# Eclipse – Creating a SWT Window with Windowbuilder

How-To by stepping through the 2024 06 dialog boxes

# **Document Overview**

There are three major steps involved in creating an SWT Window in the Eclipse IDE. They are:

- 1. Create the Eclipse workspace if one is not already available. The workspace will hold all the project files. It can also hold any number of projects.
- 2. Create the SWT Project. This will allow the appropriate SWT libraries to be managed for the SWT application.
- 3. Create the SWT Window. This will provide the GUI elements through the source code and the design modes as well as host the display of the Window.

The pages below contain the steps to proceed through each of the dialog boxes that must be filled-in so as to provide the Eclipse IDE with the necessary information to build the application. These dialogs are in effect for Eclipse 2024 06 and the latest Windowbuilder available at that time (June, 2024).

There are two sets of instructions. The first is the **verbose instruction set** and the second is the **imagebased instruction set** with all the necessary dialog boxes displayed with the written instructions.

# Verbose Instruction Set

Open Eclipse 2024 06

Create or launch into new workspace or where a new project is to be created.

- Left upper corner of IDE select "Create a project" from the list of project types. Do not click on 'Create a Java Project' because the SWT libraries will not be included.

   Select Windowbuilder from the list
   Select 'SWT Designer'
   Select 'SWT/Face Java Project'
   Click the 'Finish' button at the bottom of the New Project/Select a Wizard dialog
- 2. New dialog: "Create a Java Project" will appear
  = Enter the project name in the 'Project Name' text box
  == Uncheck 'Module' selections
  === Click the 'Finish' buttonat bottom of the dialog

IDE: The Project Explorer is fills in and prepares the environment for adding the SWT Window source program.

- 3. Select the project's 'src' (Source) item in the project tree and right click on the SRC item.
  = Select 'New' then select 'Other' and then the 'Select a Wizard' dialog appears.
- 4. The 'Select a Wizard' Dialog will provide the SWT libraries:
  = Select 'SWT Designer'
  == Select 'SWT'
  === Select 'Application Window'
  ==== Click the 'Next' button at the bottom of the 'Select a Wizard' dialog box
- 5. The 'New SWT Application' dialog appears
  - = Do not modify the Source Folder contents
  - = Do not modify the Package folder
  - = Leave the method as 'Protected'
  - == Enter the name of the Window code class in the 'Name' text box

=== Click the 'Finish' button at the bottom of the dialog box.

6. The IDE should now appear with a clean set of code for the SWT application in the 'src hierarchy and allow the use of the design and source features the complete the Window design.

# **Image-Based Instruction Set**

CREATE A WORKSPACE

Before any project can be created, a workspace directory must be created to store one or more projects relating to the Eclipse version being utilized.

Open Eclipse and create a workspace for the project(s) relating to the version that is being used. Here, the 2024 06 Eclipse version

Is being used, and the workspace directory is F:\eclipse-workspace\_202406. This is where any number of 2024 06 projects will be stored.

By entering the path and clicking the 'Launch' button the first step is completed in the Eclipse IDE Launcher (below)

| Eclipse IDE Launcher  |                 | —         |       | ×   |
|---|-----------------|-----------|-------|-----|
| Select a directory as workspace                                   |                 |           |       |     |
| Eclipse IDE uses the workspace directory to store its preferences | and development | t artifac | ts.   |     |
|   |                 |           |       |     |
| r:\eclipse-workspace_202400                                       |                 |           |       | wse |
|   |                 |           |       |     |
| Use this as the default and do not ask again                      |                 |           |       |     |
| <u>R</u> ecent Workspaces   |                 |           |       |     |
|   | <u>L</u> aunch  |           | Cance | 2   |

Eclipse IDE Launcher dialog - create a workspace

When the 'Launch' button is clicked a list of project types are displayed:



1. Create a Project Dialog in Windowbuilder

In the left, upper corner select "Create a project" which is lightly outlined in the above clip from the Package Explorer.

The 'Select a wizard' dialog appears.

| 😑 New Project         |                 |        |          |       | ×  |
|-----------------------|-----------------|--------|----------|-------|----|
| Select a wizard       |                 |        |          |       | \$ |
| <u>W</u> izards:      |                 |        |          |       |    |
|                       |                 |        |          |       |    |
| > 🦳 Gradle            |                 |        |          |       |    |
| > 🗁 Java<br>> 🗁 Maven |                 |        |          |       |    |
| > 📂 Plug-in Deve      | elopment<br>der |        |          |       |    |
|                       |                 |        |          |       |    |
|                       |                 |        |          |       |    |
|                       |                 |        |          |       |    |
|                       |                 |        |          |       |    |
|                       |                 |        |          |       |    |
|                       |                 |        |          |       |    |
| ?                     | < Back          | Next > | Finish   | Cance |    |
| J                     |                 |        | <u>_</u> |       |    |

. Select Windowbuilder from the list. SWT Designer appears (below)

| 😑 New Project   |                         |                | -              |       | ×  |
|---|-------------------------|----------------|----------------|-------|----|
| Select a wizard   |                         |                |                |       | \$ |
| <u>W</u> izards:  |                         |                |                |       |    |
| type filter text  |                         |                |                |       |    |
| <ul> <li>&gt; &gt; General</li> <li>&gt; &gt; Gradle</li> <li>&gt; &gt; Iava</li> <li>&gt; &gt; Maven</li> <li>&gt; &gt; Plug-in Deve</li> <li>&gt; &gt; WindowBuild</li> <li>&gt; &gt; &gt; SWT Designation</li> </ul> | elopment<br>der<br>gner |                |                |       |    |
| ?   | < <u>B</u> ack          | <u>N</u> ext > | <u>F</u> inish | Cance | I  |

.. Select 'SWT Designer' from the Wizards dialog list (above)

... Select 'SWT/Face Java Project' from the Wizards dialog list and then press the 'Next' button (see below)

| New Project   | — |       | ×  |
|---|---|-------|----|
| Select a wizard<br>Create a Java project with SWT/JFace support   |   |       | \$ |
| <u>W</u> izards:  |   |       |    |
| type filter text  |   |       |    |
| <ul> <li>&gt; General</li> <li>&gt; Gradle</li> <li>&gt; Java</li> <li>&gt; Maven</li> <li>&gt; Plug-in Development</li> <li>&gt; WindowBuilder</li> <li>&gt; SWT Designer</li> <li>SWT/JFace Java Project</li> </ul> |   |       |    |
| (?) < <u>Back</u> <u>Next</u> > <u>Finish</u>   |   | Cance |    |

New SWT/Face Java Project setup dialog

The 'New SWT/Face Java Project' dialog box appears for the 'Create a Java Project' in Windowbuilder step (see below)

| New Swil/Jrace Java Project                         |                          |          | — 🗆             | >         |
|---|--------------------------|----------|-----------------|-----------|
| ate a Java Project                                  |                          |          | 1               |           |
| iter a project name.                                |                          |          |                 | 2         |
|   |                          |          |                 |           |
| 2roject name:                                       |                          |          |                 |           |
| Use <u>d</u> efault location                        |                          |          |                 |           |
| ocation: G:\eclipse-workspace_202406                | 5                        |          | B <u>r</u> owse |           |
| JRE   |                          |          |                 |           |
| • Use an execution environment JRE:                 | JavaSE-22                |          |                 | $\sim$    |
| Use a project specific IRF:                         | idk-22                   |          |                 |           |
| Use default IRE 'idk-22' and worksn                 | ace compiler preferences |          | Configure IRF   |           |
| ,, ,  |                          |          |                 |           |
| Project layout                                      |                          |          |                 |           |
| ○ <u>U</u> se project folder as root for source     | es and class files       |          |                 |           |
| <u>Create separate folders for sources</u>          | and class files          | <u>C</u> | onfigure defau  | <u>lt</u> |
| Working sets  |                          |          |                 |           |
| Add project to working sets                         |                          |          | Ne <u>w</u>     |           |
| Working sets:                                       |                          | ~        | S <u>e</u> lect |           |
|   |                          |          |                 |           |
| Module  |                          |          |                 |           |
| Create module-info.iava file                        |                          |          |                 |           |
| ✓ Create <u>m</u> odule-info.java file Module name: |                          |          |                 |           |

#### CREATE AN SWT PROJECT

. Enter the 'Projet name' text: This will be "WindowDemoProject"

.. Uncheck Module/ 'Create module-info.java file'

... Uncheck Module/ 'Generate comments'

....Click "Finish" at the bottom of the New SWT/Face Java Project dialog box after assuring the correct Java SE and jdk environments are displayed. The dialog box should appear as follows (below):

CREATE AN SWT PROJECT

| New SWT/JFace Java Project  |                         |          | _            |           | ×  |
|---|-------------------------|----------|--------------|-----------|----|
| eate a Java Project   |                         |          |              | $\square$ | C  |
| Create a Java project in the workspace or ir  | n an external location. |          |              |           | D  |
|   |                         |          |              |           |    |
| Project name: WindowsDemoProject  |                         |          |              |           | -1 |
| Use <u>d</u> efault location  |                         |          |              |           |    |
| Location: G:\eclipse-workspace_202406   | WindowsDemoProject      |          | Br           | owse      |    |
| JRE   |                         |          |              |           |    |
| Use an execution environment IRE:   | JavaSE-22               |          |              |           |    |
|   | 1000                    |          |              |           |    |
| O Use a project specific JRE:   | Jdk-22                  |          |              |           |    |
| Use default JRE 'jdk-22' and workspa  | ce compiler preferences |          | Configu      | Jre JRES  |    |
| Project layout  |                         |          |              |           |    |
| ○ <u>U</u> se project folder as root for sources  | and class files         |          |              |           |    |
| Create separate folders for sources and the separate folders for sources and the separate folders for sources and the separate | nd class files          | <u>C</u> | onfigure     | default   |    |
| Working sets  |                         |          |              |           |    |
| Add projec <u>t</u> to working sets   |                         |          | Ne           | <u>w</u>  |    |
| W <u>o</u> rking sets:  |                         | ~        | S <u>e</u> l | ect       |    |
| Module  |                         |          |              |           |    |
| Create module-info.java file  |                         |          |              |           |    |
| Module name:  |                         |          |              |           |    |
| Generate comments   |                         |          |              |           |    |
|   |                         |          |              |           |    |
|   |                         |          |              |           |    |
|   |                         |          |              |           |    |
| 3   | Da ala Marata           | Finish   |              | Carac     |    |
|   | Back Next >             | Einish   |              | Cance     | ·  |

Clicking the 'Finish' button will set the IDE with an environment for adding source files. Since this is a Windowsbuilder CREATE AN SWT WINDOW

Project, the next step should be to create a Window, and lastly, the classes that will serve the functionality of the application.

1. Create an SWT Window.

The IDE should appear as shown below after clicking on the WindowsDemoProject (the project root):



The JRE System Library should be correct, otherwise the build path will need to be adjusted.

. Select 'Source' and RIGHT-CLICK to bring up the source selection listing

.. Click on the 'Other... Ctrl+N' item from the 'New' children list. This will provide the Windowbuilder options.

| ile Fo     | dit S  | Source Refactor Navigate    | Search Project Run Wind               | how             | Heln     |                  |        |         |    |
|------------|--------|-----------------------------|---------------------------------------|-----------------|----------|------------------|--------|---------|----|
| ⇒ <b>→</b> | ne •   |                             | ) + Q_ + Q_ + # @ +                   | : 👝             |          | <b>-</b> ∶ ■ : % | : 4a - | 周 - (   | 65 |
| n Dack     | ane Fr |                             |                                       | 8               |          |                  | •••    | 0       | 4  |
| • 🖂 W      | /indov | wsDemoProject               |                                       | 0               |          |                  |        |         |    |
| > 🛋        | JRE    | System Library [JavaSE-22]  |                                       |                 |          |                  |        |         |    |
|            |        | New                         | >                                     | 12              | Java Pr  | oject            |        |         |    |
| · -        |        | Onen in New Window          |                                       | M               | Maven    | Project          |        |         |    |
|            |        | Open Type Hierarchy         | F4                                    | <b>D</b>        | Project  |                  |        |         |    |
|            |        | Show In                     | Alt+Shift+W >                         | <del>الله</del> | Packag   | e                |        |         |    |
|            |        | Conv                        | Ctrill C                              | ø               | Class    |                  |        |         |    |
|            |        | Copy<br>Copy Qualified Name | Cui+C                                 | C               | Interfac | ce               |        |         |    |
|            | ĥ      | Paste                       | Ctrl+V                                | C               | Enum     |                  |        |         |    |
|            | ×      | Delete                      | Delete                                | ß               | Record   |                  |        |         |    |
|            | 2.     | Remove from Context         | Ctrl+Alt+Shift+Down                   | e<br>e          | Annota   | ition            |        |         |    |
|            | _~_    | Build Path                  | Cut+Ait+Shilt+Down                    | <br>∰∑          | Source   | Folder           |        |         |    |
|            |        | Source                      | Alt+Shift+S >                         |                 | Folder   | orking set       |        |         |    |
|            |        | Refactor                    | Alt+Shift+T >                         | <u>ر</u>        | File     |                  |        |         |    |
|            | 1249   | Import                      |                                       | ľ               | Untitle  | d Text File      |        |         |    |
|            | 4      | Export                      |                                       | Ċ               | Task     |                  |        |         |    |
|            |        | Source                      |                                       | E               | JUnit Te | est Case         |        |         |    |
|            | -      |                             | · · · · · · · · · · · · · · · · · · · |                 | Other    |                  | Ctrl+N |         |    |
|            | S.     | Refresh                     | F5                                    |                 |          |                  |        |         |    |
|            |        | Assign working sets         |                                       |                 |          |                  |        |         |    |
|            | •      | Coverage As                 | >                                     |                 |          |                  |        |         |    |
|            |        | Run As                      | >                                     |                 |          |                  |        |         |    |
|            | 14     | Restore from Local History  | >                                     |                 |          |                  |        |         |    |
|            |        | Team                        | >                                     |                 |          |                  |        |         |    |
|            |        | Compare With                | >                                     |                 |          |                  |        |         |    |
|            | ۲      | GitHub                      | >                                     |                 |          |                  |        |         |    |
|            |        | Configure                   | >                                     |                 |          |                  |        |         |    |
|            |        | Properties                  | Alt+Enter                             |                 |          |                  |        | 0.1     |    |
|            |        |                             |                                       |                 |          | 0 items          | ems X  | @ Javad | do |
|            |        |                             |                                       |                 |          | Descripti        | on     |         | ^  |
|            |        |                             |                                       |                 |          |                  |        |         |    |
|            |        |                             |                                       |                 |          |                  |        |         |    |
|            |        |                             |                                       |                 |          |                  |        |         |    |

#### 2. 'Select a Wizard' Dialog

The 'Select a Wizard' appears after clicking the Src / New / Other items shown above. Select a Wizard dialog appears (below):

| Select a wizard  | — |       | ×  |
|--|---|-------|----|
| Select a wizard  |   |       | \$ |
| <u>W</u> izards:   |   |       |    |
| type filter text   |   |       | ×  |
| <ul> <li>&gt; General</li> <li>&gt; Git</li> <li>&gt; Gradle</li> <li>&gt; Java</li> <li>&gt; Maven</li> <li>&gt; Oomph</li> <li>&gt; Plug-in Development</li> <li>&gt; Tasks</li> <li>&gt; User Assistance</li> <li>&gt; WindowBuilder</li> </ul> |   |       |    |
| (?) < <u>Back</u> <u>Next</u> > <u>Finish</u>  |   | Cance | :  |

. Select 'WindowBuilder' (see below):

| Select a wizard  | _ |        | ×  |
|--|---|--------|----|
| Select a wizard  |   |        | \$ |
| <u>W</u> izards:   |   |        |    |
| type filter text   |   |        |    |
| <ul> <li>&gt; Git</li> <li>&gt; Gradle</li> <li>&gt; Java</li> <li>&gt; Maven</li> <li>&gt; Oomph</li> <li>&gt; Plug-in Development</li> <li>&gt; Tasks</li> <li>&gt; User Assistance</li> <li>&gt; WindowBuilder</li> <li>&gt; Project Palette</li> <li>&gt; Swing Designer</li> <li>&gt; SWT Designer</li> </ul> |   |        |    |
| (?) < <u>Back</u> <u>Next</u> > <u>Finish</u>  |   | Cancel |    |

.. Select 'SWT Designer' (see below):

| Select a wizard  |   |                |          | — |       | ×  |
|--|---|----------------|----------|---|-------|----|
| Select a wizard  |   |                |          |   |       | \$ |
| <u>W</u> izards:   |   |                |          |   |       |    |
| type filter text   |   |                |          |   |       |    |
| <ul> <li>&gt;&gt;&gt; User Assistant</li> <li>&gt;</li></ul> | ce<br>ler<br>lette<br>signer<br>gner<br>Gace Java Project<br>nding<br>4 |                |          |   |       |    |
| ?  | < <u>B</u> ack  | <u>N</u> ext > | <u> </u> |   | Cance |    |

... Select 'SWT' (see below):

| Select a wizard  | _ |       | ×  |
|--|---|-------|----|
| Select a wizard  |   |       | \$ |
| <u>W</u> izards:   |   |       |    |
| type filter text   |   |       |    |
| <ul> <li>SWT Designer</li> <li>SWT/JFace Java Project</li> <li>Databinding</li> <li>Eclipse 4</li> <li>Forms</li> <li>JFace</li> <li>RCP</li> <li>SWT</li> <li>Application Window</li> <li>Composite</li> <li>Dialog</li> <li>Shell</li> </ul> |   |       |    |
|  |   |       |    |
| (?) < <u>Back</u> <u>Next</u> > <u>Finish</u>  |   | Cance | 1  |

....Select 'Application Window' (see below):

| Select a wizard                               | _ |       | ×  |
|---|---|-------|----|
| Select a wizard                               |   |       | \$ |
|   |   |       | _  |
| Wizards:                                      |   |       |    |
| type filter text                              |   |       |    |
| ✓ ➢ SWT Designer ☑ SWT/JFace Java Project     |   |       |    |
| > 🗁 Databinding                               |   |       |    |
| > 🔁 Eclipse 4                                 |   |       |    |
| > 🗁 Forms                                     |   |       |    |
| > CP  |   |       |    |
| V 🕞 SWT                                       |   |       |    |
| Application Window                            |   |       |    |
| Composite                                     |   |       |    |
| 😭 Dialog                                      |   |       |    |
| 📑 Shell                                       |   |       |    |
|   |   |       |    |
|   |   |       |    |
|   |   |       |    |
| (?) < <u>Back</u> <u>Next</u> > <u>Finish</u> |   | Cance |    |

.... Click on the 'Next' button in order to begin creating the Application Window. A new dialog box, 'SWT Application' appears (see below):

| 😑 New SWT /                         | Application  |                             |                | —              |                        | ×  |
|-------------------------------------|--|-----------------------------|----------------|----------------|------------------------|----|
| Create SWT A                        | J <sup>i</sup> S                                       | WT                          |                |                |                        |    |
| Source fol <u>d</u> er:<br>Package: | WindowsD   | emoProject                  | /src           | (default)      | Browse                 | e  |
| Na <u>m</u> e:                      |  |                             |                |                | <u>bio</u> <u>n</u> sk |    |
| Create content                      | ts in:<br>ted createCo<br>open() meth<br>static main() | ntents() me<br>od<br>method | thod           |                |                        |    |
| ?                                   | <  | <u>B</u> ack                | <u>N</u> ext > | <u>F</u> inish | Cance                  | el |

3. 'New SWT Application' dialog appears (above). Fill the 'Name:' text with an appropriate File name for the java SWT application, leaving the protected createContents() method the selection for 'Create contents in:" listing selected.

. Source Folder – leave alone

.. Package – leave alone

Note the 'Source folder:' is referring to the project/source that was originally selected with a right-click to initiate the entire SWT project and this application.

The 'Name:' text will be filled in this example with 'WindowDemo' (see below):

| 🖨 New SWT A   | Application —  | οx              |  |  |  |  |  |
|---|--|-----------------|--|--|--|--|--|
| Create SWT Application<br>In use of the default package is discouraged. |  |                 |  |  |  |  |  |
| Source fol <u>d</u> er:   | WindowsDemoProject/src   | Br <u>o</u> wse |  |  |  |  |  |
| Pac <u>k</u> age:   | (default)  | Bro <u>w</u> se |  |  |  |  |  |
| Na <u>m</u> e:  | WindowDemo   |                 |  |  |  |  |  |
| protect     public     public   | s in:<br>ed createContents() method<br>open() method<br>static main() method |                 |  |  |  |  |  |
| ?   | < <u>B</u> ack <u>N</u> ext > <u>F</u> inish                                 | Cancel          |  |  |  |  |  |

Click the 'Finish' button to allow the shell to be created and tested.

The project environment should now appear as follows. Note that the Window can be Modified through the source or design aspects. If there are significant errors at this stage, The design aspect cannot be displayed.

| File Edit Source Refactor Source Navigate Search Project Run Window Help <p< th=""><th>eclipse-workspace_202406 - Windows</th><th>sDemoProje</th><th>ct/src/Win</th><th>dowDem</th><th>o.java -</th><th>Eclips</th><th>se IDE</th><th>E</th></p<>   | eclipse-workspace_202406 - Windows | sDemoProje | ct/src/Win | dowDem                | o.java -              | Eclips | se IDE | E   |
|---|------------------------------------|------------|------------|-----------------------|-----------------------|--------|--------|---|
| <pre>     * M + M + M + A + A + M + A</pre> | File Edit Source Refactor Source   | Navigate   | Search     | Project               | Run                   | Wind   | ow     | Help  |
| <pre>     Package Explorer ×     Package Explorer ×     WindowsDemoProject     A /RE System Library [JavaSE-22]     WindowDemo.java     A /RE System Library [JavaSE-22]     WindowDemo.java     A meterenced Libraries     Package Explorer ×     Package</pre>  | 📅 ▾ 🖆 ▾ 🔡 🔞 🖉 🏷 🛛 🐡 ▾              | 0 - 9      | - 🎴 -      | <b>B</b> 🕲            | - 🤌                   | Þ      | 1      | • 📮 🔍 🖢 ▼ 🖗 ▼ 🏷 🛷 🔶 ▼ 🛛   |
| <pre>&gt; WindowsDemoProject &gt; M RE System Library [JavaSE-22] &gt; M RE System Library [JavaSE-22] &gt; M Referenced Libraries &gt; M Referenced Libraries </pre>   | 🛱 Package Explorer 🗙               |            | le         | - <del>S</del>        | 8                     |        |        | 🚽 WindowDemo.java 🗙   |
| 260 /**   | File Edit Source Refactor Source   | Navigate   | Search     | Project<br>∰ ③<br>□ 冬 | Run<br>▼ : 200<br>● 8 | Wind.  |        | <pre>Help  File Note: Participation of the import org.eclipse.swt.widge  A public class WindowDemo {     protected Shell shell;     A = 0 * Launch the application     * @param RCSS     ***     public static void main(         try {</pre> |
|   |                                    |            |            |                       |                       |        |        | 43  |
| 43<br>F Source Design S Bindings<br>Problems X @ Javadoc & Declara  |                                    |            |            |                       |                       |        |        | 0 items<br>Description  |

# The Generated (Initial) SWT Window Application

The following Window and code are the result of Eclipse generating the skeleton SWT Window in Java. The rest is up to you.

When the IDE runs the application, the Window appears as a blank item:



The Window's shell source code is as follows:

```
_____
import org.eclipse.swt.widgets.Display;
import org.eclipse.swt.widgets.Shell;
public class WindowDemo {
      protected Shell shell;
      /**
       * Launch the application.
       * @param args
       */
      public static void main(String[] args) {
             try {
                    WindowDemo window = new WindowDemo();
                    window.open();
             } catch (Exception e) {
                    e.printStackTrace();
             }
      }
```

```
/**
* Open the window.
*/
public void open() {
        Display display = Display.getDefault();
        createContents();
        shell.open();
        shell.layout();
        while (!shell.isDisposed()) {
                if (!display.readAndDispatch()) {
                        display.sleep();
                }
        }
}
/**
* Create contents of the window.
*/
protected void createContents() {
        shell = new Shell();
        shell.setSize(450, 300);
        shell.setText("SWT Application");
}
```

```
}
```