

JumpChart

User Guide

Geoffrey G. Roy

Based on an idea by

Beate Stollberg

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Introduction

JumpChart is a charting extension for OpenJUMP. For a selected layer that has one or more numeric valued attributes, JumpChart can create:

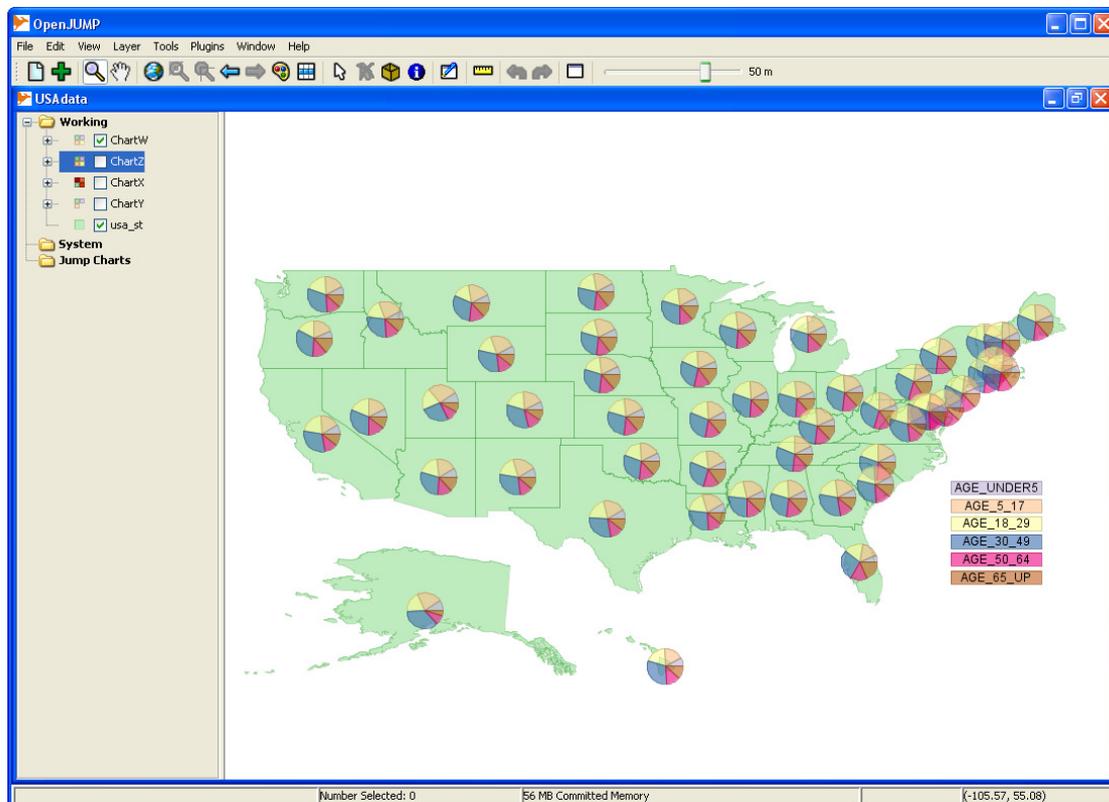
- Pie charts: i.e. a circular chart where the size of the segment is proportional to the attribute value.
- Bar charts: i.e. a chart made up of several vertically oriented bars, with each bar's height being proportional to its value.
- Column charts: i.e. a single column chart made up of sections for each attribute. The length of each section is proportional to its value.
- Label charts: i.e. a layer that contains just labels (selected from available attributes) from the source layer.

The charts are created as new layers within the OpenJUMP model within a new category titled "Jump Charts". As a result several charts can be created and saved within the OpenJUMP workbench. They can also be printed using one of the Printer extensions.

Examples

The following examples have been produced using data provided by Beate Stollberg: some USA demographic data.

Pie Charts:

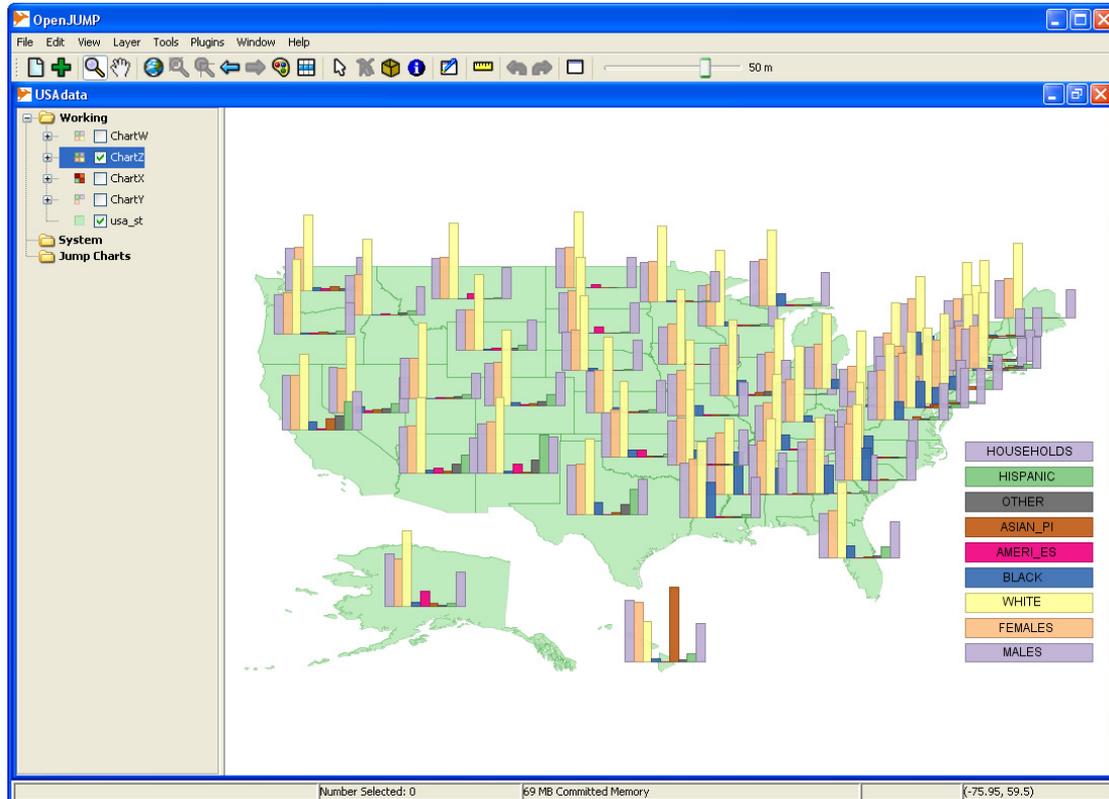


Note that there are two options for Pie charts:

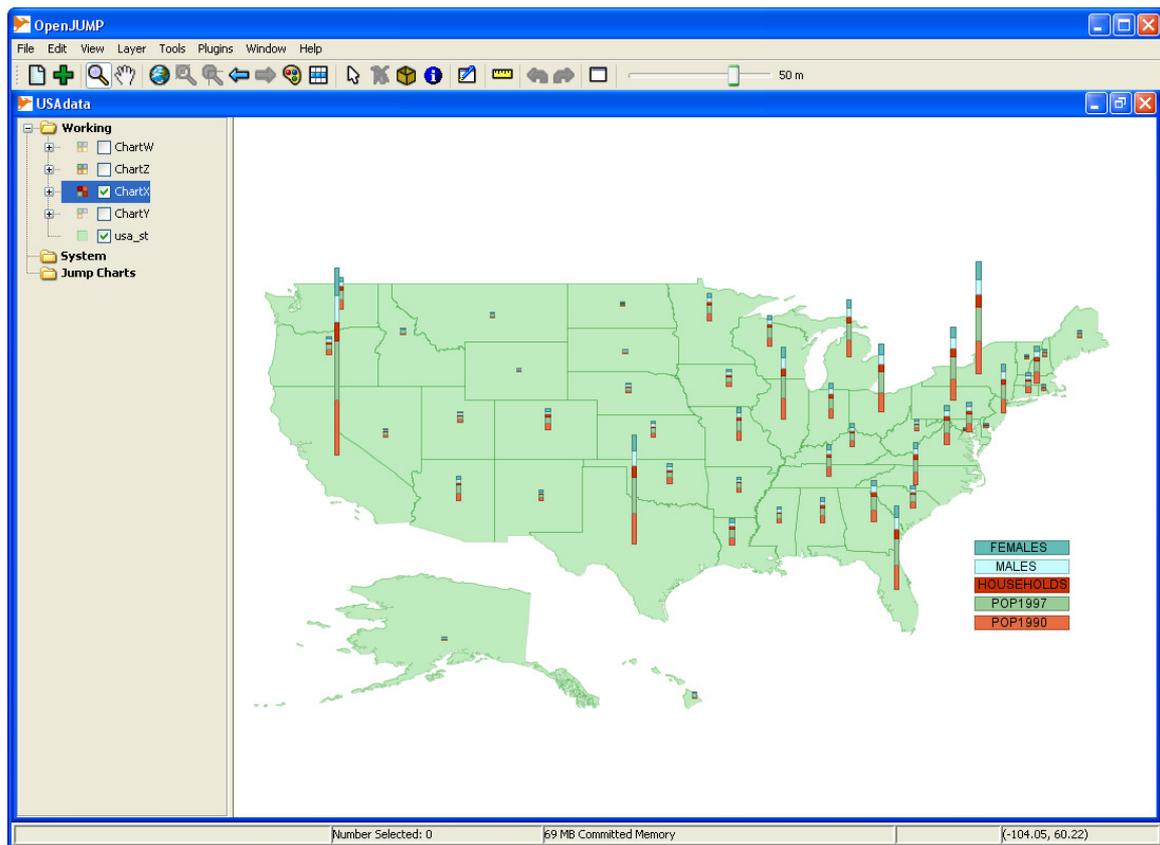
- Pie-East: the first sector starts from an East direction.
- Pie-North: the first sector starts from a North direction.

For Pie Charts only, the chart can be plotted by taking the selected attributes in a Clockwise or Anti-clockwise direction.

Bar Charts:

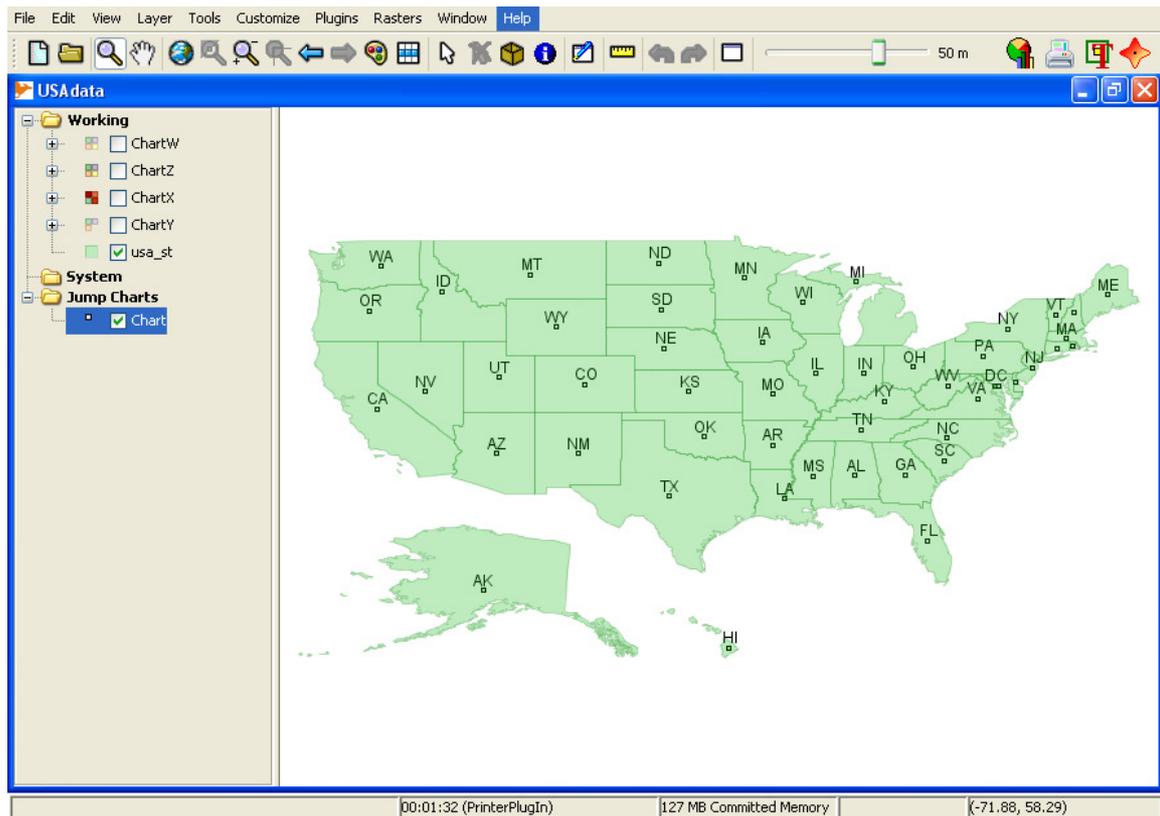


Column Charts:



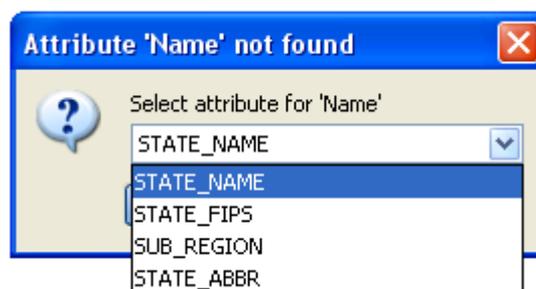
Labels Charts

It is sometimes useful to prepare a “chart” with just labels. Labels can be any selected attribute in a layer whose value can be shown on each feature in the layer. These may be the feature name, or any other string values attribute, or any other attribute value that is selected in the Properties Dialog.



Once such a chart is created it is then possible to choose to display any of the attributes used to build the chart – from the Properties Dialog. It is also possible to move individual labels around to improve their positions. In complex maps, the default label positions (the centroids) are sometime less than ideal, and it is useful to move them for better presentation purposes. All labels are attached to points in the labels chart.

By default, a labels chart looks for an attribute called “Name” which is set as the default display label. If the selected layer does not have such an attribute, then a dialog is shown for the user to nominate the default attribute as below.



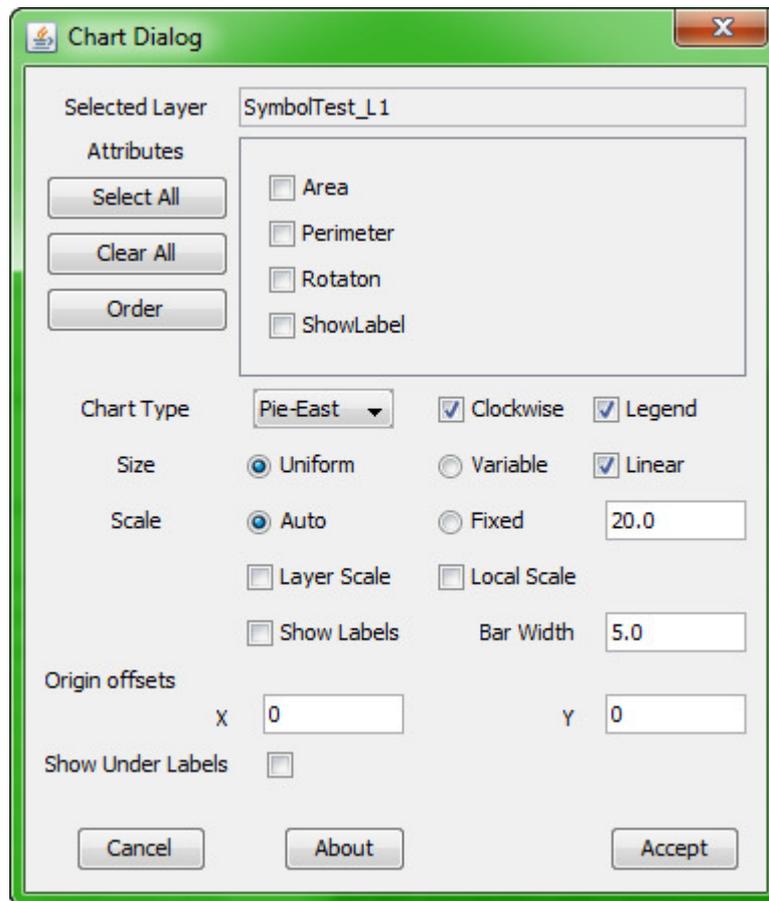
All the available STRING type attributes available are listed, and you choose the one required.

Installation

JumpChart is placed into the ext folder of the lib folder of the OpenJUMP installation. The JumpChart option will then appear in the “Plugins” menu option.

Operations

With a single layer selected, the Jump Chart menu option launches the Chart Dialog:



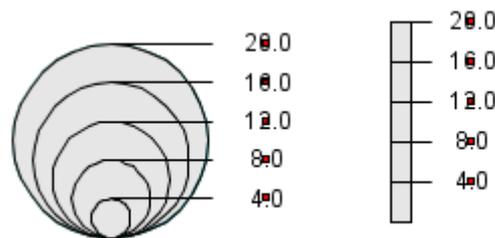
The key features of this dialog are:

1. The name of the selected layer is displayed.
2. A list of all attributes in this layer that have a numeric type (DOUBLE or INTEGER) are displayed.
3. The attributes panel contains a list of available attributes and the check boxes enable the required attributes to be selected for the chart.
4. The “Select All” button selects all attributes.
5. The “Clear All” button clears all selections (one attribute must be selected to create a chart).
6. The “Order” button will launch the Attribute Order dialog (see below) to define an order in which the selected attributes are displayed in the chart.
7. The Chart Type combo has four options: Pie-East, Pie-North, Bar, Column and Labels. When the Pie, Bar or Column type chart option is selected, the list of attributes will be only those that have a numeric value (so they can be plotted as chart values). When a Labels type chart is selected, the list of attributes will also include STRING type attributes (usually names associated with features). This because all labels are in fact strings and all numeric values can also be displayed as strings. The contents of the attributes panel

will thus change when the Labels option is selected or deselected. Users need to be aware of this.

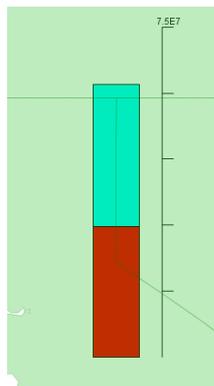
8. For Pie type charts only, the direction of plotting can be Clockwise or Anti-clockwise.
9. Checking the Legend will place a legend in the chart layer.
10. The size of the chart elements created for each feature can be:
 - a. Uniform, meaning that the relative radius of the pie or the relative maximum heights of the bars will be the same for each feature.
 - b. Variable, meaning that that relative radius of the pie, or the relative maximum heights of the bars will vary in proportion the total of the attribute values for each feature.
11. If the size of the chart elements is variable, then a layer scale can also be displayed in the chart. The scale shows the absolute value of a range of five chart elements (pie, bar or column).
 - a. Pie charts: the total value of the items in the pie chart for each feature.
 - b. Bar charts: the maximum value in all of the bar charts;
 - c. Column charts: the total value of all items in the column chart,

This scale only makes sense if variable sized chart elements are chosen. There are two forms for the scale as shown here:



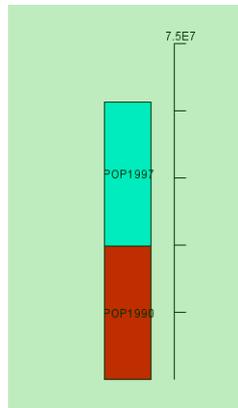
Five nested circles are displayed for pie charts, while a bar linear scale is shown for bar and column type charts.

12. A Local Scale can also be displayed in each feature where a bar, column or pie chart is displayed:



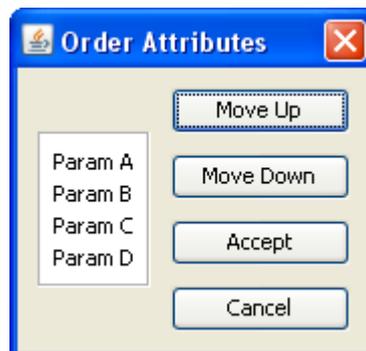
This is in the form of a small scale marked with 5 equal steps, and with the maximum value displayed. This option only works when variable sized chart elements are chosen.

13. The show labels option will show the chosen labels on the various parts of the chart. This is only useful when zoomed in as it puts a lot of text on the chart.



14. The scale (i.e. the actual size) of the chart elements can be automatic, or a fixed preset (in screen pixels).
15. If the scale is fixed, then the width of the bars can also be preset.
16. The <Show Under Labels> checkbox will place a label under each chart (works for pie, bars and column charts) option. The Label will be taken from the "Name" attribute; if this does not exist the user is given a list of valid (String type) attributes to choose from.
17. The Cancel button closes down the dialog without creating a new chart.
18. The Accept button closes down the dialog and creates a new chart layer inside the "Jump Charts" category.

The Order Attributes dialog allows the user to specify an order in which the selected attributes are displayed in the various chart options. By default attributes are displayed in the order in which they appear in the layer properties. The user can re-order the selected attributes by selecting them in the list, and moving them up/down with the "Move Up" or "Move Down" buttons.



The order, from top to bottom, in the list in this dialog corresponds for each chart type to:

- Pie: Clockwise or Anti-clockwise, from a due East or due North direction.
- Bar: left to right
- Column: bottom to top.

Once a new chart layer is created some additional tasks/editing may be used to complete it:

1. You may wish to move the chart layer up the layer hierarchy so that it appears on top of the layer from which it was created. This can be done by a <click-drag> on the new chart layer.
2. To change the chart color scheme use the Change Styles dialog.
3. As the chart is a standard layer made up of (mainly) polygons, it can therefore be edited using the standard OpenJump editing tools. The Legend can be moved about in this way to suit viewing/printing requirements.
4. Save the layer in the current project so it is preserved and can be re-loaded for viewing.

Printing

The JumpChart can be saved as an image file using the in-built image save options, or printed using one of the available printer extensions. The JumpPrinter from Cadplan is recommended.