

# Radial

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*Version 1.1.2, by Giorgio Bianchini*

**Description:** Computes the coordinates for a radial tree.

**Module type:** Coordinate

**Module ID:** 95b61284-b870-48b9-b51c-3276f7d89df1

This module computes coordinates for the nodes of the tree in a "radial" style. The root node of the tree is placed at the center of the tree, and branches expand from it in a way that makes sure they do not intersect with each other.

For the default value of the parameters below, let  $n$  be the number of taxa (i.e. leaves) in the tree.

## Parameters

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### Width

**Control type:** Number spin box

**Default value:**  $14 \cdot n$

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

This parameter determines the width of the area covered by the tree.

### Height

**Control type:** Number spin box

**Default value:**  $14 \cdot n$

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

This parameter determines the height of the area covered by the tree.

### Preserve aspect ratio

**Control type:** Check box

**Default value:** Unchecked

If this check box is checked, the tree is stretched uniformly to fill the area specified by the

[Width](#) and [Height](#); otherwise, the aspect ratio of the tree is not preserved. This has the effect that branches with the same length may appear to have a different length in the plot.

## Start angle

**Control type:** Slider

**Default value:** 0°

**Range:** [ 0°, 360° ]

This parameter determines the angle for the first split in the tree. Changing it has the effect of rotating the tree.

## Sweep angle

**Control type:** Slider

**Default value:** 360°

**Range:** [ 1°, 360° ]

This parameter determines the angular size of the tree.

## Coordinate shift

**Control type:** Drop-down list

**Default value:** None

**Possible values:**

- None
- Relative
- Absolute

This parameter determines the kind of coordinate shift that is applied. If the value is `None`, no coordinate shift is applied. If the value is `Relative`, the coordinates for each point are shifted by the amount specified by the selected [X](#) and [Y](#) attributes, relative to their default position. If the value is `Absolute`, the coordinates are set to the value specified by the selected [X](#) and [Y](#) attributes, regardless of their default position.

## X shift

**Control type:** Check box

**Default value:** Unchecked

If this check box is checked, the X coordinates of the tree nodes are shifted. Otherwise, they are left as is.

## X attribute

**Control type:** Attribute selector

**Default value:** Length

This parameter determines the attribute used to shift the X coordinate of the points.

## Y shift

**Control type:** Check box

**Default value:** Unchecked

If this check box is checked, the Y coordinates of the tree nodes are shifted. Otherwise, they are left as is.

## Y attribute

**Control type:** Attribute selector

**Default value:** Length

This parameter determines the attribute used to shift the Y coordinate of the points.

## Custom script

**Control type:** Source code

**Default value:**

```
using PhyloTree;
using System.Collections.Generic;
using TreeViewer;
using VectSharp;

namespace alb7d20eac4e5431ea447c6c6a66d2c8b
{
    //Do not change class name
    public static class CustomCoordinates
```

```
{
    //Do not change method signature
    public static void GetCoordinates(TreeNode tree, ref
Dictionary<string, Point> coordinates)
    {
        //TODO: change the coordinate values contained in
        the coordinates dictionary
    }
}
```

This script can be used to modify the coordinate values.

## Apply

**Control type:** Button

This button applies changes to the other parameter values and signals that the tree needs to be redrawn.

## Further information

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This code is based on the algorithm used by [FigTree](#), which is available under a GPLv2 licence [here](#).

Here is an example of a tree drawn using radial coordinates:

