# Scaffold Decision Tree Data Structure

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Last updated by Daniel Patterson, Tuesday, October 20, 2020

The decision tree view is a node editor used for creating branching logic scenarios that illustrate a series of states, actions, or events.

Each block on the display acts as a node on the chain, the main text is currently referred to as the question, the connecting points are referred to as input and output sockets, and each output socket can be associated with text, which is currently referred to as an answer.

The data underlying the visual layout is strictly structured, adhering to the following specification.

## Node Collection

The entire file content is a collection of node objects. There are no properties on this collection.

## Node Object

The node object is the first layer at which details are defined. The node object is comprised of the following properties and collections.

### Node Properties

Each of the node has a number of well-defined properties. Notice that in addition to the base level of properties listed for the node, there are permanent property definitions defined for the same node in the Properties collection. The difference between node-level properties and permanent properties defined in the Properties collection has to do with whether the properties have been defined on the programming object named NodeItem.

|  |  |  |
| --- | --- | --- |
| **Name** | **Type** | **Description** |
| Delay | float | Time to delay, in seconds, when the node is set to NodeType.Delay. |
| Height | float | The height of the node, in pixels. |
| NodeColor | color | Background color of the node. |
| NodeTextColor | color | Text color of the node. |
| NodeType | string | Type of Node. At present, following are the defined node types:   * Start. The node has output sockets, but no input sockets. * Fork. The node has input and output sockets. * Delay. Pause for a specified delay then continue. * Termination. The node has only an input socket. |
| Properties | Property Collection | Collection of Name/Value pairs describing an infinite possible number of attributes of the node. |
| Sockets | Socket Collection | Collection of socket objects. |
| Ticket | guid | Globally unique identification of this node. |
| TitleHeight | float | Height of the title section of the node. |
| TitleProperty | string | The property name to be used as the title of the node. |
| Width | float | The width of this node, in pixels. |
| X | float | The horizontal coordinate of the left side of the node from the left side of the editor canvas. |
| Y | float | The vertical coordinate of the top side of the node from the top side of the editor canvas. |
| ZOrder | int | The placement of this node in front of or behind other nodes in the editor. |

## Socket Collection

The socket collection is represented as an array of Socket Objects.

## Socket Object

The socket object defines the details that describe a single incoming or outgoing aspect of a node.

### Socket Properties

Each socket has a number of well-defined properties. Notice in addition to there being base properties on the Socket object, you will also find permanently defined properties on the Socket.Properties collection. The difference between whether a property is considered to be base or extended, in essence, is directly determined by whether or not a corresponding property is represented in the programming object named SocketItem.

|  |  |  |
| --- | --- | --- |
| **Name** | **Type** | **Description** |
| Connections | guid[] | Array of socket tickets to which this socket is connected. |
| Height | float | Height of the socket symbol, in pixels. |
| Properties | Property Collection | Collection of Name/Value pairs describing an infinite possible number of attributes of the socket. |
| SocketMode | string | The operational mode of the socket. In this version, the choices are Input, Output, and None. |
| TextHeight | float | Height of the text, in pixels. |
| TextWidth | float | Width of the text, in pixels. |
| TextX | float | Horizontal coordinate of the text for this socket, relative to the parent node. |
| TextY | float | Vertical coordinate of the text for this socket, relative to the parent node. |
| Ticket | guid | The globally unique identification of this socket. |
| TitleProperty | string | The local property used as the display text for this socket. |
| Width | float | Width of the socket symbol, in pixels. |
| X | float | The horizontal coordinate of the displayed location of the socket symbol, relative to the parent node. |
| Y | float | The vertical coordinate of the displayed location of the socket symbol, relative to the parent node. |

## Property Collection

The property collection contains a list of Name / Value pairs that can describe any kind of configuration.

A number of permanent properties are defined for both nodes and sockets, but any number of additional non-permanent properties can be defined for end-user applications.

## Property Object

The property object has two properties, Name and Value. The Name indicates the name of the entity, while the Value provides its value.

## Permanent Node Properties

The permanently defined properties on a node are the following.

|  |  |  |
| --- | --- | --- |
| **Name** | **Type** | **Description** |
| Question | string | The default property used for the main text title for the node. |
| StoryColorFill | color | The color used to fill the text shape for this node on the storyboard. |
| StoryColorOutline | color | The color used to outline the text shape for this node on the storyboard. |
| StoryColorText | color | The text color used when printing the text for this node on the storyboard. |
| StoryFontName | string | Name of the font used to print node text on the storyboard. |
| StoryFontSize | float | Font size, in points, for node text printed on the storyboard. |
| StoryPageHorizontalPlacement | string | Horizontal justification from page edge. Choices are from 'Left' and from 'Right'. Default is 'Left'. |
| StoryPageNumber | int | The page number of the corresponding storyboard slide. |
| StoryPageVerticalPlacement | string | Vertical justification from page edge. Choices are from 'Top' and from 'Bottom'. Default is 'Top'. |
| StoryPageWidth | float | Maximum width of the caption container on the storyboard. Default = 512. |
| StoryPageX | float | The horizontal location of this node on the storyboard. |
| StoryPageY | float | The vertical location of this node on the storyboard. |
| StoryShapeType | string | Name of the shape to use while displaying this node on the storyboard. The following types are currently defined.   * Caption. The node text is displayed as a caption bubble. * Rectangle. The node text is displayed as a normal rectangle. |

## Permanent Socket Properties

Following are the permanently defined socket properties.

|  |  |  |
| --- | --- | --- |
| **Name** | **Type** | **Description** |
| Answer | string | The default property used for text about this socket. Similar in use to the node's Question property. |
| Index | string | Sorting index of this socket, relative to all other sockets on the node. |
| StoryColorFill | color | The color used to fill the text shape for this socket on the storyboard. |
| StoryColorOutline | color | The color used to outline the text shape for this socket on the storyboard. |
| StoryColorText | color | The text color used when printing the text for this socket on the storyboard. |
| StoryFontName | string | Name of the font used to print socket text on the storyboard. |
| StoryFontSize | float | Font size, in points, for socket text printed on the storyboard. |
| StoryPageHorizontalPlacement | string | Horizontal justification from page edge. Choices are from 'Left' and from 'Right'. Default is 'Right'. |
| StoryPageNumber | int | The page number of the corresponding storyboard slide. |
| StoryPageVerticalPlacement | string | Vertical justification from page edge. Choices are from 'Top' and from 'Bottom'. Default is 'Top'. |
| StoryPageWidth | float | Maximum width of the caption container for this socket. Default = 256. |
| StoryPageX | float | The horizontal location of this socket on the storyboard. |
| StoryPageY | float | The vertical location of this socket on the storyboard. |
| StoryShapeType | string | Name of the shape to use while displaying this socket on the storyboard. The following types are currently defined.   * Caption. The node text is displayed as a caption bubble. * Rectangle. The node text is displayed as a normal rectangle. |