JFormDesigner Documentation

Version: 2.0.1

Contents

JFormDesigner

Introduction

JFormDesigner is an innovative GUI designer for Java Swing user interfaces. It is easy and intuitive to use and provides a lot of powerful features.

A printable version (PDF) of this documentation is available here: www.jformdesigner.com.

Key features

Easy and intuitive to use, powerful and productive	JFormDesigner provides an easy-to-use but powerful user interface. Easily drag and drop components, resize components using the handles, set properties, etc. Powerful features like in-place-editing, keyboard navigation, automatic component ordering (for grid based layout managers), IntelliGap, auto-insert columns/rows, drag and drop of columns/rows bean morphing, layout manager changing increase your productivity.
JGoodies FormLayout and TableLayout support	These open source layout managers allow you to design high quality forms. JGoodies FormLayout support includes column/row specifications (alignment, size, resize behavior), IntelliGap (automatically handles gap columns/rows) and column/row grouping (makes widths/heights equal). Also other parts of the JGoodies Forms framework are supported (DLU borders, component factory). TableLayout is fully supported (column/row size, gaps, alignment).
Advanced GridBagLayout support	The advanced GridBagLayout support allows the specification of horizontal and vertical gaps (as in TableLayout). JFormDesigner automatically computes the `GridBagConstraints.insets` for all components. This makes designing a form with consistent gaps using GridBagLayout much easier. No longer wrestling with `GridBagConstraints.insets` ;-)
Column and row headers	The column and row headers (for grid based layout managers) show the structure of the layout (including column/row indices, alignment, growing, grouping) and allow you to insert or delete columns/rows and change column/row properties. It's also possible to drag and drop columns/rows (incl. contained components and gaps). This allows you to swap columns or move rows in seconds.
Localization support	Localizing forms using properties files has never been easier. Specify a resource bundle name and a prefix for keys when creating a new form and then forget about it. JFormDesigner automatically puts all strings into the specified resource bundle (auto-externalizing). It also updates resource keys when renaming components, copies resource strings when copying components and removes resource strings when deleting components. You can also externalize and internalize strings, edit resource bundle strings, add locales, switch locale used in Design view, in-place-edit text of current locale.
Java code generator or	Either let JFormDesigner generate Java source code for your forms (the default) or use the royalty-free runtime library to load JFormDesigner XML

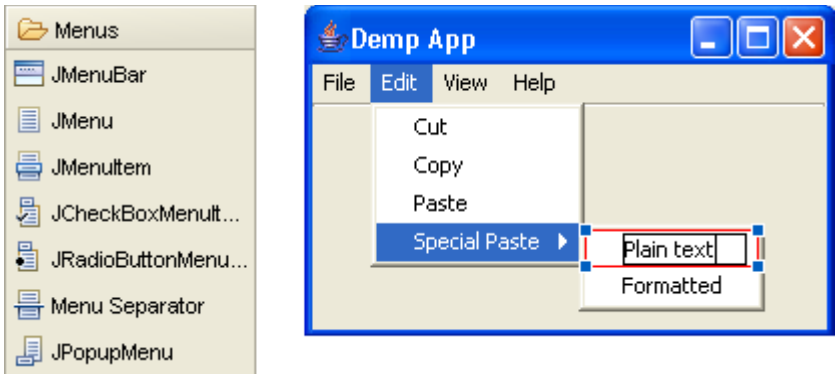
runtime library files at runtime. Your choice. Turn off the code generator in the Preferences, if you don't need it.

Generation of nested classes The Java code generator is able to generate and update nested classes. You can specify a class name for each component in your form. This allows you to organize your source code in an object-oriented way.

What's New in JFormDesigner 2

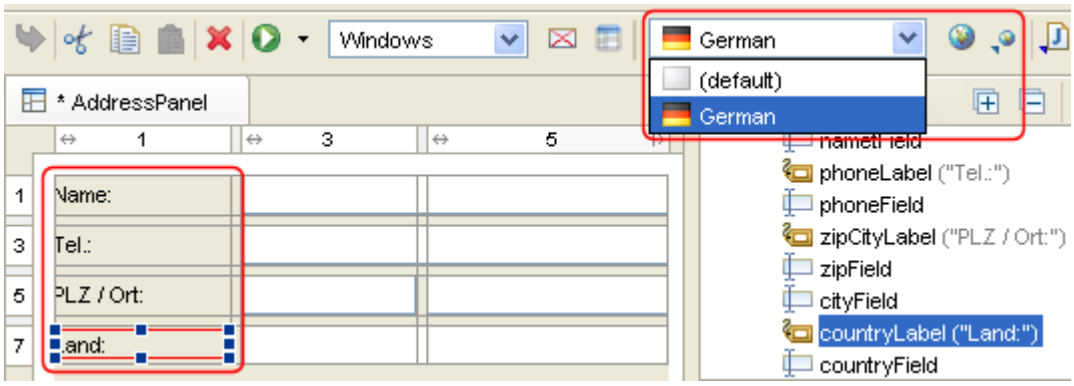
JFormDesigner 2 introduces **more than 80** new features and enhancements. This topic describes some of the significant or more interesting changes. Please have a look at the changelog for a complete list or changes.

Menu designer The menu designer makes it easy to create and modify menu bars and popup menus. It supports in-place-editing menu texts and drag-and-drop menu items. The component palette category "Menus" contains all menu components.

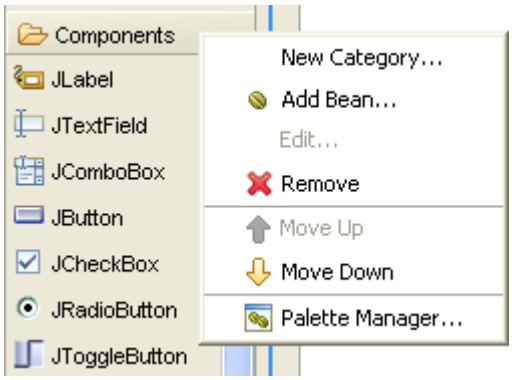


Localization support Localizing forms using properties files has never been easier. Specify a resource bundle name and a prefix for keys when creating a new form and then forget about it. JFormDesigner automatically puts all strings into the specified resource bundle (auto-externalizing). It also updates resource keys when renaming components, copies resource strings when copying components and removes resource strings when deleting components.

You can also externalize and internalize strings, edit resource bundle strings, add locales, switch locale used in Design view, in-place-edit text of current locale.

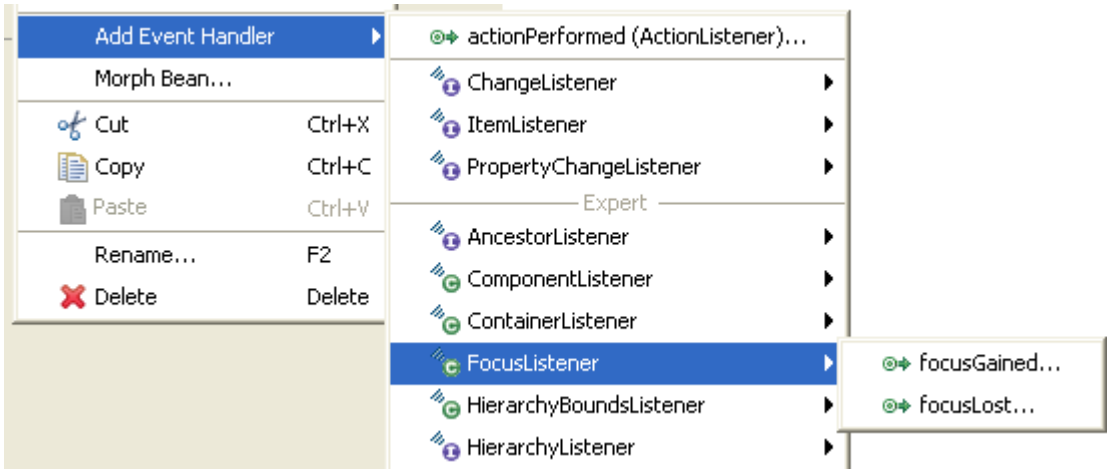


Palette customization The component palette is fully customizable. Right-click on the palette to add, edit, remove or reorder components and categories. Or use the Palette Manager dialog.



Support for events

JFormDesigner supports adding and removing event handlers and generates empty handler methods. It shows events in the Structure view and event properties in the Properties view.



Morph Bean

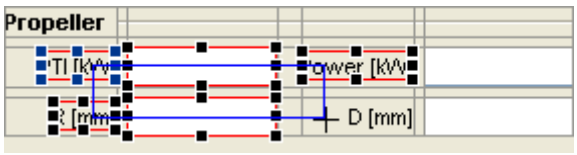
The "Morph Bean" command allows you to change the class of existing components without loosing properties, events or layout information. Right-click on a component in the Design or Structure view and select **Morph Bean** from the popup menu.

Layout manager changing

Layout manager changing allows you to change the layout manager used by a container without loosing child components. The layout is converted to the new layout manager as good as possible. Right-click on a container in the Design or Structure view and select **Set Layout Manager** from the popup menu and choose the new layout manager.

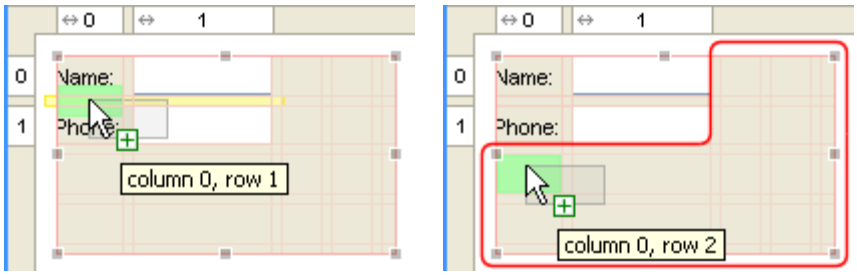
Marquee selection tool

The marquee selection tool allows you to select components in a rectangular area. Select **Marquee Selection** in the Palette and click-and-drag a rectangular selection area in the Design view. Or click-and-drag on the free area in the Design view. All components that lie partially within the selection rectangle are selected.



Auto-insert columns/rows

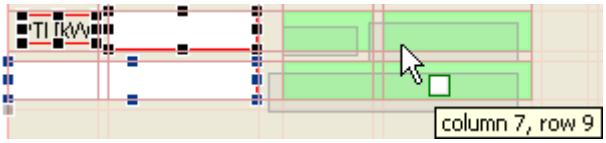
Besides using "Insert Column" or "Insert Row" from the column/row header popup menu, you can now insert new columns/row when dropping components on column/row gaps or outside of the existing grid.



In the first figure, a new row will be inserted between existing rows. In the second figure, a virtual grid is shown below/right to the existing grid and a new row will be added.

Moving multiple selected components

JFormDesigner now allows you to drag and drop multiple selected components at once in the Design view in all layout managers. The layout constraints are preserved where possible.

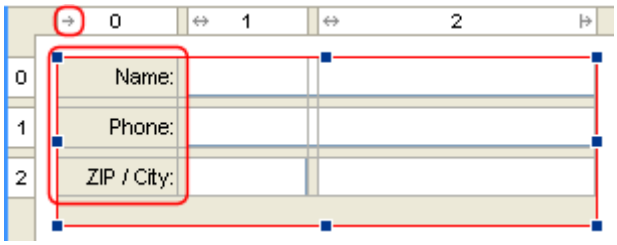


Tooltips when moving or resizing components

Tooltips when moving or resizing components show you detailed information about the insert location, the new size and the size differences.

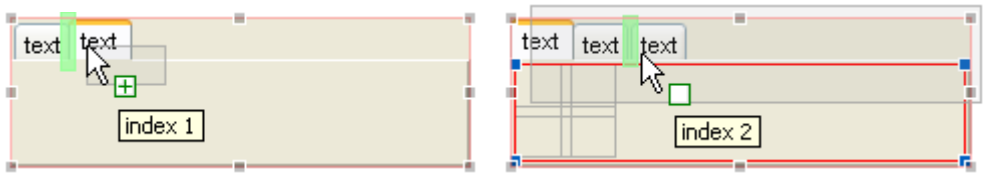
Default alignment in GridBagLayout and TableLayout

Allows you to specify a default alignment for components within columns/rows in GridBagLayout and TableLayout (as already supported by FormLayout). This is very useful for columns with right aligned labels because you specify the alignment only once for the column and all added labels will automatically aligned to the right



Improved JTabbedPane support

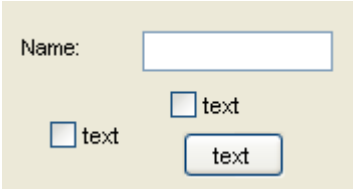
Now you can insert new tabs into a JTabbedPane before existing tabs and you can reorder tabs in the Design view by dragging a page component over the tabs. The visual feedback shows the insert location and the tooltip the tab index. You can also drag and drop page components in the Structure view to change its order.



---

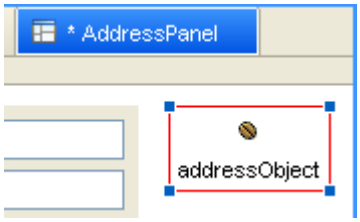
null layout manager support

The null Layout allows you to make quick prototypes. null layout is not a real layout manager. It means that no layout manager is assigned and the components can be put at specific x,y coordinates. JFormDesigner's null layout implementation supports preferred component sizes, grid snapping, aligning components and is able to compute the preferred size of the container.



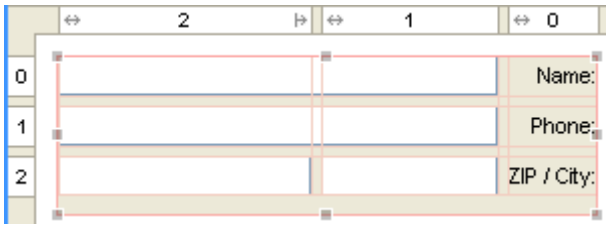
Non-visual JavaBeans

To add a non-visual bean to a form, select it in the Palette (or use **Choose Bean**) and drop it into the free area of the Design view. Non-visual beans are shown in the Design view using proxy components.



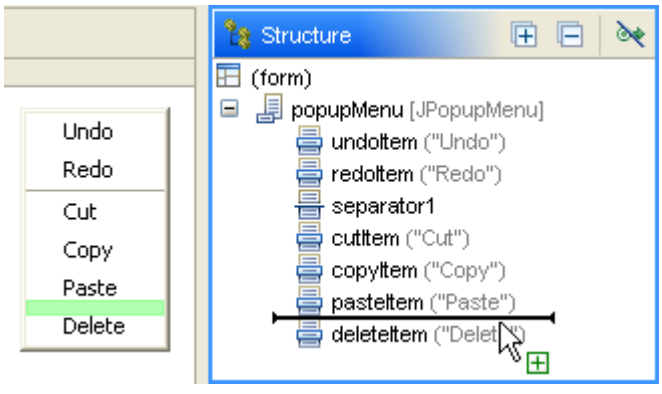
Right-to-left component orientation

Right-to-left component orientation is now supported in the Design view for all layout managers that support it.



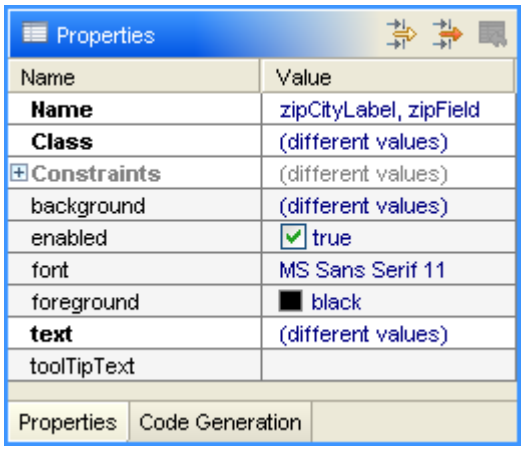
Drag and drop in Structure view

The Structure view supports drag and drop to rearrange components. You can also add new components from the palette to the Structure view. Besides the feedback indicator in the structure tree, JFormDesigner also displays a green feedback figure in the Design view to show the new location.



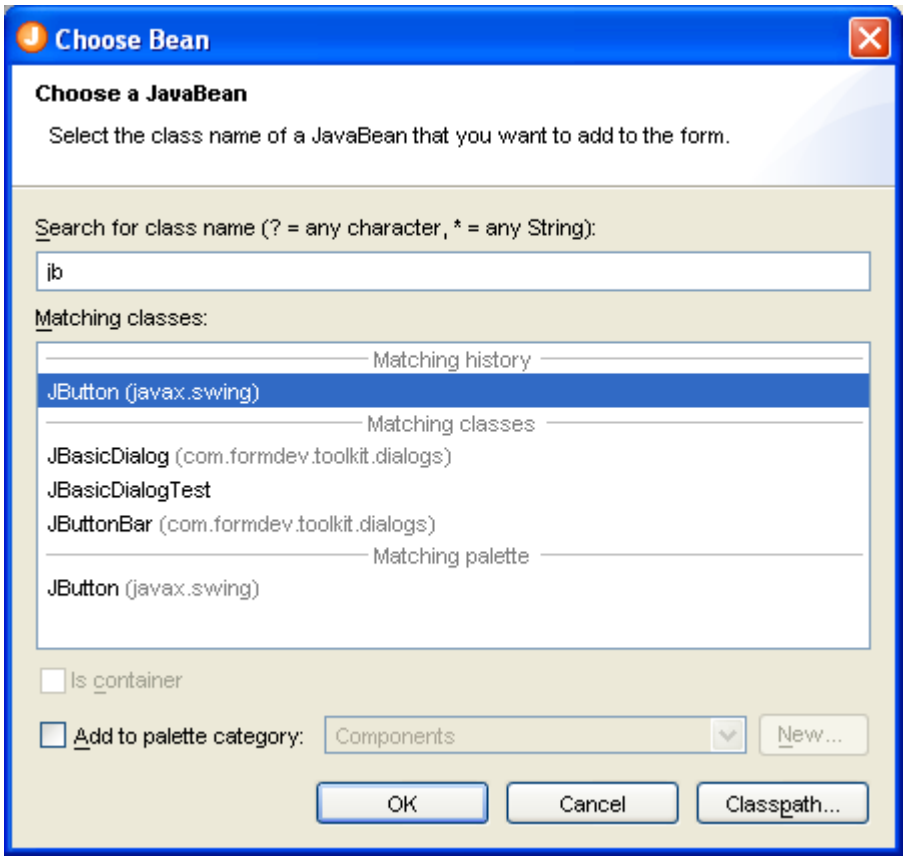
Multi-selection property editing

The Properties view supports editing properties of multiple selected components.



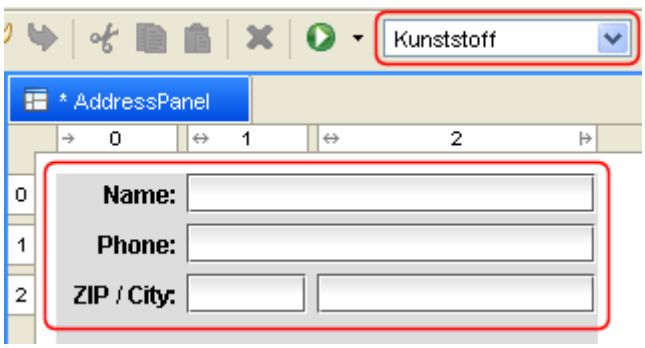
New Choose Bean dialog

The new Choose Bean dialog allows you to search for classes in the classpath, history and palette. You can also specify whether a bean is a container or not and add the chosen bean to the palette.



Custom Look and Feels

Use your favorite look and feel in the Design view. Add it on the Look and Feels preferences page.



Import Netbeans forms

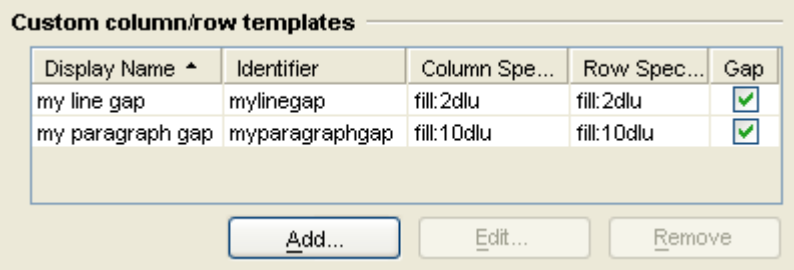
JFormDesigner can import Netbeans forms (.form files). Either select **File > Import** from the main menu or drag .form files to the JFormDesigner window. When saving a imported Netbeans form, JFormDesigner replaces the Netbeans generated code with its own code. If using Netbeans, you should remove (and backup) the .form files. Otherwise Netbeans would again replace the JFormDesigner generated code with its own code.

Convert JBuilder jbInit() methods

JFDConverterOpenTool is a JBuilder X (or later) plugin to convert JBuider forms (jbInit() methods) to JFormDesigner .jfd files. It analyzes the jbInit() method and converts as much as possible to a JFormDesigner form model and saves it to a .jfd file. Please download JFDConverterOpenTool here: www.jformdesigner.com.

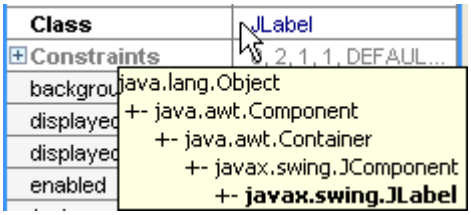
Custom column/row templates for FormLayout

If the predefined FormLayout column/row templates does not fit to your needs, you can define your own column/row templates in the FormLayout preferences.



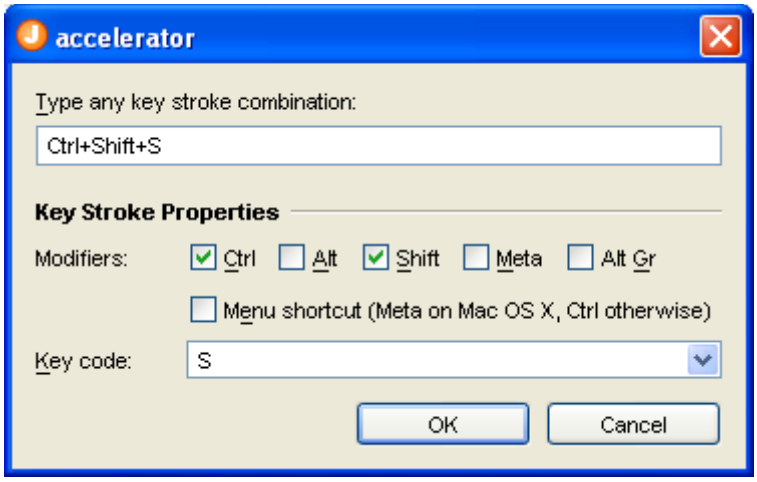
Class hierarchy tooltip

The tooltip of the "Class" property shows the class hierarchy of the component.



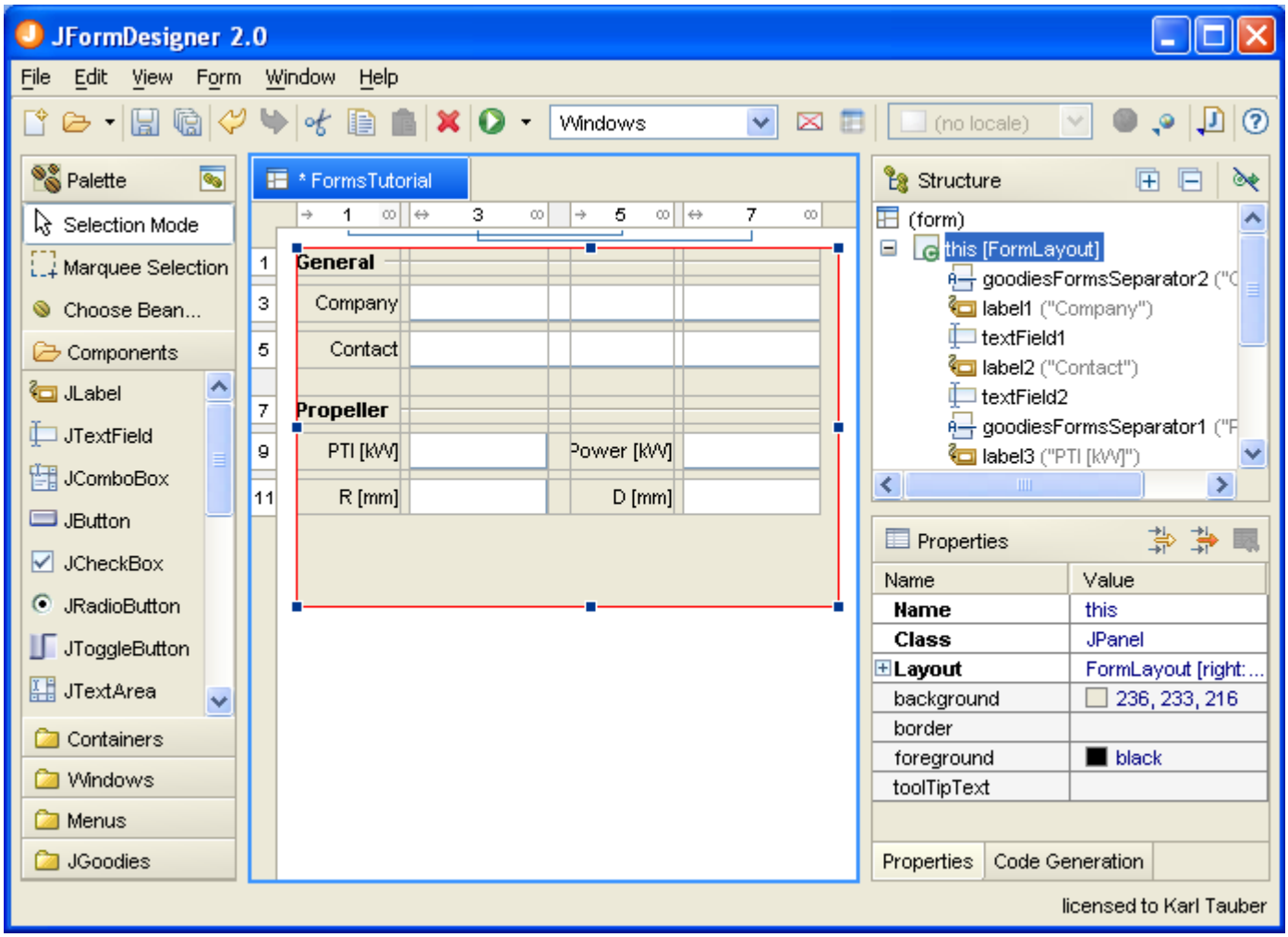
New property editors

Added property editors for `javax.swing.SpinnerDateModel`, `javax.swing.SpinnerListModel`, `java.awt.Cursor`, `javax.swing.border.MatteBorder` and `javax.swing.KeyStroke`. The KeyStroke editor supports menu shortcut modifier key (**Command** key on Mac OS X, **Ctrl** key otherwise).



User Interface

This is the main window of JFormDesigner:



The main window consists of the following areas:

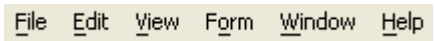
- Main Menu: Located at top of the window.
- Toolbar: Located below the main menu.
- Palette: Located at the left side of the window.
- Design View: Located in the center of the window.
- Structure View: Located at the upper right of the window.
- Properties View: Located at the lower right of the window.
- Error Log View: Located below the Design view. This view is not visible in the above screenshot.

Menus

You can invoke most commands from the main menu (at the top of the main frame) and the various context (right-click) menus.

Main Menu

The main menu is displayed at the top of the JFormDesigner main window.



File menu	
New	Creates a new form.
Open	Opens an existing form.
Reopen	Displays a submenu of previously opened forms. Select a form to open it.
Close	Closes the active form.
Close All	Closes all open forms.
Save	Saves the active form and generates the Java source code for the form (if Java Code Generation is switched on in the Preferences).
Save As	Saves the active form under another file name or location and generates the Java source code for the form (if Java Code Generation is switched on in the Preferences).
Save All	Saves all open forms and generates the Java source code for the forms (if Java Code Generation is switched on in the Preferences).
Import	Imports Netbeans .form files and creates a new JFormDesigner form. Use **File > Save** to save the new form in the same folder as the Netbeans .form file. This also updates the .java file.
Exit	Exits JFormDesigner. Mac OS X: this item is in the JFormDesigner application menu.

Edit menu	
Undo	Reverses your most recent editing action.
Redo	Re-applies the editing action that has most recently been reversed by the Undo action.
Cut	Cuts the selected components to the clipboard.
Copy	Copies the selected components to the clipboard.
Paste	Pastes the components in the clipboard to the selected container of the active form.
Rename	Renames the selected component.
Delete	Deletes the selected components.

View menu	
Show Diagonals	Shows diagonals.
Squint Test	Simulates evaluating a graphic layout by squinting your eyes. This tests legibility and whether the overall layout is a strong, clear layout. You can change the squint intensity in the Preferences.
Refresh	Refresh the Design view of the active form. Reloads all classes used by the form and recreates the form preview shown in the Design view. Use this command, if you changed the code of a component used in the form to reload the component classes.

Form menu	
Test Form	Tests the active form. Creates live instances of the form in a new window. You can close that window by pressing the **Esc** key when the window has the focus. If your form contains more than one top-level component, use the drop-down menu in the toolbar to test another component.
Localize	Edit localization settings, resource bundle strings or add new locales.
New Locale	Creates new locale.

Externalize Strings	Moves strings to a resource bundle for localization. Use this command to start localizing existing forms.
Internalize Strings	Moves strings from a resource bundle into the form and remove the strings from the resource bundle.
Generate Java Code	Generates the Java code for the active form. Normally it's not necessary to use this command because when you save a form, the Java code will be also generated.

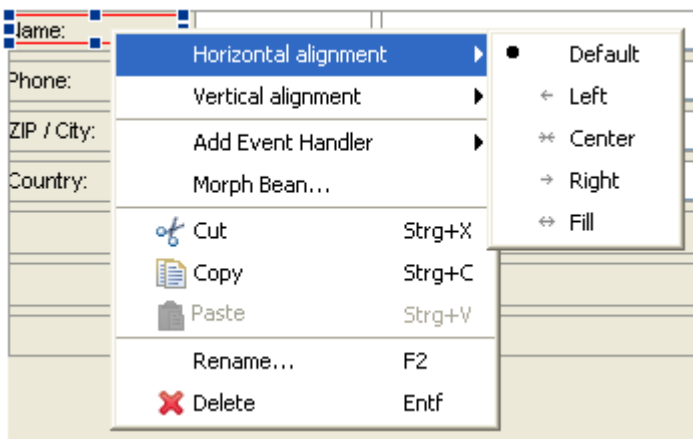
Window menu	
Activate Designer	Activates the Design view.
Activate Structure	Activates the Structure view.
Activate Properties	Activates the Properties view.
Activate Error Log	Activates the Error Log view. By default, the Error Log view is not visible. It automatically appears if an error occurs.
Next Form	Activates the next form.
Previous Form	Activates the previous form.
Preferences	Opens the Preferences dialog. Mac OS X: this item is in the JFormDesigner application menu.

Help menu	
Help Contents	Displays help topics.
What's New	Displays what's new in the current release.
Tip of the Day	Displays a list of interesting productivity features.
Register	Activates your license.
License	Displays information about your license.
About	Displays information about JFormDesigner and the system properties.

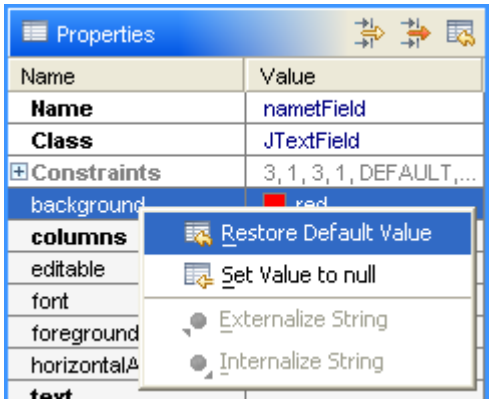
Context menus

Context menus appear when you're right-click on a particular component or control.

Design view context menu:



Properties view context menu:

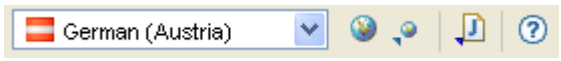


Toolbars

Toolbars provides shortcuts to often used commands.

Main Toolbar

The main toolbar is displayed at the top of JFormDesigner under the main menu.

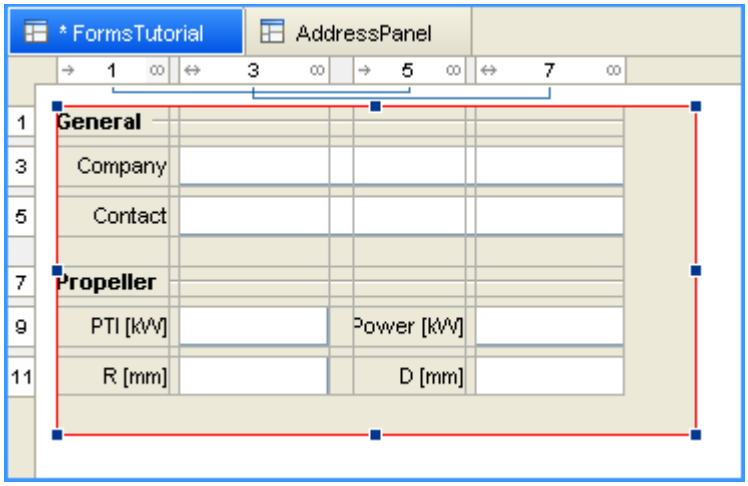


New	Creates a new form.
Open	Opens an existing form.
Save	Saves the active form and generates the Java source code for the form (if Java Code Generation is switched on in the Preferences).
Save All	Saves all open forms and generates the Java source code for the forms (if Java Code Generation is switched on in the Preferences).
Undo	Reverses your most recent editing action.
Redo	Re-applies the editing action that has most recently been reversed by the Undo action.
Cut	Cuts the selected components to the clipboard.
Copy	Copies the selected components to the clipboard.
Paste	Pastes the components in the clipboard to the selected container of the active form.
Delete	Deletes the selected components.
Test Form	Tests the active form. Creates live instances of the form in a new window. You can close that window by pressing the **Esc** key when the window has the focus. If your form contains more than one top-level component, use the drop-down menu to test another component.
Windows	Allows you to change the look and feel of the components in the Design view. You can add other look and feels in the Preferences.
Show Diagonals	Shows diagonals.
Squint Test	Simulates evaluating a graphic layout by squinting your eyes. This tests

	legibility and whether the overall layout is a strong, clear layout. You can change the squint intensity in the Preferences.
German (Austria)	Allows you to change the locale of the form in the Design view. "(no locale)" is show if the form is not localized. Use **Form > Externalize Strings** to start localizing a form.
Localize	Edit localization settings, resource bundle strings or add new locales.
Externalize Strings	Moves strings to a resource bundle for localization. Use this command to start localizing existing forms.
Generate Java Code	Generates the Java code for the active form. Normally it's not necessary to use this command because when you save a form, the Java code will be also generated.
Help Contents	Displays help topics.

Design View

This view is the central part of JFormDesigner. It displays the opened forms and lets you edit forms.



At top of the view, tabs are displayed for each open form. Click on a tab to activate a form. To close a form, click the ✖ symbol that appears on the right side of a tab if the mouse is over it. An asterisk (*) in front of the form name indicates that the form has been changed.

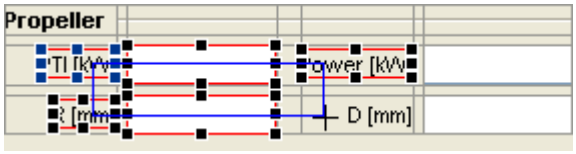
On the left side of the view and below the tabs, you can see the column and row headers. These are important controls for grid based layout managers. Use them to insert, delete or move columns/rows and change column/row properties.

In the center is the design area. It displays the form, grids and handles. You can drag and drop components, resize, rename, delete components or in-place-edit labels.

Selecting components

To select a single component, click on it. To select multiple components, hold down the **Ctrl** (Mac OS X: **Command**) or **Shift** key and click on the components. To select the parent of a selected component, hold down the **Alt** key (Mac OS X: **Option** key) and click on the selected component.

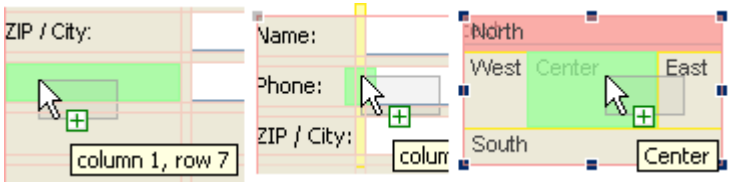
To select components in a rectangular area, select **Marquee Selection** in the Palette and click-and-drag a rectangular selection area in the Design view. Or click-and-drag on the free area in the Design view. All components that lie partially within the selection rectangle are selected.



The selection in the Design view and in the Structure view is synchronized both ways.

Drag feedback

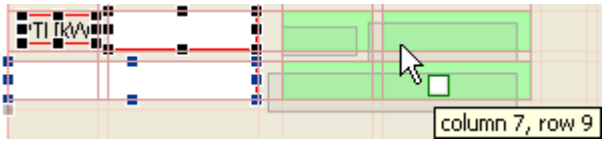
JFormDesigner provides four types of drag feedback.



The gray figure shows the outline of the dragged components. It always follows the mouse location. The green figure indicates the drop location, the yellow figure indicates a new column/row and red figures indicate occupied areas.

Move or copy components

To move components simply drag them to the new location. You will get reasonable visual feedback during the drag operation.

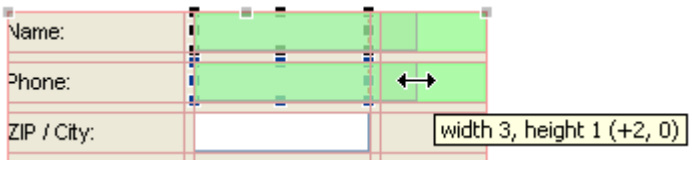


To copy components, proceed just as moving components, but hold down the **Ctrl** key (Mac OS X: **Option** key) before dropping the components.

You can cancel all drag operations using the **Esc** key.

Resize components

Use the selection handles to resize components. Click on a handle and drag it.



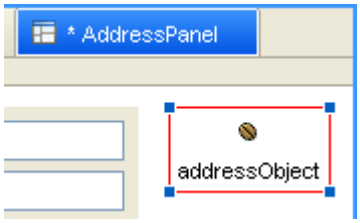
The green feedback figure indicates the new size of the component. The tool tip provides additional information about location, size and differences.

Whether a component is resizable or not depends on the used layout manager.

Non-visual beans

To add a non-visual bean to a form, select it in the Palette (or use **Choose Bean**) and drop it into the free area of the Design view. Non-visual beans are shown in the Design view using proxy

components.



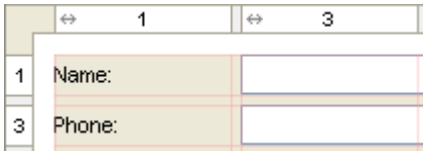
Red beans

If a bean could not instantiated (class not found, exception in constructor, etc), a **red bean** will be shown in the designer view as placeholder.

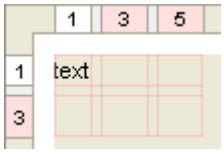
To fix such problems, use the Preferences dialog to add jars and then select **View > Refresh** from the menu (or press **F5**) to refresh the designer view.

Headers

The column and row headers (for grid based layout managers) show the structure of the layout. This includes column/row indices, alignment, growing and grouping.



Use them to insert, delete or move columns/rows and change column/row properties. Right-clicking on a column/row displays a popup menu. Double-clicking shows a dialog that allows you to edit the column/row properties.



If a column width or row height is zero, which is the case if a column/row is empty, then JFormDesigner uses a minimum column width and row height. Columns/rows having a minimum size are marked with a light-red background in the column/row header.

Selecting columns/rows

You can select more than one column/row. Hold down the **Ctrl** key (Mac OS X: **Command** key) and click on another column/row to add it to the selection. Hold down the **Shift** key to select the columns/rows between the last selected and the clicked column/row.

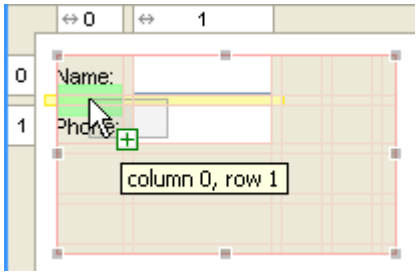
Insert column/row

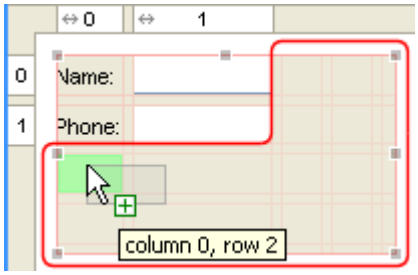
Right-click on the column/row where you want to insert a new one and select **Insert Column** / **Insert Row** from the popup menu. The new column/row will be inserted before the right-clicked column/row. To add a column/row after the last one, right-click on the area behind the last column/row.

If the layout manager is FormLayout, an additional gap column/row will be added. Hold down the

Shift key before selecting the command from the popup menu to avoid this.

Besides using the popup menu, you can insert new columns/row when dropping components on column/row gaps or outside of the existing grid. In the first figure, a new row will be inserted between existing rows. In the second figure, a virtual grid is shown below/right to the existing grid and a new row will be added.





Delete columns/rows

Right-click on the column/row that you want delete and select **Delete Columns** / **Delete Rows** from the popup menu.

If the layout manager is FormLayout, an existing gap column/row beside the removed column/row will also be removed. Hold down the **Shift** key before selecting the command from the popup menu to avoid this.

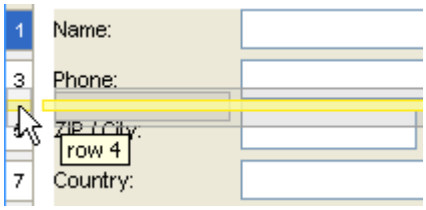
Split columns/rows

Right-click on the column/row that you want split and select **Split Column** / **Split Row** from the popup menu.

If the layout manager is FormLayout, an additional gap column/row will be added. Hold down the **Shift** key before selecting the command from the popup menu to avoid this.

Moving columns/rows

The headers allow you to drag and drop columns/rows (incl. contained components and gaps). This allows you to swap columns or move rows in seconds. Click on a column or row and drag it to the new location. JFormDesigner updates the column/row specification and the locations of the moved components.



If the layout manager is FormLayout, then existing gap columns/rows are also moved. Hold down the **Shift** key before dropping a column/row to avoid this.

Header symbols

Following symbols are used in the headers:

Ico	Description

n	
Column Header:	
←	Left aligns components in the column.
→	Right aligns components in the column.
↔	Center components in the column.
⇿	Fill (expand) components into the column.
⊢	Grow column width.
∞	Group column with other columns. All columns in a group will get the same width.
Row Header:	
↑	Top aligns components in the row.
↓	Bottom aligns components in the row.
↕	Center components in the row.
⇳	Fill (expand) components into the row.
⊤	Grow row height.
∞	Group row with other rows. All rows in a group will get the same height.

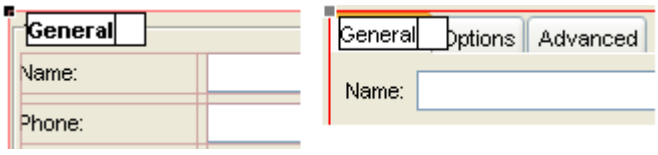
In-place-editing

In-place-editing allows you to edit the text of labels and other components directly in the Design view. Simply select a component and start typing. JFormDesigner automatically displays a text field that allows you to edit the text.

You can also use the **Space** key or double-click on a component to start in-place-editing. Confirm your changes using the **Enter** key, or cancel editing using the **Esc** key.

In-place-editing is available for all components, which support one or the properties `textWithMnemonic`, `text` and `title`.

In-place-editing is also supported for the title of `TitledBorder` and the tab titles of JTabbedPane.



`TitledBorder`: double-click on the title of the `TitledBorder`; or select the component with the `TitledBorder` and start in-place-editing as usual.

`JTabbedPane`: double-click on the tab title; or single-click on the tab, whose title you want to edit and start in-place-editing as usual.

Keyboard Navigation

Keyboard navigation allows you to change the selection in the designer view using the keyboard.

This allows you for example to edit a bunch of labels using in-place-editing without having to use the mouse. You can use the following keys:

Key	Description
Up	move the selection up
Down	move the selection down
Left	move the selection left
Right	move the selection right
Home	select the first component
End	select the last component

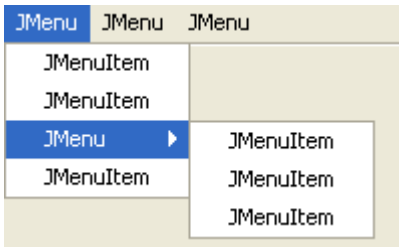
Note: Keyboard navigation is currently limited to one container. You cannot move the selection to another container using the keyboard.

Menu Designer

The menu designer makes it easy to create and modify menu bars and popup menus. It supports in-place-editing menu texts and drag-and-drop menu items.

Menu bar structure

The following figure shows the structure of a menu bar. The horizontal bar on top of the image is a `JMenuBar` that contains `JMenu` components. The `JMenu` contains `JMenuItem`, `JCheckBoxMenuItem`, `JRadioButtonMenuItem` or Menu Separator components. To create a sub-menu, put a `JMenu` into a `JMenu`.



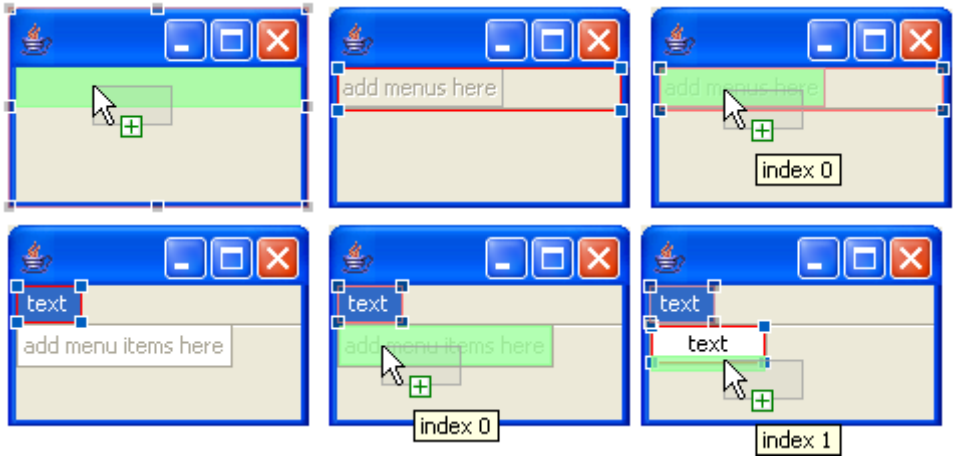
The component palette has a category "Menus" that contains all components necessary to create menus.

Creating menu bars

To create a menu bar:

1. add a `JMenuBar` to a `JFrame`
2. add `JMenus` to the `JMenuBar` and
3. add `JMenuItems` to the `JMenus`

Select the necessary components in the Palette and drop them to the Design view.

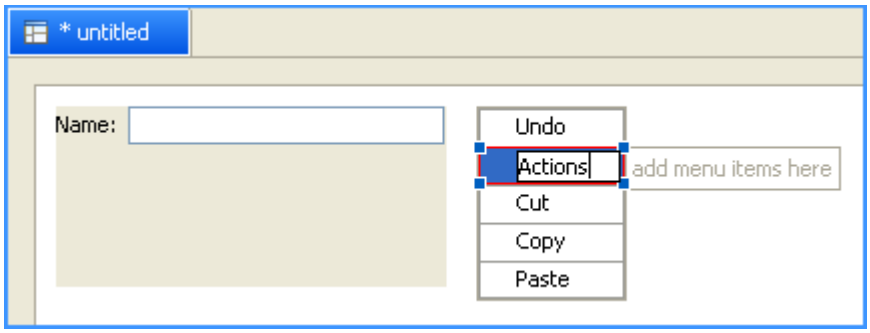


You can freely drag and drop the various menu components to rearrange them.

Creating popup menus

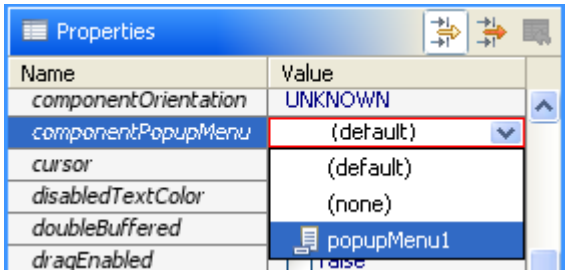
To create a popup menu:

1. add a `JPopupMenu` to the free area in the Design view and
2. add `JMenuItems` to the `JPopupMenu`



Assign popup menus to components

If you use Java 5 or later, you can assign the popup menu to a component in the properties view using the "componentPopupMenu" property. Select the component to which you want attach the popup menu and assign it in the Properties view. Note that you must click on the **Show Advanced Properties** in the toolbar of the Properties view to see the property.

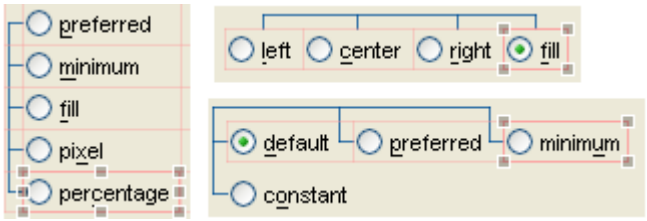


Note that JFormDesigner must run on Java 5 to use the "componentPopupMenu" property. Open the JFormDesigner About dialog and check whether it displays "Java 1.5.x".

Button groups

Button groups (`javax.swing.ButtonGroup`) are used in combination with radio buttons to ensure

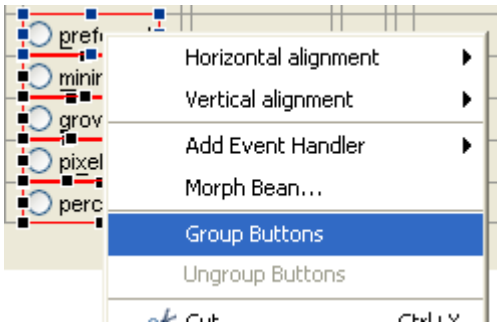
that only one radio button in a group of radio buttons is selected.



To visualize the grouping, JFormDesigner displays lines connecting the grouped buttons.

Group Buttons

To create a new button group, select the buttons you want to group, right-click on a selected button and select **Group Buttons** from the popup menu.



You can extend existing button groups by selecting at least one button of the existing group and the buttons that you want to add to that group, then right-click on a selected button and select **Group Buttons** from the popup menu.

Note that the **Group Buttons** and **Ungroup Buttons** commands are only available in the context menu if the selection contains only components, which are derived from `JToggleButton` (`JRadioButton` and `JCheckBox`).

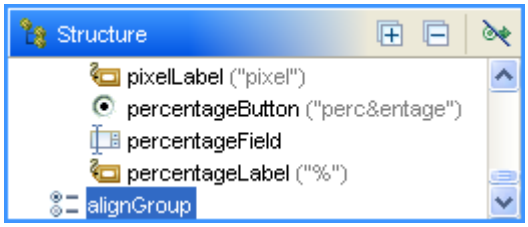
Ungroup Buttons

To remove a button group, select all buttons of the group, right-click on a selected button and select **Ungroup Buttons** from the popup menu.

To remove a button from a group, right-click on it and select **Ungroup Buttons** from the popup menu.

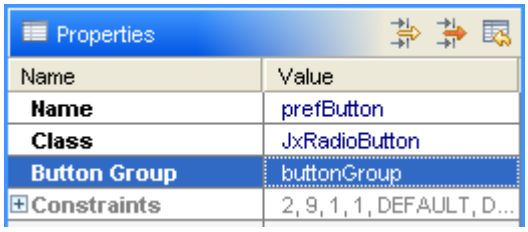
ButtonGroup object

Button groups are non-visual beans. They appear at the bottom of the Structure view and in the Design view. JFormDesigner automatically creates and removes those objects. You can rename button group objects.



If a grouped button is selected, you can see the association to the button group in the Properties

view.

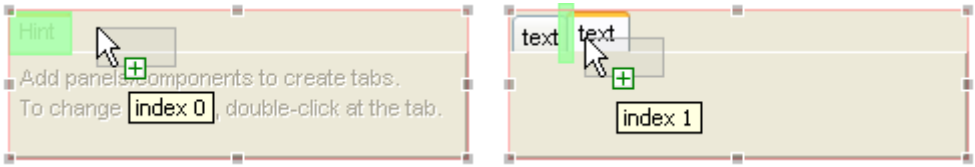


JTabbedPane

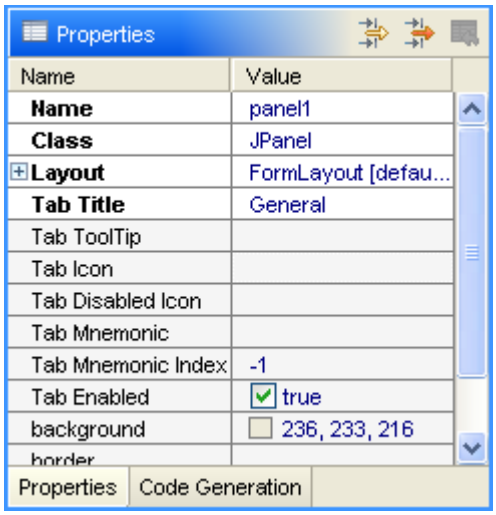
JTabbedPane is a container component that lets the user switch between pages by clicking on a tab.

After adding a JTabbedPane to your form, it looks like this one:

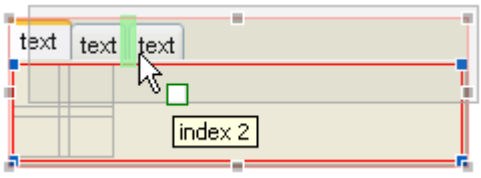
To add pages, select an appropriate component (e.g. JPanel) in the palette, move the cursor over the tabs area of the JTabbedPane and click to add it.



You can see only the components of the active tab. Click on a tab to switch to another page. To change a tab title, double-click on a tab to in-place-edit it. You can edit other tab properties (tool tip text, icon, ...) in the Properties view. Select a page component (e.g. JPanel) to see its tab properties.



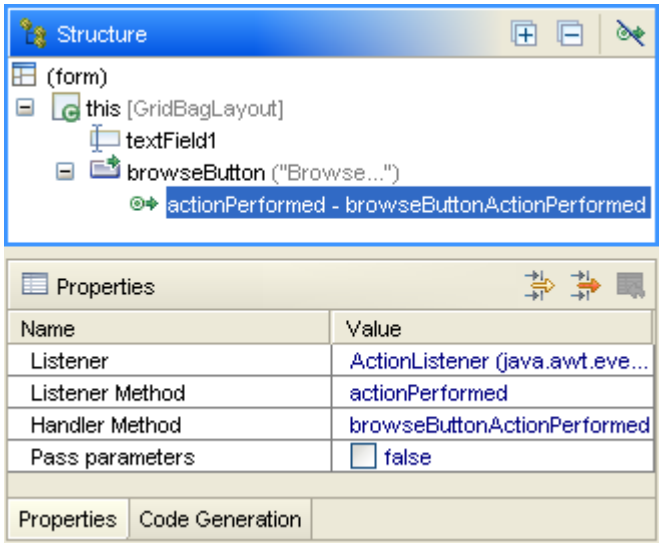
To change the tab order, select a page component (e.g. JPanel) and drag it over the tabs to a new place. You can also drag and drop page components in the Structure view to change its order.



Use an empty border to separate the page contents from the JTabbedPane border. If you are using JGoodies Forms, it's recommended to use `TABBED_DIALOG_BORDER`. Otherwise use an `EmptyBorder`.

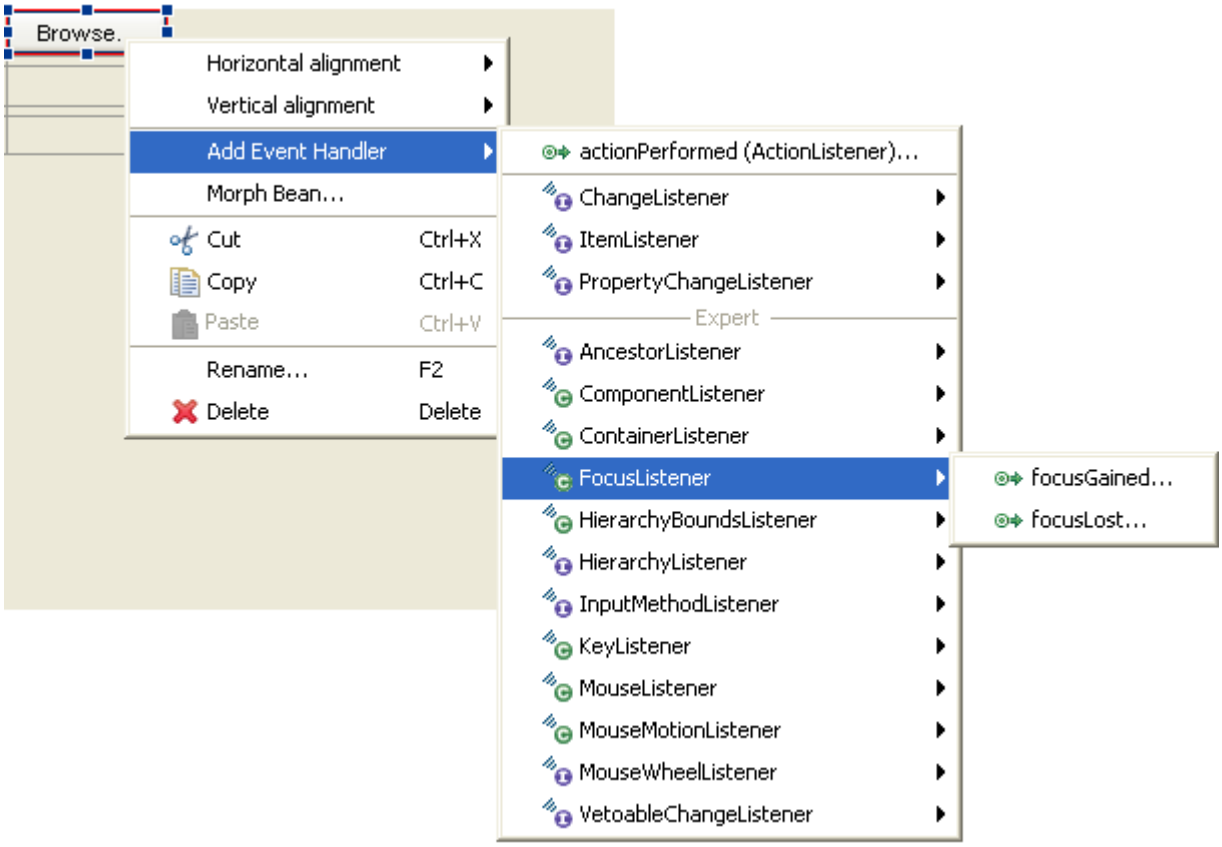
Events

Components can provide events to signal when activity occurs (e.g. button pressed or mouse moved). JFormDesigner shows events in the Structure view and event properties in the Properties view.



Add Event Handlers

To add an event handler to a component, right-click on the component in the Design or Structure view and select **Add Event Handler** from the popup menu. The events popup menu lists all available event listeners for the selected components and is divided into three sections: preferred, normal and expert event listeners.



The icon in the popup menu indicates that the listener interface will be implemented (e.g. javax.swing.ChangeListener). The icon indicates that the listener adapter class will be used (e.g. java.awt.event.FocusAdapter for java.awt.event.FocusListener). The icons and are used when the listener is already implemented.

After selecting an event listener from the popup menu, you can specify the name of the handler method and whether listener methods should be passed to the handler method in following dialog.

After saving the form, go to your favorite IDE and implement the body of the generated event handler method.

If you use the Runtime Library and the Java code generator is disabled, you must implement the handler method yourself in the target class. See documentation of method `FormCreator.setTarget()` in the JFormDesigner Loader API for details.

Remove Event Handlers

To remove an event handler, select it in the Structure view and press the **Del** key. Or right-click on

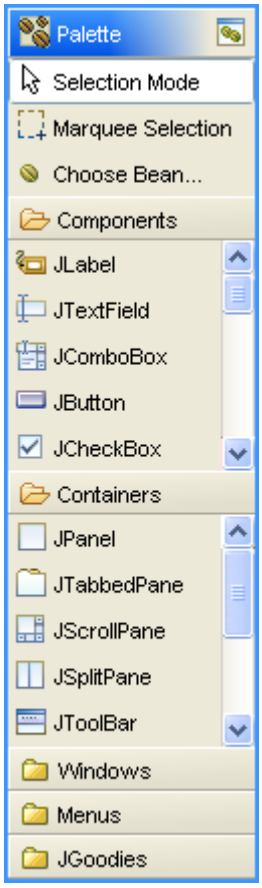
the event handler and select **Delete** from the popup menu.

Change Handler Method Name

Select the event handler in the Structure view, press the **F2** key and edit the name in-place in the tree. You can also change the handler method and the "pass parameters" flag in the Properties view.

Palette

The component palette provides quick access to commonly used components (JavaBeans) available for adding to forms.



The components are organized in categories. Click on a category header to expand or collapse a category.

You can add a new component to the form in following ways:

- Select a component in the palette, move the cursor to the Design or Structure view and click where you want to add the component.
- Select **Choose Bean**, enter the class name of the component in the Choose Bean dialog, click OK, move the cursor to the Design or Structure view and click where you want to add the component.

To add multiple instances of a component, press the **Ctrl** key (Mac OS X: **Command** key) while clicking on the Design or Structure view.

The component palette is fully customizable. Right-click on the palette to add, edit, remove or reorder components and categories. Or use the Palette Manager.

Toolbar commands	
Palette Manager	Opens the Palette Manager dialog to customize the palette.

Choose Bean

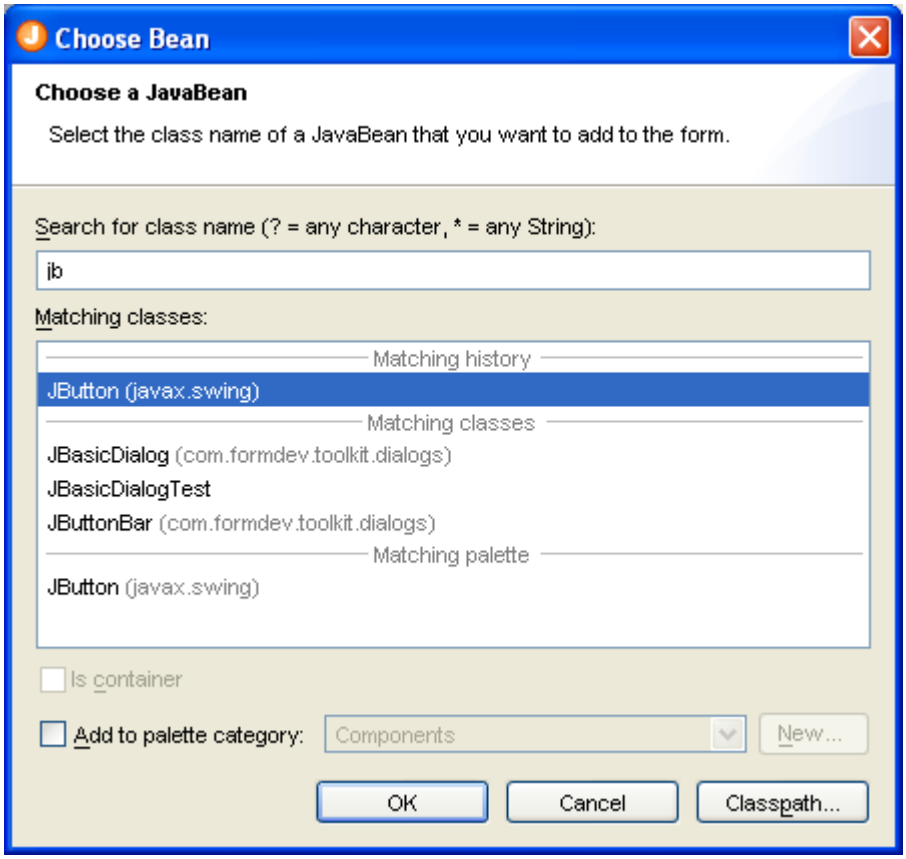
You can use any component that follows the JavaBean specification in JFormDesigner. Select **Choose Bean** in the palette to open the Choose Bean dialog.

Enter the first few characters of the class you want to choose until it appears in the matching classes list. Then select it in the list and click OK.

The matching classes list displays all classes that match. It is separated into up to three sections:

- Matching history: classes found in the history of last used classes. If the search field is empty, the complete history is displayed. To delete a class from the history, select it and press the **Delete** key or right-click on it an select **Delete** from the popup menu.
- Matching classes: classes found in the Classpath specified in the Preferences.

- Matching palette: classes found in the palette.



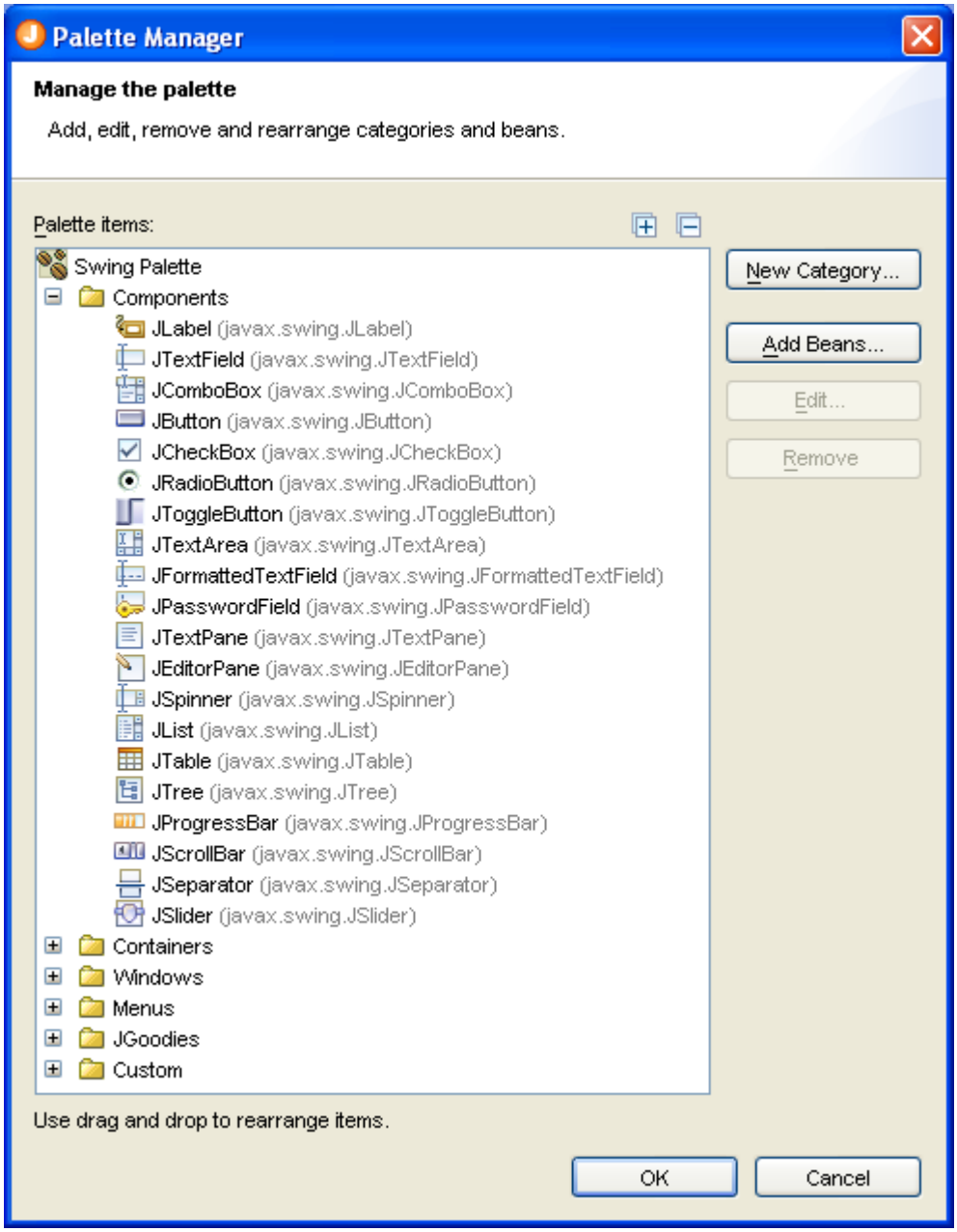
The **Is Container** check box allows you to specify whether a bean is a container or not.

If you select **Add to palette category**, the component will be added to the palette category specified in the following field. Click the **New** button to create a new category for your components if necessary.

Use the **Classpath** button to specify the location of your component classes. Add your JAR files or class folders.

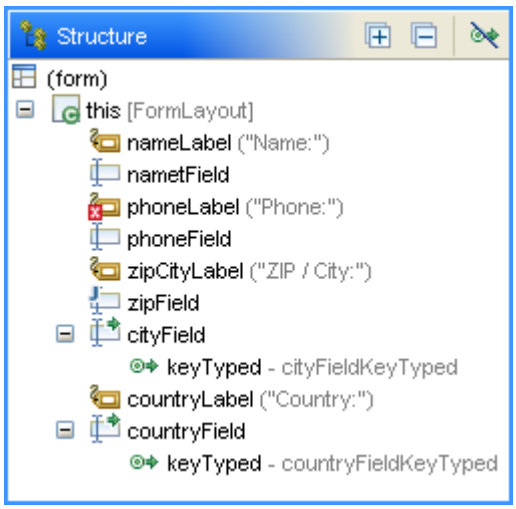
Palette Manager

This dialog allows you to fully customize the component palette. You can add, edit, remove or reorder components and categories.



Structure View

This view displays the hierarchical structure of the components in a form.



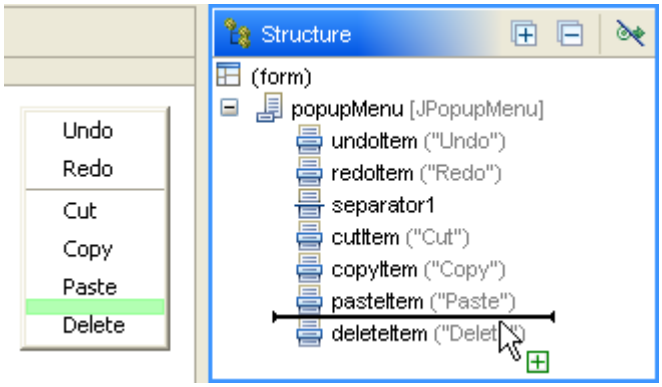
Each component is shown in the tree with an icon, its name and additional information like layout manager class or the text of a label or button. The name must be unique within the form and is used as variable name in the generated Java code.

You can edit the name of the selected component in the tree by pressing the **F2** key. Right-click on a component to invoke commands from the context menu.

The selection in the Structure view and in the Design view is synchronized both ways.

The tree supports multiple selection. Use the **Ctrl** key (Mac OS X: **Command** key) to add individual selections. Use the **Shift** key to add contiguous selections.

The tree supports drag and drop to rearrange components. You can also add new components from the palette to the Structure view. Besides the feedback indicator in the structure tree, JFormDesigner also displays a green feedback figure in the Design view to show the new location.



Various overlay icons are used in the tree to indicate additional information:

Icon	Description
	The component is bound to a Java class. Each component can have its own (nested) class. See Nested Classes for details.
	The component has events assigned to it. The events are shown as child nodes in the tree.
	The component has custom code assigned to it (see **Code Generation** tab in the Properties view). In the above screenshot, the component `zipField` has custom code.
	The variable modifier of the component is set to `public`. See Code Generation tab.
	The variable modifier of the component is set to `default`.
	The variable modifier of the component is set to `protected`.
	The variable modifier of the component is set to `private`.
	A property (e.g. `JLabel.labelFor`) of the component has a reference to a non-existing component. This can happen if you e.g. remove a referenced `JTextField`. In the above screenshot, the component `phoneLabel` has a invalid reference.

Toolbar commands	
Expand All	Expand all nodes in the structure tree.
Collapse All	Collapse all nodes in the structure tree.
Hide Events	If selected, hides the events from the structure tree.

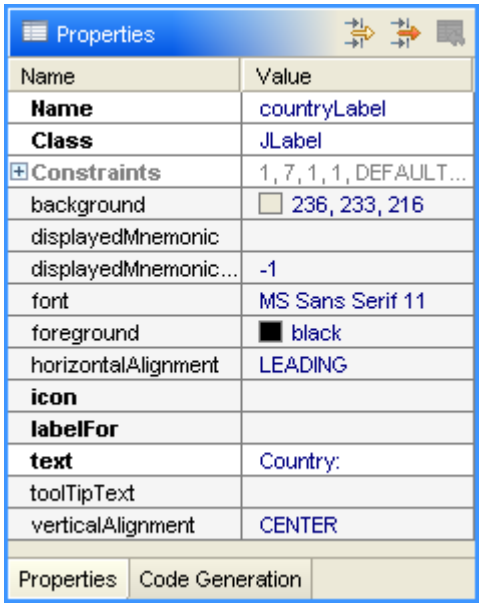
Properties View

The Properties view displays and lets you edit the properties of the selected component(s). Select one or more components in the Design or Structure view to see its properties. If more than one component is selected, only properties that are in all selected components are shown.

The view consists of two tabs (at the bottom of the view).

Properties tab

The **Properties** tab displays the component name, component class, layout properties and component properties. The list of component properties comes from introspection of the component class (JavaBeans).



By default, the Properties view displays regular properties. To see expert properties, click on the **Show Advanced Properties** ( ) button in the view toolbar and to see read-only properties, click the **Show read-only Properties** ( ) button.

Different font styles are used for the property names. Bold style is used for preferred (often used) properties, plain style for normal properties and italic style for expert properties. Read-only properties are shown using a gray font color.

The light gray background indicates unset properties. The shown values are the default values of the component. The white background indicates set properties. Java code will be generated for set properties only. Use **Restore Default Value** ( ) to unset a property or **Set Value to null** ( ) from the popup menu to set a property explicitly to `null`.

The left column displays the property names, the right column the property values. Click on a property value to edit it.

You can either edit a value directly in the property table or use a custom property editor by clicking on the ellipsis button ( ) on the right side. The custom editor pops up in a new dialog.

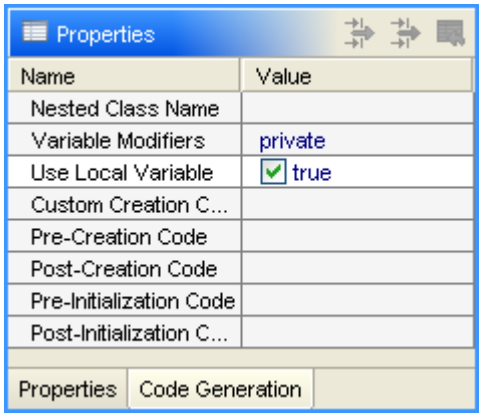
The type of the editor depends on the data type of the property. JFormDesigner has built-in property editors for all standard data types.

Common properties (at the top of the table):

Property Name	Description
Name	The name of the component. Used as variable name in the generated Java code. Must be unique within the form.
Class	The class name of the component. The tooltip displays the full class name and the class hierarchy. Click on the value to morph the component class to another class (e.g. JTextField to JTextArea).
Button Group	The name of the button group assigned to the component. This property is only visible for components derived from `JToggleButton` (e.g. `JRadioButton` and `JCheckBox`).
Layout	Layout properties of the container component. Click on the plus sign to expand it. The list of layout properties depends on the used layout manager. This property is only visible for container components. Click on the value to change the layout manager.
Constraints	Layout constraints properties of the component. Click on the plus sign to expand it. The list of constraints properties depends on the layout manager of the parent component. This property is only visible if the layout manager of the parent component uses constraints.

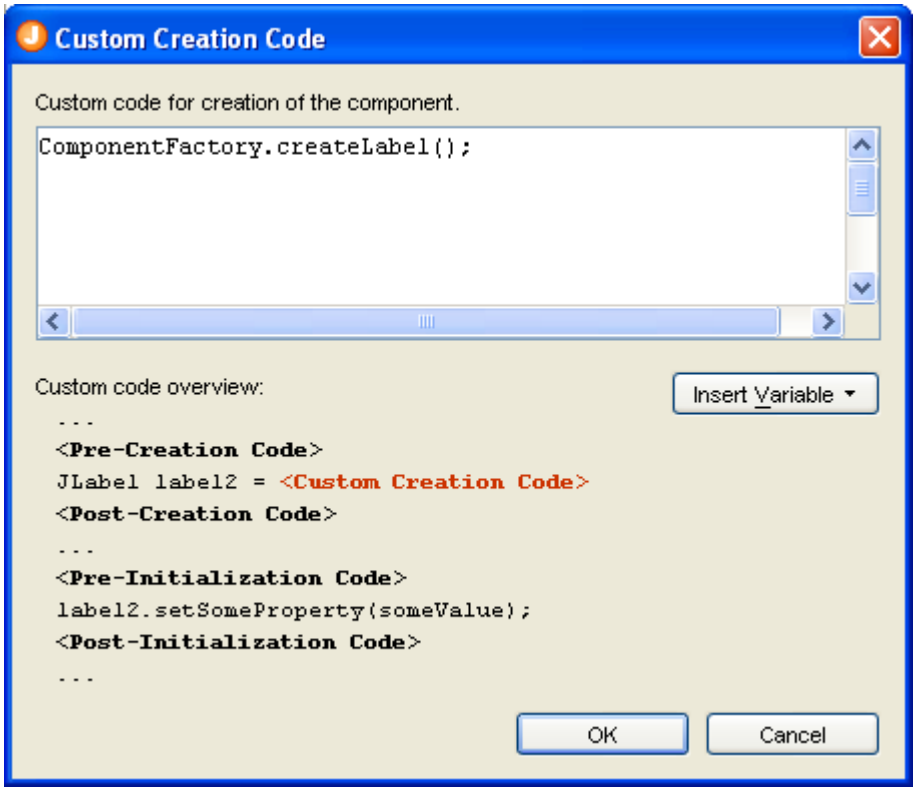
Code Generation tab

This tab displays properties related to the Java code generator.



Property Name	Description
Nested Class Name	The name of the generated nested Java class. See Nested Classes for details.
Variable Modifiers	The modifiers of the variable generated for the component. Allowed modifiers: `public`, `default`, `protected`, `private`, `static` and `transient`. Default is `private`.
Use Local Variable	If `true`, the variable is declared as local in the initialization method. Otherwise at class level. Default is `false`.
Gen. Getter Method	If `true`, generate a public getter method for the component. Default is `false`.
Custom Creation Code	Custom code for creation of the component.
Pre-Creation Code	Code included before creation of the component.
Post-Creation Code	Code included after creation of the component.
Pre-Initialization Code	Code included before initialization of the component.
Post-Initialization Code	Code included after initialization of the component.

This is the dialog for custom code editing:



"(form)" properties

Select the "(form)" node in the Structure view to see special form properties:

Properties tab

Property Name	Description
Set Component Names	If `true`, invokes java.awt.Component.setName() on all components of the form.

Code Generation tab

Property Name	Description
Default Variable Modifiers	The default modifiers of the variables generated for components. Allowed modifiers: `public`, `default`, `protected`, `private`, `static` and `transient`. Default is `private`.
Default Use Local Variable	If `true`, the component variables are declared as local in the initialization method. Otherwise at class level. Default is `false`.
Default Gen. Getter Method	If `true`, generate public getter methods for components. Default is `false`.
Default Handler Modifiers	The default modifiers used when generating event handler methods. Allowed modifiers: `public`, `default`, `protected`, `private`, `final` and `static`. Default is `private`.
Member Variable Prefix	Prefix used for component member variables. E.g. "m_".

Property Editors

Property editors are used in the Properties view to edit property values.

You can either edit a value directly in the property table or use a custom property editor by clicking on the ellipsis button (...) on the right side. The custom editor pops up in a new dialog.

The type of the editor depends on the data type of the property. JFormDesigner has built-in property editors for all standard data types. Custom JavaBeans can provide their own property editors. Take a look at the API documentation of `java.beans.PropertyEditor`, `java.beans.PropertyDescriptor` and `java.beans.BeanInfo` and the JavaBeans topic for details.

Built-in property editors

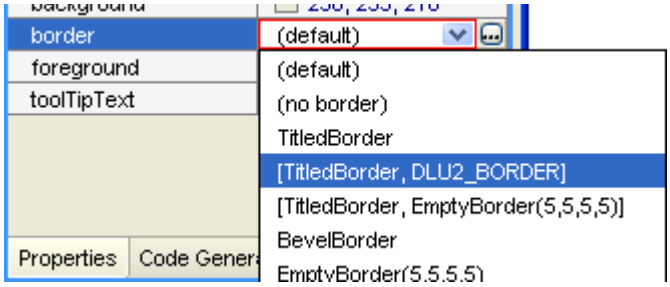
JFormDesigner has built-in property editors for following data types:

- String, `boolean`, `byte`, `double`, `float`, `int`, `long`, `short`, `java.lang.Byte`, `java.lang.Double`, `java.lang.Float`, `java.lang.Integer`, `java.lang.Long`, `java.lang.Short`, `java.math.BigDecimal` and `java.math.BigInteger`
- Border (javax.swing)
- Color (java.awt)
- ComboBoxModel (javax.swing)
- Cursor (java.awt)
- Dimension (java.awt)
- Font (java.awt)

- Icon (javax.swing)
- Insets (java.awt)
- KeyStroke (javax.swing)
- ListModel (javax.swing)
- Object (java.lang)
- Point (java.awt)
- Rectangle (java.awt)
- SpinnerModel (javax.swing)
- TableModel (javax.swing)
- TreeModel (javax.swing)

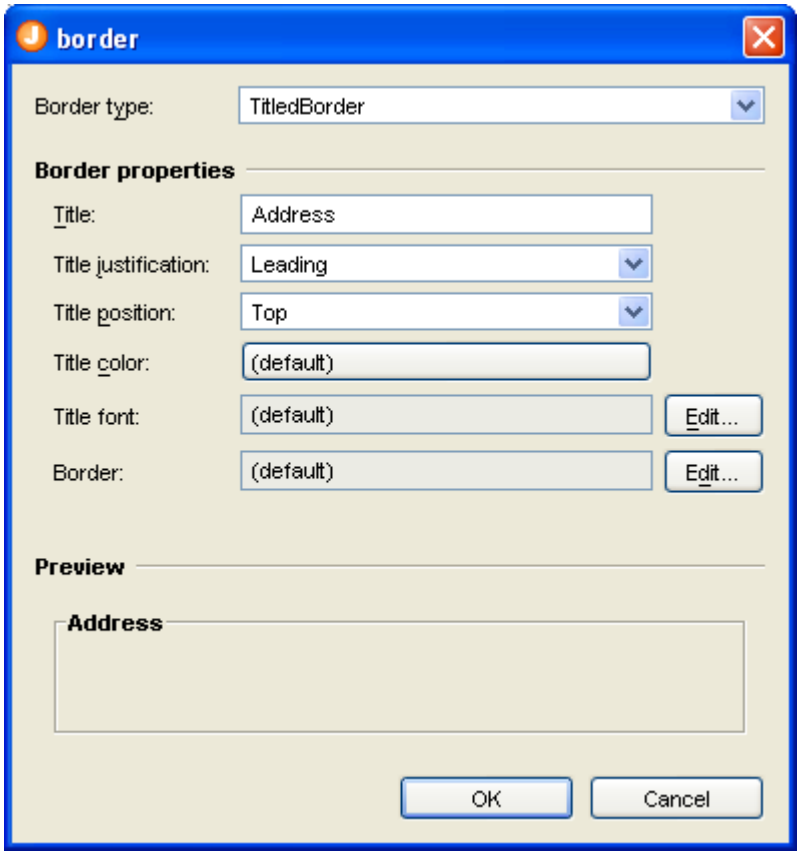
Border (javax.swing)

You can either select a border from the combo box in the properties table or use the custom editor.



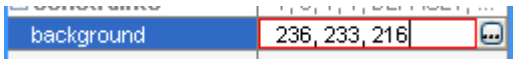
In the custom editor you can edit all border properties. Use the combo box at the top of the dialog to choose a border type. In the mid area of the dialog you can edit the border properties. This area is different for each border type. At the bottom, you can see a preview of the border.

Following border types are supported: `BevelBorder`, `CompoundBorder`, Empty`Border`, `EmptyBorder (JGoodies)`, `EtchedBorder`, Line`Border`, `MatteBorder`, `SoftBevelBorder` and `TitledBorder`.

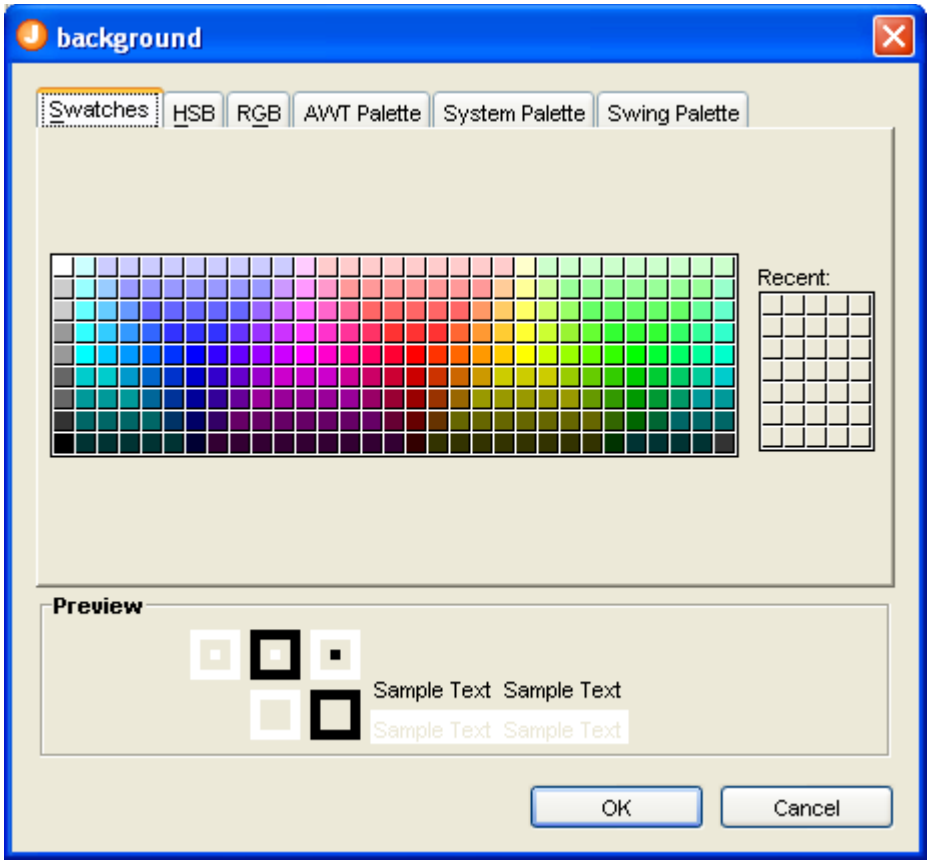


Color (java.awt)

In the properties table, you can either enter RGB values, color names, system color names or Swing UIManager color names. When using a RGB value, you can also specify the alpha value by adding a fourth number.

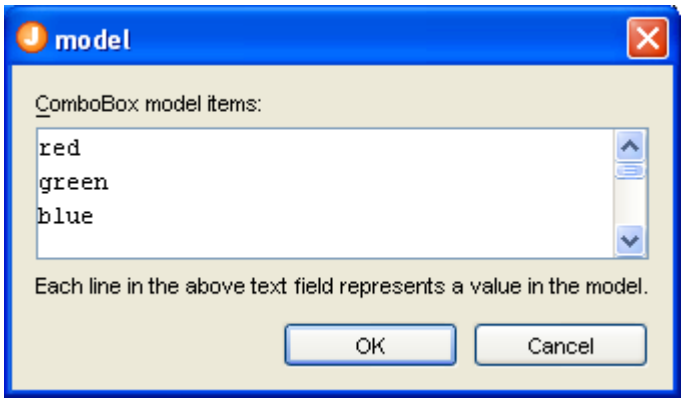


The custom editor supports various ways to specify a color. Besides RGB, you can select a color from the AWT, System or Swing palettes.



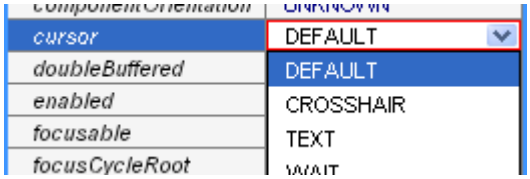
ComboBoxModel (javax.swing)

This custom editor allows you to specify string values for a combo box.



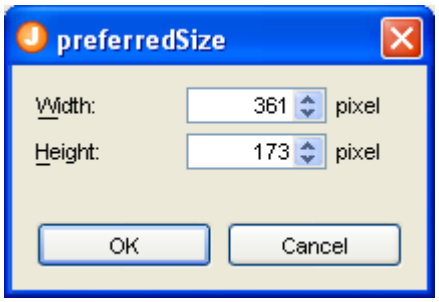
Cursor (java.awt)

This editor allows you to choose a predefined cursor.



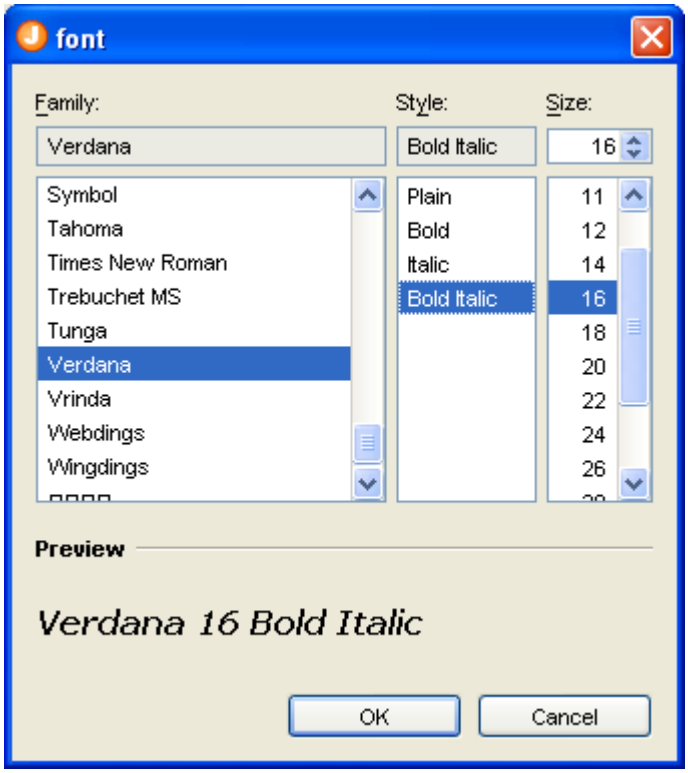
Dimension (java.awt)

Either edit the dimension in the property table or use the custom editor.



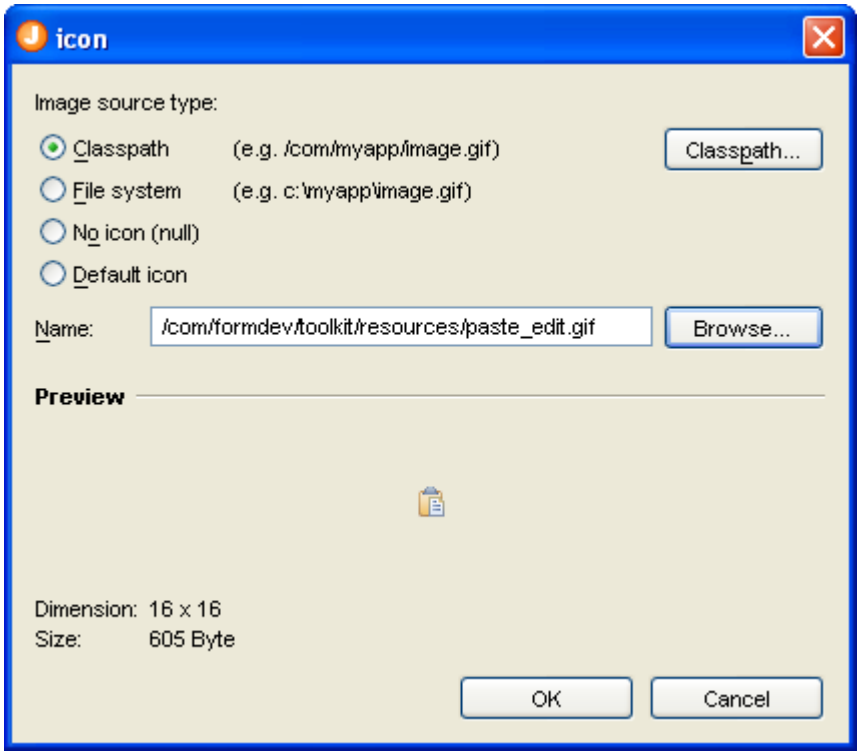
Font (java.awt)

In this custom editor you can select the font family, style and size.



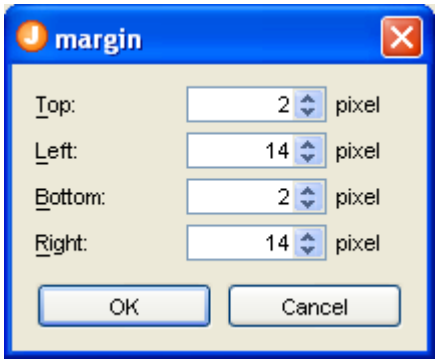
Icon (javax.swing)

This custom editor allows you to choose an icon. Either use an icon from the classpath or from the file system. It is recommended to use the classpath and embed your icons into your application JAR.



Insets (java.awt)

Either edit the insets in the property table or use the custom editor.

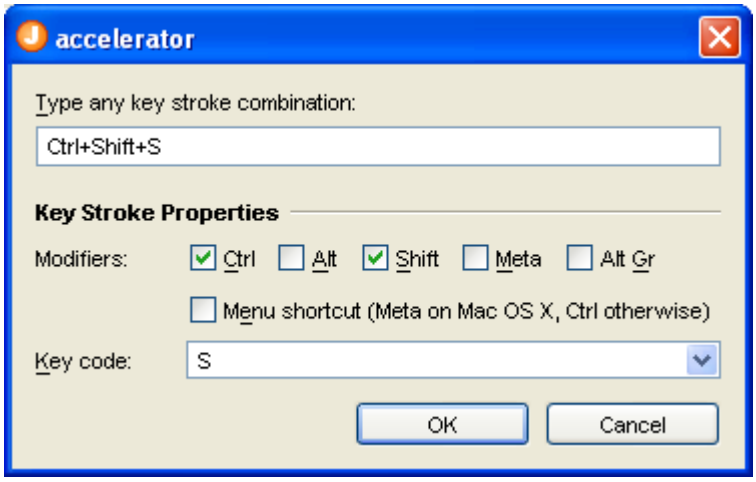


KeyStroke (javax.swing)

In the properties table, you can enter a string representation of the keystroke. E.g. "Ctrl+C" or "Ctrl+Shift+S".

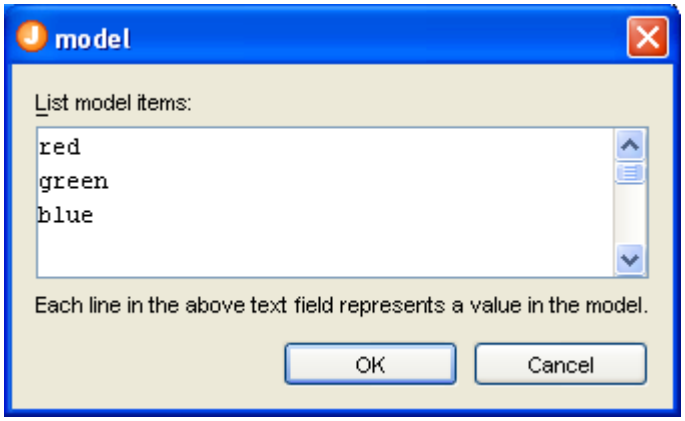
The custom editor supports two ways to specify a keystroke. Either type any key stroke combination if the focus is in the first field or use the controls below.

The KeyStroke editor supports menu shortcut modifier key (**Command** key on Mac OS X, **Ctrl** key otherwise).



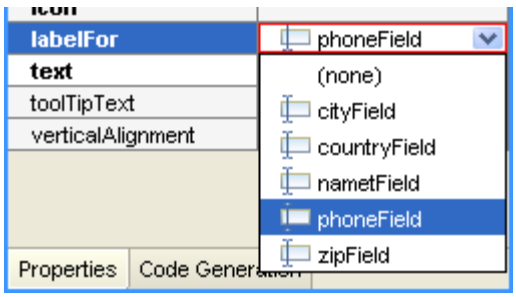
ListModel (javax.swing)

This custom editor allows you to specify string values for a list.



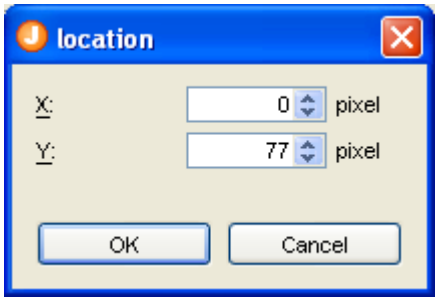
Object (java.lang)

This editor allows you to reference any (non-visual) JavaBean as a property value. Often used for `JLabel.labelFor`.



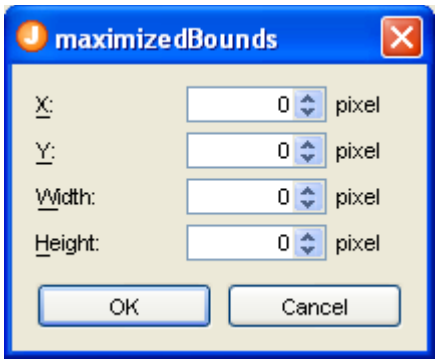
Point (java.awt)

Either edit the point in the property table or use the custom editor.



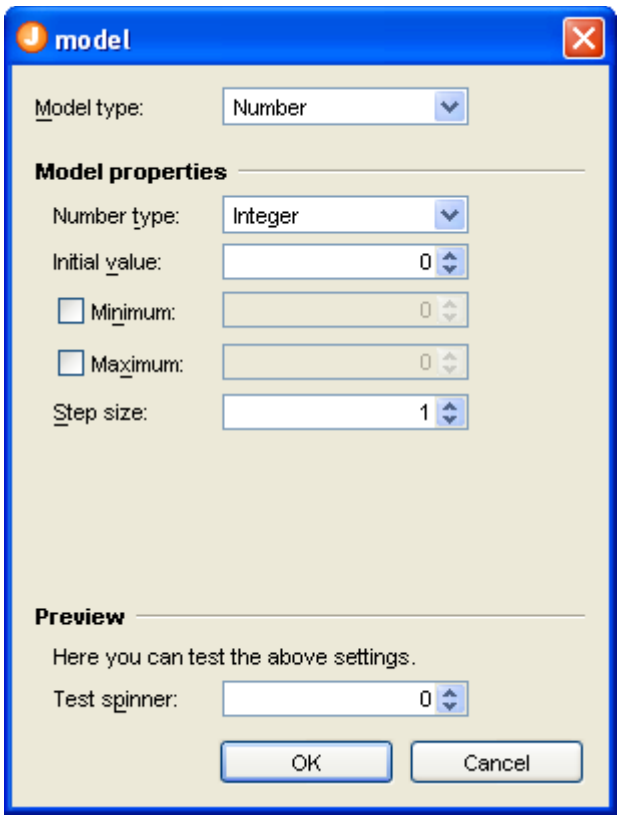
Rectangle (java.awt)

Either edit the rectangle in the property table or use the custom editor.



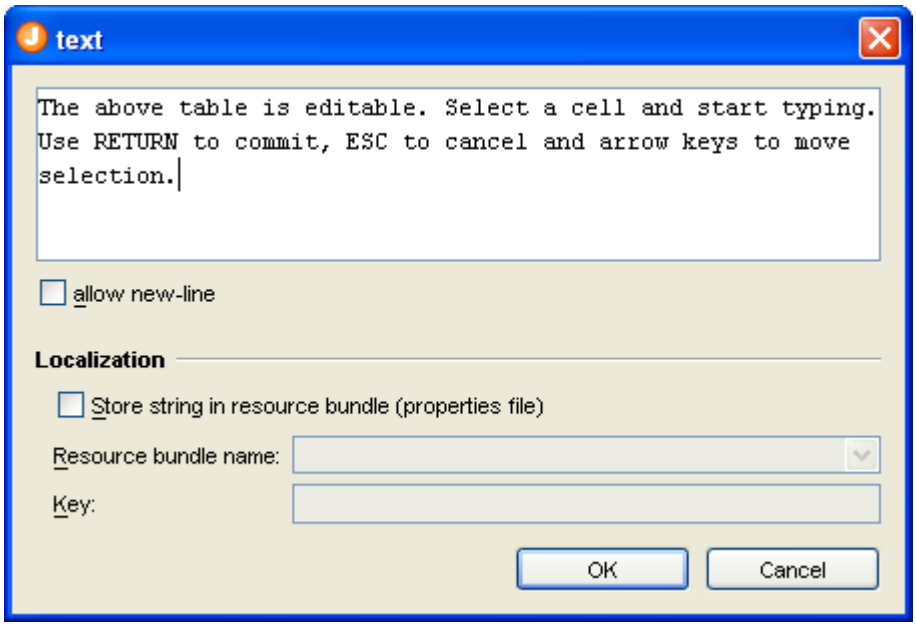
SpinnerModel (javax.swing)

This custom editor allows you to specify a spinner model (used by `JSpinner`). Use the combo box at the top of the dialog to choose a spinner model type (Number, Date or List). In the mid area of the dialog you can edit the model properties. This area is different for each model type. At the bottom, you can see a test spinner where you can test the spinner model.



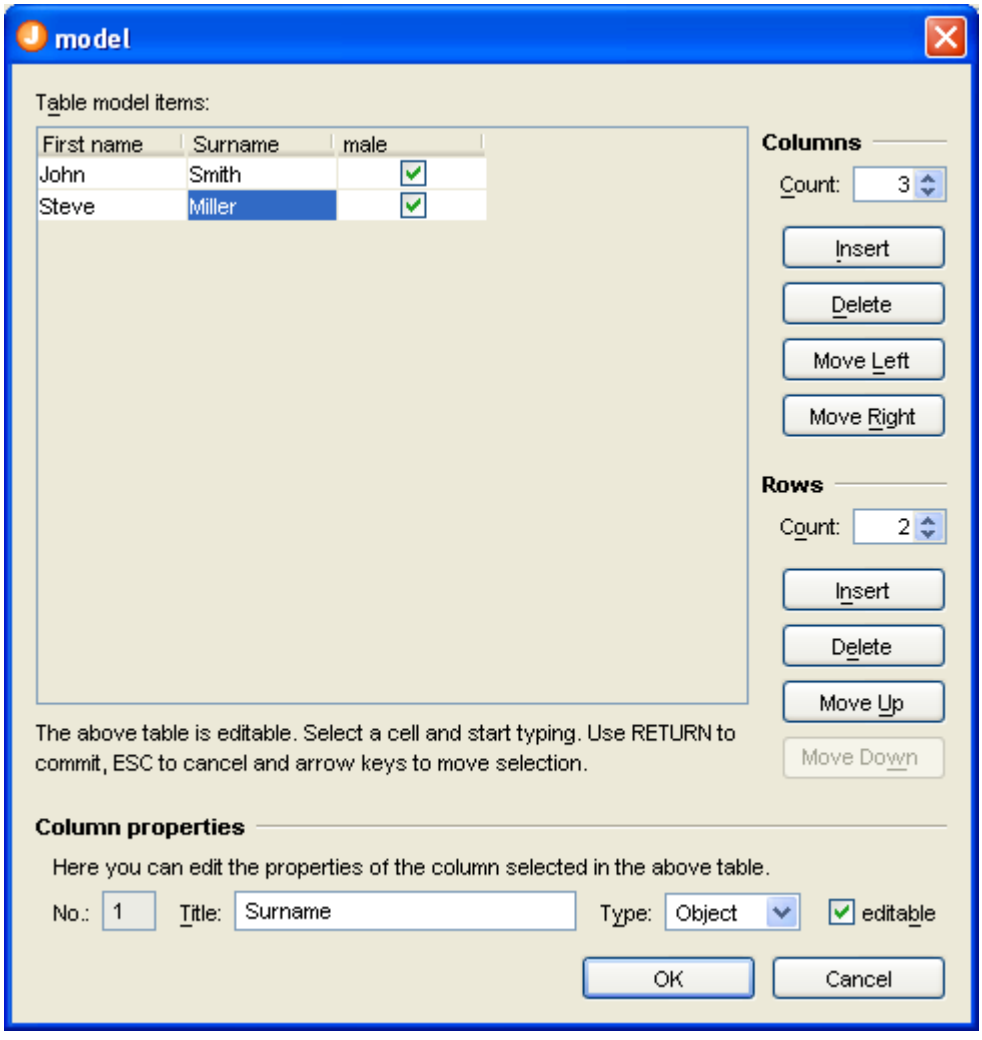
String (java.lang)

Either edit the string in the property table or use the custom editor. Switch the "allow new-line" check box on, if you want enter new lines.



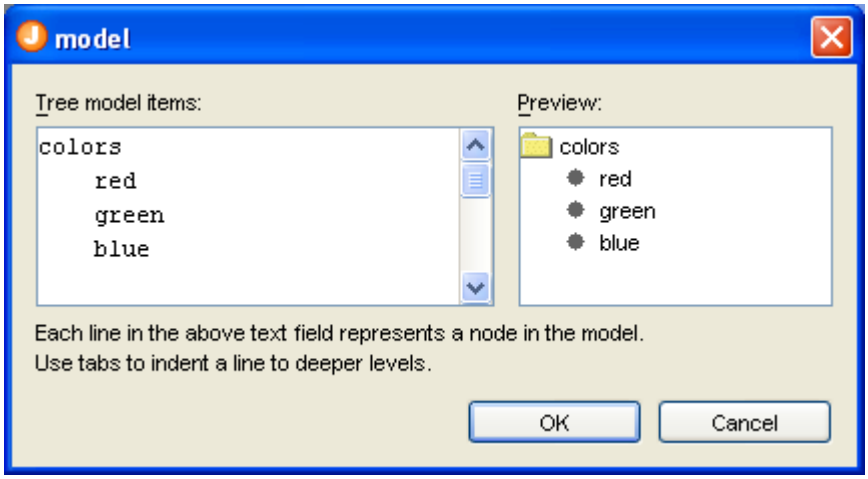
TableModel (javax.swing)

This custom editor allows you to specify values for a table.



TreeModel (javax.swing)

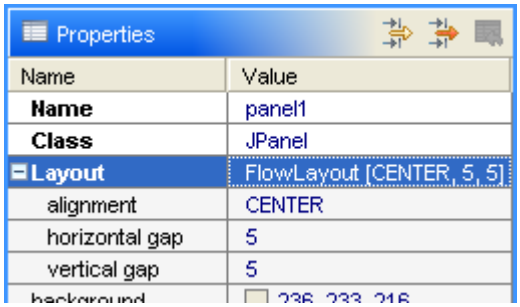
This custom editor allows you to specify string values for a tree.



Layout Properties

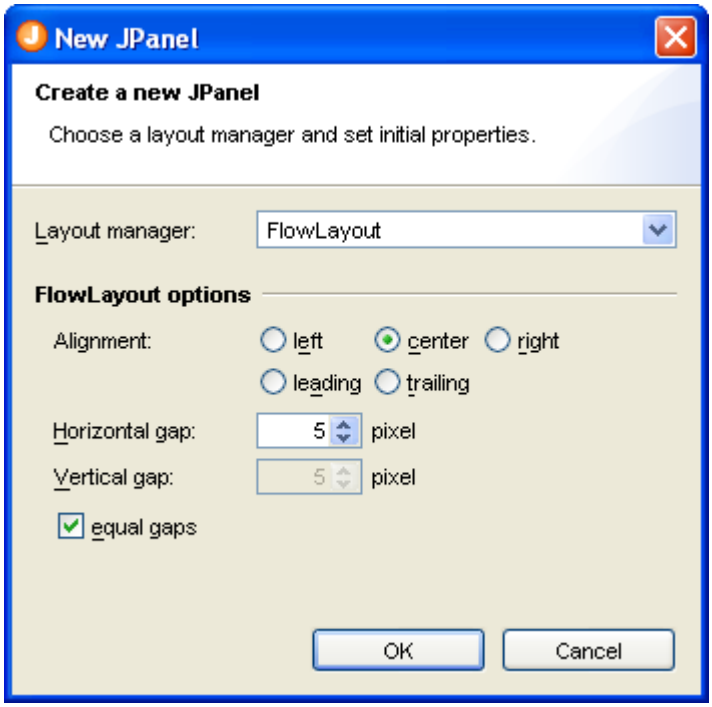
Each container component that has a layout manager has layout properties. The list of layout properties depends on the used layout manager.

Select a container component in the Design or Structure view to see its layout properties in the Properties view.



This screenshot shows layout properties (alignment, horizontal and vertical gap) of a container that has a FlowLayout.

When you add a container component to a form, following dialog appears and you can choose the layout manager for the new container. You can also set the layout properties in this dialog.

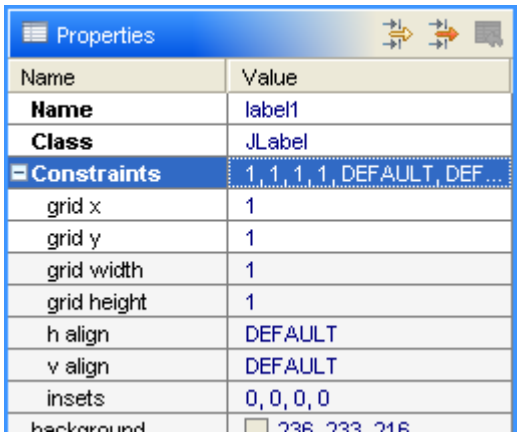


Constraints Properties

Constraints properties are related to layout managers. Some layout managers (FormLayout, TableLayout, GridBagLayout, ...) use constraints to associate layout information to the child components of a container.

The list of constraints properties depends on the layout manager of the parent component.

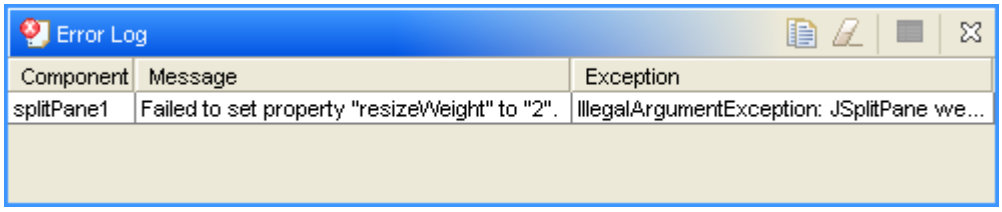
Select a component in the Design or Structure view to see its constraints properties in the Properties view.



This screenshot shows constraints properties of a component in a FormLayout.

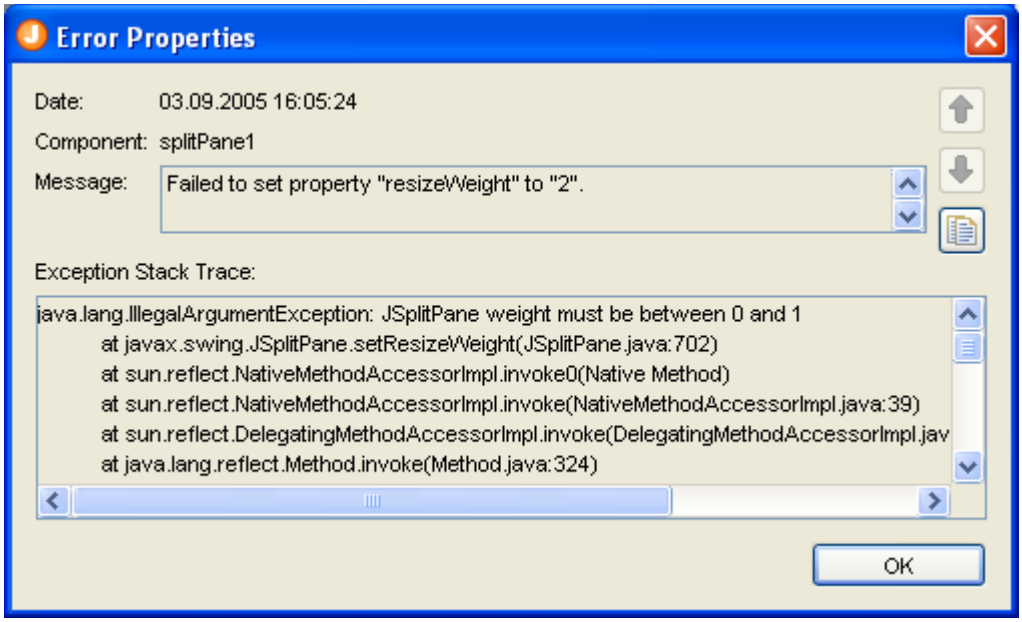
Error Log View

This view appears at the bottom of the main window if an exception is throw by a bean. You can see which bean causes the problem and the stack trace of the exception. This makes it much easier to solve problems when using your own (or 3rd party) beans.



Toolbar commands	
Copy Log	Copies all log records to the clipboard.
Clear Log	Clears the log.
Properties	Displays the properties of the selected log record in a dialog (see below).
Close	Closes the Error Log view.

Double-click on a log entry to see its details:



How to fix errors

This mainly depends on the error. The problem shown in the above screenshots is easy to fix by setting `resizeWeight` to a value between 0 and 1.

If the problem occurs in your own beans, use the stack trace to locate the problem and fix it in your bean's source code. After compiling your bean, select **View > Refresh** from the menu (or press **F5**) to reload your bean.

If you are using 3rd party beans, it is possible that you need to add additional libraries to the classpath. You should be able to identify such a problem on the kind of exception. In this case, add the needed libraries to the JFormDesigner classpath using the Preferences, and refresh the Design view.

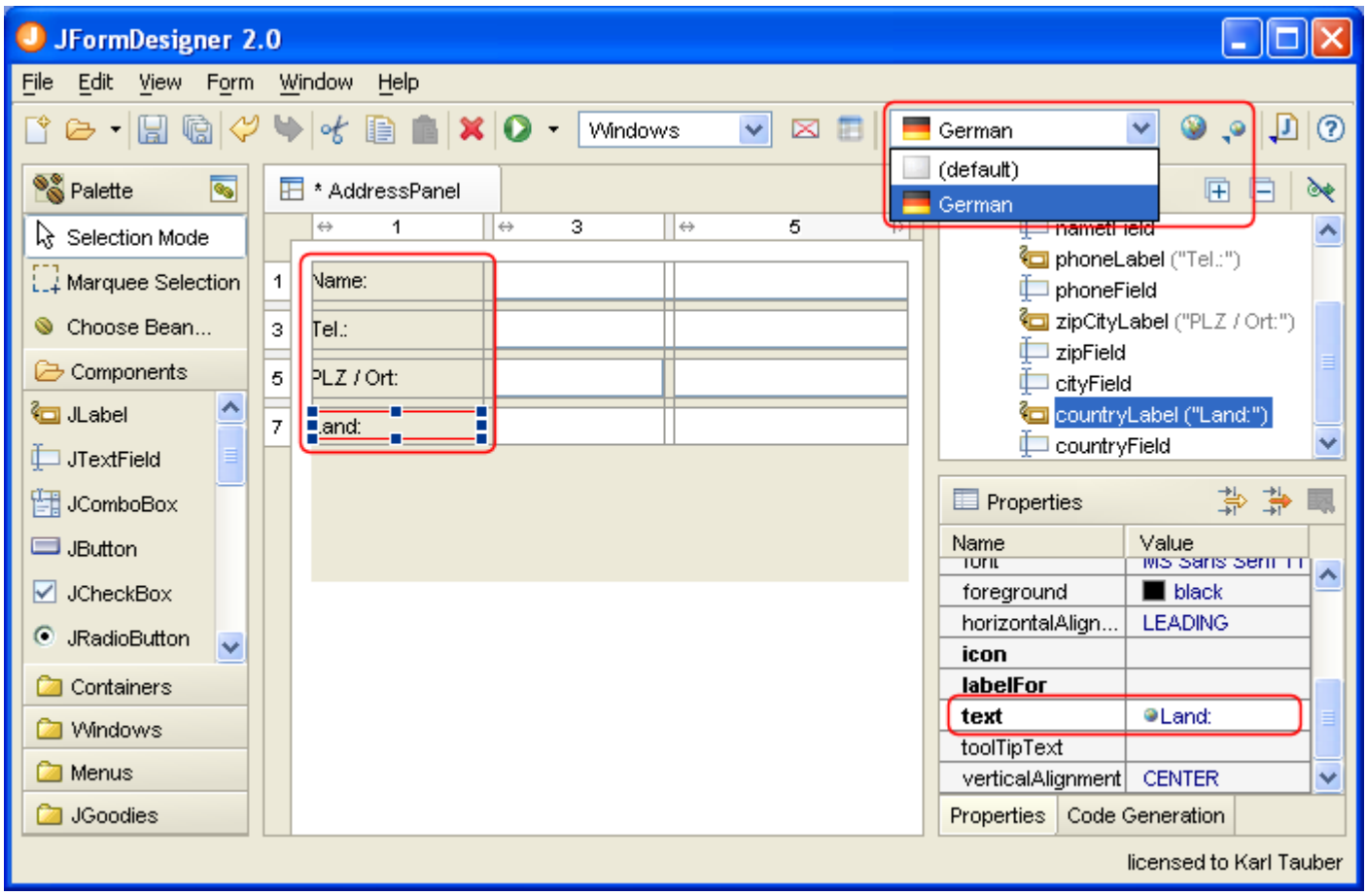
Localization

JFormDesigner provides easy-to-use and powerful localization/internationalization support:

- Externalize and internalize strings.
- Edit resource bundle strings.

- Add locales.
- Switch locale used in Design view.
- In-place-editing strings of current locale.
- Auto-externalize strings.
- Updates resource keys when renaming components.
- Copies resource strings when copying components.
- Removes resource strings when deleting components.
- Localization preferences.
- Fully integrated in undo/redo.

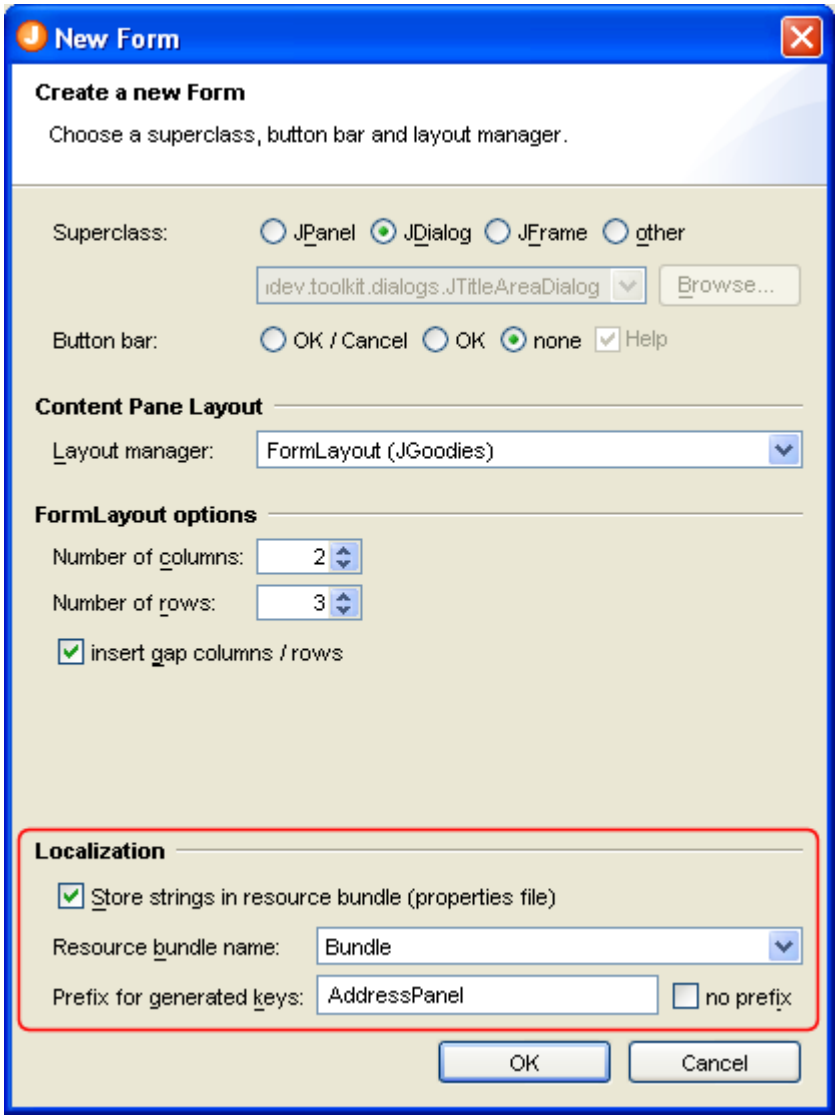
The locales combobox in the toolbar allows you to select the locale used in the Design, Structure and Properties views. If you in-place-edit a localized string in the Design view, you change it in the current locale. A small globe in front of property values in the Properties view indicates that the string is localized (stored in a properties file).



Create a new localized form

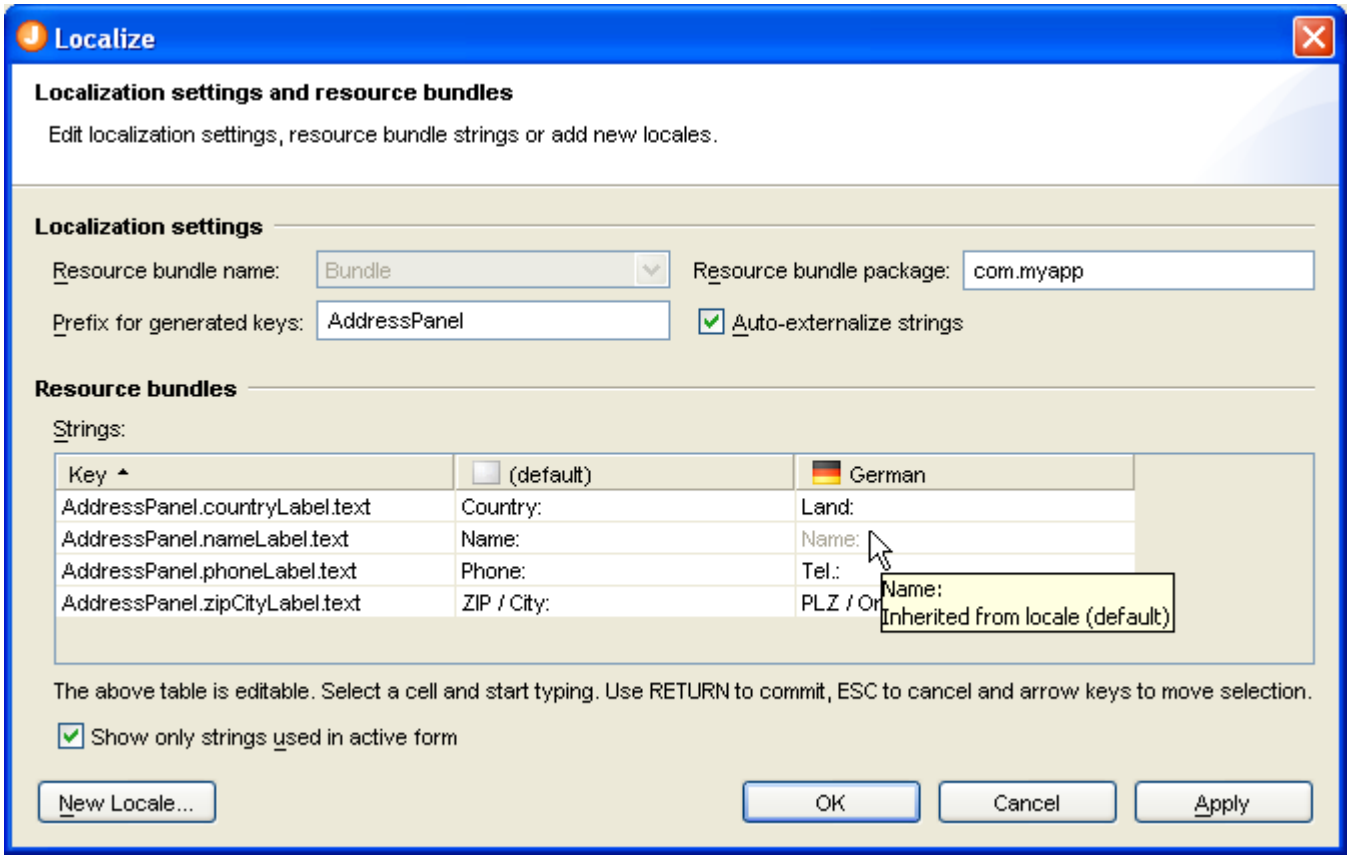
When creating a new form, you can specify that JFormDesigner should put all strings into a resource bundle (.properties file). In the **New Form** dialog select the **Store strings in resource bundle** check box, specify a resource bundle name and a prefix for generated keys. Then JFormDesigner automatically puts all new strings into the properties file (auto-externalize). E.g. when you add a `JLabel` to the form and change the "text" and "toolTipText" properties, both strings will be put into the properties file.

To localize existing forms use Externalize Strings.



Edit localization settings and resource bundle strings

To edit localization settings and resource bundle strings, select **Form > Localize** from the main menu. Here you can add new locales and edit strings. The light gray color used to draw the string "Name:" in the table column "German" indicates that the string is inherited from a parent locale.



The **Resource bundle package** field is used by the Java Code Generator and the Runtime Library to load the .properties files at runtime using `java.util.ResourceBundle.getBundle()`. JFormDesigner always loades the .properties files from the same folder as the .jfd file. If you've set the Source Folders in the preferences, JFormDesigner automatically fills this field.

In the **Prefix for generated keys** field you can specify a prefix for generated resource bundle keys. The format for generated keys is "<prefix>.<componentName>.<propertyName>". You can change the separator ('.') in the Localization preferences.

If the **Auto-externalize strings** check box is selected, then JFormDesigner automatically puts all new strings into the properties file. E.g. when you add a `JLabel` to the form and change the "text" and "toolTipText" properties, both strings will be put into the properties file. You can exclude properties from externalization in the Localization preferences.

Add new locale

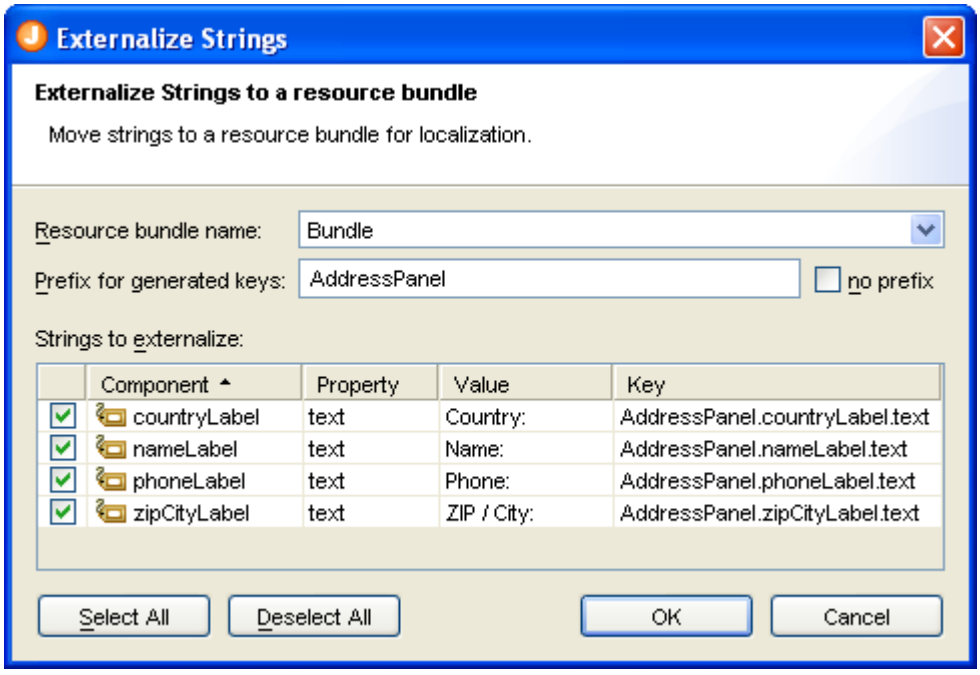
To add a new locale, either select **Form > New** Locale from the main menu or click the **New Locale** button in the **Localize** dialog. Select a language and an optional country. You can copy strings from an existing locale into the new locale, but JFormDesigner fully supports inheritance in the same way as specified by `java.util.ResourceBundle`. E.g. if a message is not in locale "de_AT" then it will be loaded from locale "de".

Externalize strings

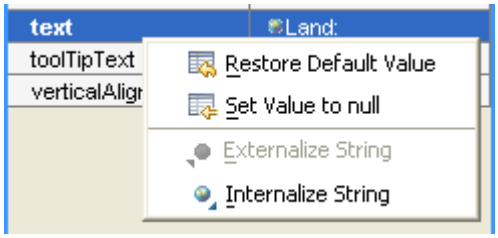
Externalizing allows you to move strings from a .jfd file to a .properties file. If you want localize existing forms, start here.

Select **Form > Externalize Strings** from the main menu, specify the resource bundle name, the prefix for generated keys and select/deselect the strings to externalize. You can exclude properties from externalization in the Localization preferences.

Note that the .properties file is saved in the same folder as the .jfd file.



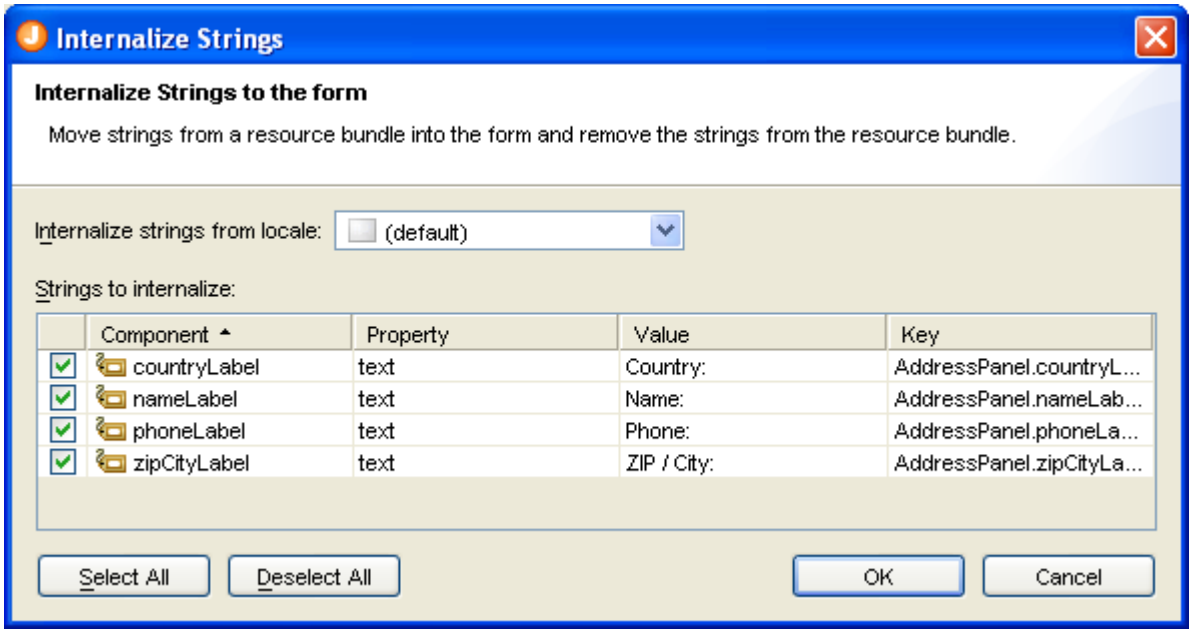
You can also externalize and internalize properties in the Properties view.



Internalize strings

Internalizing allows you to move strings from a .properties file to a .jfd file.

Select **Form > Internalize Strings** from the main menu, specify the locale to internalize from and select/deselect the strings to internalize. If you internalize all strings, JFormDesigner asks you whether you want to disable localization for the form.



Preferences

This dialog is used to set user preferences.

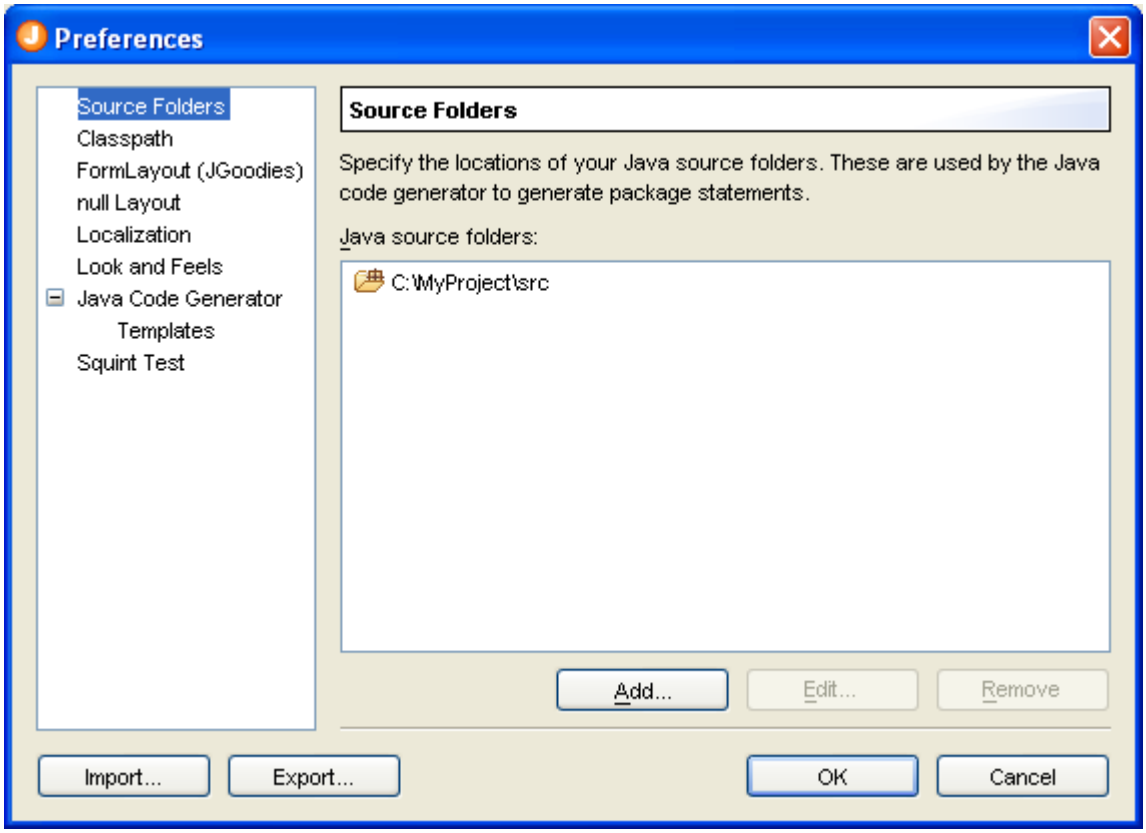
Pages:

- Source Folders
- ClassPath
- FormLayout (JGoodies)
- null Layout
- Localization
- Look and Feels
- Java Code Generator
- Templates
- Squint Test

Import: Imports the preferences from a file.
Export: Exports the preferences to a file.

Source Folders

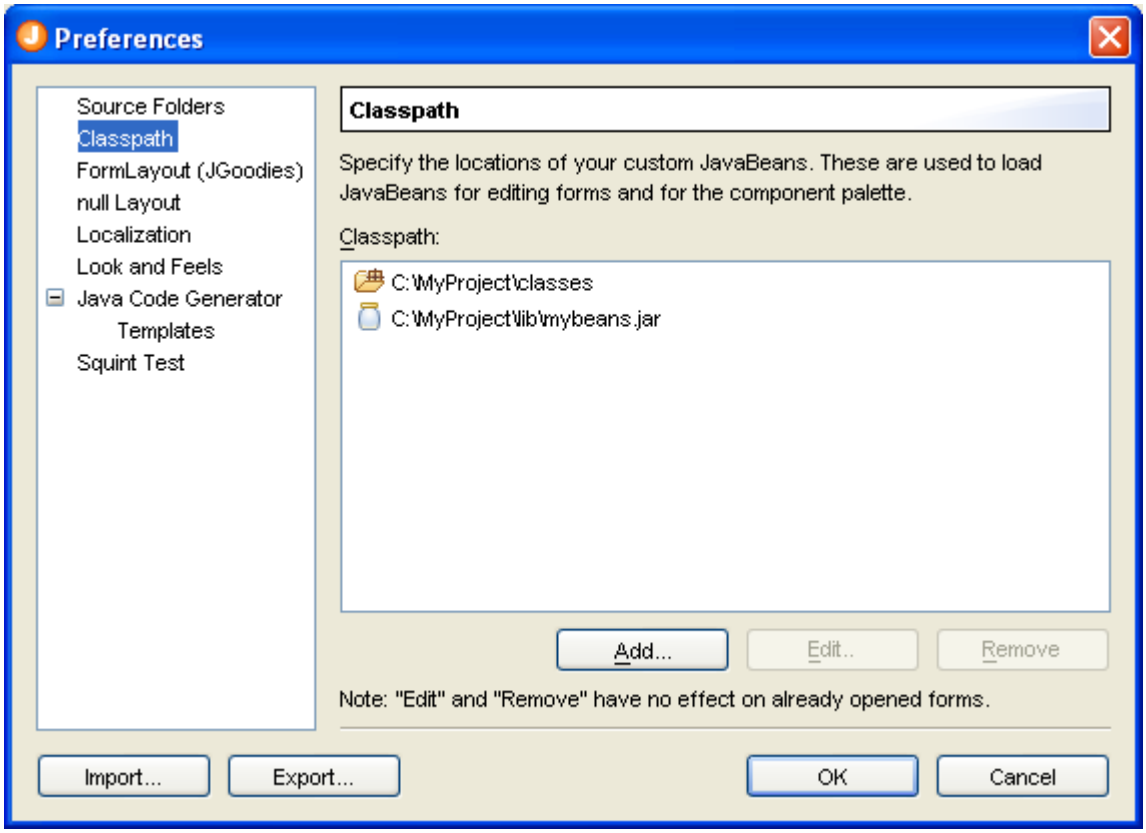
On this page, you can specify the locations of your Java source folders. Source folders are the root of packages containing .java files and are used by the Java code generator to generate package statements.



If the folders list is focused, you can use the **Insert** key to add folders or the **Delete** key to delete selected folders.

Classpath

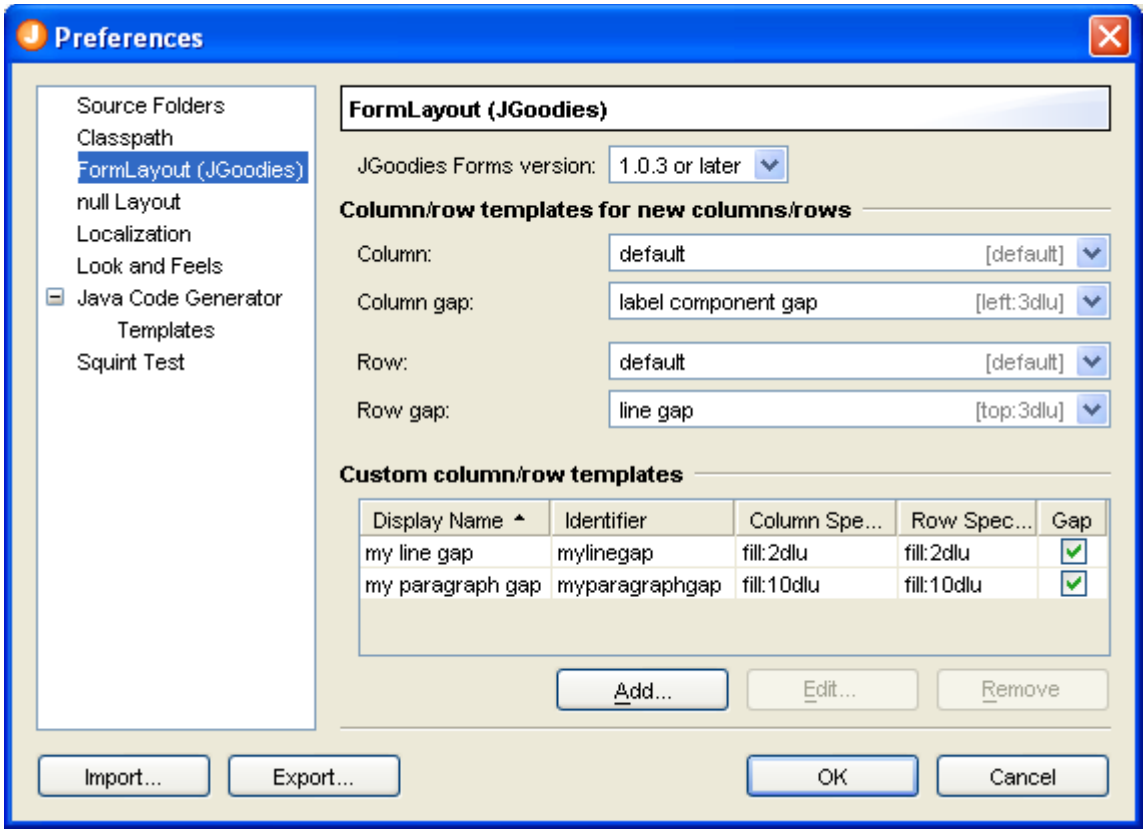
To use your custom JavaBeans, JFormDesigner needs to know, from where to load the JavaBean classes. Specify the locations of your custom JavaBeans on this page. You can add JAR files or folders containing .class files.



If the classpath list is focused, you can use the **Insert** key to add folders/JAR files or the **Delete** key to delete selected folders/JAR files.

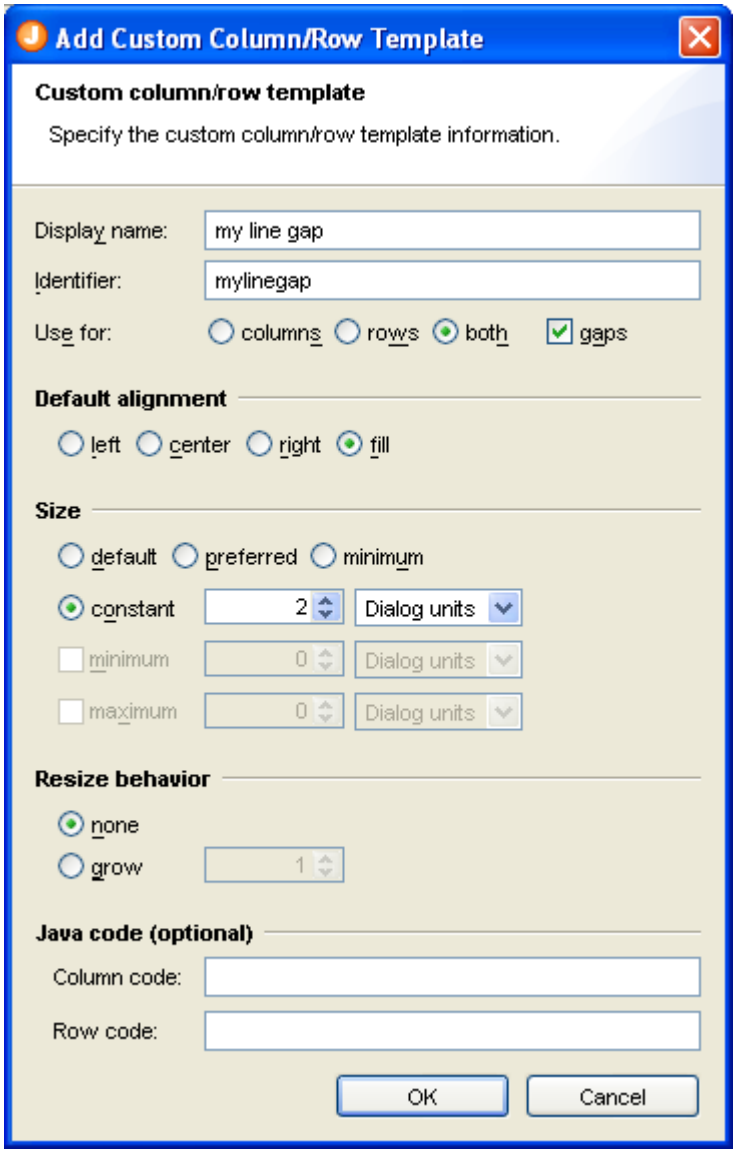
FormLayout (JGoodies)

On this page, you can specify FormLayout related options.



Option	Description	Default
JGoodies Forms version	Required JGoodies Forms version for the created forms.	1.0.3 or later
Column/row templates for new columns/rows	Here you can specify the column and row templates that should be used when new columns or rows are inserted.	
Column	The column template used for new columns.	default
Column gap	The column template used for new gap columns.	label component gap
Row	The row template used for new rows.	default
Row gap	The row template used for new gap rows.	line gap
Custom column/row templates	If the predefined templates does not fit to your needs, you can define your own here.	

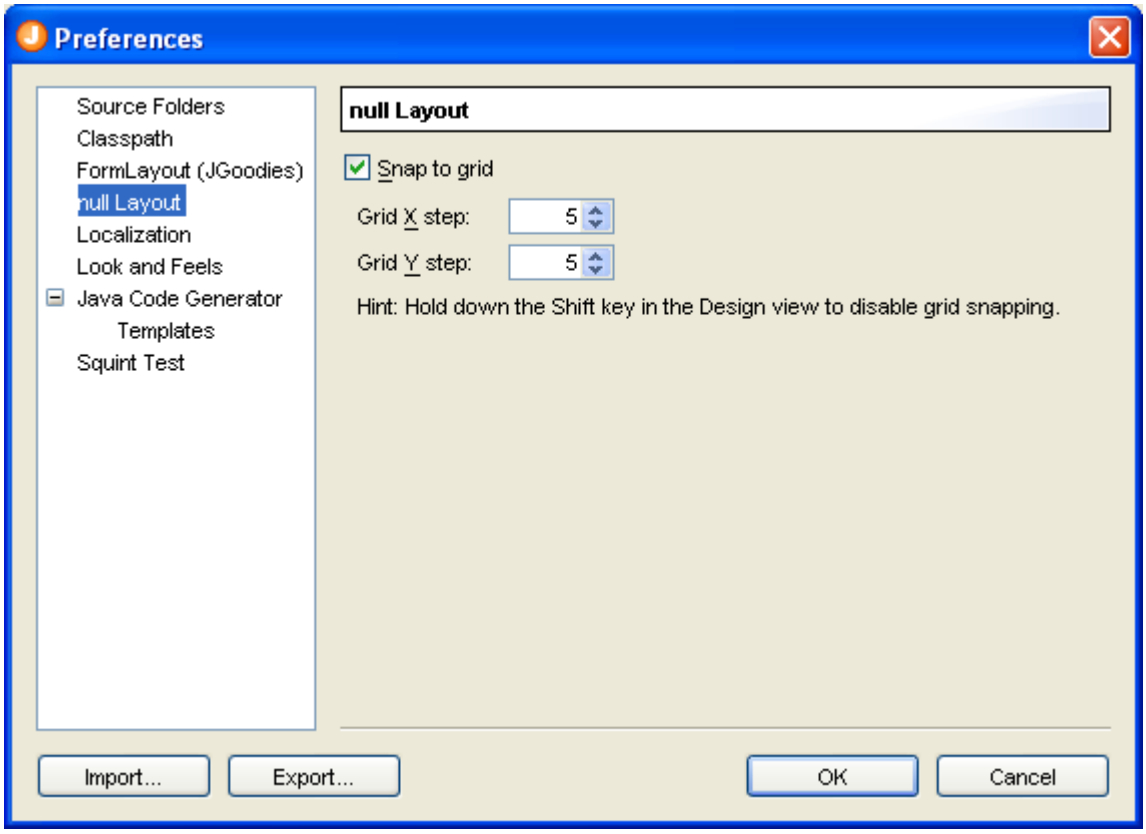
Custom column/row templates



Option	Description
Display name	The display name is used within JFormDesigner whenever the template is shown in combo boxes or popup menus.
Identifier	The (unique) identifier is stored in form files. Choose a short string. Only letters and digits are allowed.
Use for	Specifies whether the template should be used for columns, rows or both. Also specifies whether it represents a gap column/row.
Default alignment	The default alignment of the components within a column/row. Used if the value of the component constraint properties "h align" or "v align" are set to DEFAULT.
Size	The width of a column or height of a row. You can use default, preferred or minimum component size. Or a constant size. It is also possible to specify a minimum and a maximum size. Note that the maximum size does not limit the column/row size if the column/row can grow (see resize behavior).
Resize behavior	The resize weight of the column/row.
Java code	Optional Java code used by the Java code generator. Useful if you have factory classes for ColumnSpecs and RowSpecs.

null Layout

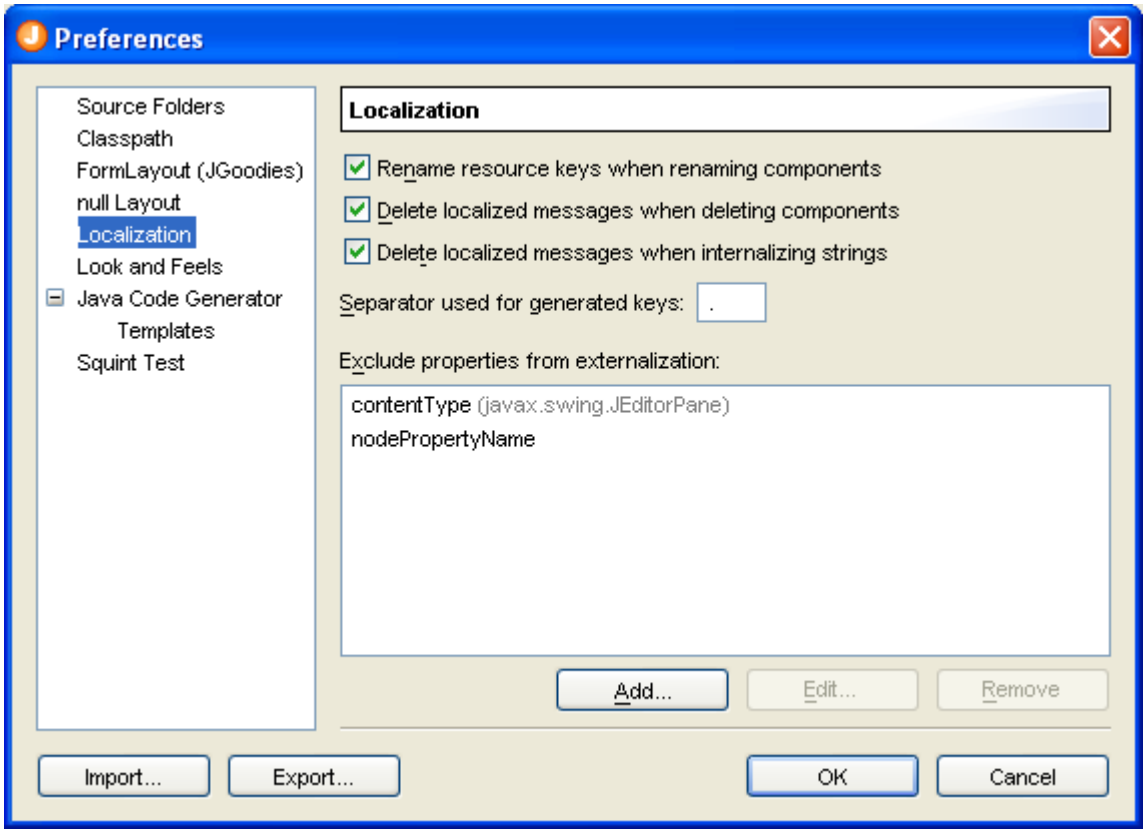
On this page, you can specify null layout related options.



Option	Description	Default
Snap to grid	If enabled, snap to the grid specified below when moving or resizing a component in null layout.	On
Grid X step	The horizontal step size of the grid.	5
Grid Y step	The vertical step size of the grid.	5

Localization

On this page, you can specify localization related options.

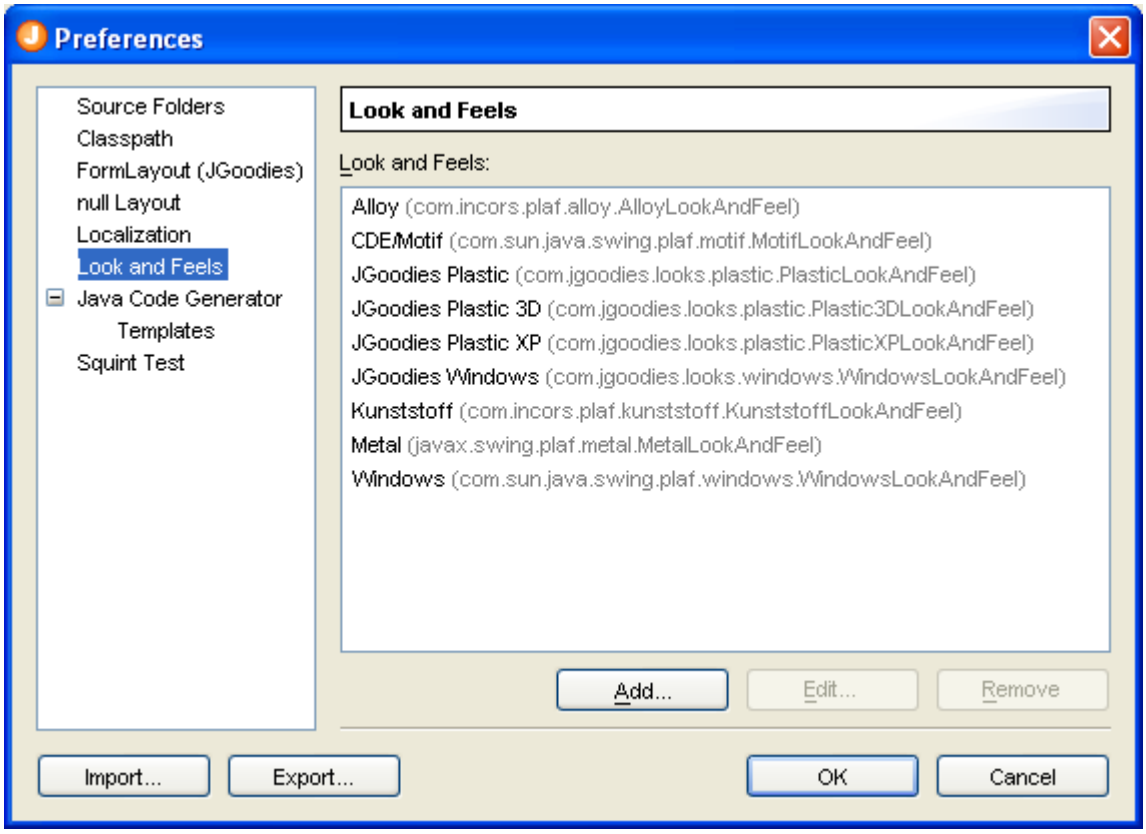


Option	Description	Default
Rename resource keys when renaming components	If enabled, auto-rename resource keys when renaming components and the resource key contains the old component name.	On
Delete localized messages when deleting components	If enabled, auto-delete localized strings, that were used by the deleted components, from all locales.	On
Delete localized messages when internalizing strings	If enabled, auto-delete localized strings, that were internalized, from all locales.	On
Separator used for generated keys	Separator used when generating a resource key.	'.'
Exclude properties from externalization	Specify properties that should be excluded from externalization. Useful when using auto-externalization to ensure that some string property values stay in the Java code. If the list is focused, you can use the **Insert** key to add a property or the **Delete** key to delete selected properties.	

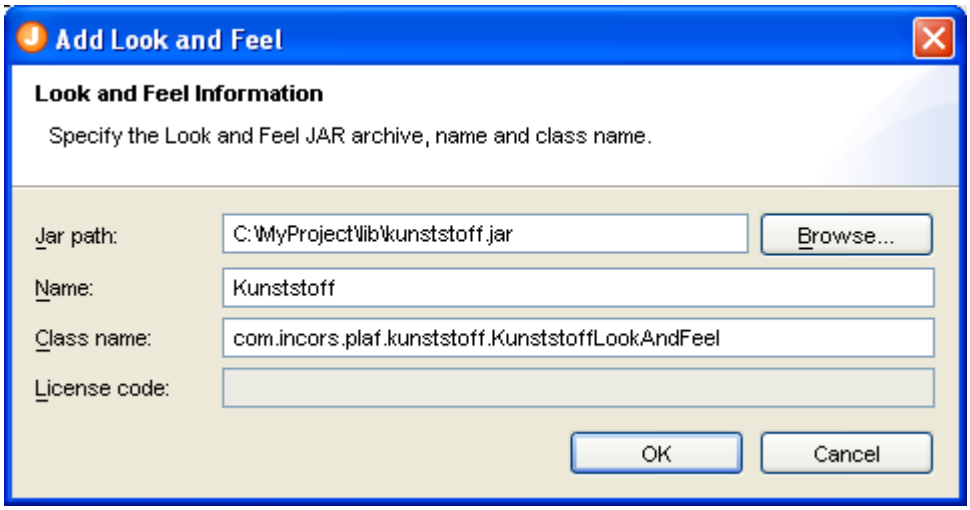
Look and Feels

On this page, you can add Swing look and feels for use in the Design view.

Note: Because Swing is not designed to use two look and feels at the same time (application and Design view), it can not guaranteed that each look and feel works without problems.



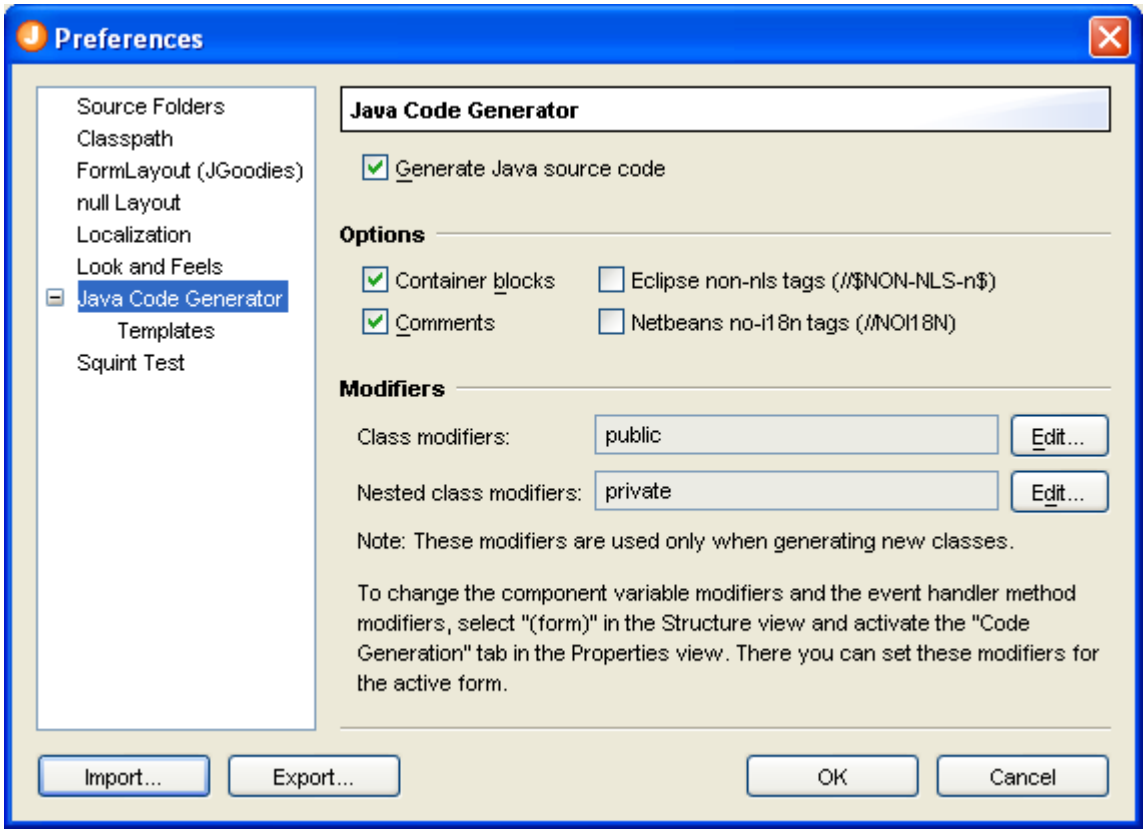
If the look and feels list is focused, you can use the **Insert** key to add a look and feel or the **Delete** key to delete selected look and feels.



Option	Description
Jar path	Full path name of the jar file that contains the look and feel classes. Use the **Browse** button to select a jar.
Name	Name of the look and feel used in the look and feel combo box in the Main Toolbar.
Class name	Class name of the look and feel class (derived from `javax.swing.LookAndFeel`).
License code	License code for the commercial Alloy Look and Feel.

Java Code Generator

On this page, you can turn off the Java code generator and specify other code generation options.

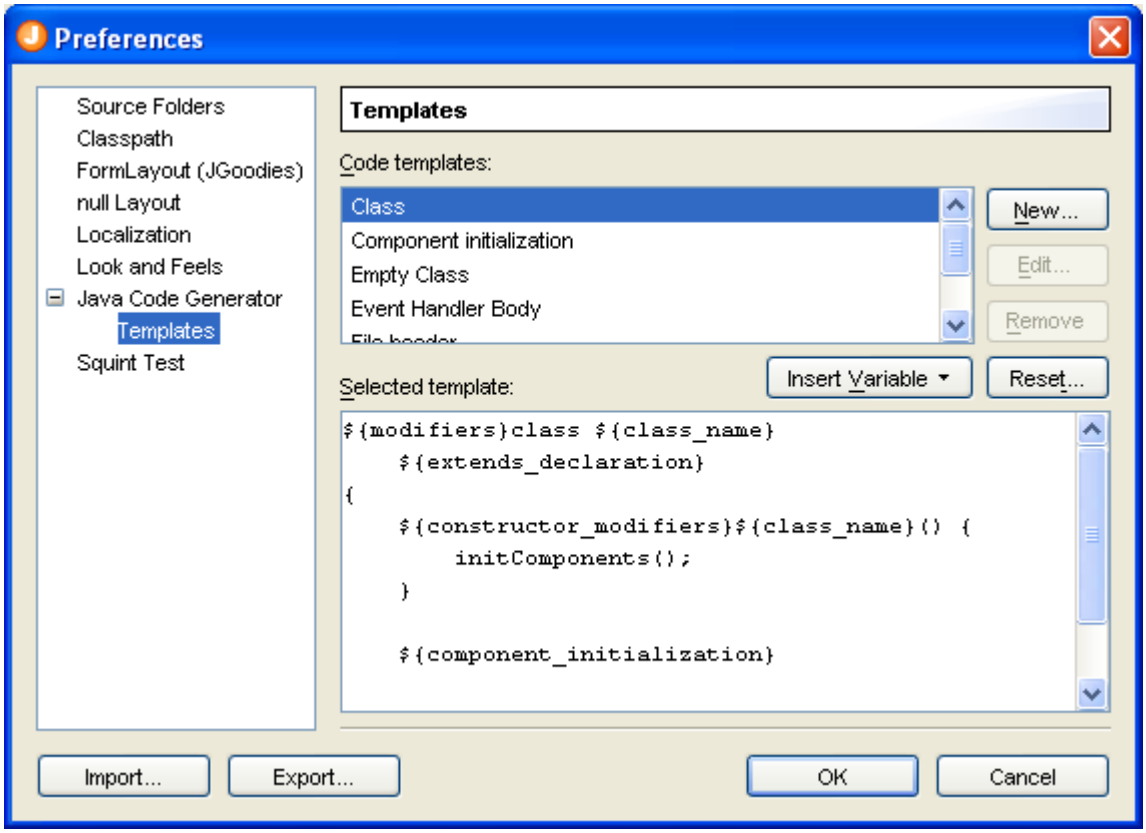


Option	Description	Default
Generate Java source code	If enabled, JFormDesigner generates Java source code when you save a form.	On
Container blocks	If enabled, the code generator puts the initialization code for each container into a block (enclosed in curly braces).	On
Comments	If enabled, the code generator puts a comment line above the initialization code for each component.	On
Eclipse non-nls tags (//$NON-NLS-n$)	If enabled, the code generator appends non-nls comments to lines containing strings. These comments are used by the Eclipse IDE to denote strings that should not be externalized.	Off
Netbeans no-i18n tags (//NOI18N)	If enabled, the code generator appends non-nls comments to lines containing strings. These comments are used by the Netbeans IDE to denote strings that should not be externalized.	Off
Class modifiers	Class modifiers used when generating a new class. Allowed modifiers: `public`, `default`, `abstract` and `final`.	`public`
Nested class modifiers	Class modifiers used when generating a new nested class. Allowed modifiers: `public`, `default`, `protected`, `private`, `abstract`, `final` and `static`.	`private`

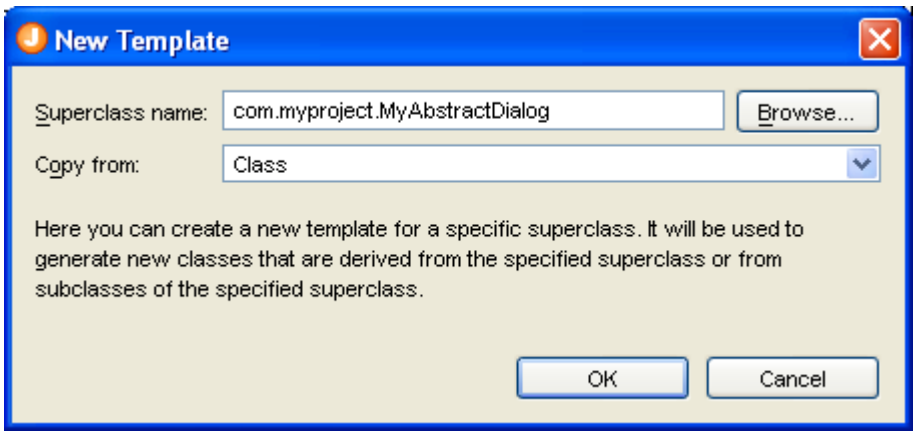
You can set additional options per form in the "(form)" properties.

Templates

This page contains templates that are used by the code generator when generating a new class. See Code Templates for details about templates.

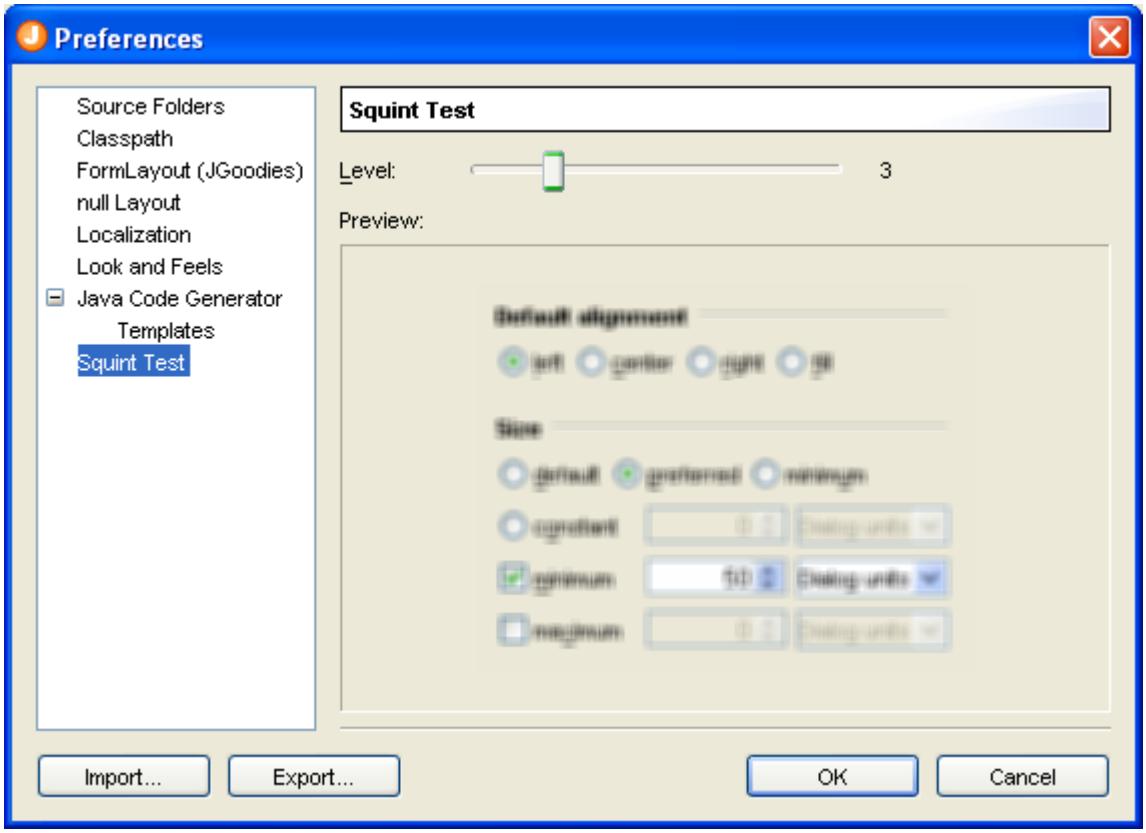


New: Create a new template for a specific superclass.
Edit: Edit the superclass of the selected user-defined template.
Remove: Remove the selected template. Only allowed for user-defined templates.
Reset: Reset the selected predefined template to the default.
Insert Variable: Insert a variable at the current cursor location into the selected template.



Squint Test

The page allows you to specify the squint level for the squint test (menu **View** > **Squint Test**).



Layout Managers

Layout managers are an essential part of Swing forms. They lay out components within a container. JFormDesigner provides support for following layout managers:

- BorderLayout
- BoxLayout
- CardLayout
- FlowLayout
- FormLayout (JGoodies)
- GridBagLayout
- GridLayout
- null Layout
- TableLayout

How to choose a layout manager?

For "normal" forms use one of the grid based layout managers FormLayout, TableLayout or GridBagLayout. Each has its advantages and disadvantages. FormLayout and TableLayout are open source and require that you ship an additional library with your application.

- FormLayout has the most features (dialog units, column/row alignment, column/row grouping), but may have problems if a component span multiple columns or rows and can not handle right-to-left component orientation.
- TableLayout does not have these limitations, but has fewer features than FormLayout.
- GridBagLayout is the weakest of these three layout managers, but JFormDesigner hides its complexity and adds additional features like gaps. Use GridBagLayout if you cannot use FormLayout or TableLayout.

For button bars use FormLayout, TableLayout, GridBagLayout or FlowLayout.

To layout a main window, use BorderLayout. Place the toolbar to the north, the status bar to the

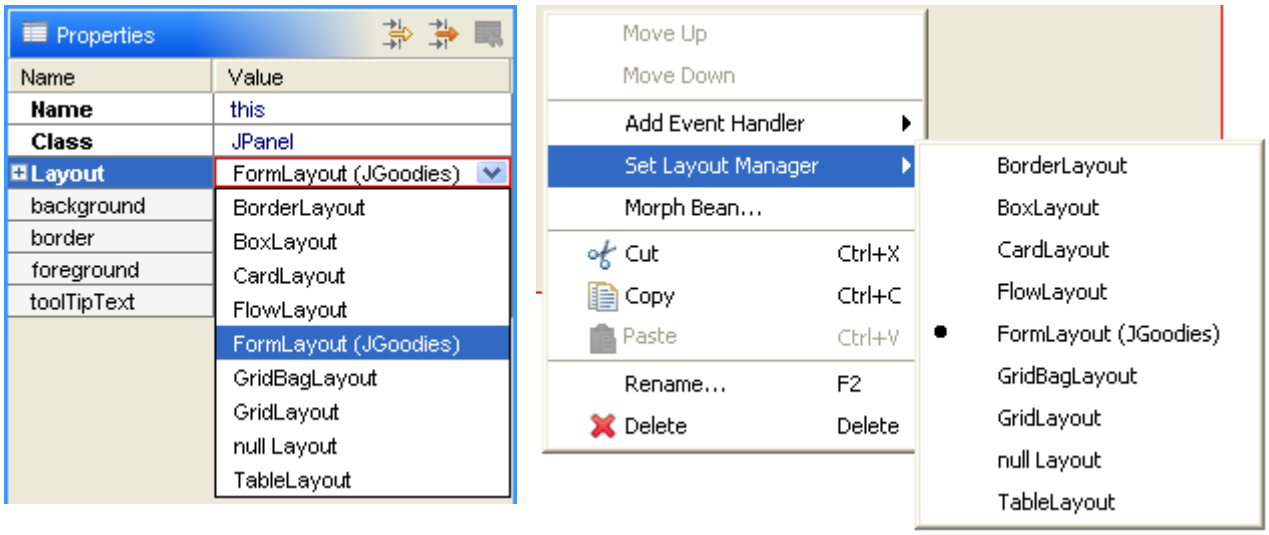
south and the content to the center.

For toolbars use `JToolBar`, which has its own layout manager (based on BoxLayout).

For radio button groups, BoxLayout may be a good choice. Mainly because `JRadioButton` has a gap between its text and its border and therefore the gaps provided by FormLayout, TableLayout and GridBagLayout are not necessary.

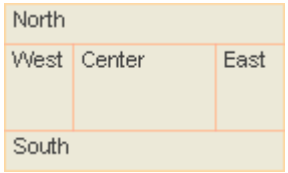
Change layout manager

You can change the layout manager at any time. Either in the Properties view or by right-clicking on a container in the Design or Structure view and selecting the new layout manager from the popup menu.



BorderLayout

The border layout manager places components in up to five areas: center, north, south, east and west. Each area can contain only one component.



The components are laid out according to their preferred sizes. The north and south components may be stretched horizontally. The east and west components may be stretched vertically. The center component may be stretched horizontally and vertically to fill any space left over.

BorderLayout is part of the standard Java distribution.

Layout properties

A container with this layout manager has following layout properties:

Property Name	Description
horizontal gap	The horizontal gap between components. Default is 0.
vertical gap	The vertical gap between components. Default is 0.

Constraints properties

A component contained in a container with this layout manager has following constraints properties:

Property Name	Description
constraints	Specifies where the component will be placed. Possible values: CENTER, NORTH, SOUTH, EAST and WEST.

BoxLayout

The box layout manager places components either vertically or horizontally. The components will not wrap as in FlowLayout.

This layout manager is used rarely. Take a look at the BoxLayout API documentation for more details about it.

BoxLayout is part of the standard Java distribution.

Layout properties

A container with this layout manager has following layout properties:

Property Name	Description
axis	The axis to lay out components along. Possible values: X_AXIS, Y_AXIS, LINE_AXIS and PAGE_AXIS.

CardLayout

The card layout manager treats each component in the container as a card. Only one card is visible at a time. The container acts as a stack of cards. The first component added to a CardLayout object is the visible component when the container is first displayed.

CardLayout is part of the standard Java distribution.

Layout properties

A container with this layout manager has following layout properties:

Property Name	Description
horizontal gap	The horizontal gap at the left and right edges. Default is 0.
vertical gap	The vertical gap at the top and bottom edges. Default is 0.

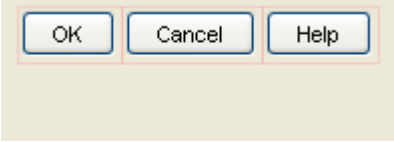
Constraints properties

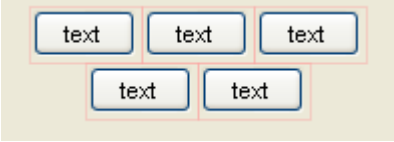
A component contained in a container with this layout manager has following constraints properties:

Property Name	Description
Card Name	Identifier that can be used to make a card visible. See API documentation for `CardLayout.show(Container, String)`.

FlowLayout

The flow layout manager arranges components in a row from left to right, starting a new row if no more components fit into a row. Flow layouts are typically used to arrange buttons in a panel.





FlowLayout is part of the standard Java distribution.

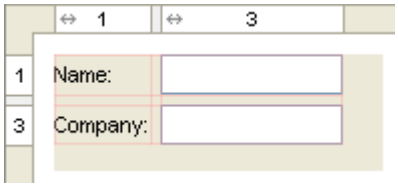
Layout properties

A container with this layout manager has following layout properties:

Property Name	Description
alignment	The alignment of the layout. Possible values: LEFT, RIGHT, LEADING and TRAILING. Default is CENTER.
horizontal gap	The horizontal gap between components and between the component and the border of the container. Default is 5.
vertical gap	The vertical gap between components and between the component and the border of the container. Default is 5.

FormLayout (JGoodies)

FormLayout is a powerful, flexible and precise general purpose layout manager. It places components in a grid of columns and rows, allowing specified components to span multiple columns or rows. Not all columns/rows necessarily have the same width/height.



Unlike other grid based layout managers, FormLayout uses 1-based column/row indices. And it uses "real" columns/rows as gaps. Therefore the unusual column/row numbers in the above screenshot. Using gap columns/rows has the advantage that you can give gaps different sizes.

Use the column and row headers to insert or delete columns/rows and change column/row properties. JFormDesigner automatically adds/removes gap columns if you add/remove a column/row.

Compared to other layout managers, FormLayout provides following outstanding features:

- Default alignment of components in a column/row.

- Specification of minimum and maximum column width or row height.
- Supports different units: Dialog units, Pixel, Point, Millimeter, Centimeter and Inch. Especially Dialog units are very useful to create layouts that scale with the screen resolution.
- Column/row templates.
- Column/row grouping.

FormLayout is open source and **not** part of the standard Java distribution. You must ship an additional library with your application. JFormDesigner includes `forms-1.x.x.jar`, `forms-1.x.x-javadoc.zip` and `forms-1.x.x-src.zip` in its `redist` folder. For more documentation and tutorials, visit forms.dev.java.net.

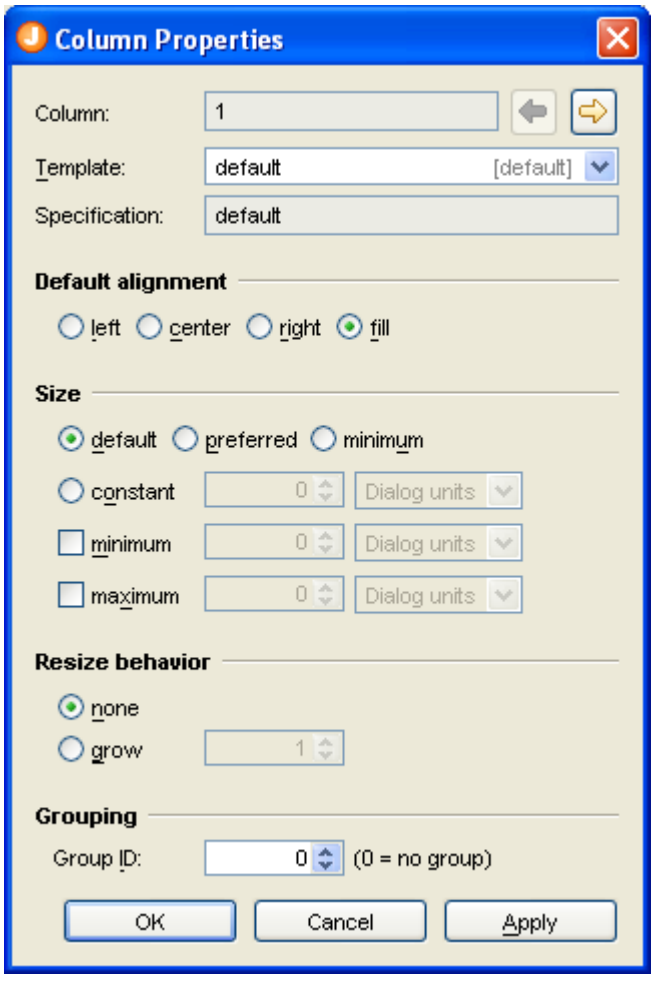
Layout properties

A container with this layout manager has following layout properties:

Property Name	Description
columnSpecs	Comma separated encoded column specifications. This property is for experts only. Use the column header instead of editing this property.
rowSpecs	Comma separated encoded row specifications. This property is for experts only. Use the row headers instead of editing this property.

Column/row properties

Each column and row has its own properties. Use the column and row headers to change column/row properties.



Property Name	Description

Column/Row	The index of the column/row. Use the arrow buttons (or **Alt+Left**, **Alt+Right**, **Alt+Up**, **Alt+Down** keys) to edit the properties of the previous or next column/row.
Template	FormLayout provides several predefined templates for columns and rows. Here you can choose one.
Specification	The column/row specification. This is a string representation of the options below.
Default alignment	The default alignment of the components within a column/row. Used if the value of the component constraint properties "h align" or "v align" are set to DEFAULT.
Size	The width of a column or height of a row. You can use default, preferred or minimum component size. Or a constant size. It is also possible to specify a minimum and a maximum size. Note that the maximum size does not limit the column/row size if the column/row can grow (see resize behavior).
Resize behavior	The resize weight of the column/row.
Grouping	See column/row grouping for details.

Tip: The column/row context menu allows you to alter many of these options for multi-selections.

Constraints properties

A component contained in a container with this layout manager has following constraints properties:

Property Name	Description
grid x	Specifies the component's horizontal grid origin (column index).
grid y	Specifies the component's vertical grid origin (row index).
grid width	Specifies the component's horizontal grid extend (number of columns). Default is 1.
grid height	Specifies the component's vertical grid extend (number of rows). Default is 1.
h align	The horizontal alignment of the component within its cell. Possible values: DEFAULT, LEFT, CENTER, RIGHT and FILL. Default is DEFAULT.
v align	The vertical alignment of the component within its cell. Possible values: DEFAULT, TOP, CENTER, BOTTOM and FILL. Default is DEFAULT.
insets	Specifies the external padding of the component, the minimum amount of space between the component and the edges of its display area. Default is [0,0,0,0]. Note that the insets do not increase the column width or row height (in contrast to the GridBagConstraints.insets).

Tip: The component context menu allows you to alter the alignment for multi-selections.

Column/Row Templates

FormLayout provides several predefined templates for columns and rows. You can also define custom column/row templates in the Preferences dialog.

Column templates

Name	Description	Gap
default	Determines the column width by computing the maximum of all	no

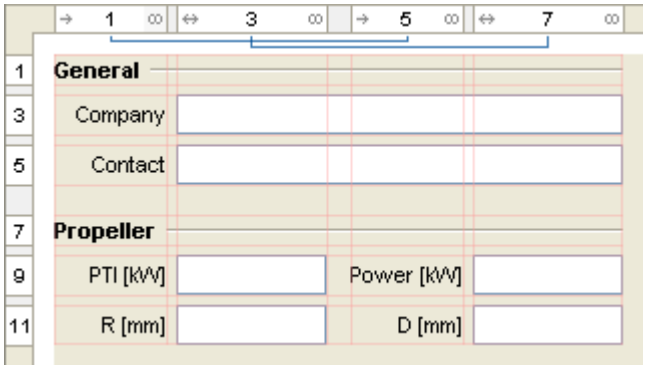
	column component preferred widths. If there is not enough space in the container, the column can shrink to the minimum width.	
preferred	Determines the column width by computing the maximum of all column component preferred widths.	no
minimum	Determines the column width by computing the maximum of all column component minimum widths.	no
related gap	A logical horizontal gap between two related components. For example the OK and Cancel buttons are considered related.	yes
unrelated gap	A logical horizontal gap between two unrelated components.	yes
label component gap	A logical horizontal gap between a label and an associated component.	yes
glue	Has an initial width of 0 pixels and grows. Useful to describe *glue* columns that fill the space between other columns.	yes
button	A logical horizontal column for a fixed size button.	no
growing button	A logical horizontal column for a growing button.	no

Row templates

Name	Description	Gap
default	Determines the row height by computing the maximum of all row component preferred heights. If there is not enough space in the container, the row can shrink to the minimum height.	no
preferred	Determines the row height by computing the maximum of all row component preferred heights.	no
minimum	Determines the row height by computing the maximum of all row component minimum heights.	no
related gap	A logical vertical gap between two related components.	yes
unrelated gap	A logical vertical gap between two unrelated components.	yes
narrow line gap	A logical vertical narrow gap between two rows. Useful if the vertical space is scarce or if an individual vertical gap shall be smaller than the default line gap.	yes
line gap	A logical vertical default gap between two rows. A little bit larger than the narrow line gap.	yes
paragraph gap	A logical vertical default gap between two paragraphs in the layout grid. This gap is larger than the default line gap.	yes
glue	Has an initial height of 0 pixels and grows. Useful to describe *glue* rows that fill the space between other rows.	yes

Column/Row Groups

Column and row groups are used to specify that a set of columns or rows will get the same width or height. This is an essential feature for symmetric, and more generally, balanced design.

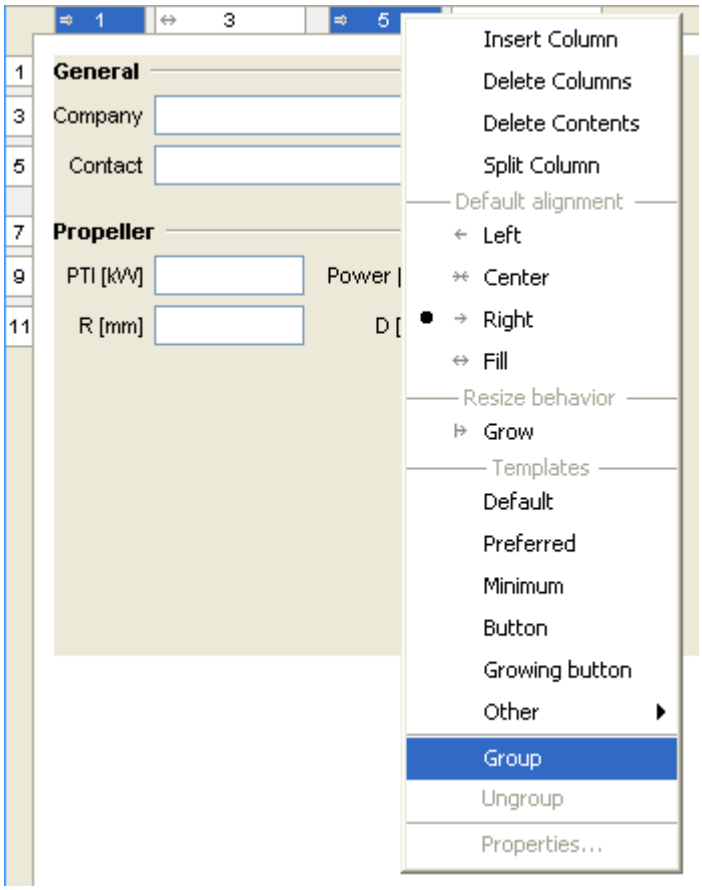


In the above example, columns [1 and 5] and columns [3 and 7] have the same width.

To visualize the grouping, JFormDesigner displays lines connecting the grouped columns/rows near to the column and row headers.

Group columns/rows

To create a new group, select the columns/rows you want to group in the header, right-click on a selected column/row in the header and select **Group** from the popup menu.



Note that selected gap columns/rows will be ignored when grouping.

You can extend existing groups by selecting at least one column/row of the existing group and the columns/rows that you want to add to that group, then right-click on a selected column/row and select **Group** from the popup menu.

Ungroup columns/lines

To remove a group, select all columns/rows of the group, right-click on a selected column/row and select **Ungroup** from the popup menu.

To remove a column/row from a group, right-click on it and select **Ungroup** from the popup menu.

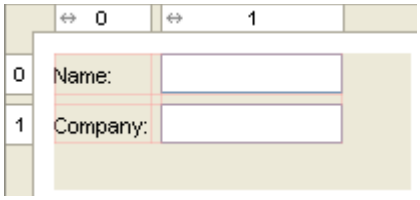
Group IDs

A unique group ID identifies each group. When using the header context menu to group/ungroup, you don't have to care about those IDs. JFormDesigner manages the group IDs automatically.

However it is possible to edit the group ID in the Column/row properties dialog.

GridBagLayout

The grid bag layout manager places components in a grid of columns and rows, allowing specified components to span multiple columns or rows. Not all columns/rows necessarily have the same width/height. Essentially, GridBagLayout places components in rectangles (cells) in a grid, and then uses the components' preferred sizes to determine how big the cells should be.

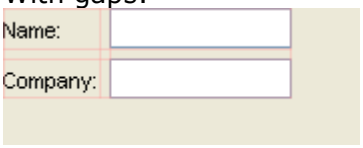


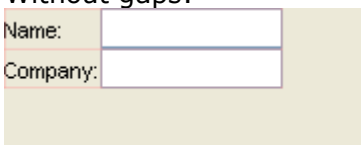
Use the column and row headers to insert or delete columns/rows and change column/row properties.

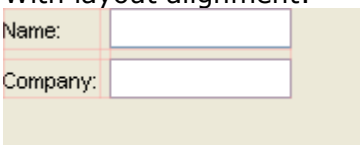
GridBagLayout is part of the standard Java distribution.

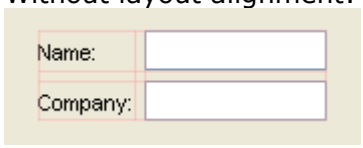
Extensions

JFormDesigner extends the original GridBagLayout with following features:

- **Horizontal and vertical gaps**
  Simply specify the gap size and JFormDesigner automatically computes the `GridBagConstraints.insets` for all components. This makes designing a form with consistent gaps using GridBagLayout much easier. No longer wrestling with `GridBagConstraints.insets`.
  With gaps:
  

  Without gaps:
  

- **Left/top layout alignment**
  The pure GridBagLayout centers the layout within the container if there is enough space. JFormDesigner easily allows you to fix this problem by switching on two options: align left and align top.
  With layout alignment:
  

  Without layout alignment:
  

- **Default component alignment**
  Allows you to specify a default alignment for components within columns/rows. This is very useful for columns with right aligned labels because you specify the alignment only once for the column and all added labels will automatically aligned to the right.

Layout properties

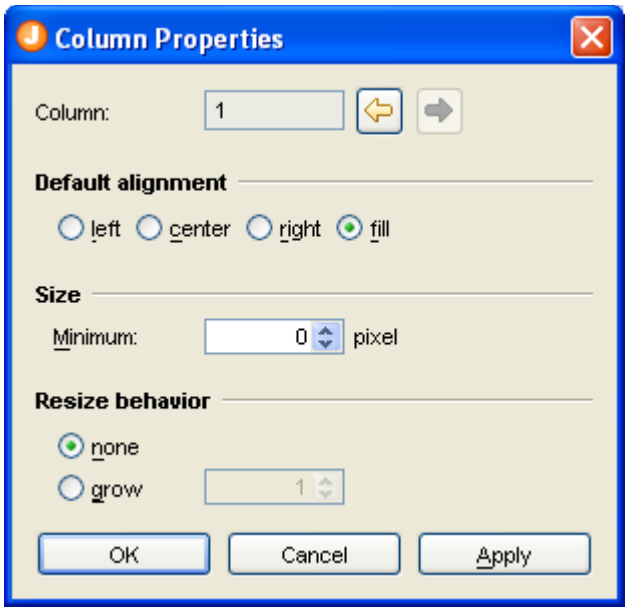
A container with this layout manager has following layout properties:

Property Name	Description
horizontal gap	The horizontal gap between components. Default is 5.
vertical gap	The vertical gap between components. Default is 5.
align left	If true, aligns the layout to the left side of the container. If false, then the layout is centered horizontally. Default is true.
align top	If true, aligns the layout to the top side of the container. If false, then the layout is centered vertically. Default is true.

These four properties are JFormDesigner extensions to the original GridBagLayout. However, no additional library is required.

Column/row properties

Each column and row has its own properties. Use the column and row headers to change column/row properties.



Property Name	Description
Column/Row	The index of the column/row. Use the arrow buttons (or **Alt+Left**, **Alt+Right**, **Alt+Up**, **Alt+Down** keys) to edit the properties of the previous or next column/row.
Default alignment	The default alignment of the components within a column/row. Used if the value of the constraints properties "h align" or "v align" is DEFAULT.
Size	The minimum width of a column or height of a row.
Resize behavior	The resize weight of the column/row.

Tip: The column/row context menu allows you to alter many of these options for multi-selections.

Constraints properties

A component contained in a container with this layout manager has following constraints properties:

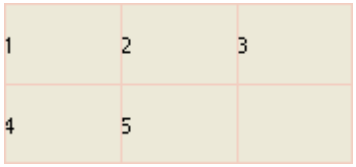
Property Name	Description
grid x	Specifies the component's horizontal grid origin (column index).
grid y	Specifies the component's vertical grid origin (row index).
grid width	Specifies the component's horizontal grid extend (number of columns). Default is 1.
grid height	Specifies the component's vertical grid extend (number of rows). Default is 1.
h align	The horizontal alignment of the component within its cell. Possible values: DEFAULT, LEFT, CENTER, RIGHT and FILL. Default is DEFAULT.
v align	The vertical alignment of the component within its cell. Possible values: DEFAULT, TOP, CENTER, BOTTOM and FILL. Default is DEFAULT.
weight x	Specifies how to distribute extra horizontal space. Default is 0.0.
weight y	Specifies how to distribute extra vertical space. Default is 0.0.
insets	Specifies the external padding of the component, the minimum amount of space between the component and the edges of its display area. Default is [0,0,0,0].
ipad x	Specifies the internal padding of the component, how much space to add to the minimum width of the component. Default is 0.
ipad y	Specifies the internal padding, that is, how much space to add to the minimum height of the component. Default is 0.

In contrast to the GridBagConstraints API, which uses `anchor` and `fill` to specify the alignment and resize behavior of a component, JFormDesigner uses the usual `h/v align` notation.

Tip: The component context menu allows you to alter the alignment for multi-selections.

GridLayout

The grid layout manager places components in a grid of cells. Each component takes all the available space within its cell, and each cell is exactly the same size.



This layout manager is used rarely.

GridLayout is part of the standard Java distribution.

Layout properties

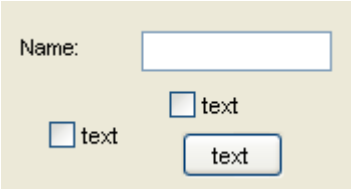
A container with this layout manager has following layout properties:

Property Name	Description
columns	The number of columns. Zero means any number of columns.
rows	The number of rows. Zero means any number of rows. **Note**: If the number of rows is non-zero, the number of columns specified is ignored. Instead, the number of columns is determined from the specified number or rows and the total number of components in the layout.

horizontal gap	The horizontal gap between components. Default is 0.
vertical gap	The vertical gap between components. Default is 0.

null Layout

null layout is not a real layout manager. It means that no layout manager is assigned and the components can be put at specific x,y coordinates.



It is useful for making quick prototypes. But it is not recommended for production because it is not portable. The fixed locations an sizes do not change with the environment (e.g. different fonts on various platforms).

Preferred sizes

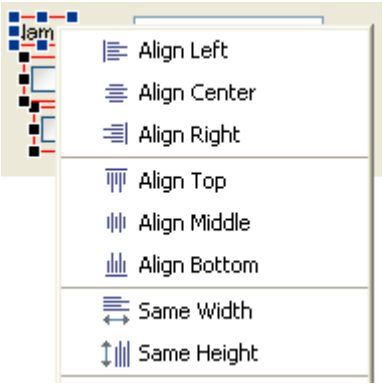
JFormDesigner supports preferred sizes of child components. This solves one common problem of null layout: the component sizes change with the environment (e.g. different fonts on various platforms). Unlike other GUI designers, no additional library is required.

Grid

To make it easier to align components, the component edges snap to an invisible grid when moving or resizing components. You can specify the grid step size in the Preferences dialog. To temporary disable grid snapping, hold down the **Shift** key while moving or resizing components.

Aligning components

The align commands help you to align a set of components or make them same width or height.



The dark blue handles in the above screenshot indicate the first selected component.

Align Left	Line up the left edges of the selected components with the left edge of the first selected component.
Align Center	Horizontally line up the centers of the selected components with the center of the first selected component.

	Align Right	Line up the right edges of the selected components with the right edge of the first selected component.
	Align Top	Line up the top edges of the selected components with the top edge of the first selected component.
	Align Middle	Vertically line up the centers of the selected components with the center of the first selected component.
	Align Bottom	Line up the bottom edges of the selected components with the bottom edge of the first selected component.
	Same Width	Make the selected components all the same width as the first selected component.
	Same Height	Make the selected components all the same height as the first selected component.

Layout properties

A container with this layout manager has following layout properties:

Property Name	Description
auto-size	If true, computes the size of the container so that all children are entire visible. If false, the size of the container in the Design view is used. Default is true.

Constraints properties

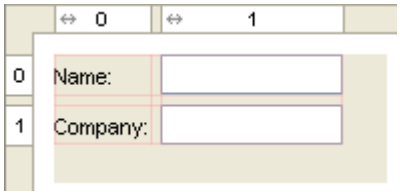
A component contained in a container with this layout manager has following constraints properties:

Property Name	Description
x	The x coordinate of the component relative to the left corner of the container.
y	The y coordinate of the component relative to the upper corner of the container.
width	The width of the component in pixel or Preferred. If set to Preferred, the component's preferred width is used. Default is Preferred.
height	The height of the component in pixel or Preferred. If set to Preferred, the component's preferred width is used. Default is Preferred.

TableLayout

The table layout manager places components in a grid of columns and rows, allowing specified components to span multiple columns or rows. Not all columns/rows necessarily have the same width/height.

A column/row can be given an absolute size in pixels, a percentage of the available space, or it can grow and shrink to fill the remaining space after other columns/rows have been resized.



Use the column and row headers to insert or delete columns/rows and change column/row properties.

TableLayout is open source and **not** part of the standard Java distribution. You must ship an additional library with your application. JFormDesigner includes `TableLayout.jar`, `TableLayout-javadoc.jar` and `TableLayout-src.zip` in its `redist` folder. For more documentation and tutorials, visit tablelayout.dev.java.net.

Extensions

JFormDesigner extends the original TableLayout with following features:

- **Default component alignment**
  Allows you to specify a default alignment for components within columns/rows. This is very useful for columns with right aligned labels because you specify the alignment only once for the column and all added labels will automatically aligned to the right.

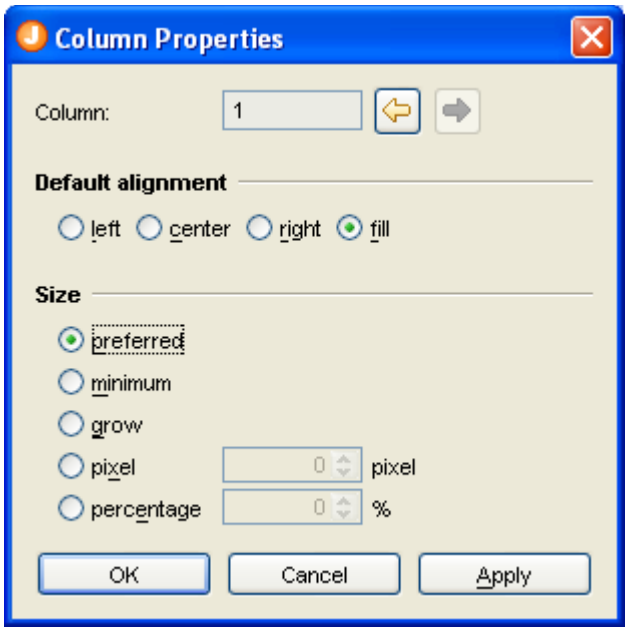
Layout properties

A container with this layout manager has following layout properties:

Property Name	Description
horizontal gap	The horizontal gap between components. Default is 5.
vertical gap	The vertical gap between components. Default is 5.

Column/row properties

Each column and row has its own properties. Use the column and row headers to change column/row properties.



Property Name	Description
Column/Row	The index of the column/row. Use the arrow buttons (or **Alt+Left**, **Alt+Right**, **Alt+Up**, **Alt+Down** keys) to edit the properties of the previous or next column/row.
Default alignment	The default alignment of the components within a column/row. Used if the value of the constraints properties "h align" or "v align" is DEFAULT.
Size	Specifies how TableLayout computes the width/height of a column/row.

Tip: The column/row context menu allows you to alter many of these options for multi-selections.

Constraints properties

A component contained in a container with this layout manager has following constraints properties:

Property Name	Description
grid x	Specifies the component's horizontal grid origin (column index).
grid y	Specifies the component's vertical grid origin (row index).
grid width	Specifies the component's horizontal grid extend (number of columns). Default is 1.
grid height	Specifies the component's vertical grid extend (number of rows). Default is 1.
h align	The horizontal alignment of the component within its cell. Possible values: DEFAULT, LEFT, CENTER, RIGHT and FILL. Default is DEFAULT.
v align	The vertical alignment of the component within its cell. Possible values: DEFAULT, TOP, CENTER, BOTTOM and FILL. Default is DEFAULT.

In contrast to the TableLayoutConstraints API, which uses [column1,row1,column2,row2] to specify the location and size of a component, JFormDesigner uses the usual [x,y,width,height] notation.

Tip: The component context menu allows you to alter the alignment for multi-selections.

Java Code Generator

JFormDesigner can generate and update Java source code. It uses the same name for the Java file as for the Form file. E.g.:

`C:\MyProject\src\com\myproject\WelcomeDialog.jfd` (form file)
`C:\MyProject\src\com\myproject\WelcomeDialog.java` (java file)

Before creating new forms, you should specify the locations of your Java source folders in the Preferences dialog. Then JFormDesigner can generate valid `package` statements. For the above example, you should add `C:\MyProject\src`.

If the Java file does not exist, JFormDesigner generates a new one. Otherwise it parses the existing Java file and inserts/updates the code for the form and adds import statements if necessary.

JFormDesigner uses special comments to identify the code sections that it will generate/update. E.g.:

```
// JFormDesigner - ... //GEN-BEGIN:initComponents
// JFormDesigner - ... //GEN-END:initComponents
```

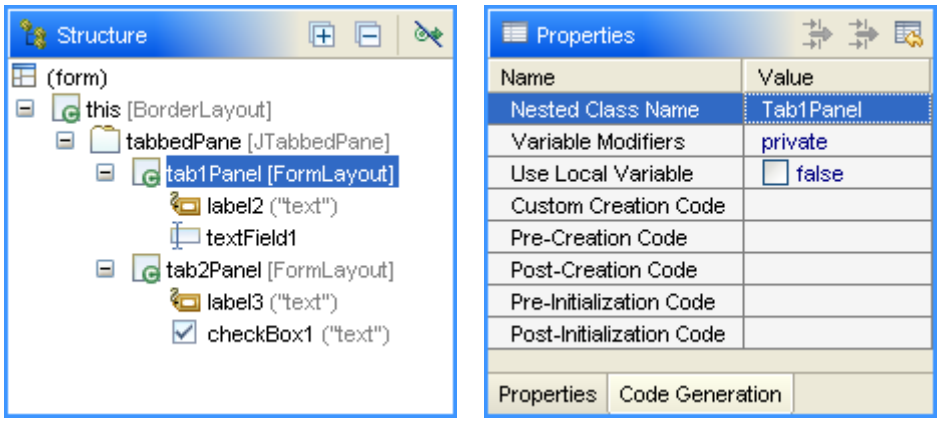
The starting comment must contain `GEN-BEGIN:<keyword>`, the ending comment `GEN-END:<keyword>`. These comments are Netbeans compatible. The text before `GEN-BEGIN` and `GEN-END` (in the same line) does not matter. JFormDesigner uses the following keywords:

Keyword name	Description
initComponents	Used for code that instantiates and initializes the components of the form.
variables	Used for code that declares the class level variables for components.

Nested Classes

One of the advanced features of JFormDesigner is the generation of nested classes. Normally, all code for a form is generated into one class. If you have forms with many components, e.g. a `JTabbedPane` with some tabs, it is not recommended to have only one class. If you hand-code such a form, you would create a class for each tab.

In JFormDesigner you can specify a nested class for each component. You do this on the **Code Generation** tab in the Properties view. JFormDesigner automatically generates/updates the specified nested classes. This allows you to program more object-oriented and makes your code easier to read and maintain.



Components having a nested class are marked with a overlay symbol in the Structure view.

Example source code:

```
public class NestedClassDemo
    extends JPanel
{
    public NestedClassDemo() {
        initComponents();
    }

    private void initComponents() {
        // JFormDesigner - Component initialization - DO NOT MODIFY  //GEN-BEGIN:initCompo
        tabbedPane = new JTabbedPane();
        tab1Panel = new Tab1Panel();
        tab2Panel = new Tab2Panel();

        //======== this ========
        setLayout(new BorderLayout());

        //======== tabbedPane ========
        {
            tabbedPane.addTab("tab 1", tab1Panel);
            tabbedPane.addTab("tab 2", tab2Panel);
        }
        add(tabbedPane, BorderLayout.CENTER);
        // JFormDesigner - End of component initialization  //GEN-END:initComponents
    }

    // JFormDesigner - Variables declaration - DO NOT MODIFY  //GEN-BEGIN:variables
    private JTabbedPane tabbedPane;
    private Tab1Panel tab1Panel;
    private Tab2Panel tab2Panel;
    // JFormDesigner - End of variables declaration  //GEN-END:variables


    private class Tab1Panel
        extends JPanel
```

```
    {
        private Tab1Panel() {
            initComponents();
        }

        private void initComponents() {
            // JFormDesigner - Component initialization - DO NOT MODIFY  //GEN-BEGIN:init
            label2 = new JLabel();
            textField1 = new JTextField();
            CellConstraints cc = new CellConstraints();

            //======== this ========
            setBorder(Borders.TABBED_DIALOG_BORDER);
            setLayout(new FormLayout( ... ));

            //---- label2 ----
            label2.setText("text");
            add(label2, cc.xy(1, 1));

            //---- textField1 ----
            add(textField1, cc.xy(3, 1));
            // JFormDesigner - End of component initialization  //GEN-END:initComponents
        }

        // JFormDesigner - Variables declaration - DO NOT MODIFY  //GEN-BEGIN:variables
        private JLabel label2;
        private JTextField textField1;
        // JFormDesigner - End of variables declaration  //GEN-END:variables
    }


    private class Tab2Panel
        extends JPanel
    {
        private Tab2Panel() {
            initComponents();
        }

        private void initComponents() {
            // JFormDesigner - Component initialization - DO NOT MODIFY  //GEN-BEGIN:init
            label3 = new JLabel();
            checkBox1 = new JCheckBox();
            CellConstraints cc = new CellConstraints();

            //======== this ========
            setBorder(Borders.TABBED_DIALOG_BORDER);
            setLayout(new FormLayout( ... ));

            //---- label3 ----
            label3.setText("text");
            add(label3, cc.xy(1, 1));

            //---- checkBox1 ----
            checkBox1.setText("text");
            add(checkBox1, cc.xy(3, 1));
            // JFormDesigner - End of component initialization  //GEN-END:initComponents
        }

        // JFormDesigner - Variables declaration - DO NOT MODIFY  //GEN-BEGIN:variables
        private JLabel label3;
        private JCheckBox checkBox1;
        // JFormDesigner - End of variables declaration  //GEN-END:variables
    }
}
```

Be careful when renaming or removing the nested class name in the **Code Generation** tab (Properties view). JFormDesigner is not able to rename the nested class name in already generated classes. It will generate a new nested class. So you should first rename the nested class in the Java source using your favorite IDE, save it, and then rename it in JFormDesigner.

Code Templates

When generating new Java files or classes, JFormDesigner uses the templates specified in the Preferences dialog.

Template name	Description
File header	Used when creating new Java files. Contains a header comment and a `package` statement.
Class	Used when generating a new (nested) class. Contains a class declaration, a constructor, a component initialization method and variable declarations.
Empty Class	Used when generating a new empty class. This can happen, if all form components are contained in nested classes.
Event Handler Body	Used for event handler method bodies.
Component initialization	Replaces the variable *${component_initialization}* used in other templates. Contains a method named `initComponents`. Invoke this method from your code to instantiate the components of your form. Feel free to change the method name if you don't like it.
Variables declaration	Replaces the variable *${variables_declaration}* used in other templates.
java.awt.Dialog	A template for classes derived from `java.awt.Dialog`. Compared to the "Class" template, this has special constructors, which are necessary for `java.awt.Dialog` derived classes.

You can change the existing templates or create additional templates in the Preferences dialog. It is possible to define your own templates for specific superclasses.

Following variables can be used in the templates:

Variable name	Description	Context
${date}	Current date.	global
${user}	User name.	global
${package_declaration}	`package` statement. If the form is not saved under one of the source folders specified in the Preferences dialog, the variable is empty (no `package` statement will be generated).	file header
${class_name}	Name of the (nested) class.	class
${component_initialization}	See template "Component initialization".	class
${constructor_modifiers}	Modifiers of the constructor. Based on the class modifiers.	class
${extends_declaration}	The `extends` declaration of the class; empty if the class has no superclass.	class
${modifiers}	Modifiers of the (nested) class. You can specify the default modifiers in the Preferences dialog.	class
${variables_declaration}	See template "Variables declaration".	class

Runtime Library

Note: If you use the Java code generator, you don't need this library.

The royalty-free runtime library allows you to load JFormDesigner XML files at runtime within your applications. Turn off the code generation in the Preferences dialog if you use this library.

You'll find the library `jfd-loader.jar` in the `redist` folder; the documentation is in the `doc/jfd-loader-api` folder (and in the Windows Start menu) and an example in the `examples` folder.

JavaBeans

What is a Java Bean?

> A Java Bean is a reusable software component that can be manipulated visually in a builder tool.

JavaBean (components) are self-contained, reusable software units that can be visually composed into composite components and applications. A bean is a Java class that has:

- a "null" constructor (without parameters)
- properties defined by getter and setter methods.

JFormDesigner supports:

- Visual beans (must inherit from `java.awt.Component`).
- Non-visual beans.

BeanInfo

JFormDesigner supports/uses following classes/interfaces specified in the `java.beans` package:

- BeanInfo
- BeanDescriptor
- EventSetDescriptor
- PropertyDescriptor
- PropertyEditor (incl. support for custom and paintable editors)
- Customizer

If you are writing BeanInfo classes for your custom components, you can specify additional information needed by JFormDesigner using the `java.beans.FeatureDescriptor` extension mechanism.

Attribute Name	Description
isContainer (BeanDescriptor)	Specifies whether a component is a container or not. A container can have child components. The value must be a `Boolean`. Default is false. E.g. `beanDesc.setValue("isContainer", Boolean.TRUE);`
containerDelegate (BeanDescriptor)	If components should be added to a descendant of a container, then it is possible to specify a method that returns the container for the children. `JFrame.getContentPane()` is a example for such a method. The value must be a `String` and specifies the name of a method that takes no arguments and returns a `java.awt.Container`. E.g. `beanDesc.setValue("containerDelegate", "getContentPane");`
enumerationValues (PropertyDescriptor)	Specifies a list of valid property values. The value must be a `Object[]`. For each property value, the `Object[]` must contain three items:

	• Name: A displayable name for the property value.
	• Value: The actual property value.
	• Java Initialization String: A Java code piece used when generating code.
	
	`propDesc.setValue("enumerationValues", new Object[] {`
	`"horizontal", new Integer( JSlider.HORIZONTAL ),`
	`"JSlider.HORIZONTAL",`
	`"vertical", new Integer( JSlider.VERTICAL ),`
	`"JSlider.VERTICAL" });`

extraPersistenceDelegates (PropertyDescriptor)	Specifies a list of persistence delegates for classes. The value must be a `Object[]`. For each class, the `Object[]` must contain two items:
	
	• Class: The class for which the persistence delegate should be used.
	• Persistence delegate: Instance of a class, which extends `java.beans.PersistenceDelegate`, that should be used to persist an instance of the specified class.
	
	Use the attribute "persistenceDelegate" (see below) to specify a persistence delegate for a property value. Use this attribute to specify persistence delegates for classes that are referenced by a property value. E.g. if a property value references classes MyClass1 and MyClass2:
	
	`propDesc.setValue("extraPersistenceDelegates", new Object[]`
	`{`
	`MyClass1.class, new MyClass1PersistenceDelegate(),`
	`MyClass2.class, new MyClass2PersistenceDelegate(),`
	`});`

imports (PropertyDescriptor)	Specifies one or more class names for which import statements should be generated by the Java code generator. This is useful if you don't use full qualified class names in `enumerationValues` or `PropertyEditor.getJavaInitializationString()`. The value must be a `String` or `String[]`. E.g.
	
	`propDesc.setValue("imports", "com.mycompany.MyConstants");`
	`propDesc.setValue("imports", new String[] {`
	`"com.mycompany.MyConstants",`
	`"com.mycompany.MyExtendedConstants" });`

notNull (PropertyDescriptor)	Specifies that a property can not set to `null` in the Properties view. If true, the **Set Value to null** command is disabled. The value must be a `Boolean`. Default is false. E.g. `propDesc.setValue("notNull", Boolean.TRUE);`
persistenceDelegate (PropertyDescriptor)	Specifies an instance of a class, which extends `java.beans.PersistenceDelegate`, that can be used to persist an instance of a property value. E.g. `propDesc.setValue("persistenceDelegate", new MyPropPersistenceDelegate());`
readOnly (PropertyDescriptor)	Specifies that a property is read-only in the Properties view. The value must be a `Boolean`. Default is false. E.g. `propDesc.setValue("readOnly", Boolean.TRUE);`
transient (PropertyDescriptor)	Specifies that the property value should not persisted and no code should generated. The value must be a `Boolean`. Default is false. E.g. `propDesc.setValue("transient", Boolean.TRUE);`

Design time

JavaBeans support the concept of "design"-mode, when JavaBeans are used in a GUI design tool, and "run"-mode, when JavaBeans are used in an application.

You can use the method `java.beans.Beans.isDesignTime()` in your JavaBean to determine whether it is running in JFormDesigner or in your application.

Reload beans

JFormDesigner supports reloading of JavaBeans. Just select **View > Refresh** from the menu or press **F5**. It does following:

1. Create a new class loader for loading JavaBeans, BeanInfos and Icons.
2. Recreates the form in the active Design view.

So you can change the source code of the used JavaBeans, compile them in your IDE and use them in JFormDesigner without restarting.

Unsupported standard components

- all AWT components

JGoodies Forms & Looks

JFormDesigner supports and uses software provided by JGoodies Karsten Lentzsch.

The **JGoodies Forms** support is very extensive. Not only the layout manager FormLayout is supported, also some important helper classes are supported: `Borders`, `ComponentFactory` and `FormFactory` (com.jgoodies.forms.factories).

JGoodies Looks look and feels are built-in so that you can preview your forms using those popular look and feels. JGoodies Looks examples contains some useful components to build Eclipse like panels: JGoodies UIF lite.

JGoodies Forms ComponentFactory

The JGoodies Forms ComponentFactory (com.jgoodies.forms.factories) defines three factory methods, which create components. You find these components in the palette category JGoodies.

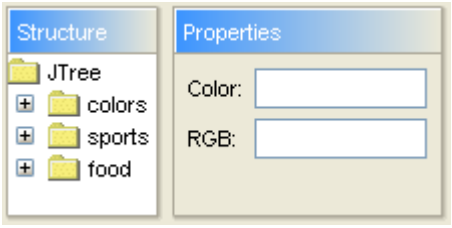
- `Label`: A label with an optional mnemonic. The mnemonic and mnemonic index are defined by a single ampersand (&). For example "&Save" or "Save &As". To use the ampersand itself duplicate it, for example "Look&&Feel".
- `Title`: A label that uses the foreground color and font of a `TitledBorder` with an optional mnemonic. The mnemonic and mnemonic index are defined by a single ampersand (&).
- `Titled Separator`: A labeled separator. Useful to separate paragraphs in a panel, which is often a better choice than a `TitledBorder`.

JGoodies UIF lite

JFormDesigner supports `SimpleInternalFrame` and `UIFSplitPane` from the JGoodies UIF lite

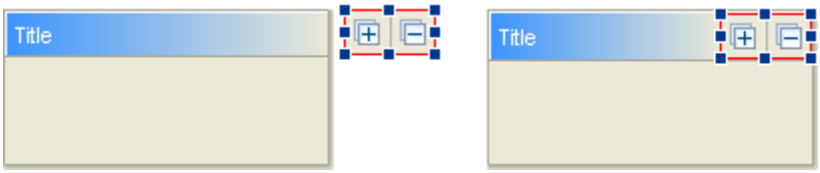
package, which is part of the JGoodies Looks examples. You find both components in the palette category JGoodies.

`SimpleInternalFrame` is an Eclipse like frame. `UIFSplitPane` is a subclass of `JSplitPane` that hides the divider border. Use `UIFSplitPane` if you want to put two `SimpleInternalFrame`s into a split pane. See example `examples/UIFLitePanel.jfd`.



> When using one of these components, you have to add the library `redist/jgoodies-uif-lite.jar` to the classpath of your application. Or add the source code to your repository and compile it into your application. The source code is in `redist/jgoodies-uif-lite-src.zip`.

To add a toolbar to a `SimpleInternalFrame`, add a `JToolBar` to the Design view, select the `SimpleInternalFrame`, select the "toolBar" property in the Properties view and assign the toolbar to it.



IDE Interworking

JFormDesigner is a stand-alone application and not (yet) integrated into Java IDEs. Care must be taken because you edit the Java source in the IDE and JFormDesigner also modifies the Java source file when generating code for the form. As long as you follow the following rule, you will never have a problem:

> Save the Java file in the IDE **before** saving the form in JFormDesigner.

Your IDE will recognize that the Java file was modified outside of the IDE and will reload it. Some IDEs ask the user before reloading files, other IDEs silently reload files.

If you have not saved the Java file in the IDE, then you should prevent the IDE from reloading it. In this case save the Java file in the IDE and then use **Generate Java Code** in JFormDesigner.

JFormDesigner generates Java code when you either **Save** the form or select **Generate Java Code**. JFormDesigner does not hold a copy of the Java source in memory. Every time JFormDesigner generates Java code, it first reads the Java source file, parses it, updates it and writes it back to the disk.

Acknowledgments

This product includes software developed by:

- JGoodies Karsten Lentzsch: www.jgoodies.com, forms.dev.java.net and looks.dev.java.net
- Daniel Barbalace: tablelayout.dev.java.net
- Thomas Singer and Marc Strapetz: www.smartcvs.com

- Sun Microsystems: java.sun.com
- Eclipse Foundation: www.eclipse.org