

# Documentation: RAG – Regression Analysis Graph

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## Overview

### LinkedInt64List

Contains a linked list class, that can contain int64 values and manages the values of a graph.

### RAGGraph

In this Unit you can find the RAGGraph class, which is responsible for the calculation and rendering of a graph.

### RAG

The Unit RAG contains the class named TRAG, which is responsible for the management of the graphs.

## Details

### TRAGGraphType (Enumeration)

Member	Description
<i>gtLines</i>	The graph is displayed as a line.
<i>gtBarsAbsolute</i>	The graph is displayed as a bar diagram, whereas the thresholds are absolute. <b>See also:</b> <i>Threshold1</i> , <i>Threshold2</i> , <i>ThresholdColor1</i> , <i>ThresholdColor2</i>
<i>gtBarsRelative</i>	The graph is displayed as a bar diagram, whereas the thresholds are relative, what means, that they are percentage values. <b>See also:</b> <i>Threshold1</i> , <i>Threshold2</i> , <i>ThresholdColor1</i> , <i>ThresholdColor2</i>
<i>gtArea</i>	The graph is displayed as a line, but the area below the line is colored.

### TGraphArray

Array type for the Graphs property of the TRAGGraph class.

#### Definition

```
type TGraphArray = array of TRAGGraph;
```

## TRAGGraph

### Construtors

Parameter	Beschreibung
Length : integer	Creates a new instance of the TRAG-Graph class with the given length. The length of a graph can be set only in the constructor. If you want to change it, a recreation is needed.

### Properties

Name	Type	Description	Access	
			R	W
<i>Values</i>	TLinkedList	Retrieves or sets the values of the graph in form of a linked list.	✓	✓
<i>Length</i>	Integer	Retrieves the length or the maximum number of values the graph can contain. This value can only be set in the constructor.	✓	✗
<i>MaxValue</i>	Int64	Retrieves the currently highest value of the graph.	✓	✗
<i>GraphType</i>	TRAGGraphType	Retrieves or sets the display type of the graph.	✓	✓
<i>Color</i>	TColor	Retrieves or sets the color of the graph. If GraphType is set to gtBarsAbsolute or gtBarsRelative Color is used to draw values below Lower-Threshold.	✓	✓
<i>LowerThreshold</i>	Int64	Retrieves or sets the lower threshold for graphs rendered with the gtBarsAbsolute or gtBarsRelative display type. If the graph type is gtBarsRelative you have to pass the percentage multiplied with the factor 100. E.g.: $0.6 * 100 = 60$	✓	✓
<i>UpperThreshold</i>	Int64	Retrieves or sets the lower threshold for graphs rendered with the gtBarsAbsolute or gtBarsRelative display type. If the graph type is gtBarsRelative you have to pass the percentage multiplied with the factor 100. E.g.: $0.6 * 100 = 60$	✓	✓
<i>LowerThresholdColor</i>	TColor	Retrieves or sets the color for values below the upper threshold and above the lower threshold. It is ignored if the graph is rendered with the gtLines or gtArea display	✓	✓

		type.		
<i>UpperThresholdColor</i>	TColor	Retrieves or sets the color for values above the upper threshold. It is ignored if the graph is rendered with the <code>gtLines</code> or <code>gtArea</code> display type.	✓	✓
<i>Visible</i>	Boolean	Retrieves or sets whether the graph is visible or not.	✓	✓
<i>LineWidth</i>	Integer	Retrieves or sets a value that determines the line width of the graph. It is ignored if the graph is rendered with the <code>gtArea</code> graph type.	✓	✓

## Methods

Name	Parameters	Type	Description
<i>Render</i>	<ul style="list-style-type: none"> <li>o <code>renderArea</code> : TCanvas</li> <li>o <code>yScalar</code> : real</li> <li>o <code>xScalar</code> : real</li> <li>o <code>width</code> : integer</li> <li>o <code>height</code> : integer</li> </ul>	procedure	Draws a graph by using the given parameters. <code>yScalar</code> is calculated by the RAG class that contains the graph and is the ratio of the highest value in the graph and the height. <code>xScalar</code> is given by the user and width and height are the dimensions of the render area.
<i>Calculate</i>	<ul style="list-style-type: none"> <li>o <code>width</code> : integer</li> <li>o <code>height</code> : integer</li> <li>o <code>yScalar</code> : real</li> <li>o <code>xScalar</code> : real</li> </ul>	Procedure	Calculates a graph by using the given parameters. <code>yScalar</code> is calculated by the RAG class that contains the graph and is the ratio of the highest value in the graph and the height. <code>xScalar</code> is given by the user and width and height are the dimensions of the render area.
<i>AddValue</i>	<ul style="list-style-type: none"> <li>o <code>value</code> : int64</li> </ul>	Procedure	Adds the given value to the graph and raises a <code>CalculationRequest</code> .

## Events

Name	Type	Description
<i>RenderRequest</i>	TNotifyEvent	Occurs, when the graph needs to be rendered.
<i>CalculationRequest</i>	TNotifyEvent	Occurs, when the graph needs to be calculated.

## TRAG

### Constructors

Parameters	Description
<ul style="list-style-type: none"> <li>o <code>Width</code> : integer</li> <li>o <code>Height</code> : integer</li> </ul>	Creates a new instance of the TRAG class by using the width and height parameter for setting the dimensions of the render area.

## Properties

Name	Type	Description	Access	
			R	W
<i>GridStepHorz</i>	Integer	Retrieves or sets the horizontal step of the grid.	✓	✓
<i>GridStepVert</i>	Integer	Retrieves or sets the vertical step of the grid. Depending on the height and the highest values of the graph, this value increases the height of the graph above the highest available value to ensure the visibility of all values.	✓	✓
<i>GridColor</i>	TColor	Retrieves or sets the color of the grid.	✓	✓
<i>BackColor</i>	TColor	Retrieves or sets the back color of the grid.	✓	✓
<i>XScalar</i>	Real	Retrieves or sets the horizontal scalar for the grid and the graphs.	✓	✓
<i>Picture</i>	TPicture	Retrieves the picture containing the output generated by the Render method.	✓	✗
<i>Graphs</i>	TGraphArray	Retrieves an array that contains the graphs of this RAG.	✓	✗
<i>ValueOffsetPercentage</i>	Integer	Retrieves or sets the percentage of the height of the render area, which is added to the graph height.		
<i>GridWidth</i>	Integer	Retrieves or sets the line width of the grid.	✓	✓
<i>TextFont</i>	TFont	Retrieves or sets the font of the labels located in each corner of the graph.	✓	✓
<i>TextColor</i>	TColor	Retrieves or sets the colour of the labels located in each corner of the graph.	✓	✓
<i>TextBackground</i>	Boolean	Retrieves or sets whether each label has a background.	✓	✓
<i>TextLeftTop</i>	String	Retrieves or sets the caption of the left top corner.	✓	✓
<i>TextRightTop</i>	String	Retrieves or sets the caption of the right top corner.	✓	✓
<i>TextLeftBottom</i>	String	Retrieves or sets the caption of the left bottom corner.	✓	✓
<i>TextRightBottom</i>	String	Retrieves or sets the caption of the right bottom corner.	✓	✓

## Methods

Name	Parameters	Type	Description
<i>RedrawGraphs</i>	o Recalculate : boolean	procedure	Redraws every graph, contained in this RAG. If the parameter recalculate is passed, every graph is recalculated.
<i>AddGraph</i>	o Graph : TRAG- Graph	Procedure	Adds the given graph to the list of this RAG.
<i>AddGraph</i>	o Length : integer o Color : TColor o graphType : TRAGGraphType	Procedure	Creates a new graph by using the given parameters and adds it to the list.
<i>AddValues</i>	o values : array of int64	Procedure	Distributes the values from the array to the graphs. If more graphs exist than values, only the first n graphs are provided with values. If more graphs exist than values, the excessive values are ignored.
<i>AddValue</i>	o graphIndex : integer o value : int64	Procedure	Adds the value to graph with the given index.