

Java

Properties and Bindings

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JavaFX Properties

A JavaFX **property** is an object that holds a value.

JavaFX properties are located in the `javafx.beans.property` package.

Some commonly used properties are

- ▶ `SimpleIntegerProperty`
- ▶ `ReadOnlyIntegerWrapper`
- ▶ `SimpleDoubleProperty`
- ▶ `ReadOnlyDoubleWrapper`
- ▶ `SimpleStringProperty`
- ▶ `ReadOnlyStringWrapper`
- ▶ `SimpleListProperty`
- ▶ `ReadOnlyListProeprty`

The simple properties are both readable and writable, as opposed to the read-only properties.

Example

See `ExampleOne.java`

Properties Are Observable Values

Properties are **observable values** meaning that they emit events.

Observable values emit two kinds of events:

- ▶ Change Event - the observable value emits this event whenever its value changes.
- ▶ Invalidation Event - the observable value emits this event whenever its value becomes invalid for some reason. The value is only updated when needed (lazy evaluation).

Event handlers can be created to handle events emitted by observable values.

Some Properties Can Be Bound Together

Properties can be bound to another property of the same type, except for read-only properties.

Use the `bind()` to create a one-way binding.

Use the `bindBidirectional()` to create a bidirectional binding.

Use the `unbind()` method to unbind a property from another property.

The class `javafx.beans.binding.Bindings` contains many **static** methods for creating bindings.

See `ExampleTwo.java`, `ExampleThree.java`, and `ExampleFour.java`.

JavaFX Controls and Properties

Many JavaFX controls have properties that store the inner state of the control.

The properties in the controls can be bound to other properties.

This allows the other properties to synchronize their values when the controls in the properties are changed.

See the JavaFX 11 documentation for examples of controls in Labels, Buttons, TextFields, and TextAreas.

An observable property of an object can be accessed by calling a method whose name ends with the word `Property`. For instance, if you had a `Label` named `myLabel` and you wanted to access the `text` property of the label: `myLabel.textProperty()`