

# JavaFX – Past, Present, Future

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November 22 2015



# Before JavaFX

- AWT
  - Introduced with Java 1.0
  - Thin layer over platform native UI controls
  - Platform specific look and feel
- Swing
  - Introduced with Java SE 1.2
  - Richer control set. Support for different L&F independent from platform
  - Good only for Desktop applications



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# Java FX past

- First introduced in 2008 as JavaFX 1.0
  - Based on JavaFX Script
- Later versions added support for Mobile, Linux & Solaris
- In 2011 Oracle released JavaFX 2.0
  - Based on Java API instead of JavaFX Script
  - Initially targeting Windows
  - Later versions added Linux and Mac support
- Java FX is part of Java SE version 7 update 6
- Some parts of JavaFX platform are available as open source



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# JavaFX Present

- Part of JRE/JDK 8
  - Provides support for Windows, Linux and Mac
  - Supported only on x86 platforms
  - There are third party support for Android and iOS from open source project JavaFX Ports (<http://gluonhq.com/open-source/javafxports/>)



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# JavaFX Application

```
public class Main extends Application {  
    @Override  
    public void start(Stage primaryStage) {  
        try {  
            VBox root = new VBox();  
            Scene scene = new Scene(root,400,400);  
  
            Label label = new Label("Hello world!");  
            root.getChildren().add(label);  
  
            primaryStage.setScene(scene);  
            primaryStage.show();  
        } catch (Exception e) {  
            e.printStackTrace();  
        }  
    }  
  
    public static void main(String[] args) {  
        launch(args);  
    }  
}
```

- Stage – main application window
- Scene – Window content
- VBox – Scene layout



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# JavaFX Layouts

- VBox – positions controls vertically
- HBox – positions controls horizontally
- BorderPane – Top, Bottom, Left, Right
- GridPane – Places controls on a grid
- FlowPane – Flow layout
- AnchorPane
- TilePane
- StackPane



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# JavaFX Controls

- Full set of standard controls
  - Label, TextField, TextArea, Button, CheckBox, ComboBox, RadioButton, ListView, ImageView
  - And more...
- WebView – fully featured Web browser based on WebKit
- Different shapes
  - Line, Rectangle, Circle, Ellipse and more
- Charts
  - AreaChart, BarChart, BubbleChart, LineChart, PieChart
  - And more....
- New in JavaFX 8 is support for 3D



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# JavaFX and Swing

- SwingNode – allows to use Swing controls in JavaFX scene
- JFXPanel – allows to use JavaFX controls in Swing form
- Implications when mixing JavaFX and Swing
  - Each framework uses his own event thread.
  - When changing state of Swing or JavaFX controls this must happen in the corresponding event thread.



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# JavaFX & SWT

- `javafx.embed.swt.FXCanvas` – JavaFX provides support to embed JavaFX content in SWT application



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# CSS in JavaFX

- JavaFX allows to use CSS to style your controls

```
.button1 {  
    -fx-text-fill: #006464;  
    -fx-background-color: #DFB951;  
    -fx-border-radius: 20;  
    -fx-background-radius: 20;  
    -fx-padding: 5;  
}
```

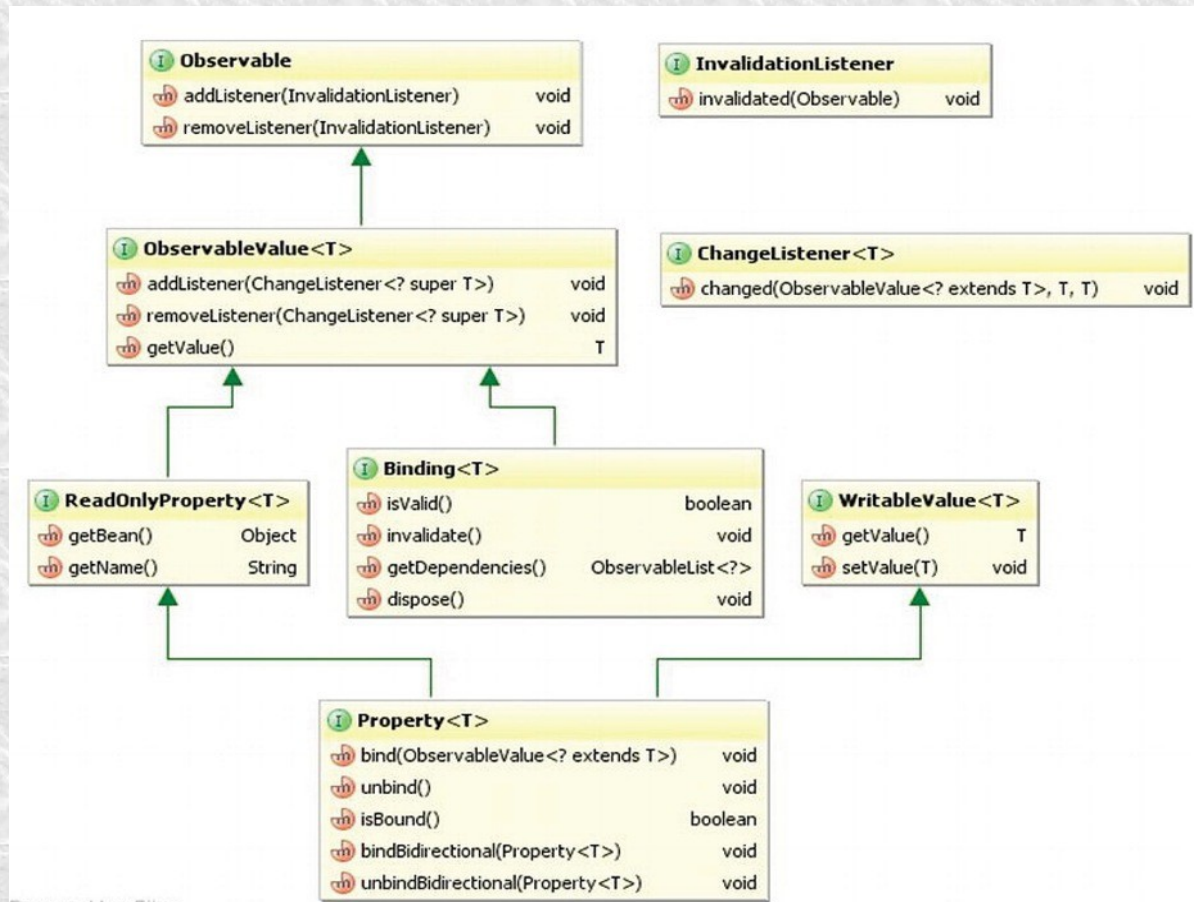


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# JavaFX Properties & Bindings

- New properties & bindings library



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# JavaFX Properties & Bindings

- Full set of predefined classes for different property types
  - Standard object types: `SimpleStringProperty`, `SimpleIntegerProperty`, `SimpleBooleanProperty`, `SimpleDoubleProperty`, `SimpleFloatProperty`, `SimpleLongProperty`
  - Collections: `SimpleListProperty<E>`, `SimpleMapProperty<K, V>`, `SimpleSetProperty<E>`
  - `SimpleObjectProperty<E>`



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# How to define a property

- Sample property definition

```
public class BeanClass {  
    private StringProperty nameProperty = new SimpleStringProperty(this, "name");  
  
    public String getName() {  
        return nameProperty.getName();  
    }  
  
    public void setName(String name) {  
        this.nameProperty.set(name);  
    }  
  
    public StringProperty nameProperty()  
    {  
        return nameProperty;  
    }  
}
```



# Bindings

- Unidirection bindings
  - Methods in Property class
    - bind()
    - unbind()
    - isBound()
- Bidirectional bindings
  - Methods in Property class
    - bindBidirectional()
    - unbindBidirectional();
- Expression bindings
  - Class `javafx.beans.binding.Bindings`



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# SceneBuilder

- WYSIWYG tool to build your forms
- Produces FXML file – View in MVC
- Clean separation between View and Controller
- Integrates with all Java IDE's
- Initially developed by Oracle
- Released as open source
- Binaries are available by Gluon(  
<http://gluonhq.com/open-source/scene-builder/>)



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# Tools support for Java FX

- NetBeans from version 7.1.1
- IntelliJ
- Eclipse – e(fx)clipse provides support for JavaFX development
  - <https://www.eclipse.org/efxclipse/index.html>



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# JavaFX resources

- JavaFX at Oracle - <http://docs.oracle.com/javafx/>
- GluonHQ - <http://gluonhq.com/>
- YouTube – lots of tutorials about JavaFX
- OpenjFX Project - <http://openjdk.java.net/projects/openjfx/>
- JavaFX Wikipedia - <https://en.wikipedia.org/wiki/JavaFX>



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# JavaFX Q&A

- Any questions?



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# Thank you !!!

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