Creating Reports Using Db2 Web Query Designer Volume 1

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Contents

Chapter 1

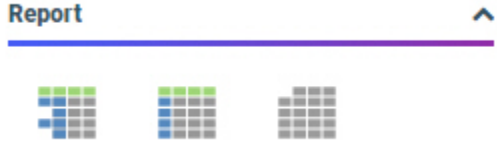
Creating Reports

You can create reports in a visualization in Db2 Web Query Designer similar to the way in which you create charts. Reports allow you to communicate information at a high level of detail using a familiar tabular format. You can create a stand-alone report in a visualization, or combine multiple reports in a page.

In this chapter:

Creating a Report

You can create a report by creating new content in a visualization and changing the content type to a report using the Content picker. The report options in the Content picker are shown in the following image.



Three report layout options are available: a standard, tabbed report in which repeating sort values are only displayed once, a grid in which sort values repeat so that all cells of the report are filled. The third option creates a data grid, which is a type of chart that resembles a tabbed report.

The following image shows a report using the standard report layout.

Product Category	Sale Year	Quantity Sold	Revenue
Accessories	2014	20,152	$5,039,297.57
	2015	31,396	$7,860,068.93
	2016	46,735	$11,820,675.96
	2017	63,836	$16,060,415.69
	2018	139,977	$35,619,872.81
	2019	209,571	$53,208,007.57
Camcorder	2014	17,722	$5,878,431.53
	2015	28,485	$9,673,248.16
	2016	41,250	$13,971,708.11
	2017	56,782	$19,438,607.89
	2018	123,972	$42,396,539.60
	2019	187,033	$63,107,166.95

The following image shows a report using the grid layout.

Product Category	Sale Year	Quantity Sold	Revenue
Accessories	2014	20,152	$5,039,297.57
Accessories	2015	31,396	$7,860,068.93
Accessories	2016	46,735	$11,820,675.96
Accessories	2017	63,836	$16,060,415.69
Accessories	2018	139,977	$35,619,872.81
Accessories	2019	209,571	$53,208,007.57
Camcorder	2014	17,722	$5,878,431.53
Camcorder	2015	28,485	$9,673,248.16
Camcorder	2016	41,250	$13,971,708.11
Camcorder	2017	56,782	$19,438,607.89
Camcorder	2018	123,972	$42,396,539.60
Camcorder	2019	187,033	$63,107,166.95

To populate the report, select measures and dimensions from the Resources panel with the Fields tab selected from the sidebar. The Resources panel displays the fields that were populated from your data source. You can add fields to your report in the following ways:

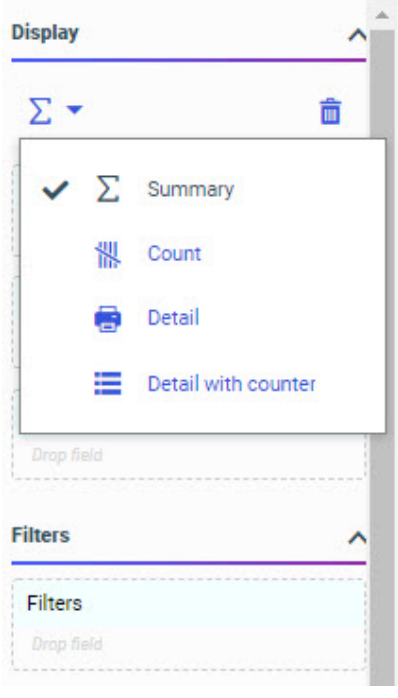
- Drag a field from the Fields tab into your content.

- Double-click a field in the Fields tab.
- Drag a field from the Fields tab into a bucket.
- Right-click a field on the Fields tab and click *Add to report*.

When you add a field to your report, the canvas updates to display the values in it.

You can define the rows and columns in a report by adding fields to the Rows and Columns buckets, respectively. Typically, these are dimension fields. The values in these fields are used to sort the report.

You can display aggregated values in a report by adding fields to the Summary bucket. This bucket is usually used to display values for measure fields. The Summary bucket displays by default, but you can change the bucket by selecting a different display option. The available display options are shown in the following image.

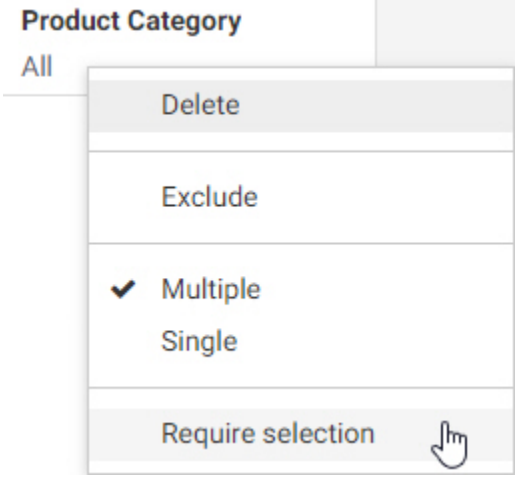


The Summary and Count options provide aggregated measure values for each sort value, that is, each row or column, in the report. The Detail and Detail with counter display options, on the other hand, provide a complete list of every value for the selected field or fields.

Once you have added fields to the report, you can format it to enhance its appearance or style. For example, you might want to add a header and footer to identify the information on each page of the report, or use a report template to modify the layout. You can also click the Format tab to apply a theme or change the output format of the report and style different areas of the report.

On the Format tab, select an option from the quick access menu on the Format tab to select the area that you want to style. By default, *General* is selected. Styling changes made here affect the entire report. Other areas that you can style include different columns, totals, and headers and footers. You can select different options to style only the titles or data values in a report, or both, and for certain areas you can select which fields your styling is applied to. You can change the typeface, size, style, alignment, and color of the text in different areas of a report, and the background color and margins of cells.

You can filter a report using prompted or static filters. To create a prompted filter, drag a field from the Fields tab to the Filter toolbar. A menu appears, allowing you to select default filter values. When a report with prompted filters is added to a visualization assembled from existing content, you can create filter controls to allow users to select their own filter values at run time. When creating a report, you can also require user selection for a prompted filter, so that the report does not run until the user makes a filter selection, by right-clicking the filter in the toolbar and clicking *Require selection*, as shown in the following image.



Static filters, on the other hand, do not allow user selection at run time. They allow you to apply consistent filters to the report that cannot be modified at run time. To create a static filter, drag a field from the Fields tab to the Filters bucket, then specify filter values in the Add Filter dialog box.

Procedure: How to Create a Report Using Db2 Web Query Designer

1. Open Db2 Web Query Designer. On the default 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 a report layout.

4. Add sort fields to the report by dragging dimension fields from the Fields pane into the Rows and Columns buckets.

   Note: You can also double-click a dimension field or drag it onto the canvas to add it to the Rows bucket.

5. Add aggregated data values to the report by dragging measure fields from the Fields pane into the Summary bucket.

   Note: You can also double-click a measure field or drag it onto the canvas to add it to the Summary bucket, or other measure bucket if you have changed the display option.

   The report displays the selected fields, based on the bucket they were placed in.

6. The following are some of the options you have to customize the report:

   - ❑ Select a theme from the Format tab.
   - ❑ Change the layout of the report by changing the report template from the Content picker.
   - ❑ Filter the report by dragging fields into the Filter toolbar or Filters bucket.
   - ❑ Add subtotals, page breaks, or row breaks to the report each time the value in a field changes by right-clicking a field in the Properties panel, pointing to *Insert breaks*, and selecting an option for each category.
   - ❑ Add a header or footer by selecting the header or footer area of the report and typing header or footer text.
   - ❑ Enable Auto Drill or Auto Linking, or make the report an Auto Link target, from the Content section of the Settings tab on the Properties panel.
   - ❑ Add column or row totals to the report from the Settings section.

7. To see a run-time view of the report, including behaviors such as Auto Drill or dynamic filtering that are not available in the canvas, click *Run in new window*  on the Visualization toolbar.
8. On the Db2 Web Query Designer toolbar, click *Save* to save your report to a selected location. Once saved, you can add the report to a page.

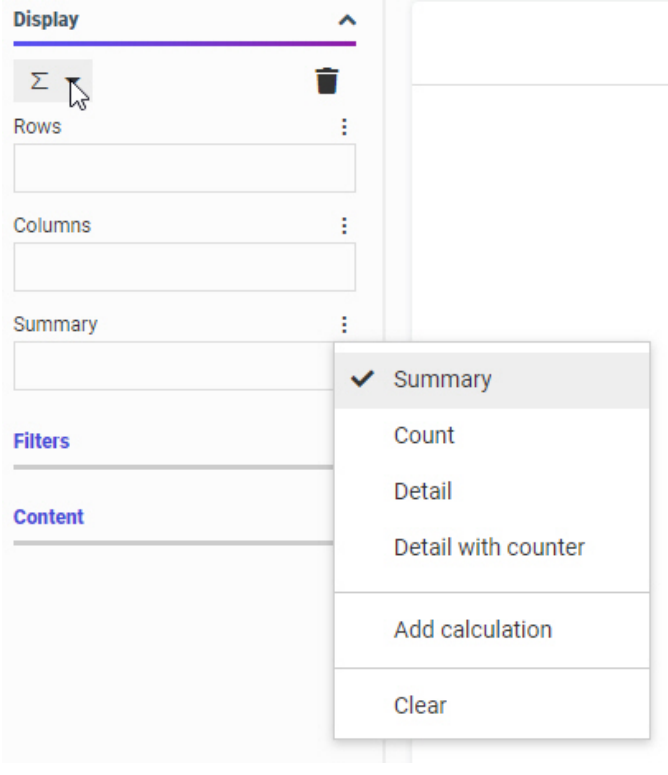
   To open the report to edit it again at a later time, locate it on the Home Page, right-click it, and click *Edit* from the shortcut menu.

Displaying Measure Values in Reports

When you add a measure field to a report using the Summary bucket, the values in that field are aggregated, by default. This means that measure values are evaluated for each sort value in the report. This option is used when the Summary display option  is selected.

By default, the values of fields in the Summary bucket are aggregated by summing them. You can also aggregate them by average, count, count distinct, percent, percent of count, minimum, maximum, median, and mode values. To use one of these aggregation options, right-click a field in the Summary bucket, point to *Aggregate*, and select an aggregation.

You can change the display method for measure values from Summary to Count, Detail, or Detail with counter to change how the fields in this bucket are evaluated. These display methods are available from the Calculation Options menu above the buckets on the Display tab, and in the menu next to the measure bucket, the Summary bucket, by default, as shown in the following image.



Changing the display method also changes the name of the Summary bucket.

You can use the Count display option as an alternative to the Count prefix operator aggregation option to provide a count of data records for all fields in the Count bucket. A count allows you to see the distribution of your data by displaying the number of records in the selected Count fields, for each sort value.

You can select the Detail display option to individually display all record values for the fields in the Display bucket instead of aggregating them.

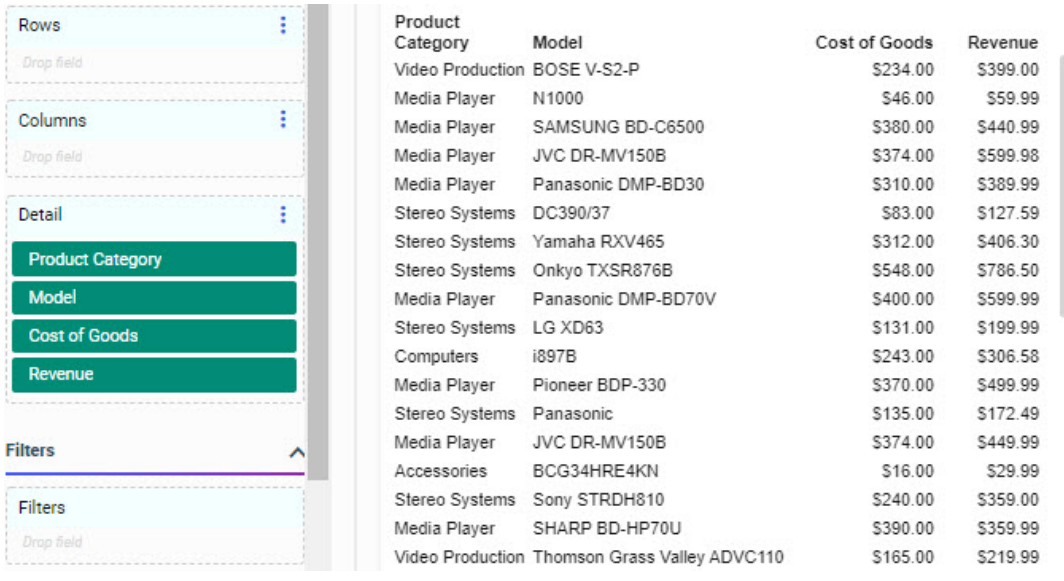
For example, the following image shows two reports. The one on the left uses the default Summary display option, while the one on the right uses the Detail display option.

Product Category	Revenue
Accessories	$485.08
Camcorder	$2,269.94
Computers	$1,889.97
Media Player	$4,949.87
Stereo Systems	$6,574.92
Televisions	$699.98
Video Production	$2,997.00

Product Category	Revenue
Accessories	$349.88
	$135.20
Camcorder	$179.00
	$359.98
	$299.00
	$509.98
	$598.00
	$323.98
Computers	$389.99
	$529.99
	$689.99
	$280.00
Media Player	$299.99
	$279.99
	$399.99
	$389.99
	$279.99
	$739.98
	$509.99
	$599.98
	$449.99
	$999.98
Stereo Systems	$219.99
	$259.98
	$99.99
	$239.00
	$179.98
	$599.98
	$713.97
	$199.99
	$2,697.00
	$279.99
	$149.99
	$179.50
	$527.98
	$99.99
	$127.59
Televisions	$699.98
Video Production	$2,997.00

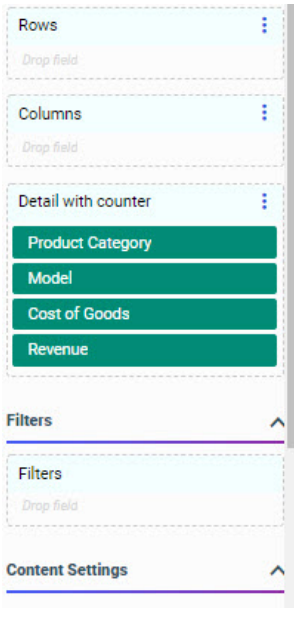
Records in a Detail field are separated into groups based on the fields in the Row and Column buckets, but are not individually sorted. The order in which they appear reflects the order in which they are accessed from the data source.

To see a list of the records in your data source without grouping them, for example as a data extract, you can add all desired dimension and measure fields to the Detail bucket, as shown in the following image.



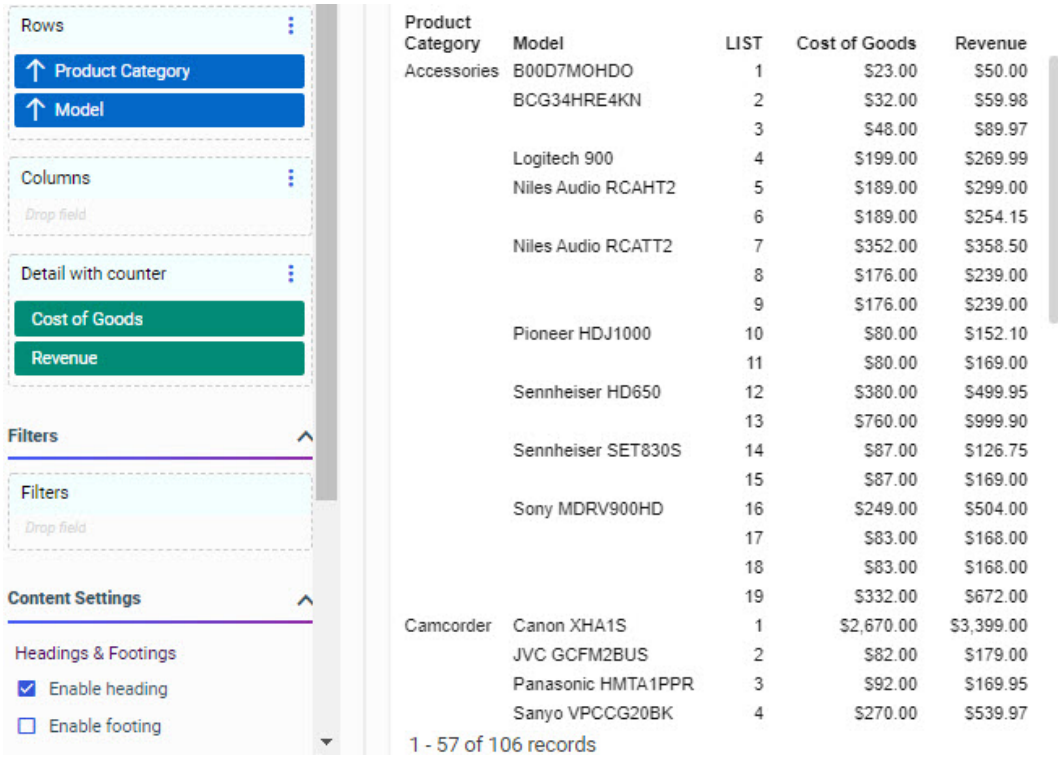
Product Category	Model	Cost of Goods	Revenue
Video Production	BOSE V-S2-P	$234.00	$399.00
Media Player	N1000	$46.00	$59.99
Media Player	SAMSUNG BD-C6500	$380.00	$440.99
Media Player	JVC DR-MV150B	$374.00	$599.98
Media Player	Panasonic DMP-BD30	$310.00	$389.99
Stereo Systems	DC390/37	$83.00	$127.59
Stereo Systems	Yamaha RXV465	$312.00	$406.30
Stereo Systems	Onkyo TXSR876B	$548.00	$786.50
Media Player	Panasonic DMP-BD70V	$400.00	$599.99
Stereo Systems	LG XD63	$131.00	$199.99
Computers	i897B	$243.00	$306.58
Media Player	Pioneer BDP-330	$370.00	$499.99
Stereo Systems	Panasonic	$135.00	$172.49
Media Player	JVC DR-MV150B	$374.00	$449.99
Accessories	BCG34HRE4KN	$16.00	$29.99
Stereo Systems	Sony STRDH810	$240.00	$359.00
Media Player	SHARP BD-HP70U	$390.00	$359.99
Video Production	Thomson Grass Valley ADVC110	$165.00	$219.99

You can also use the Detail with counter display option to display individual values in the report and number them. This can be useful if you want to display records from your data source and provide a key value, such as a record ID number, for each one, as shown in the following image.



LIST	Product Category	Model	Cost of Goods	Revenue
1	Video Production	BOSE V-S2-P	$234.00	$399.00
2	Media Player	N1000	$46.00	$59.99
3	Media Player	SAMSUNG BD-C6500	$380.00	$440.99
4	Media Player	JVC DR-MV150B	$374.00	$599.98
5	Media Player	Panasonic DMP-BD30	$310.00	$389.99
6	Stereo Systems	DC390/37	$83.00	$127.59
7	Stereo Systems	Yamaha RXV465	$312.00	$406.30
8	Stereo Systems	Onkyo TXSR876B	$548.00	$786.50
9	Media Player	Panasonic DMP-BD70V	$400.00	$599.99
10	Stereo Systems	LG XD63	$131.00	$199.99
11	Computers	i897B	$243.00	$306.58
12	Media Player	Pioneer BDP-330	$370.00	$499.99
13	Stereo Systems	Panasonic	$135.00	$172.49
14	Media Player	JVC DR-MV150B	$374.00	$449.99
15	Accessories	BCG34HRE4KN	$16.00	$29.99
16	Stereo Systems	Sony STRDH810	$240.00	$359.00
17	Media Player	SHARP BD-HP70U	$390.00	$359.99
18	Video Production	Thomson Grass Valley ADVC110	$165.00	$219.99
19	Media Player	Pioneer BDP-120	$410.00	$599.98
20	Stereo Systems	DC390/37	$83.00	$127.59
21	Stereo Systems	DS3205/37	$108.00	$199.98

When there are fields in the Rows bucket, the Detail with counter display option generates a numbered list based on the primary sort field, but places it before the measure columns in the report. Notice that in the following image, the report is sorted by Product Category and Model, so the record list column appears to the right of the Model column, but the counter resets only on each Product Category value.



Since the Detail and Detail with counter display options create a row in the report for every record in the data source, be careful when using them with larger data sources.

Adding Column and Row Totals to a Report

You can summarize the measure data in a report by adding column and row totals. Column totals provide a grand total of each measure column in a report, while row totals provide a grand total of each row in a report, summing multiple measure values.

To add column totals to a report, on the Content section of the Settings tab of the Properties panel, click *Enable column totals* or *Recalculate totals*.

The Enable column totals option provides a sum total for each column. As shown in the following image, the values in each measure column are summed into total values. Columns created by dimension fields in the Columns bucket are treated as separate columns for this purpose.

Product Category	Sale,Year Sale Quarter	2014 Quantity Sold	2014 Revenue	2015 Quantity Sold	2015 Revenue	2016 Quantity Sold	2016 Revenue
Accessories	1	4,580	$1,125,123.02	7,121	$1,800,068.41	11,964	$3,048,787.53
	2	4,662	$1,165,106.04	7,323	$1,827,354.16	10,713	$2,695,679.25
	3	4,783	$1,270,872.45	7,893	$1,964,121.52	11,049	$2,760,894.18
	4	6,127	$1,478,196.06	9,059	$2,268,524.84	13,009	$3,315,315.00
Computers	1	1,343	$302,839.60	2,723	$545,285.69	4,622	$935,868.89
	2	1,235	$285,463.66	2,726	$555,012.38	4,211	$859,932.09
	3	1,659	$349,989.27	3,170	$646,064.08	4,579	$969,684.35
	4	2,493	$503,542.66	3,620	$733,129.43	6,408	$1,405,264.26
Media Player	1	11,717	$3,427,197.08	12,067	$3,851,602.64	16,372	$5,239,161.93
	2	11,618	$3,268,394.69	10,264	$3,313,925.34	15,304	$4,981,985.38
	3	12,688	$3,585,613.72	11,422	$3,727,532.88	15,931	$5,098,038.72
	4	14,943	$4,699,372.86	13,379	$4,239,470.35	18,700	$6,084,901.35
Televisions	1	3,925	$1,566,904.80	1,437	$1,096,511.50	2,070	$1,686,377.91
	2	3,748	$1,577,021.42	1,331	$1,074,107.17	1,845	$1,481,739.79
	3	4,301	$1,796,316.25	1,371	$1,181,674.36	1,936	$1,654,188.98
	4	4,431	$1,540,975.20	1,668	$1,385,646.13	2,520	$2,036,387.03
TOTAL		**94,253**	**$27,942,928.78**	**96,574**	**$30,210,030.88**	**141,233**	**$44,254,206.64**

Alternatively, you can use a recomputed total to provide summed totals for measure fields from the data source but recalculate the total values for computed fields created in a report. To add a recomputed total to a report, on the Settings section of the Settings tab of the Properties panel, click *Recalculate totals*. Values for each measure field are recomputed after each value in the selected field.

For example, perhaps you have created a report that includes a calculated field, Revenue Per Item, that is evaluated after aggregation from Revenue divided by Quantity Sold. The following image shows a report containing that field, with summed totals added using the Enable column totals option.

	Sale,Year	2014		2015		2016	
Product Category	Sale Quarter	Revenue	Revenue Per Item	Revenue	Revenue Per Item	Revenue	Revenue Per Item
Accessories	1	$1,125,123.02	$245.66	$1,800,068.41	$252.78	$3,048,787.53	$254.83
	2	$1,165,106.04	$249.92	$1,827,354.16	$249.54	$2,695,679.25	$251.63
	3	$1,270,872.45	$265.71	$1,964,121.52	$248.84	$2,760,894.18	$249.88
	4	$1,478,196.06	$241.26	$2,268,524.84	$250.42	$3,315,315.00	$254.85
Camcorder	1	$1,225,199.72	$316.34	$2,304,019.65	$356.16	$3,452,156.37	$338.48
	2	$1,244,408.92	$326.45	$2,073,189.24	$320.18	$3,339,495.11	$334.08
	3	$1,536,974.19	$353.65	$2,529,194.52	$350.84	$3,385,661.95	$344.25
	4	$1,871,848.70	$328.91	$2,766,844.75	$332.07	$3,794,394.68	$338.18
Media Player	1	$3,427,197.08	$292.50	$3,851,602.64	$319.18	$5,239,161.93	$320.01
	2	$3,268,394.69	$281.32	$3,313,925.34	$322.87	$4,981,985.38	$325.53
	3	$3,585,613.72	$282.60	$3,727,532.88	$326.35	$5,098,038.72	$320.01
	4	$4,699,372.86	$314.49	$4,239,470.35	$316.87	$6,084,901.35	$325.40
Televisions	1	$1,566,904.80	$399.21	$1,096,511.50	$763.06	$1,686,377.91	$814.68
	2	$1,577,021.42	$420.76	$1,074,107.17	$806.99	$1,481,739.79	$803.11
	3	$1,796,316.25	$417.65	$1,181,674.36	$861.91	$1,654,188.98	$854.44
	4	$1,540,975.20	$347.77	$1,385,646.13	$830.72	$2,036,387.03	$808.09
TOTAL		**$32,379,525.12**	**$5,084.20**	**$37,403,787.46**	**$6,908.79**	**$54,055,165.16**	**$6,937.43**

The total row contains summed values for the Revenue and Revenue Per Item fields.

By contrast, the following image shows the same report, but with recomputed totals, using the Recalculate totals option, instead.

Product Category	Sale,Year Sale Quarter	2014		2015		2016	
		Revenue	Revenue Per Item	Revenue	Revenue Per Item	Revenue	Revenue Per Item
Accessories	1	$1,125,123.02	$245.66	$1,800,068.41	$252.78	$3,048,787.53	$254.83
	2	$1,165,106.04	$249.92	$1,827,354.16	$249.54	$2,695,679.25	$251.63
	3	$1,270,872.45	$265.71	$1,964,121.52	$248.84	$2,760,894.18	$249.88
	4	$1,478,196.06	$241.26	$2,268,524.84	$250.42	$3,315,315.00	$254.85
Camcorder	1	$1,225,199.72	$316.34	$2,304,019.65	$356.16	$3,452,156.37	$338.48
	2	$1,244,408.92	$326.45	$2,073,189.24	$320.18	$3,339,495.11	$334.08
	3	$1,536,974.19	$353.65	$2,529,194.52	$350.84	$3,385,661.95	$344.25
	4	$1,871,848.70	$328.91	$2,766,844.75	$332.07	$3,794,394.68	$338.18
Media Player	1	$3,427,197.08	$292.50	$3,851,602.64	$319.18	$5,239,161.93	$320.01
	2	$3,268,394.69	$281.32	$3,313,925.34	$322.87	$4,981,985.38	$325.53
	3	$3,585,613.72	$282.60	$3,727,532.88	$326.35	$5,098,038.72	$320.01
	4	$4,699,372.86	$314.49	$4,239,470.35	$316.87	$6,084,901.35	$325.40
Televisions	1	$1,566,904.80	$399.21	$1,096,511.50	$763.06	$1,686,377.91	$814.68
	2	$1,577,021.42	$420.76	$1,074,107.17	$806.99	$1,481,739.79	$803.11
	3	$1,796,316.25	$417.65	$1,181,674.36	$861.91	$1,654,188.98	$854.44
	4	$1,540,975.20	$347.77	$1,385,646.13	$830.72	$2,036,387.03	$808.09
TOTAL		**$32,379,525.12**	**$307.66**	**$37,403,787.46**	**$331.54**	**$54,055,165.16**	**$332.31**

In this report, the total values in the Revenue Per Item columns are recomputed for the entire report, since Revenue Per Item is a calculated field. On the other hand, the Revenue columns are still summed, since they come from the data source.

Note that the Recalculate totals option does not reapply prefix operators. Fields with prefix operators are summed just as they would be when applying a regular subtotal. Only COMPUTE fields, which are calculated fields evaluated after data aggregation, are recalculated.

When column totals are enabled, they display below the data in the report by default. Select the *Show totals above detail* check box to show the column totals above the data values.

Note: The *Show totals above detail* option is reflected only at run time.

You can also add row totals to a report to generate summed grand totals for each row of the report. To add row totals, on the Content section of the Settings tab of the Properties panel, click *Row totals*.

Row totals behave differently depending on whether or not fields have been placed into the Columns bucket. If there are no fields in the Columns bucket, then all measure columns in the report are summed in a single Total column, as shown in the following image.

Product Category	Sale Quarter	Cost of Goods	Discount	Gross Profit	TOTAL
Accessories	1	$4,147,248.00	$280,171.28	$1,826,730.96	**$6,254,150.24**
	2	$3,925,748.00	$269,670.58	$1,762,391.45	**$5,957,810.03**
	3	$4,166,868.00	$297,293.76	$1,829,020.15	**$6,293,181.91**
	4	$4,887,672.00	$334,687.80	$2,174,363.90	**$7,396,723.70**
Camcorder	1	$4,754,152.00	$331,388.92	$2,227,223.74	**$7,312,764.66**
	2	$4,479,378.00	$291,023.13	$2,177,715.27	**$6,948,116.40**
	3	$5,086,129.00	$341,115.23	$2,365,701.66	**$7,792,945.89**
	4	$5,702,159.00	$380,644.79	$2,730,929.13	**$8,813,732.92**
Media Player	1	$9,475,832.00	$577,328.70	$3,042,129.65	**$13,095,290.35**
	2	$8,796,078.00	$548,854.63	$2,768,227.41	**$12,113,160.04**
	3	$9,441,755.00	$577,436.23	$2,969,430.32	**$12,988,621.55**
	4	$11,419,820.00	$670,837.94	$3,603,924.56	**$15,694,582.50**
Televisions	1	$3,376,862.00	$212,974.63	$972,932.21	**$4,562,768.84**
	2	$3,199,280.00	$177,866.59	$933,588.38	**$4,310,734.97**
	3	$3,597,757.00	$218,950.77	$1,034,422.59	**$4,851,130.36**
	4	$3,861,098.00	$240,878.10	$1,101,910.36	**$5,203,886.46**

If there is a field in the Columns bucket, then instead of summing all columns, the row totals are evaluated for each measure field in the report, as shown in the following image.

Product Category	Sale,Year Sale Quarter	2014			2015			TOTAL		
		Cost of Goods	Gross Profit	Discount	Cost of Goods	Gross Profit	Discount	Cost of Goods	Gross Profit	Discount
Accessories	1	$777,258.00	$347,865.02	$50,602.84	$1,247,419.00	$552,649.41	$82,917.59	**$2,024,677.00**	**$900,514.43**	**$133,520.43**
	2	$802,494.00	$362,612.04	$49,781.08	$1,264,225.00	$563,129.16	$95,902.64	**$2,066,719.00**	**$925,741.20**	**$145,683.72**
	3	$880,799.00	$390,073.45	$59,202.81	$1,369,215.00	$594,906.52	$107,491.12	**$2,250,014.00**	**$984,979.97**	**$166,693.93**
	4	$1,020,119.00	$458,077.06	$71,363.50	$1,570,383.00	$698,141.84	$112,769.64	**$2,590,502.00**	**$1,156,218.90**	**$184,133.14**
Camcorder	1	$818,542.00	$406,657.72	$56,378.48	$1,579,534.00	$724,485.65	$103,048.85	**$2,398,076.00**	**$1,131,143.37**	**$159,427.33**
	2	$835,003.00	$409,405.92	$50,411.08	$1,391,888.00	$681,301.24	$92,612.67	**$2,226,891.00**	**$1,090,707.16**	**$143,023.75**
	3	$1,052,933.00	$484,041.19	$69,871.23	$1,716,879.00	$812,315.52	$108,335.05	**$2,769,812.00**	**$1,296,356.71**	**$178,206.28**
	4	$1,263,634.00	$608,214.70	$90,550.44	$1,863,074.00	$903,770.75	$114,996.73	**$3,126,708.00**	**$1,511,985.45**	**$205,547.17**
Media Player	1	$2,501,895.00	$925,302.08	$159,626.31	$2,931,536.00	$920,066.64	$174,497.18	**$5,433,431.00**	**$1,845,368.72**	**$334,123.49**
	2	$2,374,278.00	$894,116.69	$158,289.65	$2,560,704.00	$753,221.34	$152,032.54	**$4,934,982.00**	**$1,647,338.03**	**$310,322.19**
	3	$2,608,682.00	$976,931.72	$170,160.00	$2,886,848.00	$840,684.88	$175,923.44	**$5,495,530.00**	**$1,817,616.60**	**$346,083.44**
	4	$3,448,771.00	$1,250,601.86	$203,938.43	$3,265,462.00	$974,008.35	$193,946.69	**$6,714,233.00**	**$2,224,610.21**	**$397,885.12**
Televisions	1	$1,181,889.00	$385,015.80	$76,501.32	$863,061.00	$233,450.50	$51,326.91	**$2,044,950.00**	**$618,466.30**	**$127,828.23**
	2	$1,189,422.00	$387,599.42	$67,015.51	$847,804.00	$226,303.17	$51,345.34	**$2,037,226.00**	**$613,902.59**	**$118,360.85**
	3	$1,353,177.00	$443,139.25	$81,211.36	$932,960.00	$248,714.36	$52,323.16	**$2,286,137.00**	**$691,853.61**	**$133,534.52**
	4	$1,167,172.00	$373,803.20	$84,834.80	$1,097,664.00	$287,982.13	$66,130.70	**$2,264,836.00**	**$661,785.33**	**$150,965.50**

Note that row totals provide sum values for the measures in each row, including instances when the report includes calculated fields.

If your report includes both column totals and row totals, then column totals are evaluated for any row total columns, as shown in the following image.

Product Category	Sale,Year Sale Quarter	2014		2015		2016		TOTAL	
		Revenue	Quantity Sold	Revenue	Quantity Sold	Revenue	Quantity Sold	Revenue	Quantity Sold
Accessories	1	$1,125,123.02	4,580	$1,800,068.41	7,121	$3,048,787.53	11,964	**$5,973,978.96**	**23,665**
	2	$1,165,106.04	4,662	$1,827,354.16	7,323	$2,695,679.25	10,713	**$5,688,139.45**	**22,698**
	3	$1,270,872.45	4,783	$1,964,121.52	7,893	$2,760,894.18	11,049	**$5,995,888.15**	**23,725**
	4	$1,478,196.06	6,127	$2,268,524.84	9,059	$3,315,315.00	13,009	**$7,062,035.90**	**28,195**
Camcorder	1	$1,225,199.72	3,873	$2,304,019.65	6,469	$3,452,156.37	10,199	**$6,981,375.74**	**20,541**
	2	$1,244,408.92	3,812	$2,073,189.24	6,475	$3,339,495.11	9,996	**$6,657,093.27**	**20,283**
	3	$1,536,974.19	4,346	$2,529,194.52	7,209	$3,385,661.95	9,835	**$7,451,830.66**	**21,390**
	4	$1,871,848.70	5,691	$2,766,844.75	8,332	$3,794,394.68	11,220	**$8,433,088.13**	**25,243**
Media Player	1	$3,427,197.08	11,717	$3,851,602.64	12,067	$5,239,161.93	16,372	**$12,517,961.65**	**40,156**
	2	$3,268,394.69	11,618	$3,313,925.34	10,264	$4,981,985.38	15,304	**$11,564,305.41**	**37,186**
	3	$3,585,613.72	12,688	$3,727,532.88	11,422	$5,098,038.72	15,931	**$12,411,185.32**	**40,041**
	4	$4,699,372.86	14,943	$4,239,470.35	13,379	$6,084,901.35	18,700	**$15,023,744.56**	**47,022**
Televisions	1	$1,566,904.80	3,925	$1,096,511.50	1,437	$1,686,377.91	2,070	**$4,349,794.21**	**7,432**
	2	$1,577,021.42	3,748	$1,074,107.17	1,331	$1,481,739.79	1,845	**$4,132,868.38**	**6,924**
	3	$1,796,316.25	4,301	$1,181,674.36	1,371	$1,654,188.98	1,936	**$4,632,179.59**	**7,608**
	4	$1,540,975.20	4,431	$1,385,646.13	1,668	$2,036,387.03	2,520	**$4,963,008.36**	**8,619**
TOTAL		**$32,379,525.12**	**105,245**	**$37,403,787.46**	**112,820**	**$54,055,165.16**	**162,663**	**$123,838,477.74**	**380,728**

Using Breaks and Subtotals in a Report

Breaks and subtotals allow you to divide a report into smaller sections for more granular analysis and a more digestible view of your data. These sections are generated for each value in a selected Row field or after the last value of a selected Column field.

To apply a break or subtotal, right-click a field in the Rows or Columns bucket, point to *Insert breaks*, and select an option. Three categories of options are available for row fields: Subtotals, Page breaks, and Row breaks. You can select an option for each of these categories in each row field of a report. For columnar sort fields, only the Subtotal options are available.

Note: The canvas is an interactive canvas based on AHTML. When creating a report, page and row break settings are not supported on this canvas. If you select any other output format, such as HTML, PDF, PPTX, or XLSX, you will see these breaks at run time. These output format options are available for stand-alone content items only.

Using Breaks and Subtotals on Rows in a Report

The Subtotal options allow you to add a subtotal or recompute row after each value in the selected field. Subtotals and recomputes do not add page breaks to a report.

To add a subtotal, right-click a field in the Rows bucket, point to *Insert breaks*, and click *Aggregate columns*. A subtotal row is added for each value in the selected field and evaluated for each measure field in the report.

The selected field does not need to be the primary sort field. For example, the following image shows a report with subtotals for Product Subcategory, the secondary sort field, but not Product Category, the primary sort field. You can add subtotals for each sort field separately.

Product Category	Product Subcategory	Sale Year	Revenue
Accessories	Charger	2014	$158,015.56
		2015	$248,167.29
		2016	$374,562.24
		2017	$493,220.38
		2018	$1,101,388.29
		2019	$1,647,481.15
Subtotal Charger			**$4,022,834.91**
	Headphones	2014	$2,914,047.37
		2015	$4,612,931.48
		2016	$6,899,210.86
		2017	$9,332,629.55
		2018	$21,114,466.12
		2019	$31,313,302.59
Subtotal Headphones			**$76,186,587.97**
	Universal Remote Controls	2014	$1,967,234.64
		2015	$2,998,970.16
		2016	$4,546,902.86
		2017	$6,234,565.76
		2018	$13,404,018.40
		2019	$20,247,223.83
Subtotal Universal Remote Controls			**$49,398,915.65**

Alternatively, you can use the recompute option to provide summed totals for fields from the data source but recalculate the total values for computed fields created in a report. To add recompute rows to a report, right-click a field in the Rows bucket, point to *Insert breaks*, and click *Recalculate totals*. Values for each measure field are recomputed after each value in the selected field.

For example, perhaps you have created a report that includes a calculated field, Revenue Per Item, that is evaluated after aggregation from Revenue divided by Quantity Sold. The following image shows a report containing that field, with subtotals added using the Aggregate columns option.

Product Category	Product Subcategory	Sale Year	Revenue	Revenue Per Item
Accessories	Charger	2014	$158,015.56	$38.74
		2015	$248,167.29	$38.32
		2016	$374,562.24	$38.23
		2017	$493,220.38	$38.02
		2018	$1,101,388.29	$38.31
		2019	$1,647,481.15	$38.15
Subtotal Charger			**$4,022,834.91**	**$229.77**
	Headphones	2014	$2,914,047.37	$323.68
		2015	$4,612,931.48	$328.56
		2016	$6,899,210.86	$335.56
		2017	$9,332,629.55	$328.11
		2018	$21,114,466.12	$335.68
		2019	$31,313,302.59	$335.25
Subtotal Headphones			**$76,186,587.97**	**$1,986.84**
	Universal Remote Controls	2014	$1,967,234.64	$278.25
		2015	$2,998,970.16	$275.67
		2016	$4,546,902.86	$277.62
		2017	$6,234,565.76	$278.11
		2018	$13,404,018.40	$277.34
		2019	$20,247,223.83	$277.42
Subtotal Universal Remote Controls			**$49,398,915.65**	**$1,664.40**

The subtotal rows each contain summed values for the Revenue and Revenue Per Item fields.

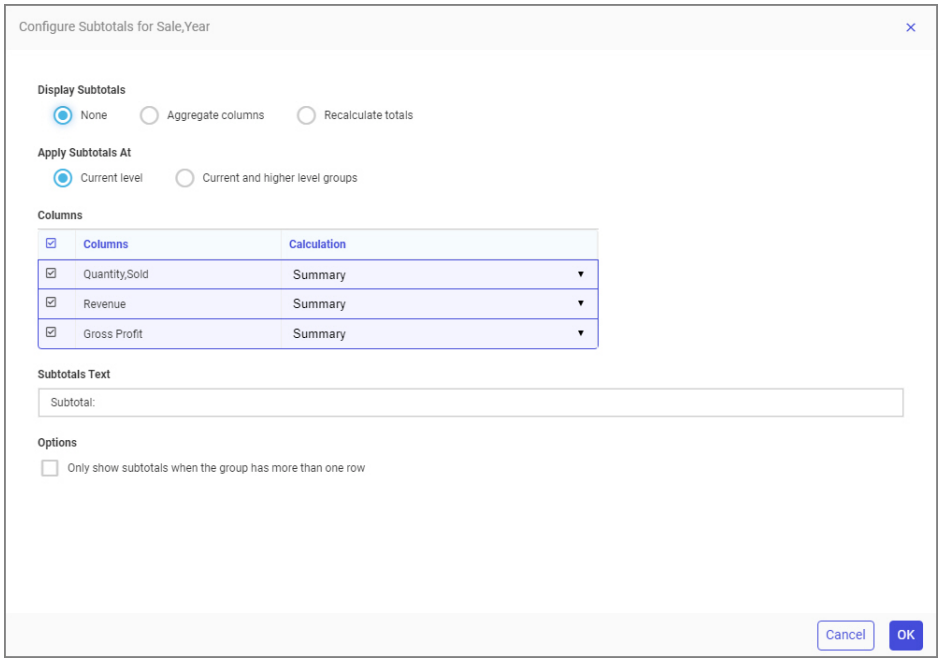
By contrast, the following image shows the same report, but with recomputes, using the Recalculate totals option, instead.

Product Category	Product Subcategory	Sale Year	Revenue	Revenue Per Item
Accessories	Charger	2014	$158,015.56	$38.74
		2015	$248,167.29	$38.32
		2016	$374,562.24	$38.23
		2017	$493,220.38	$38.02
		2018	$1,101,388.29	$38.31
		2019	$1,647,481.15	$38.15
Subtotal Charger			**$4,022,834.91**	**$38.22**
	Headphones	2014	$2,914,047.37	$323.68
		2015	$4,612,931.48	$328.56
		2016	$6,899,210.86	$335.56
		2017	$9,332,629.55	$328.11
		2018	$21,114,466.12	$335.68
		2019	$31,313,302.59	$335.25
Subtotal Headphones			**$76,186,587.97**	**$333.64**
	Universal Remote Controls	2014	$1,967,234.64	$278.25
		2015	$2,998,970.16	$275.67
		2016	$4,546,902.86	$277.62
		2017	$6,234,565.76	$278.11
		2018	$13,404,018.40	$277.34
		2019	$20,247,223.83	$277.42
Subtotal Universal Remote Controls			**$49,398,915.65**	**$277.43**

Now the subtotal rows provide reaggregated values. They provide a sum total value for the Revenue field, just like with a subtotal, and a recalculated value for the Revenue Per Item field.

Note that the Recalculate totals option does not reapply prefix operators. Fields with prefix operators are summed just as they would be when applying a regular subtotal. Only COMPUTE fields, which are calculated fields evaluated after data aggregation, are recalculated.

You can create subtotals and recomputes with more advanced options, such as different aggregations and cascading to all higher level sort fields, by right-clicking a field in the Rows bucket, pointing to *Insert breaks*, and clicking *More options*. The Configure Subtotals dialog box opens, as shown in the following image.



Select the *Aggregate columns* radio button to create subtotals, or the *Recalculate totals* radio button to create recomputes. You can then choose to create subtotals or recomputes at the current levels, that is, the selected field, or for current and higher level sort fields. If you select *Current and higher level groups*, then the same subtotal settings are applied to all higher level fields in the report. Pre-existing subtotals or recomputes are not replaced. Note that the specified subtotal label text is not used for the higher level sort fields.

A grid in the Configure Subtotals dialog box shows a list of measures fields in the report. Select any or all check boxes to indicate which fields should be subtotaled or recomputed. You can also change the prefix aggregation for each one. For example, instead of a summed total, you can show a total average or total count for a selected measure column.

You can also change the text that appears in the subtotal rows of the report, and choose whether break groups with only one row should also be subtotaled. The subtotals for these groups would be the same as the measure values displayed in the group itself, so you may prefer not to subtotal them. For example, the following image shows a report with subtotals on the Store Business Region field. Since the Oceania business region occupies only one row, and the *Only show subtotals when the group has more than one row* option is selected, it is not subtotaled.

Store Business Region	Store Business Sub Region	Quantity Sold	Revenue	Gross Profit
EMEA	Africa	195	$61,881.01	$17,054.01
	Asia	87,192	$26,475,042.07	$7,450,955.07
	Europe	1,317,153	$396,208,754.84	$112,230,885.84
Subtotal: EMEA		**1,404,540**	**$422,745,677.92**	**$119,698,894.92**
North America	Canada	171,492	$51,147,788.36	$14,541,675.36
	East	129,277	$39,052,672.79	$11,063,697.79
	Mexico	42,921	$12,976,898.90	$3,680,274.90
	Midwest	201,153	$60,946,396.65	$17,171,198.65
	Northeast	5,189	$1,526,577.09	$428,166.09
	South	255,640	$77,468,535.43	$21,824,155.43
	Southeast	14,704	$4,488,702.58	$1,268,099.58
	West	1,189,804	$362,309,281.86	$101,987,950.86
Subtotal: North America		**2,010,180**	**$609,916,853.66**	**$171,965,218.66**
Oceania	Australia-New Zealand	4,242	$1,260,307.29	$361,558.29
South America	SA-Port	86,606	$25,974,011.78	$7,359,004.78
	SA-Span	4,323	$1,296,074.55	$368,719.55
Subtotal: South America		**90,929**	**$27,270,086.33**	**$7,727,724.33**

Click *Apply* to create the subtotals or recomputes as you configured them.

If you create subtotals and apply them to all higher fields, and then right-click a higher level sort field and point to *Insert breaks*, only the *More options* option is available for subtotals. If you click *More options*, the Configure Subtotals dialog box opens with options to edit the cascaded group of subtotals from the lower level sort field. If you change the Apply Subtotals At option from *Current and higher level groups* to *Current level*, then the cascaded group of subtotals are removed except for the field that you right-clicked.

You can also add page breaks to a report using two different options. Right-click a field in the Rows bucket, point to *Insert breaks*, and click *Continuous numbering* or *Restart at 1* to split the report into separate pages for each value in the selected field.

Page headers and footers appear at each page break. Page headers and footers can use dynamic text to indicate the values on the page. Dynamic text is added by typing a less-than sign (<) markup tag followed by the name of the field, with no spaces between them.

For example, the following image shows a report with page breaks added for the Product Category field, and page headers added by typing *Sales for <PRODUCT_CATEGORY* in the page header area of the report.

Sales for Accessories

Product Category	Product Subcategory	Sale Year	Revenue
Accessories	Charger	2014	$158,015.56
		2015	$248,167.29
		2016	$374,562.24
Subtotal Charger			**$780,745.09**
	Headphones	2014	$2,914,047.37
		2015	$4,612,931.48
		2016	$6,899,210.86
Subtotal Headphones			**$14,426,189.71**
	Universal Remote Controls	2014	$1,967,234.64
		2015	$2,998,970.16
		2016	$4,546,902.86
Subtotal Universal Remote Controls			**$9,513,107.66**

Sales for Camcorder

Product Category	Product Subcategory	Sale Year	Revenue
Camcorder	Handheld	2014	$1,632,425.21
		2015	$2,599,025.44
		2016	$3,837,933.41
Subtotal Handheld			**$8,069,384.06**
	Professional	2014	$1,590,967.15
		2015	$2,732,875.05
		2016	$4,036,890.50
Subtotal Professional			**$8,360,732.70**
	Standard	2014	$2,655,039.17
		2015	$4,341,347.67
		2016	$6,096,884.20
Subtotal Standard			**$13,093,271.04**

There is no difference between the Continuous numbering and Restart at 1 page break options unless there are page numbers added to the report. If there are page numbers, then using the Continuous numbering option counts page breaks for all values in the field toward page numbering, while the Restart at 1 option resets the page count for each value in the selected field. You can display page numbers by adding the dynamic text <TABPAGENO to a page header or footer.

The Restart at 1 option can be used on a higher level sort field to control the displayed page number for lower-level sort field page breaks using the Continuous paging option. For example, the report shown in the image below uses the Restart at 1 page break option on Product Category, the primary sort field, and the Continuous numbering option on Product Subcategory, the secondary sort field. It also contains the following page footer text:

```
Page <TABPAGENO of <BYLASTPAGE
```

At run time, <TABPAGENO provides the current page, and <BYLASTPAGE provides the page count for the sort field using the Restart at 1 option. Using <TABLASTPAGE instead of <BYLASTPAGE would instead provide the total page count.

The following image shows that the page for each Product Subcategory is numbered, while different values for Product Category cause the page numbers to reset.

Page for Charger under Accessories

Product Category	Product Subcategory	Sale Year	Revenue
Accessories	Charger	2014	$158,015.56
		2015	$248,167.29
		2016	$374,562.24
Subtotal Charger			**$780,745.09**

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Page for Headphones under Accessories

Product Category	Product Subcategory	Sale Year	Revenue
Accessories	Headphones	2014	$2,914,047.37
		2015	$4,612,931.48
		2016	$6,899,210.86
Subtotal Headphones			**$14,426,189.71**

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Page for Universal Remote Controls under Accessories

Product Category	Product Subcategory	Sale Year	Revenue
Accessories	Universal Remote Controls	2014	$1,967,234.64
		2015	$2,998,970.16
		2016	$4,546,902.86
Subtotal Universal Remote Controls			**$9,513,107.66**

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Page for Handheld under Camcorder

Product Category	Product Subcategory	Sale Year	Revenue
Camcorder	Handheld	2014	$1,632,425.21
		2015	$2,599,025.44
		2016	$3,837,933.41
Subtotal Handheld			**$8,069,384.06**

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By contrast, if Product Category used either the Continuous numbering option or no page breaks at all (since breaks have already been added on a lower level sort field, Product Category values will display on separate pages anyway), <BYLASTPAGE would display the total number of all pages in the report, as shown in the following image, and <TABPAGENO would not reset.

Page for Charger under Accessories

Product Category	Product Subcategory	Sale Year	Revenue
Accessories	Charger	2014	$158,015.56
		2015	$248,167.29
		2016	$374,562.24
Subtotal Charger			**$780,745.09**

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Page for Headphones under Accessories

Product Category	Product Subcategory	Sale Year	Revenue
Accessories	Headphones	2014	$2,914,047.37
		2015	$4,612,931.48
		2016	$6,899,210.86
Subtotal Headphones			**$14,426,189.71**

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Page for Universal Remote Controls under Accessories

Product Category	Product Subcategory	Sale Year	Revenue
Accessories	Universal Remote Controls	2014	$1,967,234.64
		2015	$2,998,970.16
		2016	$4,546,902.86
Subtotal Universal Remote Controls			**$9,513,107.66**

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Page for Handheld under Camcorder

Product Category	Product Subcategory	Sale Year	Revenue
Camcorder	Handheld	2014	$1,632,425.21
		2015	$2,599,025.44
		2016	$3,837,933.41
Subtotal Handheld			**$8,069,384.06**

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To visually break up a report without adding page breaks, you can add a row break in the form of a blank row or line. To add a row break, right-click a field in the Rows bucket, point to *Insert breaks*, and click *Blank row* or *Solid line*.

Row breaks do not create page breaks, so page headers and footers are not repeated on the field to which the row break is added, and they are not counted for page numbering. This technique can be a good way to space out the values and information in a report without adding unnecessary functionality. In the following image, blank row breaks on Product Subcategory make it easier to locate and isolate the values for each product subcategory.

Product Category	Product Subcategory	Sale Year	Revenue
Accessories	Charger	2014	$158,015.56
		2015	$248,167.29
		2016	$374,562.24
	Headphones	2014	$2,914,047.37
		2015	$4,612,931.48
		2016	$6,899,210.86
	Universal Remote Controls	2014	$1,967,234.64
		2015	$2,998,970.16
		2016	$4,546,902.86
Camcorder	Handheld	2014	$1,632,425.21
		2015	$2,599,025.44
		2016	$3,837,933.41
	Professional	2014	$1,590,967.15
		2015	$2,732,875.05
		2016	$4,036,890.50
	Standard	2014	$2,655,039.17
		2015	$4,341,347.67
		2016	$6,096,884.20

Using Subtotals on Sort Columns in a Report

Page and row breaks are not available for fields in the Columns bucket, but you can use the subtotal and recompute options on columnar sort fields similarly to row sort fields. To add columnar subtotal columns, right-click a field in the Columns bucket, point to *Insert breaks*, and click *Aggregate rows*. To add columnar recompute columns, right-click a field in the Columns bucket, point to *Insert breaks*, and click *Recalculate totals*.

Columnar subtotals work differently than row subtotals. While a subtotal or recompute row is added for each value in the selected Row field, subtotal or recompute columns are added after the last value of the selected field in each column group. For example, in the following image, subtotals have been added to the Sale Quarter field, so the subtotal column sums the revenue values for all of the quarters within each value for Sale Year, which is a higher level columnar sort field. Effectively, the subtotals applied to the Sale Quarter field provide a total for each Sale Year value.

	Sale,Year			2014					2015		
	Sale,Quarter	1	2	3	4	Subtotal	1	2	3	4	Subtotal
Product Category	Product Subcategory										
Accessories	Charger	$36,116.85	$38,033.98	$35,870.62	$47,994.11	$158,015.56	$59,063.73	$53,124.15	$63,139.11	$72,840.30	$248,167.29
	Headphones	$633,086.83	$676,405.46	$799,339.75	$805,215.33	$2,914,047.37	$1,026,814.32	$1,071,607.34	$1,155,022.10	$1,359,487.72	$4,612,931.48
	Universal Remote Controls	$455,919.34	$450,666.60	$435,662.08	$624,986.62	$1,967,234.64	$714,190.36	$702,622.67	$745,960.31	$836,196.82	$2,998,970.16
Camcorder	Handheld	$353,123.43	$361,084.52	$385,634.68	$532,582.58	$1,632,425.21	$581,396.28	$578,553.05	$666,019.48	$773,056.63	$2,599,025.44
	Professional	$275,502.00	$331,737.30	$485,447.00	$498,280.85	$1,590,967.15	$737,995.55	$459,323.45	$794,441.20	$741,114.85	$2,732,875.05
	Standard	$596,574.29	$551,587.10	$665,892.51	$840,985.27	$2,655,039.17	$984,627.82	$1,035,312.74	$1,068,733.84	$1,252,673.27	$4,341,347.67
Computers	Smartphone	$302,839.60	$285,463.66	$349,989.27	$503,542.66	$1,441,835.19	$545,285.69	$555,012.38	$646,064.08	$733,129.43	$2,479,491.58
	Tablet	.	.	.	.	.	.	.	.	.	.
Media Player	Blu Ray	$2,099,584.37	$1,939,154.11	$2,111,309.30	$2,926,219.37	$9,076,267.15	$3,396,269.33	$3,256,868.72	$3,666,756.74	$4,151,645.00	$14,471,539.79
	DVD Players	$1,144,514.72	$1,115,006.84	$1,241,271.01	$1,714,534.87	$5,215,327.44	$400,572.37	.	.	.	$400,572.37
	DVD Players - Portable	$183,097.99	$194,056.33	$193,622.54	$949.91	$571,726.77	.	.	.	.	.
	Streaming	.	$20,177.41	$39,410.87	$57,668.71	$117,256.99	$54,760.94	$57,056.62	$60,776.14	$87,825.35	$260,419.05

As a result, subtotals and recomputes added to the highest level field in the Column bucket serve as a grand total for all of the columns in the report.

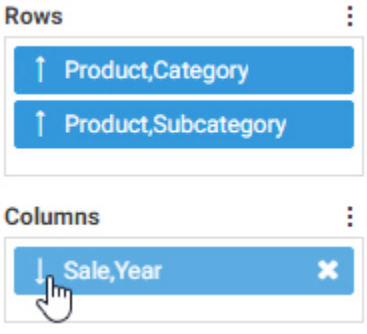
Sorting Data in a Report

You can modify the order and arrangement of values in a report by using different sort orders. Reports are sorted into rows based on the values of fields in the Rows bucket, and into columns based on the values of fields in the Columns bucket.

Sorting is hierarchical, so values are first sorted by the first field in the Row or Column bucket, then by the second field, and so on. For example, in the following image, the report is sorted by the Product Category field, then for product subcategories under each product category, then by sale year values for each product subcategory. Product Category, Product Subcategory, and Sale Year have all been placed into the Rows bucket. Gross Profit was placed in the Summary bucket, so it is not used to sort the report. Instead, gross profit values are sorted by the other three fields.

Product Category	Product Subcategory	Sale Year	Gross Profit
Computers	Smartphone	2014	$560,961.19
		2015	$968,864.58
		2016	$1,451,039.85
		2017	$1,980,595.07
		2018	$5,153,998.61
		2019	$5,719,242.85
	Tablet	2016	$196,009.74
		2017	$1,395,785.48
		2018	$3,123,898.72
		2019	$12,958,422.03
Media Player	Blu Ray	2014	$2,018,067.15
		2015	$3,237,933.79
		2016	$4,701,470.35
		2017	$6,554,474.17
		2018	$14,110,114.35
		2019	$21,149,135.32
	DVD Players	2014	$1,717,087.44
		2015	$142,558.37
	DVD Players - Portable	2014	$265,150.77
	Streaming	2014	$46,646.99
		2015	$107,489.05
		2016	$147,308.03
		2017	$176,395.88
		2018	$370,256.62
		2019	$1,088,490.08

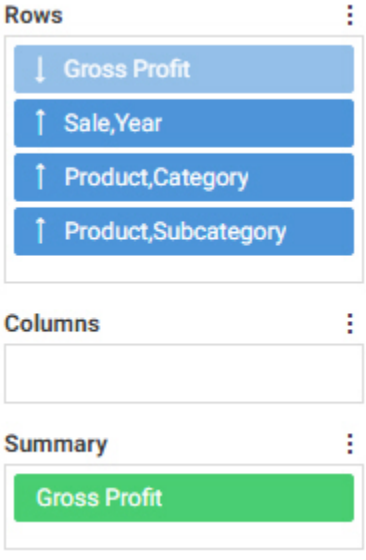
By default, field values are sorted into ascending order based on the numeric and alphabetical order defined in the code page that you are using. To reverse the sort order, right-click a field and click *Sort descending*. To return to the original sort order, right-click a field and click *Sort ascending*. You can also click the sort arrows on the fields in a bucket, as shown in the following image.



You can rearrange the fields within a bucket by dragging them, which allows you to prioritize certain information in the report. The previous example showed a report sorted by Product Category, then Product Subcategory, then Sale Year. If we move Sale Year to the top of the Rows bucket so that it is the primary sort field, the report becomes a breakdown of yearly sales, as shown in the following image.

Sale Year	Product Category	Product Subcategory	Gross Profit
2014	Accessories	Charger	$77,918.56
		Headphones	$943,893.37
		Universal Remote Controls	$536,815.64
	Camcorder	Handheld	$832,239.21
		Professional	$326,739.15
		Standard	$749,341.17
	Computers	Smartphone	$560,961.19
	Media Player	Blu Ray	$2,018,067.15
		DVD Players	$1,717,087.44
		DVD Players - Portable	$265,150.77
		Streaming	$46,646.99
	Stereo Systems	Boom Box	$546,423.99
		Home Theater Systems	$1,116,533.39
		Receivers	$673,700.84
		Speaker Kits	$1,010,824.45
		iPod Docking Station	$615,492.06
	Televisions	CRT TV	$602,419.65
		Flat Panel TV	$645,916.40
		Portable TV	$341,221.62
	Video Production	Video Editing	$706,553.17

You can sort by measure fields as well when they use the Summary, Detail, or Detail with counter display options. To sort by aggregated measure values, right-click a field in the measure bucket and click *Sort ascending* or *Sort descending*. A hidden instance of the measure field is added to the top of the Rows bucket, as shown in the following image.



The result is a report that is sorted into rows based on the selected measure value, as shown in the following image.

Sale Year	Product Category	Product Subcategory	Gross Profit
2019	Media Player	Blu Ray	$21,149,135.32
2018	Media Player	Blu Ray	$14,110,114.35
2019	Computers	Tablet	$12,958,422.03
2019	Stereo Systems	Home Theater Systems	$11,437,009.44
2019	Stereo Systems	Speaker Kits	$10,556,588.15
2019	Accessories	Headphones	$10,077,097.59
2019	Camcorder	Handheld	$8,758,717.23
2019	Camcorder	Standard	$8,021,561.37
2018	Stereo Systems	Home Theater Systems	$7,662,268.78
2019	Video Production	Video Editing	$7,330,486.17
2018	Stereo Systems	Speaker Kits	$7,072,283.83
2018	Accessories	Headphones	$6,795,787.12
2019	Stereo Systems	Receivers	$6,759,172.56
2019	Televisions	Flat Panel TV	$6,560,087.29
2017	Media Player	Blu Ray	$6,554,474.17
2019	Stereo Systems	iPod Docking Station	$6,244,914.54
2018	Camcorder	Handheld	$5,839,787.45
2019	Computers	Smartphone	$5,719,242.85

In this example, sorting by the Gross Profit field from the Summary bucket has allowed us to see at a glance that larger profits have been made in more recent years. You could change the sort order to see lowest profits first by clicking the sort arrow for the hidden Gross Profit field in the Rows bucket, just as you could for a visible field.

You can move this hidden field in relation to the other sort fields to change the sorting priority. In the following image, the hidden Gross Profit field has been moved to after Sale Year, allowing us to see the most profitable products in each year.

Sale Year	Product Category	Product Subcategory	Gross Profit
2014	Media Player	Blu Ray	$2,018,067.15
	Media Player	DVD Players	$1,717,087.44
	Stereo Systems	Home Theater Systems	$1,116,533.39
	Stereo Systems	Speaker Kits	$1,010,824.45
	Accessories	Headphones	$943,893.37
	Camcorder	Handheld	$832,239.21
	Camcorder	Standard	$749,341.17
	Video Production	Video Editing	$706,553.17
	Stereo Systems	Receivers	$673,700.84
	Televisions	Flat Panel TV	$645,916.40
	Stereo Systems	iPod Docking Station	$615,492.06
	Televisions	CRT TV	$602,419.65
	Computers	Smartphone	$560,961.19
	Stereo Systems	Boom Box	$546,423.99
	Accessories	Universal Remote Controls	$536,815.64
	Televisions	Portable TV	$341,221.62
	Camcorder	Professional	$326,739.15
	Media Player	DVD Players - Portable	$265,150.77
	Accessories	Charger	$77,918.56
	Media Player	Streaming	$46,646.99
2015	Media Player	Blu Ray	$3,237,933.79
	Stereo Systems	Home Theater Systems	$1,706,265.20
	Stereo Systems	Speaker Kits	$1,580,534.80
	Accessories	Headphones	$1,482,596.48
	Camcorder	Handheld	$1,325,634.44
	Camcorder	Standard	$1,235,711.67

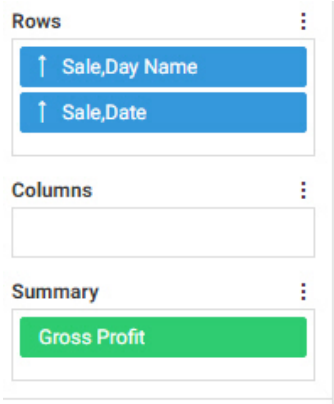
You can sort by multiple measures to have more granular control over how the report is sorted. If there are some matching values of the first sorting measure, the second sorting measure will sort those matching values.

When using the Detail or Detail with counter display option instead of the Summary option, you can sort fields in the Detail bucket in the same way. This can be helpful if you want to view a sorted list of all records for a field. Right-click a field in the Detail or Detail with counter bucket and click *Sort ascending* or *Sort descending* to sort the report using the values from that field.

You can remove the sorting effect of a field in the Summary, Detail, or Detail with counter bucket by pointing to the invisible measure field in the Rows bucket and clicking the X, or by right-clicking the original field in the measure bucket and clicking *No sort*. The hidden field is removed from the Rows bucket, but the original field remains in the measure bucket. When you remove the original field from the measure bucket, the invisible field in the Rows bucket is automatically removed as well.

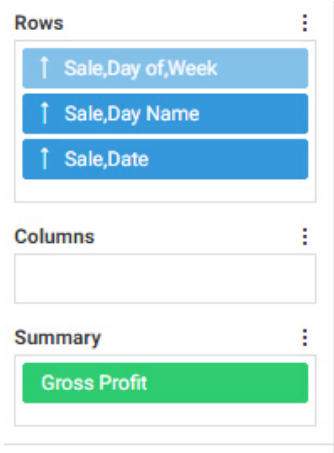
You can also sort by hidden dimension fields, if you do not want them to display in the chart. To hide a dimension field in your report, right-click the field in the Rows or Columns bucket and click *Hide*.

The following image shows a report sorted by Sale Day Name and Sale Date. We want to see sales information based on the day of the week. Notice, however, that Sale Day Name is sorted alphabetically, by default.



Sale Day Name	Sale Date	Gross Profit
FRI	2015/08/06	$45,635.83
	2015/08/13	$39,750.60
	2015/08/20	$37,301.13
	2015/08/27	$51,734.44
MON	2015/08/02	$43,686.90
	2015/08/09	$40,032.54
	2015/08/16	$51,617.52
	2015/08/23	$47,854.15
	2015/08/30	$37,810.80
SAT	2015/08/07	$51,172.54
	2015/08/14	$44,150.39
	2015/08/21	$50,272.42
	2015/08/28	$43,300.21
SUN	2015/08/01	$41,126.93
	2015/08/08	$53,612.56
	2015/08/15	$40,017.77
	2015/08/22	$50,313.68
	2015/08/29	$54,462.54
THU	2015/08/05	$47,093.23
	2015/08/12	$44,636.91
	2015/08/19	$46,274.34

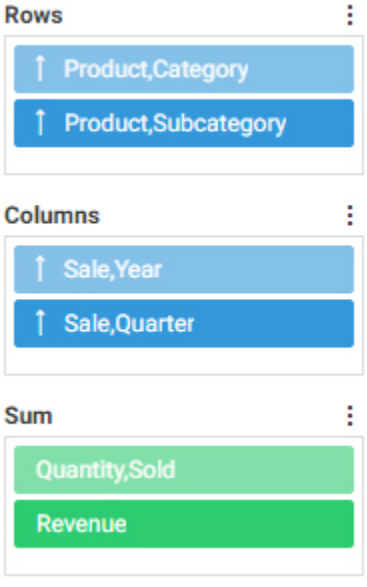
We can add the Sale Day of Week field, which assigns a number to each day, to the report as the primary sort field, and then hide it, so the days are listed in weekday order, as shown in the following image.



Sale Day Name	Sale Date	Gross Profit
MON	2015/08/02	$43,686.90
	2015/08/09	$40,032.54
	2015/08/16	$51,617.52
	2015/08/23	$47,854.15
	2015/08/30	$37,810.80
TUE	2015/08/03	$45,751.82
	2015/08/10	$42,189.51
	2015/08/17	$44,574.08
	2015/08/24	$53,328.87
	2015/08/31	$45,781.18
WED	2015/08/04	$43,407.44
	2015/08/11	$55,236.32
	2015/08/18	$42,632.29
	2015/08/25	$42,574.44
THU	2015/08/05	$47,093.23
	2015/08/12	$44,636.91
	2015/08/19	$46,274.34
	2015/08/26	$45,633.70
FRI	2015/08/06	$45,635.83
	2015/08/13	$39,750.60
	2015/08/20	$37,301.13

Using Hidden Fields in Reports

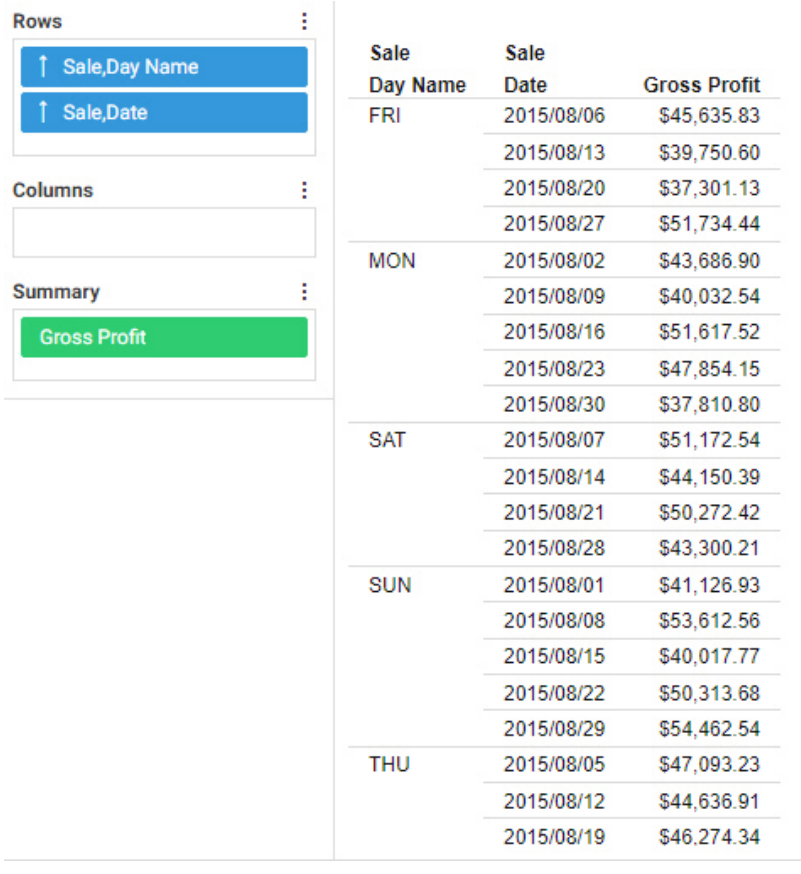
When creating a report in Db2 Web Query Designer, you can hide a field so that it exists in the report but is not shown as a column. The main advantage of doing this is that hidden fields are still used for sorting, which gives you more control over how the values in a report are displayed and organized. To hide a field in your report, right-click a field and click *Hide*. The hidden field appears slightly faded in its bucket, as shown in the following image.



You can display the field again by right-clicking it and de-selecting the *Hide* option.

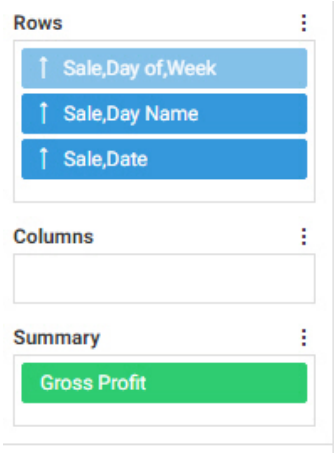
You can sort by hidden dimension fields if you do not want them to display in the chart, but still want to use the values in those fields to sort the values in the fields that do display.

The following image shows a report sorted by Sale Day Name and Sale Date. We want to see sales information based on the day of the week. Notice, however, that Sale Day Name is sorted alphabetically, by default.



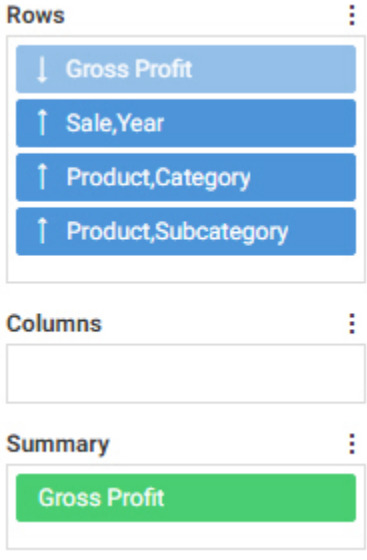
Sale Day Name	Sale Date	Gross Profit
FRI	2015/08/06	$45,635.83
	2015/08/13	$39,750.60
	2015/08/20	$37,301.13
	2015/08/27	$51,734.44
MON	2015/08/02	$43,686.90
	2015/08/09	$40,032.54
	2015/08/16	$51,617.52
	2015/08/23	$47,854.15
	2015/08/30	$37,810.80
SAT	2015/08/07	$51,172.54
	2015/08/14	$44,150.39
	2015/08/21	$50,272.42
	2015/08/28	$43,300.21
SUN	2015/08/01	$41,126.93
	2015/08/08	$53,612.56
	2015/08/15	$40,017.77
	2015/08/22	$50,313.68
	2015/08/29	$54,462.54
THU	2015/08/05	$47,093.23
	2015/08/12	$44,636.91
	2015/08/19	$46,274.34

We can add the Sale Day of Week field, which assigns a number to each day, to the report as the primary sort field, and then hide it so that the days are listed in order, as shown in the following image.



Sale Day Name	Sale Date	Gross Profit
MON	2015/08/02	$43,686.90
	2015/08/09	$40,032.54
	2015/08/16	$51,617.52
	2015/08/23	$47,854.15
	2015/08/30	$37,810.80
TUE	2015/08/03	$45,751.82
	2015/08/10	$42,189.51
	2015/08/17	$44,574.08
	2015/08/24	$53,328.87
	2015/08/31	$45,781.18
WED	2015/08/04	$43,407.44
	2015/08/11	$55,236.32
	2015/08/18	$42,632.29
	2015/08/25	$42,574.44
THU	2015/08/05	$47,093.23
	2015/08/12	$44,636.91
	2015/08/19	$46,274.34
	2015/08/26	$45,633.70
FRI	2015/08/06	$45,635.83
	2015/08/13	$39,750.60
	2015/08/20	$37,301.13

A hidden field is also created automatically when you sort by a measure field. To sort by aggregated measure values, right-click a measure field in the Sum bucket and click *Sort ascending* or *Sort descending*. A hidden instance of the measure field is added to the top of the Rows bucket, as shown in the following image.



The result is a report that is sorted into rows based on the selected measure value, as shown in the following image.

Sale Year	Product Category	Product Subcategory	Gross Profit
2019	Media Player	Blu Ray	$21,149,135.32
2018	Media Player	Blu Ray	$14,110,114.35
2019	Computers	Tablet	$12,958,422.03
2019	Stereo Systems	Home Theater Systems	$11,437,009.44
2019	Stereo Systems	Speaker Kits	$10,556,588.15
2019	Accessories	Headphones	$10,077,097.59
2019	Camcorder	Handheld	$8,758,717.23
2019	Camcorder	Standard	$8,021,561.37
2018	Stereo Systems	Home Theater Systems	$7,662,268.78
2019	Video Production	Video Editing	$7,330,486.17
2018	Stereo Systems	Speaker Kits	$7,072,283.83
2018	Accessories	Headphones	$6,795,787.12
2019	Stereo Systems	Receivers	$6,759,172.56
2019	Televisions	Flat Panel TV	$6,560,087.29
2017	Media Player	Blu Ray	$6,554,474.17
2019	Stereo Systems	iPod Docking Station	$6,244,914.54
2018	Camcorder	Handheld	$5,839,787.45
2019	Computers	Smartphone	$5,719,242.85

In this example, sorting by Gross Profit has allowed us to see at a glance that larger profits have been made in more recent years. You could change the sort order to see lowest profits first by clicking the sort arrow for the hidden Gross Profit field in the Rows bucket, just as you could for a visible field.

You can move this hidden field in relation to the other sort fields to change the sorting priority. In the following image, the hidden Gross Profit field has been moved to after Sale Year, allowing us to see the most profitable products in each year, as shown in the following image.

Sale Year	Product Category	Product Subcategory	Gross Profit
2014	Media Player	Blu Ray	$2,018,067.15
	Media Player	DVD Players	$1,717,087.44
	Stereo Systems	Home Theater Systems	$1,116,533.39
	Stereo Systems	Speaker Kits	$1,010,824.45
	Accessories	Headphones	$943,893.37
	Camcorder	Handheld	$832,239.21
	Camcorder	Standard	$749,341.17
	Video Production	Video Editing	$706,553.17
	Stereo Systems	Receivers	$673,700.84
	Televisions	Flat Panel TV	$645,916.40
	Stereo Systems	iPod Docking Station	$615,492.06
	Televisions	CRT TV	$602,419.65
	Computers	Smartphone	$560,961.19
	Stereo Systems	Boom Box	$546,423.99
	Accessories	Universal Remote Controls	$536,815.64
	Televisions	Portable TV	$341,221.62
	Camcorder	Professional	$326,739.15
	Media Player	DVD Players - Portable	$265,150.77
	Accessories	Charger	$77,918.56
	Media Player	Streaming	$46,646.99
2015	Media Player	Blu Ray	$3,237,933.79
	Stereo Systems	Home Theater Systems	$1,706,265.20
	Stereo Systems	Speaker Kits	$1,580,534.80
	Accessories	Headphones	$1,482,596.48
	Camcorder	Handheld	$1,325,634.44
	Camcorder	Standard	$1,235,711.67

You can sort by multiple measures to have more granular control over how the report is sorted. If there are some matching values of the first sorting measure, then the second sorting measure will be used as a secondary means of determining sort order.

When using the Detail display option instead of the Sum option, you can sort fields in the Detail bucket in the same way. This can be helpful if you want to view a sorted list of all records for a field. Right-click a field in the Detail bucket and click *Sort ascending* or *Sort descending* to sort the report using the values from that field.

You can remove the sorting effect of a field in the Sum or Detail bucket by pointing to the invisible measure field in the Rows bucket and clicking the X, or by right-clicking the original field in the Sum or Detail bucket and clicking *No sort*. The hidden field is removed from the Rows bucket, but the original field remains in the Sum or Detail bucket. When you remove the original field from the Sum or Detail bucket, the invisible field in the Rows bucket is automatically removed as well.

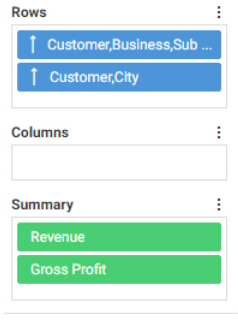
Using Sort Limits

You can use sort limits to control how many values to display in your content. While a filter allows you to limit your content by specifying which values should display, a sort limit allows you to limit it by specifying how many values should display, depending on the amount of information that you want to see.

To add a sort limit, right-click a field in a bucket, point to *Sort limit*, and select a value. Only fields in certain buckets, generally the default dimension and measure buckets, can have sort limits applied. When you add a sort limit to a measure field, that field is used to sort your content automatically.

When setting a sort limit, the values 5, 10, and 25 are provided for quick selection, but you can select *Custom* to specify a different number as the sort limit. You can remove the sort limit from a field by right-clicking the field, pointing to *Sort limit*, and clicking *No limit*.

When a sort limit is applied to a sort field, only the specified number of values is displayed for that field within each sort group. If a sort limit of 5 is applied to the primary sort field, then only the first five sort values display in the chart or report. If a sort limit of 5 is applied to a secondary sort field, then five values for that field display within each higher level sort value. In the following image, both the Customer Business Sub Region and Customer City fields have a sort limit of 5, so the report shows the first five Customer Business Sub Region values and the first five Customer City values within each subregion.

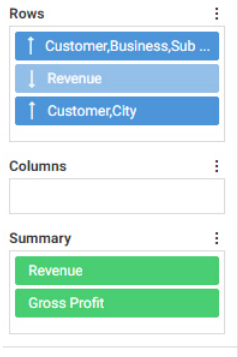


Customer Business Sub Region	Customer City	Revenue	Gross Profit
Africa	Aberdeen	$4,276.60	$1,056.60
	Abu Rudeis	$1,023.94	$314.94
	Abu Simbel	$7,673.85	$1,981.85
	Abu Suwayr	$3,602.08	$1,127.08
	Adelaide	$2,680.41	$673.41
Asia	Aamby Valley City	$1,673.95	$450.95
	Adana	$8,130.68	$1,996.68
	Adiyaman	$5,572.45	$1,693.45
	Afula	$5,545.90	$1,821.90
	Afyonkarahisar	$13,872.92	$3,852.92
Australia-New Zealand	Abrolhos	$16,738.27	$4,117.27
	Adelaide	$19,909.13	$5,890.13
	Agnew	$5,987.33	$1,828.33
	Airlie Beach	$13,054.53	$3,549.53
	Albany	$3,902.35	$1,121.35
Canada	108 Mile	$13,297.89	$3,893.89
	Abbotsford	$304,419.87	$87,232.87
	Acme	$8,095.73	$2,313.73
	Acton	$20,375.35	$5,312.35
	Addison	$8,337.97	$2,361.97
East	Abington	$7,227.58	$1,898.58
	Acton	$18,300.89	$5,195.89
	Adams	$27,600.62	$7,050.62
	Adamsburg	$17,152.81	$3,690.81
	Addison	$51,506.34	$14,287.34

The values that display are based on the sort order of the field that has the sort limit applied. If an alphanumeric dimension field has a sort limit of 5 and is sorted ascending, then the first five alphabetic values for that field display. If the same field is sorted descending, then the last five alphabetic values display.

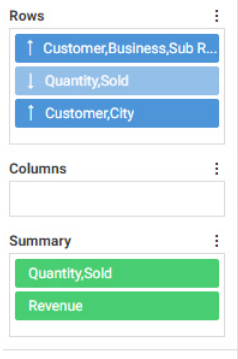
As a result, one of the most effective ways to use sort limits is to apply them to a sorting measure field, which allows you to limit the report to the highest or lowest aggregated values in each sort category. To do this, right-click a field in the measure bucket, point to *Sort limit*, and select a value. In a report, a hidden instance of the selected measure field is automatically added to the top of the Rows bucket, with the sort limit applied. You can click the arrow icon on the hidden field in the Rows bucket to change the sort order, and you can drag the hidden field into a different order in the Rows bucket to change the level at which the sort limit is applied. In a chart, you can right-click the measure field for which you created a sort limit and change the sort order from the shortcut menu.

In the following image, a sort limit of 5 has been applied to the Revenue field from the Summary bucket of a report. The resulting Revenue sort field has been changed to descending order and moved to apply the sort limit after the Customer Business Sub Region field. As a result, the report shows the cities with the five highest Revenue values in each business subregion.



Customer Business Sub Region	Customer City	Revenue	Gross Profit
Africa	Johannesburg	$41,415.70	$10,333.70
	Mafeking	$25,034.25	$7,553.25
	Cape Town	$24,104.92	$5,771.92
	Colesberg	$21,378.84	$5,689.84
	Cairo	$21,197.13	$6,535.13
Asia	Singapore	$25,762,372.07	$7,230,319.07
	Ashdod	$8,129,348.40	$2,299,953.40
	Tel Aviv	$180,566.56	$49,920.56
	Chennai	$152,121.33	$42,121.33
	Bangalore	$140,988.99	$38,210.99
Australia-New Zealand	Melbourne	$199,733.94	$56,975.94
	Sydney	$188,734.72	$53,406.72
	Perth	$42,564.01	$10,363.01
	Port Lincoln	$31,157.87	$7,824.87
	Sidney	$26,763.47	$7,345.47
Canada	Vancouver	$11,767,731.16	$3,336,589.16
	Toronto	$8,666,439.70	$2,454,065.70
	Calgary	$4,613,966.53	$1,301,887.53
	North York	$3,804,215.87	$1,075,787.87
	Mississauga	$3,476,351.49	$980,260.49
East	New York	$8,901,873.37	$2,528,827.37
	Philadelphia	$1,198,765.62	$338,256.62
	Brooklyn	$1,101,085.90	$311,010.90
	Albany	$1,074,083.64	$307,765.64
	Pittsburgh	$970,198.89	$275,968.89
Europe	Bologna	$41,652,209.89	$11,837,837.89
	Zaragoza	$20,765,764.16	$5,876,200.16
	Warsaw	$16,855,133.24	$4,778,376.24
	Edinburgh	$15,811,060.31	$4,487,015.31
	Lund	$12,316,812.27	$3,488,989.27

If you are sorting by a measure field with a sort limit, and multiple rows within a sort group have the same value for that measure field, then they are all displayed. This may result in a number of rows higher than the sort limit. For example, the following image shows a report in which the Quantity Sold field has a sort limit of 5. Since multiple Customer City values in the Africa subregion have the same Quantity Sold value, seven values display, representing the cities with the five highest distinct Quantity Sold values in that subregion.



Customer Business Sub Region	Customer City	Quantity Sold	Revenue
Africa	Johannesburg	118	$41,415.70
	Cairo	83	$21,197.13
	Mafeking	83	$25,034.25
	Colesberg	71	$21,378.84
	Hluhluwe	71	$20,159.62
	Kimberley	70	$18,365.86
	Harrismith	68	$17,801.10
Asia	Singapore	84,292	$25,762,372.07
	Ashdod	26,807	$8,129,348.40
	Tel Aviv	622	$180,566.56
	Chennai	509	$152,121.33
	Bangalore	501	$140,988.99
Australia-New Zealand	Sydney	631	$188,734.72
	Melbourne	596	$199,733.94
	Perth	138	$42,564.01
	Sidney	90	$26,763.47
	Weipa	68	$20,938.25
Canada	Vancouver	39,222	$11,767,731.16
	Toronto	28,741	$8,666,439.70
	Calgary	15,557	$4,613,966.53
	North York	12,610	$3,804,215.87
	Mississauga	11,675	$3,476,351.49