



# Age distributions timeline

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*Version 1.1.0, by Giorgio Bianchini*

**Description:** Plots age distributions on a timeline.

**Module type:** Plotting

**Module ID:** b93f8a2b-8731-4658-92f5-bb80af7292a8

This module plots age distributions in a timeline below (or above, or both) the tree. This is useful to highlight the age distribution for particular nodes, without showing it for all nodes.

The nodes for which a distribution is shown can be chosen by using the [Colour](#) parameter: if this returns a transparent colour, the distribution is not shown; otherwise it is drawn with the specified colour.

## Parameters

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### Age distribution

**Control type:** Drop-down list

**Default value:** Default

**Possible values:**

- Default
- Custom

This parameter determines whether the age distribution that is shown is the default one (i.e., the last one that has been set up), or whether a name should be entered to specify another age distribution.

### Distribution name

**Control type:** Text box

If the value for the [Age distribution](#) parameter is `Custom`, this text box can be used to enter the name of the age distribution to draw (as defined within the parameters of the *Set up age distributions* module).

### Plot type

**Control type:** Drop-down list

**Default value:** Histogram

**Possible values:**

- Histogram
- Envelope

This parameter determines the kind of plot used to draw the age distributions. If the value is `Histogram`, histograms are drawn, displaying the age distributions. The bars of the histogram are centered so that the plot looks similar to a violin plot. The width of the bars of the histogram is chosen automatically.

If the value is `Envelope`, a violin plot is drawn, using the same samples that would be used to draw the histogram; instead of drawing rectangular bars, a smooth spline is interpolated between the sample points to produce a smooth-looking plot. Please note that this is not a kernel density estimation of the age distribution (as that would be too expensive to draw in real time).

## Height

**Control type:** Number spin box

**Default value:** 10

**Range:**  $[0, +\infty)$

This parameter determines the height of each age distribution plot.

## Spacing

**Control type:** Number spin box

**Default value:** 5

**Range:**  $(-\infty, +\infty)$

This parameter determines the spacing between consecutive distributions.

## Margin

**Control type:** Number spin box

**Default value:** 20

**Range:**  $(-\infty, +\infty)$

This parameter determines the margin between the tree and the timeline plot.

## Plot position

**Control type:** Drop-down list

**Default value:** Bottom

**Possible values:**

- Top
- Bottom
- Both

This parameter determines the position of the timeline plot relative to the tree plot.

## Auto colour by node (distributions)

**Control type:** Check box

**Default value:** Checked

If this check box is checked, the colour of each age distribution is determined algorithmically in a pseudo-random way designed to achieve an aesthetically pleasing distribution of colours, while being reproducible if the same tree is rendered multiple times.

## Opacity (distributions)

**Control type:** Slider

**Default value:** 50 %

**Range:** [ 0 %, 100 % ]

This parameter determines the opacity of the colour used if the [Auto colour by node \(distributions\)](#) option is enabled.

## Colour

**Control type:** Colour (by node)

**Default value:**  #000000 (opacity: 100%)

**Default attribute:** `Color`

This parameter determines the colour used to draw each age distribution (if the [Auto colour by node \(distributions\)](#) option is disabled). The colour can be determined based on the value of an attribute of the nodes in the tree. For nodes that do not possess the specified attribute (or that have the attribute with an invalid value), a default value is used. The

default attribute used to determine the colour is `Color`.

## Auto stroke colour by node

**Control type:** Check box

**Default value:** Checked

If this check box is checked, the colour of each age distribution is determined algorithmically in a pseudo-random way designed to achieve an aesthetically pleasing distribution of colours, while being reproducible if the same tree is rendered multiple times.

## Line opacity

**Control type:** Slider


**Default value:** 50 %

**Range:** [ 0 %, 100 % ]

This parameter determines the opacity of the colour used if the [Auto stroke colour by node](#) option is enabled.

## Line colour

**Control type:** Colour (by node)

**Default value:**  #000000 (opacity: 100%)

**Default attribute:** `Color`

This parameter determines the colour used to stroke each age distribution (if the [Auto stroke colour by node](#) option is disabled). The colour can be determined based on the value of an attribute of the nodes in the tree. For nodes that do not possess the specified attribute (or that have the attribute with an invalid value), a default value is used. The default attribute used to determine the colour is `Color`.

## Line weight

**Control type:** Number spin box (by node)

**Default value:** 0

**Range:** [ 0,  $+\infty$  )

**Default attribute:** `Thickness`

The thickness of the outline for the branch distributions. This can be determined based on the value of an attribute of the nodes in the tree. For nodes that do not possess the specified attribute (or that have the attribute with an invalid value), a default value is used. The default attribute used to determine the thickness of the branches is `Thickness`.

## Line cap

**Control type:** Drop-down list

**Default value:** Round


**Possible values:**

- Butt
- Round
- Square

The line cap to use when drawing the distributions.

## Line dash

**Control type:** Line dash

**Default value:** 

- *Units on: 0*
- *Units off: 0*
- *Phase: 0*

The line dash to use when drawing the distributions.

## Label position

**Control type:** Drop-down list

**Default value:** Right

**Possible values:**

- None
- Left
- Center
- Right

This parameter determines the position of each label, relative to the age distribution to which it is associated.

## Margin

**Control type:** Point

**Default value:** ( 10, 0 )

This parameter determines margin of the label with respect to the anchor point.

## Font

**Control type:** Font

**Default value:** Helvetica-Bold 15pt

This parameter determines the font used to draw the labels.

## Attribute

**Control type:** Attribute selector

**Default value:** Name

This parameter specifies the attribute used to determine the text of the labels. By default the `Name` of each node is drawn.

## Attribute type

**Control type:** Attribute type

**Default value:** String

**Possible values:**

- String
- Number

This parameter specifies the type of the attribute used to determine the text of the labels. By default this is `String`. If the type chosen here does not correspond to the actual type of the attribute (e.g. `Number` is chosen for the `Name` attribute, or `String` is chosen for the `Length` attribute), no label is drawn. If the attribute has values with different types for different nodes, the label is only shown on nodes whose attribute type corresponds to the one chosen here.

## Attribute format

**Control type:** Attribute formatter

This parameter determines how the value of the selected attribute is used to determine the text of the label. By default, if the [Attribute type](#) is `String` the text of the label corresponds to the value of the attribute, while if the [Attribute type](#) is `Number` the text of the label corresponds to the number rounded to 2 significant digits.

## Auto colour by node (labels)

**Control type:** Check box

**Default value:** Checked

If this check box is checked, the colour of the label for each distribution is determined algorithmically in a pseudo-random way designed to achieve an aesthetically pleasing distribution of colours, while being reproducible if the same tree is rendered multiple times.

## Opacity (labels)

**Control type:** Slider


**Default value:** 50 %

**Range:** [ 0 %, 100 % ]

This parameter determines the opacity of the colour used if the [Auto colour by node \(labels\)](#) option is enabled.

## Colour

**Control type:** Colour (by node)

**Default value:**  #000000 (opacity: 100%)

**Default attribute:** `Color`

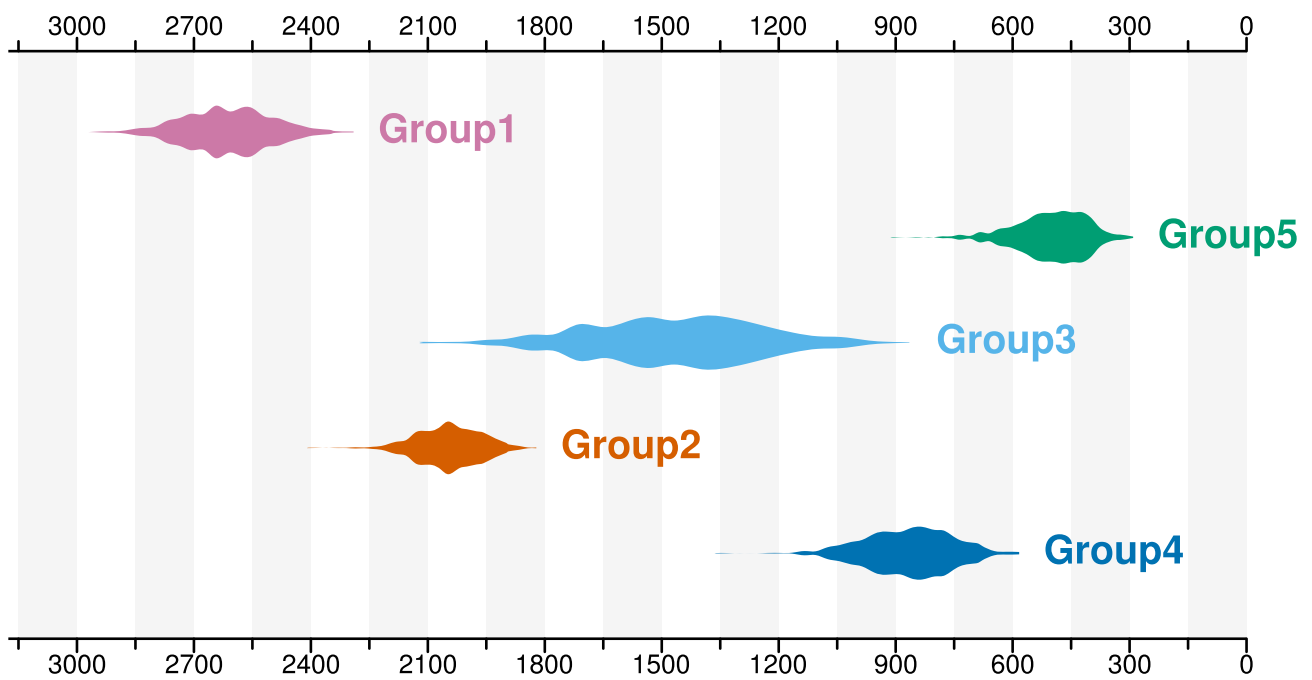
This parameter determines the colour used to draw each label (if the [Auto colour by node \(labels\)](#) option is disabled). The colour can be determined based on the value of an attribute of the nodes in the tree. For nodes that do not possess the specified attribute (or that have the attribute with an invalid value), a default value is used. The default attribute used to determine the colour is `Color`.

## Further information

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By combining this module with the *Scale axis* module, it is possible to obtain timeline plots

such as the following:



Note how there is no tree in the plot. This is because the *Branches* module was not used.