SankeyChart Control Reference

Show data flow relationships as Sankey diagrams.

Reference **Controls** **Charts** SankeyChart

Updated in FrameworX 10.1.6: rebuilt on FrameworX's own code; now also available in the web (HTML5) client.

The SankeyChart is a graphical component used to visualize the flow and distribution of resources, energy, or data between entities within a system. It displays proportional flows and supports analysis of multi-dimensional data through visual representation.

Each flow goes from one named node to another and is drawn as a ribbon whose width is proportional to the flow's weight.

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Requirements

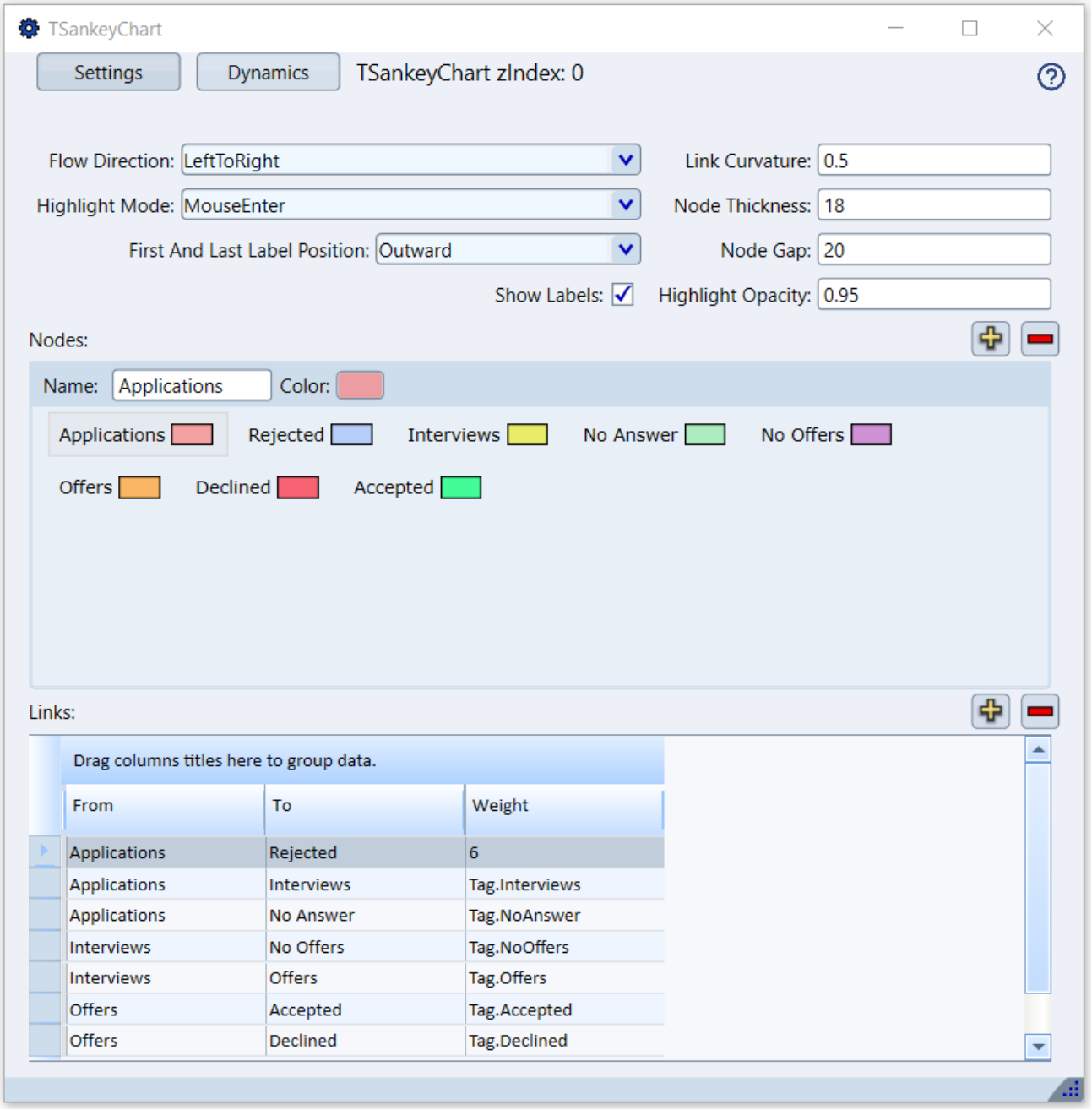
From FrameworX 10.1.6 this component is Portable. It runs both on Windows and on Web Pages hosted on any platform. In earlier versions it is available only for Windows WPF applications.

Clients: works in the Rich Client and in the web client (HTML5), with the same values and layout on both. Verified on FrameworX 10.1.6.

Displays created in earlier versions keep their Sankey settings and open as before.

Configuration

1. Go to **Displays / Draw**.
2. In the Components Panel, select **Charts**, then choose **SankeyChart**.
3. Click or drag-and-drop the component into the drawing area.
4. Double-click the object to open the configuration window.



SankeyChart Settings	
Field	**Description**
Flow Direction	Sets the direction of flow in the diagram. 1. **LeftToRight**: Sets the FlowDirection from Left to Right. 2. **TopToBottom**: Sets the FlowDirection from Top to Bottom.
Highlight Mode	Defines interaction for highlighting nodes and links. 1. **MouseLeftButtonUp**: Highlighting nodes on mouse left button up. 2. **MouseEnter**: Highlighting nodes on mouse enter.

First And Last Label Position	Sets the position of the first and last labels. 1. **Inward**: Positions the labels inside the diagram area. 2. **Outward**: Positions the labels outside the diagram area.
Show Labels	Enables or disables display of node and link labels.
Link Curvature	Sets the curvature of links. Range: 0 to 1. Higher values result in more curved links.
Node Thickness	Sets the thickness of nodes. Value may change with panel size.
Node Gap	Defines spacing between nodes. Value may change with panel size.
Highlight Opacity	Controls opacity of highlighted elements when no HighlightBrush is set. Range: 0 to 1.
Node Name	Sets the identifier or label of a node.
Node Color	Sets the color of a node.
Link From	Defines the source node of a link.
Link To	Defines the target node of a link.
Link Weight	Sets the weight of a link, which determines its thickness. Can be a fixed value or an object.

Data Binding

- The flows are stored in **XmlStringSankeyData** as an XML string: an `ArrayOfSankeyData` root with one `SankeyData` element per flow. Each flow has `From` and `To` (node names) and an optional `Weight`.
- **Weight** can be a number, a tag or an expression. When it is not set the weight is 1, and a weight of 0 or less is drawn as 1. When a tag used as a weight changes, the chart redraws in place.
- Per-node colors are stored in **XmlStringNodeBrushes** (an `ArrayOfSankeyNodeSettings` root with `SankeyNodeSettings` elements holding Name and Color). The configuration window fills both strings. From FrameworX 10.1.6, a node with no Color draws in the chart's standard colors, and Color accepts a color name, #RRGGBB or #AARRGGBB.
- **Define the nodes.** Add a node (Name) for every From and To name used by the flows. A chart whose data defines flows but no node list draws nothing.

```
<ArrayOfSankeyData>
  <SankeyData><From>Feed</From><To>Kiln</To><Weight>40</Weight></SankeyData>
  <SankeyData><From>Feed</From><To>Mill</To><Weight>Tag.MillFeed</Weight></SankeyData>
  <SankeyData><From>Kiln</From><To>Silo</To><Weight>40</Weight></SankeyData>
</ArrayOfSankeyData>
```

Behavior

- Nodes in a column keep their order when the chart is drawn or redrawn.
- With **SankeyHighlightMode** = MouseEnter (default), resting the pointer on a node or a link highlights it with its connected ribbons; moving the pointer away returns the chart to normal.
- With MouseLeftButtonUp, a click on a node or a link highlights it; a second click, or a click on an empty area, clears the highlight.
- While an element is highlighted, the other elements are drawn with the **LoweredOpacity**.
- In the Designer, every Sankey chart previews a built-in sample flow. At runtime each chart draws its own data.

Properties

Property	Description	Default
XmlStringSankeyData	The flows (From, To, Weight), as an XML string.	(empty)
XmlStringNodeBrushes	The per-node colors (Name, Color), as an XML string.	(empty)
SankeyFlowDirection	LeftToRight or TopToBottom.	LeftToRight
SankeyShowLabels	Show the node labels.	true
FirstAndLastLabelPosition	Inward or Outward.	Inward
NodeThickness	Thickness of the nodes.	25
NodeGap	Space between the nodes of a column.	5
SankeyLinkCurvature	Curvature of the links, 0 to 1.	0.95

SankeyHighlightMode	MouseLeftButtonUp or MouseEnter.	MouseEnter
HighlightBrush	Color of the highlighted elements. When not set, HighlightOpacity is used.	(empty)
HighlightOpacity	Opacity of the highlighted elements when no HighlightBrush is set, 0 to 1.	0.95
LoweredOpacity	Opacity of the other elements while one is highlighted, 0 to 1.	0.45
UsePalette	Which elements take their colors from the automatic palette: NodesLinks, LinksOnly or None.	NodesLinks

Example

Nine nodes, A to I, with sixteen flows and one color per node:

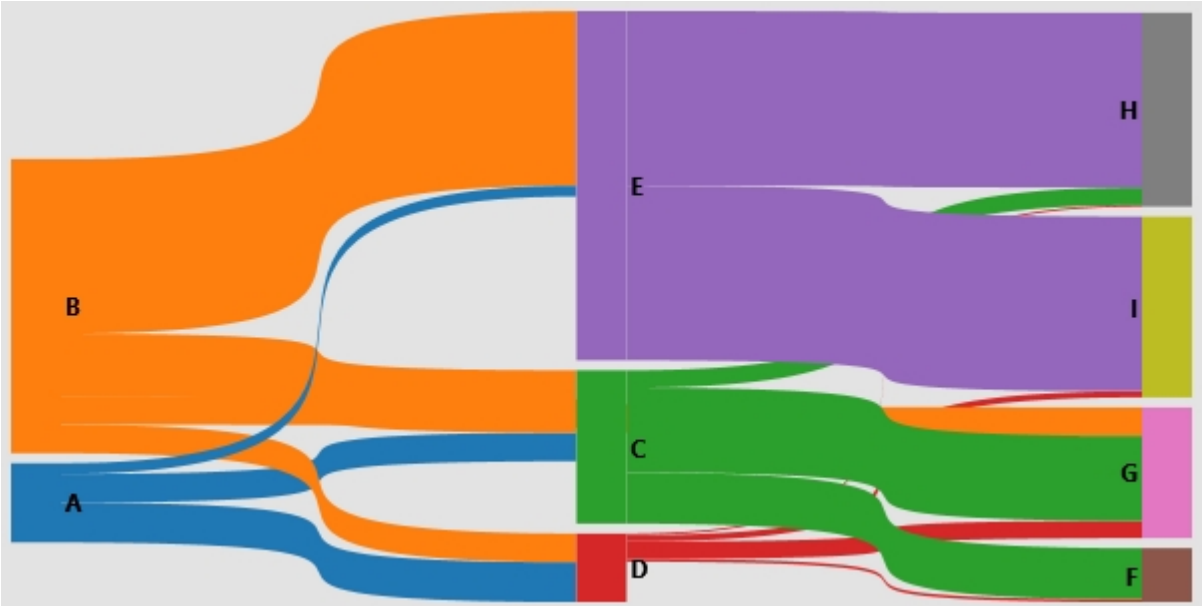
From	To (Weight)
A	C (255), D (355), E (95)
B	C (555), D (255), E (1555), G (255)
C	F (455), G (755), H (155)
D	F (25), G (155), H (15), I (55)
E	H (1555), I (1555)

The chart places the source nodes A and B on the left and the end nodes F to I on the right. Each ribbon is as wide as its weight, so the large flows through E stand out.

Runtime Execution

At runtime, the SankeyChart control generates a Sankey diagram based on the configured parameters. When the runtime environment starts, the control renders the diagram according to the defined settings. The diagram supports interaction and dynamically responds to configuration changes, enabling analysis of data flows and relationships within the application.

The image shows the example above in the Rich Client; the web client draws the same chart.



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