

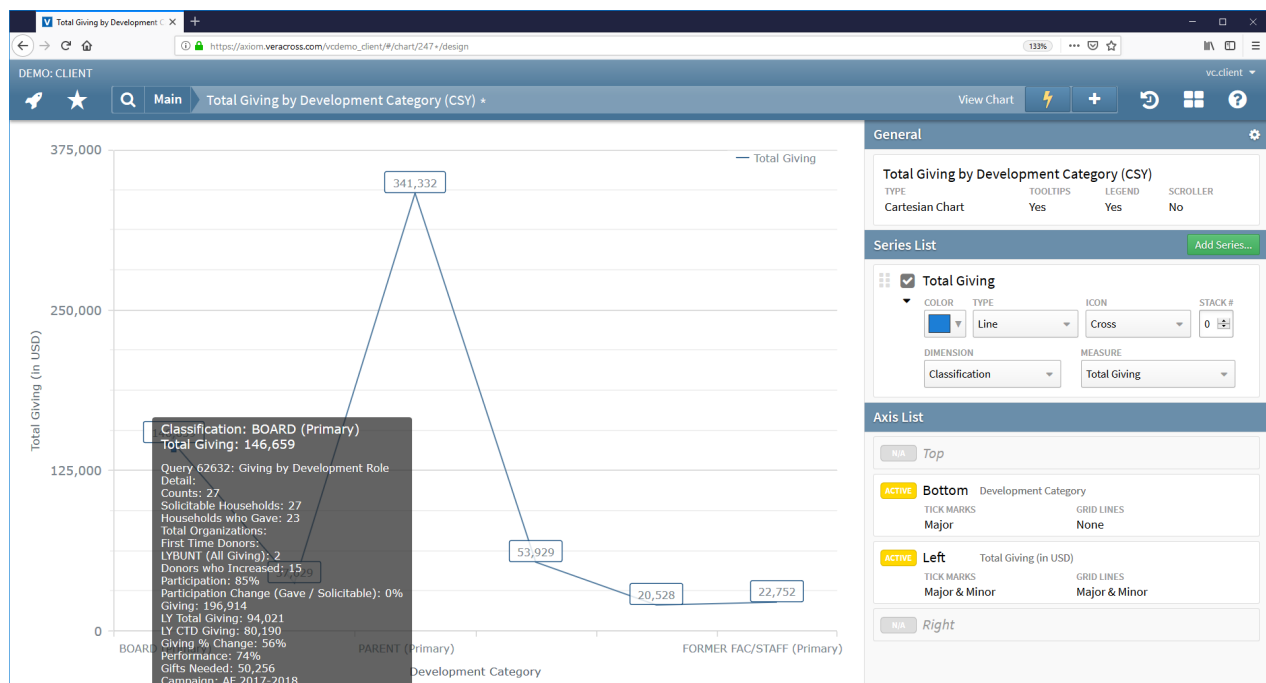
Chart Design – Technical Documentation

Updated Jul 13, 2021

As of July 12, 2021, this "Learn Veracross" site has been deprecated. It will remain live at least through October 1, 2021, but will no longer be updated. All knowledge content has moved to the new [Veracross Community](#). Please update your bookmarks.

[Here is the new version of this article in the Veracross Community.](#)

Overview



Axiom Charts are a component of the core Axiom database product. Some system charts have been incorporated into Axiom homepages with more to come.

Axiom Chart Design is a tool that allows you to build your own charts from query results. Charts can be built from any query in which a “calculation” exists, including system reports, summarized data sets, calculated fields and function fields. Chart Design is the “build screen” for a Chart and the Chart Page is its “output screen”, just as Query Design is the “build screen” for a Query and Query Results is its “output screen.”

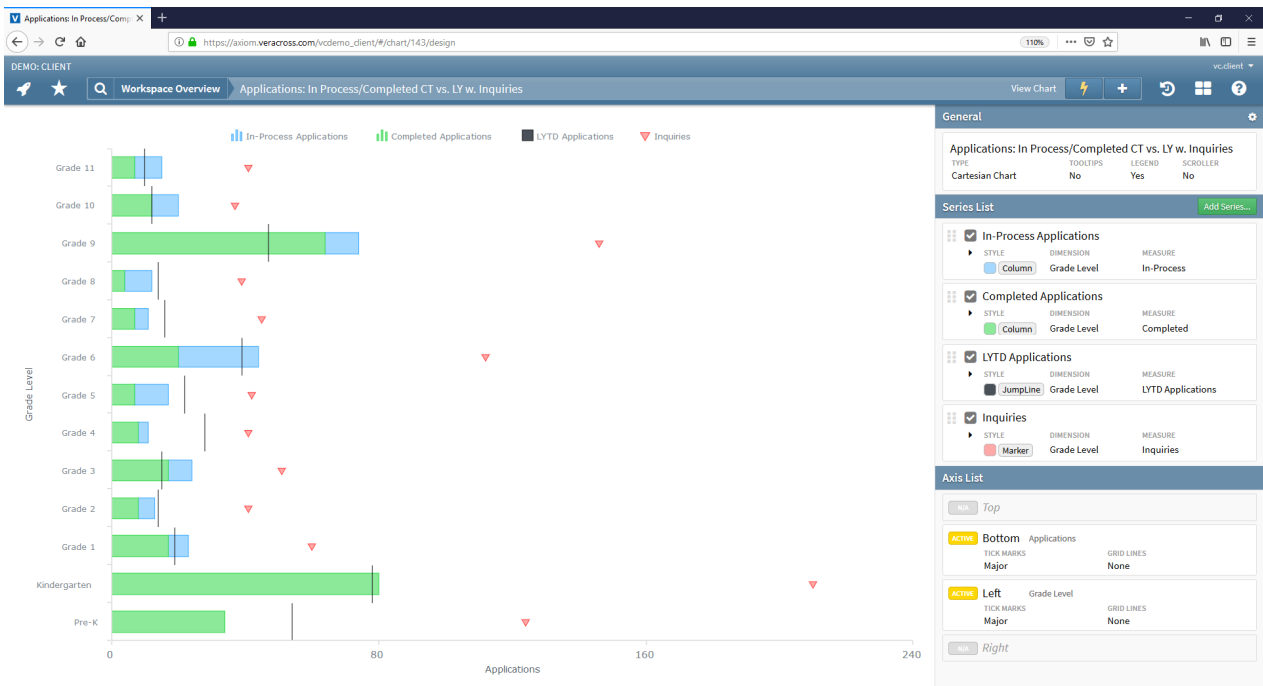
Charts can be saved to workspaces and found in using the axiom search bar, just like queries. Just like queries, each chart has a unique URL.

This article is designed to provide a detailed technical explanation for each of the components of the

Axiom Chart Design screen. [Click here](#) to navigate to the Axiom Charts Tutorial — a set of videos and assignments recommended for users who are new to Axiom Charts. The Chart tutorial also includes an outline of each of the chart types.

Basic Chart Design Options

The chart type that has the largest set of options is the Cartesian chart. In this section, we will discuss all the chart design options available for a Cartesian chart with a Value list as the dimension. The “Design Differences in Other Charts” section details design differences between Value list Cartesian charts and the other chart types.



General Card

Chart Options

Reset Chart: Restores the chart to the state it was in when last saved.

Edit Chart Title

Text field that allows the user to rename the chart.

Tooltips

Grade Level: Grade 9
 Record Count: 58

Chart Tooltips display extra information about a given chart datapoint upon hover. They display values from all fields that are set to display in the underlying query for that datapoint. To modify which

< return to Overview
General

Applications: In Process/Completed CT vs. LY w. Inq

CHART TYPE

Cartesian

TOOLTIPS NO

LEGEND YES

POSITION	ALIGNMENT	LAYOUT	POSITION MODE
<input checked="" type="radio"/> Top <input type="radio"/> Bottom <input type="radio"/> Left <input type="radio"/> Right	<input type="radio"/> Left <input checked="" type="radio"/> Center <input type="radio"/> Right	<input checked="" type="radio"/> Horizontal <input type="radio"/> Vertical	<input type="radio"/> Outside <input type="radio"/> Inside

SCROLLER NO

fields are displayed in the tooltip, add, remove or hide fields in the query design.

If toggled to YES this option appears:

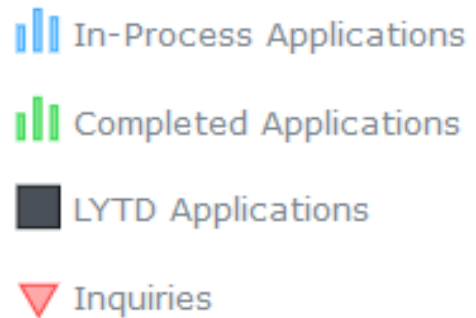
- **Display Mode:** Choose whether the tooltip displays information for that series only (Single measure data point) or information across all series for the dimension value in question. (Combine dimension data points)

Legend

Chart Legends display the titles of the series in the chart next to icons representing the series type and color assigned to that series.

If toggled to YES these options appear:

- **Position:** Choose whether the legend will appear on the **top, bottom, left or right** side of the chart
- **Alignment:** Choose whether to keep the legend's alignment **centered, top or bottom** (if in the left or right position), **left or right** (if in the top or bottom position)
- **Layout:** Choose between **Horizontal** or **Vertical** layout options
- **Position Mode:** Choose whether to place the legend on the **outside** of the boundaries of the chart or **inside** the boundaries of the chart

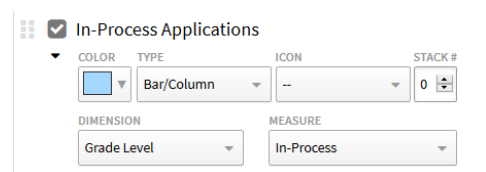


Scroller

The scroller allows the user to zoom and pan along the dimension axis of the chart.

Series Cards

A series is a set of data plotted on a chart. Users have the ability to add multiple series to a single Cartesian or Scatterplot Chart.



Series Management

- Click the **Add Series...** Button to bring up a query picker that allows the user to search available workspaces for saved queries and load the data from this query into the chart as an additional series.
- In the upper-right corner of each series card, there is a link to make a **duplicate** copy of the series. The duplicate option is the easiest way to add a new series from a query which is already used by an existing series in the chart.
- In the upper-right corner of each series card, there is a link to **remove** the series.

Drag and Re-Order

Click and drag this icon to change the order for stacked series or the z-axis layering for other series.

Series Status Checkbox

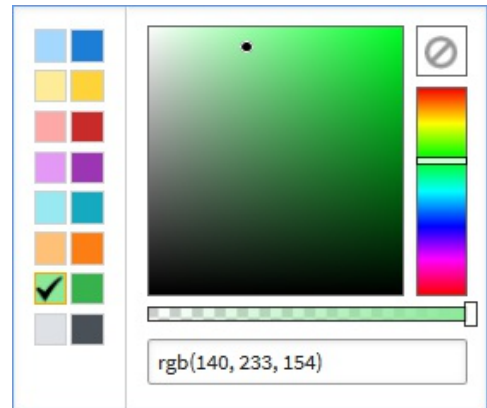
Choose between three separate options:

- Include – Series is actively displayed on the chart
- Hide – Series is not included in the chart display, but the title remains in the legend.
 - This is useful because clicking the series legend icon on the chart page will hide/display a given series. So you can default a certain series to be hidden but users can then display it at will.
- Exclude – Suppresses series from the chart display and the legend.

Color

Pressing the color exposes the color picker. The color picker consists of:

- Two default palettes of colors (light and dark) that pair well together for comparisons.
- A manual color chooser
- An opacity slider, which changes the opacity for the fill in the area and column series types.
- A Hex value display for the color that is chosen.



Series Type

Choices for Cartesian charts are as follows:





















- Line
- Step Line
- Spline
- Area
- Step Area
- Spline Area
- Bar/Column – defaults to a column chart – flip the axes to change to a bar display
- Jump Line – typically used for comparisons to columns
- Marker – typically used for comparisons to bars
- Dropline – a vertical line at a set of dimension values; it has no measure

Stack

Series with the same Stack # will be stacked on top of one another. This works for all “filled in” series types (area, spline area, step area, column/bar).

Icon

When the series is the Marker type, this designates the shape of the marker. For all other series (besides column/bar) the icon will display at the data point upon hover by default. The available options are as follows:

- Arrowhead 
- Arrow (Down) 
- Arrow (Left) 
- Arrow (Right) 
- Arrow (Up) 
- Circle 
- Cross 
- Cross (Diagonal) 
- Diamond 
- Pentagon 
- Rectangle 
- Square 
- Star (4) 
- Star (5) 
- Star (6) 
- Star (7) 
- Star (10) 
- Trapezium 
- Triangle (Down) 
- Triangle (Left) 
- Triangle (Right) 
- Triangle (Up) 

Icon Display

The default value is to **Display icon on hover**. Choose **Always display icon** to have the icon always display at the data points for that series, regardless of mouse position.

Icon Size

Controls the size of the icon.

Dimension/Measure Fields

These drop-down lists allow the user to select the field from the query that is used as the Dimension or Measure Field for the chart.

Display Axis

These **top**, **bottom**, **left**, and **right** radio buttons determine the axial positioning of the Dimension Field and the Measure field on the chart for each individual series. To change a column to a bar chart, flip the measure and dimension display axes.

Labels

This toggle determines whether or not a label is displayed in the graph over the data points of the series.

If toggled to YES:

- **Label Field:** Select which query field is displayed as the marker for this particular data series. This option gives the ability to display a label that is a different calculation for that dimension value, for example, a series with an absolute value measure and a percentage label.

Series Data Query

Links to the query design page of the query from which this series is drawn.

Axis List

There is a card to represent each axis. Only axes with dimensions and measures assigned are active. By default, the Bottom and Left axes are active, while the Top and Right are inactive.

All axes have the following options:

- **Edit Axis Title** – text field that allows the user to rename the label for the axis. This defaults to the field name that was initially used for the dimension/measure that is displayed on that axis and usually needs to be edited.
- **Tick Marks** – users control whether major and/or minor tick marks are displayed.
- **Grid Lines** – users control whether major and/or minor tick marks are displayed.

For axes with a dimension assigned, these fields also show:

Sorting

Drop-down that dictates in which order the data sets appear on the chart. The options are:

- **Sort by Query Results order:** Arrange the data on the chart in the order the data points appear in the query results. This is the default.

- **Sort by Dimension value:** Arrange the data on the chart according to the Dimension Value of the first series.
- **Sort by Measure value:** Arrange the data sets according to the Measure Value of the first series.

If **Sort by Dimension value** or **Sort by Measure value** are selected, the user also has the option to arrange the sorting in **Ascending** or **Descending** order.

Fill Empty Values

Drop-down that determines what values are included within the dimension axis. The options here have slightly different meanings for value list Cartesian Charts and time series Cartesian Charts, so the

- **Only Query Data:** Displays only values for which there is data in the query results
- **Fill intermediate values:** Displays all values in the value list.
- **Fill by field Criteria:** Displays all values in the value list that have been included in the query. If some values are filtered out of the query result they will not display.

Chart Page Features

Drilldown

In a Cartesian Chart, if the underlying queries consist of summarized data sets, then double-clicking on a given data point from the Chart Page will display the drill down query result for that data set.

Export

All Charts can be exported to a PNG file from the action menu on the Chart Page.

Hiding Series

As mentioned above, series can be included on a chart in a hidden state. Hidden series will display as greyed out Legend icons. From the Chart Page, you can show/hide a given series by clicking on it's corresponding legend icon.

Chart Design Differences in Other Chart Types

This section details differences and additions in the chart design options from the above description for the following chart types:

- Cartesian Time Series
- Scatterplot
- Single Series

- Treemap

Cartesian Time Series

Cartesian time series charts are Cartesian charts in which the primary measure is a period of time. For a full explanation of how to build Cartesian Time Series Charts, watch video four of the Axiom Chart Tutorial.

Unlike other charts, where the calculations displayed on the charts come directly from the underlying queries, in Cartesian Time Series charts the summarization/calculation of measure values can be done directly from the chart design using two parameters: Summarization Method and Date Format.

Summarization Method

On the Series detail screen for series with a date/time value in the dimension there is an option to select the summarization method. This determines how the data (raw or pre-summarized in the query) will be summarized within the units of time selected for the chart (see date format next).

The available options are:

- Sum
- Min
- Max
- Avg
- Count (use this in tandem with a measure field set to the record ID to display a count of total records within a given time unit from an unsummarized query)

Date Format

On the chart design page, click on the axis in which time periods are being displayed. In the **Date Format** field (dimension axis), a number of abbreviations may be placed that inform the chart how to summarize by the date required. Some of the most common values are listed in the table below:

Abbreviation	Data	Format Example
M	month	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
MMM	month	Jan, Feb, Mar ... Nov, Dec
MMMM	month	January, February ... December
Qo	quarter	1st, 2nd, 3rd, 4th
D	day of the month	1, 2, 3 ... 30, 31
DDD	day of the year	1, 2, 3, 4 ... 364, 365

dd	day of the week	Su, Mo, Tu ... Fr, Sa
ddd	day of the week	Sun, Mon ... Fri, Sat
dddd	day of the week	Sunday, Monday ... Friday, Saturday
w	week of the year	1, 2, 3, 4, 5 ... 52, 53
YY	year	70, 71, 72 ... 29, 30
YYYY	year	1970, 1971, 1972 ... 2029, 2030
H	24 hour	0, 1, 2 ... 22, 23
h a	12 hour	1 am, 2 am, 3 am ... 10 pm, 11 pm
m	minute	0, 1, 2 ... 58, 59
s	second	0, 1, 2 ... 58, 59

Source Data

One other difference between Time Series Cartesian charts and other charts is the requirement for the source data in the query. Because summarization can be accomplished directly in the chart, the data used for time series charts does not necessarily need to be calculated – it can be raw, unsummarized data.

Fill Empty Values Meaning

A final difference of time series charts are the meanings of the **Fill Empty Values** options on the dimension axis card. For time series charts here are the definitions:

- **Only Query Data:** Displays only values in which data is represented in the query results
- **Fill intermediate values:** Displays time values between the defined data points
- **Fill by field Criteria:** Displays all possible values that are included in the dimension field's display criteria, regardless if there is data that is actually reflected

Scatterplot

Series Types

- Marker – two measures
- Bubble – three measures (the third is represented in the size of the bubble).
 - This third measure is represented in the size of the bubble and is chosen from the **size field**

Single Series

Series Types

- Pie
- Donut
- Pyramid
- Funnel

Labels

- The dimension value is represented on Single Series chart as a label. As such there is an option called **Label Position** to determine whether the dimension label is placed on the inside or outside of the chart
- Toggling **Labels** to yes in the series detail screen will append the measure value to the dimension value on the chart.

Treemap

Colors

- Colors are set by measure ranges, which are auto set by the chart engine.
- Turn on the legend to display the ranges.

Drilldown

- If the dimension value of a treemap is a hyperlink field (E.G. Full Name) then double-clicking on a data block from the Chart Page will drill down to the record detail screen.
-