IBM Db2 Web Query for i Designer Creating Charts Part 1

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Contents

Chapter 1

Creating Charts

Charts communicate overall trends quickly with eye-catching and intuitive graphics. Charts come in many different varieties that allow you to communicate information with varying degrees of complexity and specificity. You can use simple charts to effectively communicate simple metrics, and more complex charts to clearly display relationships between different aspects of your data, making it easy to identify less obvious trends.

Different chart types utilize different kinds of data and enable different styling options. You can easily change chart types by selecting a different option from the Content picker, making it easy to ensure that you choose the chart type that best represents your data.

When creating your visualization, you can use tooltips and on-chart filtering to get the necessary information from your chart, and you can also enhance the chart with run-time capabilities such as drill-downs and In-Document Analytics to make even more information available from a single chart.

In this chapter:

Creating a Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

3. Use the Content picker to change the chart type, or use the default vertical stacked bar chart. The Content picker is shown in the following image.

4. Add measures by dragging them onto the canvas.

   Note: You can also double-click a measure to add it to the default measure bucket or drag it into an appropriate bucket of your choice.

5. Add dimensions by dragging them onto the canvas.

   Note: You can also double-click a dimension to add it to the default dimension bucket or drag it into an appropriate bucket of your choice.

   The chart refreshes with your selections.

6. You can format your chart in the following ways:
   a. Edit the style, size, or format of your fonts.
   b. Modify the appearance or location of your legend.
   c. Modify axis options.
   d. Add a header and footer.
   e. Customize the series in your chart.
7. On the Db2 Web Query Designer toolbar, click *Save* to save your chart.

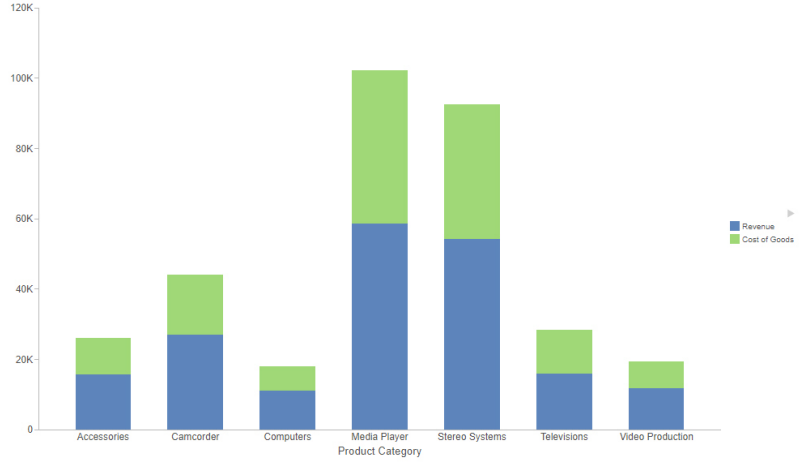
   When you create a single chart and save it for the first time, it is saved as a stand-alone chart, which allows you to add it as external content to pages. If you click *Convert to page* on the Visualization toolbar, your content becomes a page to which you can add more content and containers. After this point, it is saved as a multi-content page.

   You can now continue editing your chart, or add more charts to the visualization to turn it into a page.
8. To reopen your chart once you have exited Db2 Web Query Designer, locate it on the Hub, right-click it, and click *Edit* from the shortcut menu.

Creating Vertical Stacked Bar Charts

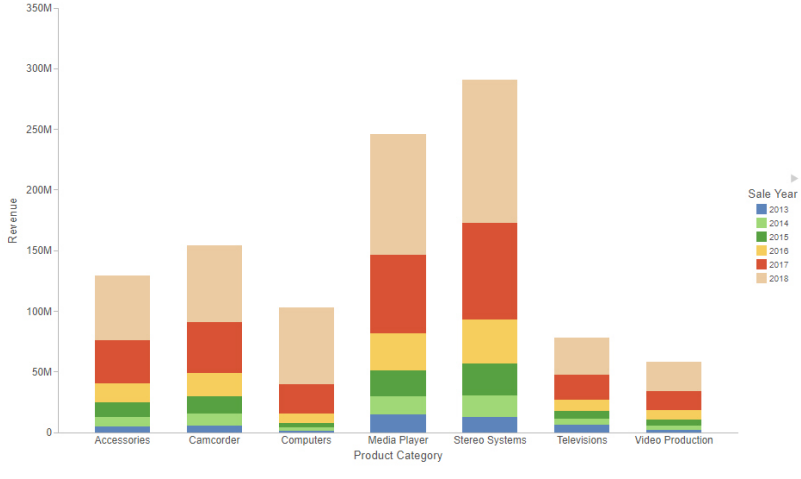
Use a vertical stacked bar chart when you want to view information for one dimension within another dimension. For example, when you want to see which product subcategories accounted for the most sales within each product category.

If you use one measure in the Vertical bucket and one dimension in the Horizontal bucket, a simple bar chart is created, with no stacked segments. Vertical stacked bar charts require at least one measure and one dimension. If you add a second measure to the Vertical bucket, a second series is created for the new measure and a new segment is placed on top of the first measure in each bar, as shown in the following image.



Additional measures increase the number of segments in a stack.

If you instead add a dimension field to the Color bucket, colored segments are created for each value in that dimension field, as shown in the following image.



Additional fields added to the color field create additional segments based on concatenated values.

The following display options are available for a vertical stacked bar chart:

- **Change chart orientation.** Switches the horizontal and vertical axes, making the bars horizontal.
- Chart layout options:
  - **Stacked.** When selected, creates a vertical stacked bar chart.
  - **Side-by-Side.** When selected, creates a vertical side-by-side bar chart, in which the series are placed side-by-side in groups.
  - **Absolute.** When selected, creates a vertical absolute bar chart, in which the series are layered in front of one another.
  - **Percent.** When selected, creates a vertical percent bar chart. Each series is stacked to show a proportion of each bar instead of their actual value.
- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.
- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a vertical stacked bar chart:

- **Vertical.** The first field is added to the vertical axis to determine the height of each bar. Additional measures create additional segments in each bar. You can also choose to display multiple measures on different axes in a dual-axis chart by clicking the axis icon  . Additional dimensions create matrix rows.
- **Horizontal.** The first field is added to the horizontal axis to create a bar for each unique value. You can click the icon in the bucket field label to toggle between using the field as a horizontal axis sort field  or matrix column  .
- **Size.** Controls the width of the bars based on a measure value.
- **Color.** If a dimension field is used, creates segments for each value. If a measure field is used, applies a color scale to the bars.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.

- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.
- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Vertical Stacked Bar Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

   Vertical stacked bar is the default chart type. If you have a different content type selected by default, select the vertical stacked bar chart option from the Content picker.

3. Add one or more measures and dimensions to the chart.

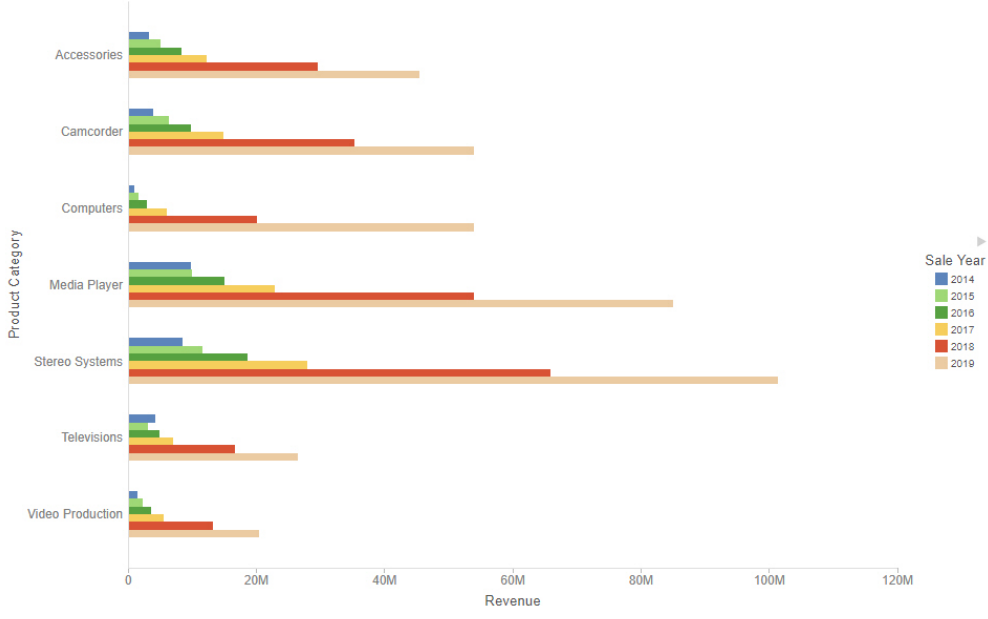
   The vertical stacked bar chart refreshes with your selections.

4. You can perform the following tasks with your vertical stacked bar chart:
   a. Add additional measures or dimensions to the chart, where applicable.
   b. Change the fields to obtain different information.
   c. Format the chart (for example, customize the header and footer or style the legend).
5. Save your vertical stacked bar chart as a stand-alone chart, or as part of a page.

Creating Horizontal Bar Charts

Use a horizontal bar chart when you want to emphasize a ranking relationship in descending order. This chart type can also be used when the x-axis label is too long to fit legibly side-by-side.

If you add additional measure fields to the Horizontal bucket or add dimension fields to the Color bucket, additional bars are placed in groups for each vertical axis value. A horizontal bar chart with multiple dimension fields is shown in the following image.



Note: Horizontal bar charts require at least one measure and one dimension. Add measures as required to compare additional values.

To sort the bars from high to low, right-click a measure value in the Horizontal bucket and click *Sort descending*.

The following display options are available for a horizontal bar chart:

- **Change chart orientation.** Switches the horizontal and vertical axes, making the bars vertical.
- Chart layout options:
  - **Stacked.** When selected, creates a vertical stacked bar chart.
  - **Side-by-Side.** When selected, creates a vertical side-by-side bar chart, in which the series are placed side-by-side in groups.
  - **Absolute.** When selected, creates a vertical absolute bar chart, in which the series are layered in front of one another.

- **Percent.** When selected, creates a vertical percent bar chart. Each series is stacked to show a proportion of each bar instead of their actual value.

- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.

- **Clear buckets content.** Empties all buckets.

Note: When sorting a bar chart, each series is treated as a unique bar. As a result, groups of series such as stacked bar segments, side-by-side groups, or absolute overlapping bars may be separated.

You can add fields to the following buckets for a horizontal bar chart:

- **Vertical.** The first field is added to the vertical axis to create a bar for each unique value. You can click the icon in the bucket field label to toggle between using the field as a vertical axis sort field  or matrix row  .

- **Horizontal.** The first field added to the vertical axis determines the height of each bar. Additional measures create additional series for each bar. You can also choose to display multiple measures on different axes in a dual-axis chart by clicking the axis icon  . Additional dimensions create matrix rows.

- **Size.** Controls the width of the bars based on a measure value.

- **Color.** If a dimension field is used, creates a new series for each value. If a measure field is used, applies a color scale to the bars.

- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.

- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.

- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Horizontal Bar Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

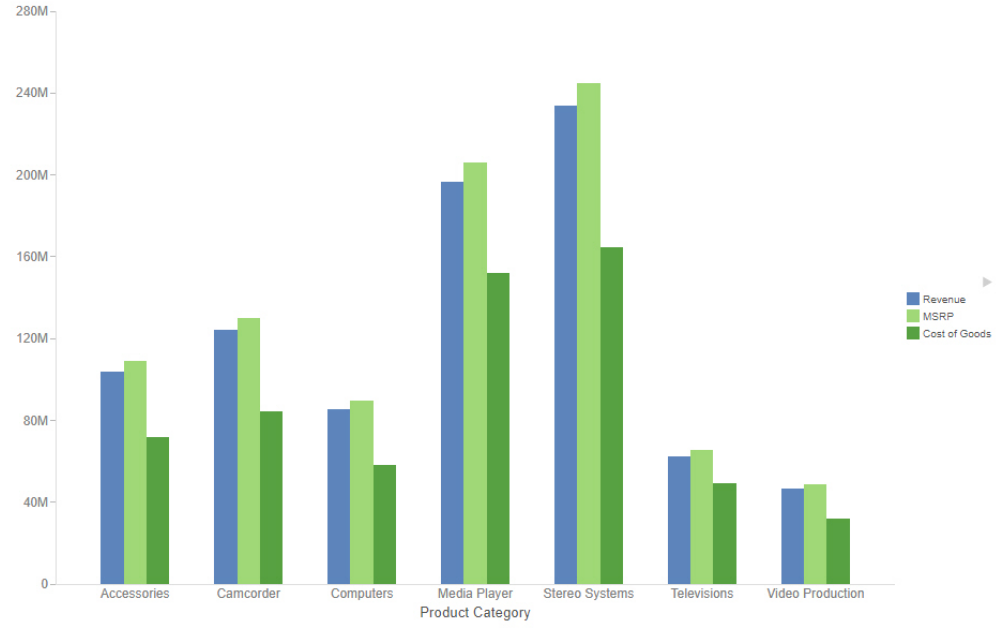
2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

3. On the Content picker, change the chart type to a horizontal bar chart.
4. Add a measure and a dimension to the chart.
5. You can perform the following tasks with your horizontal bar chart:
   a. Add additional measures or dimensions to the chart, where applicable.
   b. Change the fields to obtain different information.
   c. Format the chart (for example, customize the header and footer or style the legend).
6. Save your horizontal bar chart.

Creating Vertical Side-by-Side Bar Charts

Vertical side-by-side bar charts can be used to show additional measure or dimension values for each horizontal axis value using differing identifying colors. Side-by-side bar charts are useful to directly compare the values for different measures or categories within each horizontal axis sort value. The following image shows a vertical side-by-side bar chart with one dimension field and multiple measure fields.



Note: This chart requires at least one measure and one dimension. Add measures as required to compare additional values.

The following display options are available for a vertical side-by-side bar chart:

- **Change chart orientation.** Switches the horizontal and vertical axes, making the bars horizontal.
- Chart layout options:
  - **Stacked.** When selected, creates a vertical stacked bar chart.
  - **Side-by-Side.** When selected, creates a vertical side-by-side bar chart, in which the series are placed side-by-side in groups.
  - **Absolute.** When selected, creates a vertical absolute bar chart, in which the series are layered in front of one another.

- **Percent.** When selected, creates a vertical percent bar chart. Each series is stacked to show a proportion of each bar instead of their actual value.

- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.

- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a vertical side-by-side bar chart:

- **Vertical.** The first field is added to the vertical axis to determine the height of each bar. Additional measures create additional bars for each horizontal axis value. You can also choose to display multiple measures on different axes in a dual-axis chart by clicking the axis icon  . Additional dimensions create matrix rows.

- **Horizontal.** The first field is added to the horizontal axis to create a bar for each unique value. You can click the icon in the bucket field label to toggle between using the field as a horizontal axis sort field  or matrix column  .

- **Size.** Controls the width of the bars based on a measure value.

- **Color.** If a dimension field is used, creates new bars for each value, placed in groups for each horizontal axis sort value. If a measure field is used, applies a color scale to the bars.

- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.

- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.

- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Vertical Side-by-Side Bar Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

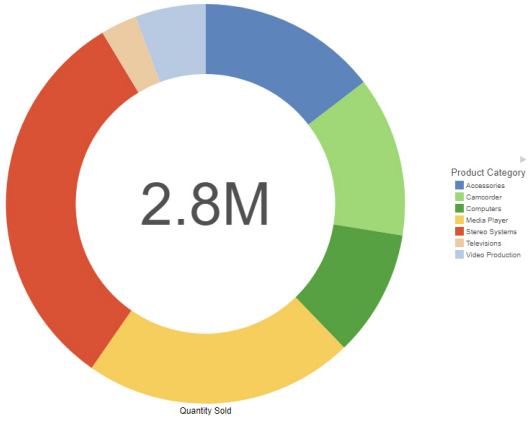
2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

3. Add one or more measures and dimensions to the chart.
4. You can perform the following tasks with your vertical side-by-side bar chart:
   a. Add additional measures or dimensions to the chart, where applicable.
   b. Change the fields to obtain different information.
   c. Format the chart (for example, customize the header and footer or style the legend).
5. Save your vertical side-by-side bar chart.

Creating Ring Pie Charts

Use a ring pie chart when you want to review the value of each segment, which represents the measure value for the selected dimension, as it relates to the total for the selected measure. The total value represented by all segments displays in the middle of the ring pie chart. The following image shows a ring pie chart.



Note: Ring pie charts require at least one measure (placed in the Measure bucket) and one dimension (placed in the Color bucket). Add additional measures as required to create a separate ring pie for each measure.

The following display options are available for a ring pie chart:

- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.
- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets in a ring pie chart:

- **Vertical.** Enables you to specify a field to display row data in a matrix chart. The use of measure fields is supported. Row data is displayed on the left side of the chart, along the y-axis.
- **Horizontal.** Enables you to specify a field to display column data in a matrix chart. The use of measure fields is supported. Column data is displayed at the top of the chart, along the x-axis.
- **Measure.** Use this bucket to specify a measure that will define the size of segments in a pie chart. The Measure metric is used with the Color bucket for pie charts to create sections based on your field selections. Each field in the Measure bucket results in a separate ring pie chart.
- **Size.** When creating a matrix chart that contains ring pie charts, the size bucket controls the diameter of each chart based on a measure value.
- **Color.** Add a dimension field to the Color bucket to create a segment in the ring pie chart for each value.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.
- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.
- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Ring Pie Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

3. On the Content picker, change the chart to a ring pie chart.
4. Add one measure and a dimension to the chart.

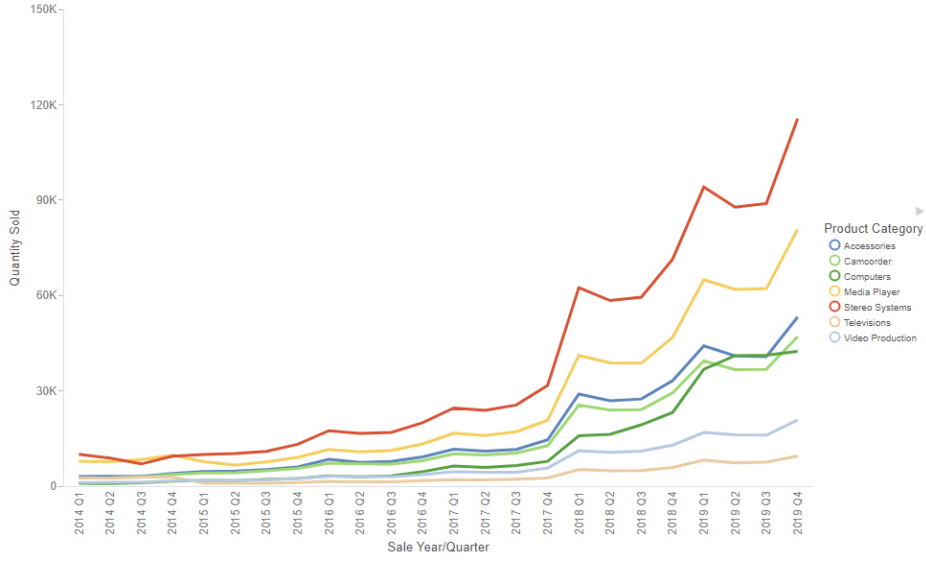
   The ring pie chart refreshes with your selections.

5. You can perform the following tasks with your ring pie chart:
   a. Add additional measures or dimensions to the chart, where applicable.
   b. Change the fields to obtain different information.
   c. Format the chart (for example, customize the header and footer or style the legend).
   d. Change the size of the hole in the ring pie chart. On the Format tab, select *Series* from the area menu, then adjust the value of the Hole Size % property. Setting this property to 0 removes the hole entirely, creating a standard pie chart.
6. Save your ring pie chart.

Creating Absolute Line Charts

Use absolute line charts when you want to show trend data over time. For example, monthly changes in employment figures, or yearly sales of an item in your inventory.

Note: Absolute line charts require at least one measure and one dimension. Adding multiple measures or adding fields to the Color bucket will create additional lines on the chart, as shown in the following image.



The following display options are available for a line chart:

- **Change chart orientation.** Switches the vertical and horizontal axes so that the lines draw from top to bottom.
- Chart layout options:
  - **Stacked.** Stacks each line on top of the previous line, similar to a stacked bar chart. As a result, the value for each point on a line is a sum of the value represented by that point and all points for the same horizontal axis value below it.
  - **Absolute.** Each point on each line represents an absolute value.
  - **Percent.** When selected, the points in each line are stacked and represent a proportion of the total for each horizontal axis value instead of their actual value.
- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.

- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a line chart:

- **Vertical.** The first field is added to the vertical axis to determine the height of points on the line. Additional measures create additional lines. You can also choose to display multiple measures on different axes in a dual-axis chart by clicking the axis icon  . Additional dimensions create matrix rows.
- **Horizontal.** The first field is added to the horizontal axis to create a point on each line for each unique value. Additional fields create matrix columns. You can click the icon in the bucket field label to toggle between using the field as a horizontal axis sort field  or matrix column  .
- **Size.** Controls the thickness of the lines based on a measure value. The thickness changes at each point on the horizontal axis.
- **Color.** If a dimension field is used, creates additional lines for each value. If a measure field is used, applies a color scale to the lines.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.
- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.
- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create an Absolute Line Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

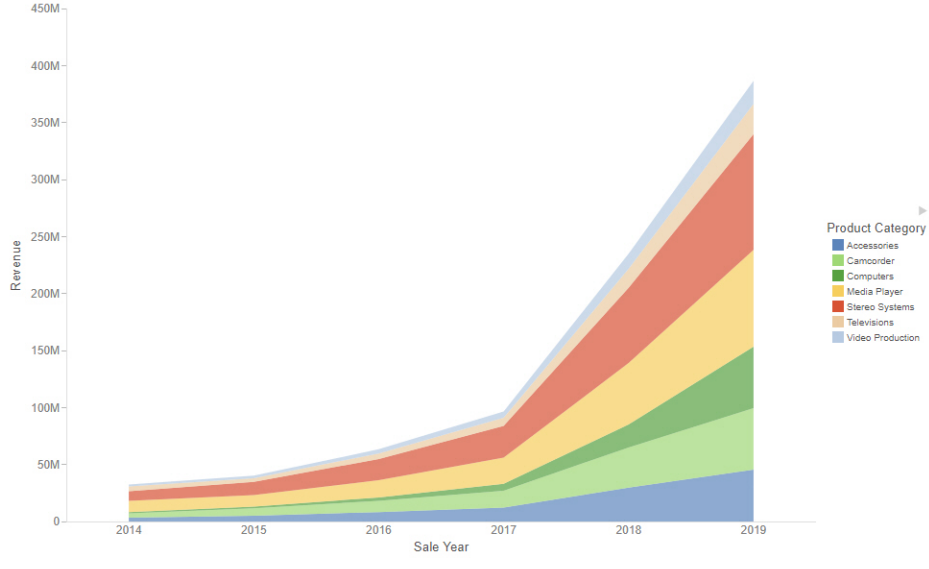
2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

3. On the Content picker, change the chart to an absolute line chart.
4. Add one or more measures and a dimension to the chart.
5. You can perform the following tasks with your absolute line chart:
    a. Add additional measures or dimensions to the chart, where applicable.
    b. Change the fields to obtain different information.
    c. Format the chart (for example, customize the header and footer or style the legend).
6. Save your absolute line chart.

Creating Vertical Stacked Area Charts

Use vertical stacked area charts when you want to distinguish your data more dramatically by highlighting volume with color. In a vertical stacked area chart, each area is stacked on top of the sections below it, as shown in the following image.



Note: Vertical stacked area charts require at least one measure and one dimension. Adding multiple measures will create additional shaded areas on the chart.

The following display options are available for an area chart:

- **Change chart orientation.** Switches the vertical and horizontal axes so that the lines draw from top to bottom.

- Chart layout options:
  - **Stacked.** Stacks each area on top of the previous area, similar to a stacked bar chart. As a result, the value for each point along the top of an area is a sum of the value represented by that point and all points for the same horizontal axis value in the areas below it.
  - **Absolute.** Each point in each area represents an absolute value. Areas are layered in front of each other.
  - **Percent.** When selected, the areas are stacked to fill the chart area and represent a proportion of the total for each horizontal axis value instead of their actual value.
- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.
- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for an area chart:

- **Vertical.** The first field is added to the vertical axis to determine the height of points in the area chart. Additional measures create additional areas. You can also choose to display multiple measures on different axes in a dual-axis chart by clicking the axis icon  . Additional dimensions create matrix rows.
- **Horizontal.** The first field is added to the horizontal axis to create a point at the top of each area for each unique value in the field. You can click the icon in the bucket field label to toggle between using the field as a horizontal axis sort field  or matrix column  .
- **Color.** If a dimension field is used, creates additional areas for each value. If a measure field is used, applies a color scale to the areas.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.
- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.

- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Vertical Stacked Area Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

3. On the Content picker, change the chart to a vertical stacked area chart.
4. Add one or more measures and a dimension to the chart.

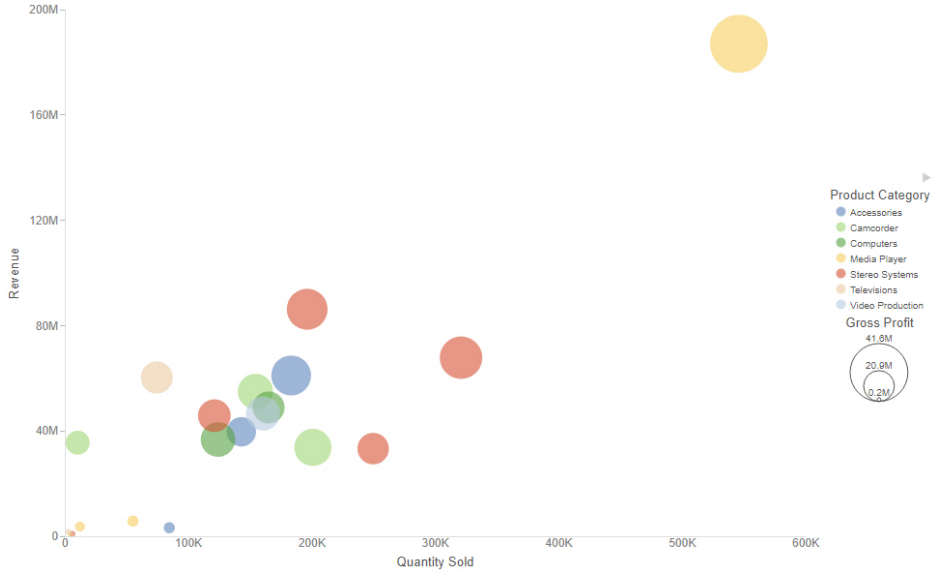
   The vertical stacked area chart refreshes with your selections.

5. You can perform the following tasks with your vertical stacked area chart:
   a. Add additional measures or dimensions to the chart, where applicable.
   b. Change the fields to obtain different information.
   c. Format the chart (for example, customize the header and footer or style the legend).
6. Save your vertical stacked area chart.

Creating Scatter/Bubble Charts

Scatter charts are used to show relationships between X and Y values. They compare two sets of numbers at once, which is useful for discovering patterns and trends.

A bubble chart is a chart in which the data points are represented by bubbles. Bubble charts can have two column fields representing X and Y data values, or have three column fields representing X, Y, and Z data values, in that order. The third variable (Z) represents size. The size of each bubble is used to show the relative importance of the data. A bubble chart can be used to effectively show the relationship between three measure fields, as shown in the following image.



Note: Scatter/bubble charts require at least two measures, and one dimension, which can be a color field or detail field. Optionally, add a dimension to the Size bucket using the count aggregation to view the concentration of data.

The following display options are available for a scatter plot or bubble chart:

- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.
- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a scatter plot or bubble chart:

- **Vertical.** Add a measure field to the vertical axis to determine the vertical position of points. Additional dimensions create matrix rows.

- **Horizontal.** Add a measure or dimension field to the horizontal axis to determine the horizontal position of points. Additional dimension fields create matrix columns.
- **Detail.** Use this bucket to add detail to your visual by adding a data field to it. For example, if you add Sale,Quarter to the Detail bucket in your Scatter plot, the points on the plot are quadrupled, one for each quarter. In addition, the field that you specify in the Detail bucket also displays on the hover menu for each point in the plot.
- **Size.** Controls the size of each bubble based on a measure value.
- **Color.** If a dimension field is used, creates points or bubbles for each value and determines their color. If you also add a dimension to the Detail bucket, the values in the detail field are used to create points, and the values in the color field determine the color of the points. If a measure field is used, applies a color scale to the points.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.
- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.
- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Scatter/Bubble Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

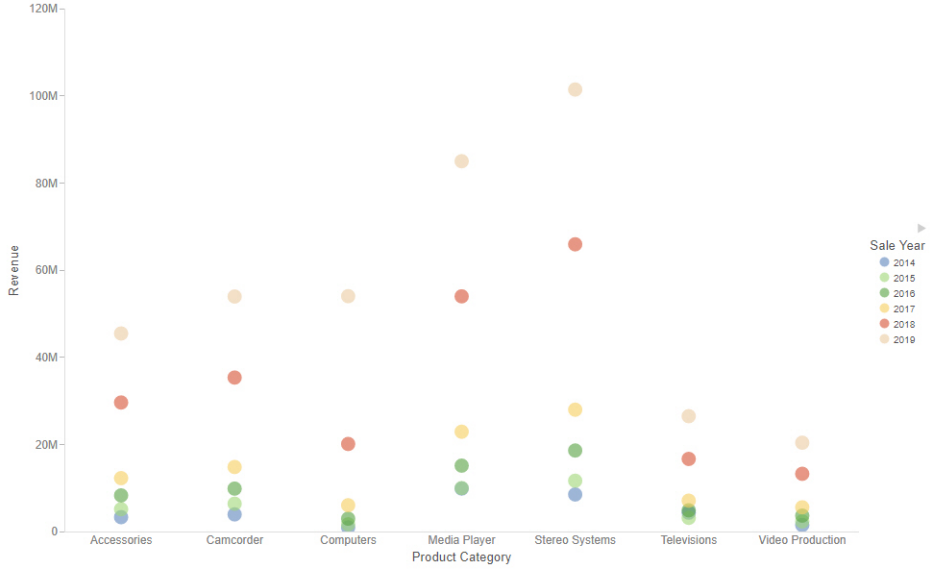
3. On the Content picker, change the chart to a scatter or bubble chart.
4. Add one measure and one dimension to the chart. Also, add fields in the Detail and Color buckets.

   The scatter/bubble chart refreshes with your selections.

5. You can perform the following tasks with your scatter/bubble chart:
   a. Add additional measures or dimensions to the chart, where applicable.
   b. Change the fields to obtain different information.
   c. Format the chart (for example, customize the header and footer or style the legend).
   d. Add trend lines. On the *Format* tab, select *Series* from the quick access menu and, with all series or a single series selected, click *Show trend line*. You can set the line style, trend line equation format, and, when using the polynomial equation, set the order or degree of the expression.
6. Save your scatter/bubble chart.

Creating Circle Plot Charts

Use circle plot charts to display differing values in rows, enabling you to draw inferences as to how the values overlap. An example of a circle plot is shown in the following image.



Note: Circle plot charts require at least one measure and one dimension, as well as one for the Detail and Color buckets. Optionally, add a dimension to the Size bucket with the count aggregation to view the concentration of data.

The following display options are available for a circle plot chart:

- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.

- **Counts.** Provides a count of records in the selected measure field, for each sort value.
- **Details.** Displays the value of each individual record.

- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a circle plot chart:

- **Vertical.** Add a measure field to the vertical axis to determine the vertical position of points. Additional dimensions create matrix rows.
- **Horizontal.** Add a dimension field to the horizontal axis to determine the horizontal position of points. You can click the icon in the bucket field label to toggle between using the field as a horizontal axis field  or matrix column  .
- **Detail.** Use this bucket to add detail to your visual by adding a data field to it. For example, if you add Sale,Quarter to the Detail bucket in your circle plot, the points on the plot are quadrupled, one for each quarter. In addition, the field that you specify in the Detail bucket also displays on the hover menu for each point in the plot.
- **Size.** Controls the size of each point based on a measure value.
- **Color.** If a dimension field is used, creates points for each value and determines their color. If you also add a dimension to the Detail bucket, the values in the detail field are used to create points, and the values in the color field determine the color of the points. If a measure field is used, applies a color scale to the points.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.
- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.
- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Circle Plot Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

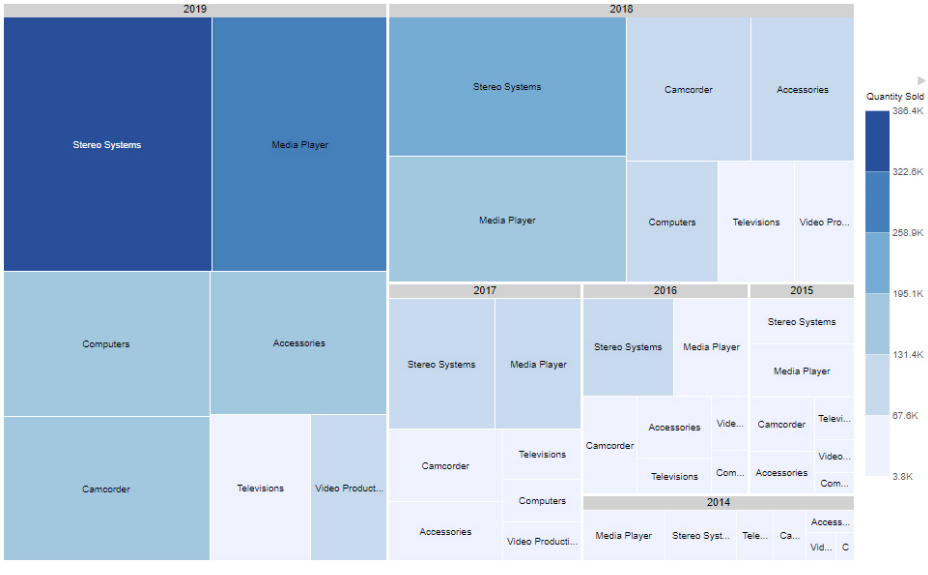
3. On the Content picker, change the chart to a circle plot.
4. Add one measure, one dimension to the chart. Also, add a field into the Detail and Color buckets.

   The circle plot chart refreshes with your selections.

5. You can perform the following tasks with your circle plot chart:
   a. Add additional measures or dimensions to the chart, where applicable.
   b. Change the fields to obtain different information.
   c. Format the chart (for example, customize the header and footer or style the legend).
6. Save your circle plot chart.

Creating Treemap Charts

Treemap charts can be used to display large amounts of hierarchically structured data. Using a set of nested rectangles to illustrate data relationships, sections of a treemap represent branches of a tree. A treemap is shown in the following image.



Note: Treemap charts require at least one measure and one dimension, to be placed in the Size and Color buckets. Groups are determined by those fields specified in the Grouping bucket.

The following content display options are available for a treemap:

- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.
- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a treemap:

- **Group.** Enables you to specify dimension fields by which to present your data in nested categories or groups.
- **Size.** Use a measure field to determine the size of boxes in the treemap.
- **Color.** If a dimension field is used, creates boxes to contain values for the field in the Group bucket. If a measure field is used, applies a color scale to the boxes in the treemap.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.
- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.
- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Treemap Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

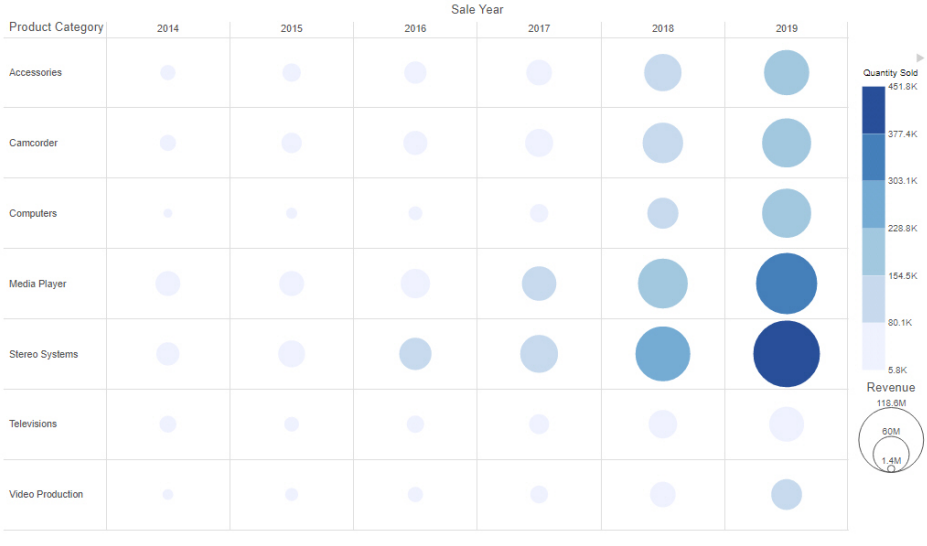
Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

3. On the Content picker, change the chart to a treemap chart.
4. Add one measure, one dimension to the chart. Also, add a field into the Size and Color buckets.

   The treemap chart refreshes with your selections.
5. You can perform the following tasks with your treemap chart:
   a. Add additional measures or dimensions to the chart, where applicable.
   b. Change the fields to obtain different information.
   c. Format the chart (for example, customize the header and footer or style the legend).
6. Save your treemap chart.

Creating Matrix Marker Charts

Matrix marker charts can be used to analyze one or two measures against a crosstab of two categorical dimensions. The result is a color scaled matrix chart that shows categorized trends, as shown in the following image.



Note: Matrix marker charts require at least two measures and two dimensions. It also requires a field in the Color and Size buckets, which allow you to see the concentration of data for that intersection of the chart.

The following display options are available for a matrix marker chart:

- **Change chart orientation.** Switches the vertical and horizontal axes.
- Chart layout options:
  - **Circle marker.** Uses circles as the markers. You can choose a different marker shape from the Format tab. On the Format tab, open the Quick Access menu and click *Series*. In the Shape section, select a shape from the drop-down menu.
  - **Square marker.** Uses squares as the markers. You can choose a different marker shape from the Format tab. On the Format tab, open the Quick Access menu and click *Series*. In the Shape section, select a shape from the drop-down menu.
  - **Fill marker.** The markers fill the grid, changing the chart into a heatmap. Instead of using the Size bucket, use the Color bucket to indicate measure values.
- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.
- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a matrix marker chart:

- **Vertical.** Add a dimension field to the Vertical bucket to set the vertical axis values for the matrix marker chart. Additional dimension fields are nested.
- **Horizontal.** Add a dimension field to the Horizontal bucket to set the horizontal axis values for the matrix marker chart. Additional dimension fields are nested.
- **Size.** Controls the size of each marker based on a measure value. Is not applied to matrix marker charts using the fill marker, or heatmap, display.
- **Color.** Use a measure field to apply a color scale to the markers.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.
- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.

- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Matrix Marker Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

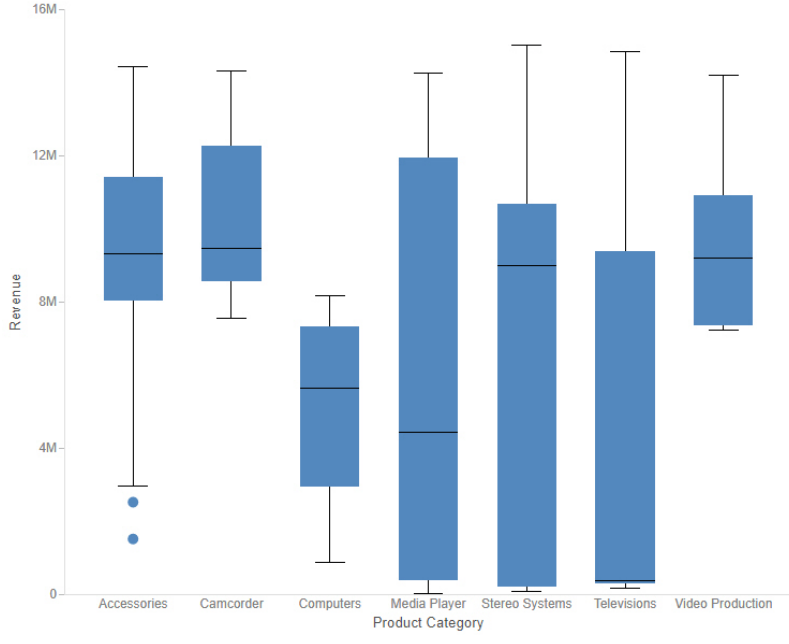
3. On the Content picker, change the chart to a matrix marker chart.
4. Add two measures and two dimensions to the chart. Also, add fields to the Color and Size buckets.

   The matrix marker chart refreshes with your selections.

5. You can perform the following tasks with your matrix marker chart:
   a. Add additional measures or dimensions to the chart, where applicable.
   b. Change the fields to obtain different information.
   c. Format the chart (for example, customize the header and footer or style the legend).
6. Save your matrix marker chart.

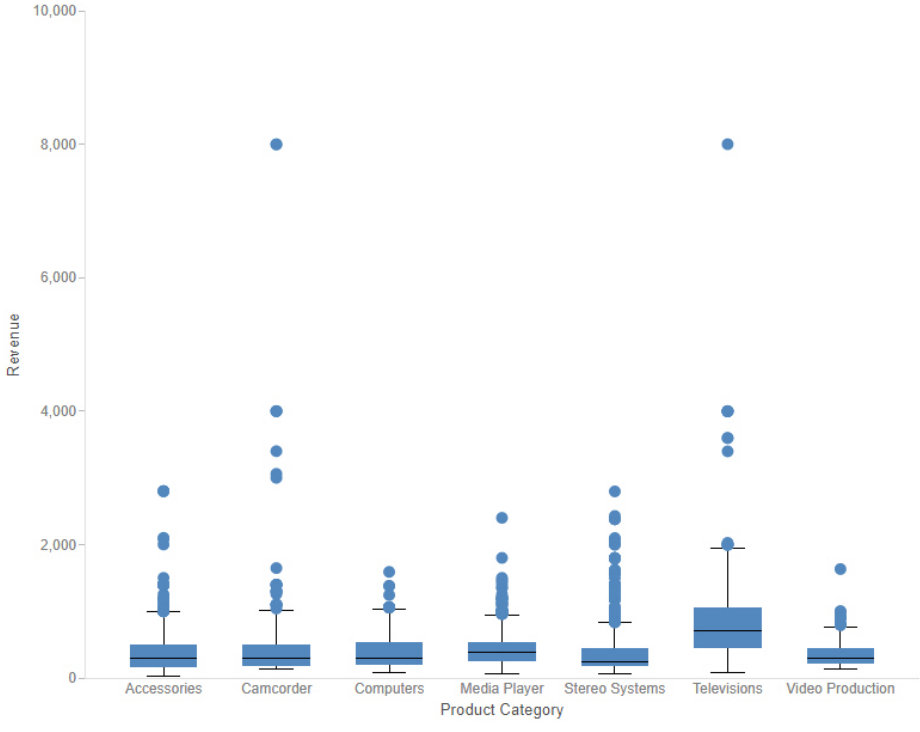
Creating Statistical Box Plot Charts

A box plot, also known as a box-and-whisker plot, is a chart type that provides distribution information about your data. The box represents the range between the upper and lower quartiles, and the line inside the box represents the median. The whiskers represent the maximum and minimum with outliers excluded, and outliers are represented by individual points. An example of a box plot is shown in the following image.



Since box plots display the distribution of points in your data, you need to provide detail values. You can do this in one of two ways. One option is to add a dimension field to the Detail bucket. This field should have a large number of distinct values in order to generate a sufficient spread of data for the box plot. For example, in the image above, a separate box plot is created for each Product Category to show the distribution of values in the Model field, which has been placed in the Detail bucket.

Another option is to incorporate your entire data set into the box plot. You can do this by changing the calculation method from Summaries to Details. In this case, you do not need a field in the Detail bucket to generate the box plot. The following image shows a box plot chart in which separate box plots are still generated for each product category, but which uses the Details calculation option instead of using Model as the Detail field. Since more data values are used in this chart, there are more outliers.



The following display options are available for a box plot:

- **Change chart orientation.** Switches the vertical and horizontal axes.
- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default. Add a dimension field to the Detail bucket to create a box plot when using the Summaries option.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value. Add a dimension field to the Detail bucket to create a box plot when using the Counts option.

- **Details.** Displays the value of each individual record. You do not need to add a field to the Detail bucket when using the Details calculation option.

- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a box plot chart:

- **Vertical.** A measure field whose values constitute the set of data for the box plot. The outliers, maximum, minimum, median, and upper and lower quartile are calculated for these values.

- **Horizontal.** Add a dimension field to the Horizontal bucket to generate a separate box plot for each value, allowing you to compare the distribution of each.

- **Detail.** When using the Summaries or Counts calculation options, use the Detail bucket to provide individual values for the measure field in the Vertical bucket. The Detail bucket should provide multiple values for each value of the field in the Horizontal bucket.

- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.

- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.

- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Box Plot Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

3. On the Content picker, change the chart to a statistical box plot.

4. Add a measure to the Vertical bucket and a dimension to the Horizontal bucket.

   A single measure value displays as a line in each column.

5. Use one of the following methods to generate a set of data for each column:

   - Add a dimension field to the Detail bucket. This field should provide multiple records for Horizontal bucket value.

   - Change the calculation option from Summaries to Details . If you have a very large data source, this may generate too many records to evaluate in the box plot.

   A set of box plots appears on the canvas, showing indicators for outliers, maximum and minimum, median, and upper and lower quartiles.

6. You can perform the following tasks with your box plot chart:

   a. Add additional measures or dimensions to the Tooltip, Animate, and MultiPage buckets, where applicable.

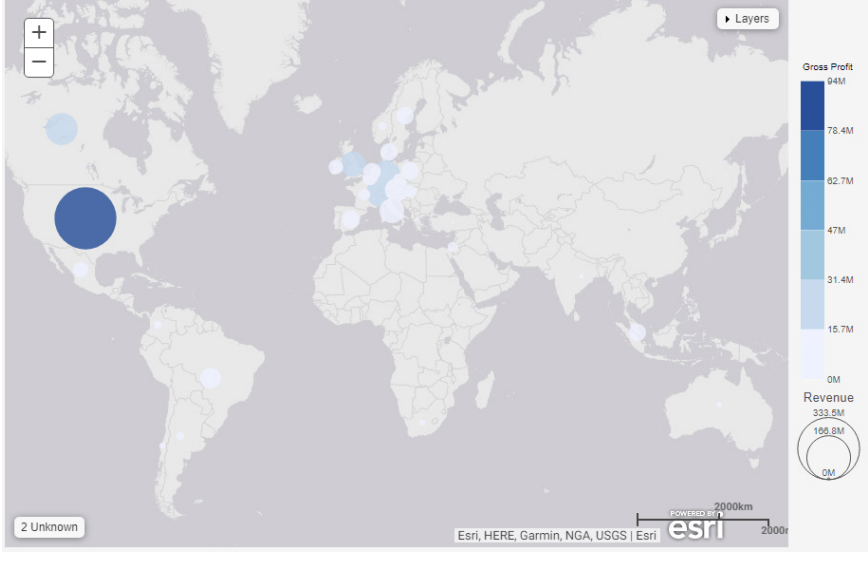
   b. Change the fields to obtain different information.

   c. Format the chart (for example, customize the header and footer , change the series colors, or set box plot-specific properties).

7. Save your box plot chart.

Creating Proportional Symbol Maps

Proportional symbol maps, or bubble maps, use symbols of different sizes to represent data associated with different areas or locations within the map, as shown in the following image.



Note: Proportional symbol maps require at least one measure and one Georole, which contains geographic location information. You can add a field to the Color bucket to color the map.

The following display options are available for a proportional symbol map.

- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.
- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a proportional symbol map:

- **Size.** Use a measure field to determine the size of bubbles on the proportional symbol map.
- **Color.** Use a measure field to apply a color scale to the bubbles on the proportional symbol map. You can also use a dimension to color the points on the map. Each point can show one color, so it is advisable to use overarching categories that apply to distinct sets of points. For example, you could use a country field in the Color bucket to categorize points representing states.
- **Location.** Enables you to specify a Geolocation field for use in a map. Each value from the field is plotted on the map if it is recognized. A proportional symbol map can plot geographic areas, such as cities, states, or countries, as well as individual point locations such as street addresses and geographic coordinates.

  Note: Geolocation fields must be configured in the data source to use a corresponding geographic role. Values from the field are matched to values from the geographic role to plot them in the correct location. For example, if your field contains country names, use the Country Name geographic role.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.
- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Proportional Symbol Map

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

3. On the Content picker, change the chart to a bubble map.
4. Add measures to the Color and Size buckets and one field with an assigned geographic role to the Location bucket.

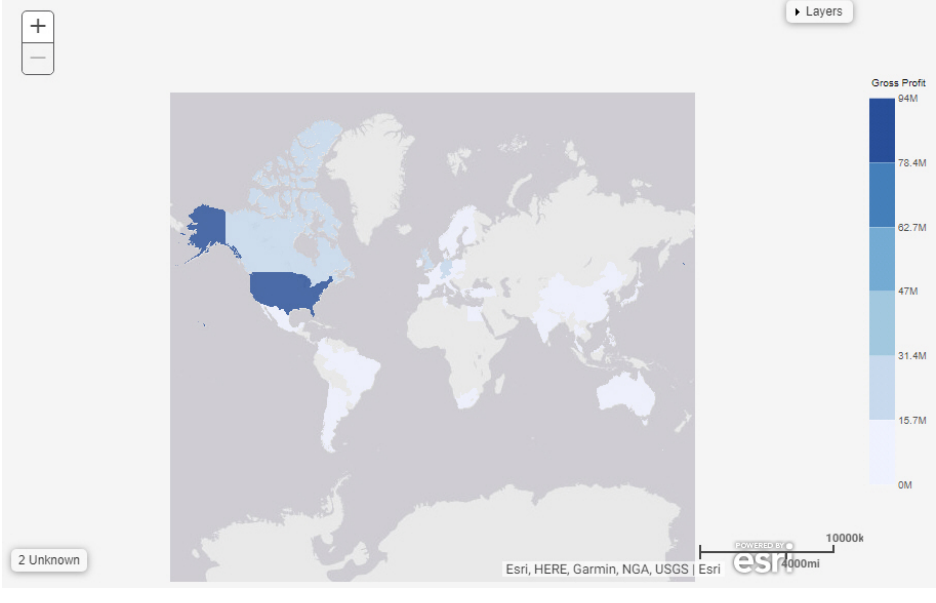
   The proportional symbol map refreshes with your selections.

   Note: In this case, we have also added Product,Subcategory to add color to the map.

5. You can perform the following tasks with your proportional symbol map:
   a. Change the field in the Location bucket to analyze other trends.
   b. Zoom in or out to see different views of the data.
6. Save your proportional symbol map.

Creating Choropleth Maps

Choropleth maps can be used to create geographically-based heat maps. They are useful for visualizing location-based data, trends, and distributions across a geographic area, as shown in the following image.



Note: Choropleth maps require at least one measure and one Georole, which contains geographic location information. You can add a field to the Color bucket to color the map.

The following display options are available for a choropleth map.

- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.
- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a choropleth map:

- **Color.** Use a measure field to apply a color scale to the areas on the choropleth map. You can also use a dimension to color the areas on the map. Each area can show one color, so it is advisable to use overarching categories that apply to distinct sets of points. For example, you could use a country field in the Color bucket to categorize states shown on the map.
- **Location.** Enables you to specify a Geolocation field for use in a map. Each value from the field is plotted on the map if it is recognized. A choropleth can plot geographic areas, such as cities, states, or countries.

  Note: Geolocation fields must be configured in the data source to use a corresponding geographic role. Values from the field are matched to values from the geographic role to plot them in the correct location. For example, if your field contains country names, use the Country Name geographic role.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.
- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Choropleth Map

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.
2. Select a workspace and a data source available from that workspace.

Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

3. On the Content picker, change the chart to a choropleth map.
4. Add a measure to the Color bucket and one field with an assigned geograhic role to the Location bucket.

   The choropleth map refreshes with your selections.
5. You can perform the following tasks with your choropleth map:
   a. Change the field in the Location bucket to analyze other trends.
   b. Zoom in or out to see different views of the data.
6. Save your choropleth map.

Creating Data Grids

A data grid is a kind of chart that can be used to present data in tabular form. For example, you can create a grid (table) that summarizes your data. Data grids include sorting and tooltip features by default, unlike tabular reports. An example of a data grid is shown in the following image.

	Sale Quarter	1		2		3		4	
Product Category	Sale Year	Quantity Sold	Revenue	Quantity Sold	Revenue	Quantity Sold	Revenue	Quantity Sold	Revenue
Accessories	2014	3,028	$744,930.42	3,103	$764,754.44	3,097	$825,606.72	3,968	$956,740.30
	2015	4,603	$1,138,922.67	4,773	$1,181,883.87	5,196	$1,297,056.97	6,054	$1,502,258.19
	2016	8,423	$2,138,504.92	7,473	$1,862,380.05	7,796	$1,945,292.99	9,192	$2,343,058.27
	2017	11,617	$2,960,774.08	10,992	$2,789,195.45	11,534	$2,898,411.06	14,553	$3,595,589.15
	2018	28,986	$7,320,410.85	26,844	$6,839,186.33	27,421	$6,973,473.26	33,164	$8,472,187.00
	2019	44,150	$11,247,102.74	40,978	$10,417,816.74	40,777	$10,338,632.79	53,182	$13,440,167.26
Camcorder	2014	2,577	$824,496.92	2,607	$827,550.35	2,896	$1,078,819.79	3,673	$1,197,050.11
	2015	4,125	$1,504,323.51	4,224	$1,368,773.84	4,810	$1,669,034.52	5,565	$1,840,136.47
	2016	7,245	$2,424,537.93	7,035	$2,362,778.07	6,962	$2,352,484.83	7,994	$2,703,299.86
	2017	10,208	$3,591,283.52	9,808	$3,374,989.46	10,432	$3,481,229.19	12,739	$4,356,820.06
	2018	25,511	$8,783,112.69	23,927	$8,238,442.56	24,103	$8,245,433.79	29,341	$10,063,548.64
	2019	39,393	$13,312,909.74	36,666	$12,538,035.14	36,774	$12,426,734.63	47,036	$15,653,012.81
Computers	2014	880	$199,174.40	805	$186,062.11	1,089	$232,199.36	1,617	$327,443.33
	2015	1,776	$355,634.16	1,767	$359,051.59	2,150	$439,404.85	2,421	$490,769.35
	2016	3,228	$655,346.96	2,967	$607,796.72	3,250	$686,144.06	4,561	$998,840.56
	2017	6,340	$1,441,530.34	5,898	$1,341,050.78	6,459	$1,468,170.73	7,796	$1,775,092.06
	2018	15,834	$3,599,921.91	16,299	$4,123,475.47	19,302	$5,651,484.49	23,171	$6,716,582.29
	2019	36,755	$11,692,593.66	41,079	$13,041,225.28	41,213	$13,465,169.21	42,408	$15,805,232.13

Note: Data grids require at least one measure and one dimension. Additional measures create unique columns. You can add multiple dimensions in the Row bucket to create customized rows based on the structure of your selection, and add dimensions to the Column bucket to create groups of measure columns based on dimension values.

The following display options are available for a data grid:

- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.
- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a data grid:

- **Measure.** Supplies the measure values to display in the cells of the data grid.
- **Row.** Use a dimension field to define the rows in the data grid, similar to the BY field in a report.
- **Column.** Use a dimension to provide an additional sort column for each value. Each measure column is nested within each column field value. The column bucket is similar to an ACROSS field in a report.
- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.
- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Data Grid

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

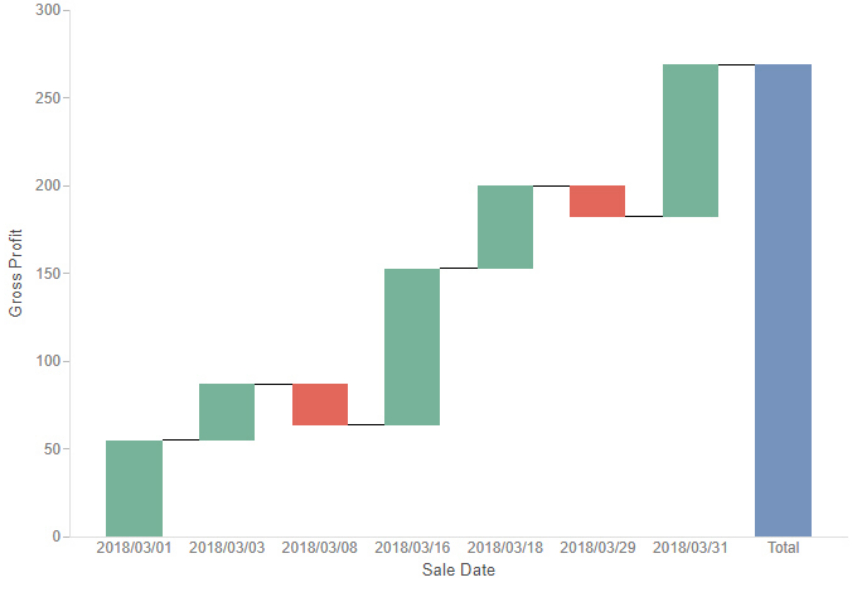
3. On the Content picker, select *Data Grid (Chart)*.
4. Add one or more measures and dimensions to the chart.

The data grid refreshes with your selections.

5. You can perform the following tasks with your data grid:
   a. Add additional measures or dimensions to the chart, where applicable.
   b. Change the fields to obtain different information.
   c. Format the chart (for example, customize the header and footer or style the legend).
6. Save your data grid.

Creating Waterfall Charts

Waterfall charts allow you to see incremental positive and negative changes in your data, resulting in a rolling total. Positive and negative values are represented by different colored risers that start at the end point of the previous riser. Waterfall charts can be a good way to show change over time. An example of a waterfall chart is shown in the following image.



The following display options are available for a waterfall chart:

- **Change chart orientation.** Switches the vertical and horizontal axes so that the risers draw horizontally.
- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.

- **Counts.** Provides a count of records in the selected measure field, for each sort value.
- **Details.** Displays the value of each individual record.

- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a waterfall chart:

- **Vertical.** Specifies the measure field used in the chart to set the riser height. Negative values of this field display in red by default.
- **Horizontal.** A sort field whose values are represented by each riser.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.
- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.
- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Waterfall Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

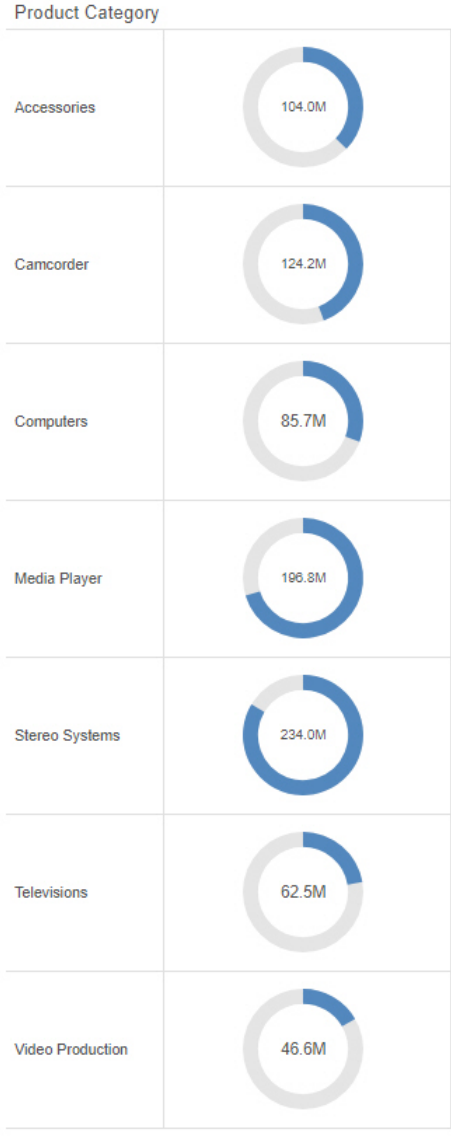
3. On the Content picker, change the chart to a waterfall chart.
4. Add one measure to the Vertical bucket, and one dimension to the Horizontal bucket.

   The waterfall chart refreshes with your selections. Any positive values display in green, and any negative values display in red, by default. There is also a Total column, which displays in blue by default.

5. You can perform the following tasks with your waterfall chart and then save your chart:
    a. Add additional measures or dimensions to the Tooltip, Animate, or MultiPage buckets of the chart, where applicable.
    b. Change the fields to obtain different information.
    c. Format the chart (for example, customize the header and footer or add data labels).

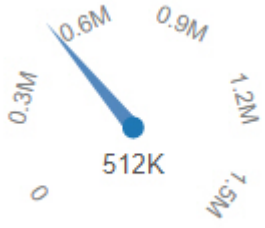
Creating Gauge Charts

A gauge is a simple visual that shows a measure value. These can be used to create straightforward KPI graphics, or use matrix rows and columns to compare data for different sort values. The following example shows a gauge chart with matrix rows.

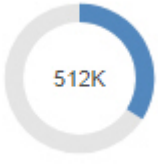


The following display options are available for a gauge chart:

- **Change chart orientation.** Switches the vertical and horizontal matrix axes.
- Chart layout options:
  - **Circular.** Shows the measure value using a pointer with values arranged in a semicircle starting at the bottom left, similar to a speedometer. A circular gauge is shown in the following image.



  - **Simple.** The default value, shows the measure value as a clockwise, colored fill on a circle starting at the top. The value is also displayed as text inside the circle. A simple gauge is shown in the following image.



  - **KPI.** Shows the measure value as text. A KPI gauge is shown in the following image.

- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.
- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a gauge chart:

- **Vertical.** A dimension field used to generate matrix rows.
- **Horizontal.** A dimension field used to generate matrix columns.
- **Measure.** The measure field whose value is represented by the gauge.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart. The KPI style gauge does not show a tooltip.
- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.
- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Gauge Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

3. On the Content picker, change the chart to a gauge chart.
4. Choose a gauge type from the display options. Simple, Circular, and KPI gauge types are available.
5. Add one measure to the Measure bucket.

   The gauge loads to display the value of the measure field.

6. You can make the following additional customizations to your gauge chart:
   a. Create a matrix chart by adding dimension fields to the Vertical and Horizontal buckets.
   b. Add additional measures or dimensions to the Tooltip, Animate, or MultiPage buckets of the chart, where applicable.

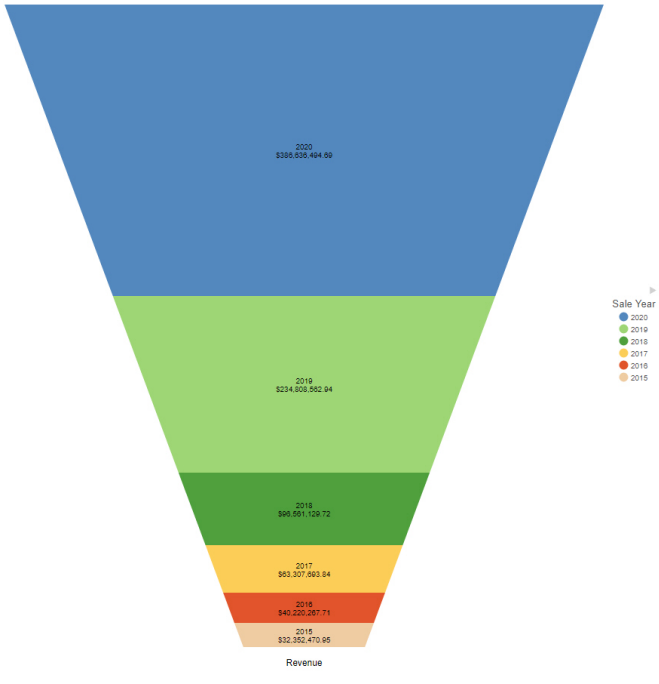
c. Change the fields to obtain different information.

d. Format the chart (for example, customize the header and footer or change the series color).

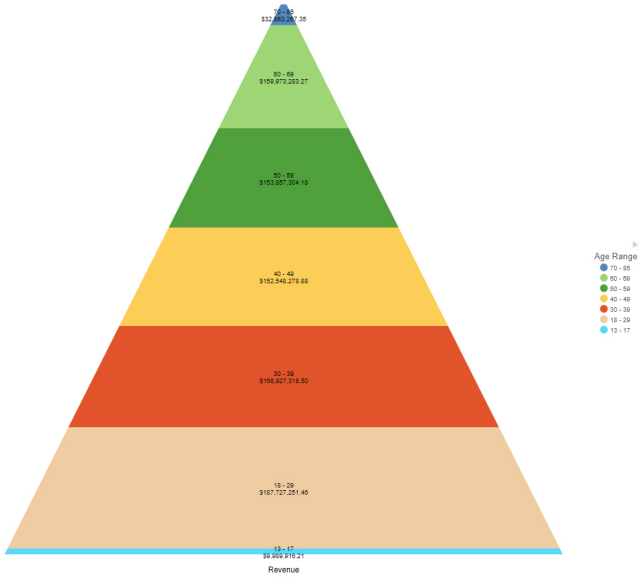
7. Save your gauge chart.

Creating Funnel Charts

A funnel chart shows values of a dimension field as a proportion of the whole, similar to a bar in a stacked bar chart. The shape of the funnel makes it useful to show information about processes that involve cascading or narrowing down due to the hierarchy it implies. For example, the following image shows revenue by year in a funnel chart. The entire funnel can be taken to represent all sales, with the top segment representing the most recent year, the top two segments the two most recent years, and so on.



Conversely, you can use the pyramid option to show values in an implied hierarchy, as shown in the following image of a pyramid chart showing revenue by age rand. The oldest range, 70-85 is at the top, and the youngest range, 13-17, is at the bottom.



The following display options are available for a funnel chart:

- Chart layout options:
  - **Funnel.** The default value, arranges the chart in a funnel shape, wide at the top and narrow at the bottom.
  - **Pyramid.** Arranges the chart in a triangle, wide at the bottom with a point at the top.
- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.
- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a funnel chart:

- **Measure.** The measure field whose values are represented by each layer of the funnel chart.

- **Color.** A dimension field that determines the layers of the funnel chart.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.
- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.
- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Funnel Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

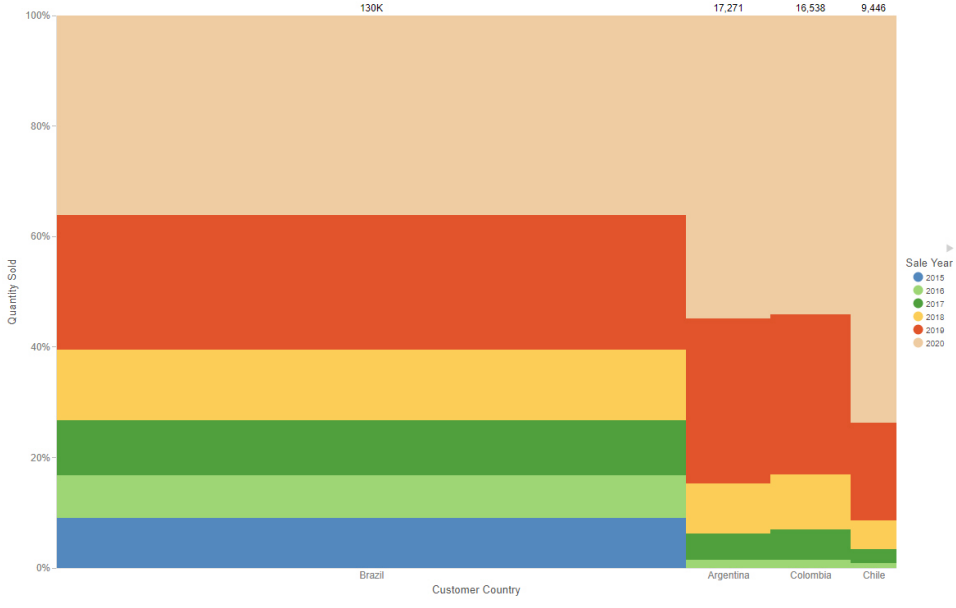
3. On the Content picker, change the chart to a funnel chart.
4. Add at least one measure to the Measure bucket and a dimension to the Color bucket.

   The funnel chart loads, showing each dimension field as a layer with height based on the value of the measure field.

5. You can make the following additional customizations to your funnel chart:
   a. Change the funnel chart to a pyramid chart.
   b. Add additional measures or dimensions to the Tooltip, Animate, or MultiPage buckets of the chart, where applicable.
   c. Change the fields to obtain different information.
   d. Format the chart (for example, customize the header and footer or change the series color).
6. Save your funnel chart.

Creating Mekko Charts

A Mekko chart allows you to see proportional values of a measure field for two dimension fields. The intersections of these dimension fields and their relative sizes make it possible to quickly identify the most significant combinations of values. An example of a Mekko chart is shown in the following image.



The following display options are available for a Mekko chart:

- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.
- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a Mekko chart:

- **Vertical.** The measure field whose values are represented by the proportional width of each column and height of each color segment.
- **Horizontal.** A dimension field to break the Mekko chart into columns. The width of each column is based on the measure field in the Vertical bucket, and represents that column's share of the total.

- **Color.** A dimension field that determines the segments of the columns in the Mekko chart. The area of each segment represents its share of the total.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.
- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.
- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Mekko Chart

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

3. On the Content picker, change the chart to a Mekko chart.
4. Add one measure to the Vertical bucket and a dimension to the Horizontal and Color buckets.

   The Mekko chart loads to display the proportional value of the measure field for each segment in each column.

5. You can make the following additional customizations to your Mekko chart:
   a. Add additional measures or dimensions to the Tooltip, Animate, or MultiPage buckets of the chart, where applicable.
   b. Change the fields to obtain different information.
   c. Format the chart (for example, customize the header and footer or change the series color).
6. Save your Mekko chart.

Creating Tag Clouds

A tag cloud allows you to see the most frequent or largest values in a dimension field based on the size and color of the text, making it easy to identify the most important values. An example of a tag cloud is shown in the following image.

The following display options are available for a tag cloud:

- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.
- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a tag cloud:

- **Detail.** The dimension field whose values are displayed as text in the tag cloud.
- **Size.** A measure value that determines the font size of each value.
- **Color.** A measure value to set a color scale for the tag cloud text.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.
- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.

- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Tag Cloud

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

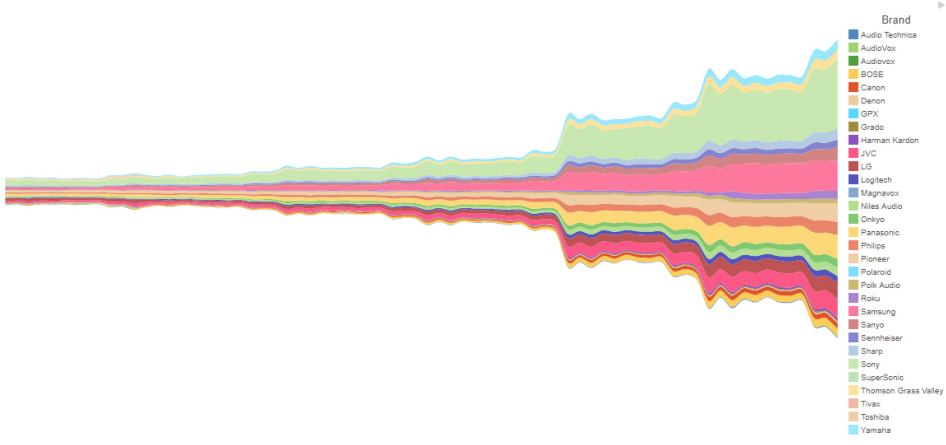
3. On the Content picker, change the chart to a tag cloud.
4. Add a dimension field to the Detail bucket and a measure field to the Size bucket. Optionally, add a measure field to the Color bucket.

   The tag cloud loads, showing each value of the Detail field with a font size determined by the Size field.

5. You can make the following additional customizations to your tag cloud:
   a. Add additional measures or dimensions to the Tooltip, Animate, or MultiPage buckets of the chart, where applicable.
   b. Change the fields to obtain different information.
   c. Format the chart (for example, customize the header and footer).
6. Save your tag cloud.

Creating Streamgraphs

A streamgraph is a simplified area chart. It does not show labels for measure values, but makes it easy to identify trends for different dimension values over time. An example of a streamgraph is shown in the following image.



The following display options are available for a streamgraph:

- Calculation options:
  - **Summaries.** Sums measure values for each sort value. This is the default.
  - **Counts.** Provides a count of records in the selected measure field, for each sort value.
  - **Details.** Displays the value of each individual record.
- **Clear buckets content.** Empties all buckets.

You can add fields to the following buckets for a streamgraph:

- **Vertical.** The measure field that determines the height of each area.
- **Horizontal.** A dimension field to create a horizontal axis for the streamgraph. Typically, this is a date or date-time field.
- **Color.** A dimension field to generate different areas in the streamgraph.
- **Tooltip.** The data placed in this bucket displays in the tooltip at run time. Can be used to make additional information available without changing the appearance of the chart.

- **Animate.** Enables you to animate time progression using a slider control. As you move the control along the slider bar, an animation effect results. The slider control has a Play button that allows you to play and pause the animation. When you click Play, the Pause option is activated, enabling you to pause the progression and analyze your data. Slider controls are limited to one sort field and should be time or sequence related, such as month or year.
- **MultiPage.** Enables the creation of multiple graphs based on the field that you place in this bucket. The MultiPage bucket is available for stand-alone charts. If you convert the chart to a page created from new content, the MultiPage bucket disappears.

Procedure: How to Create a Streamgraph

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

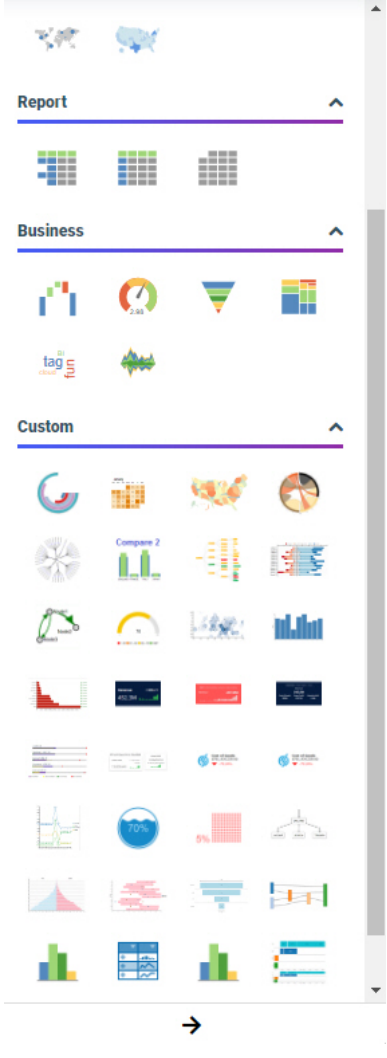
3. On the Content picker, change the chart to a streamgraph.
4. Add a measure field to the Vertical bucket, a dimension, such as a date field, to the Horizontal bucket, and another dimension to the Color bucket.

   The streamgraph loads, showing comparative changes for each value in the Color bucket.

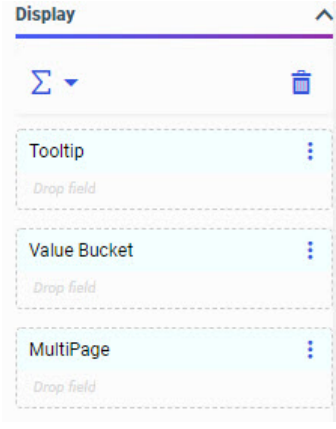
5. You can make the following additional customizations to your streamgraph:
   a. Add additional measures or dimensions to the Tooltip, Animate, or MultiPage buckets of the chart, where applicable.
   b. Change the fields to obtain different information.
   c. Format the chart (for example, customize the header and footer or change series colors).
6. Save your streamgraph.

Creating Charts Using a Chart Extension

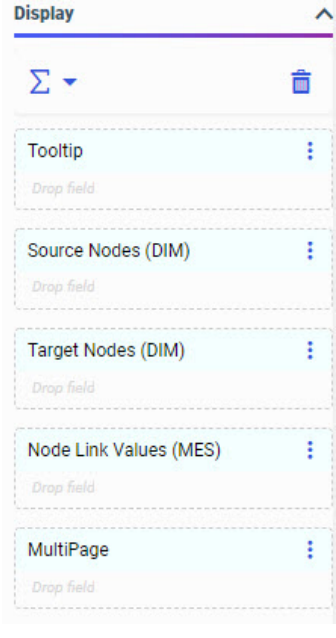
Db2 Web Query supports the ability to add new, custom chart types to its list of built-in charts. These custom chart types are called extensions or plug-ins. Once enabled on your Db2 Web Query environment, any extensions that you have added are available when you expand the Content picker, in the Custom section, as shown in the following image.



Each chart extension uses a set of buckets and properties unique to that extension. The liquid gauge chart extension uses the Tooltip, Value Bucket, and MultiPage buckets, as shown in the following image.



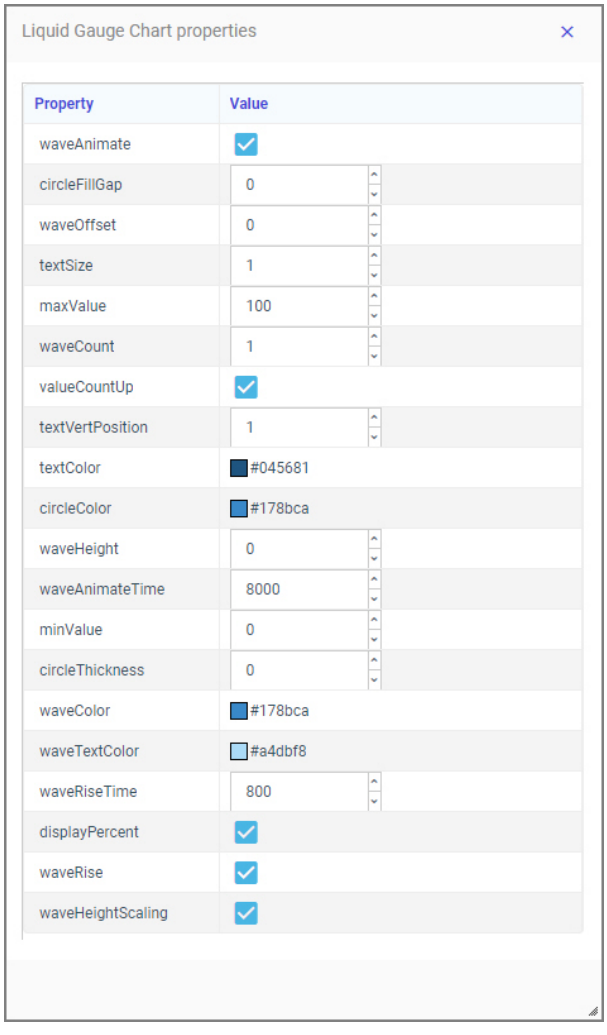
The chord diagram, on the other hand, uses the Tooltip, Source Nodes, Target Nodes, Node Link Values, and MultiPage buckets. It also indicates the type of field that should be used in each bucket, as shown in the following image.



Each of these buckets is configured to allow a certain number of fields, and certain types of fields.

Chart extensions also have a unique set of properties that can be applied to them. To access chart extension properties, on the Format tab, with the General option selected from the Quick Access menu, in the Other section, click *Extension properties*. This opens the Extension properties panel. The Extension properties panel opens on top of the Resources and Properties panels, and can be resized and moved within the browser window. If you click outside of the Extension properties panel, it closes, and any changes that you made to the chart properties are applied.

The Extension properties panel for a liquid gauge chart is shown in the following image.



Some of the properties on the Extension properties panel apply to specific elements of the chart extension. For example, in the following image, the color of the wave in the liquid gauge chart has been changed to a darker shade of blue, and the number of waves has been increased from 1 to 3.

For more details about the buckets and properties used in specific chart extensions, see the page for each extension on the *GitHub site*.

Procedure: How to Create a Chart Using a Chart Extension

1. Open Db2 Web Query Designer. On the Db2 Web Query Hub, click the plus menu and then click *Create Visualizations*, or, on the Db2 Web Query Home Page, click *Visualize Data*.

   Db2 Web Query Designer opens in a new browser tab.

2. Select a workspace and a data source available from that workspace.

   Once you select a data source, Db2 Web Query Designer loads with options to create a single content item.

3. Expand the Chart picker and, from the Custom section, select a chart extension with which to create your chart.
4. Add measure and dimension fields to the chart based on the available buckets.
5. Optionally, style the chart using the available extension-specific properties.
   a. On the Properties panel, select the *Format* tab.
   b. If it is not already selected, open the Quick Access menu and select *General*.
   c. In the Other section, click *Extension properties*. The extension properties panel opens.
   d. Make changes to the desired properties, and then close the extension properties panel.

      The chart updates to reflect your changes to extension properties.
6. Save your visualization.

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