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# Elixir Report Chart Model

*Elixir Technology Pte Ltd*

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## Introduction

This document describes the internal object model of Elixir Report. The object model consists of a number of classes that are all in the `com.elixirtech.chart2.model` package. The information is generated directly from the tool. While we endeavour to ensure this API will remain unchanged, it is possible that changes will be needed in future releases to correct errors or to add significant functionality.

All location and dimension values are in twips, where we assume 1 twip = 1/20 of a pixel and there are 72 pixels per inch (giving 1440 twips per inch). Font sizes are also measured in twips.

## Shorthand Notation

### Attributes

Where an object is shown to contain another object, for example every Style has a String called Name, this implies there are methods called getName() and setName(String name). In JavaScript it is also allowable to access the property directly as style.Name, which is internally mapped into calls to the get or set method, depending on the context. The only exception to this pattern is Boolean values, where an attribute of type Boolean called Enabled is accessed by isEnabled() and setEnabled(Boolean b). This is consistent with Java bean naming conventions.

### Collections

Many objects hold collections of other objects. In this object model these are Lists and Maps. Each List and Map is exposed through an API described here.

List collections are documented as in this example:

```
List: Item : List<CubeLevel>
```

This shorthand defines the following functions:

- int getItemCount()
- void addItem(CubeLevel item)
- void addItem(int idx, CubeLevel item)
- void addAllItems(Collection collection)
- int indexOfItem(CubeLevel item)
- void removeItem(CubeLevel item)
- void removeAllItems(Collection collection)
- void removeAllItems()
- CubeLevel getItem(int idx)
- java.util.Iterator getItemIterator()

Each shorthand can be trivially expanded into these ten functions, varying the name of the contents (Item in this case) and the type of the contents (CubeLevel in this case).

Map collections are documented as in this example:

```
Map: RenderDetails : Map<String,RenderDetails> key is value.getMimeType()
```

This shorthand defines the following functions:

- void addRenderDetails(RenderDetails renderDetails)
- void removeRenderDetails(RenderDetails renderDetails)
- RenderDetails getRenderDetails(String mimeType)

- `java.util.Iterator getRenderDetailsIterator()`
- `int getRenderDetailsCount()`

Each shorthand can be trivially expanded into these five functions, varying the name of the key type and value type (String and RenderDetails respectively in this case). The add method requires more explanation, the key is not passed in to the function, as with a typical `Map.put(key,value)` call, instead the key is derived by invoking a method on the value. In this example, the key is derived by calling the function `getMimeType()` on the `RenderDetails`, which returns a String to be used as the key. This is done inside the API, so you just have to add a `RenderDetails` and the key will be determined automatically.

## Elements

### AbstractUi

Implicit Style Name: `abstract-ui`

- `PlotBackground` : String

Map: Parameters : `Map<String,com.elixirtech.report2.raw.model.Parameter>`key is `value.getKey()`

### Axis

Implicit Style Name:

- `Label` : Label (view Label)
- `Tick` : Tick (view Tick)

### Category3dType

`Category3dType` extends `ChartType` (view `ChartType`)

Implicit Style Name: `category-3d`

- `RetainXOrder` : boolean
- `RetainZOrder` : boolean
- `XSource` : `com.elixirtech.report2.raw.model.ControlSource`
- `YSource` : `com.elixirtech.report2.raw.model.ControlSource`
- `ZSource` : `com.elixirtech.report2.raw.model.ControlSource`
- `Category3dUi` : `Category3dUi` (view `Category3dUi`)

### Category3dUi

`Category3dUi` extends `AbstractUi` (view `AbstractUi`)

Implicit Style Name: `category-3d-ui`

- `CameraX` : double
- `CameraY` : double

- CameraZ : double
- XAxis : Axis (view Axis)
- YAxis : Axis (view Axis)
- ZAxis : Axis (view Axis)

## CategoryType

CategoryType extends ChartType (view ChartType)

Implicit Style Name: category

- Inverted : boolean
- RetainKeyOrder : boolean
- KeySource : com.elixirtech.report2.raw.model.ControlSource
- ValueSource : ControlSourceList (view ControlSourceList)
- CategoryUi : CategoryUi (view CategoryUi)

## CategoryUi

CategoryUi extends AbstractUi (view AbstractUi)

Implicit Style Name: category-ui

- KeyAxis : Axis (view Axis)
- ValueAxis : Axis (view Axis)
- Value : Value (view Value)
- PositivePosition : Position (view Position)
- NegativePosition : Position (view Position)

## Chart

Implicit Style Name: chart

- Category : String
- Type : String
- Locale : Locale
- BackgroundColor : java.awt.Color
- ChartType : ChartType (view ChartType)
- OnConfigure : com.elixirtech.report2.raw.model.Script

## ChartType

Implicit Style Name: chart-type

- Title : Title (view Title)
- Legend : Legend (view Legend)

## ControlSourceList

Implicit Style Name:

List: ControlSource : List<ControlSource>

## Font

Implicit Style Name: font

- FontFamily : String
- FontWeight : String
- FontStyle : String
- FontColor : String
- FontSize : int

## Format

Implicit Style Name: format

- Locale : Locale
- Type : String
- MinIntegerDigits : int
- MaxIntegerDigits : int
- MinFractionDigits : int
- MaxFractionDigits : int
- GroupingUsed : boolean
- GroupingSize : int
- DecimalSeparatorAlwaysShown : boolean
- CustomPattern : String
- DateFormat : String
- TimeFormat : String

## HighLowType

HighLowType extends ChartType (view ChartType)

Implicit Style Name: highlow

- DataSource : com.elixirtech.report2.raw.model.ControlSource

- HighSource : com.elixirtech.report2.raw.model.ControlSource
- LowSource : com.elixirtech.report2.raw.model.ControlSource
- OpenSource : com.elixirtech.report2.raw.model.ControlSource
- CloseSource : com.elixirtech.report2.raw.model.ControlSource
- VolumeSource : com.elixirtech.report2.raw.model.ControlSource
- HighLowUi : HighLowUi (view HighLowUi)

## HighLowUi

HighLowUi extends AbstractUi (view AbstractUi)

Implicit Style Name: highlow-ui

- KeyAxis : Axis (view Axis)
- ValueAxis : Axis (view Axis)
- Value : Value (view Value)

## Label

Implicit Style Name: label

- Font : Font (view Font)

## Legend

Implicit Style Name: legend

- Anchor : String
- Font : Font (view Font)
- ControlSource : com.elixirtech.report2.raw.model.ControlSource

## MeterInterval

Implicit Style Name: meter-interval

- Name : String
- Min : double
- Max : double
- FillColor : java.awt.Color
- LineColor : java.awt.Color
- LineWidth : int

## MeterType

MeterType extends ChartType (view ChartType)

Implicit Style Name: meter

- ControlSource : com.elixirtech.report2.raw.model.ControlSource
- MeterUi : MeterUi (view MeterUi)

## MeterUi

MeterUi extends AbstractUi (view AbstractUi)

Implicit Style Name: meter-ui

- RangeMin : double
- RangeMax : double
- Unit : String
- ValueColor : String
- NeedleColor : String

List: Interval : List<MeterInterval>

## PieType

PieType extends ChartType (view ChartType)

Implicit Style Name: pie

- Inverted : boolean
- RetainKeyOrder : boolean
- KeySource : com.elixirtech.report2.raw.model.ControlSource
- ValueSource : ControlSourceList (view ControlSourceList)
- PieUi : PieUi (view PieUi)

## PieUi

PieUi extends AbstractUi (view AbstractUi)

Implicit Style Name: pie-ui

- ExplodeSector : int
- ExplodePercentage : float
- ValueBackground : String
- Font : Font (view Font)

## PolarType

PolarType extends ChartType (view ChartType)

Implicit Style Name: polar

- RetainKeyOrder : boolean
- KeySource : com.elixirtech.report2.raw.model.ControlSource
- ValueSource : ControlSourceList (view ControlSourceList)
- PolarUi : PolarUi (view PolarUi)

## PolarUi

PolarUi extends AbstractUi (view AbstractUi)

Implicit Style Name: polar-ui

- Axis : Axis (view Axis)
- Value : Value (view Value)

## Position

Implicit Style Name: position

- Position : String
- Anchor : String
- Pivot : String
- Angle : int

## Tick

Implicit Style Name: tick

- TickMarkVisible : boolean
- Font : Font (view Font)
- Format : Format (view Format)

## Title

Implicit Style Name: title

- Anchor : String
- Font : Font (view Font)
- ControlSource : com.elixirtech.report2.raw.model.ControlSource

## Value

Implicit Style Name: value

- Visible : boolean
- Font : Font (view Font)
- Format : Format (view Format)

## WindType

WindType extends ChartType (view ChartType)

Implicit Style Name: wind

- KeySource : com.elixirtech.report2.raw.model.ControlSource
- DataSource : com.elixirtech.report2.raw.model.ControlSource
- DirectionSource : com.elixirtech.report2.raw.model.ControlSource
- ForceSource : com.elixirtech.report2.raw.model.ControlSource
- WindUi : WindUi (view WindUi)

## WindRoseType

WindRoseType extends ChartType (view ChartType)

Implicit Style Name: wind-rose

- DirectionSource : com.elixirtech.report2.raw.model.ControlSource
- ForceSource : com.elixirtech.report2.raw.model.ControlSource
- WindRoseUi : WindRoseUi (view WindRoseUi)

## WindRoseUi

WindRoseUi extends AbstractUi (view AbstractUi)

Implicit Style Name: wind-rose-ui

## WindUi

WindUi extends AbstractUi (view AbstractUi)

Implicit Style Name: wind-ui

- ValueAxis : Axis (view Axis)
- Value : Value (view Value)

## XYType

XYType extends ChartType (view ChartType)

Implicit Style Name: xy

- KeySource : com.elixirtech.report2.raw.model.ControlSource
- ValueSource : ControlSourceList (view ControlSourceList)
- XYUi : XYUi (view XYUi)

## XY3dUi

XY3dUi extends XYUi (view XYUi)

Implicit Style Name: xy-3d-ui

- CameraX : double
- CameraY : double
- CameraZ : double

## XYUi

XYUi extends AbstractUi (view AbstractUi)

Implicit Style Name: xy-ui

- XAxis : Axis (view Axis)
- YAxis : Axis (view Axis)
- Value : Value (view Value)
- PositivePosition : Position (view Position)
- NegativePosition : Position (view Position)