columns with widget widths 'Widget Width' (px), 'Widget Width' (px) and 200 (px)

IMPORTANT: Negative numbers are not valid

Gap width between data rows(px)

The optical gap between data rows in pixels, default is 2

Hide application header

Hides the blue application header

Enable a general button bar for rich text widgets

When this feature is enabled, the user sees only a button bar with buttons for bold, italic, underline, etc. for changing the text style in rich text widgets.
This button bar is necessary when using text area type widgets with rich text functionality
(bold, italic, underline, use different colors). The general button bar is visible as in Microsoft Word.
If it is disabled, each text area with rich text functionality has its own button bar.

Enable dialog window with error message in case of error

If this setting is enabled than a pop-up dialog window will be displayed after each error.

Window background image URL

It is possible to use own background picture using an URL.

Show just the first data row only

When enabled only first data row will be displayed; otherwise additional buttons "<<" and ">>" will be displayed to show previous respectively next data row.

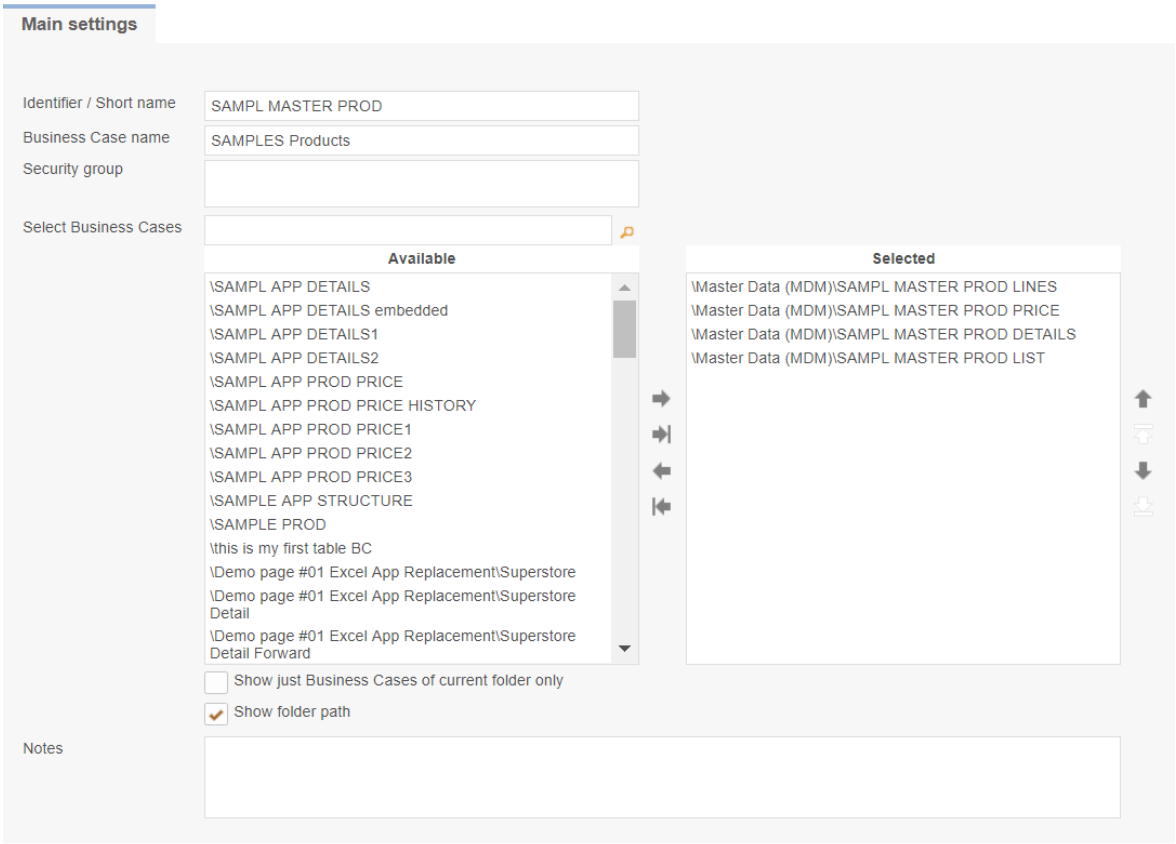
No data to display message

Message presented to user when there are no data to display

9 Business Case Sets (Set)

Sets group multiple Business Cases in a tab view. The Business Cases can be accessed with tabs and edited comfortable.

9.1 Selection and positioning of Business Cases in the set (Set)



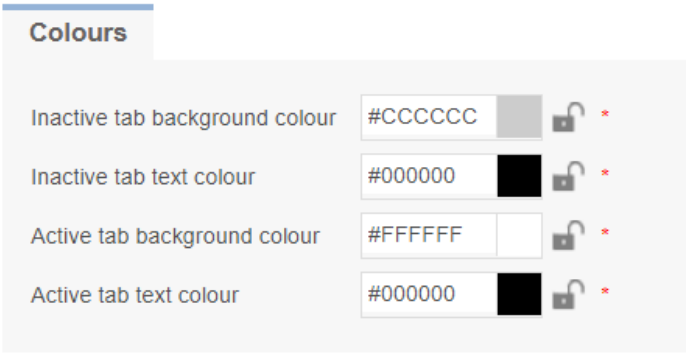
In ‚Available' you find all existing Business Cases.
By double-clicking or using the arrow keys, these are assigned to the set.

The positioning within the set is also done via arrow keys or the mouse.

By holding down the Ctrl key you select multiple Business Cases and move it to the desired position.

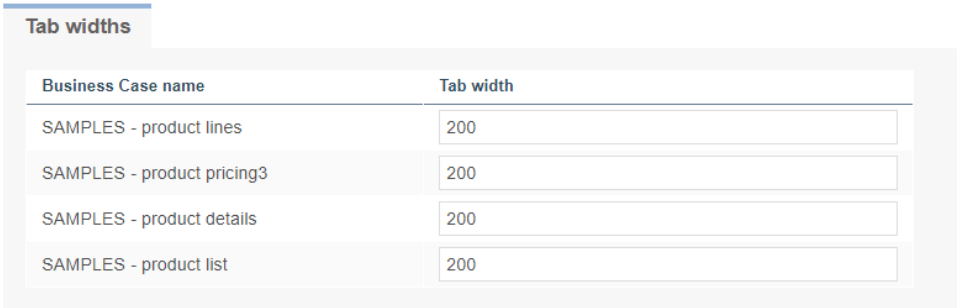
9.2 Colors

In colors you can set the color of the tabs (tab):



9.3 Tab Widths

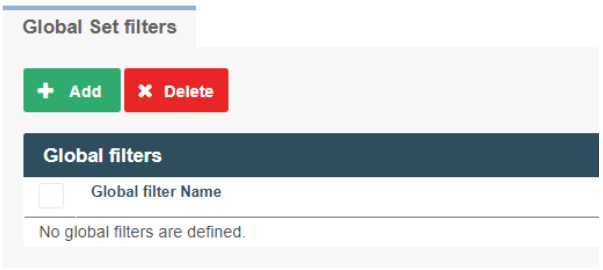
In Table width you define the width of the tabs.



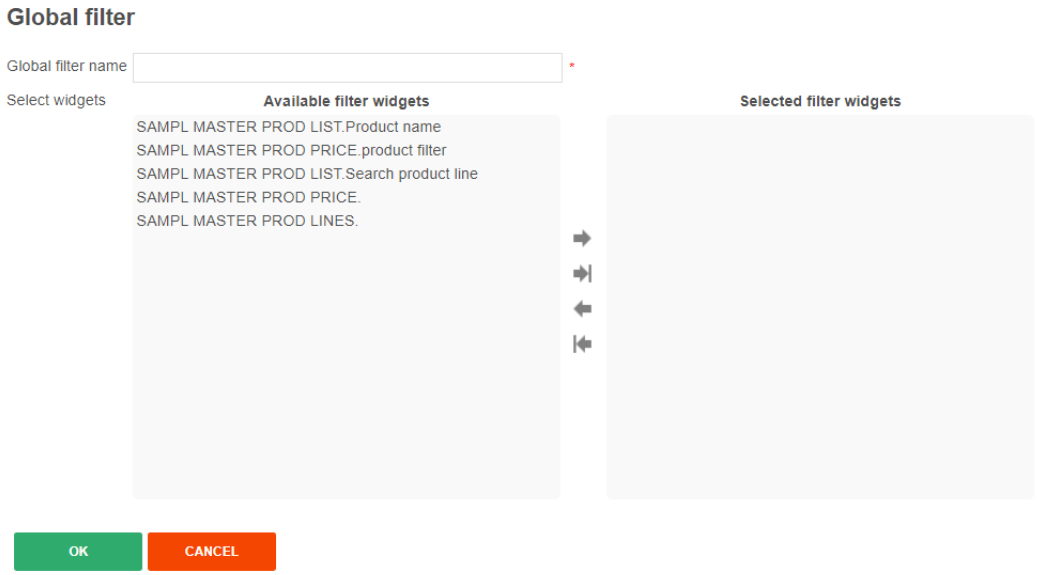
9.4 Global Set filters

A global filter is a connection between different filter widgets of different Business Cases of a Business Case Set. That is helpful if some Business Cases of this Set must be filtered in the same way when if the user is jumping to another Business Case.

Example: All Business Cases must filter for the same product and the user is selecting the product just once. It is possible to use many different global filters parallel, e.g. for product and for product-line.

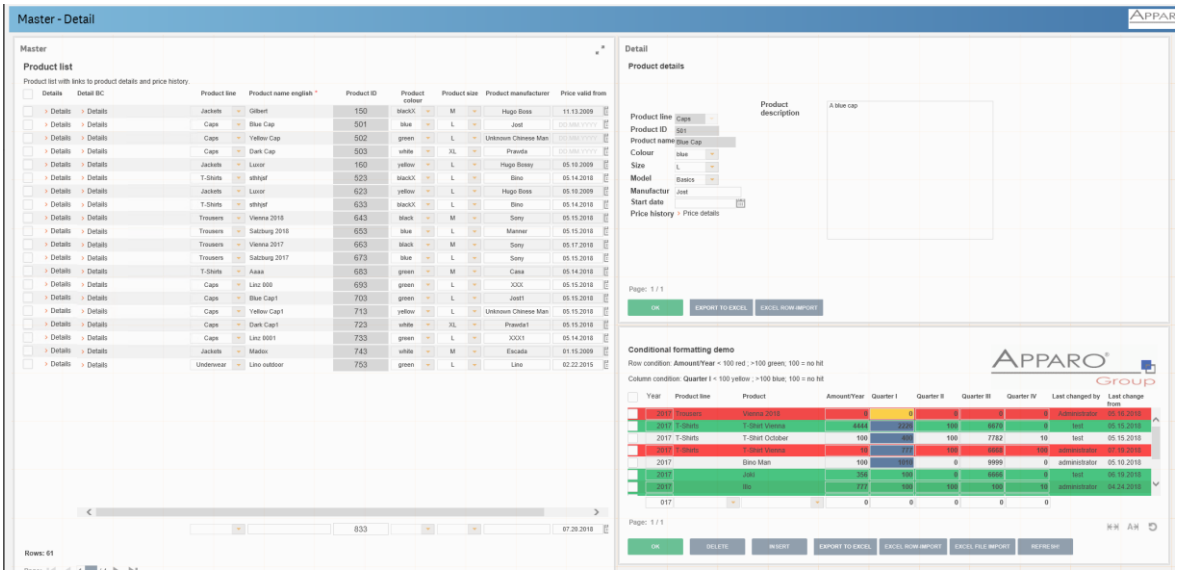


All existing filter widgets of the Business Cases in the Set are listed here.
To create a global Set filter, move all related filters to ‚Selected filter widgets' and hit OK.



10 Output of many Business Cases in your App with synchronizing

You can output multiple Business Cases in one app and control when they should be updated.



The individual Business Case can be updated if necessary. Individual parameters such as primary key or a report variable can also be transferred.

Thus, e.g. In the upper screen, the right upper Business Case can be updated depending on user behavior in the left Business Case.

Attention: This feature only works if the Apparo Gateway has been installed parallel to the Qlik Sense Proxy (web server) and the Qlik Sense Hub has been invoked with the same domain as defined in Apparo Fast Edit (that is, normally it does not work with localhost).

This makes even more complex Excel applications with Qlik Sense and Apparo removable.

Advantages:

- Always **up-to-date data**, no import to Excel necessary
- There is always **only one current version** of the program, which can be accessed by all users at any time via browser
- **Data import from Excel** is simple, fast and quality assured
- **Auditing, Logging**: Any data change can be logged
- **Security** - the security system of Qlik Sense is used

The update request is controlled by JavaScript method:

afe.refreshEmbeddedBC ('iframeName', 'Business Case Id', 'parameters like p1 or report variables')

iframeName:
This is the name of the HTML iframe, which returns the Business Case to be updated.
The name of iframe is definable in the Apparo BC extension.

Business Case ID:
The Business Case ID of the Business Case that is to be reissued. That means yu can also run different Business Cases depending on your business logic.
Hint: In this case just do not enter a Business Case ID into the Apparo BC extension.

Additional parameters:
Here you can pass parameters such as primary key or report variables
Example: p1 = 100 & FE_Variable = test

afe.refreshEmbeddedBC can be used in a script variable or in a JavaScript file.

10.1.1 Usage in a script variable

var rc='';
afe.refreshEmbeddedBC('Details','Product details','p1=<%SEARCH_KEY_PRODUCT_LINE_ID%>');
rc;

The refresh is requested as soon as this variable is executed and the Business Case output is updated. Therefore this variable could be placed in the Business Case Header or Footer

10.1.2 Usage in a Javascript file

Content of the file refresh.js (this file must be stored server side in default C:\Program Files\Apparo\FastEdit\user_scripts).

afe.refreshEmbeddedBC('Details','Product details','p1=<%SEARCH_KEY_PRODUCT_LINE_ID%>');

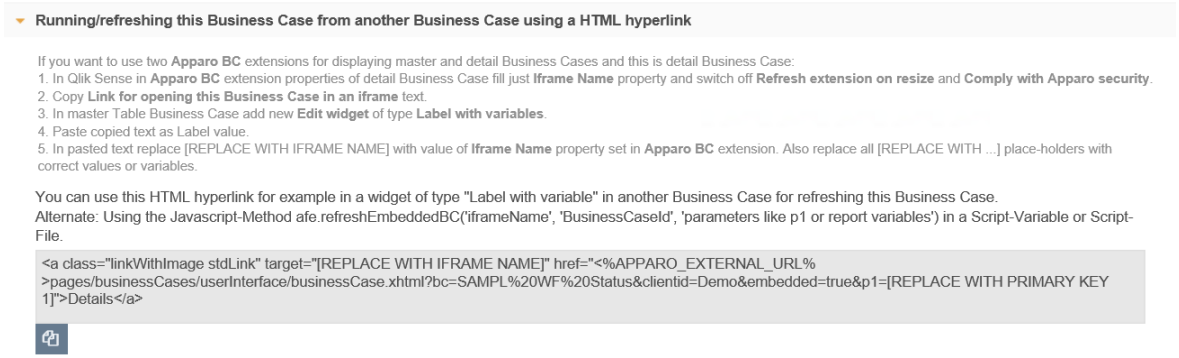
This javascript file must be called if refresh is necessary:

- Call with Pre/Post-Scripts, for example post-insert
- Call using own button

10.2 Usage with HTML hyperlink

You can also define a hyperlink with HTML in a "label with variable" widget that the user can use to refresh immediately:

You can find it in the Business Case Definition, tab "Linking to Qlik Sense":



This example calls the Business Case with the ID "SAMPLE WF Status" and the client "Demo".
The first primary key can be included.

The refresh is executed immediately as soon as the user clicks on the hyperlink.

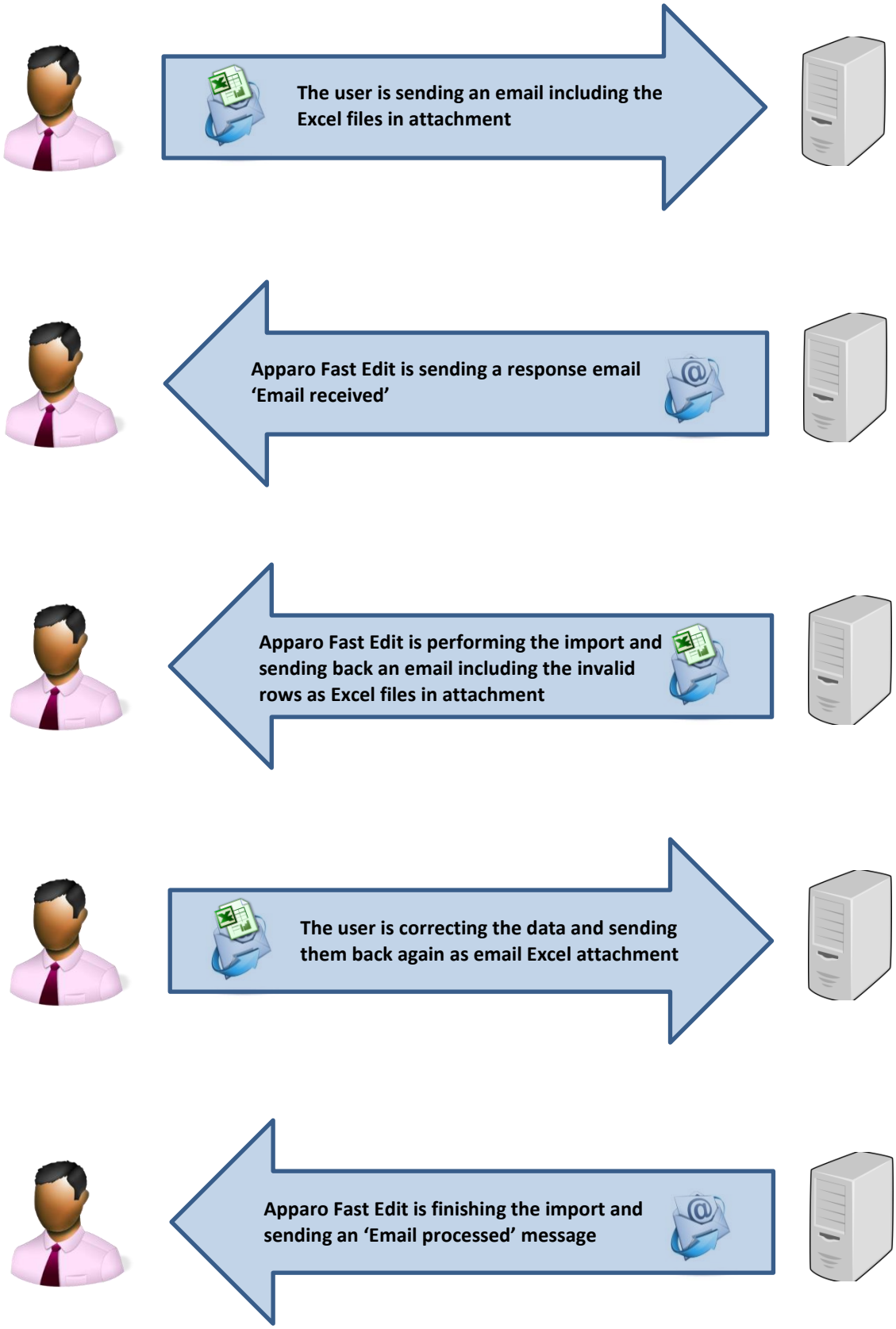
11 E-Mail Import Business Case (EIBC)

The Excel Email Import feature enables you to import data that is stored in Excel files (CSV, XLS, XLSX) from email attachments.

That means the user can send an email with **Excel files in attachment and the data of these Excel files will be imported automatically in your relational databases**.

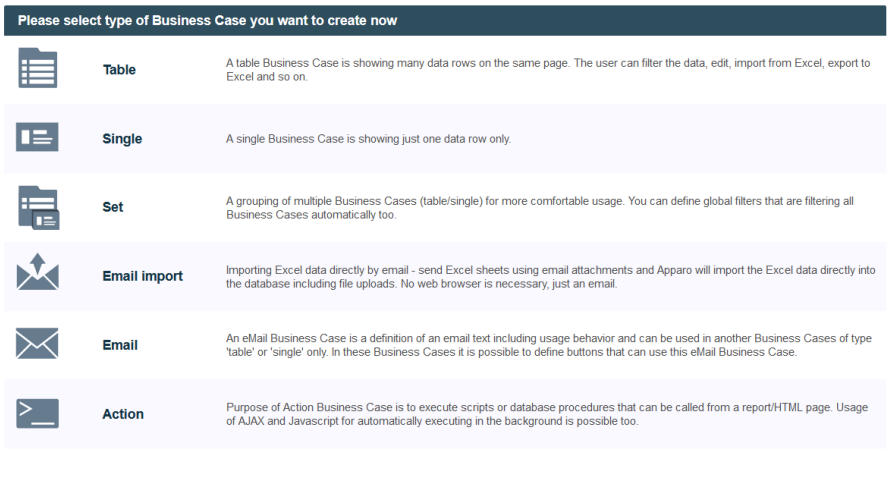
The user is getting automatically answer-emails that are informing the user about the progress or data quality issues.

All activities can be logged in database table, the emails and attachments can be stored physically on the server.


The user is sending an email including the Excel files in attachment
Apparo Fast Edit is sending a response email 'Email received'
Apparo Fast Edit is performing the import and sending back an email including the invalid rows as Excel files in attachment
The user is correcting the data and sending them back again as email Excel attachment
Apparo Fast Edit is finishing the import and sending an 'Email processed' message

11.1 Creating a new Business Case of type 'Email import'

When clicking on New Business Case in the Business Case list the following selection list will appear:



Click on Email Import to create a new 'Email Import Business Case'

For the setup we will need a pre-defined email connection and at least one database connection, used for the Business Case that will perform the import.

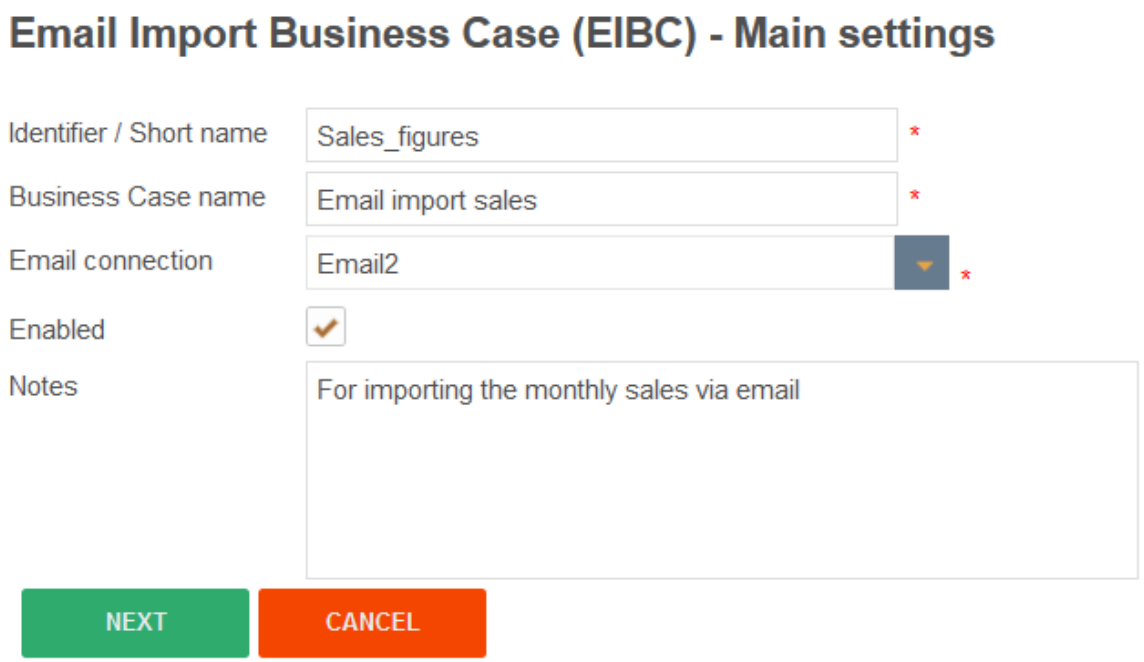
These Business Cases are also containing all definitions for securing the data quality.

The Business Cases must have activated the Excel file import feature.

11.1.1 New Business Case - Main Settings

The main settings require the following settings:

- **Identifier:** The short name of the Business Case (must be unique)
- **Business Case Name:** This name will appear as name when we link the Business Case to the portal
- **Email connection:** The email connection for sending and receiving emails
- **Internal description:** Optional. For documentation purposes only.

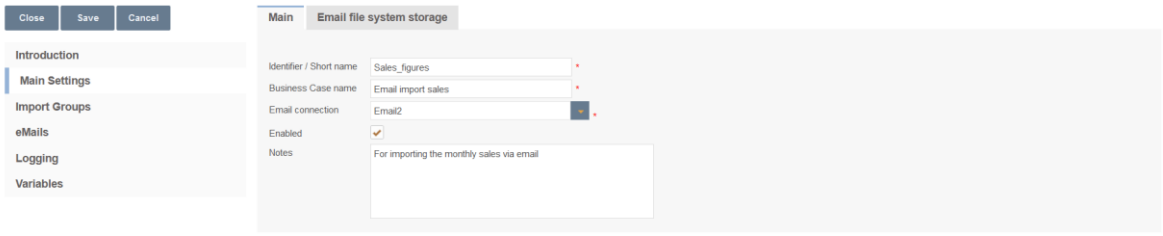


Fill all necessary fields and click 'Next' to create the Business Case

11.2 Overview of all possible settings

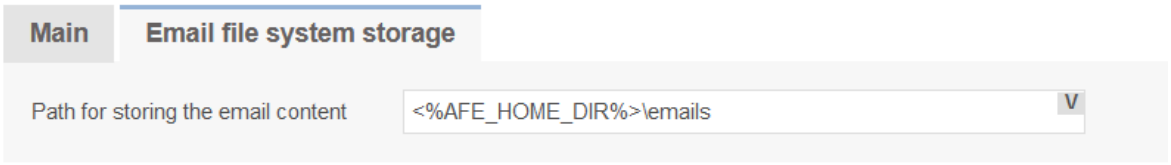
Once the Business Case iscreated we will see the following overview.
Here you can save and close the Business Case and click though the tabs of the settings:

- **Introduction:** Contains usage examples and explanations
- **Main Settings:** Contains the main settings and the server path for storing emails and attachments
- **Importing Groups:** Contains the import groups, the detailed settings how shall be imported
- **eMails:** Here you can define the text of a failure email, for the case that no import group is matching
- **Logging:** Contains the logging settings, details like user name can be mapped here to a database column
- **Variables:** Contains predefined variables and you can create own JavaScript variables



11.3 Main Settings

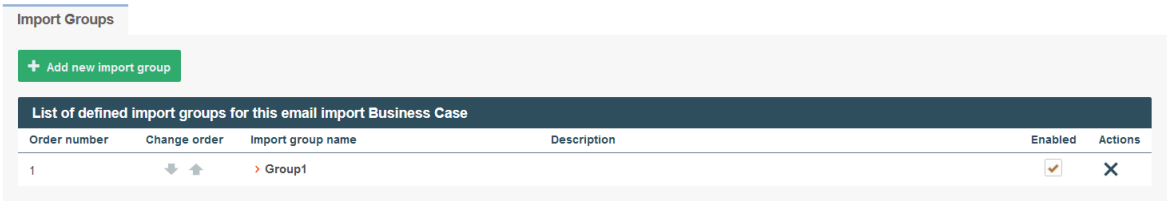
This tab contains, beside from the main settings, the path for storing emails and attachments physically on the server.



Email file system storage

11.4 Importing Groups

An import group contains the definitions of which attachments are expected and which business case should perform the import. It also contains the security settings, log settings and the reply email texts.

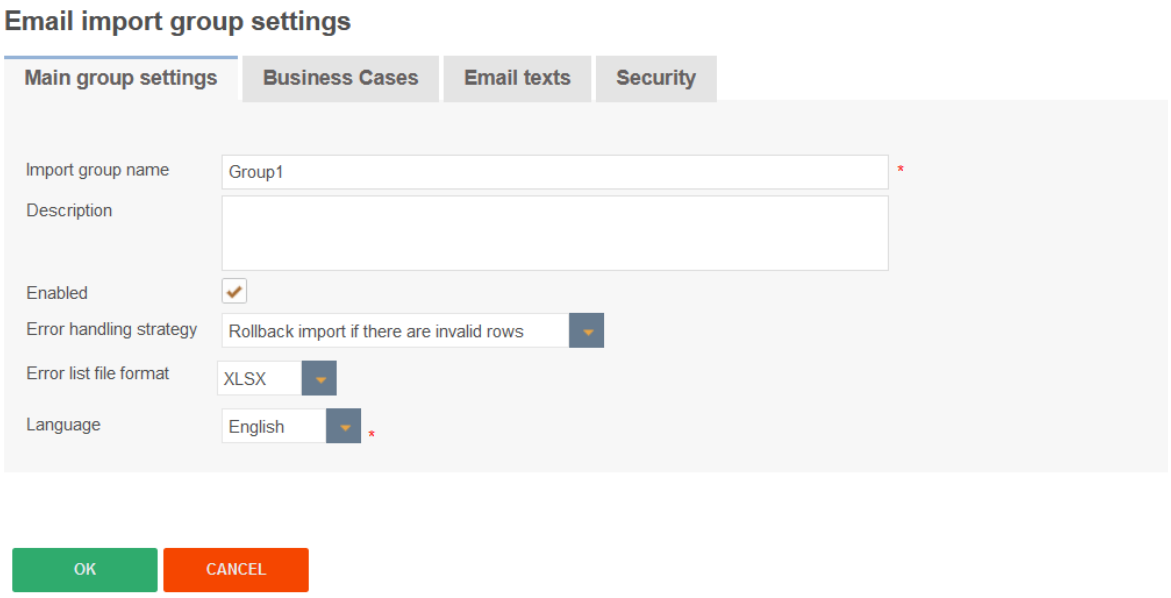


Adding a new import group

11.5 Importing group settings

11.5.1 Main group settings

It contains the import group name (unique) and an optional description text.
You can enable or disable the import group here.



Import group name

The unique name for this import group

Description

Optional: Short description of a use case. For example, "Import profile for collecting monthly sales data".

Enabled

The import group can be disabled here.

Error handling strategy

When there is a data error in an email attachment, there are two possible strategies to deal with it. Either the entire import process is aborted and no data is written, or the process skips rows with errors and saves the good ones. This value overrides the 'Excel import strategy' of the Table Business Cases.

Error list file format

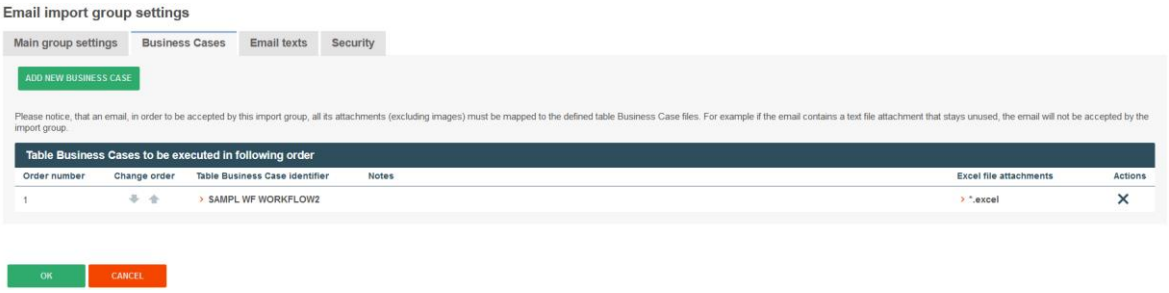
If an import was completed successfully and some errors occurred, the user will receive the errors as an attachment file in the specified format.
For CSV format, you must specify a separator. If you want to use a tab, please enter '\t'.

Language

For validation errors in email attachments, users receive validation messages in the selected language.

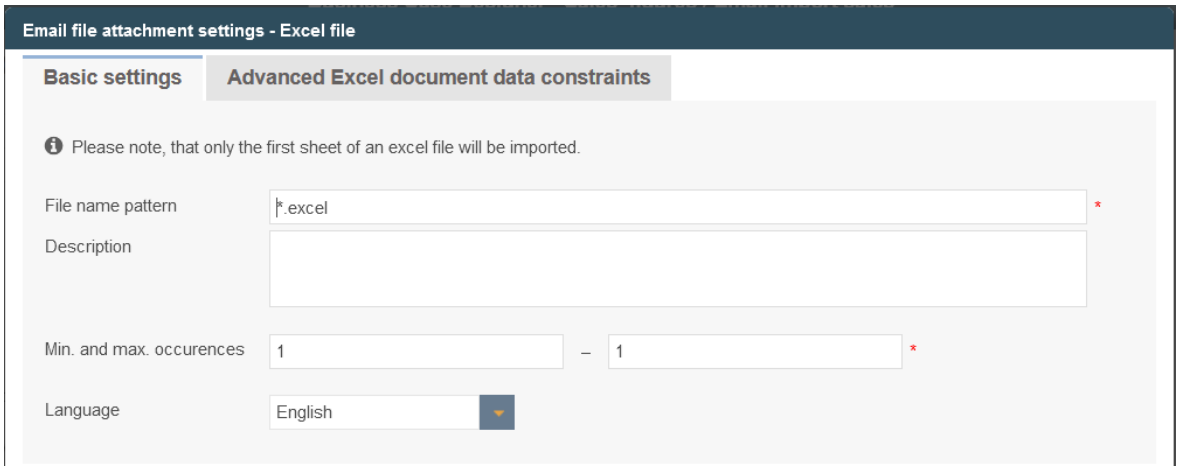
11.5.2 Business Cases

Contains the mapping to all Business Cases that are defined to perform the import. When an email from a valid sender arrives, Apparo Fast Edit automatically analyses the structure of the attachments and comparing the structure with the defined import groups.



11.5.2.1 Add new attachment

You need to define at least one email attachment for every defined importing Business Case.



Creating a new file attachment

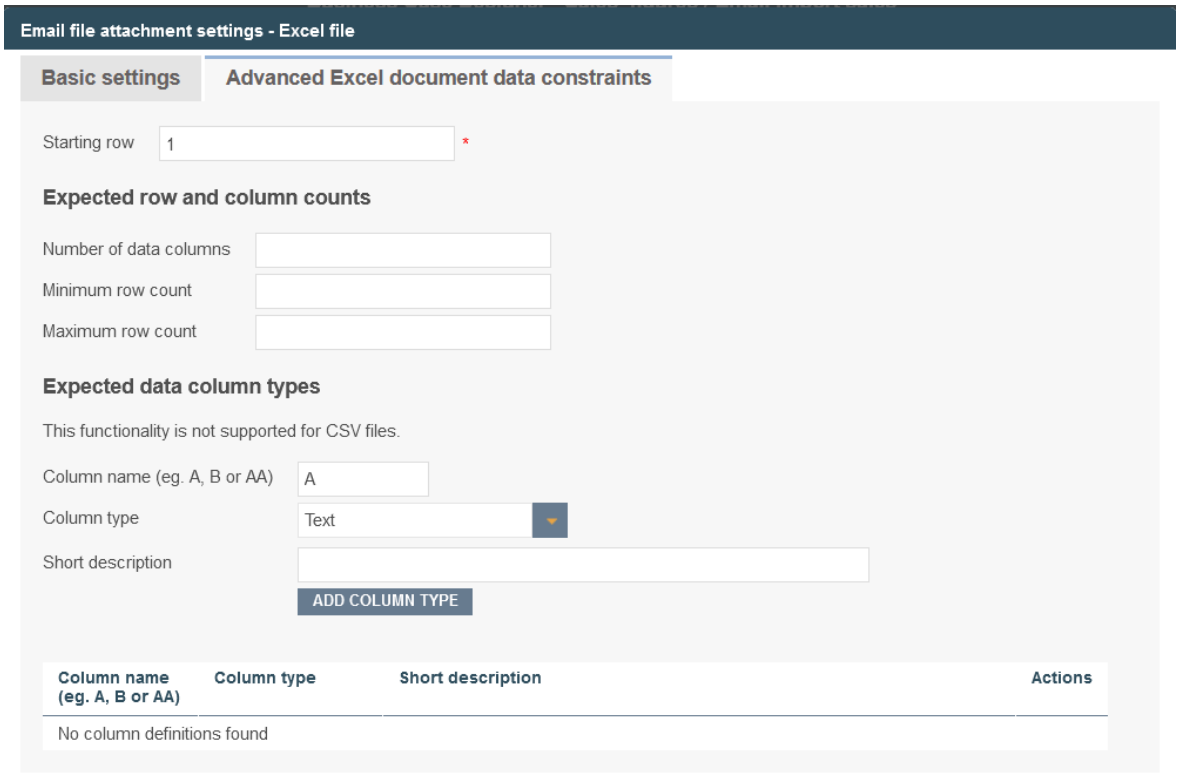
The following properties are expected:

- **File name pattern:** Defines the allowed file extension (*.excel allows all Excel files: .xls, .xlsx, .csv)
- **Description:** For the internal documentation
- **Starting row:** For the case it contains a header in row 1, we start the import in row 2
- **Min and Max occurrences:** The minimum should be at least 1 – the user gets an error email if the attachment contains less attachments than expected
- **Language:** Important for language sensitive data types e.g. dates and numbers

11.5.2.2 Advanced Excel document data constraints

This feature is optional:

Here you can define the expected data column types, this feature allows Apparo Fast Edit to better distinguish similar Excel file attachments.



Expected row and column counts

Here you can define the number of columns and the minimum/maximum number of rows for valid Excel imports.

Expected data column types

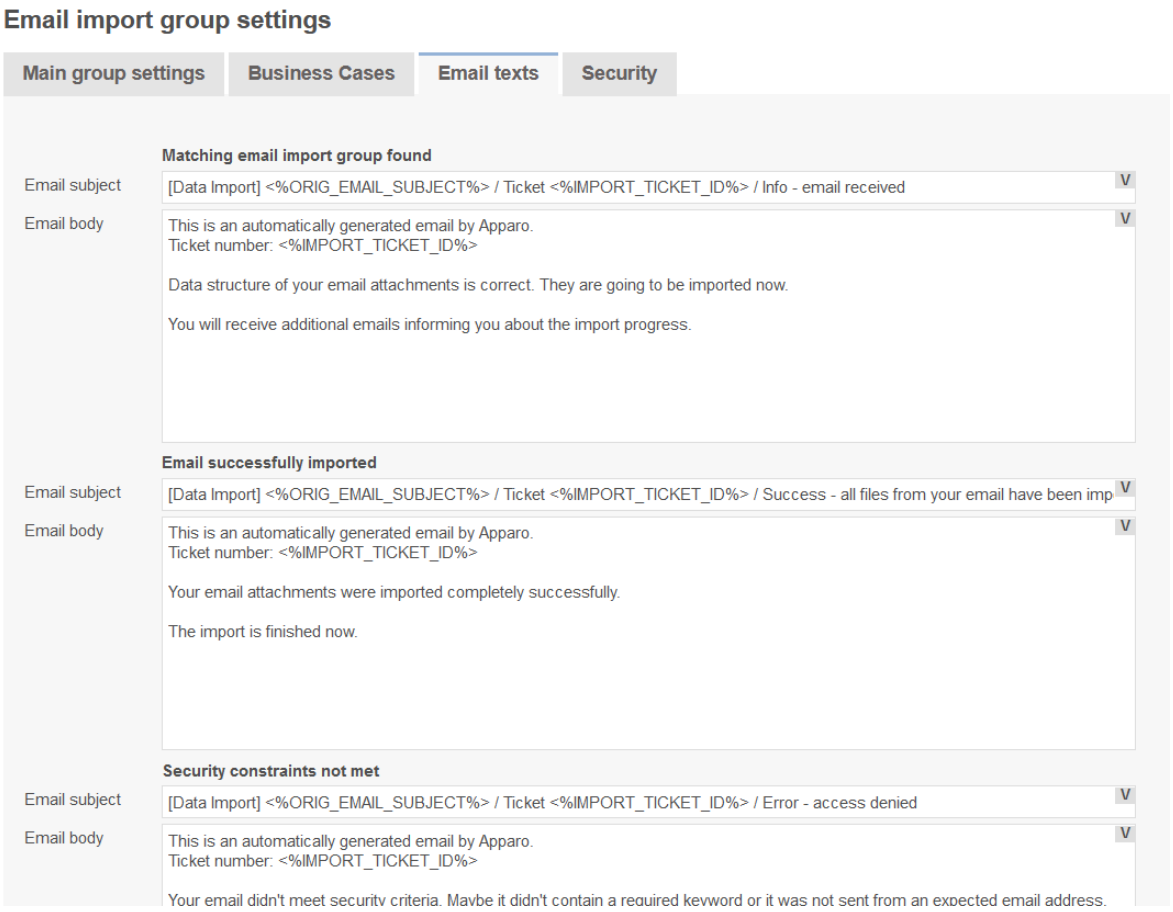
Here you can define all expected columns in detail

11.5.3 Email texts

Contain the bodies of different auto response emails.
Optional. When empty, no email will be sent.

There different kinds of response emails:

- **'Matching email import group found':** Sent when email received
- **'Confirmation email':** Sent when confirmation by user is necessary
- **'Security constraints not met':** Sender does have the required rights for the import
- **'Email processing cancelled because of error':** Sent in case of data errors and the import is set to 'Cancel the import in case of errors'
- **'Errors occurred, but import was performed':** Sent when the import is finished with errors
- **'Email successfully imported'**
- **'Limited access prevented email processing':** The feature 'limited access' is activated and prevents the import
- **'Error list':** Email with file attachment containing all erroneous rows



Auto response email texts

11.5.4 Security

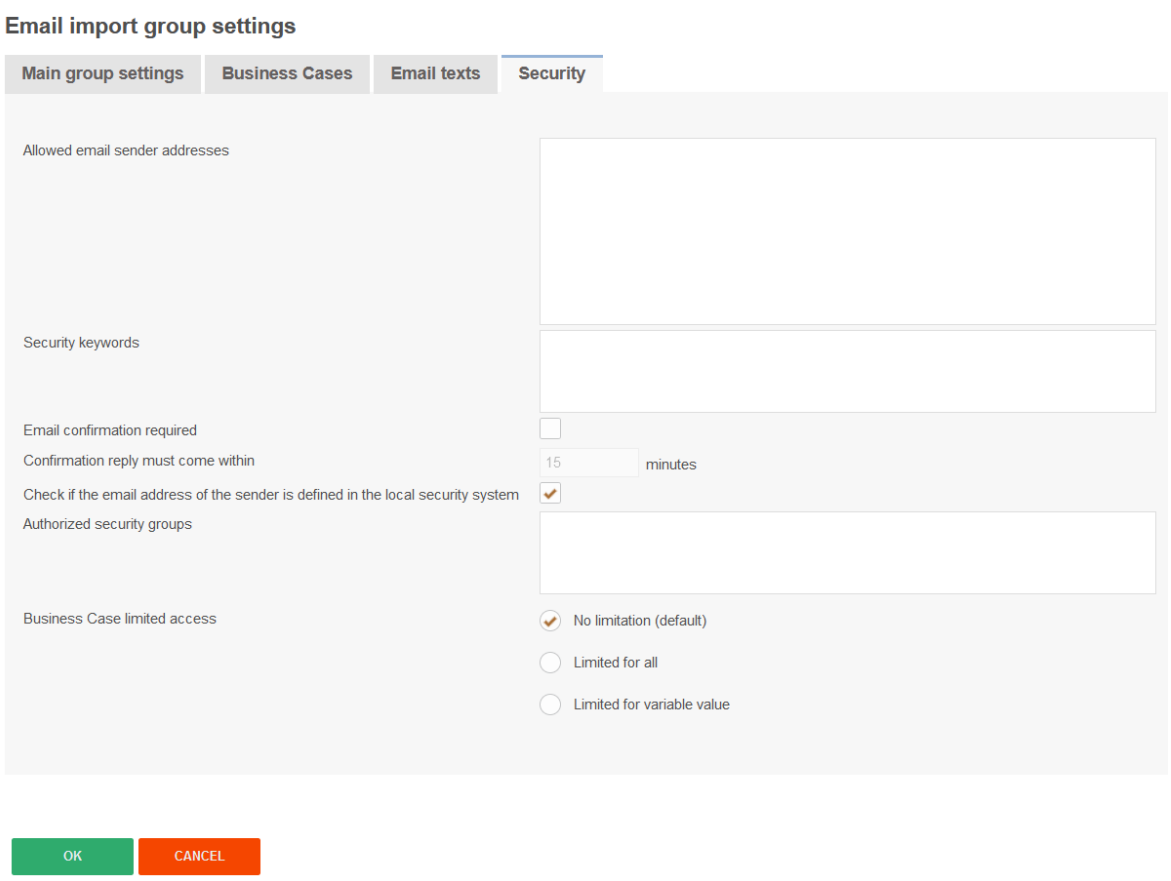
The email import can be secured:

- by limiting the allowed email senders (comma separated list of email addresses)
- by limiting the email senders based on a security group:
  the user account including email address must be stored in an MS Active Directory system
- by using a text keyword that must be delivered in the subject or body of the email
- by enabling a confirmation email (an automated email is returned to the sender, which has to be confirmed within a defined timeframe)
- by a list of trusted email servers (only emails of listed servers are accepted)

  All emails can be encrypted using SSL

The general access can be restricted by using the limited access feature in the tab 'Security':

- **No limitations:** Default value, no restrictions
- **Limited for all:** Nobody can use this import group
- **Limited for variable value:** Not useable if a variable return 'true' – e.g. a variable returns true during the time period when the database is performing maintenance tasks

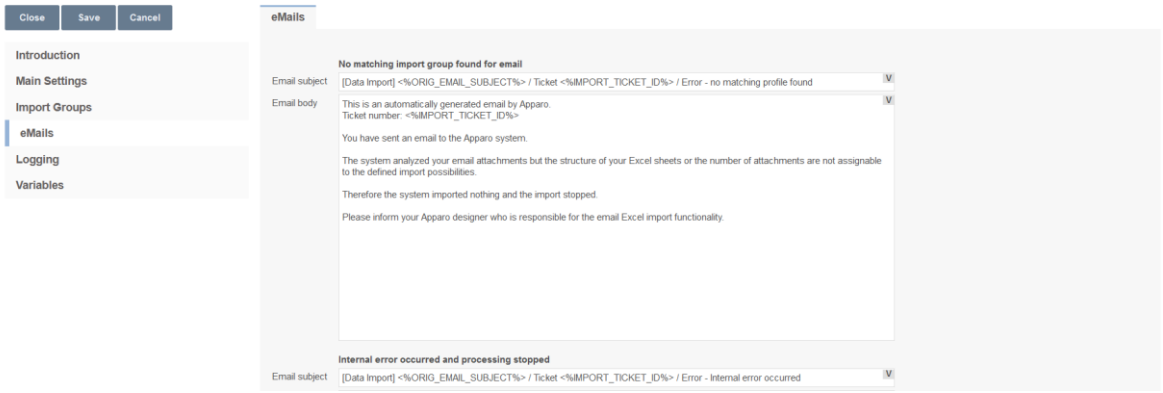


11.6 eMails

It contains the general error message for the case that no matching import group could be found to perform the import.

This can have different causes:

- Erroneous setup of import groups
- Erroneous attachments (e.g. file does not match the file import template)
- The import group can be temporary disabled by the administrator
- Disabled by a variable (e.g. a time controlled variable to avoid issues during a maintenance period)



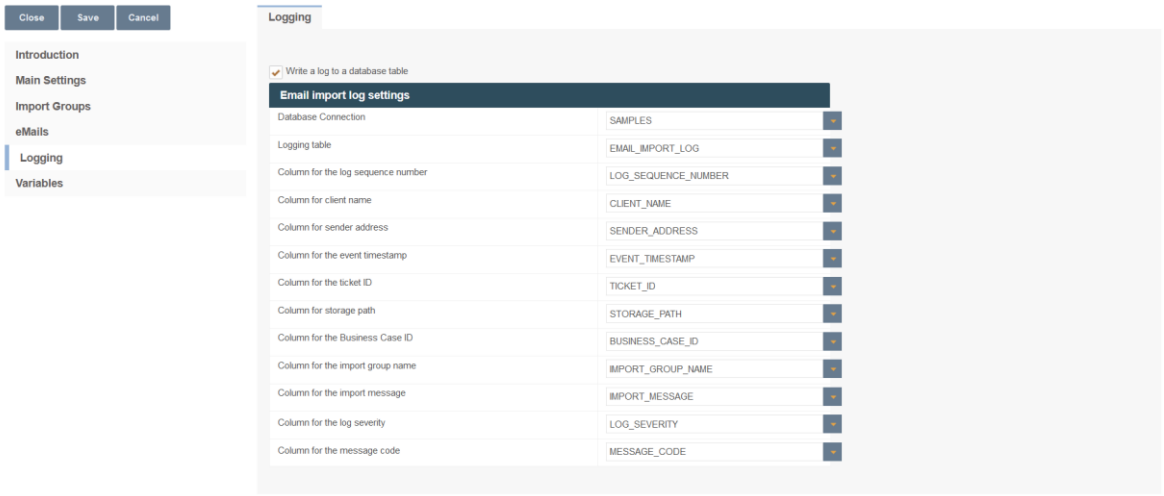
General error message

11.7 Logging

All events can be logged into an own database table.

In order to log all possible values the table will need the following columns:

- **Column for client name:** What client was used for the import
- **Column for sender address:** What sender address tried to import
- **Column for event timestamp:** Timestamp
- **Column for ticket ID:** Ticket ID, unique ID for the import event
- **Column for storage path:** Where is the email and attachment stored
- **Column for Business Case ID:** What Business Case performed the import
- **Column for importing group name:** What import group performed the import
- **Column for the import message:** Plain text with error message
- **Column for the log severity:** Can be warning, error, info or debug
- **Column for the message code:** A number representing the message



You can log all email import related events into a custom database table.
The following definition can be used to create such a table:

IBM DB2:

```
CREATE TABLE EMAIL_IMPORT_LOG (
        LOG_SEQUENCE_NUMBER INTEGER,
        CLIENT_NAME VARCHAR(255),
        SENDER_ADDRESS VARCHAR(255),
        EVENT_TIMESTAMP TIMESTAMP,
        TICKET_ID INTEGER,
        STORAGE_PATH VARCHAR(2000),
        BUSINESS_CASE_ID VARCHAR(500),
        IMPORT_GROUP_NAME
VARCHAR(500),
        IMPORT_MESSAGE VARCHAR(4000),
        LOG_SEVERITY VARCHAR(255),
        MESSAGE_CODE INTEGER);
```

Oracle:

```
CREATE TABLE EMAIL_IMPORT_LOG (
        LOG_SEQUENCE_NUMBER INTEGER,
        CLIENT_NAME VARCHAR2(255),
        SENDER_ADDRESS VARCHAR2(255),
        EVENT_TIMESTAMP TIMESTAMP,
        TICKET_ID INTEGER,
        STORAGE_PATH VARCHAR2(2000),
        BUSINESS_CASE_ID VARCHAR2(500),
        IMPORT_GROUP_NAME
VARCHAR2(500),
        IMPORT_MESSAGE VARCHAR2(4000),
        LOG_SEVERITY VARCHAR2(255),
        MESSAGE_CODE INTEGER);
```

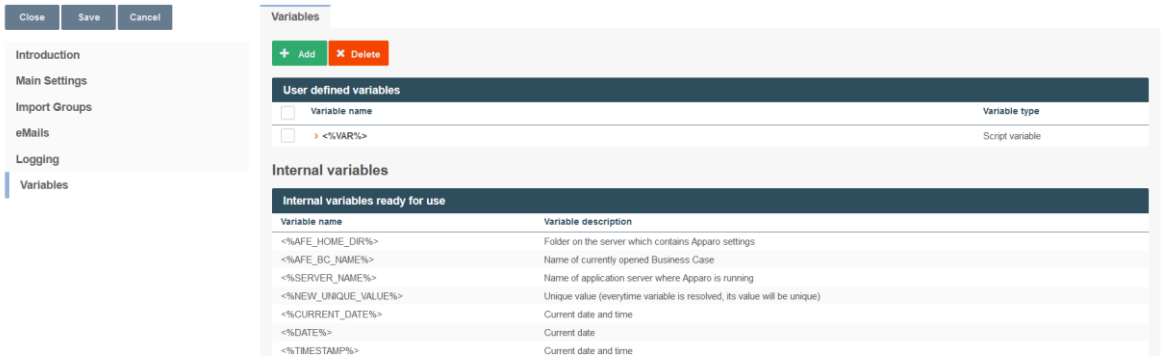
MS SQL Server:

```
CREATE TABLE EMAIL_IMPORT_LOG (
        LOG_SEQUENCE_NUMBER INTEGER,
        CLIENT_NAME VARCHAR(255),
        SENDER_ADDRESS VARCHAR(255),
        EVENT_TIMESTAMP DATETIME,
        TICKET_ID INTEGER,
        STORAGE_PATH VARCHAR(2000),
        BUSINESS_CASE_ID VARCHAR(500),
        IMPORT_GROUP_NAME
VARCHAR(500),
        IMPORT_MESSAGE VARCHAR(4000),
        LOG_SEVERITY VARCHAR(255),
        MESSAGE_CODE INTEGER);
```

11.8 Variables

You can use JavaScript to compute advanced calculations, and the result can be used in importing Business Cases as any other variable.

There is a list with pre-defined variables, ready to use.

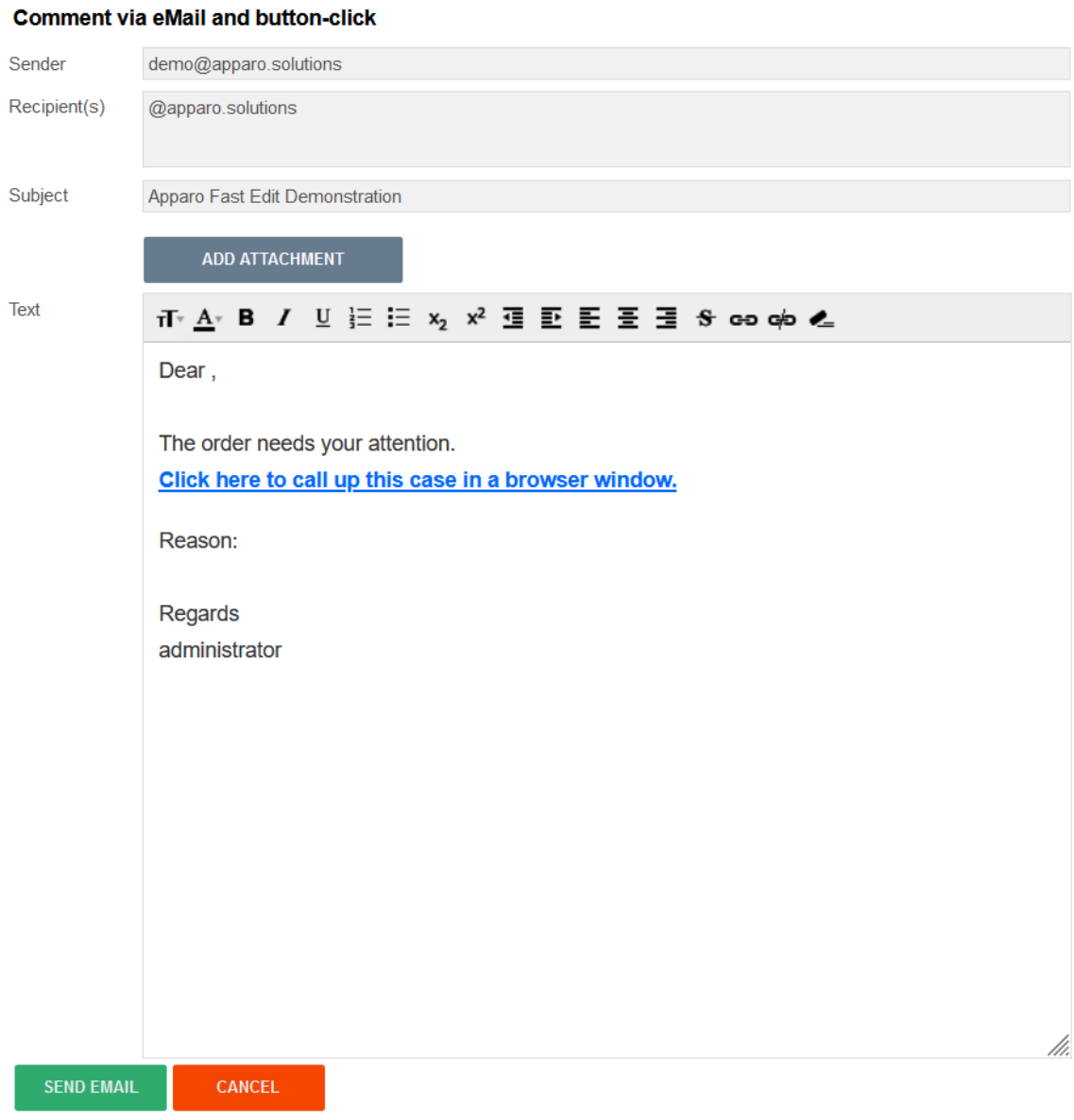


12 E-mail Business Cases (EBC)

An e-mail Business Case is used to send e-mails.
It contains the definitions, such as subject and body.
Content, recipient, etc. can be made dynamic with variables.

An e-mail Business Case is called usually by button froms Single or Table Business Cases.

An e-mail Business Case can access all the widget reference variables of the current line.
All other variables can also be used.

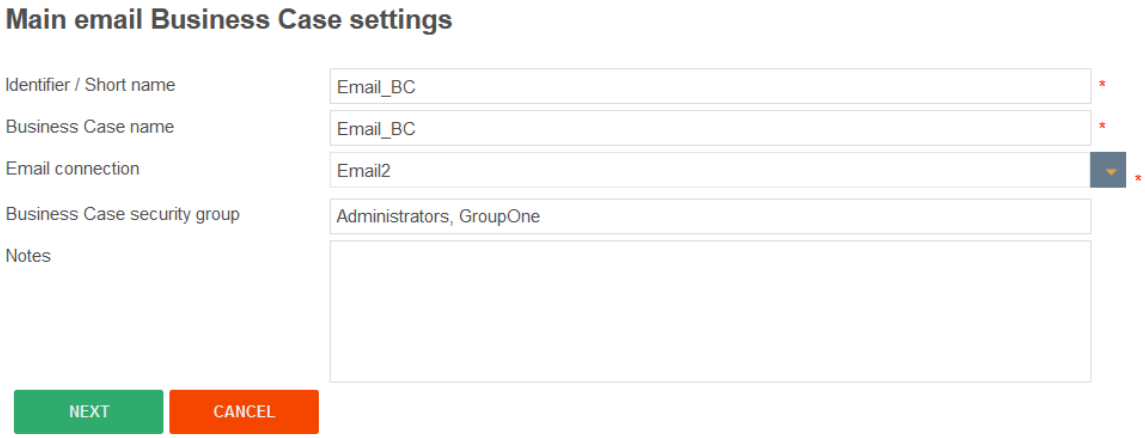


12.1 Creating an EBC

When you create an e-mail Business Cases you have to fill first, like all other types of Business Case , the general settings.

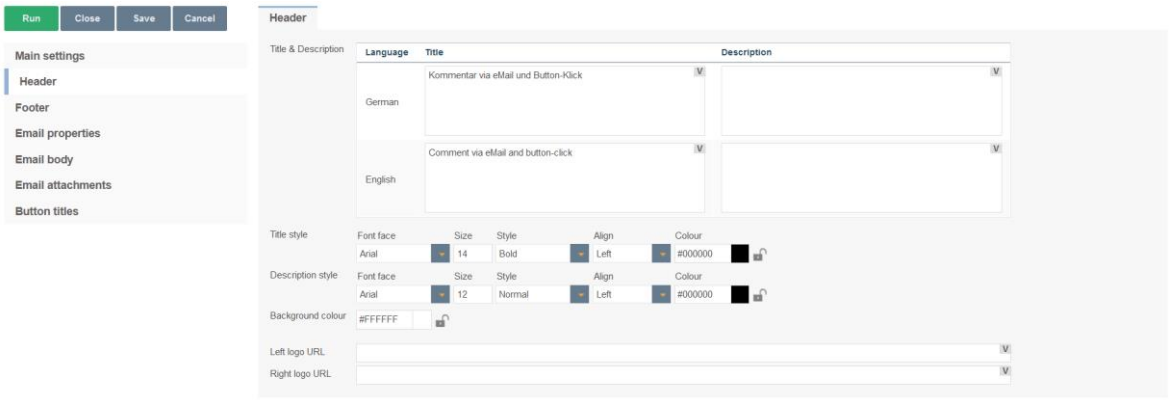
The email connection is used only to send and can also be used in other e-mail Business Cases.

The optional security group ensures that only authorized users can send e-mails.
A number of security groups are to be entered separated by a comma.



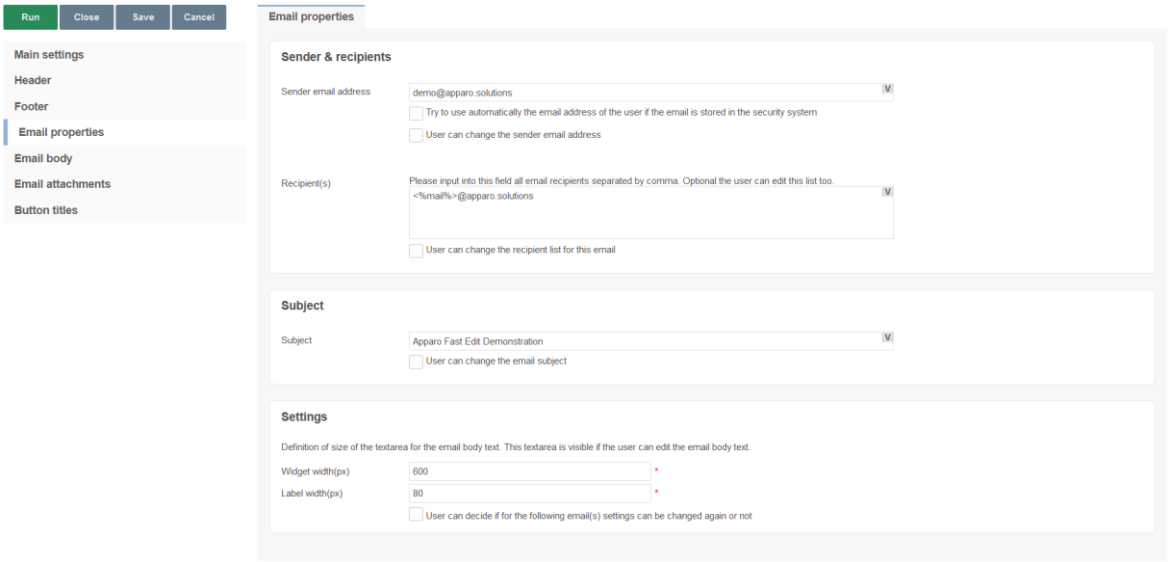
12.2 Header and Footer

In the header or footer, you can define captions and descriptions, specify fonts and styles and insert logos. In the title, the description and the logo URL variables can be used.



12.3 E-mail properties

Here you can define the sender e-mail, the recipient list and their settings.



Sender & recipients

Sender email address

Does the indicated in the e-mail sender address this need not match the e-mail sender from the e-mail link.
Variables can be used.

Options:

- Try to use automatically the email address of the user if the email is stored in the security system
- Users can change the sender address

Recipient(s)
Contains all recipients, separated by commas.
Variables can be used.

Optionally, the user can modify the list.

Subject

Contains the subject of the e-mail, variables can be used.
Optional user may change the subject.

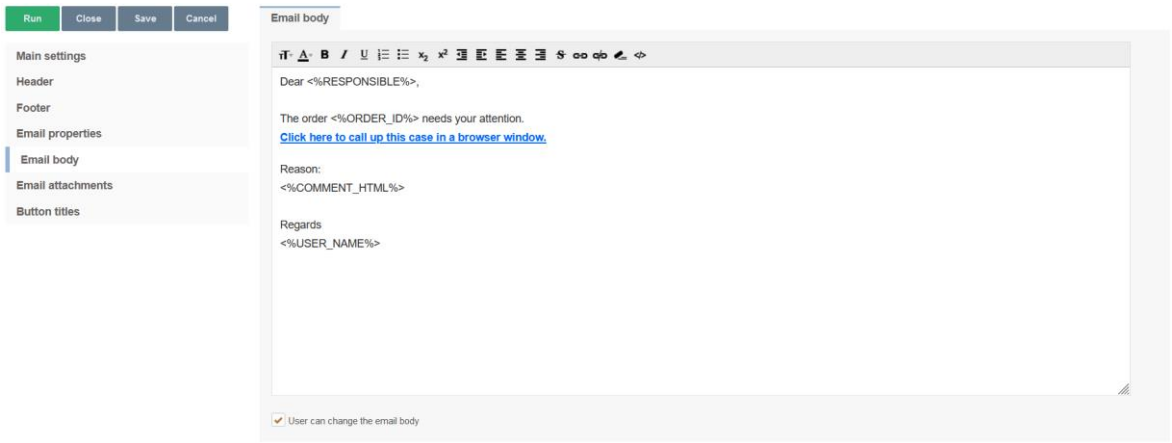
Settings

Defines the size of the text area for the e-mail text (visible if the user is allowed to change the e-mail text.

- Widget Width (px)
- Label Width (px)

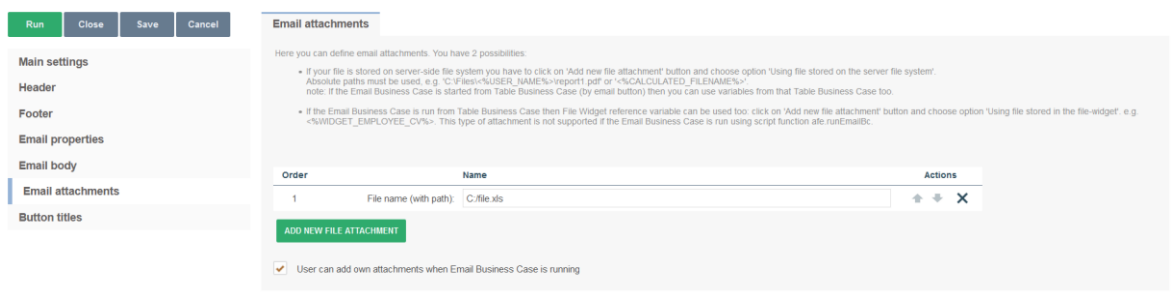
12.4 E-Mail body

Contains the 'E-mail Body', also known as e-mail text.
If you use formated text, the email HTML format is used.
You can use all the variables of the calling Business Cases.



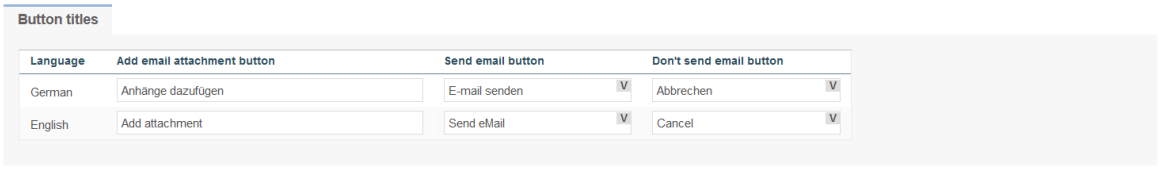
12.5 E-Mail attachments

Send e-mail attachments with this e-mail, either user-selected or specified files from the server or from a selected file widget.



12.6 Button titles

Contains the label of the buttons in all installed languages



13 Action Business Case (ABC)

Action BC is helpful for adding database actions like changing data, calling scripts server side without user interactivity.

An Action BC contain own web output too, even buttons like yes/no are possible.
The window of an Action BC can close automatically.

Additional it is possible to run an Action BC without user interface.
In this case the communication to the Apparo server will be done using AJAX.

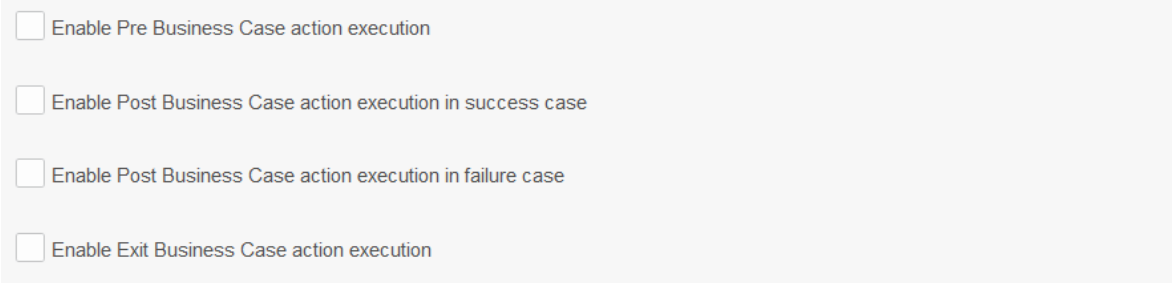
The “comment extension” is using an Action BC server for the server part.

The current Qlik Sense name is known too.

An Action BC can call database procedures or scripts automatically.

13.1 Possible Actions

An overview of the 4 options and their meaning, use case are following in Use Cases



Enable Pre Business Case action execution

The default case, an action is started when the Action BC starts

Enable Post Business Case action execution in success case

Another action can be started when the user clicks on the green OK button in the closing dialog

Enable Post Business Case action execution in failure case

Another action can be started when the user clicks on the red Cancel button in the closing dialog

Enable Exit Business Case action execution

Another action can be started when the user clicks on the green OK or red Cancel button in the closing dialog

The first action usually starts a script or calculation or writes something to the database, while the second action usually triggers e.g. an email notification.

13.2 Use Cases

Action BCs can be run without user interaction, started when a JavaScript event triggers by calling the Action BC URL

Or

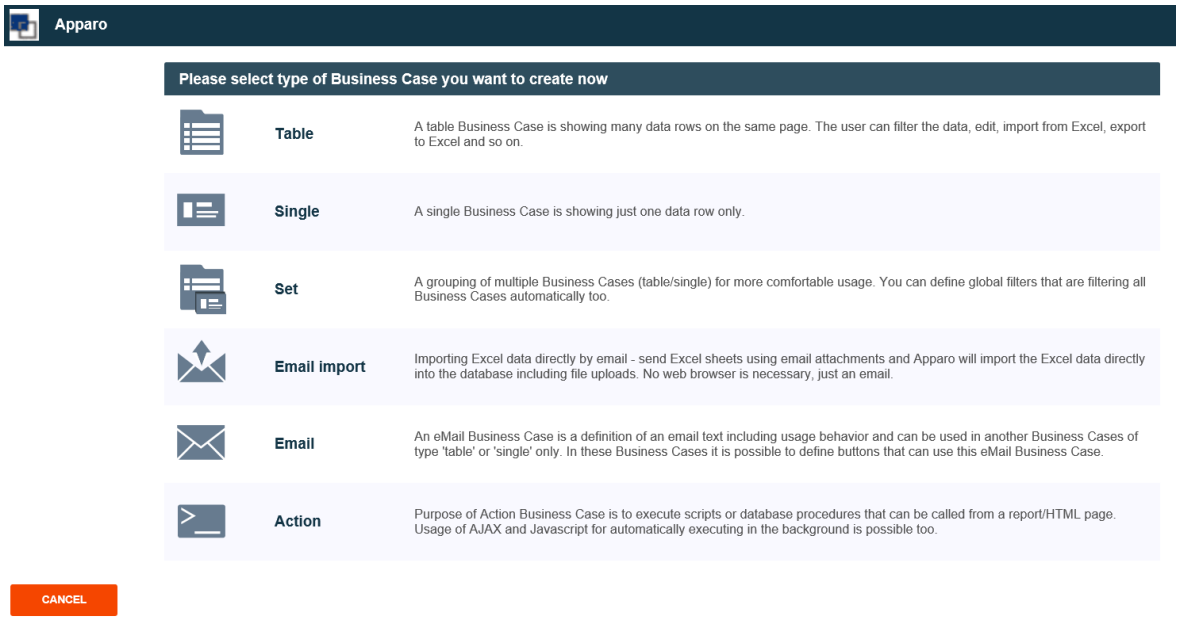
Action BCs can be run with user interaction, started by a JavaScript event when the user e.g. clicks a checkbox, or simply when clicking an URL button or a hyperlink.

Basically, there are two operation modes:

- Without output window, the silent mode, the user does not know that an Action BC has been started.
- With output window, issues a notification showing the process output, e.g. a calculation

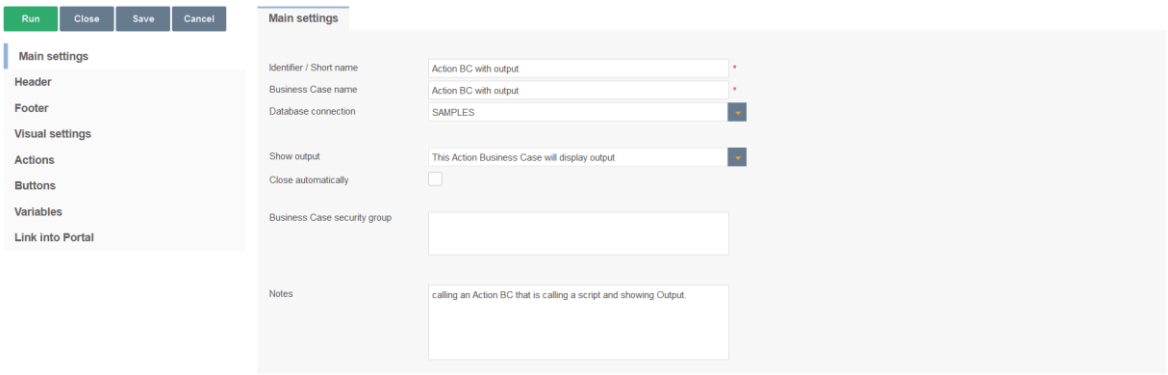
13.3 Creating a new Action Business Case

Select Action to start a new Action BC

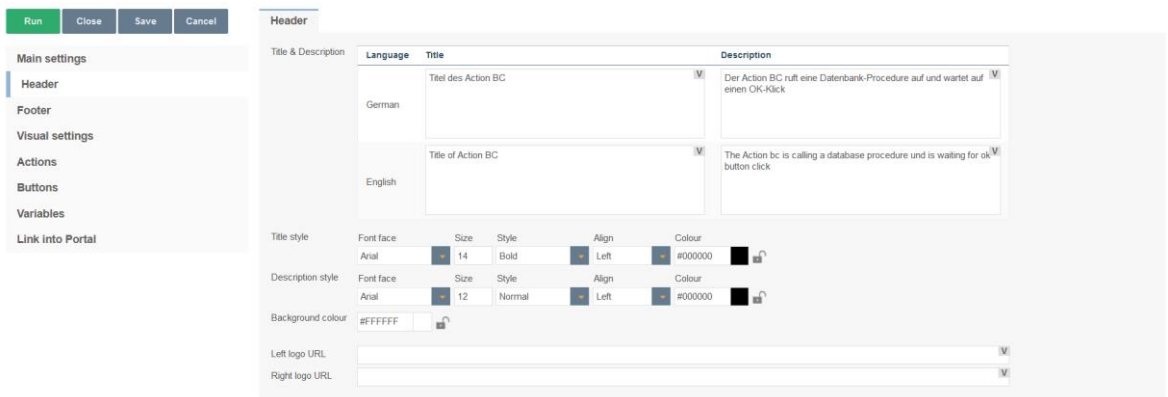


13.4 Defining the main settings

If the used action contains SQL commands, you need to select a databse connection.



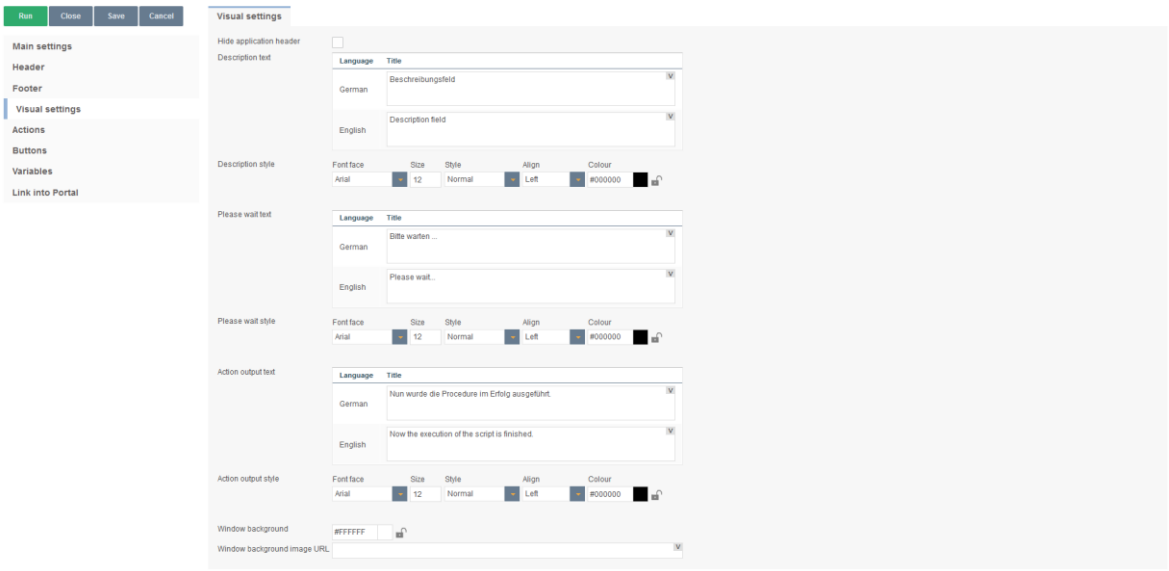
13.5 Header & Footer



13.6 Visual settings

Contains the texts and visual settings of the message windows.

The description message is displayed when the BC action is started.
The "Please wait" message is displayed while the action is being executed.
Action output text contains the text of the Action has finished message and may contain return values.



Other settings:

Hide application header

Hides the blue application header

Window background

Defines the color of the window background

Window background image URL

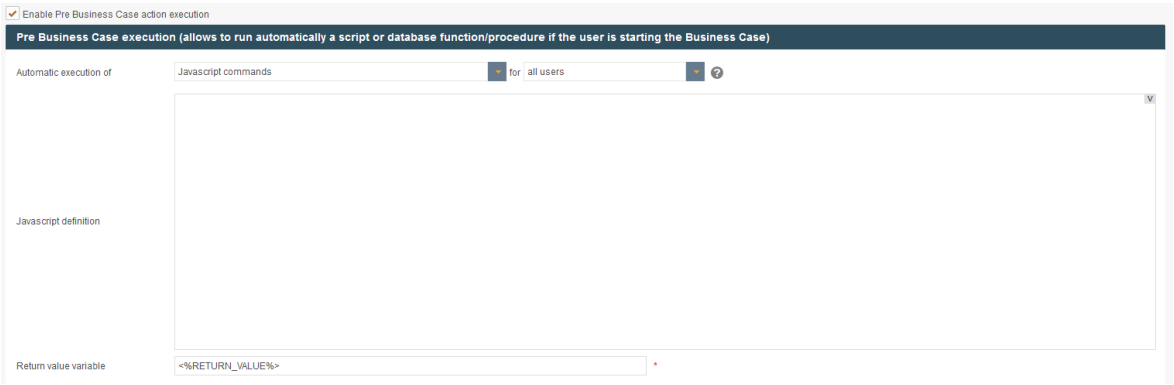
Shows a background image instead of the color.

13.7 Actions

Contains the actions and gives the selection **Automatic execution of**

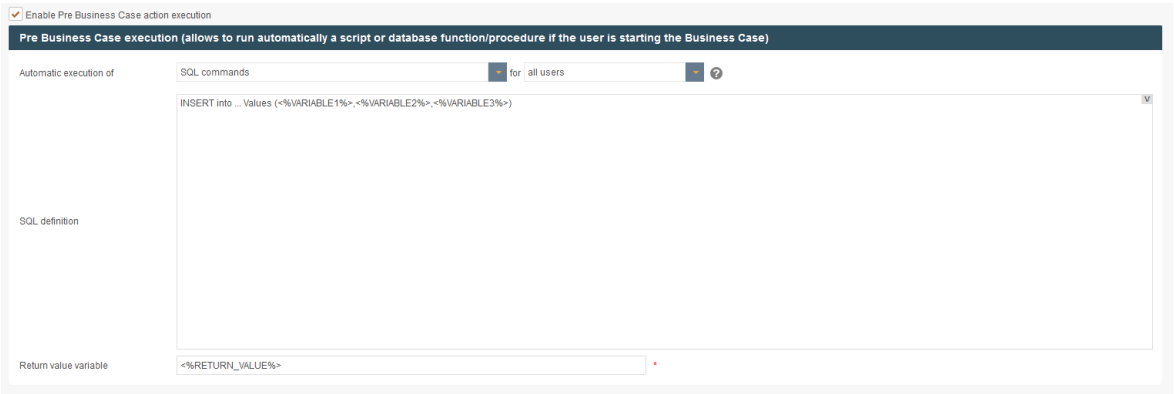
13.7.1 Javascript commands

Allows server sided JavaScript and the use of variables and all custom Javascript methods - <<see here>>

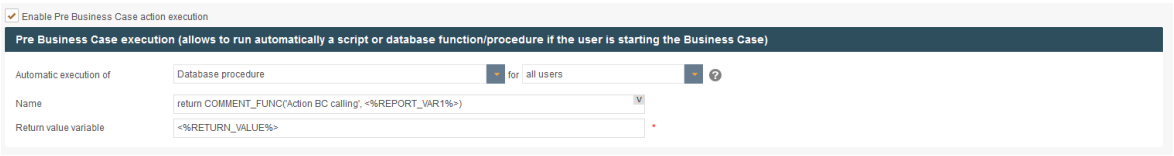


13.7.2 SQL commands

Allows the direct use of all SQL commands



13.7.3 Database stored procedures and functions



To call a database function or procedure:

[calling convention] procedure/function_name (argument1, argument2, ..., argumentN).

ATTENTION: Please use the same upper and lower case for schema and procedure/function as defined in your database.

If the database connection of this procedure/function is the same as the one for the business case, then the procedure/function will be executed within the same database transaction.

The procedure may not commit or rollback the existing transaction, but it may start its own inner (named) transaction (if supported by the database) or use savepoints.
For character or string arguments, use the ' character to enclose the argument. Use at least one space between [calling convention] and procedure name.

Your parameters can include Apparo variables, for example: <%USERNAME%>, <%CURRENT_DATE%>, <%BC_NAME%>, <%PRIMARY_KEY%>.
Do not enclose Apparo variables with apostrophes or quotes.
For the complete list of variables, see the Variables chapter.

[Calling convention] is one of these:

If you are using an Oracle or IBM DB2 database:

- return - For calling a stored function that returns a value.

If you are using an MS SQL Server database:

- Calling functions on SQL Server is not supported. It is possible to have a return value from a procedure, but [Calling convention] must be empty in this case.
- Please use "SET NOCOUNT ON;" in the beginning of your SQL Server procedure. Then it is possible to use SQL commands in your procedure without affecting the return value.

If you use a Sybase database:

- select - For calling a stored function that returns a value.

If you are using a Teradata database:

- return macro - For calling a Teradata macro that returns a value.
- macro - for calling a Teradata macro that does not return a value
- return - For calling a stored function that returns a value.

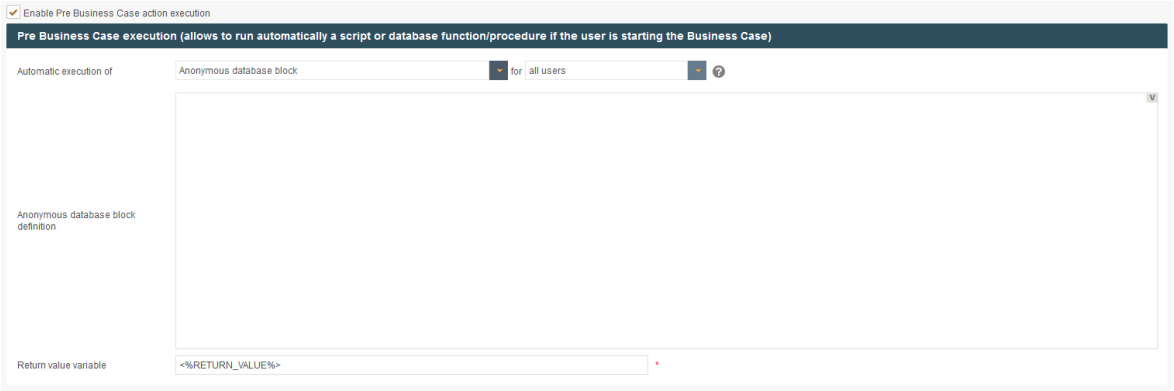
If you are using an SAP HANA database:

- select - For calling a stored function that returns a value.

Hint: *[Calling convention] must be empty when you call a stored procedure.*

13.7.4 Exceuting anonymous block

The anonymous block serves as database procedure, which can be executed without having direct database access.



13.7.5 Calling a script or batch file on the server

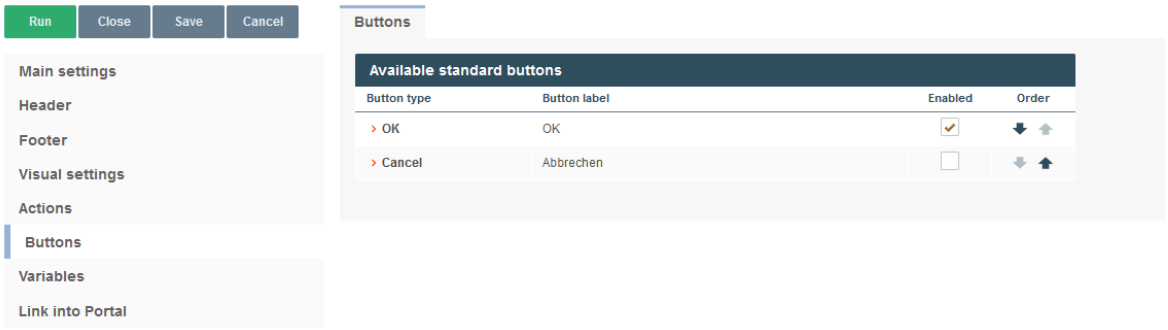
You can call all script files located in the scripts folder as set in the Apparo Configuration Manager.

Supported are:

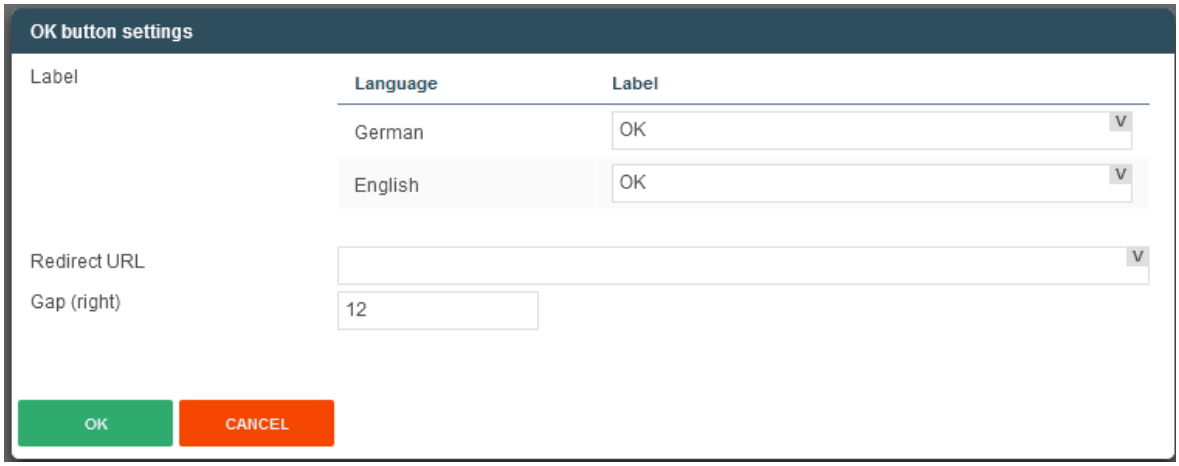
- Batch and executable files (.bat, .sh, .exe)
- SQL files (.sql)
- JavaScript files (.js)

13.8 Buttons

Here you can enable/disable buttons.



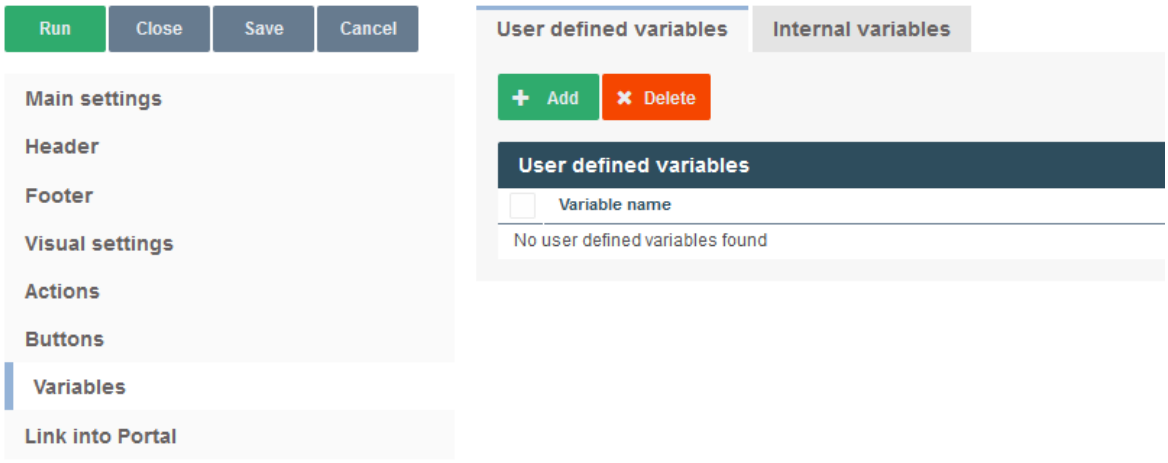
By clicking the linked button type, you can change the button title for each installed language:



Also possible: Defining a redirect URL, which redirects the user after clicking

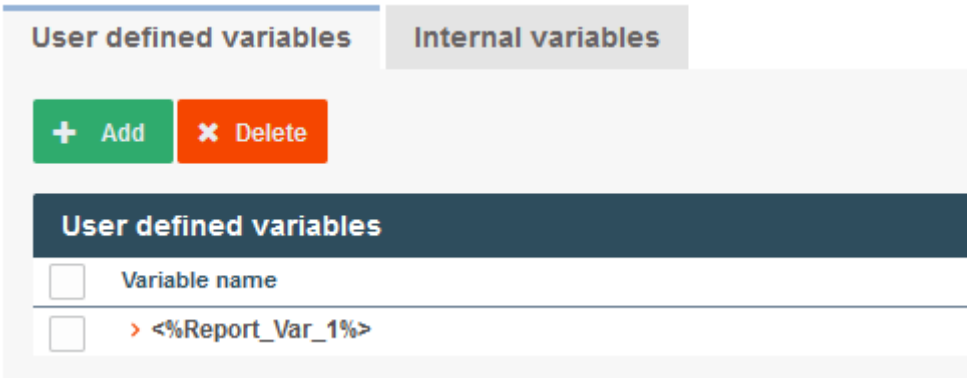
13.9 Variables

When calling the Action BC via URL, all parameters passed to the Action BC require their own report variable



Example:

We want to pass one parameter and created one report vaiable:



Syntax:

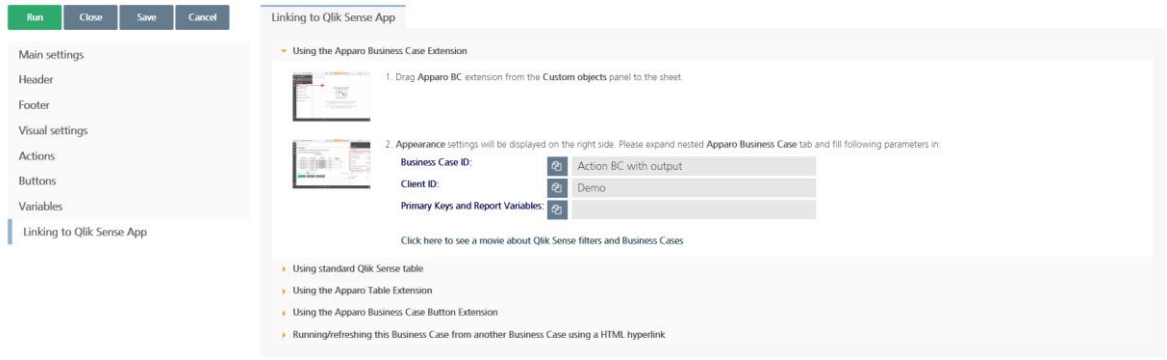
&Report_Var_1=VALUE

The URL would look like this:

https://qs-demo/resources/apparoBusinessCase.html?bc=Action+BC+with+output&Report_Var_1=VALUE

The variable contains the value VALUE and can be used as parameter when calling the action.

13.10 Linking to Qlik Sense App



Provides different methods to connect to Qlik

The link can be taken from:

14 Primary Keys & Not Null columns

Each column (also many columns at the same time) can be used as the primary key.

In this case it is not important how the primary key is defined within the database table.
In Apparo Fast Edit you can define a completely different primary key.

Apparo Fast Edit is using the primary key in insert and update case only.

The definition in the database will be not used.

Likewise only the null/not null-definitions from Fast Edit will be used.
The definition in the database will be not used.

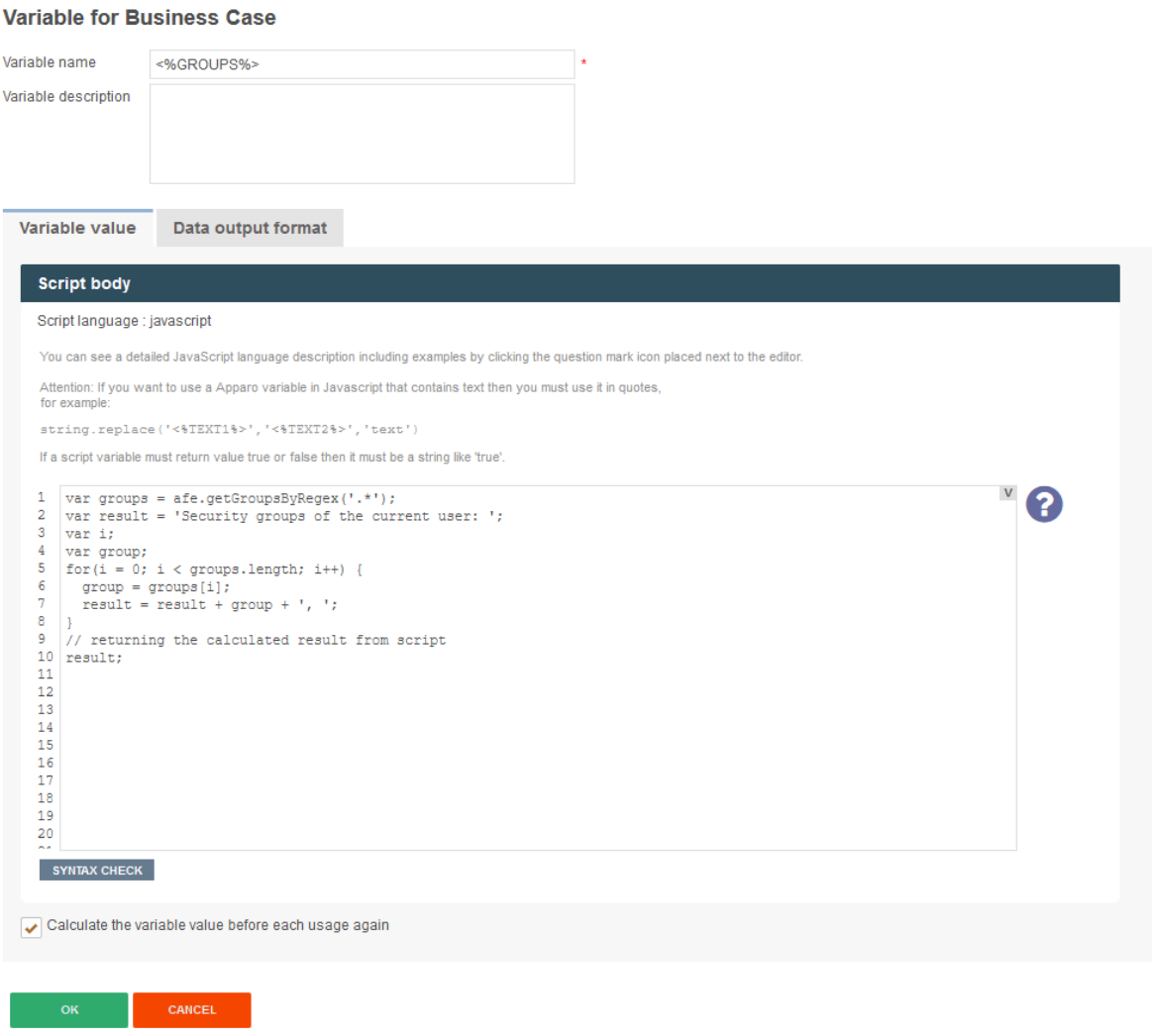
15 Business logic serverside

With Apparo Fast Edit it is possible to define your own business logic or smaller programs:

Logic within a script variable
Logic within a Javascript script
Logic within the Row validator

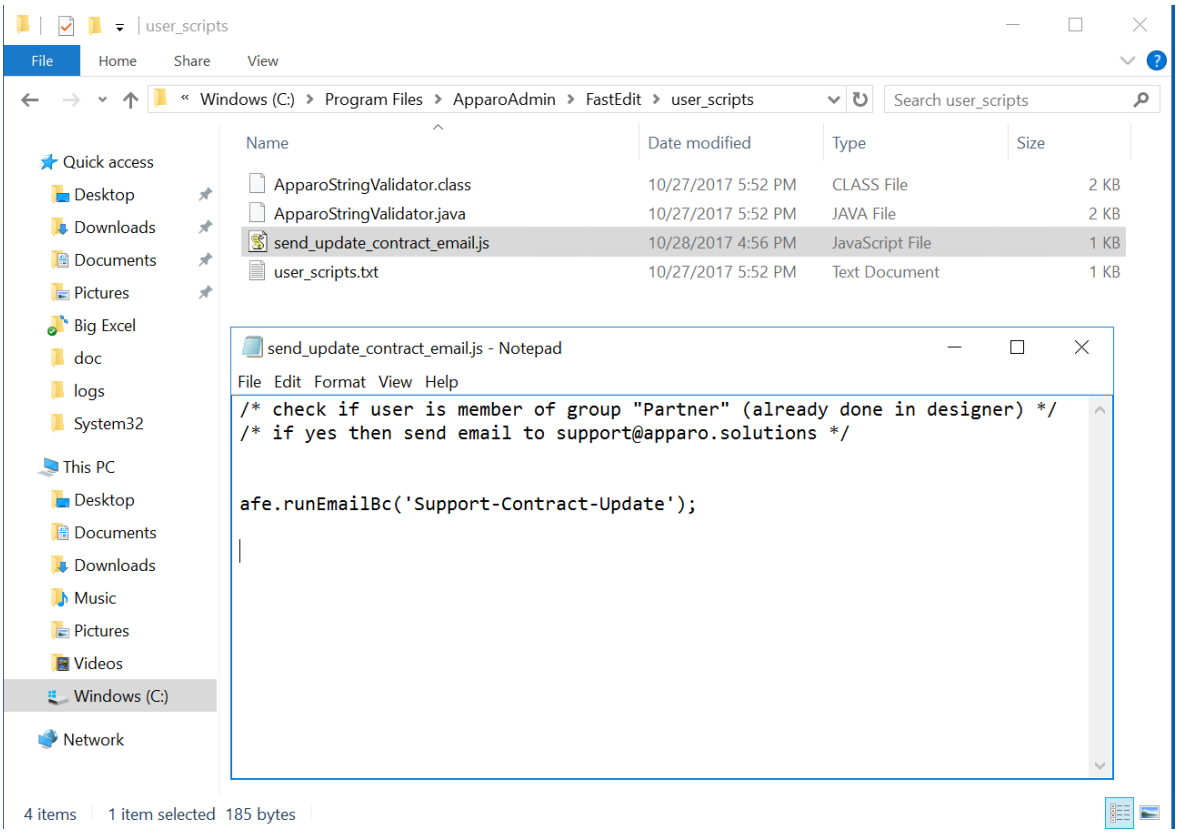
The programming language used is JavaScript, which is executed on the server side.

15.1 Example of a script variable

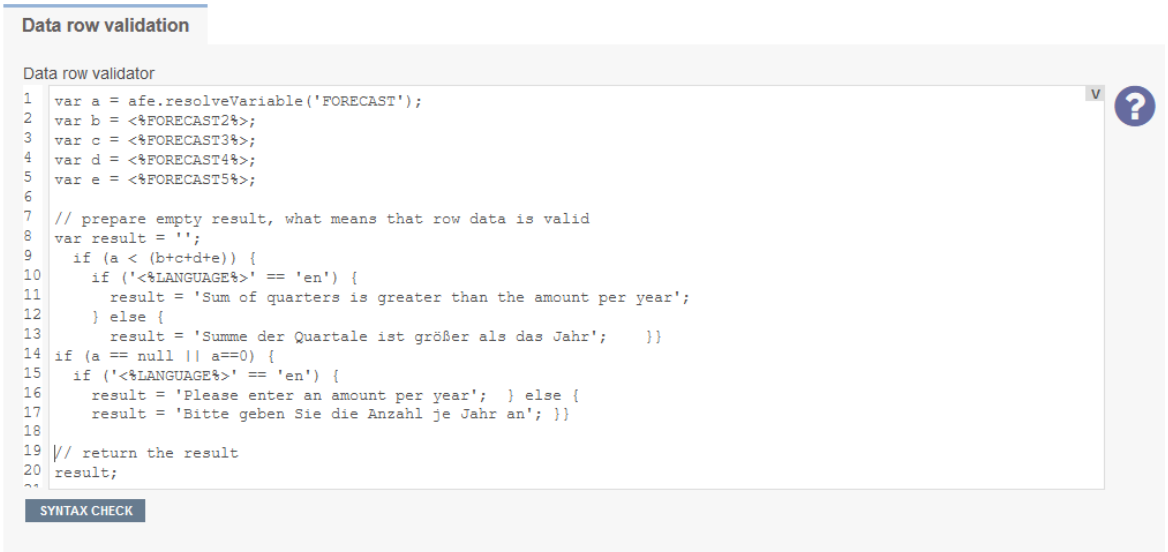


15.2 Example of a JavaScript script file

This file can be called up by Apparo Fast Edit and is saved as a file on the server:



15.3 Example of the Row-Validator



15.4 Additional Apparo Fast Edit Methods

- **afe.callClassMethod**(className, methodName, args) - calls a compiled Java class. This must be stored on the server side.
- **afe.createFile**(pathName, content) - Creates a file with the provided content.
- **afe.executeCommand**(command, homeDir) - Executes the specified cmd command.
  Example:
  afe.executeCommand('C:\\Program Files\\Apparo\\FastEdit\\user_scripts\\batchfile.bat "20"','C:\\Program Files\\Apparo\\FastEdit\\user_scripts\\');

- **afe.executeSql**(sqlQuery) - Executes an SQL command and returns the first column of the first row.
- **afe.executeSql**(sqlQuery, parametersArray) - Executes an SQL command with a parameter list and returns the first column of the first row.
- **afe.executeSqlInsert**(sqlInsert) – executing a SQL insert and returning true = success, false=failure
- **afe.executeSqlSelect**(sqlSelect) - Executes the specified SQL query and returns the result as a two-dimensional object array of rows and columns.
- **afe.exportAllRows**(filename) - Exports all visible (i. e. all filters are considered) data rows into an Excel file on the server side. Supported output formats: xls, xlsx and csv. The use of variables is possible.
  Example: afe.exportAllRows (' <%AFE_HOME_HOME_DIR%>/data-export/<%AFE_CLIENT_ID%>/<%AFE_BC_ID%>_<%DATE_TIMESTAMP_SHORT%>. xlsx');
  Attention: Please use \\ as path separator, e. g. afe. exportAllRows (' c: \\filename. csv');
- **afe.exportSelectedRows**(filename) - Exports all selected data rows into an Excel file on the server side. Supported output formats: xls, xlsx and csv. The use of variables is possible.
  Example: afe.exportSelectedRows (' <%AFE_HOME_HOME_DIR%>/data-export/<%AFE_CLIENT_ID%>/<%AFE_BC_ID%>_<%DATE_TIMESTAMP_SHORT%>. xlsx');
  Attention: Please use \\ as path separator, e. g. afe. exportAllRows (' c: \\filename. csv');
- **afe.getGroupsByRegex**(regex) - Returns an array of security group names corresponding to the' regular expressions' argument. Example: afe. getGroupsByRegex (' CLIENT. *')
- **afe.getSessionParameters**() - Reads the Cognos session parameters and returns them as a 2-dimensional string array
- **afe.resolveVariable**(variableName) - Returns the value of a variable
- **afe.runEmailBc**(emailBusinessCaseId) - Defines the e-mail Business Case to be executed, i. e. an e-mail is sent.
- **afe.startQlikSenseTask(**nameOfTask) – Starting a Qlik Sense task
- **afe.afe.stopQlikSenseTaskById(**Id**)** – Stopping of a Qlik Sense task

You will find examples of use when you call the ?-icon in the script window.:

15.5 Usage examples for Apparo methods in Javascript

15.5.1 Custom script example returning a string value based on security group

```
var groups = afe.getGroupsByRegex('.*');
var result = 'Security groups of the current user: ';
var i;
var group;
for(i = 0; i < groups.length; i++) {
  group = groups[i];
  result = result + group + ', ';
}
// returning the calculated result from script
result;
```

15.5.2 Refresh another embedded Business Case

Usage possible in a script file (e.g. refresh.js) or in a script variable:

```
afe.refreshEmbeddedBC('iframe-Name', 'BusinessCase-Id', 'p1=4711&amp;amp;FE_reportvar=test');
```

You can find the iframe-Name in the iframe HTML of the embedded Business Case.

The embedded Business Case will be refreshed as soon as possible.
That means if the first Business Case that contains this code will refresh its output then the 2. Business Case will be refreshed too.

15.5.3 Hide another embedded Business Case in a Qlik Sense sheet

Usage possible in a script file (e.g. refresh.js) or in a script variable:

```
afe.hideEmbeddedBC('iframe-Name');
```

You can find the iframe-Name in the iframe HTML of the embedded Business Case.

The embedded Business Case will be hidden as soon as possible.
That means if the first Business Case that contains this code will refresh its output then the 2. Business Case will be hidden.

15.5.4 Start/Stop Qlik Sense task

Usage possible in a script file (e.g. starttask.js) or in a script variable:

afe.startQlikSenseTask('Task-Name');

Where Task-Name is name of task defined in Qlik Management Console.

afe.stopQlikSenseTaskById(Id);

Where Task-Id is the Id of the Qlik Sense task.

15.5.5 Custom function example returning a string value

```
// declaring a function
function myCustomFunction() {
  var result = 'defaultStringValue';
  // complext algorithm to evaluate the result of the method
  return result;
}
// calling the declared function to return a value from script
myCustomFunction();
```

15.5.6 Example using custom functions declared in file

```
// If we have our custom functions declared in the text file we can use it in our script variable.
// In our example we have a file 'C:\scripts\myFunctions.js' with content: 'function myFunctionPlus(a, b)
{return a + b;}'
// We can 'include' this content into the script variable as follow:
<%FILE_CONTENT(C:\scripts\myFunctions.js)%>

// now we can use declared function
var x = myFunctionPlus(2, 1);

// variable 'x' now has value 3
x;
```

15.5.7 Example using Fast Edit variables

```
// working with string variable, and adding a custom postifx
var result = '<%USER_NAME%>' + 'postfix';

// modifiying a result of sql variable returning a numeric variable
var result = <%SQL_COUNT_VAR%> / 100;
```

Example using Fast Edit LANGUAGE variable in a column name:

```
// In this example Fast Edit must read the content of the widget reference variable <%PRODUCT_EN%>
or <%PRODUCT_DE%>.
// PRODUCT_EN for a user with english language and
// PRODUCT_DE for a user with german language:

var rc;
rc = '<%PRODUCT_<%LANGUAGE%>%>';
```

15.5.8 Example for calling a java class with return value

```
// In this example Fast Edit creates an instance of 'MyCustomClass' class and executes the
'myCustomMethod' method
var result = afe.callClassMethod('MyCustomClass', 'myCustomMethod');
result;
```

15.5.9 Example for calling a java class with arguments and return value

```
// In this example Fast Edit creates an instance of 'MyCustomClass' class and executes the
'myCustomMethod' method
var args = [];        // create new array
args[0] = "stringValue";
args[1] = 256;      // passed to java as java.lang.Double
args[2] = (new Date()).getTime();    // passed to java as java.lang.Double

var result = afe.callClassMethod('MyCustomClass', 'myCustomMethod', args);
result;
```

15.5.10 Example for dynamic variable resolving

```
// In this example Fast Edit creates an instance of array and set current number of milliseconds (since
1.1.1970) for each element separately.
var args = [];        // create new array
var i;
for(i = 0; i < 10; i++) {
 args[i] = afe.resolveVariable('TIME_MS');
}
```

15.5.11 Example for working with date widget variables

```
// In this example we will compare current Date with widget Date
var my_date_widget = afe.resolveVariable('DATE_WIDGET');
var current_date = new Date();

//for explicit date usage, e.g. December 24, 2016 at 6:30pm use format: Date(year, month-1, day, hour,
minute, second, millisecond)
//var date = new Date(2016,11,24,18,30,0,0);

var text;

if (my_date_widget == null) {
 text = 'my date widget is empty';
}
else if (my_date_widget.getTime() > current_date.getTime()) {
 text = 'My date widget value is after current date';
}
else if (my_date_widget.getTime() < current_date.getTime()) {
 text = 'My date widget value is before current date';
}
else {
 text = 'The dates are equal';
}

text;
```

15.5.12 Example for getting the name and content of the current widget

```
// In this example Fast Edit is reading the name and content of the current widget.
// This is helpful for defining the background colour of many similar widgets or defining default
value/constant value without creating many different variables.
var current_widget= '<%CURRENT_WIDGET_NAME%>';
var current_widget_content = afe.resolveVariable(current_widget);
var red_colour_background = 'false';

if (current_widget_content > 100) {
 red_colour_background = 'true';
}
else if (current_widget_content < 50 && current_widget == 'MEASURE1') {
 red_colour_background = 'true';
}

red_colour_background;
```

15.5.13 Example for storing content into a file

```
// In this example Fast Edit store text content into 'myFile.txt' file.
var fileContent = 'This is file content.';
var success = afe.createFile('c:\\files\\myFile.txt', fileContent);
```

15.5.14 Example for executing a SQL query

```
// In this example Fast Edit executes SQL query to retrieve 'user_id' value of 'John Smith' in table 'MyTable'.
var user_id = afe.executeSql("select id from MySchema.MyTable where sales_name='John Smith'");
```

15.5.15 Example for executing a SQL select

```
// In this example Fast Edit executes SQL select to retrieve 'id', 'name' and 'price' values of all products in
table 'MyProduct'.
var productsArray = afe.executeSqlSelect('select id, name, price from MySchema.MyProduct');
var i;
var rowData;
var id;
var name;
var price;

for(i = 0; i < productsArray.length; i++) {
  rowData = productsArray[i];
  id = rowData[0];
  name = rowData[1];
  price = rowData[2];
}
```

15.5.16 Example for executing a SQL select and storing result into XML file

```
// In this example Fast Edit executes SQL select to retrieve 'id', 'name' and 'price' values of all products in table 'MyProduct' creates xml String and stores it into XML file.
var productsArray = afe.executeSqlSelect('select id, name, price from MySchema.MyProduct');
var i;
var rowData;
var xmlString = '<?xml version="1.0" encoding="UTF-8"?>\n<products>';
var xmlRow;

for(i=0; i < productsArray.length; i++) {
  rowData = productsArray[i];
  xmlRow = '\n\t<product id="' + rowData[0] + '" name="' + rowData[1] + '" price="' + rowData[2] + '" />';
  xmlString += xmlRow;
}

xmlString += '\n</products>';

var success = afe.createFile('c:\\myXmls\\products.xml', xmlString);
success;
```

15.5.17 Example for executing a SQL query with parameters

```
// In this example Fast Edit executes SQL query with parameters.
var params = [];   // create new Array
params[0] = 'John Smith';
params[1] = 'Germany';
var user_id = afe.executeSql('select id from MySchema.MyTable where sales_name=? and country=?', params);
```

15.5.18 Example for executing a command

```
// In this example Fast Edit executes command.
var returnValue = afe.executeCommand("c:\\scripts\\myfile.bat","c:\\scripts");
```

15.5.19 Example for making a row read-only

```
// In this example we want to make a data row read-only when the PROJECT_COMPLETITION_DATE widget has value of a date in the past (the project is finished).
// First we must create a variable <%ROW_READONLY_VAR%&gt; which will be used here.
// The goal is to return the same date as the widget if it is older then today, otherwise we will return dummy date.
// Returning date must be represented as string with proper format.

// dummy date in format of MM.dd.yyyy
var result='01.01.1990';

// today's date
var current_date = new Date();

// We need to read string value of PROJECT_COMPLETITION_DATE widget.
// If the widget is storing timestamp then it's string value has format 'yyyy-MM-dd HH:mm:ss.S'  e.g. '2015-12-24 18:00:00.0'
// If the widget is storing number then it can be e.g. '42' or '42.1'
var end_date_string = '<%PROJECT_COMPLETITION_DATE%>';
```

```
// If the PROJECT_COMPLETITION_DATE is not specified then we don't want to make row read-only.
// If it has value then we must compare that date with today's date.
if (end_date_string.length >  0) {

 // Here we are constructing the Date object from the string in order we can compare two dates.
 var end_date = new Date();

 // we must set correct Year, Month and Day from the end_date_string
 end_date.setFullYear(end_date_string.substring(0,4));
 // watch out here: months are calculated from 0 so we must decrease it's number
 end_date.setMonth(end_date_string.substring(5,7)-1);
 end_date.setDate(end_date_string.substring(8,10));

 // now we can compare the dates
 if (end_date < current_date)  {

   // again, we must use correct format: MM.dd.yyyy
   var end_date_string_EN_format = '';
   end_date_string_EN_format += end_date_string.substring(5,7);
   end_date_string_EN_format += '.';
   end_date_string_EN_format += end_date_string.substring(8,10);
   end_date_string_EN_format += '.';
   end_date_string_EN_format += end_date_string.substring(0,4);

   result = end_date_string_EN_format;
  }
}

// return the result
result;
```

15.5.20 Example for exporting all Business Case data to file

```
// In this example Fast Edit exports all Business Case data to file on filesystem and returns whether
operation was successful.
// Note: Backslash symbols must be escaped, i.e. '\\' must be used.

var result = afe.exportAllRows('C:\\Users\\Administrator\\Documents\\allDataExport-
<%DATE_TIMESTAMP_SHORT%>.xlsx');
result;
```

15.5.21 Example for exporting selected Business Case data to file

```
// In this example Fast Edit exports selected Business Case data to file on filesystem and returns whether
operation was successful.
// Note: Backslash symbols must be escaped, i.e. '\\' must be used.

var result = afe.exportSelectedRows('C:\\Users\\Administrator\\Documents\\selectedDataExport-
<%DATE_TIMESTAMP_SHORT%>.xlsx');
result;
```

15.5.22 Example for running Email Business Case

```
// In this example Fast Edit sends an e-mail for each modified row of the Table Business Case.
```

// First we must create an Email Business Case (e.g. 'NotificationEmailBc') that will be used for email sending.
// We can use variables of the Table Business Case in the Email Business Case definition.

// Next we must create a script file (e.g. 'sendingEmailNotification.js') containing single line:
afe.runEmailBc('NotificationEmailBc');

// Then we must enable 'Enable Post row update execution' feature in the Table Business Case, set "Automatic execution of" to "Script on server"
// and choose the 'sendingEmailNotification.js' in the drop-down list 'Name'.

// With such Business Case setup an email will be send every time a row will be updated,
// including Excel import (manually or using automatic server-side import or Business Case Email Import)

16 Business logic & widget control in the web browser

Own JavaScript business logic can be executed **automatically** when the user is in the

- **Single Business Case or**
- **Table Business Case**

in insert or editing mode:

- check and uncheck a **checkbox**
- exits an **input field** (or pressing the Enter key)
- selects a value in a **lookup widget (for all tables)**

After that, a JavaScript routine can be automatically executed in the browser to change other widget values:

- Widget Label
- Widget Label with variables
- Input field widget
- Checkbox

Attention: Only the widgets of the **current** data row can be changed, as well as all calculation widgets.

Example:

1. The user sets a checkbox or changes a number in an input field and exits this input field.
2. The self-defined JavaScript routine is started

The routine can now read values from other widgets and change the widget value of the type label, label with variables or input field without a submit.

In a table business case, the current values of a column can also be summed up and output in a calculation widget, for example.

Limitations

The execution in the web browser naturally results in some restrictions:

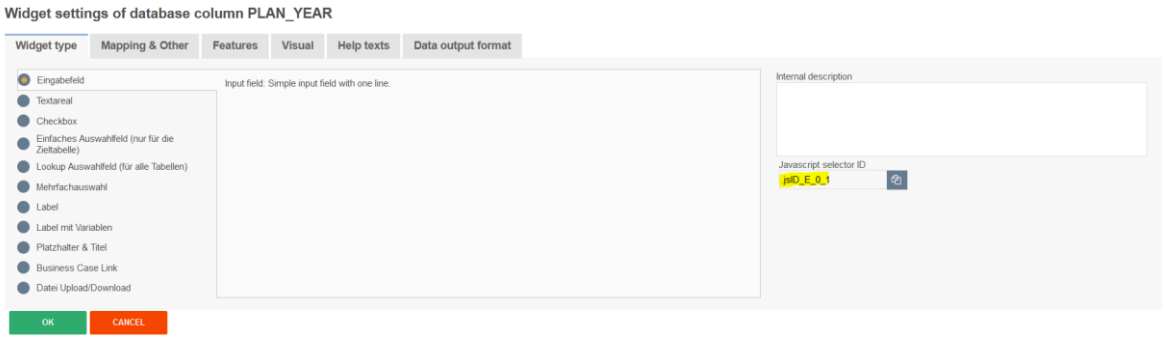
- Variables can only be used to a limited extent, they are calculated on the server side.

- You could start an Action Business Case with window.open, but the (intermediate) results of the calculations cannot be saved in this way, as access to the widget references of the calculations is missing.

16.1 JavaScript Selektor ID

For unique assignment, each widget has a JavaScript selector ID.

The JavaScript selector ID can be found in the widget settings under Widget Type:



To copy the ID, you can use the button to the right of the ID.

16.1.1 Structure of the ID

The selector ID looks like this:
.jsID_E_0_0

The first part of the ID is the abbreviation for JavaScript ID
.jsID_E_0_0

The second part of the ID describes the area in which the widget is used
.jsID_E_0_0

E stands for edit area and **C** stands for calculation area.

The two digits stand for the respective column and number in which the widget is used
.jsID_E_0_0

The counter starts at zero and is always incremented by 1.

The first digit identifies the column in which the widget is located and is used in Single Business Cases. In

Table Business Cases, the counter is always 0, as no columns are used.

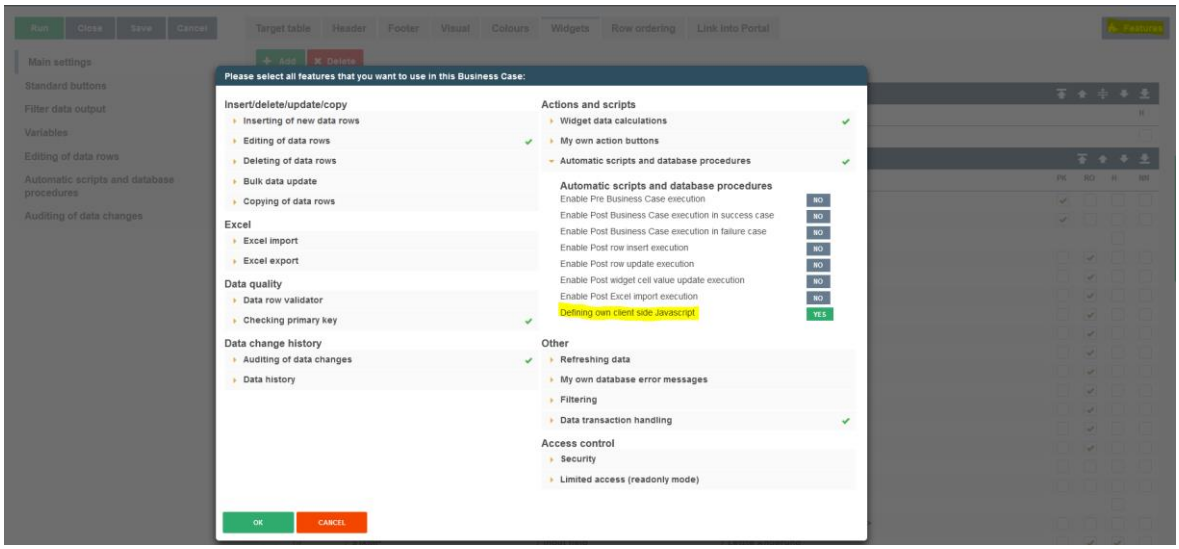
The second digit represents the consecutive numbering of the widgets.

If you change the order of the widgets, the ID also changes.

16.2 Use in a Table Business Case

16.2.1 Activating the feature

Activate the feature " Defining own client-side JavaScript" under Features in the widget settings:



16.2.2 Available JavaScript methods

The general format for **get** and **set** methods:

getAfeWidgetValue(targetElementSelector)

must be extended in the table business case in the edit area as follows:
getAfeTableWidgetValue(sourceElement, targetElementSelector).

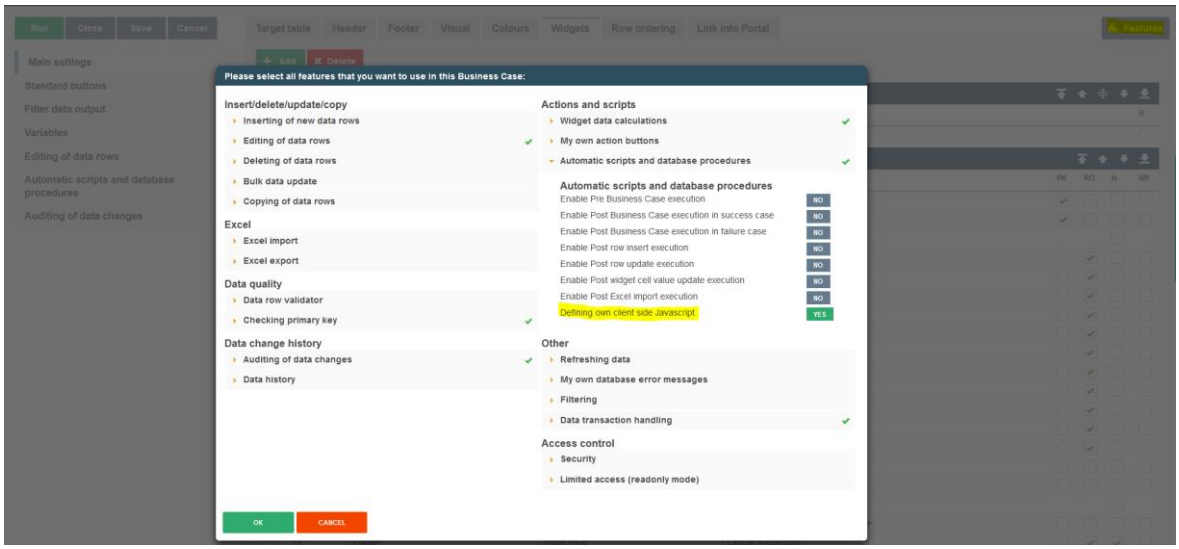
Table is a hint for the routine and sourceElement refers to the current row and **is always** 'this'.

Goal	Command
Read the value of a widget of the current row, Value is a **number**	getAfeTableWidgetNumValue(this, '.jsID_E_0_1');
Read the value of a widget of the current row, Value is a **string**	getAfeTableWidgetStringValue(this, '.jsID_E_0_1');
Write to a widget of the current row, Value is a **number**	setAfeTableWidgetNumValue(this,'.jsID_E_0_2', calcValueNum);
Write to a widget of the current row, Value is a **string**	setAfeTableWidgetStringValue(this,'.jsID_E_0_2', calcValueNum);
Read the value of a **calculation widget**, Value is a **number**	getAfeWidgetNumValue('.jsID_E_0_1');
Write a value to a calculation widget, Value is a **string**	setAfeWidgetStringValue('.jsID_C_0_1', 'CHANGED');
Reading a Lookup Widget Label	var myLabelValue = getAfeTableWidgetLookupLabel(this, '.jsID_E_0_3');
Read/aggregate all numeric values of a column of the current page	getAfeTableColumnFunction('.jsID_E_0_9', 'sum') ; getAfeTableColumnFunction('.jsID_E_0_9', 'min') ; getAfeTableColumnFunction('.jsID_E_0_9', 'max') ; getAfeTableColumnFunction('.jsID_E_0_9', 'avg') ; Null values are calculated with 0-values

16.3 Use in a Single Business Case

16.3.1 Activating the Feature

Activate the feature "Defining own client side JavaScript" under Features in the widget settings:



1.1.1 Available JavaScript methods

Goal	Command
Read the value of a widget, Value is a **number**	getAfeWidgetNumValue('.jsID_E_0_1');
Read the value of a widget, Value is a s**tring**	getAfeWidgetStringValue('.jsID_E_0_1');
Write to a widget, Value is a **number**	setAfeWidgetNumValue('.jsID_E_0_2', calcValueNum);
Write to a widget, Value is a **string**	setAfeWidgetStringValue('.jsID_E_0_2', calcValueNum);
Read the value of a **calculation widget**, Value is a **number**	getAfeWidgetNumValue('.jsID_E_0_1');
Write a value to a calculation widget, Value is a **string**	setAfeWidgetStringValue('.jsID_C_0_1', 'CHANGED');
Reading a Lookup Widget Label	var myLabelValue = getAfeWidgetLookupLabel('.jsID_E_0_3');

16.4 Read/Write Widget Values

16.4.1 Reading widget values

With the method ***getAfeWidgetValue(JavaScriptSelektorID)*** you can read any widget value.
The *JavaScriptSelektorID* identifies the widget whose value we want to read.

For numeric values (numbers) use *getAfeWidgetNumValue* and
For string values use *getAfeWidgetStringValue*.

16.4.2 Writing widget values

With the method ***setAfeWidgetValue(JavaScriptSelektorID, value)*** you can write values into widgets.
The *JavaScriptSelektorID* identifies the widget we want to write to and **value** identifies the value (e.g. a number) to write.

For numeric values (numbers) use *setAfeWidgetNumValue* and
For string values (strings) use *setAfeWidgetStringValue*.

16.4.3 Example function

In this example, the value of the widget with reference ID **.jsID_E_0_0** is read and
the value of the widget * 2 is stored back into the widget **.jsID_E_1_2** when the user exits the widget **.jsID_E_0_0**.

```
$(document).on('change', '.jsID_E_0_0', function(){
  var myValue = getAfeWidgetNumValue('.jsID_E_0_0');
  setAfeWidgetNumValue('.jsID_E_1_2', myValue * 2);
})
```

16.4.4 In detail

$(document).on('change', '.jsID_E_0_0', function()

Starts a JavaScript ***function()*** when a value in the widget ***'.jsID_E_0_0'*** in the web browser ***$(document)*** is changed ***on('change').***

Attention: If the widget is a **lookup (for all tables)**, then the setting " User can enter into widget for selecting a value" must be switched off.

The content of the JavaScript function is enclosed in the curly brackets.

{ var myValue = getAfeWidgetNumValue('.jsID_E_0_0');

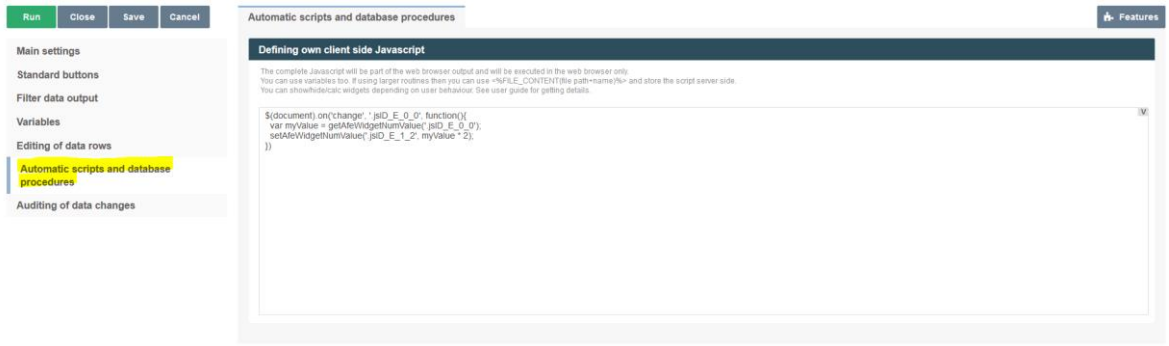
Defines ***var*** and fills the JavaScript variable ***myValue*** with the value of the widget ***'.jsID_E_0_0'***.

setAfeWidgetNumValue('.jsID_E_1_2', myValue * 2); }

Writes the content of the JavaScript variable ***myValue*** multiplied by 2 **** 2*** into the widget ***'.jsID_E_1_2'*** as numeric value ***setAfeWidgetNumValue***

Note
Numeric value is important here, the system can thus automatically use language-specific number formats, otherwise there would be problems e.g. when using different decimal separators (123.45 and 123,45)

16.4.5 Use in Apparo



16.5 Possibilities of a Checkbox

Checkboxes can be set independently of the used value (usually 0 and 1 or Y and N).
With true the checkbox is checked, with false the checkbox is unchecked.

setAfeWidgetStringValue('.jsID_E_0_3', true);

This call sets the checkmark (=true) in the checkbox widget with the reference ***'.jsID_E_0_3'***.
Since true is a string we use the method ***setAfeWidgetStringValue***.

Checkboxes can also be easily hidden.

In the following example, the checkbox is hidden depending on its value:

Example:

```
$(document).on('change', '.jsID_E_0_3', function(){
  var myValue = getAfeWidgetNumValue('.jsID_E_0_3');
  if(true == myValue) {


document.querySelector('.jsID_E_0_4').parentElement.parentElement.parentElement.parentElement.styl
e.display = "none";

  }
  else {

document.querySelector('.jsID_E_0_4').parentElement.parentElement.parentElement.parentElement.styl
e.display = "table-row";
  }
 });
```

If the checked checkbox is set, the checkbox widget ***.jsID_E_0_4*** is **hidden** or otherwise (re)**displayed**.

16.6 Disabling Row Selection Checkbox

The row selection checkboxes that are displayed when, for example, the "Delete rows" feature is active or when using custom buttons that work for all selected rows, can be disabled row by row depending on widget values (or calculations).
These rows can then not be deleted or the action on the button cannot be triggered for this row.

Method:

hideTableRowSelection(JavaScriptSelectorId, 'widget value');

hideTableRowSelection('.jsID_E_0_5', 'test');

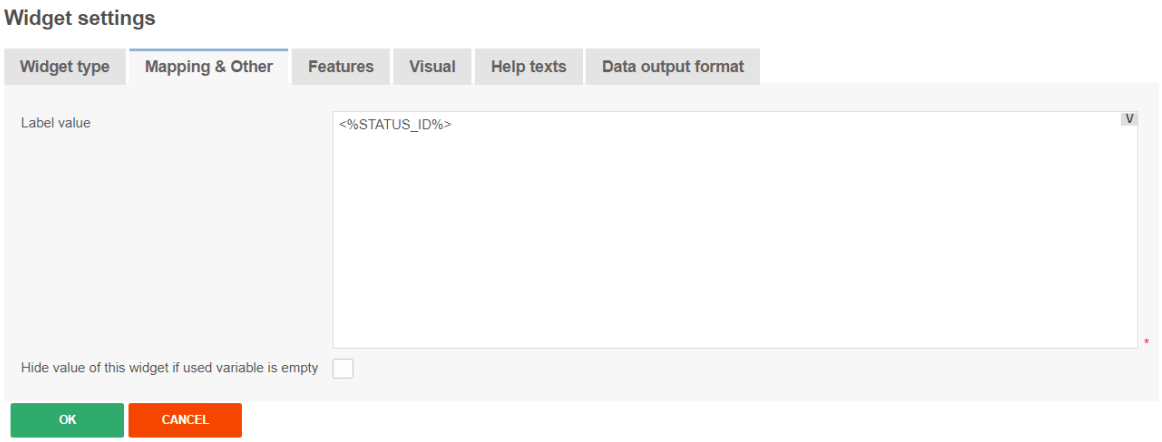
In this example, all rows whose value of the widget with ID .jsID_E_0_5 contains the value 'test' become unselectable.

16.6.1 Application example

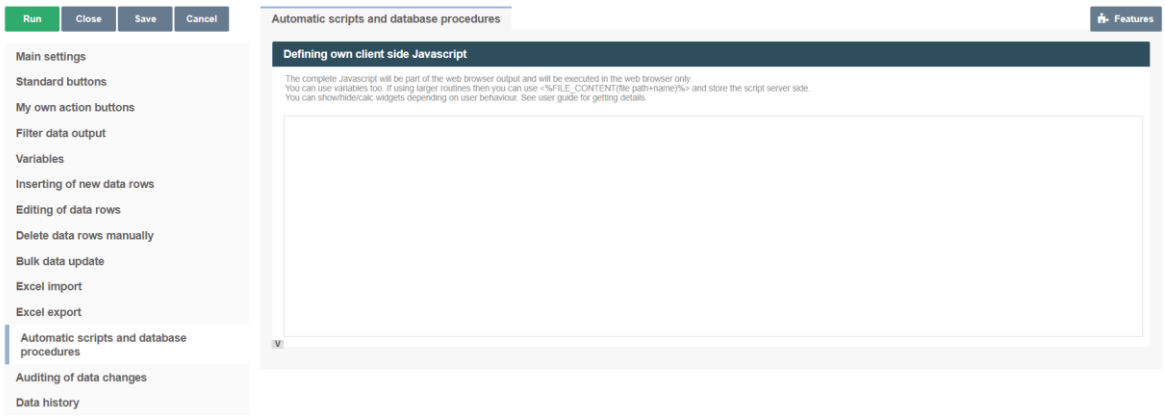
In a business case, rows should be non-deletable depending on the workflow status "Ready for approval".

Year	Month	Office	Product line	Product	My status	Revision status	Plan data	Plan2	Pla
2017	1	London office	Trousers	Talli	Ready for approval	Open	4007	500	
2017	1	London office	Trousers	Talli	open	Open	5555	0	

Lookup widgets can be used directly, but assuming the selection checkbox is to be hidden based on a calculation, we need to output the result of the calculation in a 'label with variables' type widget beforehand. Therefore, we output the value of the lookup widget here as a substitute in a label with variables, which can optionally also be hidden:



As label value we simply use the widget reference variable of the status widget. In a calculation, 'true' or similar would usually be output.



In the window "Define own client side Javascript" we enter the following function:

```
function onAfeFormReload() {
  $(document).ready(function(){
      //for multiple widgets or values the method can be called more then once.
    //Note: function onAfeFormReload() can be used only once.
  hideTableRowSelection('.jsID_E_0_27', '2');
      })
}
```

In detail:

function onAfeFormReload() {

Calls a special Apparo function that, as soon as the business case starts or is reloaded (e.g. when OK is clicked), starts the following JavaScript:

$(document).ready(function(){

Once the web page has finished loading, start a function with the following command(s):

hideTableRowSelection('.jsID_E_0_27', '2');

Hide the selection checkbox if the value of the widget of type 'Label with variables' ***'.jsID_E_0_27'*** is equal to two (lookup ID value for "Ready for approval").

Result:

Year	Month	Office	Product line	Product	My status	Revision status	Plan data	Plan2	Pl
2017	1	London office	Trousers	Talli	Ready for approval	Open	4007	500	
2017	1	London office	Trousers	Talli	open	Open	5555	0	

The user can now no longer delete this row.

16.7 Show and hide a widget

For a Table Business Case:

- **hideAfeTableWidget(this,<javascript selector ID>);**
- **unhideAfeTableWidget(this, <javascript selector ID>');**

For a Single Business Case:

- **hideAfeWidget<javascript selector ID>);**
- **unhideAfeWidget(<javascript selector ID>);**

Note: Even if the widget is hidden, the value is stored in the database destination table.

Example:

```
$(document).on('change', '.jsID_E_0_2', function() {

    let ID = getAfeTableWidgetNumValue(this, '.jsID_E_0_2');
    if(ID == 2022) {
        hideAfeTableWidget(this,  '.jsID_E_0_12' );  // hide widget of current row  if year is 2022
    }
    else {
        unhideAfeTableWidget(this,  '.jsID_E_0_12' ); // show widget of current row
       }
});
```

16.8 Possibilities of Lookup Widgets

Lookup widgets can only be read, but not set.

16.8.1 Lookup key values

Lookup key values can be read like this:

In the table business case

getAfeTableWidgetNumValue(sourceElement, targetElementSelector)

var myLabelValue = getAfeTableWidgetNumValue(this, '.jsID_E_0_4');

In the single business case

getAfeWidgetNumValue(targetElement)

var myLabelValue = getAfeWidgetNumValue('.jsID_E_0_4');

16.8.2 Lookup output values (Label)

The lookup output values can be read like this:

In the table business case

getAfeTableWidgetLookupLabel(sourceElement, targetElementSelector)

var myLabelValue = getAfeTableWidgetLookupLabel(this, '.jsID_E_0_4');

In the single business case

getAfeWidgetLookupLabel(targetElement)

var myLabelValue = getAfeWidgetLookupLabel('.jsID_E_0_4');

16.9 Aggregate all values of a column in a table Business Case

It is possible to perform calculations over all used rows of a widget (=column).
The column must be numeric.
All values of only the current page (=all visible data rows) are taken into account.
The sum can be output e.g. in a calculation widget.

Product	Sum year	January	February	March	April	May	June	July	August	September	Oktober	November	December	Workflow
T-Shirt Vienna	3,000.00	0.00	0.00	200.00	300.00	2,000.00	300.00	120.00	200.00	-30.00	-30.00	-30.00	-30.00	open
Lueneburg	50,000.00	0.00	0.00	200.00	300.00	3,450.00	300.00	120.00	200.00	11,357.50	11,357.50	11,357.50	11,357.50	Ready for approval
Bags New York	-39,857.50	0.00	0.00	200.00	300.00	3,450.00	300.00	120.00	200.00	1,857.50	1,857.50	-50,000.00	1,857.50	open
New Yorker	20,000.00	0.00	0.00	400.00	500.00	500.00	5,005.00	500.00	500.00	3,148.75	3,148.75	3,148.75	3,148.75	Ready for approval
Nightblue	300.00	0.00	0.00	800.00	500.00	500.00	5,005.00	500.00	500.00	-1,876.25	-1,876.25	-1,876.25	-1,876.25	open
Gilbert	5,000.00	0.00	0.00	1,200.00	500.00	500.00	5,005.00	500.00	500.00	-801.25	-801.25	-801.25	-801.25	open
Luxor	8,000.00	0.00	0.00	800.00	500.00	500.00	5,005.00	500.00	500.00	48.75	48.75	48.75	48.75	Ready for approval
Madox	10,000.00	0.00	0.00	800.00	500.00	500.00	5,005.00	500.00	500.00	548.75	548.75	548.75	548.75	open
	56,442.50	0.00	0.00	4,600.00	3,400.00	11,400.00	25,925.00	2,860.00	3,100.00	14,253.75	14,253.75	-37,603.75	14,253.75	

getAfeTableColumnFunction(targetColumnSelector, functionName)

targetColumnSelector refers to the widget for which the function is to be calculated over all rows.

functionName refers to the function and can be one of the following:

- **Sum**: getAfeTableColumnFunction('.jsID_E_0_3', 'sum')
- **Minimum**: getAfeTableColumnFunction('.jsID_E_0_3', 'min')
- **Maximum**: getAfeTableColumnFunction('.jsID_E_0_3', 'max')
- **Average**: getAfeTableColumnFunction('.jsID_E_0_3', 'avg')

16.9.1 Example for sum over one column

For this we need a calculation widget (without content) of type Label with variables for the output.
The output value is calculated and entered by the script.

var Write_Sum;

With this we define the JavaScript variable ***Write_Sum***

Write_Sum = getAfeTableColumnFunction('.jsID_E_0_3', 'sum');

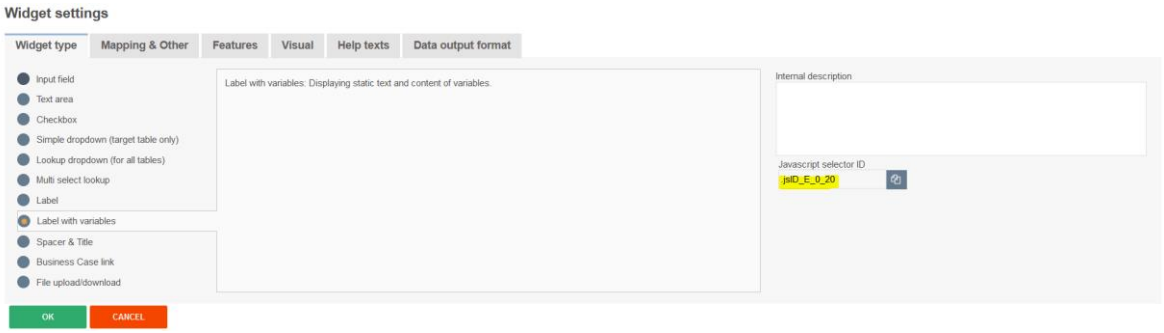
Herewith we fill the variable ***Write_Sum*** with the calculation of the sum ***getAfeTableColumnFunction('.jsID_E_0_3', 'sum')*** over all visible rows of the widget ***'.jsID_E_0_3'***.

setAfeWidgetNumValue('.jsID_C_0_0', Write_Sum);

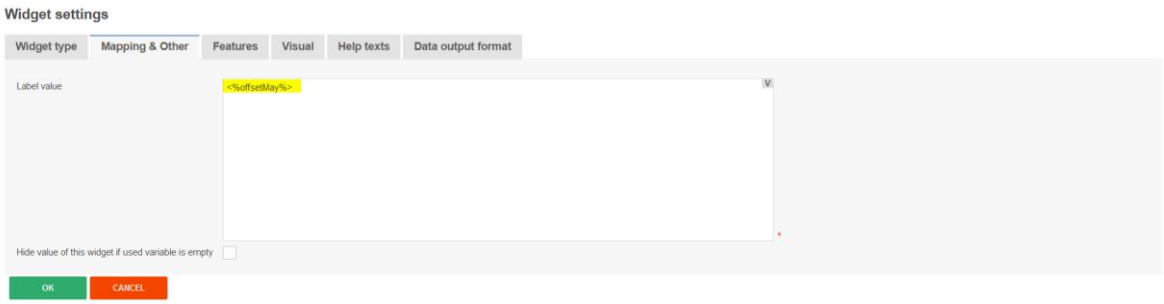
Here we write ***setAfeWidgetNumValue('.jsID_C_0_0', Write_Sum);*** the calculation stored in the variable ***Write_Sum*** to the calculation widget ***'.jsID_C_0_0'***.

16.10 Use of variables

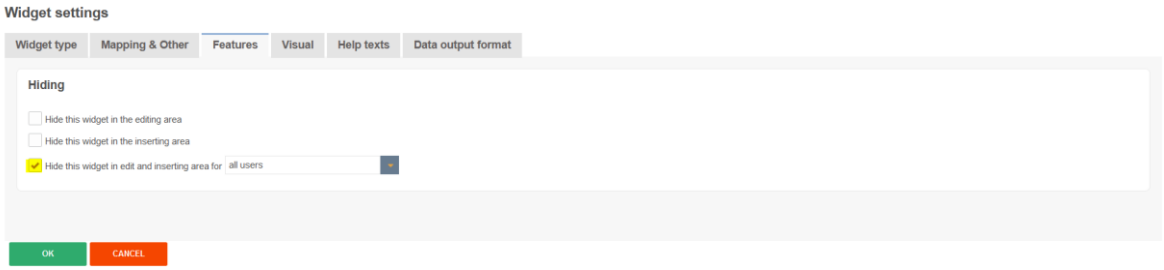
As already mentioned the use of variables is only possible to a limited extent.
If these are to be included in calculations, they must first be output in a widget of the type label with variables and then read from there with the get method.



The JavaScript selector ID of the widget is required.



The variable is output as a label value.



Optionally, the widget can also be hidden as 'hidden'.

Example:

setAfeTableWidgetNumValue(this,'.jsID_E_0_7', calcValueNum+
getAfeTableWidgetNumValue(this,'.jsID_E_0_20')

With ***setAfe*** the value of the JavaScript variable ***calcValueNum*** is written into the widget ***'.jsID_E_0_7'***, added with the value of the Apparo variable ***<%offsetMay%>***, output in widget ***'.jsID_E_0_20'***.

16.11 Using server side variables

SQL variables and script variables can also be recalculated at runtime via Javascript and the result can be reused in the browser.

Example:

```
var srcElement;

$(document).on('change', '.jsID_E_0_3', function(event) {
		srcElement = this;
		let dropdownKey = getAfeTableWidgetValue(srcElement, '.jsID_E_0_3');
		let dropdownValue = getAfeTableWidgetLookupLabel(srcElement, '.jsID_E_0_3');

		afeReadVariableJs([
			{name:'variableName', value:'myFeVariable'},
			{name:'callbackMethodName', value:'myJsMethod'},
			{name:'FE_ID', value: dropdownKey},
			{name:'FE_COLOUR', value: dropdownValue} ]);
})

$(document).on('change', '.jsID_E_0_4', function(event) {
		srcElement = this;
		let dropdownKey = getAfeTableWidgetValue(srcElement, '.jsID_E_0_4');
		let dropdownValue = getAfeTableWidgetLookupLabel(srcElement, '.jsID_E_0_4');

		afeReadVariableJs([
			{name:'variableName', value:'myFeVariable'},
			{name:'callbackMethodName', value:'mySecondJsMethod'},
			{name:'FE_ID', value: dropdownKey},
			{name:'FE_COLOUR', value: dropdownValue} ]);
})

function myJsMethod(result) {
setAfeTableWidgetValue(srcElement, '.jsID_E_0_1', 'color code is: '+result[0]);
}

function mySecondJsMethod(result) {
setAfeTableWidgetValue(srcElement, '.jsID_E_0_1', 'second color code is: '+result[0]);
}
```

If the value of the drop-down widget is changed ('.jsID_E_0_3' or '.jsID_E_0_4'), then the request is sent to the server using the Javascript method **afeReadVariableJs** to resolve the variable **<%myFeVariable%>** and update the text widget '.jsID_E_0_1' according to the result.

The afeReadVariableJs method has these parameters:

- **variableName**: Name of the variable to be recalculated
- **callbackMethodName**: Name of the Javascript method in the browser that is automatically called after the calculation. This also supplies the calculation result.
- **FE_x**: Parameters are sent to the server as <%FE_x%> variables. This means that the variable must begin with FE_, the rest of the name is freely definable.

  In the variable itself, this parameter can then also be used with <%FE_x%>. For example, <%FE_PRODUCT_ID%>

  All parameters must be of type String or Number.

The used script variable:

```
//declare the result variable
var resultArray;

var  id = '<%FE_ID%>';
var colour = '<%FE_COLOUR%>';

//check if the dropdown values are filled
if(id && colour) {
		//select values from the database
		resultArray = afe.executeSqlSelectOneRow("select CODE, ID, COLOUR from BASE_LOOKUP where ID =
<%FE_ID%> and COLOUR = '<%FE_COLOUR%>' ");
}
else {
		//otherwise return empty values
		resultArray = ['','',''];
}


resultArray;
```

16.12 Use of larger JavaScript programmes

With increasing complexity, it is advisable to outsource the JavaScript to an external file.

With the variable:

<%FILE_CONTENT(path+file)%>

you can import the contents of the file again.

Example call of the file myJsFunctions.txt:

<%FILE_CONTENT(D:\My Data\script\myJsFunctions.txt)%>.

The following replaces the variable with the contents of the file:

myAlert(); // <- Example content of the file.

16.13 Enter key for calling the JavaScript routine

The Enter key is normally used to simulate a click on the OK key.
However, if the user is to be able to start the calculations with the enter key, the function "ready" must be extended:

```
$(document).ready(function(){
// The business case has been started, the Calc widget is set to 0
setAfeWidgetNumValue('.jsID_C_0_0', 0);

  disableFormSubmitOnEnter();
})
```

With ***disableFormSubmitOnEnter();*** the enter key is converted and only calls the JavaScript routine.

16.14 Updating the entered numbers to match the existing number format

When entering numbers, e.g. 1000, after clicking the OK button it will be adjusted to the set widget number format, e.g. 1,000.00.

When using the script method, we instead have to call a method to achieve the formatting without having to click the OK button.

Instead of just calling the calculateYearSum function:

```
$(document).on('change', '.jsID_E_0_20', function() {
calculateYearSum(this);
})
```

We call the method that formats the input values:

```
$(document).on('change', '.jsID_E_0_20', function() {
setInputWidgetNumFormat(this); // format the numeric and string input values according to the widget settings
calculateYearSum(this);
})
```

16.15 Example of a Table Business Case for planning

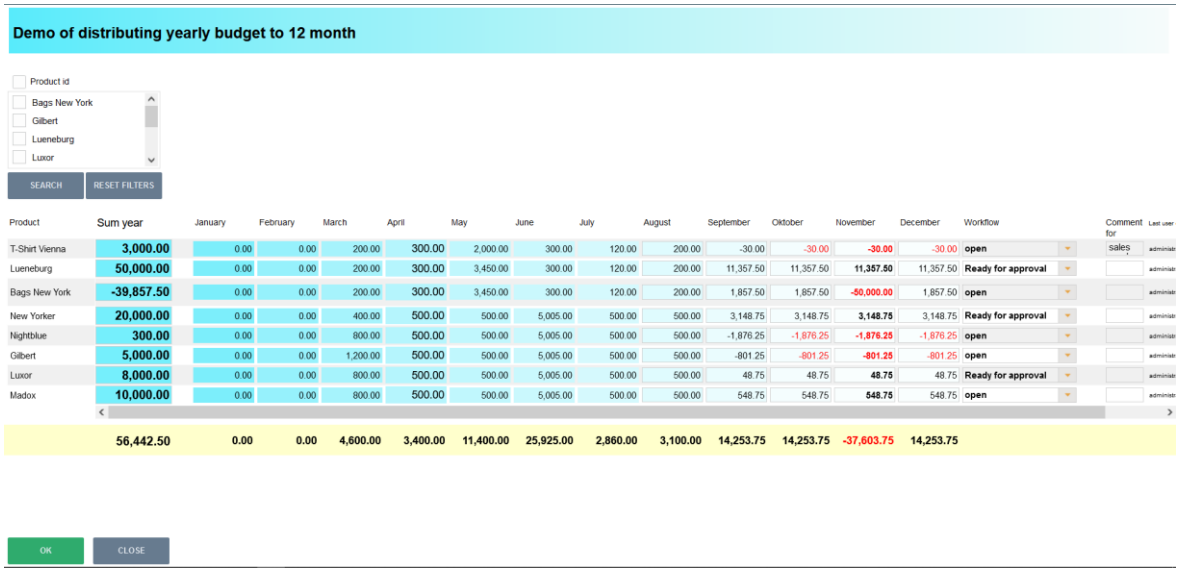
In this example, a small planning application is developed.

1. The entered annual total is distributed over the annual months, ignoring the previous months (these are "frozen").

2. If the user has entered a monthly plan value, the annual total is automatically updated.

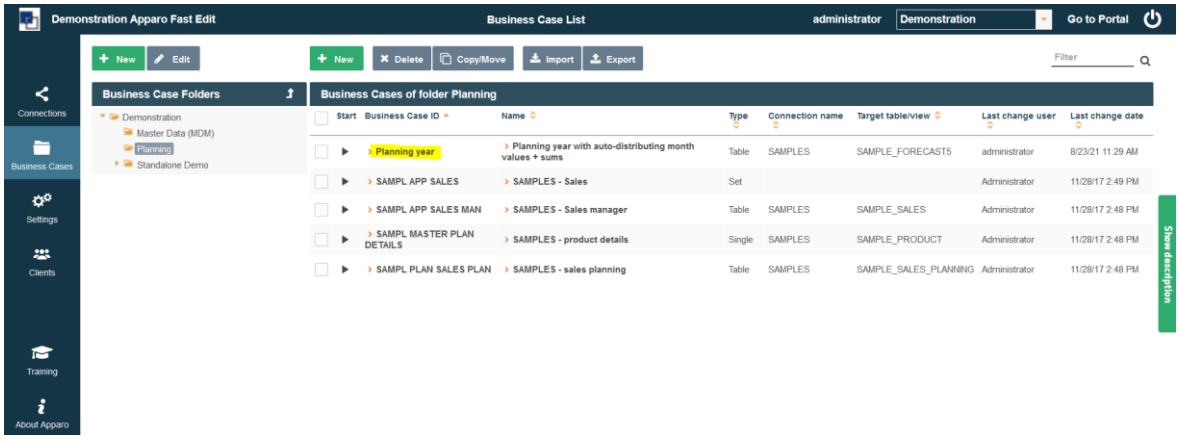
3. For May, an additional value is automatically added from a hidden "Label with variables" widget.

4. The monthly totals for all selected products and the yearly total are automatically calculated.



You can find this example business case in the public demo

https://demo.apparo.services



Hint
In the training menu of the Apparo Designer, you can find the making of videos for this Business Case.

The Script:

```
// sum of a product was changed:
$(document).on('change', '.jsID_E_0_1', function(){

// get current value of the sum widget:
 var myValue = getAfeTableWidgetNumValue(this, '.jsID_E_0_1');

// Date calculations...
 var currentDate = new Date();
 var currentMonth = currentDate.getMonth() +2;
 var months = 13 - currentMonth;

 //calculate sum of values in the past
 var sumOfPast = 0;
 if (currentMonth >= 2 ) {  sumOfPast =                  getAfeTableWidgetNumValue(this,'.jsID_E_0_3'); };
 if (currentMonth >= 3 ) {  sumOfPast = sumOfPast + getAfeTableWidgetNumValue(this,'.jsID_E_0_4');  };
 if (currentMonth >= 4 ) {  sumOfPast = sumOfPast + getAfeTableWidgetNumValue(this,'.jsID_E_0_5');  };
 if (currentMonth >= 5 ) {  sumOfPast = sumOfPast + getAfeTableWidgetNumValue(this,'.jsID_E_0_6');  };
 if (currentMonth >= 6 ) {  sumOfPast = sumOfPast + getAfeTableWidgetNumValue(this,'.jsID_E_0_7');  };
 if (currentMonth >= 7 ) {  sumOfPast = sumOfPast + getAfeTableWidgetNumValue(this,'.jsID_E_0_8');  };
 if (currentMonth >= 8 ) {  sumOfPast = sumOfPast + getAfeTableWidgetNumValue(this,'.jsID_E_0_9');  };
 if (currentMonth >= 9 ) {  sumOfPast = sumOfPast + getAfeTableWidgetNumValue(this,'.jsID_E_0_10');  };
 if (currentMonth >= 10) {  sumOfPast = sumOfPast + getAfeTableWidgetNumValue(this,'.jsID_E_0_11'); };
 if (currentMonth >= 11) {  sumOfPast = sumOfPast + getAfeTableWidgetNumValue(this,'.jsID_E_0_12'); };
 if (currentMonth == 12) {  sumOfPast = sumOfPast + getAfeTableWidgetNumValue(this,'.jsID_E_0_13'); };


// change values of future months and current only
// toFixed(2) rounds the value to 2 decimal places, but the result is string. The '+' in the begin convert this string into English number
var calcValueNum = + (((myValue-sumOfPast) / months).toFixed(2));

 if (currentMonth == 1 ) {  setAfeTableWidgetNumValue(this,'.jsID_E_0_3', calcValueNum); }
 if (currentMonth <= 2 ) {  setAfeTableWidgetNumValue(this,'.jsID_E_0_4', calcValueNum); }
 if (currentMonth <= 3 ) {  setAfeTableWidgetNumValue(this,'.jsID_E_0_5', calcValueNum); }
 if (currentMonth <= 4 ) {  setAfeTableWidgetNumValue(this,'.jsID_E_0_6', calcValueNum); }

// for May additional the calculated value of E_0_17 must be added.
// this is an example how to use calculated values from the database, e.g. SQL. The value is stored in a hidden widget of type "Label with variables"
 if (currentMonth <= 5 ) {  setAfeTableWidgetNumValue(this,'.jsID_E_0_7', calcValueNum+ getAfeTableWidgetNumValue(this,'.jsID_E_0_17')  ); }

 if (currentMonth <= 6 ) {  setAfeTableWidgetNumValue(this,'.jsID_E_0_8', calcValueNum); }
 if (currentMonth <= 7 ) {  setAfeTableWidgetNumValue(this,'.jsID_E_0_9', calcValueNum); }
 if (currentMonth <= 8 ) {  setAfeTableWidgetNumValue(this,'.jsID_E_0_10', calcValueNum); }
 if (currentMonth <= 9 ) {  setAfeTableWidgetNumValue(this,'.jsID_E_0_11', calcValueNum); }
 if (currentMonth <= 10) {  setAfeTableWidgetNumValue(this,'.jsID_E_0_12', calcValueNum); }
 if (currentMonth <= 11) {  setAfeTableWidgetNumValue(this,'.jsID_E_0_13', calcValueNum); }
 if (currentMonth <= 12) {  setAfeTableWidgetNumValue(this,'.jsID_E_0_14', calcValueNum); }

  // because the particular values may be rounded, recalculate the SUM in order to reflect the sum of rounded values
  calculateYearSum(this);
})

$(document).on('change', '.jsID_E_0_3', function(){
 // january value was changed
 calculateYearSum(this);
})

$(document).on('change', '.jsID_E_0_4', function(){
 // February value was changed
 calculateYearSum(this);
})

$(document).on('change', '.jsID_E_0_5', function(){
 calculateYearSum(this);
})

$(document).on('change', '.jsID_E_0_6', function(){
 calculateYearSum(this);
})

$(document).on('change', '.jsID_E_0_7', function(){
 calculateYearSum(this);
})

$(document).on('change', '.jsID_E_0_8', function(){
 calculateYearSum(this);
})

$(document).on('change', '.jsID_E_0_9', function(){
```

```
  calculateYearSum(this);
})

$(document).on('change', '.jsID_E_0_10', function(){
  calculateYearSum(this);
})

$(document).on('change', '.jsID_E_0_11', function(){
  calculateYearSum(this);
})

$(document).on('change', '.jsID_E_0_12', function(){
  calculateYearSum(this);
})

$(document).on('change', '.jsID_E_0_13', function(){
  calculateYearSum(this);
})

$(document).on('change', '.jsID_E_0_14', function(){
  calculateYearSum(this);
})

function calculateYearSum(elem) {
// make a sum of all months of the current product
  var yearSum =  getAfeTableWidgetNumValue(elem,'.jsID_E_0_3');
   yearSum = yearSum + getAfeTableWidgetNumValue(elem,'.jsID_E_0_4');
   yearSum = yearSum + getAfeTableWidgetNumValue(elem,'.jsID_E_0_5');
   yearSum = yearSum + getAfeTableWidgetNumValue(elem,'.jsID_E_0_6');
   yearSum = yearSum + getAfeTableWidgetNumValue(elem,'.jsID_E_0_7');
   yearSum = yearSum + getAfeTableWidgetNumValue(elem,'.jsID_E_0_8');
   yearSum = yearSum + getAfeTableWidgetNumValue(elem,'.jsID_E_0_9');
   yearSum = yearSum + getAfeTableWidgetNumValue(elem,'.jsID_E_0_10');
   yearSum = yearSum + getAfeTableWidgetNumValue(elem,'.jsID_E_0_11');
   yearSum = yearSum + getAfeTableWidgetNumValue(elem,'.jsID_E_0_12');
   yearSum = yearSum + getAfeTableWidgetNumValue(elem,'.jsID_E_0_13');
   yearSum = yearSum + getAfeTableWidgetNumValue(elem,'.jsID_E_0_14');

// recalculate all month sums of all products
   calculateColumnSums();

// set sum of year of current product
   setAfeTableWidgetNumValue(elem, '.jsID_E_0_1', yearSum);


}

function calculateColumnSums() {

// recalc all month sums

var m;
m = getAfeTableColumnFunction('.jsID_E_0_3', 'sum');
setAfeWidgetNumValue('.jsID_C_0_3', m);

m = getAfeTableColumnFunction('.jsID_E_0_4', 'sum');
setAfeWidgetNumValue( '.jsID_C_0_4', m);

m = getAfeTableColumnFunction('.jsID_E_0_5', 'sum');
setAfeWidgetNumValue( '.jsID_C_0_5', m);

m = getAfeTableColumnFunction('.jsID_E_0_6', 'sum');
setAfeWidgetNumValue( '.jsID_C_0_6', m);

m = getAfeTableColumnFunction('.jsID_E_0_7', 'sum');
setAfeWidgetNumValue( '.jsID_C_0_7', m);

m = getAfeTableColumnFunction('.jsID_E_0_8', 'sum');
setAfeWidgetNumValue( '.jsID_C_0_8', m);

m = getAfeTableColumnFunction('.jsID_E_0_9', 'sum');
setAfeWidgetNumValue( '.jsID_C_0_9', m);

m = getAfeTableColumnFunction('.jsID_E_0_10', 'sum');
setAfeWidgetNumValue( '.jsID_C_0_10', m);

m = getAfeTableColumnFunction('.jsID_E_0_11', 'sum');
setAfeWidgetNumValue( '.jsID_C_0_11', m);

m = getAfeTableColumnFunction('.jsID_E_0_12', 'sum');
setAfeWidgetNumValue( '.jsID_C_0_12', m);
```

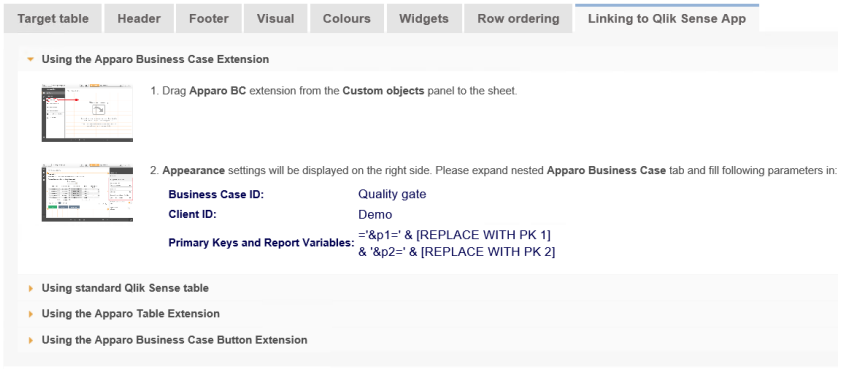
```
m = getAfeTableColumnFunction('.jsID_E_0_13', 'sum');
setAfeWidgetNumValue( '.jsID_C_0_13', m);

m = getAfeTableColumnFunction('.jsID_E_0_14', 'sum');
setAfeWidgetNumValue( '.jsID_C_0_14', m);

// calc total sum and display it, value is the sum of all products
setAfeWidgetNumValue( '.jsID_C_0_1',
  getAfeTableColumnFunction('.jsID_E_0_3', 'sum') +
  getAfeTableColumnFunction('.jsID_E_0_4', 'sum') +
  getAfeTableColumnFunction('.jsID_E_0_5', 'sum') +
  getAfeTableColumnFunction('.jsID_E_0_6', 'sum') +
  getAfeTableColumnFunction('.jsID_E_0_7', 'sum') +
  getAfeTableColumnFunction('.jsID_E_0_8', 'sum') +
  getAfeTableColumnFunction('.jsID_E_0_9', 'sum') +
  getAfeTableColumnFunction('.jsID_E_0_10', 'sum') +
  getAfeTableColumnFunction('.jsID_E_0_11', 'sum') +
  getAfeTableColumnFunction('.jsID_E_0_12', 'sum') +
  getAfeTableColumnFunction('.jsID_E_0_13', 'sum') +
  getAfeTableColumnFunction('.jsID_E_0_14', 'sum')  );
}



$(document).ready(function(){
// Business Case was started, this function will be called automatically, the calc widget are updated

// pressing enter key means new event and not making submit
  disableFormSubmitOnEnter();

// calc month sums:
  calculateColumnSums();

})


function onAfeFormReload() {
 $(document).ready(function(){
// Business Case after submit (e.g. pressing OK button) is calling this function automatically

// enter key means new event
  disableFormSubmitOnEnter();

// calc month sums:
  calculateColumnSums();
 })
}




$(document).on('focus', '.jsID_E_0_1', function(){

// the user has clicked into the sum widget. Now this function is called automatically.
// This is helpful if you want to make calculations directly after user clicked into a widget

// ... place for activities

} )
```

17 Linking Apparo Fast Edit and Qlik Sense together

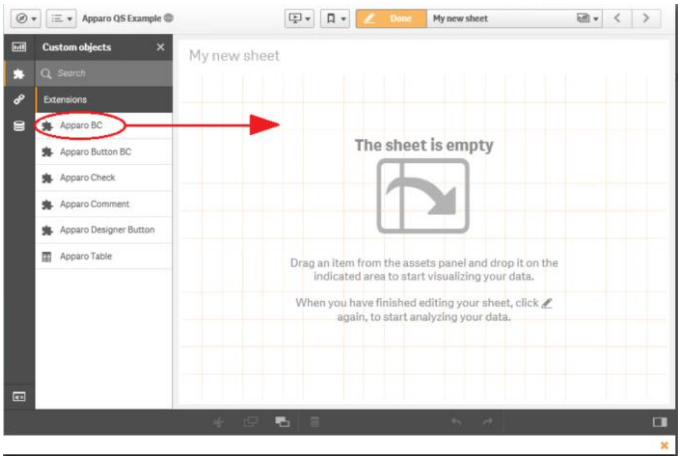
It is possible to use the Business Case output as a widget in the Qlik Sense app or via button click the Business Case is displayed in a new window.

A Business Case can be called from a Qlik Sense table or from an Apparo Table Extension.

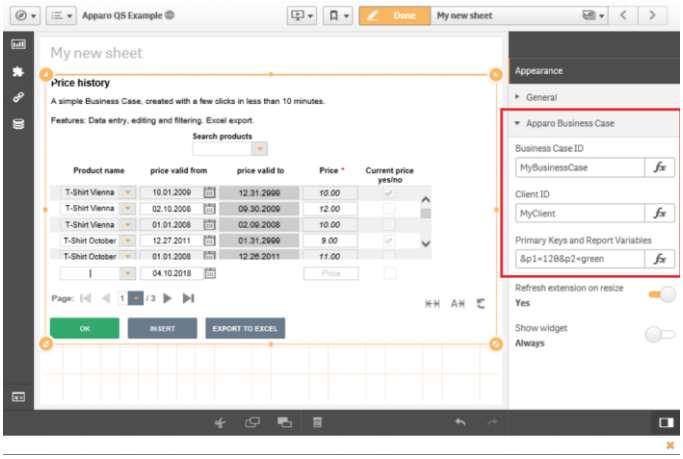
17.1 Integration of a Business Case output directly in the App



Please use the Apparo extension „Apparo BC“:



Note the settings of the extension:



Attention: Business Cases with widgets of type Textarea + HTML output are not supported for Internet Explorer in embedded mode!

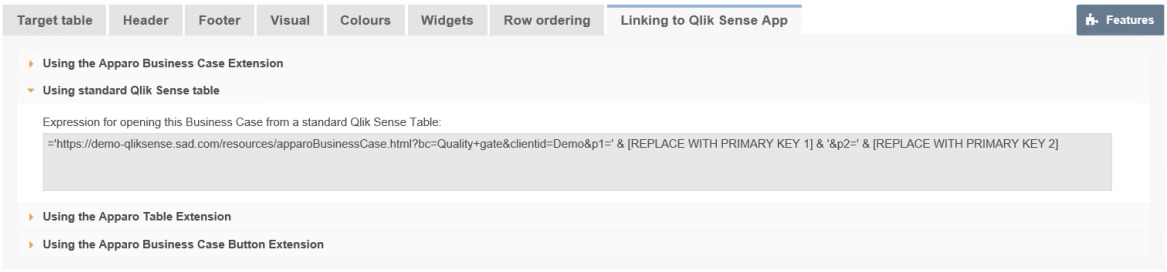
Also Qlik Sense filter values can be considered. The selected values are passed on to the Business Case via report variables.

Example:
= '&FE_SelectedProductLines=' & GetFieldSelections(PRODUCT_LINE_NAME_EN)

Here, the report variable "SelectedProductLines" is given a list of the selected product line values. The variable type of the report variable must be text.

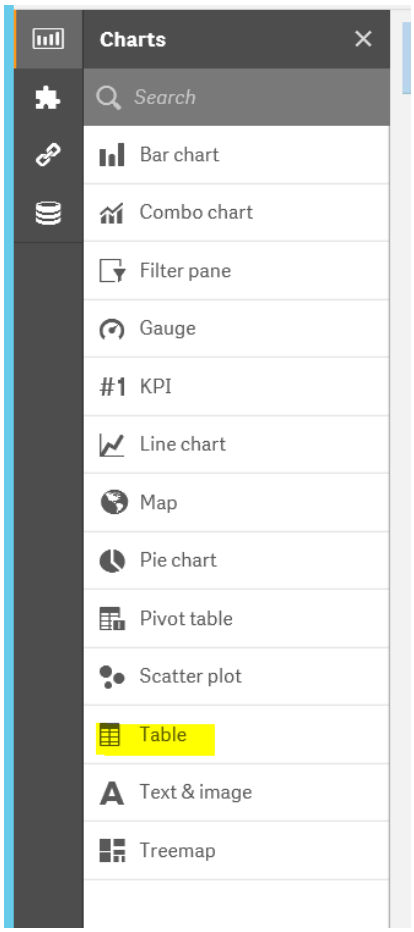
The report variable can be used as the default value in a hidden multi-select filter in the Business Case.

17.1.1 Running from a Qlik Sense table

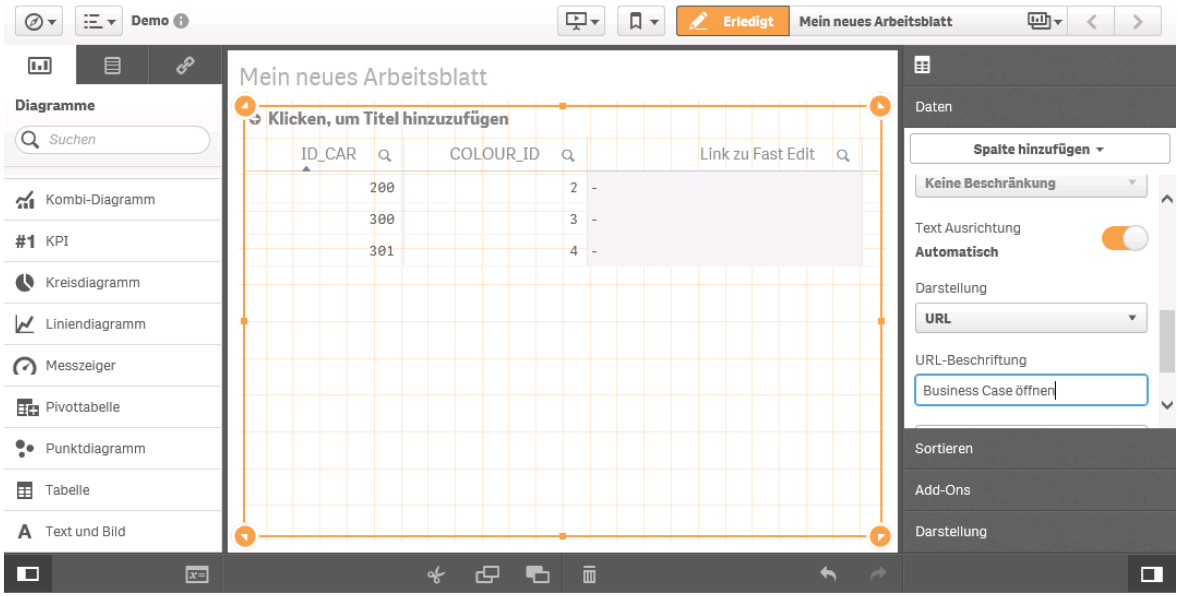


The integration of in Qlik Sense tables is solved via hyperlinks.

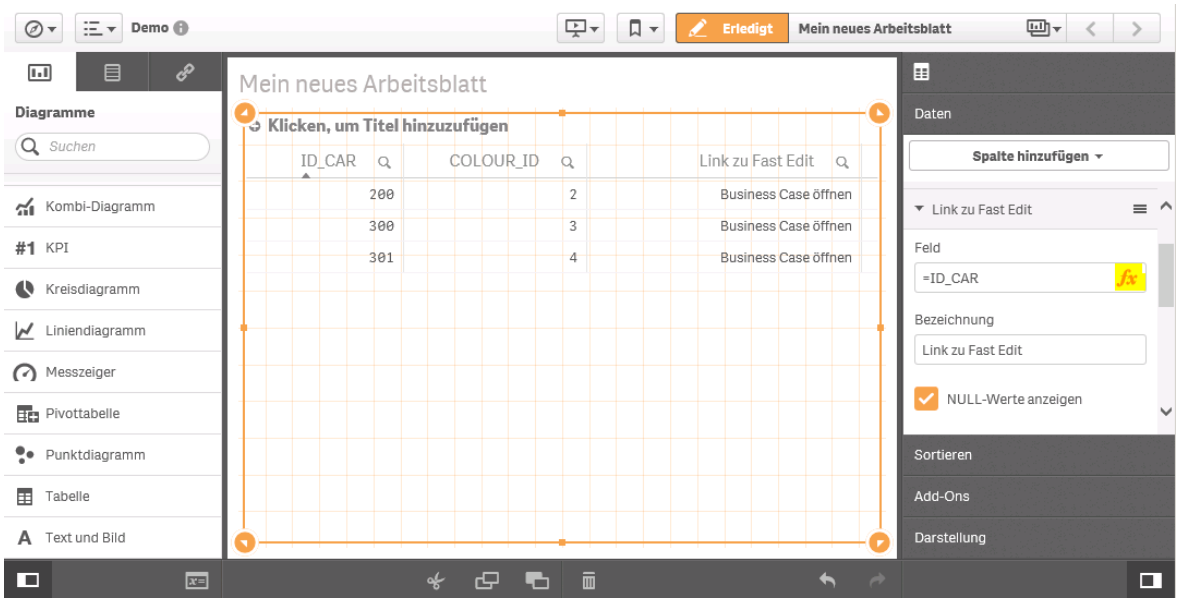
Create or edit a Qlik Sense app and drag the item "Table" in a worksheet of your choice. Then add the dimensions you want.



Create another column for the hyperlink to Apparo Fast Edit.
Next, select "URL" in the display options and enter an identifier for the link for URL captioning.



Then open the formula editor for this column by clicking on "fx" in the "Field" box.



In the open formula editor, insert the URL that you copied in the Business Case under "Link to Qlik Sense" and replace the strings for the primary key columns "[REPLACE WITH PRIMARY KEY 1]" with the corresponding data columns:

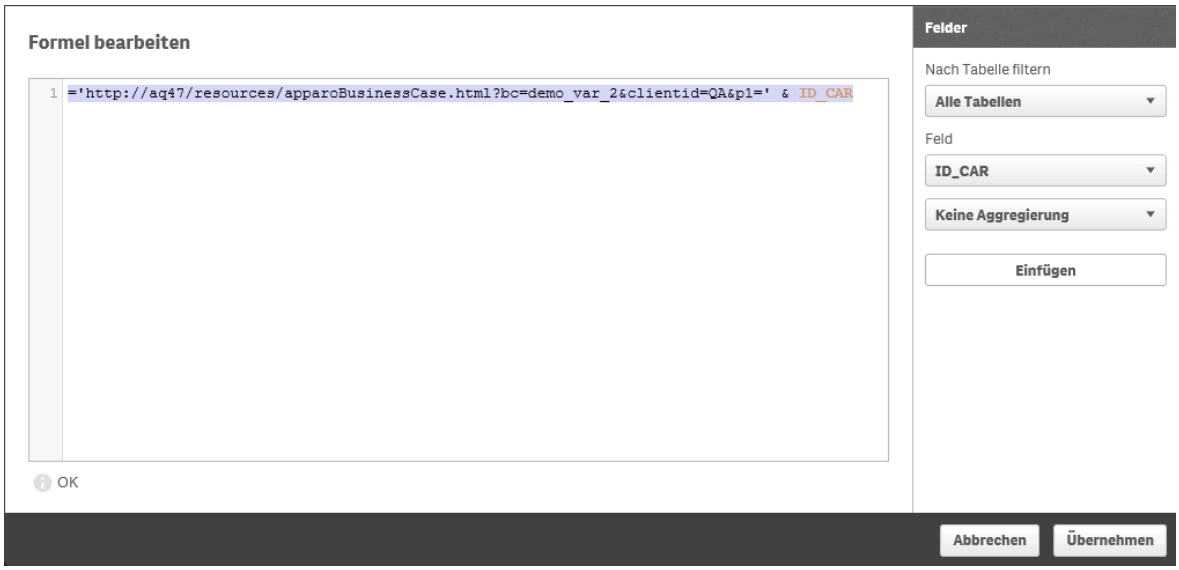
Example:

The original URL:

='http://servername/resources/apparoBusinessCase.html?bc=demo_var_2&clientid=QA&p1=' & [REPLACE WITH PRIMARY KEY 1]

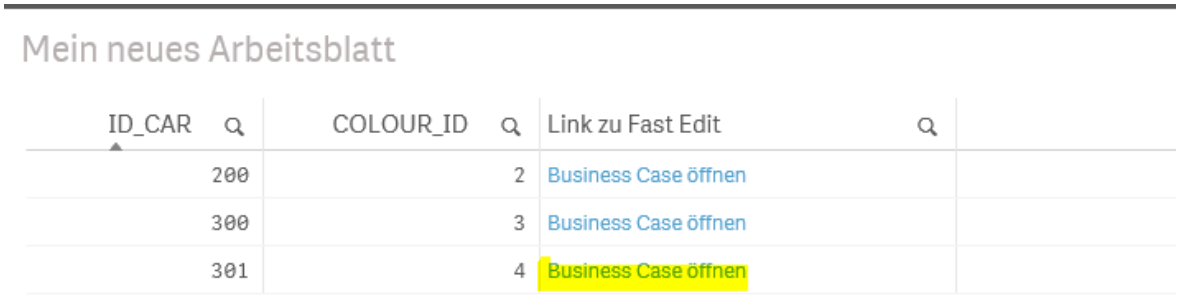
Changed to:

='http://servername/resources/apparoBusinessCase.html?bc=demo_var_2&clientid=QA&p1=' & ID_CAR



Then click on "Apply"

If you now click on the hyperlink in the finished worksheet, the assigned Business Case opens in a new tab and displays the entry with the corresponding ID

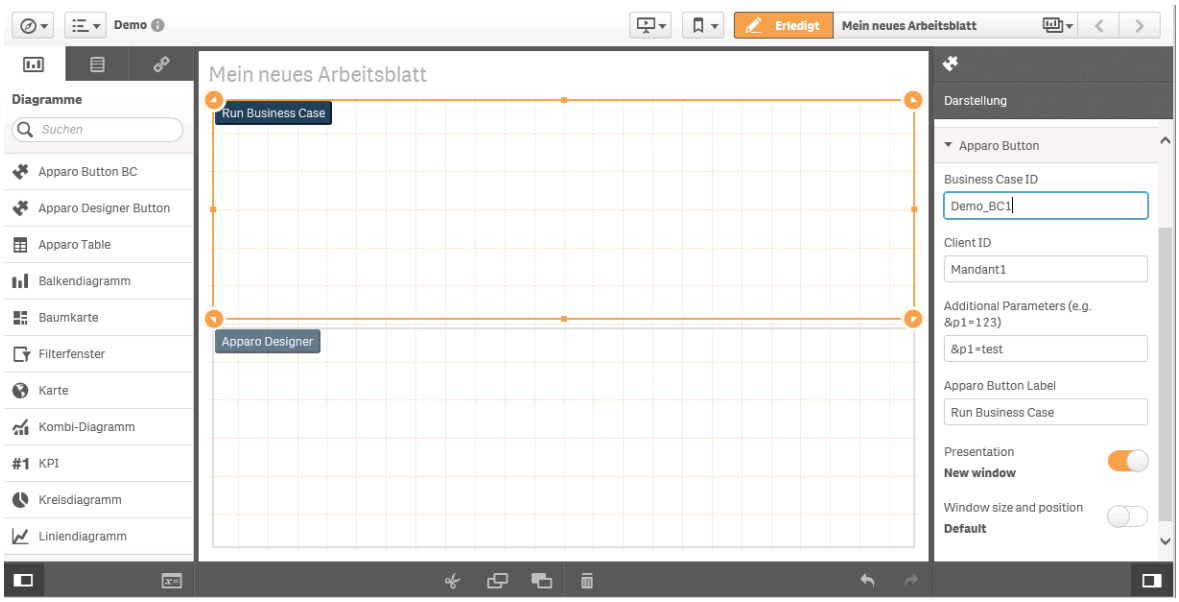


17.1.2 Usage of Apparo Designer & Apparo BC Buttons

Both buttons can be dragged from the left bar with the mouse into the worksheet.

The Apparo Designer Button offers no further options and is used to open the Apparo Designer, provided that the respective user has the appropriate access rights.

The Apparo BC Button, on the other hand, is used to open a specific Business Case and requires the setting of further options on the right side.



Business Case ID

Here you insert the ID of the Business Case to be opened.

Client ID

Optionally, you can enter the ID of the client here, if The same Business Case ID exists in several clients.

Additional Parameters

Here you can transfer additional parameters.
& p1 is e.g. the first primary key. The Business Case would be filtered accordingly in this case.
& FE_Variablenname returns an additional value (or list of values) to the Business Case. This variable can then be used anywhere in the Business Case.

Apparo Button Label

Here you can select an identifier for the button

Presentation

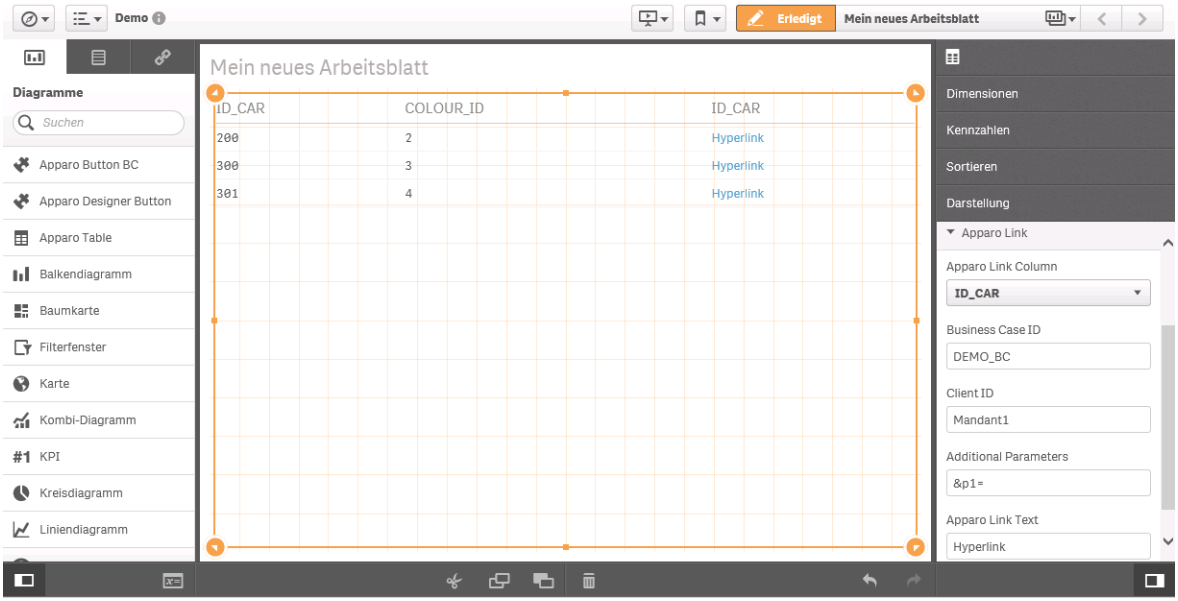
With the options, open in the new window or open in a tab

Window size and position

Determines the size and position of the window to be opened

17.1.3 Usage of Apparo Extension Table

The Apparo Table is used like the standard Qlik Sense table.
The advantage of this table is the possibility to open the Business Case in a separate window.
The disadvantage is that only one column, e.g. to use a primary key column.



The hyperlink column is defined on the left side under "Appearance":

Apparo Link Column

Defines the column whose value is transferred to "Additional Parameters".

Business Case ID

The ID of the Business Case to open

Additional Parameters

"&p1 =" corresponds to the transfer of the value from "Apparo Link Column" to the first primary key widget

Apparo Link text

Identifier for the hyperlink

17.1.4 Using the Apparo Comment and custom extensions

Apparo Fast Edit is providing an easy-to-use inbuilt commentary extension, which stores a comment directly into any supported relational database table. A return value is possible too.

The underlying technology is based on JavaScript, AJAX and Apparo Fast Edit Action Business Cases (ABC).

The Qlik Sense extension is calling an Action BC and passing the comment text and the UserId of the currently logged user, which is invisibly calling a database procedure or shell script which finally stores the comment text using a SQL insert or update statement.

Advantage: You can call serverside scripts or database procedures using Qlik Sense extensions without showing a small window, using http or so. Additional you can use the Qlik Sense security.

You can deliver automatically data of your QS app to your scripts on serverside without user activities and without difficult programming.

Additional you can define a return value of your script that can be used again in your Qlik Sense Extension.

17.1.4.1 Custom extensions

The Apparo Comment Extension is meant as usage example, please feel free to investigate it and to adapt it to your needs.

You can find the predefined Apparo extensions here:
[APPARO_HOME]\FastEdit\etc

Code excerpt from Apparo Comment extension:

```
function runActionBcAjax(afeUrl, bcid, clientid, comment, encryptedUser, successCallback, errorCallback) {
   var clientParam = "";
   if (clientid) {
      clientParam = "&clientid=" + encodeURIComponent(clientid);
   }
   var url =
afeUrl+'/api/runActionBc?bc='+encodeURIComponent(bcid)+clientParam+'&FE_comment='+comment+'&qs
user='+encryptedUser;
   console.log(url);
```

Based on the given Apparo extension, we recommend basic JavaScript knowledge, you can make your own extensions or adapt the existing ones.

The Apparo Support can help with hints and expertise in such cases if needed: support@apparo.solutions

17.1.4.2 Preparations

17.1.4.2.1 Create a table and a procedure for the comment

Example for the table and the trigger for the auto value “ID” (Oracle):

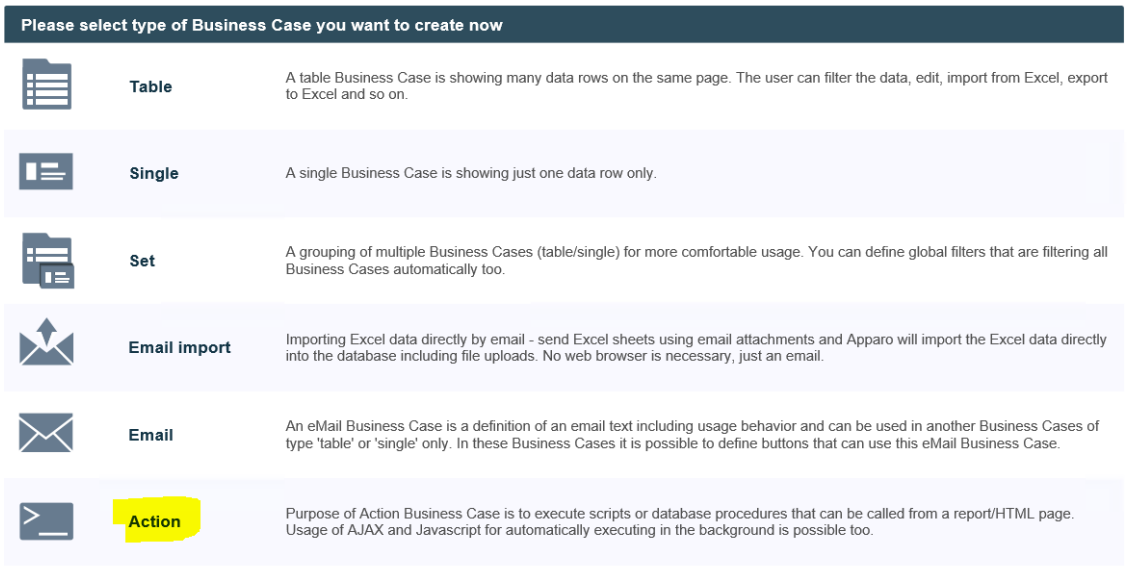
```
CREATE TABLE "TESTING"."QS_COMMENT"
  (         "ID" NUMBER NOT NULL ENABLE,
            "TEXT" VARCHAR2(4000 BYTE) NOT NULL ENABLE,
            "CREATE_DATE" TIMESTAMP (6) DEFAULT CURRENT_TIMESTAMP,
             PRIMARY KEY ("ID")   )

 CREATE OR REPLACE TRIGGER "TESTING"."QS_COMMENT_TR"
BEFORE INSERT ON QS_COMMENT
FOR EACH ROW
BEGIN
 SELECT QS_COMMENT_SEQ.NEXTVAL
 INTO   :new.id
 FROM   dual;
END;

ALTER TRIGGER "TESTING"."QS_COMMENT_TR" ENABLE;
```

Example procedure (Oracle):

```
create or replace
PROCEDURE QS_COMMENT_PROC
(
 CMNT IN VARCHAR2
) AS
BEGIN
 INSERT INTO TESTING.QS_COMMENT (TEXT) VALUES (CMNT);
 commit;
END QS_COMMENT_PROC;
```

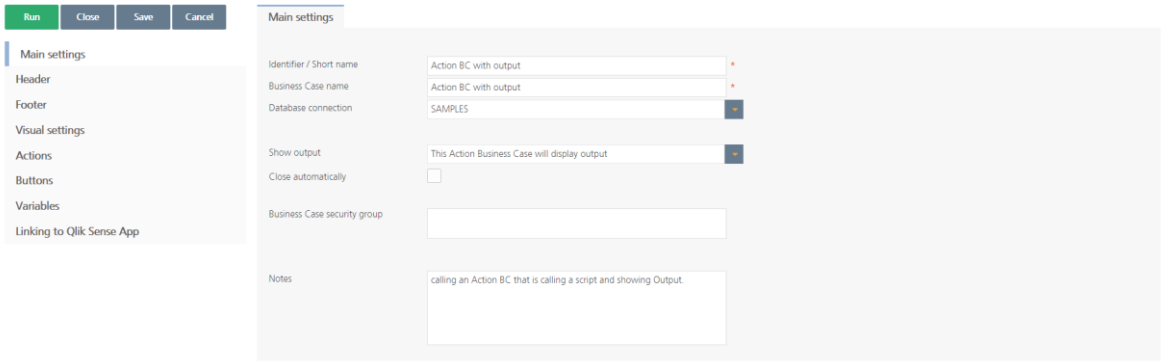
17.1.4.2.2 Create and prepare a Business Case of type 'Action'

Create a new Business Case of type 'Action':



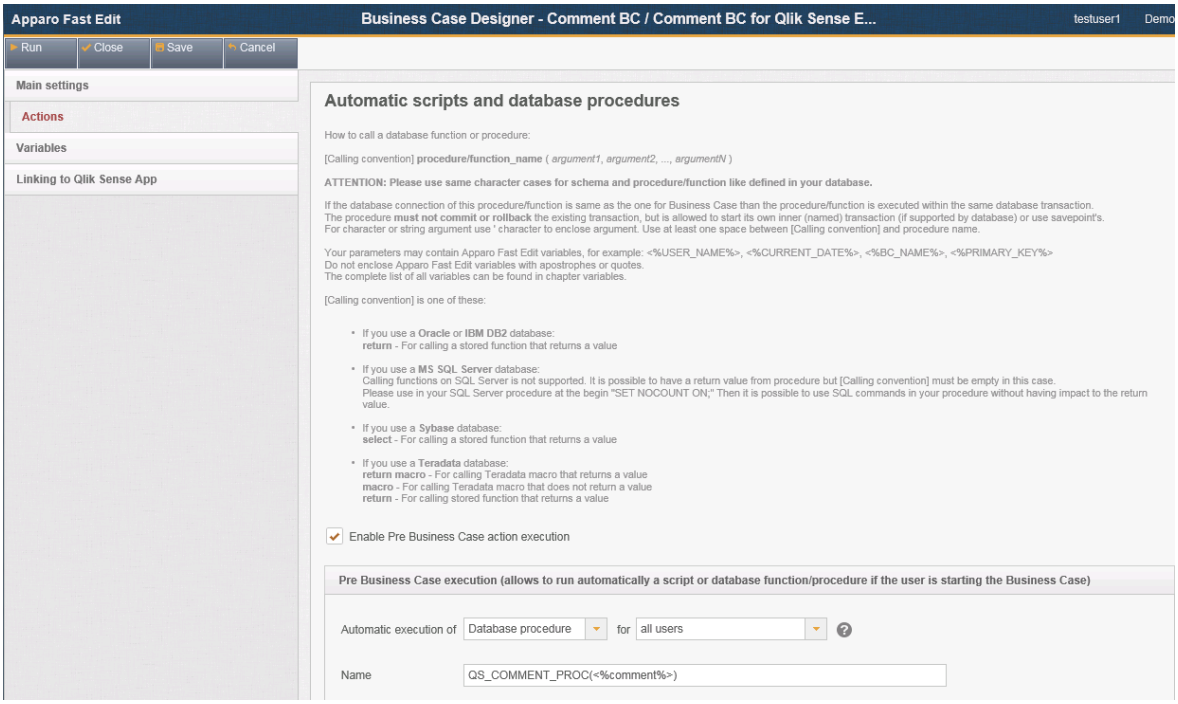
17.1.4.2.3 Main settings of the Action Business Case

Basic settings are the name and ID and the mapping to the underlying database connection.



Select "There will be no user interface output" That means the used protocol will be AJAX.
If you want to see the interface output of Apparo Fast Edit then you can use http/https.

17.1.4.2.4 Settings of the menu ‘Actions’



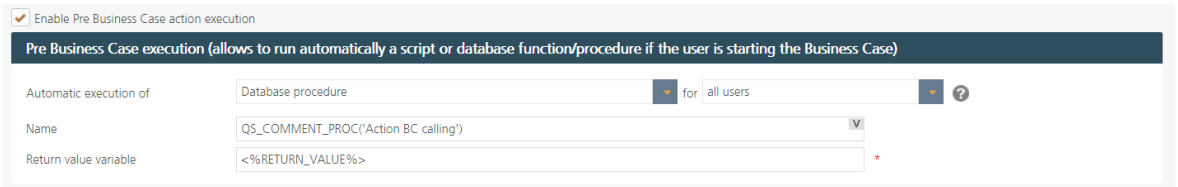
In Actions you can define different actions:

- Enable Pre Business Case action execution
- Enable Post Business Case action execution in success case
- Enable Post Business Case action execution in failure case
- Enable Exit Business Case action execution

We enable the ‘Pre Business Case action execution’ and enter the following:

QS_COMMENT_PROC(<%comment%>)

That means: The Action BC must call the database procedure QS_COMMENT_PROC with parameter <%comment%>. The Qlik Sense extension will deliver this parameter using the URL parameter FE_comment.



“Pre execution” will run the set procedure in the moment the Business Case is starting.

Other and additional parameters are possible, for example additional report variables, delivering values from the report (e.g. prompt or other values).
Also possible are other variable types as for instance internal variables, e.g. for traceability purposes *<%USER_LOGIN%>:*

Excerpt:

Internal variables

Internal variables ready for use

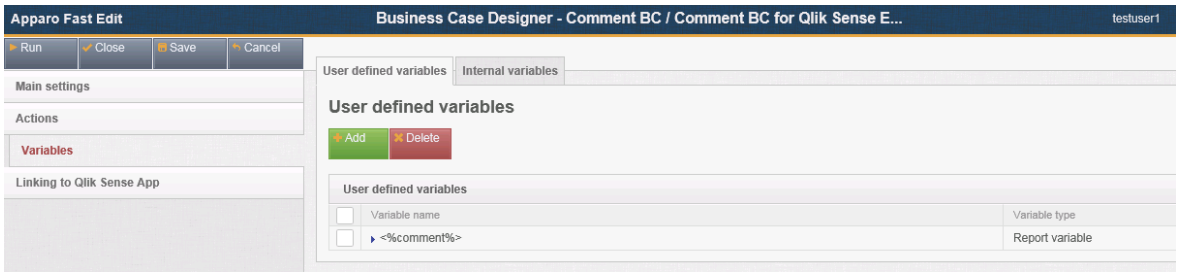
Variable name	Variable description
<%AFE_HOME_DIR%>	Folder on the server which contains AFE settings
<%AFE_CLIENT_ID%>	Contains the client ID of the current client
<%AFE_BC_NAME%>	Name of currently opened Business Case
<%AFE_BC_ID%>	Identifier of currently opened Business Case
<%SERVER_NAME%>	Name of server where Apparo Fast Edit is running
<%USER_NAME%>	Name of currently logged user
<%USER_LOGIN%>	Unique login name of currently logged user
<%USER_EMAIL%>	Email address (in upper case) of currently logged user
<%LANGUAGE%>	Identifier of language in which user interface is displayed
<%NEW_UNIQUE_VALUE%>	Unique value (everytime variable is resolved, its value will be uniq
<%CURRENT_DATE%>	Current date and time
<%DATE%>	Current date
<%TIMESTAMP%>	Current date and time
<%TIME_MS%>	The number of milliseconds since 1.1.1970 (UNIX timestamp)
<%RETURN_VALUE%>	In this variable the return code of the function/script is stored

17.1.4.2.5 Settings of the menu variables

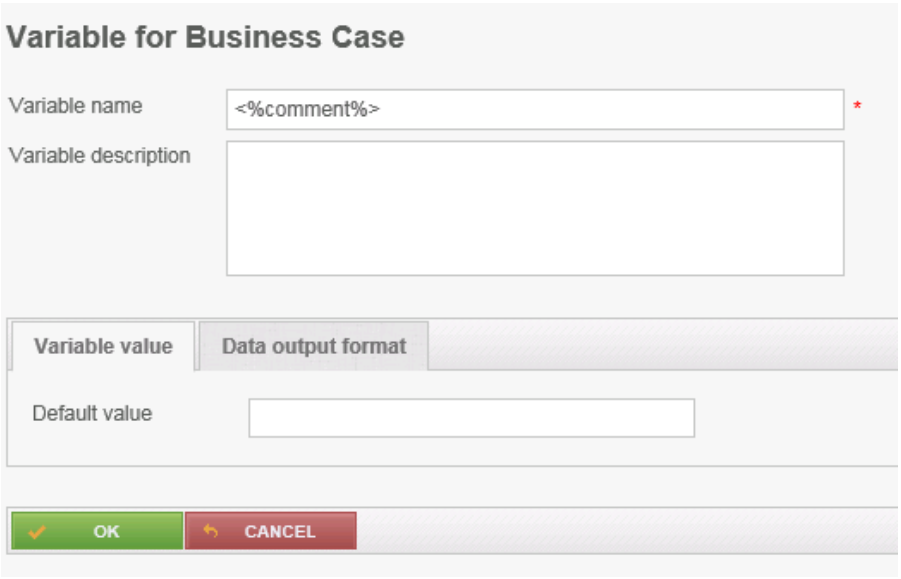
All values delivered from the report need to be collected in a report variable.

A report variable named ‘comment’ (lower cases) is required. It contains the comment as string:

If you need additional parameters then you can add additional report variables here. After that you must enhance your own Qlik Sense extension.



Settings of the report variable:



The type in Data output format should be set to text.

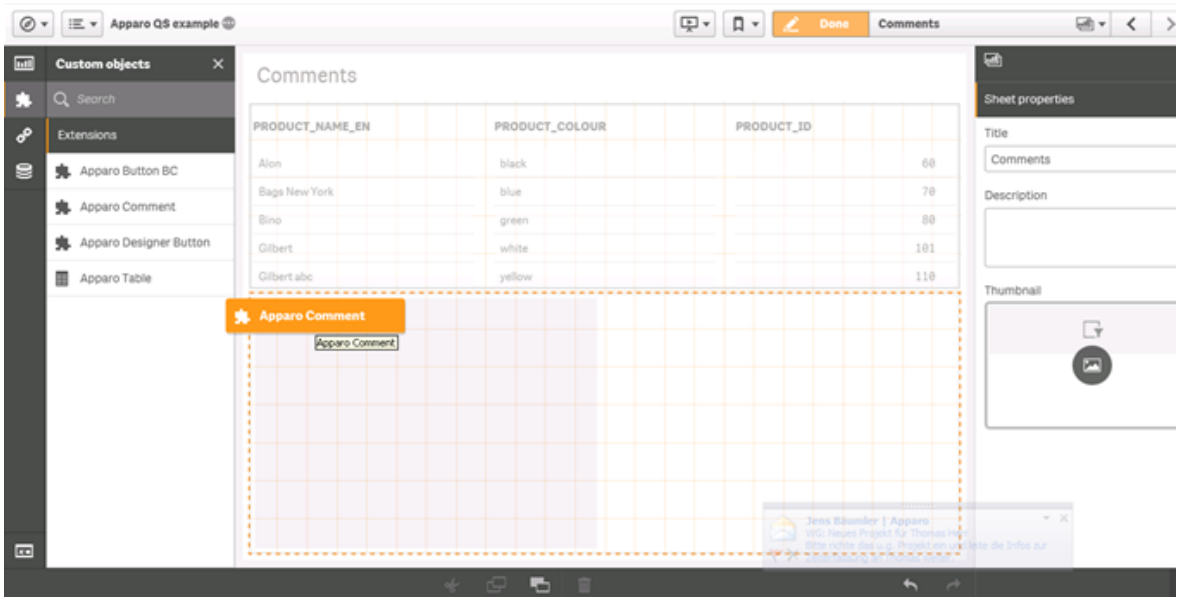
Info:

The code of the extension contains the URL that is calling the BC
var url = AfeUrl+'/api/runActionBc?bc='+encodeURIComponent(bcid)
+clientParam+'&FE_comment='+comment+'&qsuser='+encryptedUser;

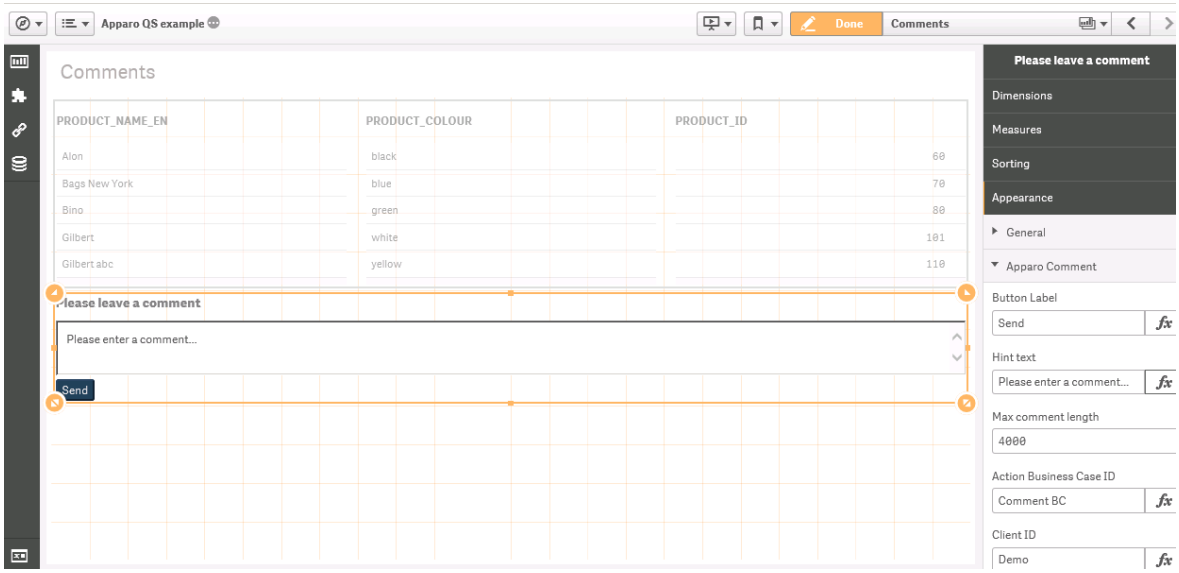
The value of the comment field is passed within the calling URL.
In this example it is named FE_comment, so the corresponding report variable has to be named as <%comment%> (case-sensitive).

17.1.4.3 Adding the extension to your Qlik Sense App

Select Extensions in the left menu bar and use the mouse to drag and drop the Apparo Comment extension.

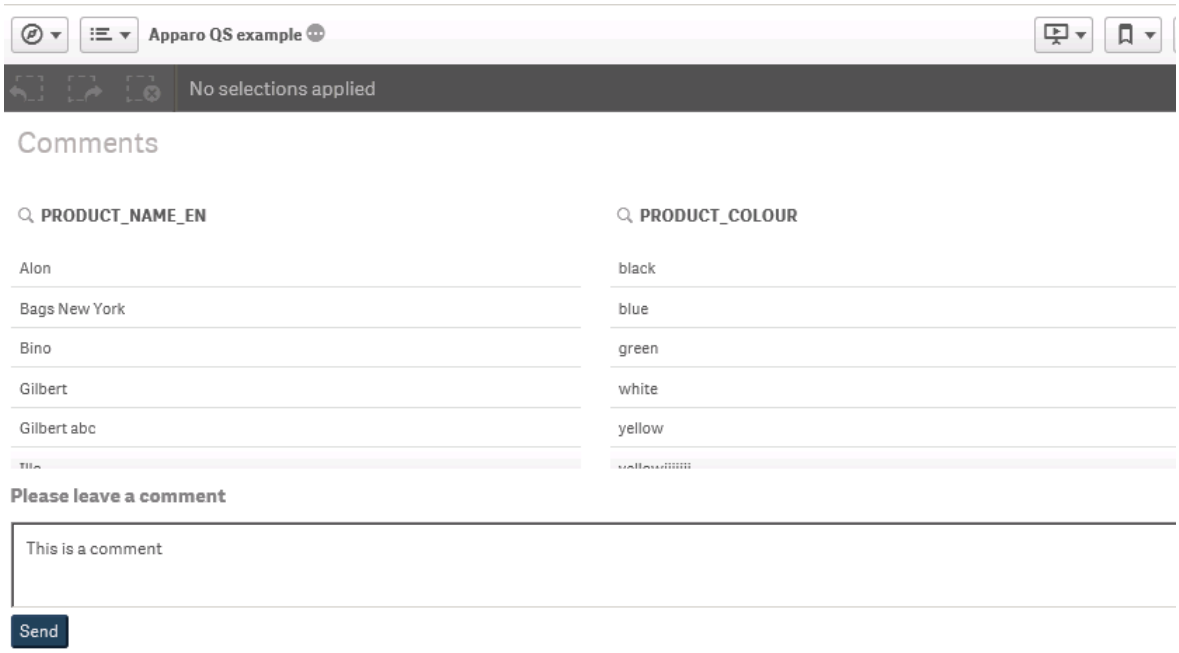


17.1.4.3.1 Settings of the extension



- Button Label - Contains the label text of the 'Send button'
- Hint text - An optional hint text for the comment area
- Max comment length - Defines the maximum allowed count of characters of the comment
- Action Business Case ID - Defines the Action BC that will be called
- Client ID - Optional. The client ID, for larger environments with different clients.

17.1.4.4 Result

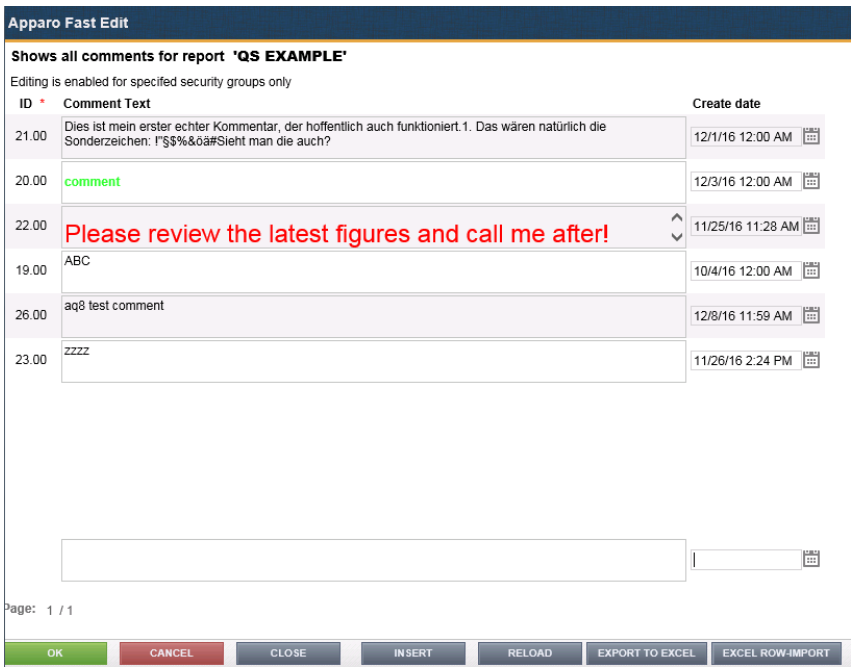


Now users can leave a comment within the Qlik Sense App.

The comment is stored in a relational database table including timestamp and optional user name/login.

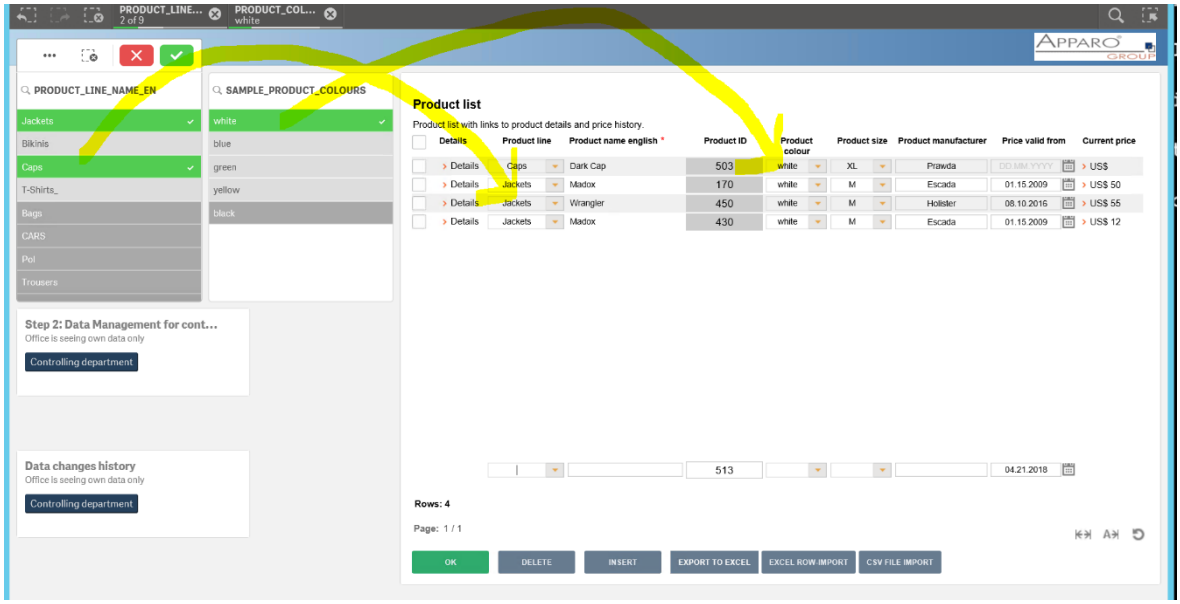
You can output e.g. the last comment in the App or set a Business Case button, which calls the Business Case in a separate browser window, displaying all e.g. comments.

The used database, the database table and the structure of this table are freely definable.
Therefore other IT systems can read this table without troubles.

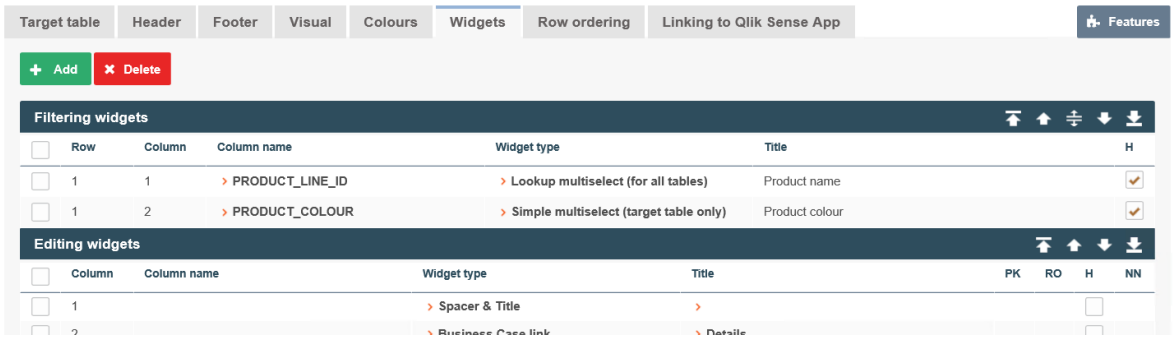


18 Usage of Qlik Sense filters for filtering of Business Cases

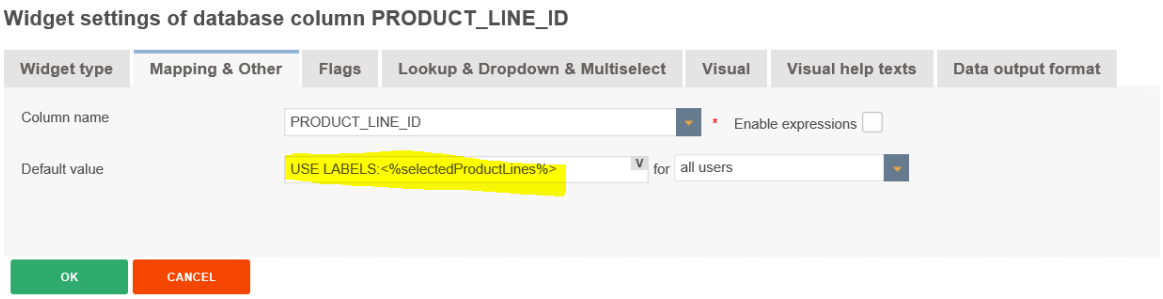
Qlik Sense filters can be used to control the data output of a Business Case:



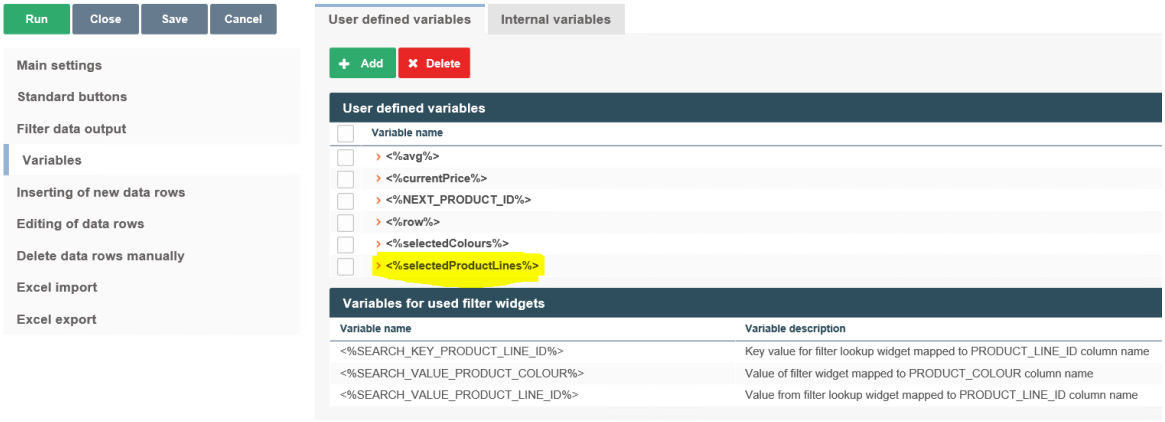
In the example, the Business Case uses 2 filters, which can also filter according to several values.
Both filters use the default values of the Qlik Sense filters and are hidden.



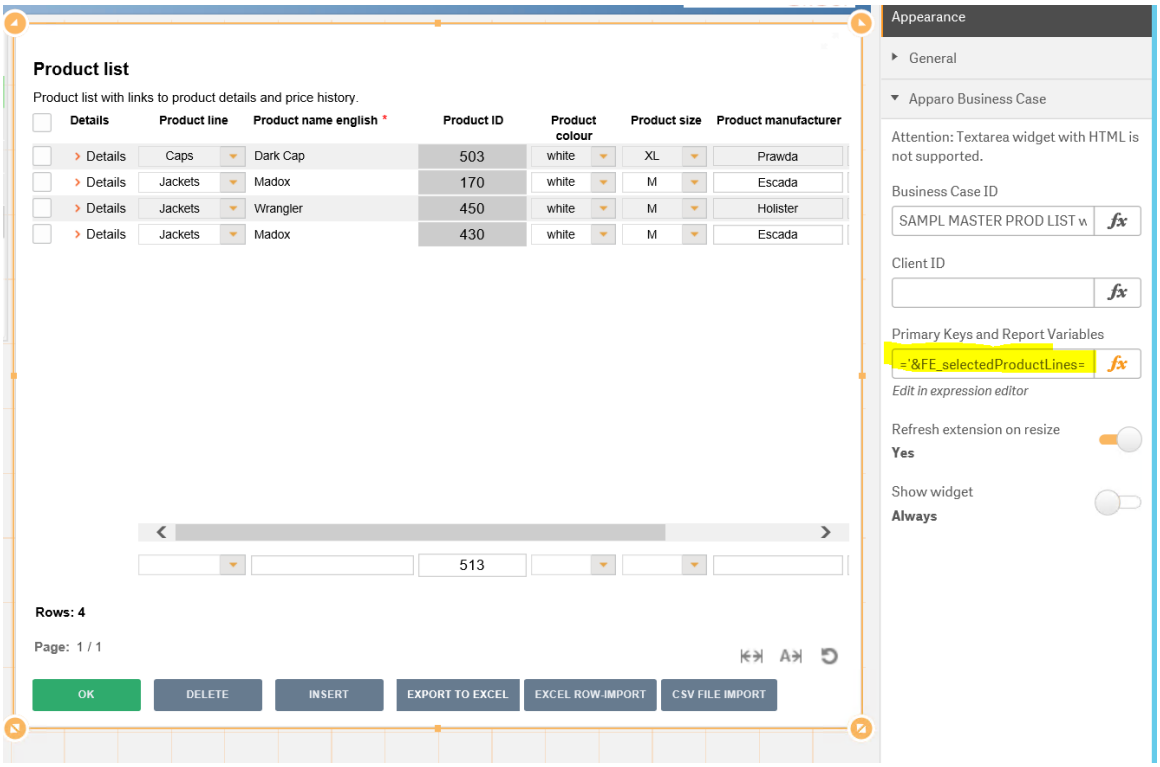
Since the filter is to adopt the values of the Qlik Sense filter, a report variable is used for the default values.
If Qlik Sense supplies only the texts / labels instead of IDs, you can work with "USE LABEL":



The variable **<%selectProductLines%>** is of type **Report-Variable** and output format is "**Text**".



The contents of the report variable are the selected values of the Qlik Sense filter.
The values are defined in the extension via expression:



Edit expression

```
='&FE_selectedProductLines=' & GetFieldSelections(PRODUCT_LINE_NAME_EN, ',', 999)
& '&FE_selectedColours=' & GetFieldSelections(  PRODUCT_COLOUR , ',', 999)
```

With the Qlik Sense function GetFieldSelections you get the selected entries as a list, separated by a comma.

19 Apparo database repository

All the settings and definitions, beside from the logos and scripts, are stored in the **Apparo database repository**.

For data storage purposes, it is to be recommended that at regular intervals, the repository be saved in the form of a database backup.

The repository is server-independent which means that it can be moved across to another server without changes being necessary (i.e. from the development server to the productive server).

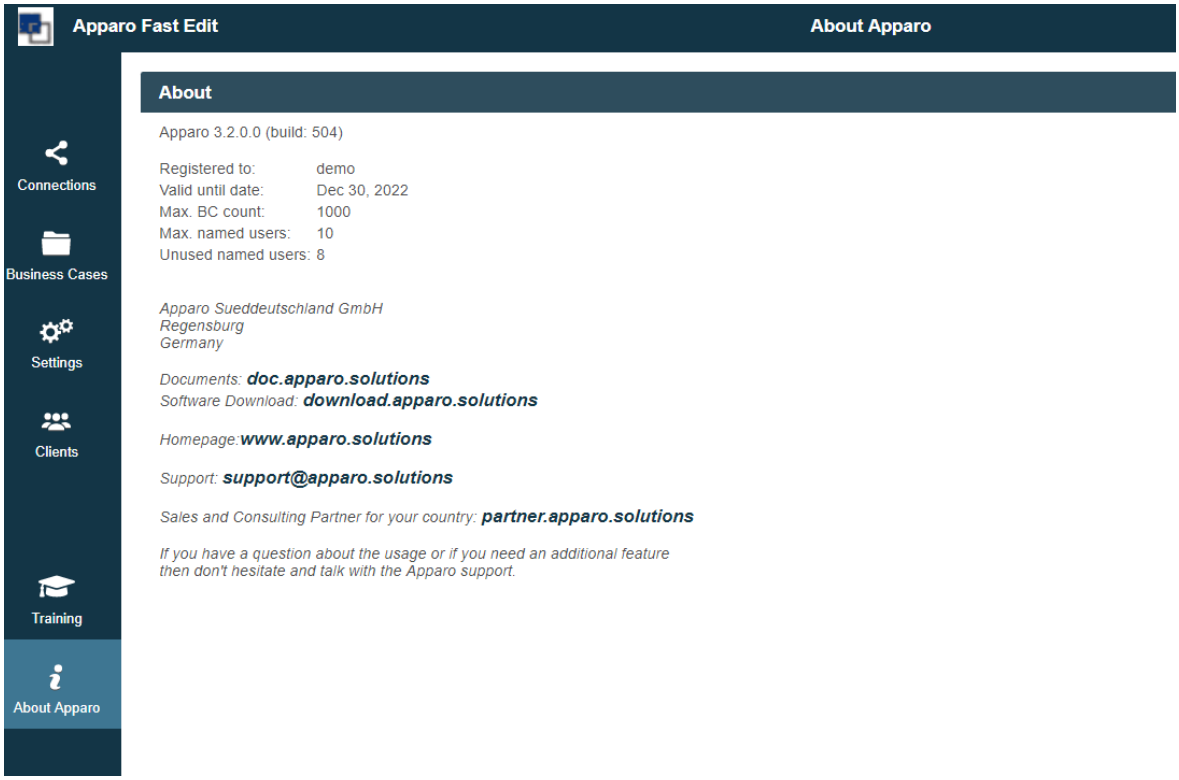
Several Apparo Fast Edit instances can use the same repository at the same time.

An automatic repository-update will ensue with the installation of a new Apparo Fast Edit version. After this, the **older** Apparo Fast Edit versions will be **unable** to **use the same updated repository**.

20 About Apparo

In ‚About Apparo' you get in the first line information about the program version and the build.

The next block contains information about the global license key, including the registrar, the expiry date and the maximum number of Business Cases and users.



21 Addendum

21.1 Java 8 class for testing

Examples for a user exit – test if a value of a widget is valid or not:

- TesterPK.java
- TesterNUMBER_VALUE.java

Both are stored in *[APPARO HOME]\FastEdit\samples*

You need an installed Java 8 JDK because you need **javac** for compiling.

Java version 8 must be used.

Please open a command shell (cmd/sh) and go into the file directory *[APPARO HOME]\FastEdit\samples*

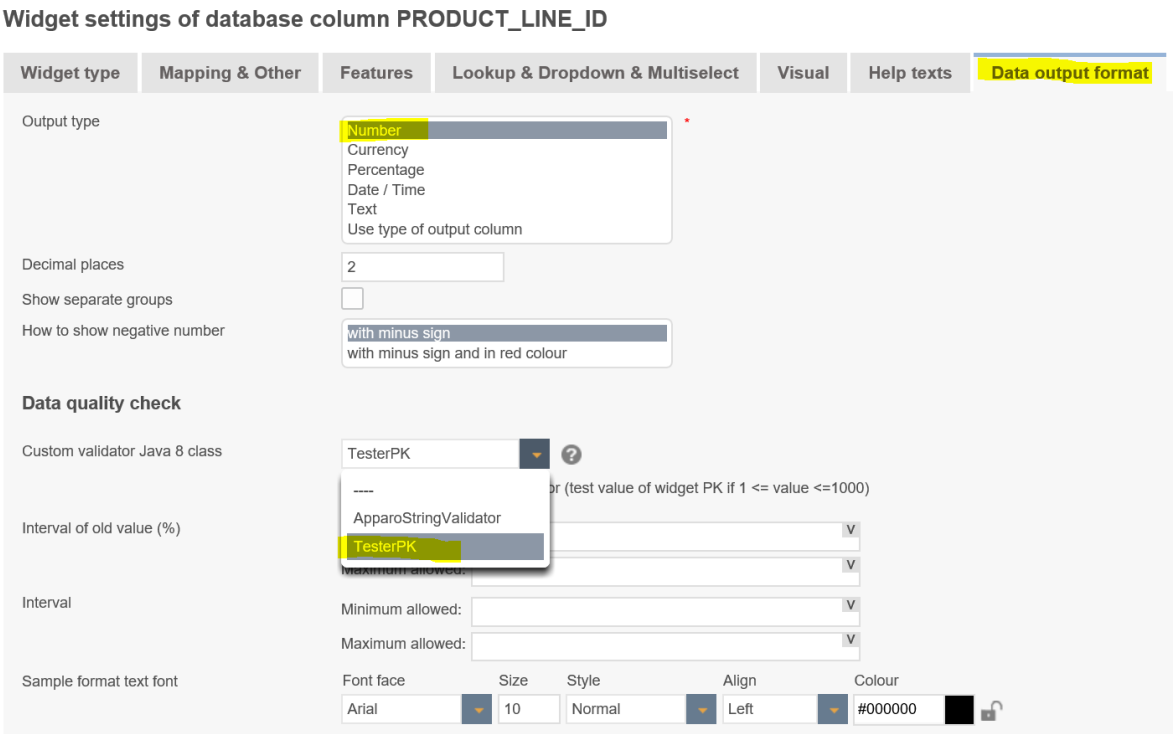
Enter now:

javac TestValidator.java TesterPK.java

The result is the file **TesterPK.class** in the same file directory.

Please copy the **TesterPK.class** into the file directory *[APPARO HOME]\FastEdit\user_scripts*

Now (without restaring Apparo) you can use this file in the Apparo Designer:



21.2 Creating an encrypted password

Passwords in repository and XML files are encrypted using AES256.
It is possible to use encrypted pass strings instead of plain passwords

- Within the Apparo Configuration Manager
- In Apparo Designer in database and email connections

Syntax

The file is located in [Apparo-Home]/FastEdit/etc and can be called via script or command line:

CreatePassword.bat/sh PIN PASSWORD

The PIN is always "T9puG" and is used to protect the master password, just like the pin of a credit card.

Output

The standard output is the encrypted password. To use it later, the prefix ‘CRYPTED:’ must be included.

Example output:
"CRYPTED:usUa6JiIr6PGOjta+QFEeCUacDtj,BBDydclflDC73p+e2O+P8Mau"

Use Case

In a company the Designer users must not know the database passwords, therefore the database administrator calls the encryptor with the parameter 'T9puG' and the password 'secret_password123'.
The output is like "CRYPTED:xxxxx".

He copies the whole string including the prefix and sends it to the Apparo Designer user who inserts it into the Designer password field (database connection password or eMail account password).

21.3 DB-Session Handling

If a user is starting a Business Case then automatically the Business Case is taking an own database session.
A database session is used by one Business Case at the same time only.

If connection pooling is enabled then it is taking the session from the connection pool.
If connection pooling is disabled then Apparo Fast Edit is opening a new database session.

Apparo Fast Edit can manage database transactions.
This feature is helpful if the user want to cancel changes and rollback all changes.

If the user is pressing OK, CLOSE or CANCEL button then it has impact to the database transaction too.
That means “commit” or “rollback” is used.

If the Business Case is using the “Auto-Commit” feature then after every update/insert/delete command an additional “commit” is used and the transaction is closed automatically.

If the user is closing the Business Case in a correct way (pressing OK or CLOSE button) then the database transaction is closed with a “commit” command too. That means there are no locks because of the usage of this Business Case after the Business Case is closed by the user.

If the connection pooling is enabled then the database connection will be moved back to the pool.
If the connection pooling is disabled then the database connection will be closed.

If the user is closing a Business Case with **just closing the complete window** without pressing OK, CLOSE or CANCEL button then the database session/transaction management is different:

Apparo Fast Edit is testing automatically every minute if a Browser window that is used for running a Business Case is still open. That means if the user closed the Business Case in a non-official way then the database session is closed **automatically** 5-6 minutes later using rollback.

Calling database procedures and functions:

Using Oracle or IBM DB/2 then it is possible to use the same database transaction like Apparo Fast Edit is using for this Business Case.

If using MS SQL Server then using the same transaction is not possible. Therefore using
commit or rollback is not allowed. Solution: Define an own transaction

21.4 Usage of external web javascript frameworks like jQuery

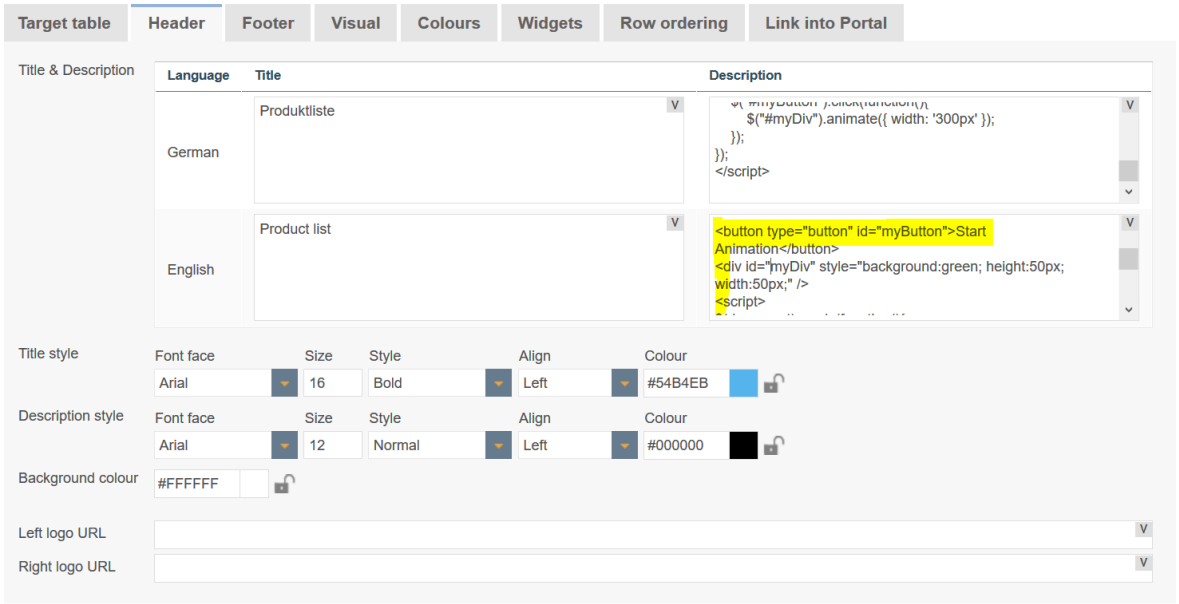
It is possible to include javascript frameworks like jQuery for improving the output of a Business Case. jQuery is already included in Apparo Fast Edit.

How to use it:

Following jQuery example should be displayed in a single/table Business Case:

```
<button type="button" id="myButton">Start Animation</button>
<div id="myDiv" style="background:green; height:50px; width:50px;" />
<script>
$(document).ready(function(){
   $("#myButton").click(function(){
      $("#myDiv").animate({ width: '300px' });
   });
});
</script>
```

Open the Business Case and choose tab “Header” and paste it into the header description:



Run the Business Case:

The button and the green area are the result of the jQuery definition.