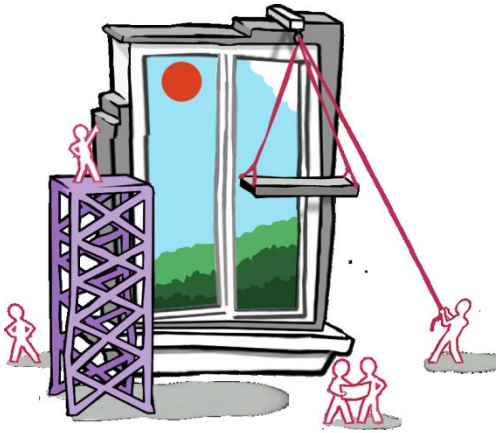


Google™

Building GUIs with WindowBuilder

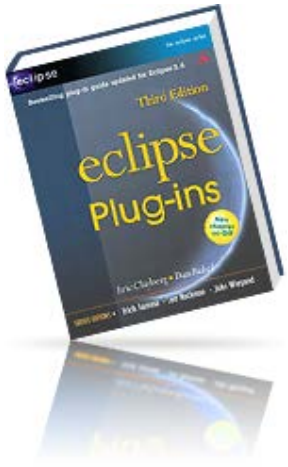
EclipseCon 2012
March 28, 2012

Eric Clayberg
Software Engineering Manager
Google, Inc.
clayberg@google.com

Who Am I

Eric Clayberg

- Software Engineering Manager for Google Web Toolkit (GWT) & Dart Editor
- Former V.P. of Product Development for Instantiations
- Used Java in 1996; Eclipse since 2000



- Co-author of *Eclipse Plug-ins* and *Eclipse Graphical Editing Framework (GEF)*
- Project manager & architect of VA Assist Enterprise, CodePro, WindowBuilder and over a dozen other commercial software products
- Project Lead for Eclipse.org WindowBuilder project
- Contact at clayberg@google.com

History

Google

WindowBuilder has a very long history spanning multiple technologies and companies

Smalltalk

- 1991 Original release for Smalltalk/V by Cooper & Peters
- 1993 VisualSmalltalk release by ObjectShare
- 1994 VisualAge Smalltalk release by ObjectShare
  1996 Briefly owned by ParcPlace-Digitalk
- 1997 VisualAge Smalltalk release by Instantiations

Eclipse/Java

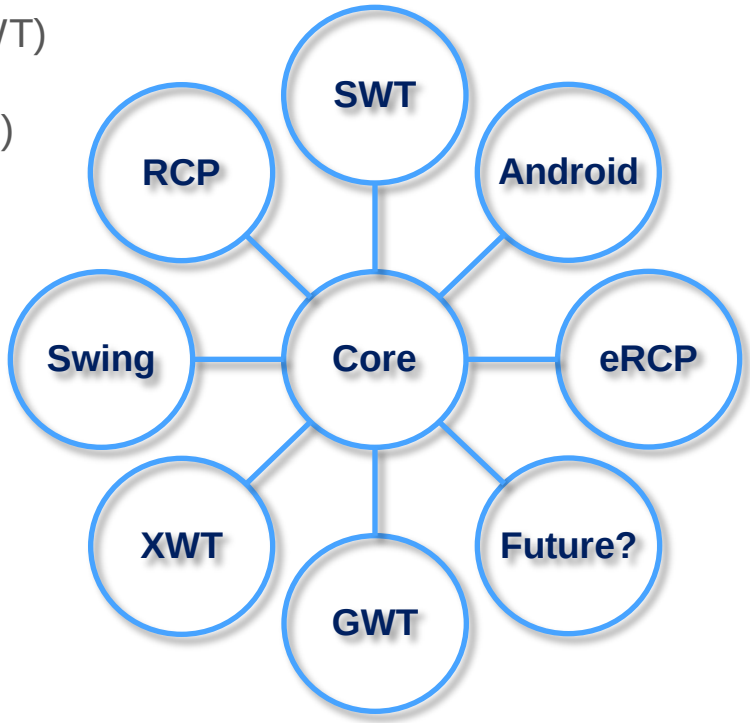
- 2003 New Eclipse/Java version for SWT/RCP (SWT Designer)
- 2004 Swing support added (Swing Designer)
- 2006 Google Web Toolkit (GWT) support added (GWT Designer)
- 2009 Eclipse community award for Best Commercial Add-on
- 2010 Acquired by Google and released free to the world
- 2011+ Contributed to Eclipse.org as new open-source project; Part of Indigo & Juno release trains (Eclipse 3.7, 3.8 & 4.2)

Same Team

Overview

Google

- Available now from http://www.eclipse.org/windowbuilder
- Composed of WindowBuilder Engine, SWT, eRCP, XWT & Swing Designer
- WindowBuilder Engine provides a rich API for creating UI designers
  - Very modular with dozens of extension points
  - Pluggable support for different languages and parsers
  - Java-based UI frameworks (e.g., Swing, SWT/RCP, eRCP, GWT)
  - XML-based UI frameworks (e.g., XWT, GWT UiBinder, Android)
- Exemplary tool examples:
  - SWT Designer
  - Swing Designer
  - eRCP Designer
  - XWT Designer
- 3rd Party Tools
  - JBuilder Swing Designer
  - GWT Designer
  - Android Designer



Quotes

Google

"WindowBuilder delivers the kind of GUI building productivity that we used to have before we converted to Java. WindowBuilder not only dramatically improves productivity for design and maintenance, but it also enables us to significantly improve the look-and-feel of our GUIs without costing days of coding. Until discovering WindowBuilder, I had forgotten just how much fun and easy it can be building Java GUIs."

Sally Rich,
Senior Software Engineer
RSS Solutions Inc

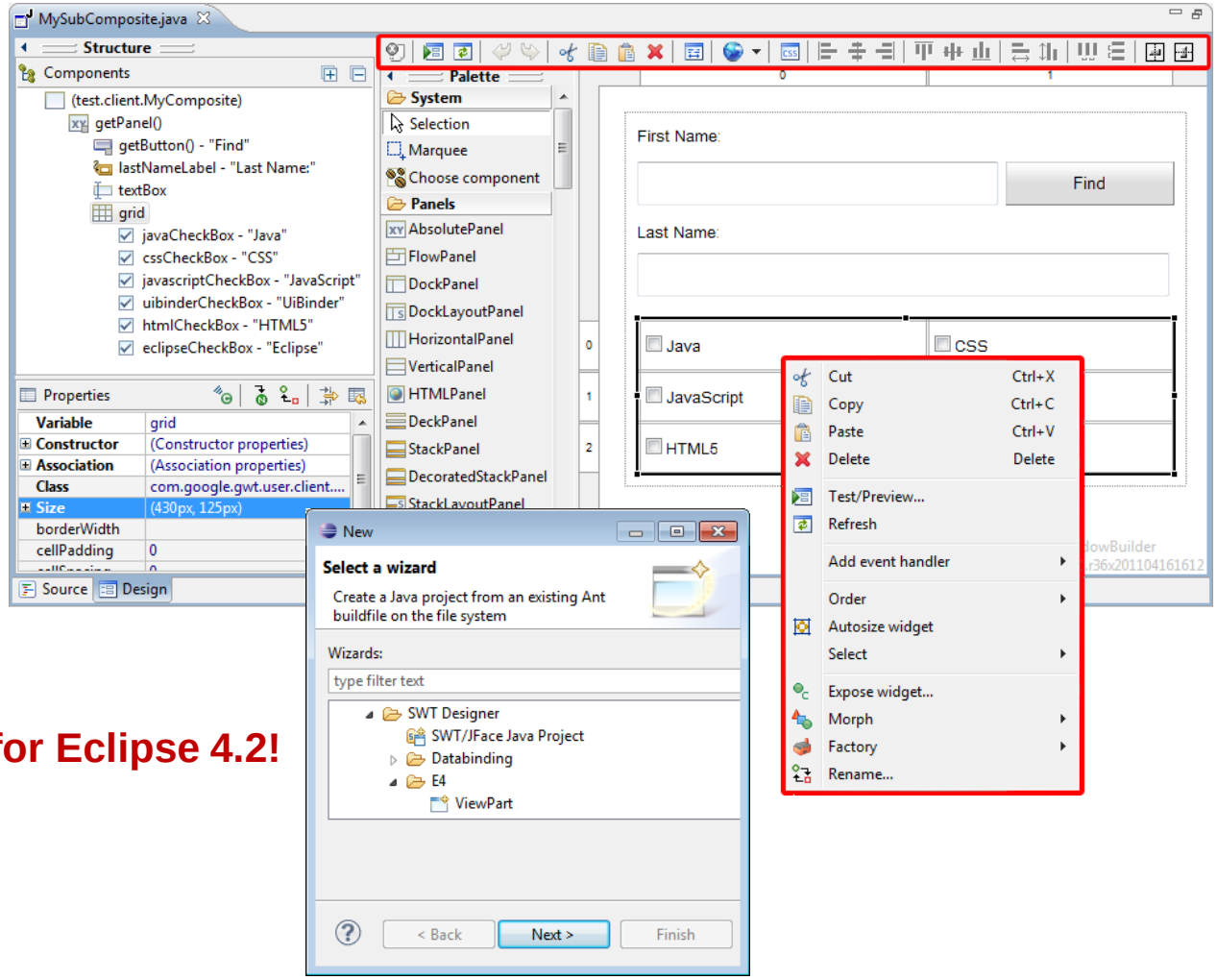
"In 25 years of software development I have used a plethora of development tools. I can honestly say that WindowBuilder is head and shoulders above anything I have used for serious development. The features I particularly like include the bi-directional edit process, the native look and feel of cross platform GUIs and the manner in which component management is greatly simplified. It all adds up to allowing the developer to get on with the process of creating an application rather than worrying about the technology beneath it."

John Bond,
Developer

User Interface

WindowBuilder is composed of the following major components

- Source View
- Design View
- Component Tree
- Property Pane
- Palette
- Wizards
- Toolbars & Context Menus



New e4 ViewPart wizard for Eclipse 4.2!

Features

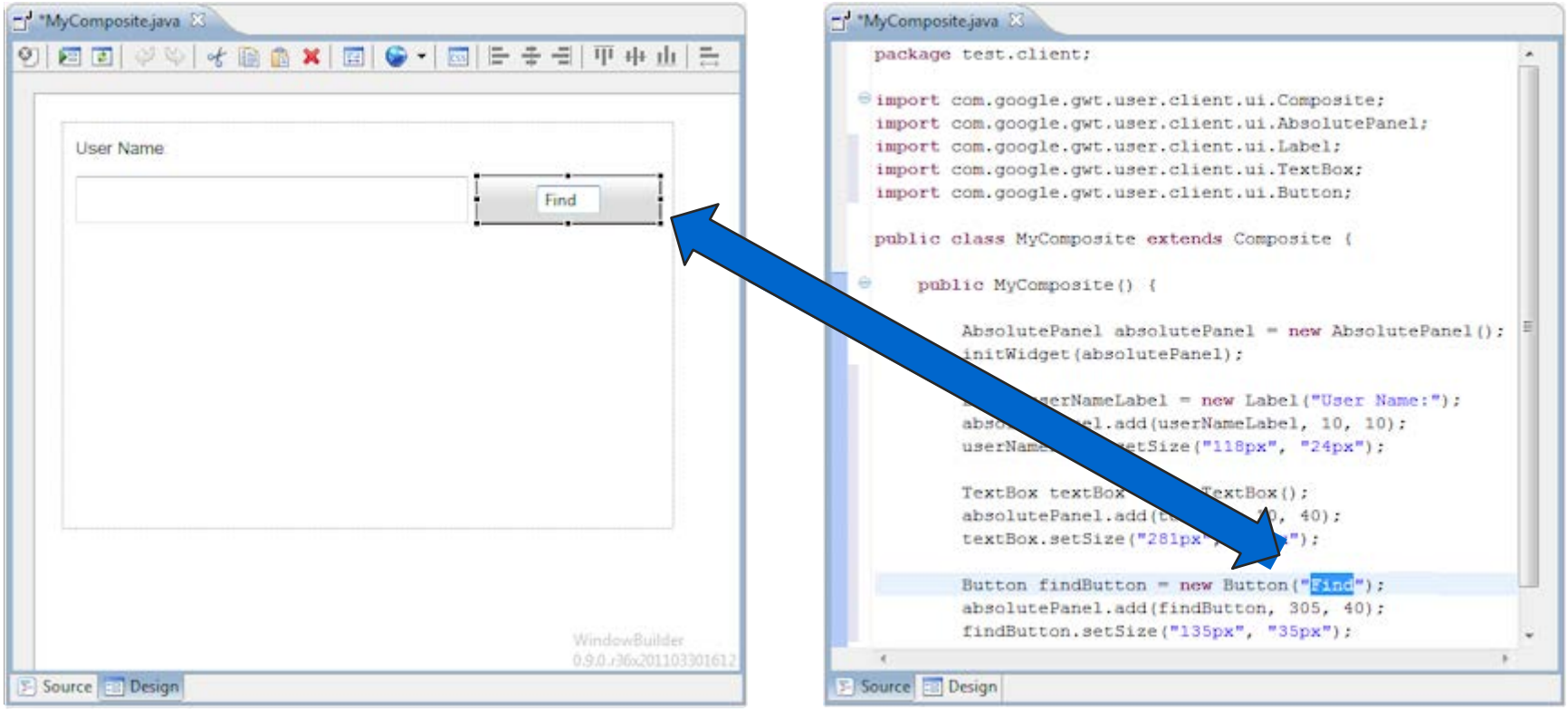
Google

WindowBuilder supports many state-of-the-art features

- WYSIWYG & Bi-directional Code Generation
- Powerful & Flexible Code Parser
- Read & Write Any Format or Style
- Internationalization
- Visual Inheritance
- UI Factories
- Morphing
- Widgets & Layout Managers
- Graphical Menu Editing

WYSIWYG & Bi-directional Code Generation

- WYSIWYG editing in design view
- Bi-directional Code Generation
- Micro edits result in smallest possible code change



Powerful & Flexible Code Parser

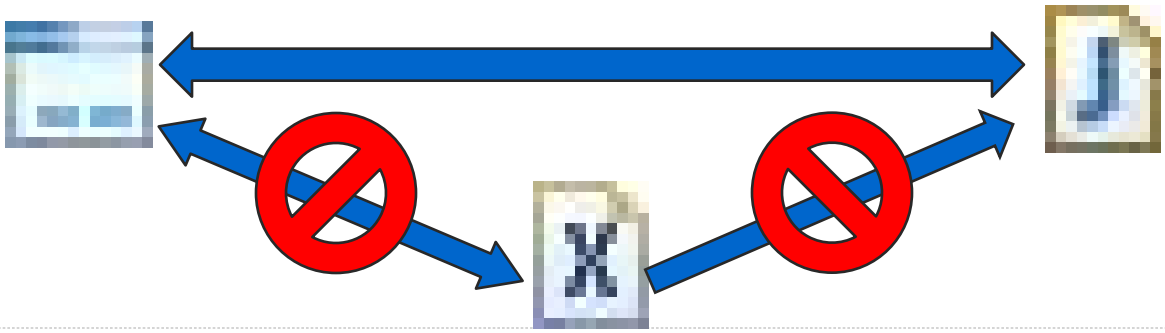
- Can parse its own code and code written by hand
- No protected code blocks
- Understands data flow
- Ignores & preserves non-UI code
- Refactoring friendly and resilient to hand-made changes

*MyComposite.java

```
package test.client;

import com.google.gwt.user.client.ui.Composite;
import com.google.gwt.user.client.ui.AbsolutePanel;
import com.google.gwt.user.client.ui.Label;
import com.google.gwt.user.client.ui.TextBox;
import com.google.gwt.user.client.ui.Button;

public class MyComposite extends Composite {

    public MyComposite() {

        AbsolutePanel absolutePanel = new AbsolutePanel();
        initWidget(absolutePanel);

        Label userNameLabel = new Label("User Name:");
        absolutePanel.add(userNameLabel, 10, 10);
        userNameLabel.setSize("118px", "24px");

        TextBox textBox = new TextBox();
        absolutePanel.add(textBox, 10, 40);
        textBox.setSize("281px", "27px");

        Button findButton = new Button("Find");
        absolutePanel.add(findButton, 305, 40);
        findButton.setSize("135px", "35px");
```

Source | Design

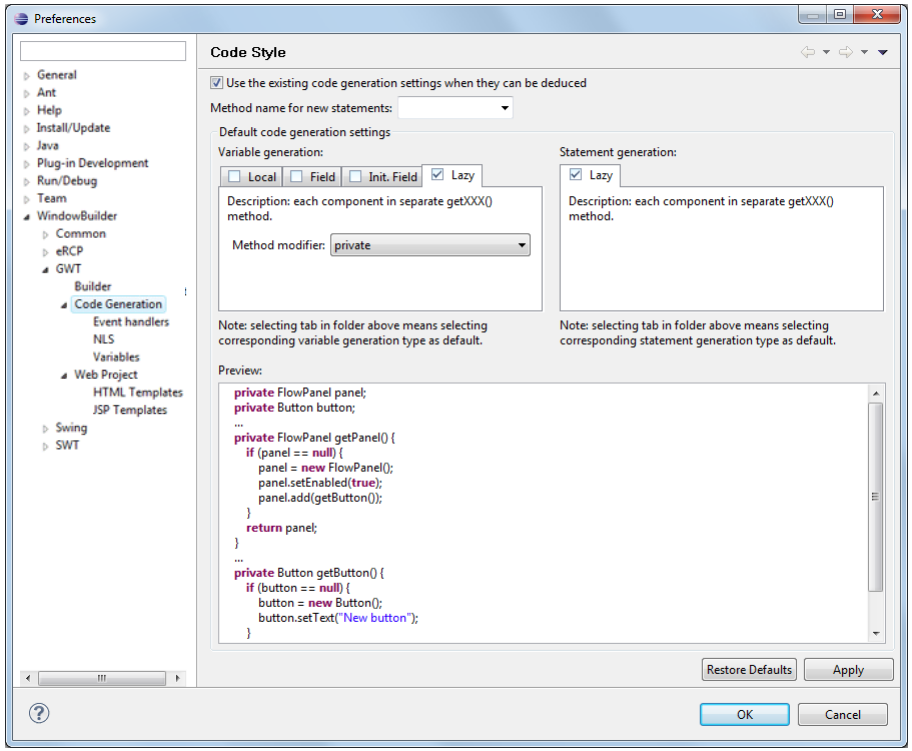
- One-to-one relationship between UI and Java/XML code
- No intermediate metadata file to get lost or out of sync



Read & Write Any Format or Style

Window > Preferences > WindowBuilder > GWT | Swing | SWT > Code Generation

- Local variables vs. Fields
- Flat vs. Block
- Initialized fields
- Lazy declaration




```
...
FlowPanel panel = new FlowPanel();
panel.setEnabled(true);

Button button = new Button();
button.setText("Add customer...");
panel.add(button);
...
```

```
private FlowPanel panel;
private Button button;
...
private FlowPanel getPanel() {
   if (panel == null) {
      panel = new FlowPanel();
      panel.setEnabled(true);
      panel.add(getButton());
   }
   return panel;
}
...
private Button getButton() {
   if (button == null) {
      button = new Button();
      button.setText("New button");
   }
   return button;
}
```

```
...
{
   FlowPanel panel = new FlowPanel();
   panel.setEnabled(true);
   {
      Button button = new Button();
      button.setText("Add customer...");
      panel.add(button);
   }
   ...
}
...
```

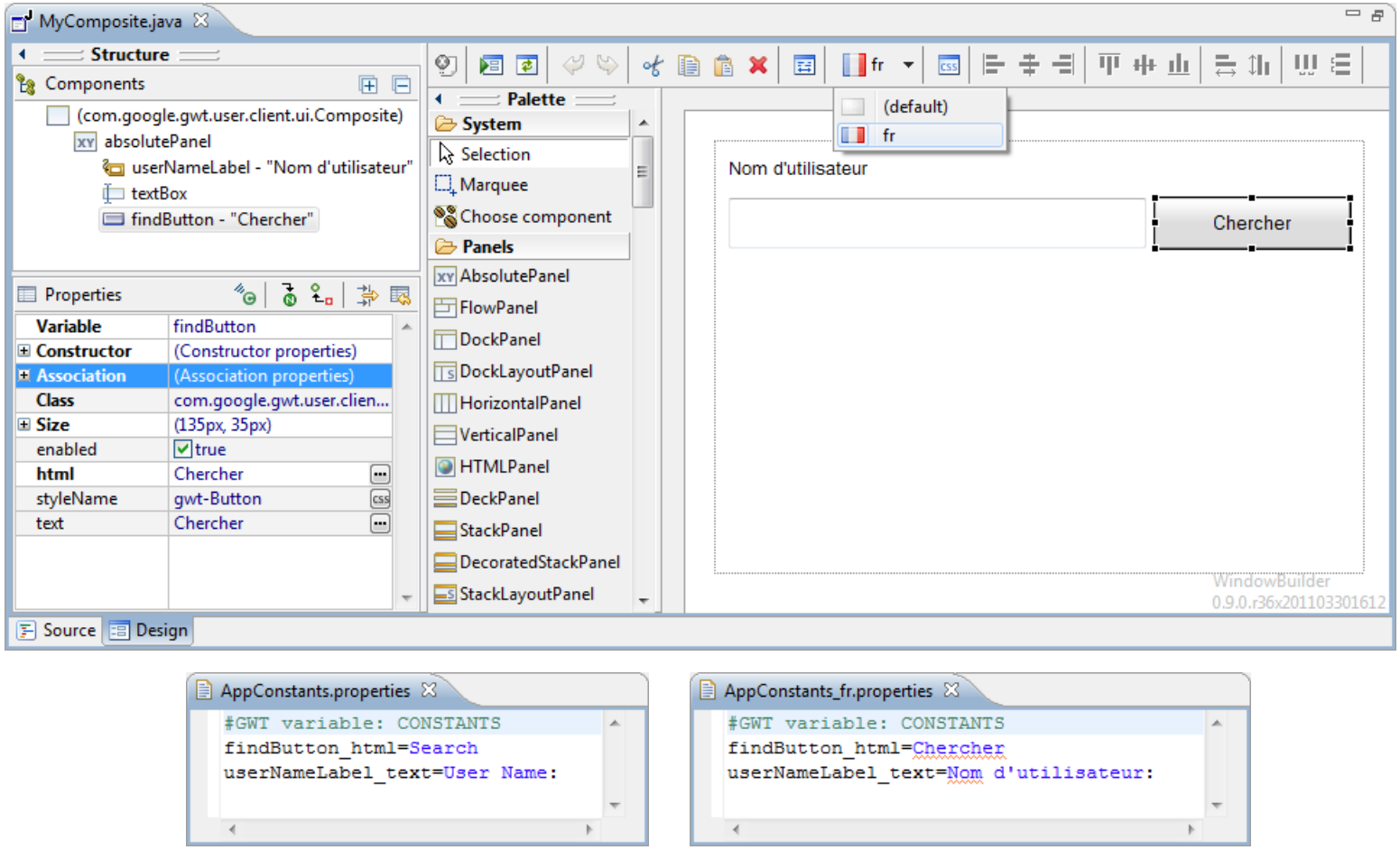
```
private final FlowPanel panel = new FlowPanel();
private final Button button = new Button();
...
panel.setEnabled(true);

panel.add(button);
button.setText("Add customer...");
...
```

```
private FlowPanel panel;
private Button button;
...
panel = new FlowPanel();
panel.setEnabled(true);

button = new Button();
button.setText("Add customer...");
panel.add(button);
...
```

Internationalization

Google

Offers easy-to-use Internationalization and Localization tools

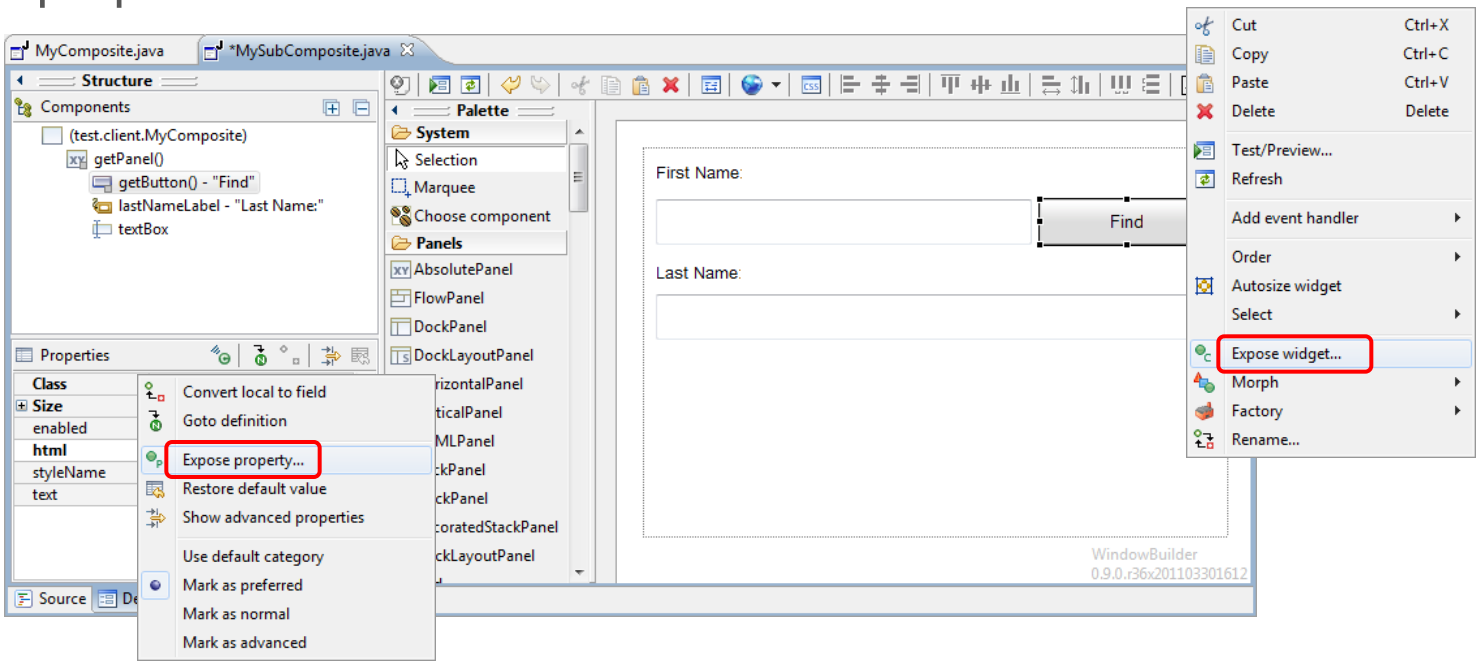


Visual Inheritance

Google

Provides visual inheritance so that code features can be easily inherited from a parent – child hierarchy

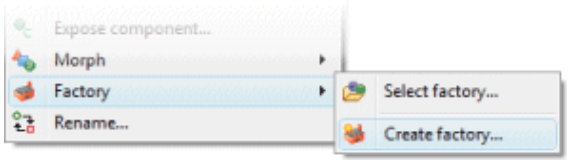
- Easily expose fields and properties
- Add components & event handlers to inherited fields
- Change public properties of inherited components
- Change properties of inherited fields

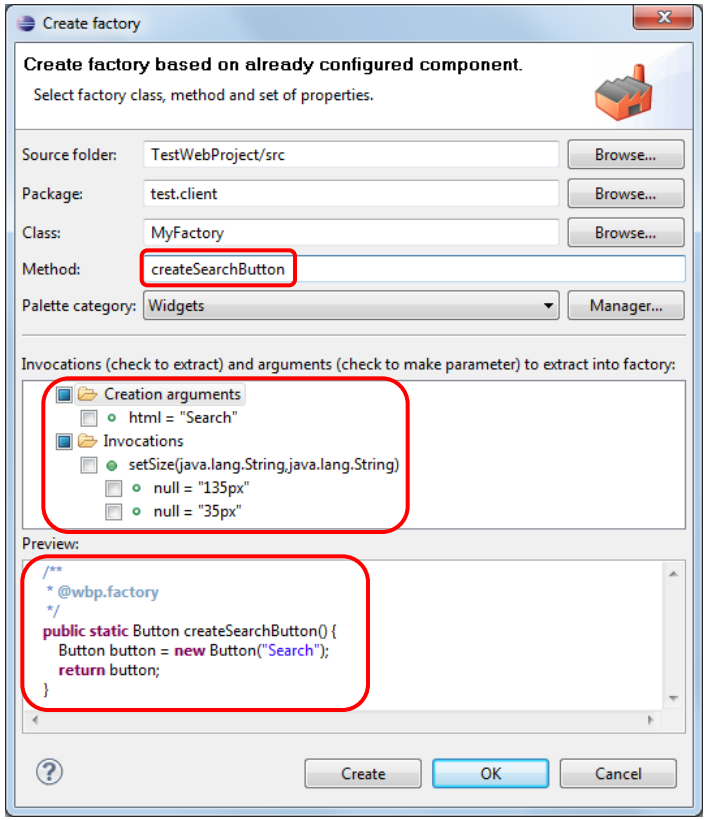


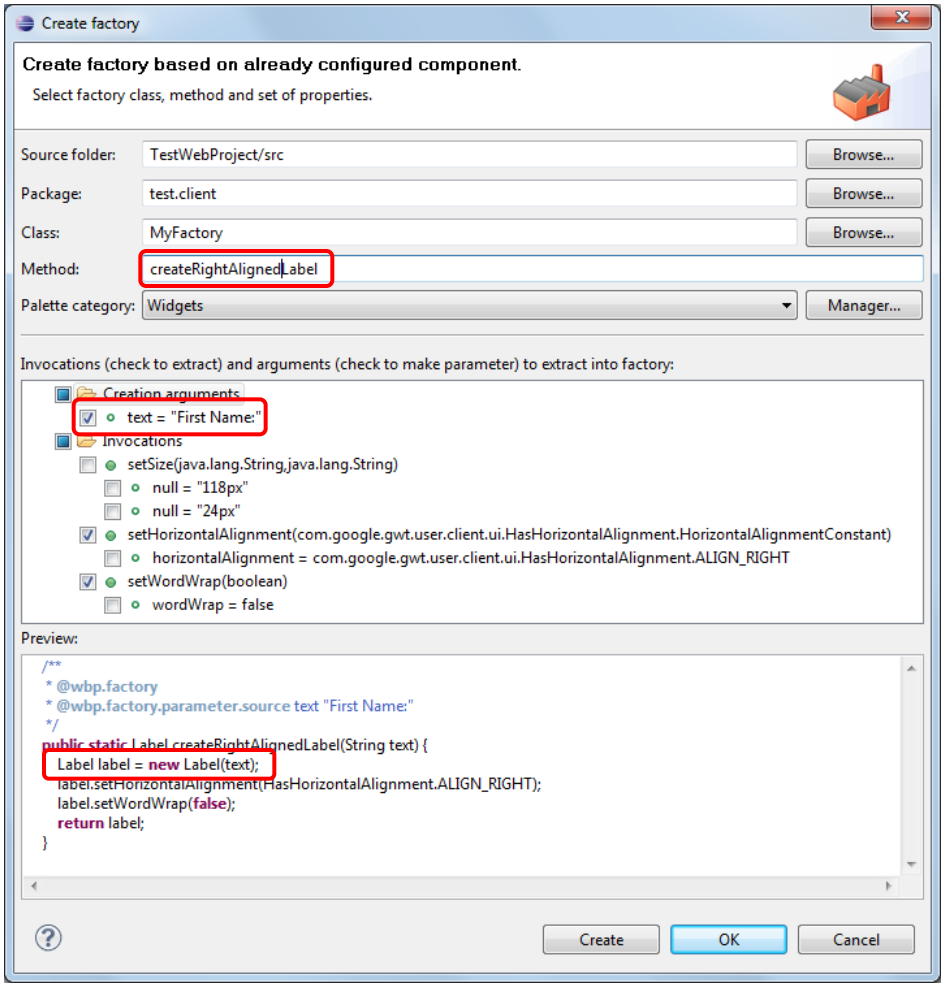
UI Factories

Google

Support for UI Factories and reusable customized GUI elements



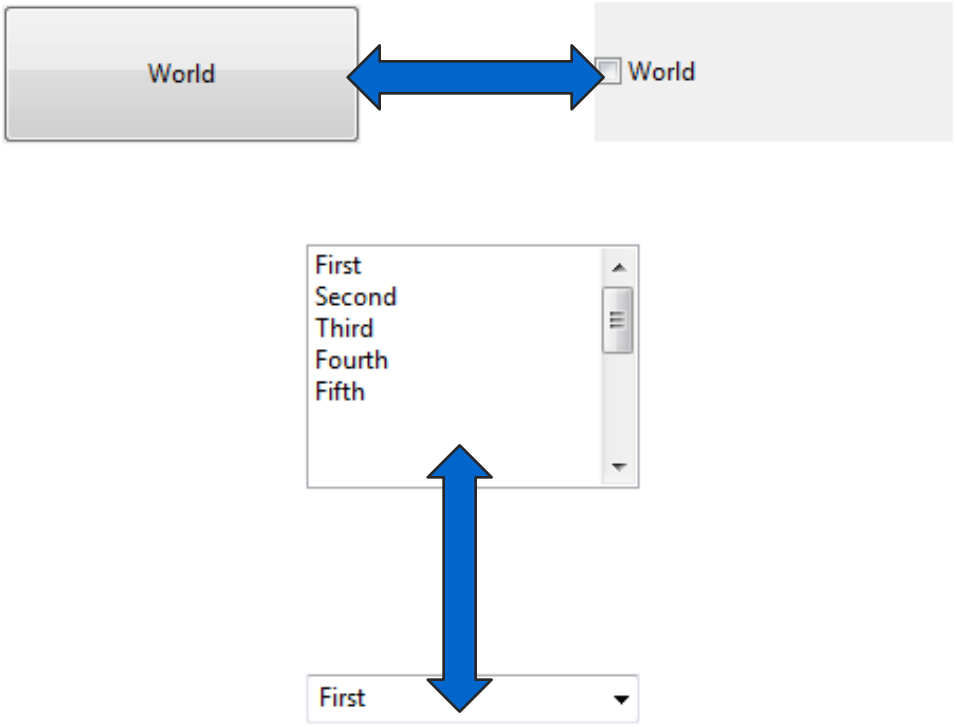




Morphing

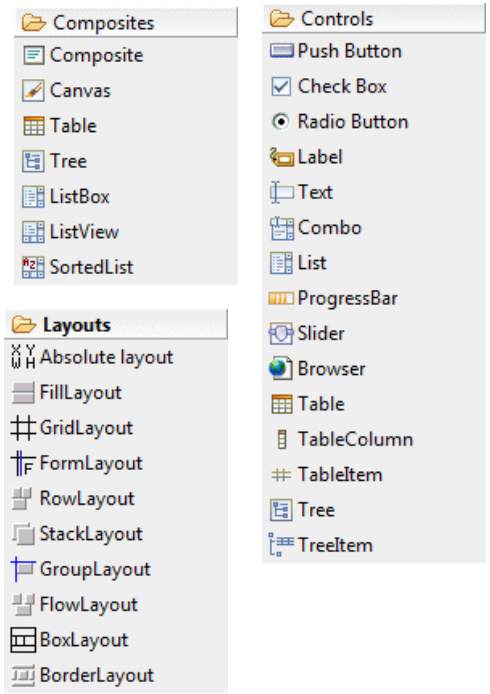
Google

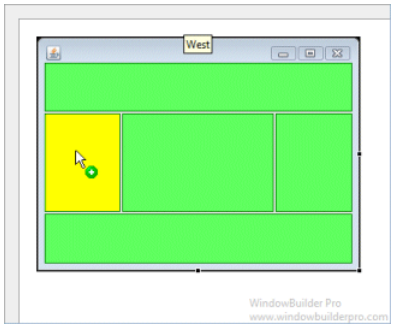
Provides a Morphing tool to easily change one widget type into another

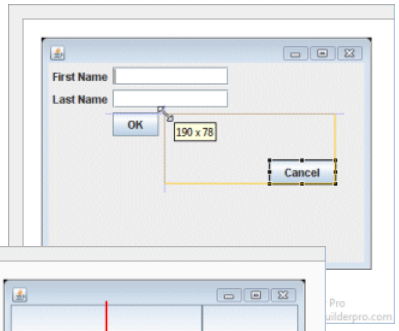


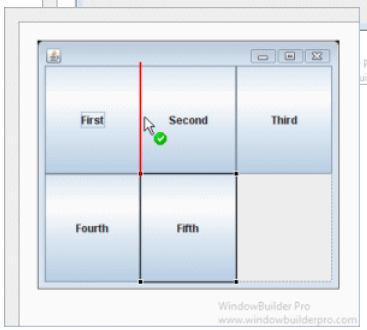
Widgets & Layout Managers

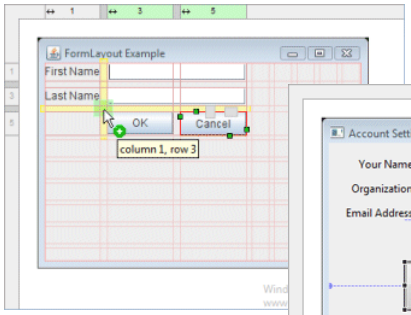
Fully supports all standard widgets and layout managers as well as select third-party widgets and layout managers

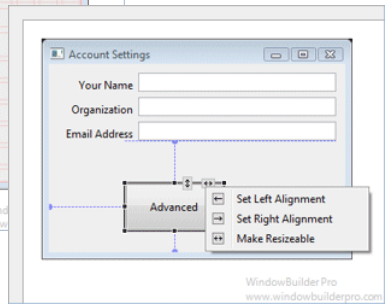


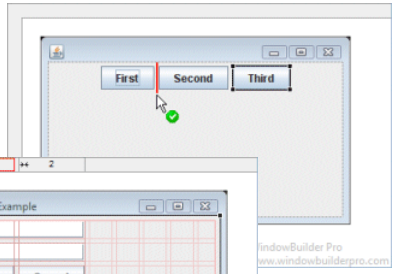


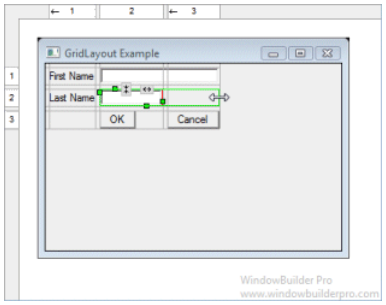


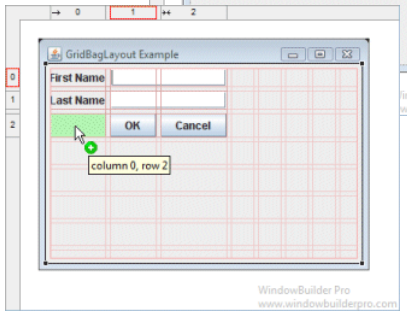








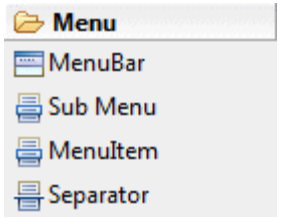


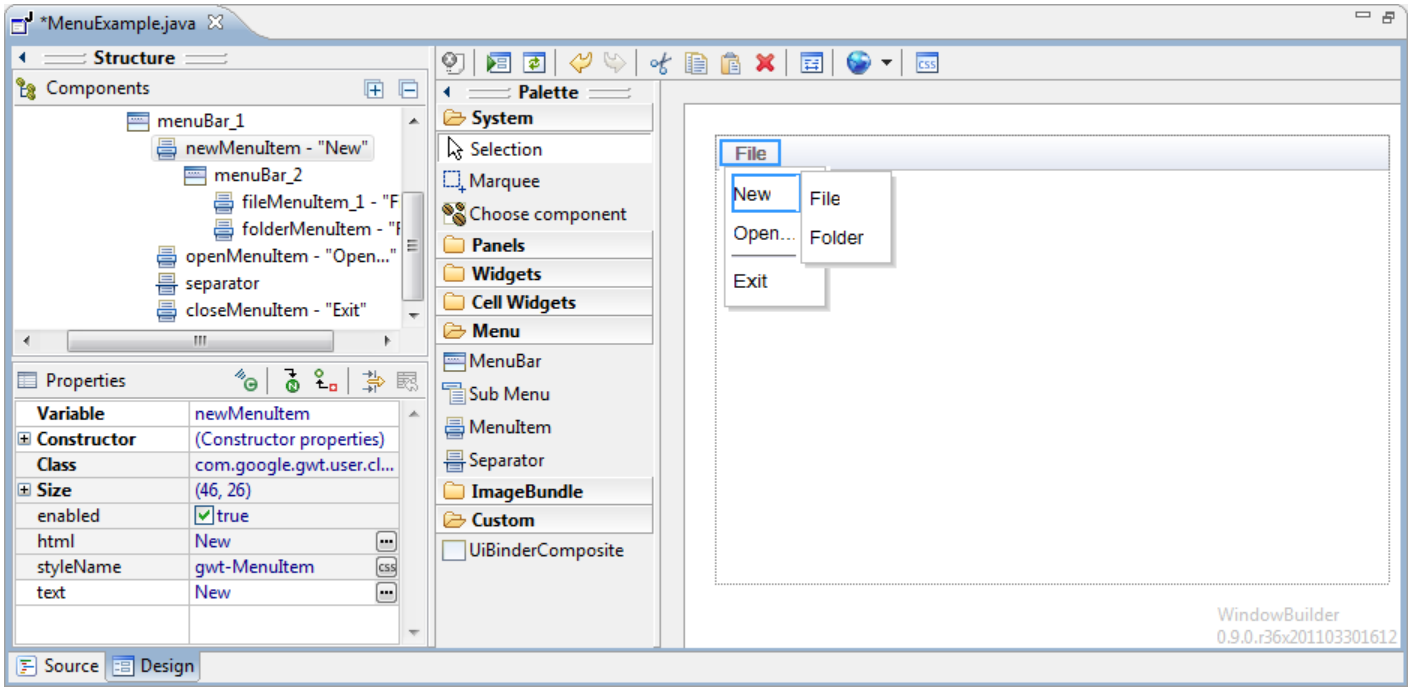


Graphical Menu Editing

Supports WYSIWYG Graphical Menu Editing

- Graphical edit menubars and menuitems
- Use drag/drop to rearrange menus
- Direct edit menu labels

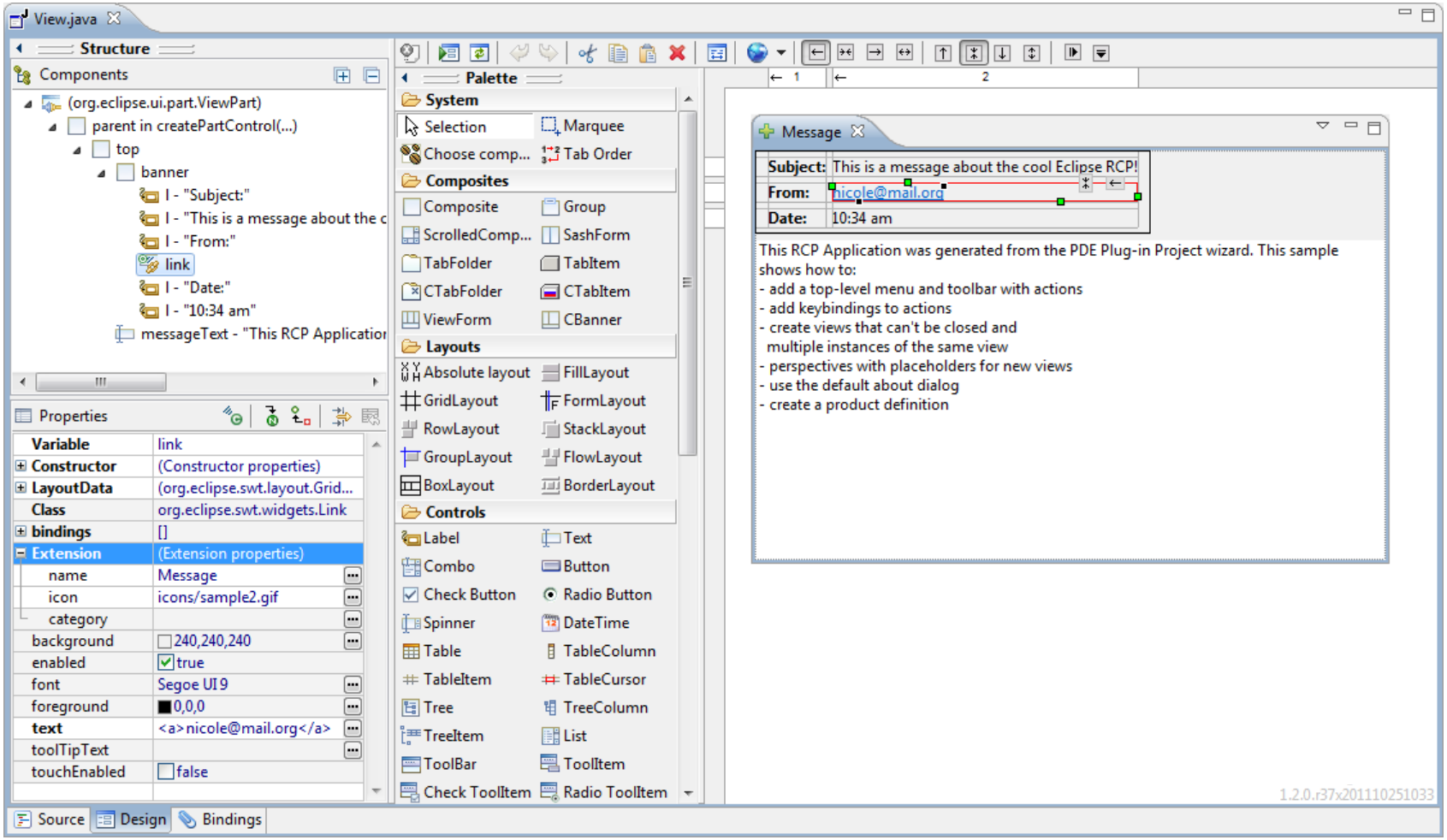




Gallery – SWT Designer

Google

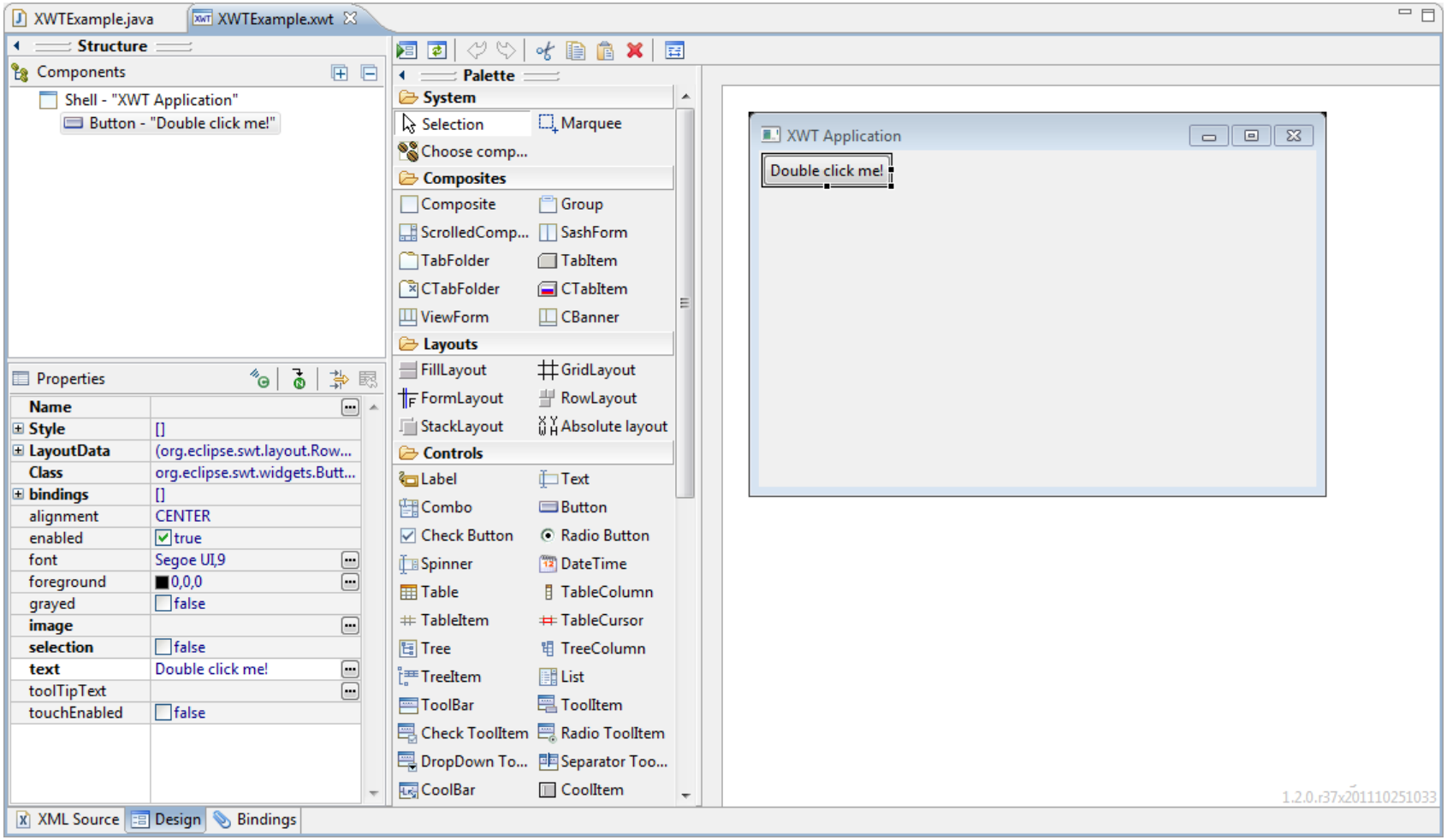
http://eclipse.org/windowbuilder/



Gallery – XWT Designer

Google

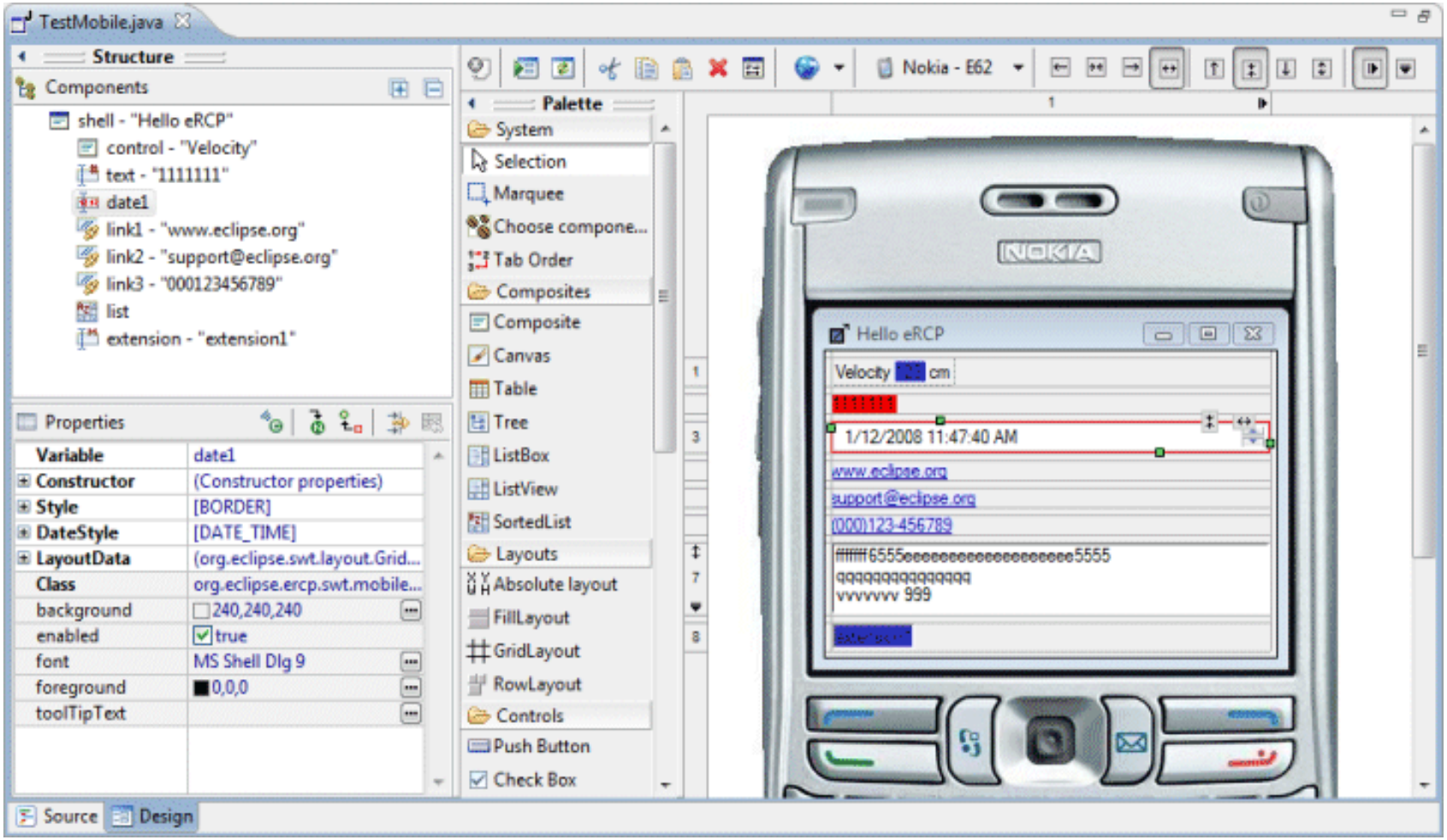
http://eclipse.org/windowbuilder/



Gallery – eRCP Designer

Google

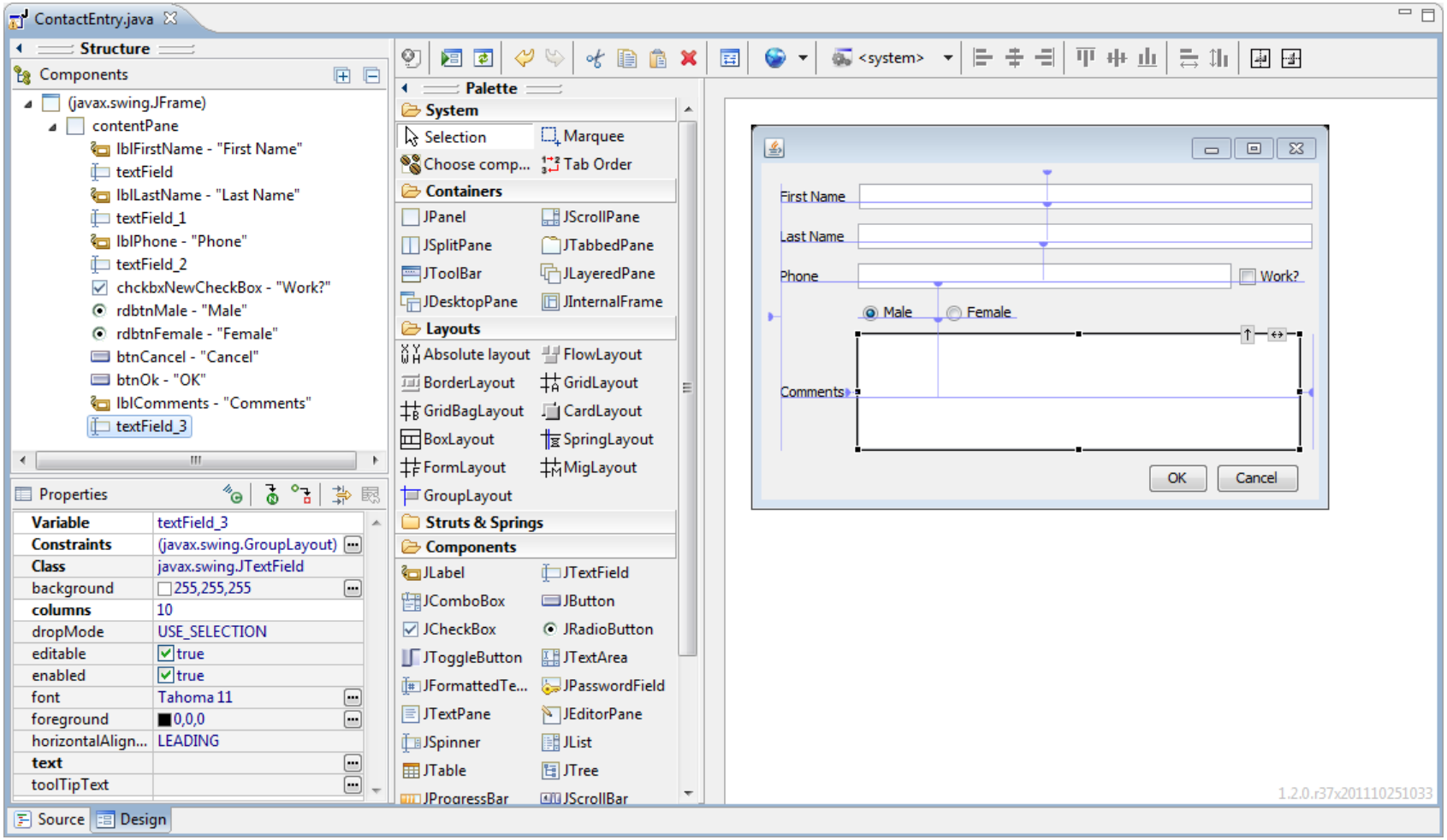
http://eclipse.org/windowbuilder/



Gallery – Swing Designer

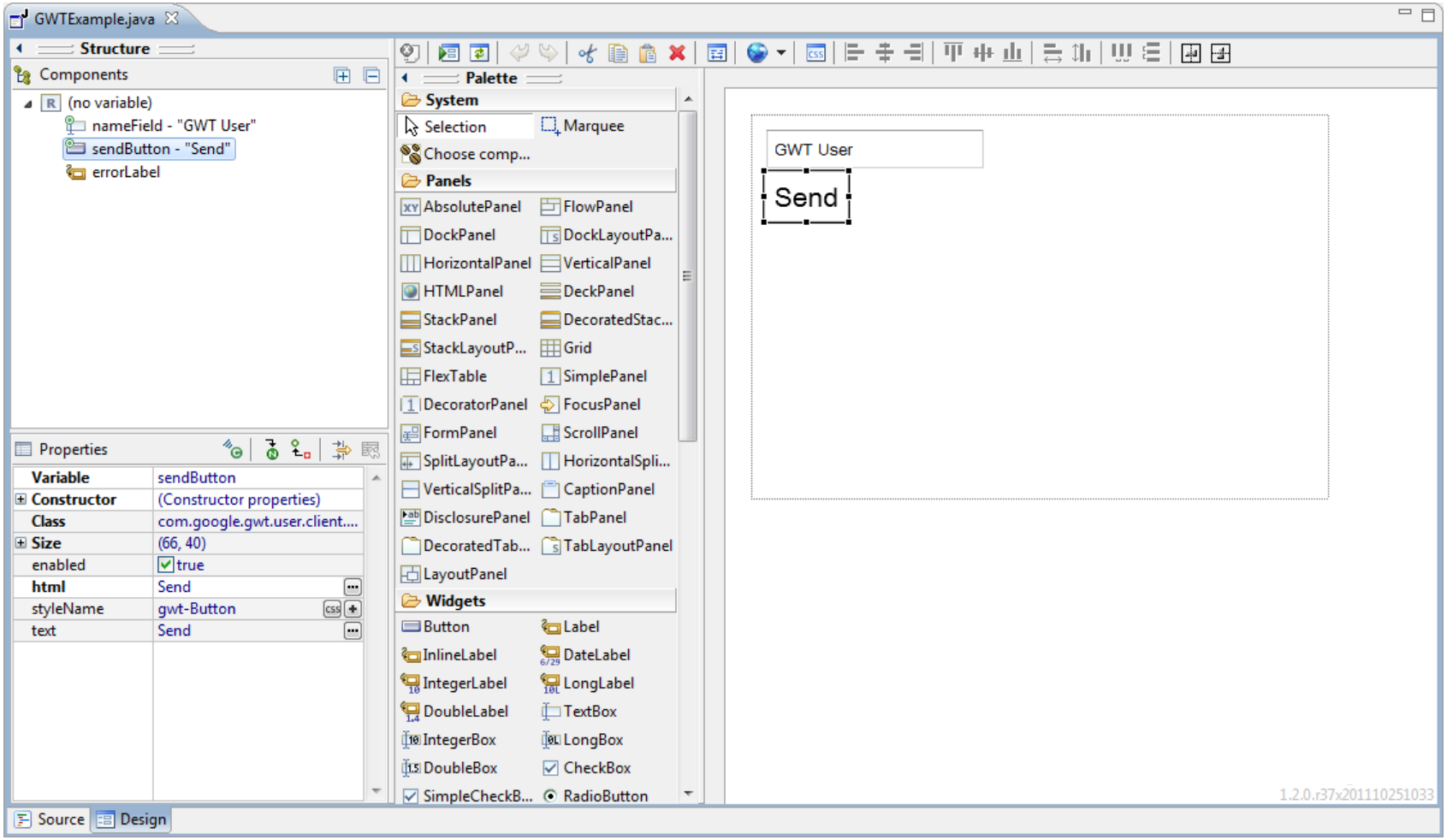
Google

http://eclipse.org/windowbuilder/



Gallery – GWT Designer

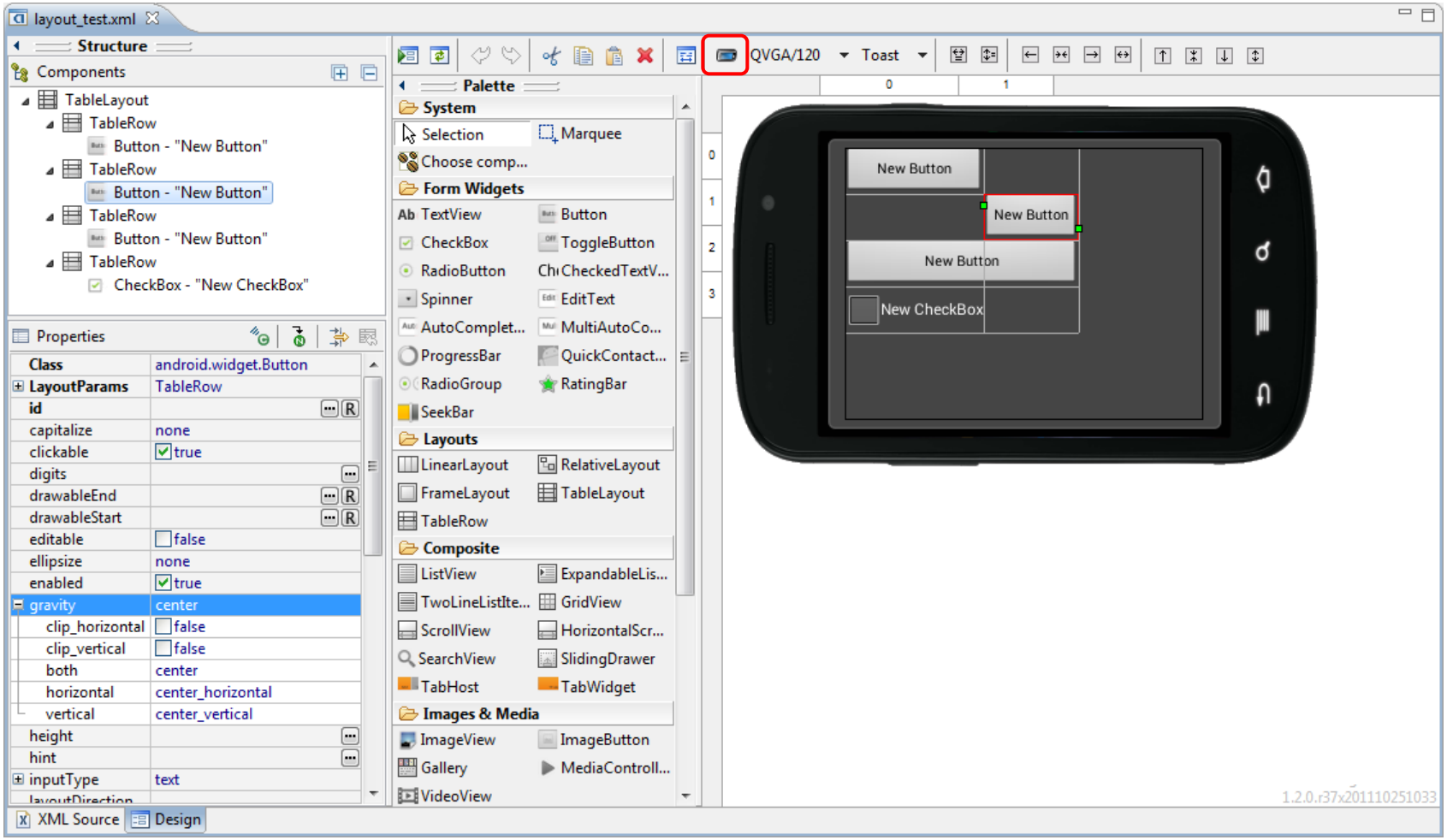
http://code.google.com/p/gwt-designer/



Gallery – Android Designer

Google

http://code.google.com/a/eclipselabs.org/p/android-designer



Q & A

Don’t be shy!

Thank You

Where to get it:

http://eclipse.org/windowbuilder/download.php
https://developers.google.com/java-dev-tools/download
https://developers.google.com/web-toolkit/tools/download-gwtdesigner
http://code.google.com/a/eclipselabs.org/p/android-designer/downloads

Documentation:

https://developers.google.com/java-dev-tools/wbpro/

Issue tracker, source:

https://bugs.eclipse.org/bugs/ → Tools > WindowBuilder
http://dev.eclipse.org/svnroot/tools/org.eclipse.windowbuilder
https://svn.codespot.com/a/eclipselabs.org/windowbuilder-extras/trunk

Forum:

http://eclipse.org/forums/index.php?t=thread&frm_id=214