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Birst: Foundation for Analysts Training Workbook

Birst

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Table of contents

Table of contents	3
About this workbook	7
Course overview	9
Course description and agenda	10
Lesson 1: Designer overview	16
Designer overview	17
Designer anatomy: Results mode	19
Designer anatomy: Various tools	20
Demo 1.1: Overview of Designer anatomy tools	26
Designer anatomy: sorting and filtering	28
Demo 1.2: Sorting and filtering	30
Exercise 1.3: Build a report in Designer	31
Scenario	31
Check your understanding	33
Lesson 2: Banded reports	34
Banded reports overview	35
Designer anatomy: Layout mode	37
Stages of banded reports	39
Exercise 2.1: Create a banded report	39
Check your understanding	44
Lesson 3: Birst Query Language (BQL)	45
BQL: What is it?	46
Expression Builder	47
Correct syntax	48
Additional common language	49
Exercise 3.1: Add column expression to an existing report	51
Scenario	51
Exercise 3.2: Apply conditional formatting to an existing report	52
Exercise 3.3: Add an expression column	54
Check your understanding	56
Lesson 4: Designer chart creation	57
Charting in Designer	58
Exercise 4.1: Create a chart in Designer	60
Check your understanding	63
Lesson 5: Creating subreports	64
Subreport overview	65
Subreport configuration	66
Exercise 5.1: Create a subreport	66
Check your understanding	70
Lesson 6: Embed subreport into the container report	71
Embedding subreport overview	72
Adding a subreport to the banded report	73
Sizing bands for element placement	74
Exercise 6.1: Embed the subreport into the existing banded report	74
Check your understanding	76
Lesson 7: Advanced report scheduling	77
Review the main components of a bursting report setup	78

Apply a prompt filter on the column that will burst	79
Demo 7.1: Apply bursting filter to the existing banded report	79
Create a distribution report	81
Demo 7.2: Create a distribution list	81
Schedule the content report to burst	83
Demo 7.3: Schedule the report to burst in Admin	83
Check your understanding	85
Lesson 8: Visualizer overview	86
Visualizer anatomy overview	87
Demo 8.1: Navigate the Visualizer module	88
Check your understanding	93
Lesson 9: Chart creation in Visualizer	94
Creating a multi-layer chart starting with data	95
Exercise 9.1: Create a visualization	97
Modifying data fields	99
Exercise 9.2: Modify and enhance an existing visualization	99
Chart formatting	101
Exercise 9.3: Apply chart formatting to the visualization	102
Check your understanding	107
Lesson 10: Creating complex charts	108
Complex charts overview	109
Exercise 10.1: Create complex charts in Visualizer	109
Check your understanding	113
Lesson 11: Geomaps	114
Geomaps	115
Create a single layer geomap	116
Exercise 11.1: Create a geomap	116
Create a geomap with a second geo-attribute as a new layer	117
Exercise 11.2: Create a multi-layer geomap	117
Check your understanding	120
Lesson 12: Using column selectors	121
Column selectors	122
Create column selectors	123
Preview column selectors	124
Exercise 12.1: Create column selectors and preview it using advanced tools	124
Check your understanding	127
Lesson 13: Tables and crosstabs	128
Tables in Visualizer	129
Table enhancements	130
Drill paths	132
Building a measure	133
Using an expression	134
Exercise 13.1: Create a table chart	134
Exercise 13.2: Create a crosstab with a drill map	137
Check your understanding	140
Lesson 14: Dashboard planning	141
Value based design (VBD) overview	142
VBD: House of value	143
Value-based dashboards	145
VBD display	146
VBD diagnose	147
VBD decide	148

Check your understanding	149
Lesson 15: Dashboards overview	150
Accessing dashboards	151
Anatomy of a dashboard	152
Adding reports to dashboards	155
Dashboards – report catalog	156
Dashlet editing	157
Editing report dashlet properties	158
Exercise 15.1: Create a display dashboard	158
Exercise 15.2: Explore end user functions	160
Check your understanding	162
Lesson 16: Enhance the display dashboard	163
KPI	164
Text Area	165
Images	166
Filters	167
Exercise 16.1: Enhance the display dashboard	168
Check your understanding	172
Lesson 17: Create a diagnose dashboard	173
Dashboard collections and pages	174
Dashboard design	175
Exercise 17.1: Create a diagnose dashboard	175
Exercise 17.2: Explore end user functions for a diagnose dashboard	179
Check your understanding	180
Lesson 18: Drill across	181
Drill across	182
Exercise 18.1: Configure and test drill across with button and report	182
Additional features	184
Check your understanding	185
Course summary	186
Course review	187
Appendices	189
Appendix A: User accounts	190
Appendix B: Check your understanding answers	191
Lesson 1: Designer overview	191
Lesson 2: Banded reports	192
Lesson 3: Birst Query Language (BQL)	192
Lesson 4: Designer chart creation	193
Lesson 5: Creating subreports	193
Lesson 6: Embed subreport into the container report	194
Lesson 7: Bursting reports	194
Lesson 8: Visualizer overview	194
Lesson 9: Chart creation in Visualizer	195
Lesson 10: Creating complex charts	195
Lesson 11: Geomaps	195
Lesson 12: Using column selectors	196
Lesson 13: Tables and crosstabs	196
Lesson 14: Dashboard planning	197
Lesson 15: Dashboards overview	197
Lesson 16: Enhance the display dashboard	198
Lesson 17: Create a diagnose dashboard	198
Lesson 18: Drill across	199

Course review 200

About this workbook

Welcome to this Infor Education course! We hope you will find this learning experience enjoyable and instructive. This Training Workbook is designed to support the following forms of learning:

Classroom instructor-led training with an Infor certified instructor
Virtual classroom instructor-led training with an Infor certified instructor
Self-directed learning through Infor Campus

This Training Workbook is not intended for use as a product user guide.

Workbook design

This Training Workbook contains both conceptual information to introduce topics and step-by-step procedural instructions for practical application of those concepts.

Symbols and notes are provided throughout this Training Workbook for ease of reference. Refer to the *Symbols used in this workbook* section below to familiarize yourself with these symbols.

Instructor-led training (ILT)

If you are taking this course as ILT, your instructor will provide details on accessing the Infor Education Training Environment needed to complete the student exercises. Your instructor will also assign you and other students an account login and password from [Appendix A](#) of this Training Workbook.



Instructors will perform the demos outlined in this Training Workbook. If you are taking this course as ILT, do not attempt to complete any steps within any demos; otherwise, it could adversely affect the training environment, the intended flow of the course, and the success and quality of the course for all students in the class.

Self-directed learning (SDL)

If you are taking this course via Infor Campus as SDL, refer to the Lab on Demand screen in the self-directed learning course for course environment information. The Lab on Demand screen includes instructions and logins to launch and access the corresponding Infor Education Training Environment as well as logins and passwords required for completion of course exercises and demos.



The exercises and demos in this course build upon each other as they prepare the system for subsequent exercises and demos. If you are taking this course as SDL, you must complete all of the exercises and demos in the order they are presented in the Training Workbook. This ensures you will achieve the expected results and a successful course outcome.

Instructor-recorded presentations and simulations (SDL only)

If you are taking this course as SDL, there may be instructor-recorded presentations and/or simulations available to assist you.

If instructor-recorded presentations are available, a hyperlink to the recording will be included on the first page of each corresponding lesson of the interactive workbook on the Training Workbook tab of the self-directed learning course.

If simulations are available, the demos and exercises throughout the interactive Training Workbook will include hyperlinks to simulations that allow you to view and/or practice the execution of the demo or exercise. These same simulations are also accessible via the Demonstrations tab of the self-directed learning course.

Learning Libraries

Learning Libraries in Infor Campus include learning materials that are available to you online, anytime, anywhere. These materials can supplement instructor-led training, providing you with additional learning resources to support your day-to-day business tasks and activities.

Please note that if you accessed this Training Workbook directly via a Learning Library, you will not have access to the Infor Education Training Environment that is provided with all instructor-led and most self-directed learning course versions, as referenced above. Therefore, you will not be able to practice the exercises in the specific Training Environment for which the exercises in this Training Workbook were written.

Symbols used in this workbook



Exercise



Your notes



Question



Demo



Important note



Answer



Scenario or Discussion



Critical note



Task simulation



For your reference



Simulated activity



Course overview

Estimated time

16 hours

Learning objectives

Upon completion of this course, you should be able to:

- Describe the Designer module and its features and functions.
- Explain how to create a banded report.
- Describe and apply Birst Query Language (BQL).
- Create a chart using various charting features.
- Create a subreport to embed in an existing report.
- Embed the subreport into the existing banded report.
- Create and distribute individualized reports by audience needs.
- Describe the Visualizer module.
- Use Visualizer features and formatting to create a chart.
- Create several charts using different chart types and/or measures in multiple ways.
- Create geomaps and use different layer types.
- Create a column selector chart then preview it using advanced tools.
- Use tables and crosstabs in Visualizer.
- Use value-based design to plan your dashboards.
- Describe how to use the features and functions of the Dashboard and create a new dashboards page.
- Enhance the display dashboard.
- Build a diagnose dashboard and create a dashboard collection to hold completed dashboards.
- Apply drill navigation with and without passing filter parameters.

Topics

- What's new or removed in this course
- Course description and agenda

Course description and agenda

This course covers reporting topics in Birst Enterprise Designer 2.0 (HTML5) and Visualizer modules, and the design and construction of Dashboards. This training is for Birst version 7.6 and all previous versions and is intended for data analysts, business users and business analysts. Topics include: Designer overview, Birst Query Language (BQL), Designer chart creation, banded reports, creating subreports, embedding subreport into the container report, bursting reports, Visualizer overview, chart creation in Visualizer, creating complex charts, geomaps, using column selectors, tables and crosstabs, dashboard planning, Dashboards overview, enhancing the display dashboard, creating a display dashboard, and drill across.

Course duration

16 hours

Prerequisite courses

- Recommended but not required – Birst: Introduction and Overview (11_0920000_EEN0001_BBI).
- Recommended but not required – Birst: Foundation for Administrators (01_0920740_IEN0082_BBI).

Prerequisite knowledge

To optimize your learning experience, Infor recommends that you have the following knowledge prior to taking this course:

- An understanding of business intelligence history, objectives and uses
- Basic understanding of reporting and analytics
- Basic SQL experience

Audience

- Customer User
- Pre-Sales Consultant
- Business Consultant
- Technical Consultant
- Support
- System Administrator

System requirements

- Birst Enterprise Training Environment

Reference materials

Birst reference materials are available from the following locations:

- Birst Help (in-app) menu
- Infor Xtreme Knowledge Base
- Infor Concierge®

Course agenda

The agenda below details the contents of this course, including lesson-level learning objectives and supporting objectives.

Lesson	Lesson title	Learning objectives	Estimated time (hours)
Course overview		Review course expectations.	.50
1	Designer overview	<p>Describe the Designer module and its features and functions.</p> <ul style="list-style-type: none">• Describe the designer modes.• Identify the differences between Designer and Visualizer reports.• Define the Designer anatomy and its various tools.• Describe how to create a basic report.• Identify how to add filters.• Explain how to sort columns.	1.5
2	Banded reports	<p>Explain how to create a banded report.</p> <ul style="list-style-type: none">• Identify how to build a report in Layout mode.• Describe the outcome of layout build in Results mode.	1.0
3	Birst Query Language (BQL)	<p>Describe and apply Birst Query Language (BQL)</p> <ul style="list-style-type: none">• Identify the correct syntax for BQL.• Explain how to create BQL expressions with data fields and formatting in Designer.	.75
4	Designer chart creation	<p>Create a chart using various charting features.</p> <ul style="list-style-type: none">• Explain how to add a chart to the report.• Define chart properties.• Define chart formatting options.	1.0
5	Creating subreports	Create a subreport to embed in an existing report.	.50

Lesson	Lesson title	Learning objectives	Estimated time (hours)
		<ul style="list-style-type: none"> Describe how to create a subreport. Identify how to hide the table. Explain the setup when considering the report page size of a Subreport. Explain the passing of filter parameters. 	
6	Embed subreport into the container report	<p>Embed the subreport into the existing banded report.</p> <ul style="list-style-type: none"> Configure the subreport to fit into the container report. 	.50
7	Bursting reports	<p>Create and distribute individualized reports by audience needs.</p> <ul style="list-style-type: none"> Identify the pieces needed to set up a bursting report Explain how to distribute a banded report to an email list. Describe the filter requirements on a content report. Explain the scheduling set up in the Admin module. 	.75
8	Visualizer overview	<p>Describe the Visualizer module.</p> <ul style="list-style-type: none"> Identify the areas of the Visualizer. Describe how to create a visualization. Explain how to enhance a visualization. 	.50
9	Chart creation in Visualizer	<p>Use Visualizer features and formatting to create a chart.</p> <ul style="list-style-type: none"> Add time series measures and attributes. Change layer chart type. Update field names. Change Top N settings. Add display values. Use filters. Experiment with available chart formatting options. 	1.0

Lesson	Lesson title	Learning objectives	Estimated time (hours)
10	Creating complex charts	<p>Create several charts using different chart types and/or measures in multiple ways.</p> <ul style="list-style-type: none"> • Create a bubble chart. • Create a heatmap. • Use a single measure as a measure, a filter, and to sort. • Use a single measure as two different aggregation types. 	.50
11	Geomaps	<p>Create geomaps and use different layer types.</p> <ul style="list-style-type: none"> • Create a single layer geomap. • Create a geomap with a second geo-attribute as a new layer. • Change geo-attribute layer types. 	.50
12	Using column selectors	<p>Create a column selector chart then preview it using advanced tools.</p> <ul style="list-style-type: none"> • Create a base report. • Add column selectors using advanced tools. • View the column selectors as a preview. 	.25
13	Tables and crosstabs	<p>Use tables and crosstabs in Visualizer.</p> <ul style="list-style-type: none"> • Create a table and crosstab report. • Change table formatting. • Create a custom measure. • Add conditional formatting. • Configure a drill map. 	.75
14	Dashboard planning	<p>Use value-based design to plan your dashboards.</p> <ul style="list-style-type: none"> • Design a display dashboard. • Design a diagnose dashboard. • Design a decide dashboard. 	.25

Lesson	Lesson title	Learning objectives	Estimated time (hours)
15	Dashboards overview	<p>Describe how to use the features and functions of the dashboard and create a new dashboards page.</p> <ul style="list-style-type: none"> • Identify how to access dashboards. • Describe the anatomy of a dashboard. • Identify the difference between the Edit and Published views. 	.25
16	Enhance the display dashboard	<p>Enhance the display dashboard.</p> <ul style="list-style-type: none"> • Build KPIs. • Import images. • Add and arrange reports. • Add and explore filters. 	1.0
17	Create a diagnose dashboard	<p>Build a diagnose dashboard and create a dashboard collection to hold completed dashboards.</p> <ul style="list-style-type: none"> • Create a new dashboard. • Experiment with dashboard collection options. • Arrange reports using Column layout. • Add background images and colors. • Add existing charts. • Add an embedded filter. 	.75
18	Drill across	<p>Apply drill navigation with and without passing filter parameters.</p> <ul style="list-style-type: none"> • Configure a navigation drill on a button. • Configure a navigation drill on a report that will include a filter parameter. • Describe dashboard feature functionalities. 	.75
Course summary		Debrief course.	.50

Appendices

This section contains information that is not part of the instructional content of this course, but it provides additional related reference information.

Appendix	Appendix title	Content description
Appendix A	User accounts	This appendix provides a reference for student and instructor login credentials.
Appendix B	Check your understanding answers	This appendix provides answers to the Check your understanding questions found at the end of each Lesson.



Lesson 1: Designer overview

Estimated time

1.5 hours

Learning objectives

After completing this lesson, you will be able to describe the Designer module and its features and functions. In this lesson, you will:

- Describe the designer modes.
- Identify the differences between Designer and Visualizer reports.
- Define the Designer anatomy and its various tools.
- Describe how to create a basic report.
- Identify how to add filters.
- Explain how to sort columns.

Topics

- Designer module overview
- Designer anatomy: Results mode
- Designer anatomy: Various tools
- Designer anatomy: Sorting and filtering

Designer overview

The Designer module is used to seek answers to business questions using modeled data. In this module, you can construct reports from the catalog of attributes and measures; as well as save reports and distribute them to dashboards.

Two modes

There are two modes in the Designer module: Results and Layout.

- In the Results mode, users can display reports and view the results of layout modifications. Results display as the user would see them.
- In the Layout mode, users can control every element for highly formatted results. Banded and container reports are created here. Users can add images and hyperlinks to reports.

Designer vs Visualizer

Visualizer and Designer reports are both very powerful, and each have their strengths. So, when should you use Visualizer and when should you use Designer?

Visualizer is designed to be used by any business user for exploring data and sharing insights via dashboards. Visualizer helps business users to rapidly answer questions and discover information. You can add Visualizer reports to dashboards in the same way as Designer reports.

Visualizer features

The features of Visualizer are described in the following table.

Feature	Description
Interactive design	Visualizer has an intuitive interface that includes a search bar to easily find data elements, drag-and-drop design canvas, and rapid rendering so you can quickly see your visualizations.
Guided mode	Visualizer suggests chart types based on data combinations. Pick your data first, and let Visualizer help you make it look great.
Dashboards integration	Visualizer reports are more tightly integrated with the Dashboards module.
Responsive design, adaptive layout	Along with Dashboards, Visualizer reports automatically adapt to various screen sizes to better support mobile viewing.
Edit in Visualizer	From a dashboard you can select a Visualizer report, edit it, and quickly return to the dashboard.
Export	You can export a Visualizer report from Dashboards in Excel®, Adobe® PDF, and PowerPoint® formats.

Feature	Description
Productivity features	Visualizer includes productivity enhancers such as color palettes, percentage-across calculations, and quick access to the underlying Birst Query Language (BQL) queries.

Designer is used to develop highly formatted enterprise reports that you want to print in a precise format, schedule for email delivery, or export. Designer is essentially a design studio for data analysts and other data savvy users to build rich and specific reports.

Designer features

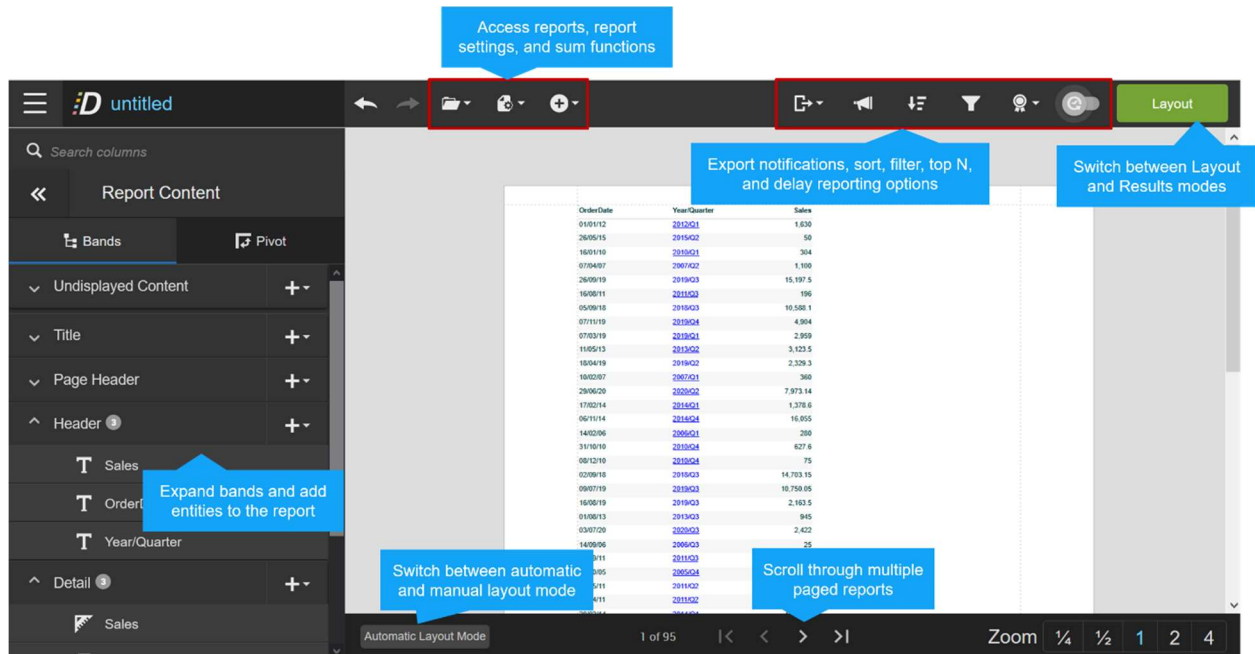
The features of Designer are described in the following table.

Features	Description
Pixel-perfect printing	Designer provides pixel-perfect, also called banded, layout capabilities.
Schedule and deliver	Designer provides advanced scheduling features including report-driven report distribution.
Subreports	Designer lets you put a report inside another report.
Export	Designer exports to a comma-separated values (CSV) file, Excel, PDF, and PowerPoint formats. In Dashboards, you can export Visualizer reports to PDF and Excel.
Pivot control	Designer provides pivot control option to help you add attributes and measures, reorder columns, and change the structure to a pivot table. In Visualizer these features are supported by drag-and-drop and guided modes.



Designer anatomy: Results mode

The following graphic displays the anatomy of Results mode.



Results mode in Designer

Note: Avoid refreshing the results each time an object is added. You can use the Delay Reporting option to delay reporting of large results.



Designer anatomy: Various tools

The Designer module provides access to several features and tools you can use.

Subject Area

The Subject Area is the comprehensive list of data you can use on your report. It provides you with access to attributes and measures in your space. The use of attributes and measures depends on data relationships. Combinations of attributes and measures may not be available based on their relationships, and items that are not available display grayed out. The Time Series Measures are a predefined set of time series aggregations applied to every defined measure in your space. These are automatically created by Birst (e.g., MonthAgo and Trailing 3 Months). You can access the Subject Area through the search field at the top of the Report Content panel.

Bands

Designer reports are divided into horizontal areas called bands on the left side of the user interface.

The different bands in a report are:

- Undisplayed Content
- Title
- Page Header
- Header
- Detail
- Summary
- Page Footer

Note: The details of each band and entities are covered in a later lesson.

You can select the specific band for which you want to add an entity to. Alternatively, you can search for a specific column to add to the detail band of the Designer report.

Pivot Control

The pivot control in Designer is used to customize the layout of a report. The pivot control is useful for rearranging rows and columns in a report. The pivot control has three quadrants used for positioning in the report: Column, Rows, and Measures. Changes made in the pivot control are applied to the report table immediately.

Report icon

The Report icon allows you to create, open, and save reports. Reports can be saved to a private directory or a shared directory. Private folders are tied to the user ID and therefore only accessible to the user associated with the ID as well as space administrators. Shared folders are accessible by all but can have sub-folders with permissions set by the space administrator. The multiple folders are used for saving and tracking reports. Reports that are saved directly in the shared folders are accessible to all users with report and dashboard functionality. Every user by default has access to his or her private folder as well as the shared folder.

Report Settings

You can change several options of a report through the Report Settings menu. Options include Properties, Layout, Band Properties, Filters, Export, Display Band Details, and Report Query.

Report Settings: Properties

The Properties menu under Report Settings determines display settings for several features on the report.

Option	Description
Report Title	The name of the report is entered in the Report Title field. To show the report title, the Report Title toggle is toggled on.
Show Table	To show or hide the table, the Show Table toggle is toggled on or off.
Show NaN as blanks	The Nan as blanks toggle is toggled on to show blank calculations that result in Not-A-Number (0/0, square root of a negative number).
Show Infinity as blanks	The Show Infinity as blanks toggle is toggled on to show blank calculations that result in Infinity.
Style Hyperlinks	The Style Hyperlinks is toggled on to style columns with drilling applied with standard underlined blue formatting.
Background Color	The Background Color option is used to change or make the report background invisible.
Alternating Rows	The Alternating Rows toggle is toggled on to set the even and odd row colors.
Even Row Color	The Even Row Color option is used to set the display color for even rows in the table.
Odd Row Color	The Odd Row Color option is used to set the display color for odd rows in the table.
Use Flex Grid	The Use Flex Grid option is used to choose an alternative table display that is quicker to load, has a clean modern look, and offers column sort. The option cannot be used if report has been changed via Layout tab and some arrangements in pivot control. It also toggles by the Grid selector.
Export Properties	When exporting to CSV, the Separator option in the Export Properties is used.
Report Filters	The Report Filters button is used to set up filters to show/hide when exporting; adjust formatting properties.

Report Settings: Layout

Report Page Layout allows you to change page size via the drop-down menu to a standard size. The Custom layout allows unfettered page height and width adjustment. This can affect scrolling when a report is open in Designer or placed in a dashlet, and how pivot tables break and paginate. You can

change the page orientation between Portrait and Landscape. You can also adjust margins at any time to add or subtract buffer space around a report. Note that points are used throughout Birst to size elements. Abbreviations that display include pt, pts, and px, with 72 points equals 1 inch.

Report Settings: Band Properties

Band Properties allow you to adjust height of each band, including Title, Page Header, Header, Detail, Summary, and Page Footer. You can also add conditional display to each band.

Report Settings: Filters

The **Filters** menu under Report Settings determines settings for prompt filters on exported reports.

Setting	Description
Show Filters	Select this option to display prompt filters on exported reports.
Font Face	Select this option to determine the font face for prompt filters.
Font Size	Select this option to identify the font size for prompt filters.
Font Style	Select this option to choose the font style for prompt filters.
Text Alignment	Select this option to align text for prompt filters.
Font Color	Select this option to assign a font color for prompt filters.
Background Color	Select this option to determine the background color to use for prompt filters.
Show in a dashboard	Select this option to the display prompt filter settings in the dashlet.
Show on one line	Select this option to display the prompt filter settings on a single line.
Skip 'All'	If you have prompts that contain an All option, enabling this setting will not to show the All filter when the report is exported.

Report Settings: Export

The Export menu under Report Settings determines custom settings for exports. The **Export** menu contains the following items:

Item	Description
Separator	Specify the separator character you would like to use for exporting the report to a .csv file. For example: comma (,), pipe () or tab (t).

Item	Description
File Name	Specify the name of the file for the exported report.
MIME Type	Specify the Multipurpose Internet Mail Extension (MIME). For example: text/csv.

Report Settings: Report Query

The Report Query option opens a window to view the report's logical query and allows access to the query log. The report's query is displayed in the text box.

You cannot paste a query inside this dialog box and run it. To run a logical query directly, you must have Space Administrator privileges and go to Query Admin in Admin 2.0.

Additional features

Redo and Undo

Use the Redo and Undo icons to step forward and backward in a step during report building.

Sum

You can use the Sum function to add a summary to the bottom of your report. From the toolbar, click the Add icon and enable the Sum function by clicking the toggle button.

Zoom

The Zoom control setting will make the layout display larger or smaller.

Right tool bar menu

The right toolbar menu includes several icons with options for managing the report data.

Icon	Description
Export	The available export formats are Printable PDF, PowerPoint, Excel, or CVS.
Notifications	Create scheduled notifications and view all the notifications you have created in your space.
Sort	Arrange data for sort directions and order
Filter	Create an enable filters for your Designer report
Top N Results	You can limit the results displayed to a subset of the rows returned from an ordered set of data. "Top N" is the set of results at the top of an ordered set. "N" is the number of results that will display.

Icon	Description
	Top N Results is useful when you have a lot of results and you don't need to show all of them in the report. Another scenario is when you want to highlight the top or bottom rows of a set, such as the highest numbers or lowest numbers. You can use Sort to change whether the Top N is in ascending or descending order.
Delay Reporting	You can enable Delay Reporting to make changes to the report without updating the query to view the report in Results mode. This is especially useful when running queries on large databases.

Notifications

You can set and manage recurring email report schedules from the Notifications icon. Hovering over the notification will display additional information about the notification. Use the Search bar to search for notifications in the space. There are two layout modes. You can view notifications in standard or Full Screen Mode. Select the **Create New Notification (+)** icon to create a new notification.

You can provide several details for notifications.

Option	Description
Name	The Name field displays as the name in your Notification Center. It is not visible in the sent email.
From	The From field is for the creator of the notification.
To	The To field can be either from an Email List or Report Driven.
Email List	The Email List field is for email addresses. When sending this email to multiple addressees, separate emails with a semicolon and no spaces.
Subject	The Subject field is the email subject line.
Message	The Message field is the email body. Add variables using the V{variable_name} syntax
Repeats	The Repeats field is for selecting the frequency of the notifications. Select from one of the three options in the drop-down: Daily, Weekly, or Monthly.
At	The At field is for specifying the time and time zone for when to send the email.
Report	The Report field is for selecting the report.

Option	Description
Attachment Format	Use this field to select the format type for the report.
Attachment Name	The Attachment Name field is the name of the attached document.
File Compression	Use this option to select either Zip or Gzip to attach the document as a compressed file.

Column properties

There are a variety of column properties you can adjust on a column once added to a report. There are two ways to access the Column Properties menu; hovering over the column in Layout mode and selecting the down arrow or in the Report Content pane or expanding the band where the field is located and clicking the Column Properties icon. You can set data formatting, group aggregation, aggregation, data type, and time series types.

Option	Description
Data Formatting	<p>The features in the Data Formatting field are as follows:</p> <ul style="list-style-type: none"> • Enter valid format values to bring in digits with commas • 0 forces significant digits • Leading \$, trailing %, K, M, or other text as desired • Dates have format drop-down
Group aggregation	The Group Aggregation Rule drop-down list let you select how you want to aggregate: Sum, Average, Max, or Min.
Trellis Chart Column	This check box is selected so you can use the column for an existing Trellis chart; if no chart exists, this check box is ignored.
Show in Report	The Show in Report check box is selected to display the column.
Show Repeating Values	To display repeating values the Show Repeating Values check box is selected.

Report style

The styles used in a saved report may be applied to any other report. If a report style contains a chart with multiple layers, the properties from the first layer will be applied to the chart in the report receiving the styles.



Demo 1.1: Overview of Designer anatomy tools

This demonstration shows an overview of Designer anatomy tools.

Demo steps



If you are taking this course as instructor-led training, the instructor will complete this demo.

Part 1: Log in and explore the tool options

1. Log in to Birst at <https://login.bws.birst.com>.
2. Click the **[Your-Name_YourCompany]** space on the left.
3. Click the **Designer** menu item.
4. Review the following:
 - The **Report Content**
 - The Subject Area
 - Bands
 - Pivot
 - Layout and Results modes (elements on the canvas)
 - Report Settings
 - Right tool bar menu:
 - Export
 - Notifications
 - Sort
 - Filter
 - Top N Results
 - Delay Reporting

Part 2: Add columns to a report

1. Click the **Subject Area** icon. The **Select Column** pane opens.
2. Click the **Admin** Subject Area.
3. Click **Measures > Sales > By OrderDate > Sum**.
4. Click **Admin > Attributes > Customers > Country**.
5. Click **Attributes > Employees > Employee Full Name**.
6. Click **Admin > Attributes > Time > Year**.
7. Click the **X** (close) icon on the **Select Column** pane to close the pane.
8. Click the **Pivot** tab on the **Report Content** pane.
9. Drag the **Year** list item to the **Column** band.
10. Click the **Results** button to see the outcome.
11. Format the **Sales** columns with currency symbols, following these steps:
 - a. Click the **X** (close) icon to close the **Select Column** pane. The **Report Content** pane opens.

- b. Click the **down chevron** to expand the **Detail** band.
- c. Hover over the **Sales** list item.
- d. Click the **Column Properties** icon.
- e. Type \$ in front of the existing text (**#,###,###.##**) and **00** after the decimal in the **Data Formatting** field.
- f. Click the **X** (close) icon to close the **Column Properties** pane.



Designer anatomy: sorting and filtering

In Designer, you have different ways to sort and filter your data.

Sorting

To access sorting, select the Sort icon on the toolbar. The options include Ascending, Descending, and Unsorted. You can also drag any column name up or down to change the sort order. It is important to check display sorting to ensure all expressions are run before the sort. This is particularly important when a transform is used since you want the modifications to occur and then sort to run for proper function. Display sort sorts the result set of the query instead of at the database level.

Filtering

To create a filter, click the Add Filter (+) icon on the toolbar. Filters can be defined on both attributes and measures, navigate subject areas or search columns. Once filter column is chosen, click it to configure the filter settings.

Filter types

There are three types of filters.

Filter type	Description
Data	Data filters are carried out at the data warehouse and returns only results that meet criteria.
Display	Display filters are applied after the return of data and displays only results that meet criteria.
Set-based	Set-based filters use another report result set to provide filter values. In other words, the result set of an existing report becomes the result set of the filter in a created report.

Filter styles

Filter styles options include:

Option	Description
Check list	This option is used for multi-select text-based, or numeric data types.
Slider	This option is used for date, datetime, and integer data types.
Value	This option is used for text-based data.
Date picker	This option is used for date data types.

Option	Description
Variable	This option is used for multi-select, text-based, numeric data, or date types.

Filter Columns: Relational operators

The Relation field includes common operators, such as =, <>, <, >, <=, >=. Bonus operators are listed in the following table.

Operator	Description
LIKE/NOT LIKE	This option includes percent added automatically for convenience. It contains "value" search = %value%. Note that DB text searches are very labor intensive.
IS NULL	This option only returns NULL values.
IS NOT NULL	This option only returns non-NULL values.

Filter Columns: More options

At the bottom of the filter pane access additional options.

Apply to Measures: The Apply to Measure option creates a filter that affects only the measure column selected, blanking out any values in that column that do not meet the criteria of the filter. It allows users to filter measures independently. It is used for values not wanted in the report/query, for example:

- Add the field for filtering to the report
- Apply filter to selected measures
- Remove filtered field from report

Prompted: The Prompted option is used as a part of parameter passing; select this option to get an element into the query when parameter passing.



Demo 1.2: Sorting and filtering

This demonstration shows how to sort and filter your data.

Before you begin:

- Ensure you are logged in to the Designer module, have viewed Demo 1.1 and are in Results mode.

Demo steps



If you are taking this course as instructor-led training, the instructor will complete this demo.

Part 1: Sort the report data

1. Click the **Sort** icon on the toolbar. The **Sort** pane opens.
2. Click the toggle buttons on to include columns in the sort.
3. Click the **Employee Full Name** button to toggle Employee on.
4. Click the **Country** button to toggle Country on.
5. Click the **Year** button to toggle Year on.
6. Click **Year** on the list of sorts to change the order of the sort.
7. Click the **Descending (3, 2, 1)** radio button.
8. Drag the **columns** to display in the following order: **Country**, **Employee Full Name**, and **Year**.
9. Click the **X** (close) button, which will auto save the sort.

Part 2: Filter the report data

1. Click the **Filters** icon on the toolbar. The **Filters** pane opens.
2. Click the **Add Filter (+)** icon to create a new filter.
3. Click the **Filter** list item.
4. Click the **Admin > Attributes > Customers > Country** list item.
5. Click the **Country** filter once loaded to refine the filter results.
6. Click to select the **United Kingdom** check box.
7. Click to select the **United States** check box.
8. Click the **Apply** button.
9. Click the **X** (close) button to close the **Filters** pane.





Exercise 1.3: Build a report in Designer

In this exercise, you will build a report in Designer.

Before you begin:

Ensure you are logged in to the Designer application.



Scenario

The VP of Sales has requested a report showing Current Quarter To Date (QTD) Sales versus Quarter Ago (QAGO) Sales by Sales Region in a table that includes the Employee Name and a quick way to discern when the current quarter sales are below the previous quarter.

Exercise steps

1. Click **Report > New**.
2. Click the **Subject Area** icon above Report Content.
3. Click the **Admin** Subject Area.
4. Click **Time Series Measures > Quarter Ago > Sales > By OrderDate > QAGO Sum**.
5. Click **Time Series Measures > Quarter To-date > Sales > By OrderDate > QTD Sum**.
6. Click **Admin > Attributes > Employees > Employee Full Name > SalesRegion**.
7. Click **Attributes > Time > Year/Quarter**.
8. Click **Results** to view the report build.
9. Format the **Sales** columns with currency symbols, following these steps:
 - g. Click the **X** (close) icon to close the **Select Column** pane. The **Report Content** pane opens.
 - h. Click the **down chevron** to expand the **Detail** band.
 - i. Hover over the **QAGO Sales** list item.
 - j. Click the **Column Properties** icon.
 - k. Type \$ in front of the existing text (**#,###,###.##**) and **00** after the decimal in the **Data Formatting** field.
 - l. Click the **X** (close) icon to close the **Column Properties** pane.
 - m. Repeat steps 14 **a-f** for **QTD Sales**.
10. Add a filter to the **Year** column, following these steps:
 - a. Click the **Filters** icon on the toolbar. The **Filters** pane opens.
 - b. Click the **Add Filter (+)** icon to create a new filter.
 - c. Click the **Filter** list item.
 - d. Type **Year** in the **Search columns** field.

- e. Click the **Attributes.Time.Year** list item. The **Year** filter displays in the **Filters** pane.
 - f. Click the **Year** filter.
 - g. Type 2022 in the **Enter min value** field.
 - h. Click the **Apply** button.
 - i. Click the **X** (close) icon to close the **Year** filter pane.
 - j. Click the **X** (close) icon to close the **Filters** pane. View to confirm the report has been filtered on the current year.
11. Sort by **Employee Full Name**, then by **Sales Region**, then by **Year/Quarter**, following these steps:
- a. Click the **Sort** icon on the toolbar.
 - b. Click the toggle buttons on to include columns in the sort.
 - c. Click the **Employee Full Name** button to toggle Employee on.
 - d. Click the **SalesRegion** button to toggle Sales Region on.
 - e. Click the **Year/Quarter** button to toggle Year/Quarter on.
 - f. Click the **Year/Quarter** list item.
 - g. Click the **Alphabetic (Z-A)** radio button.
 - h. **Drag** the columns to display in the following order: **Sales Region**, **Employee Full Name**, and **Year/Quarter**.
 - i. Click the **X** (close) icon to close the **Sort** pane, which will auto save the sort.
 - j. Click the **Report** icon to save the report.
 - k. Click the **Save** list item. The **Save** window opens.
 - l. Click the **shared** folder icon.
 - m. Type *QTD vs QAGO Sales by Employee Region* in the **Report Name** field.
 - n. Click the **Save** button.

Check your understanding



Designer creates highly formatted reports.

- a) True
- b) False



You can only filter on a column that is actively on the report.

- a) True
- b) False



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 2: Banded reports

Estimated time

1 hour

Learning objectives

After completing this lesson, you will be able to explain how to create a banded report. In this lesson, you will:

- Identify how to build a banded report in Layout mode.
- Describe the outcome of formatting entities in a layout build.

Topics

- Banded reports overview
- Designer anatomy: Layout mode
- Layout tips, tricks
- Element size, position
- Element stretch type
- Stages of banded reports

Banded reports overview

Designer Layout mode overview

Layout mode gives the report designer the ability to move report elements to precise locations on a report to create pixel perfect reports. Report elements include labels and columns. Layout mode is used for grouping and working with subreports. A subreport is a report embedded within another report. Layout mode works in bands to allow detail arrangements and grouping. In Layout mode, you can do the following:

- Switch from column to row reporting
- Create invoices
- Create mailing labels
- Embed subreports
- Customize reports (e.g., add images, buttons, hyperlinks, conditional display, and custom labels)

Automatic Layout Mode vs Manual Layout Mode

Designer has two placement modes: Automatic and Manual. The current mode is visible at the bottom of the page. Hovering over the mode will provide a tooltip with additional information on the mode's behavior.

When first creating a report, the report is in Automatic Layout Mode. When you add a column from the Subject Area to a report, Birst automatically creates two entities: the column entity along with a label entity. The column's label is placed in the Header band and the column's content is added to the Details band. When the column entity is removed, its corresponding label will be automatically removed as well. After moving an element on the report in Layout mode, Designer will switch to Manual Layout Mode. Any newly added columns will now be added to the Undisplayed Content band. Columns in this band will be included in totals but will not display on the report.

You will need to move the entities from the Undisplayed Content band to another band in the report in order for the entity to display on the report. This is done by clicking the **More Actions** icon, selecting **Move Entity To**, and then selecting the band you would like to move the entity to.

Bands display behaviors

Designer reports are divided into horizontal areas called bands. The following are the display behaviors for Bands:

Band	Behavior
Undisplayed Content	The Undisplayed Content band is part of the report query but is not visible on the report itself but will still be a part of the query.
Title and Summary	The Title and Summary bands are displayed once at the beginning and end of the report.
Page Header	The Page Header band displays are the top of each page.
Header	The Header band is rendered at the beginning of each detail column.

Band	Behavior
Detail	The Detail band is repeated for every record in the result set.
Page Footer	The Page Footer band displays at the bottom of each page.

You can add columns, labels, images, buttons, rectangles, subreports, charts, and groups to a band through the report content panel. You can also specify the band height, while the band width is always restricted to the width of the report itself. This is controlled through the Page Layout property.

You can preview how the report will render by clicking the Results button. This will display the applicable data to each area. To return to the Layout mode to make changes to the report, click the Layout button.

Note: You can use the keyboard shortcut Shift + D to toggle between Layout and Results mode.

Groups

Groups allow for information to be summarized at multiple levels; up to 12 group bands. Groups come in two parts, Header and Footer and can be added to any band. Grouping is handled in the Header band. Aggregating of measures occurs in either the Header or Footer band.



Designer anatomy: Layout mode

Element size and position

You can adjust the size and position of an element using the Width, Height, Left and Top fields on the Size And Position window. The Position in band field determines how elements are positioned in the band.

Position in band	Description
Relative to top	With this option, the top coordinate stays fixed. The element is never pushed down by elements that change in height in the band.
Relative to bottom	The distance of the element from the bottom of the band remains constant when the Relative to bottom option is applied; usually used for lines that separate records.
Float in band	With this option, the element is pushed by the elements that increase in height.

Stretch Type

You can also control an element's stretch type, which defines how to vary the element height when the band and its element changes. The field options are described below.

Stretch Type	Description
No Stretch	With this option, the element height stays fixed.
Relative to Tallest Object	With this option, the element modifies its height according to the deformation of the tallest element.
Relative to Band Height	With this option, the element height is increased proportionally to the increasing size of the band; useful for vertical lines that simulate table borders.

Note: Set all elements in a band to **No Stretch** before adding a subreport.

Format items on the report

To format items on the report, click the item on layout directly from the canvas and use the toolbar to make formatting changes to color, alignment, size, position, font family, font size, and style. You can select multiple entities by holding down Ctrl or Cmd key. The toolbar will display the settings for the most recently selected entity.

Alignment

You can use Alignment to align items; once you select multiple entities, the **Alignment** icon displays on the toolbar.

Alignment option	Description
Align top edges	This option aligns the elements vertically to the top-most selected element. If there are elements selected across bands, top alignment will bring all the elements to the height of the topmost element within the respective band.
Align right edges	This option aligns the elements horizontally to the right-most selected element. If there are elements across bands, right alignment will bring all elements to the co-ordinate of the right most element within the respective band.
Align bottom edges	This option aligns the elements vertically to the bottom-most selected element. If there are elements selected across bands, bottom alignment will bring all the elements to the height of the bottom most element within the respective band.
Align left edges	This option aligns the elements horizontally to the left-most selected element. If there are elements across bands, left alignment will bring all elements to the co-ordinate of the left most element within the respective band.
Line up Horizontally	This option lines up the elements side-by-side horizontally with no gaps or spaces in between the elements.
Line up Vertically	This option lines up the elements vertically with no gaps or spaces in between.



Stages of banded reports

Creating a banded report involves different stages of activities. First, add your attributes and measures to the layout. Next, see how the report is displayed in the various bands, adding any additional groups. Then, you modify the layout of the data in the bands, which involves moving items around to the desired location. Next, you apply formatting to the elements, which includes adjusting their size, font, colors, background, etc. Finally, you switch to the Results mode to view your results.



Exercise 2.1: Create a banded report

In this exercise, you will create a banded report.

Before you begin:

- Ensure you are logged in to the Designer application. If not, refer to Demo 1.1.

Exercise steps

Part 1: Create the report

1. Click the **Report** icon.
2. Click the **New** list item.
3. Click the **Add Entity (+)** icon on the **Detail** band.
4. Click the **Add Column** list item.
5. Click the **Admin** Subject Area.
6. Click **Measures > Sales > By OrderDate > Sum**.
7. Click **Sum** again to add a total of Sales two times.
8. Click **Measures > Quantity > By OrderDate > Sum**.
9. Click **Sum** again to add a total of Quantity two times.
10. Click **Measures > OrderID > By OrderDate > Count distinct**.
11. Click **Count distinct** again to add a total of OrderID two times.
12. Click **Admin > Attributes > Employees > LastName**.
13. Click **Attributes > Products > ProductName**.
14. Click **Attributes > Time > Year**.

Note: The report is many columns wide, so you need to change the report width to access them all; change the report to landscape size.

15. Click the **Report Settings** icon.
16. Click the **Layout** list item. The **Report Settings** pane opens.
17. Click the **Page Size** drop-down arrow.
18. Click the **Custom** list item.
19. Type *800* in the **Width** field.
20. Click the **X** (close) icon to close the **Report Settings** pane.
21. Click the **Results** button to view the column data.

Note: The data needs to be filtered and sorted.

Part 2: Filter column Year to the Current Year variable, then remove the column.

1. Click the **Filters** icon on the toolbar.
2. Click the **Add Filter (+)** icon to create a new filter.
3. Click the **Filter** list item.
4. Click the **Admin** Subject Area.
5. Click **Attributes > Time > Year** to filter.
6. Click the **Year** list item.
7. Click the **Variable** icon.
8. Type *Current Year* in the **Search variables** field.
9. Click the **Current Year** list item.
10. Click the **Apply** button.
11. Click the **X** (close) icon to close the **Filters** pane.

Note: The filter has been added to the report, but the column should be removed.

12. Click the **down chevron** to expand the **Detail** band.
13. Hover over the **Year** list item.
14. Click the **Entity Actions** (down arrow) icon.
15. Click the **Remove Entity** list item.

Note: You can use the **Pivot Table** (located to the right on the Bands under Report Content) to rearrange the columns by dragging into the correct order, if necessary.

Note: A best practice is to save the initial report in the shared folder as **Current Month Sales Columns**. This provides a completed column report version as a backup to return to should there be issues while in layout mode in the following steps.

16. Click the **Report** icon.
17. Click the **Save** list item. The **Save** window opens.
18. Click the **shared** folder if not already selected.
19. Type *Current Month Sales Columns* in the **Report Name** field.
20. Click the **Save** button.

Part 3: Sort the data

1. Click the **Sort** icon on the toolbar.
2. Click the **LastName** button to toggle LastName on.
3. Click the **LastName** list item to sort by Ascending on Last Name.
4. Click the **Alphabetic (A-Z)** radio button if not already selected.
5. Click the **ProductName** button to toggle ProductName on.
6. Click the **ProductName** list item.
7. Click the **Alphabetic (A-Z)** radio button if not already selected.

Note: You can change the sort order of the columns by dragging. Also, notice that the sort updates the data once an option is toggled on.

Part 4: Save a banded report

1. Click the **Report** icon.
2. Click the **Save as** list item. The **Save As** window opens.
3. Click the **shared** folder if not already selected.
4. Type *Current Month Sales* in the **Report Name** field.
5. Click the **Save As** button.

Part 5: Format the Sales and Sales_2 columns to include the currency symbol and two decimal places.

1. Click the **down chevron** to expand the **Detail** band.
2. Hover over the **Sales** list item.
3. Click the **Column Properties** icon.
4. Type \$ in front of the existing text (#,###,###.##) and 00 after the decimal in the **Data Formatting** field.
5. Click the **X** (close) icon to close the **Column Properties** pane.
6. Repeat steps 2-4 for **Sales_2** Sales.



Note: If you have not sorted the report by Employee LastName and ProductName, do so now before continuing. The finished report will not work unless this is done.

Part 6: Change the report to see the product sales information

Note: Group the product sales information by employee last name.

1. Click the **Layout** button.
2. Click the **Add Entity (+)** icon on the **Detail** band.
3. Click the **Add Surrounding Group** list item. A Group Header 1 and Group Footer 1 displays wrapped around the Detail band.
4. Move unwanted labels to the Undisplayed Content band, following these steps:
 - a. Click the **down chevron** to expand the **Header** band on the **Report Content** pane.
 - a. Hover over the **ProductName** list item.

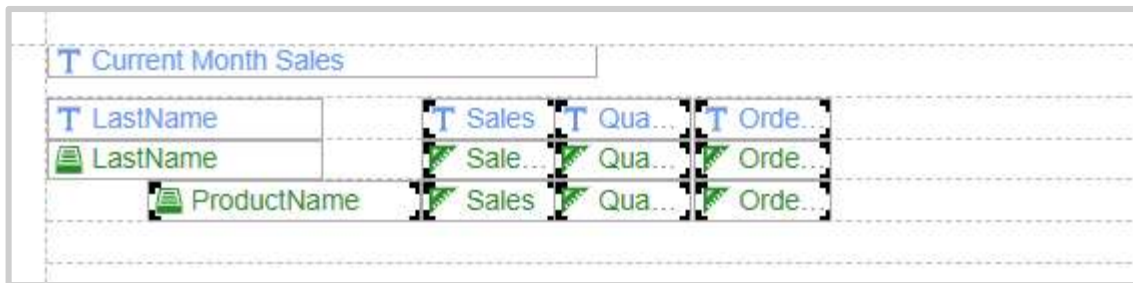
- b. Click the **Entity Actions** (down arrow) icon.
 - c. Click the **Move Entity To > Undisplayed Content** list item.
 - d. Repeat steps **b-d** for **Sales_2**, **Quantity_2**, and **OrderID_2**.
 - e. Click the **down chevron** to expand the **Undisplayed Content** band to see the moved labels.

Also notice that the labels are hidden from the canvas.
5. Drag to rearrange the following labels and columns in the bands. **Note:** See the image below for reference.

T: Label  D: Dimension column  M: Measure column 

- a. **Header:** T:LastName, T:Sales, T:Quantity, T:OrderID
- b. **GroupHeader1:** Column – D:LastName, M:Sales, M:Quantity, M:OrderID
- c. **Detail band:** Columns – D:ProductName, M:Sales_2, M:Quantity_2, M:OrderID_2
- a. **GroupFooter1:** blank

Note: You can left-click and drag to lasso multiple items in one click. Lasso becomes activated when blue and the selected Items will be bold when the lasso is released. Control-click also allows multiple selection of elements.



6. Add and format a title for **Current Month Sales** in the **Title** band, following these steps:
 - a. Click the **Add Entity (+)** icon on the **Title** band.
 - b. Click the **Add Label** list item. A **static text** field displays in the upper-left corner of the band on the canvas.
 - c. Click the **down chevron** to expand the **Title** band to access the static text element.
 - d. Hover over the **static text** list item.
 - e. Click the **Rename** icon.
 - f. Type **Current Month Sales** in the **Title** field.
 - g. Click the **Confirm (green check mark)** icon.
 - h. Click the **Current Month Sales** element on the canvas to format the new title using the formatting options on the toolbar.



- i. Click the **Font Color** icon.
 - j. Click the **eyedropper swatch** icon to customize the color selection.
 - k. Click the **Black** color and click **OK**.
 - l. Click the **Bold** icon.
 - m. Click the **Font Face** icon to select a font.
 - n. Click the **Arial Black** list item.
 - o. Click the **Font Size** icon to change the font size.
 - p. Click the **12** list item.
 - q. Click the **Background Color** icon to choose a background color.

- r. Click the **eyedropper swatch** icon.
 - s. Click the **Light Green** color and click **OK**.
 - t. Click the **Size and Position** icon.
 - u. Highlight the **Width** listed in the **Width (pts)** field.
 - v. Press **Delete**.
 - w. Type **200** in the **Width (pts)** field.
 - x. Click anywhere on the canvas to close the **Size and Positioning** window.
 - y. Click the **Results** button to view changes.
 - z. Click the **Layout** button.
7. Drag **elements** in the correct bands referenced in the image above. This will allow multiple grouping and aggregation on this report.
- Note:** Toggling on **Display Band Details** allows visibility to the bands you are working on as you build the report. However, lasso is disabled when this feature is on.
- Note:** View the Results mode often to see the outcome of the changes being made.
8. Format the labels in the **Header** band, following these steps:
- a. Click and drag cursor over the **Title** labels in the **Header** band (Lasso). All elements selected will display with bold edges.
 - b. **Repeat** the sub-steps from step 5 to apply formatting.
 - c. Click the **Results** button to view changes.
9. Change the page size back to a standard letter, following these steps:
- a. Click **Report Settings > Layout**.
 - b. Click the **Page Size** drop-down arrow.
 - c. Click the **US Letter** list item.
 - d. Click the **X** (close) icon to close the **Report Settings** pane.
10. Click **Report > Save** to save the report.

Check your understanding



How do you access truncated columns on the margin when working in Layout mode?

- a) Use a pivot table
- b) Open the Report Properties window
- c) Use Report Settings Layout to change page size
- d) Delete columns in results mode



Aggregation on measures can be done on Group Headers and Footers.

- a) True
- b) False



The row level query of the report occurs on the Detail band.

- a) True
- b) False



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 3: Birst Query Language (BQL)

Estimated time

.75 hours

Learning objectives

After completing this lesson, you will be able to describe and apply Birst Query Language (BQL). In this lesson, you will:

- Identify the correct syntax for BQL.
- Explain how to create BQL expressions with data fields and formatting in Designer.

Topics

- BQL: What is it?
- Expression Builder
- Correct syntax
- Additional common language

BQL: What is it?

BQL is very similar to SQL; it's a query language that allows specific data selections from the data warehouse. In other words, a way to ask the data warehouse questions. A report designer may want to manipulate how the data in a column functions. To provide this ability, there are numerous BQL functions a report designer can use, including column expressions, conditional formatting, conditional display, filters, and hyperlinks.



Expression Builder

The Expression Builder guides users in designer features such as Expression columns, Advance Filters, Conditional Formatting and Conditional Display. The Expression Builder provides type-ahead search to make it easy to add columns, operators, and functions or copy-paste an existing BQL. A Function tab will be available where a list of supported functions will be listed as a reference. You can make these available to other reports in the same space using the Make Global option.



Correct syntax

The simplest form of a query would be a basic SELECT statement, e.g., SELECT x FROM y:

- SELECT [Products.CategoryName] FROM [All]
- SELECT [DimensionName.ColumnName] FROM [All data]

Column names are always inside of brackets [] and are case, space, and punctuation specific. The example SELECT [Product.CategoryName] FROM [All] would return a list of all category names from the data warehouse. You can add to the simple query to further define the data you would like retrieved.

Additional column requests are separated by a comma. For example:

- SELECT [Products.CategoryName], [Time.Year], [OrderDate:Sum:Quantity] FROM [All]

This simple query would return a list of category names, years, and quantities sold from Birst's data warehouse. The keyword [All] searches the entire data warehouse.



Additional common language

Filtering

Filtering the query at the database is accomplished with the WHERE clause after the FROM. For example:

- `SELECT [Products.ProductName] FROM [All] WHERE [Products.Discontinued]=True`

This example would indicate that the product is discontinued. Continue to filter on dimensions and, or measures using AND OR combined with proper parentheses. For example:

- `SELECT [Products.CategoryName], [OrderDate: Sum: Quantity] FROM [All] WHERE [OrderDate: Sum: Quantity]>1000 AND ([Time.Year]=2008 OR [Time.Year]=2009)`

Sorting

Another common practice in Designer, is to apply sorting to your data. Data sorting runs a query to the warehouse, sorts the results and returns them to the report canvas. For example:

- `ORDER BY: Ascending/Descending (data sorting)`
 - `SELECT [Time.Year] FROM [All] ORDER BY Ascending`

Display filter and sort

Display sorting and filtering does not send the additional query to the warehouse; it sorts and filters the results that were returned to the report canvas. Display sorting and filtering assists with query performance by applying the function in memory instead of the data warehouse. For example:

- `ORDER BY: Ascending/Descending (data sorting)`
 - `SELECT [Time.Year] FROM [All] ORDER BY Ascending`
 - This data sort sends the query to the warehouse, sorts the results and then returns the results to the report canvas.
- `DISPLAY BY: Ascending/Descending (display sorting)`
 - `SELECT [Time.Year] FROM [All] DISPLAY BY Ascending`
 - This sorts the results that were returned from the initial query. Display sorting is typically faster since one less query is run to the data warehouse.

Drilling

"Drilling" is a way of navigating hierarchical data in a BI application. In a report it is very similar to a link, with additional data or context being passed along. The available drill options will depend on the selected entity type.

Entity type	Drill To	Drill Across	Hyperlink
Button	N/A	✓	✓ (Overrides Drill Path)
Chart	N/A	N/A	✓
Column	✓	✓	✓ (Overrides Drill Path)

Entity type	Drill To	Drill Across	Hyperlink
Label	N/A	N/A	✓
Image	N/A	✓	✓ (Overrides Drill Path)

You can access drilling settings by selecting the item you want to add a drill path to and clicking the Drill Paths icon on the toolbar. Drill To is the default. Drill rules include:

- You can only drill attribute to attribute.
- You cannot drill backwards.

Drill type	Description
Drill To	The Drill To setting lets you drill along a predefined path (Year to Month) from one column.
Drill Across	The Drill Across setting lets you navigate from a column to a dashboard
Remove Column on Drill	The None setting will terminate the column drill.
Use Parameter	Enabling Use Parameter lets you specify additional column values to pass as parameters to the target report or dashboard.

Drill options are different as applicable to each drill type. For example, with Drill To you may elect to have the drill field or column removed as the lower level is added to the report for cleaner appearance. Natural drill is hierarchical on pre-defined drill paths like year to quarter to month to week to day. To make options to follow on drill down you need to select Change and add targets. Options on a drillable field display when a user right-clicks the field.

Hyperlink

Hyperlink creates a link from the entity to an external URL. The options for hyperlinking will depend on the entity type as seen in the previous table. Select the entity you would like to add the hyperlink and click the hyperlink icon on the toolbar.

Conditional Formatting

Conditional formatting controls how values in the report table are displayed based on conditions of the data in the report. **Note:** As of version 7.6, there is a known issue where after clicking Conditional Formatting for a column, the left side panel in Designer freezes and becomes unresponsive. You will need to refresh the page to be able to use the left panel again.

Conditional Display

Conditional display is used to display or hide elements in a report, such as subreports, labels, or images, based on the result of a query. The selected entity will display if the BQL expression is true.





Exercise 3.1: Add column expression to an existing report

In this exercise, you will add an expression column to an existing report.

Before you begin:

- Ensure you have completed Exercise 1.1 because it provides data or configurations for this exercise.
- Ensure you are logged in to the Designer application.



Scenario

There is a request to rename a field in our existing report. Instead of the value EMEA we want to change it to Europe.

Exercise steps

Part 1: Open an existing report

1. Click the **Report** icon.
2. Click the **Open** list item. The **Open** window opens with the Shared catalog of reports.
3. Click the **QTD vs QAGO Sales by Employee Region** list item. The **QTD vs QAGO Sales by Employee Region** report opens.

Part 2: Add an expression column from the Detail band

Note: The Regional Sales director for APAC/EMEA prefers to see the region listed as Europe, as there are currently very few clients outside of Europe.

1. Click the **Add Entity (+)** icon on the **Detail** band.
2. Click the **Add Expression Column** list item. The **Expression Builder** opens.

3. Type *Employee Sales Region* in the **Name of Custom Expression** field.
4. Click the **Attribute** Expression Type.
5. Type *IIF([Employees.SalesRegion]='EMEA', 'Europe', [Employees.SalesRegion])* in the **Expression** field to the right.
6. Click the **Done** button. The new column contains the updated field value.

Part 3: Remove the original Sales Region column

1. Click the **down chevron** to expand the **Detail** band.
2. Hover over the **Sales Region** list item.
3. Click the **Entity Actions** (down arrow) icon.
4. Click the **Remove Entity** list item. Region will no longer display on the report.

Part 4: Rearrange the columns

1. Click the **Pivot** tab on the **Report Content** pane.
2. Drag the **Employee Sales Region** list item to the **Rows** section.
3. Click **Report > Save** to save the report.

Part 5: Adjust the text alignment on the Employee Sales Region column

1. Click the **Layout** button.
2. Click the **column element** on the canvas to activate the formatting menu.
3. Click the **Text Alignment** icon.
4. Click the **Align left** list item.
5. Repeat steps **2-4** for the column **Label** (title located above the column on the canvas in blue).

Note: You can also multi select elements for mass formatting by pressing the Control or Command key on your keyboard while clicking.

6. Click **Report > Save** to save the report.



Exercise 3.2: Apply conditional formatting to an existing report

In this exercise, you will apply conditional formatting to an existing report.

Before you begin:

- Ensure you have completed Exercise 2.1 because it provides data or configurations for this exercise.
- Ensure you are logged in to the Designer module.

Exercise steps

Part 1: Open an existing report

1. Click the **Report** icon.
2. Click the **Open** list item. The **Open** window opens.

3. Click the **shared** folder.
4. Click the **QTD vs QAGO Sales by Employee Region** list item. The **QTD vs QAGO Sales by Employee Region** report opens.

Part 2: Add conditional formatting

Note: Conditional formatting the table makes the performance of QTD Sales more visible.

1. Click the **QTD Sales** column on the canvas in **Layout** mode. The formatting toolbar displays above.
2. Click the **Conditional Formatting** icon. The **Conditional Formatting Library** pane opens.
3. Click the **Conditional Formatting (+)** icon. The **Add Conditional Formatting** window opens.
4. Click the **Select Item** drop-down arrow.
5. Click the **QTD Sales** list item.
6. Click the **DONE** button.
7. Click the **Add condition to continue** field. The **Conditional Formatting** window opens.
8. Type *[QTD OrderDate: Sum: Sales] > [QAGO OrderDate: Sum: Sales]* in the **Condition** field. This tests QTD Sales for values greater than the QAGO Sales.
9. Click the **Done** button.
10. Click the **Results** button.
11. Click the **Font Color** button to toggle the font color on.
12. Click the **color** drop-down arrow.
13. Click the **eyedropper swatch** icon to customize the color selection.
14. Click the **Dark Green** color.
15. Click the **Background Color** button to toggle the Background Color on.
16. Click the **color** drop-down arrow.
17. Click the **eyedropper swatch** icon to customize the color selection.
18. Click the **Light Green** color.
19. Click the **Add Condition** button at the bottom of the pane.
20. Click the **Add condition to continue** field. The **Conditional Formatting** window opens.
21. Type *[QTD OrderDate: Sum: Sales] < [QAGO OrderDate: Sum: Sales]* in the **Condition** field.
22. Click **Done**.
23. Click the **Font Color** button to toggle the font color on.
24. Click the **color** drop-down arrow.
25. Click the **White** color.
26. Click the **Background Color** button to toggle the Background Color on.
27. Click the **color** drop-down arrow.
28. Click the **eyedropper swatch** icon to customize the color selection.
29. Click the **Red** color.

30. Click the **X** (close) icon to close the **Conditional Formatting Library** pane.
31. Click the **Report** icon.
32. Click the **Save** list item to save the report.



Exercise 3.3: Add an expression column

In this exercise, you will add an expression column to an existing report.

Before you begin:

- Ensure you have completed Exercise 2.1 because it provides data or configurations for this exercise.
- Ensure you are logged in to the Designer module.

Exercise steps

Part 1: Open an existing report

1. Click the **Report** icon.
2. Click the **Open** list item. The shared catalog opens.
3. Click the **Current Month Sales** list item. The **Current Month Sales** report opens.

Part 2: Add the expression column for Avg Sales

1. Click the **Layout** button.
2. Click the **Add Entity (+)** icon on the **Header1** band.
3. Click the **Add Expression Column** list item. The **Expression Builder** window opens.
4. Type *Avg Sales* in the **Name of Custom Expression** field.
5. Click the **Ratio** button.
4. Type *[OrderDate: Sum: Sales]* in the **Numerator** field.
8. Type *[OrderDate: # OrderID]* in the **Denominator** field.
6. Click the **Done** button.

Part 3: Rearrange the columns on the bands

1. Click and drag cursor over the **Quantity** and **Order ID** elements (lasso a total of 6 elements) and drag them to the right so that Sales Avg can be placed to the right of Sales.
2. Drag the **Avg Sales** title element to the **Header** band between Sales and Quantity.
3. Drag the **Avg Sales** column to the **Group Header 1** band below the Avg Sales title element.
4. Click and drag cursor over the **Quantity** and **Order ID** elements (lasso a total of 6 elements) and drag them next to Avg Sales.

Part 4: Format the new Avg Sales column

1. Hover over the **Avg Sales** list item.

2. Click the **down arrow**.
3. Click the **Column Properties** list item.
4. Type \$ in front of the existing text (###,###.##) and 00 after the decimal in the **Data Formatting** field.
5. Click the **X** (close) icon to close the **Column Properties** pane.
6. Click the **Results** button to view the report.
7. Click the **Report** icon.
8. Click the **Save** list item to save the report.

Check your understanding



In BQL format, logical column names are always inside of brackets [] and are case, space, and punctuation specific.

- a) True
- b) False



In the Expression Builder, what is the way to save and reuse an expression created?

- a) Make Global
- b) Display sorting
- c) Ascending sorting
- d) Display Filter



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 4: Designer chart creation

Estimated time

1 hour

Learning objectives

After completing this lesson, you will be able to create a chart using various charting features. In this lesson, you will:

- Explain how to add a chart to the report.
- Describe the chart types in Designer.
- Define chart properties.
- Define chart formatting options.

Topics

- Charting in Designer

Charting in Designer

Designer Charts, also known as D-Charts can be created either using the data from the report you are currently on or data from a different Designer report. The user interface for creating D-Charts is similar to Visualizer charts. It contains a Subject Area, Chart Builder, and Canvas. Choose a band and click add entity to add a chart.

The available columns for the chart will depend on the report the chart is created from. When creating a chart, there are two options:

- **Add Chart** allows access to all columns on the Designer report. You can add additional columns from the Default Subject Area when creating the chart, but these columns must then be added to your Designer report in order to add the chart to the report.
- **Add Chart from Other Report** allows access to all columns on the selected Designer report. You will not be able to add any additional columns.

Choosing a chart type

You can change a chart type using the **Change Visualization** icon on the toolbar. Use the subject area to add your measures and attributes. **Note:** Sorts and Filters should be added on the report not the chart.

Chart types in D-charts

The following chart types are available in D-charts.

Chart type	Description
Column	A column chart displays series values as sets of vertical columns grouped by categories. It requires at least one category and one series measure. Column charts are useful for comparing two or more values.
Bar	A bar chart display series values as sets of horizontal bars grouped by categories. It requires at least one category attribute and one series measure. Bar charts are useful for comparing two or more values.
Line	A line chart displays series values as a set of markers connected by a line with category labels. It requires at least one category and one series measure. A line chart is most useful to represent measures that change over a period of time.
Area	An area chart displays series values as sets of overlapping filled regions. It is similar to a line chart, with the area between the axis and line filled in with color. An area chart is commonly used to compare two or more measures. It requires at least one category and one measure.
Scatter	A scatter chart displays series as a set of points specified by x and y coordinates. A scatter plot is useful for showing nonlinear relationships between variables. It requires at least one category and two series (representing the x and y coordinates).

Chart type	Description
Bubble	A bubble chart displays series values as a set of bubbles. It is similar to a scatter plot, with the addition that a third series supplies the size of the bubbles. It requires at least one category and three series (x and y coordinates and size).
Pie	A pie chart displays series values as percentage slices of a pie. It requires at least one category and one series. Pie charts are most effective if the intent is to compare the size of one slice to the whole pie rather than comparing the slices to each other.
Donut	A donut chart displays value data in a donut shape. Categories are represented by individual slices. It requires at least one category and one series.
Funnel	A funnel chart displays series values as horizontal bars formed as a funnel grouped by categories. It requires at least one category and one series.
Pyramid	A pyramid chart displays series values as horizontal bars formed as a pyramid grouped by categories. It requires at least one category and one series.
Heat map	A heat map chart displays series values in a matrix of two categories. It is a graphical representation of data where the values taken by a measure in a two-dimensional map are represented as gradations of a color. This chart type requires at least two categories and one series.
Tree map	A tree map chart displays data as a set of rectangles. Size and fill color of a rectangle are proportional to the selected series. It requires one attribute and one series.
Waterfall	A waterfall chart displays the cumulative effect of sequential additions and subtractions. It requires two categories (one for the items to be measured and one that groups the items and is sorted) and one series for change values. Green bars indicate positive values, red bars indicate negative values, and blue bars show the subtotal of the values in the second category.

Chart Formatting

You can format charts from the Chart Formatting menu, where you can control common properties, including:

- Chart colors and background
- X-Axis properties
- Y-Axis properties
- Chart Styles

- Legends

Tab	Description
General	The General tab has several formatting options, including formatting the header, sub-header, and footer labels. You can also change the background options and chart colors.
X-Axis	The X-Axis tab allows you to toggle the X-Axis on and off and modify the position, scale, title, axis line, tickmarks, axis limits, and units.
Y-Axis	The Y-Axis tab allows you to toggle the Y-Axis on and off and modify the position, scale, title, axis line, tickmarks, and axis limit.
Chart Styles	The Chart Styles tab allows you to change chart colors, toggle on and off display values, and modify data plot settings.
Legends	The Legends tab allows you to toggle on and off the legends, modify legend position, text, and custom format.

Chart Settings

After the chart is added, you'll be able to customize the chart even further by clicking on the chart in layout. A toolbar will appear with the following editing options: Size and Position, Border Color, Border Thickness, Orientation, and Chart Margin. If you would like to make changes to an existing chart, select **Edit**.



Exercise 4.1: Create a chart in Designer

In this exercise, you will create a multi-layered chart in Designer.

Before you begin:

- Ensure you have completed Exercise 1.3 because it provides data or configurations for this exercise.
- Ensure you are logged in to the Designer module.

Exercise steps

Part 1: Open the existing report

1. Click the **Report** icon.
2. Click the **Open** list item. The **Open** window opens.
3. Click the **shared** folder if not already selected.
4. Click the **QTD vs QAGO Sales by Employee Region** list item. The **QTD vs QAGO Sales by Employee Region** report opens.

5. Click the **Results** button.

Part 2: Add a column chart

1. Click the **Add Entity (+)** icon on the **Title** band.
2. Click the **Add Chart** list item.
3. Click the **Admin** Subject Area.
4. Click **Time Series Measures > Quarter To-date > Sales > By OrderDate > QTD Sum**. QTD Sales displays in the **Measures** bucket.
5. Click **Time Series Measures > Quarter Ago > Sales > By OrderDate > QAGO Sum**. QAGO Sales displays in the **Measures** bucket and added to the report.
6. Click **Admin > Attributes > Employees > SalesRegion**. **SalesRegion** displays in the **Category** bucket stacking out the chart by color segments.
7. Click the **Chart Formatting** (paintbrush) icon on the toolbar. The **Chart Formatting** pane opens.
8. Click **Y-Axis** tab.
9. Click the **Y Axis 2 (QAGO Sales)** option.
10. Click the **Share Axis with First Measure** button to toggle the Share Axis with First Measure on. The Y-Axis displays as one on the chart.
11. Click the **Chart Styles** tab to change color of each measure.
12. Click **Y Axis 1 (QTD Sales) > Chart Colors**. Change the color of the axis using the following steps:
 - a. Click the **color swatch** to display the **swatch menu** to change the font color.
 - b. Click the **eyedropper swatch** to show the color picker.
 - c. Click a color with the **spectrum slider** bar to choose a color family.
 - d. Click a **green color** on the color picker.
 - e. Click the **color shade box** to select the specific color.
 - f. Click the **Add** icon to add the color to the measure.
13. Click the **Back** icon twice on the top of the pane to repeat the steps on the **Y Axis 2 (QAGO Sales)**.
14. Click the **Y Axis 2 (QAGO Sales) > Chart Colors**. Change the color of the axis using the following steps:
 - a. Click the **color swatch** to display the **swatch menu** to change the font color.
 - b. Click the **eyedropper swatch** to show the color picker.
 - c. Click the **pink color swatch**.
 - d. Click the **Add** icon to add the color to the measure.
15. Click the **X** (close) icon to close the **Chart Formatting** pane.
16. Click the **Add Chart** button. The **Continue to Designer** window opens since the Sales Region column is not listed in your report.

Note: The column that is listed on our chart is a custom BQL column listing “Europe” instead of “EMEA”. We will remove the Sales region on the chart and replace it with the BQL column so that the data on the table and chart match.
17. Click the **X** icon on the **Continue to Designer** window.

18. Drag **SalesRegion** from the **Category** bucket in the chart builder to the **Trash** icon. This will remove the attribute.
 19. Click the **Designer Report Columns** Subject Area.
 20. Drag the **Employee Sales Region** column to the **Category** bucket in the chart builder. This will render the report with the updated column.
 21. Click the **Add Chart** button. The chart displays at the top of the table in Designer.
- Note:** Filters and Sorts that are applied to the table will also apply to the chart.
22. Click **Report >Save** to save the report.

Check your understanding



Charts can be created either using the data from the report you are currently on or data from a different Designer report.

- a) True
- b) False



How do you access charts in Designer?

- a) Click the Add Entity icon on a band
- b) Access Report Settings
- c) Click the Filters icon on the toolbar
- d) Click the Sort icon on the toolbar



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 5: Creating subreports

Estimated time

.50 hours

Learning objectives

After completing this lesson, you will be able to create a subreport to embed in an existing report. In this lesson, you will:

- Describe how to create a subreport.
- Identify how to hide the table.
- Explain the setup when considering the report page size of a subreport.
- Explain the passing of filter parameters.

Topics

- Subreport overview
- Subreport configuration

Subreport overview

A subreport is a report within a report. Any report can act as a container report by adding another report (subreport) into one of its bands. When working with subreports consider the object size, and paper and margins. Prompted filters on the subreport are needed for parameter passing to the container report.



Subreport configuration

To configure a subreport, you will:

- Create a basic chart
- Add a prompted filter to pass parameters
- Hide the table
- Adjust chart properties to accommodate band placement
- Adjust report page layout to accommodate band placement





Exercise 5.1: Create a subreport

In this exercise, you will create a subreport using sales by Year/Month.

Before you begin:

- Ensure you have completed Exercise 4.1 because it provides data or configurations for this exercise.
- Ensure you are logged in to the Designer module of the Birst application.

Exercise steps

Part 1: Create a subreport

1. Click **Report > New**.
2. Type *Sa/es* in the **Search columns** field on the **Report Content** pane.
3. Click the **Measures.Sales** list item.
4. Type *Year* in the **Search columns** field on the **Report Content** pane.
5. Click the **Attributes.Time.Year/Month** list item.
6. Click the **down chevron** to expand the **Detail** band.
7. Hover over the **Sales** list item.
8. Click the **Column Properties** icon.
9. Click the **Date type** drop-down arrow.
10. Click the **OrderDate** list item.
11. Click the **X** (close) icon to close the **Column Properties** pane.

Part 2: Sort the report data

1. Click the **Sort** icon on the toolbar. The **Sort** pane opens.
2. Click the toggle buttons on to include columns in the sort.
3. Click the **Year/Month** button to toggle Year/Month on.
4. Click **Year/Month** list item to sort by Ascending on Year/Month.
5. Click the **Alphabetic (A-Z)** radio button if not already selected.
6. Click the **X** (close) button, which will auto save the sort.
7. Click the **Results** button to preview the sorted data.
8. Click the **Layout** button to return to edit mode.

Part 3: Filter the report data

1. Click the **Filters** icon on the toolbar. The **Filters** pane opens.
2. Click the **Add Filter (+)** icon to create a new filter.
3. Click the **Filter** list item.
4. Type *Year* in the **Search columns** field.
5. Click the **Attributes.Time.Year** list item.
6. Click the **Year** list item once loaded to refine the filter results.
7. Click the **Variable** icon.
8. Type *CurrentYear* in the **Search variables** field.
9. Click the **CurrentYear** list item.
10. Click the **Apply** button.
11. Click the **X** (close) icon to close the **Filters** pane.

Note: The filter has been added to the report, but the column should be removed.

12. Click the **down chevron** to expand the **Detail** band.
13. Hover over the **Year** list item.
14. Click the **Entity Actions** (down arrow) icon.
15. Click the **Remove Entity** list item.
16. Click the **Report Settings** icon.
17. Click the **Report Query** list item. The **Report Query window** opens, and the `SELECT` statement includes all the columns currently on the report.

Note: The report must be unique by product for the line chart to reflect sales trends for each individual product. Since we can't pass product name to the subreport unless product name is included in the query, we use the prompted filter to include that attribute in the query so the parameter can be passed. This uses the prompted filter for an alternate purpose.

18. Click **Done** to close the **Report Query** window.
19. Click the **Filters** icon on the toolbar.
20. Click the **Add Filter (+)** icon to create a new filter.
21. Click the **Filter** list item.

22. Type *ProductName* in the **Search columns** field.
23. Click the **Attributes.Products.ProductName** list item.
24. Click the **ProductName** list item once loaded to refine the filter results.
25. Click the **More options** icon in the lower-left corner of the pane.
26. Click the **Prompted** button to **toggle** Prompted on. The **Prompt Name** field displays.
27. Click the **Apply** button.
28. Click the **X** (close) icon to close the **Filters** pane.
29. Click the **Report Settings** icon.
30. Click the **Report Query** list item to review the query to compare it to the original view.
Note: The WHERE statement now includes the CurrentYear variable and the GETPROMPTVALUE ProductName.
31. Click **Done** to close the **Report Query** window.
32. Click the **down chevron** to expand the **Detail** band.
33. Hover over the **ProductName** list item.
34. Click the **Entity Actions** (down arrow) icon.
35. Click the **Remove Entity** list item.

Part 4: Add a chart to the report

1. Click the **Add entity (+)** icon on the **Title** band.
2. Click the **Add Chart** list item.
3. Click the **Designer Report Columns** list item.
4. Click the **Sales** list item.
5. Click the **Year/Month** list item.
6. Click the **Change Visualization** icon on the toolbar.
7. Click the **line** option.
8. Click the **Chart Formatting** icon on the toolbar. The **Chart Formatting** pane opens.
9. Click the **X-Axis** tab.
10. Click the **X-Axis** button to toggle X-Axis off.
11. Click the **Y-Axis** tab.
12. Click the **Y-Axis** button to toggle Y-Axis off.
13. Click the **X** (close) icon to close the **Chart Formatting** pane.
14. Click the **Add Chart** button.
15. Click the **Report Settings** icon.
16. Click the **Properties** list item. The **Report Settings** pane opens.
17. Click the **Show Table** button to toggle the table off.
18. Click the **X** (close) icon to close the **Report Settings** pane.

Part 5: Format the chart

1. Click the **Chart** list item on the **Title** band. The **formatting** toolbar opens.
2. Click the **Size and Position** icon.
3. Click the **Float** list item on the **Position in Band** field if not already selected.
4. Click the **No Stretch** list item on the **Stretch Type** field if not already selected.
5. Type *50* in the **Height** field.
6. Type *100* in the **Width** field.
7. Click the **Size and Position** icon to close the menu.
8. Click the **Report Settings** icon.
9. Click the **Band Properties** icon to adjust the **Title band height** to match the chart at *50* pt.
10. Click the **Layout** list item. The **Report Settings** pane opens.
11. Click the **Page Size** drop-down arrow.
12. Click the **Custom** list item.
13. Highlight the **Left Margin** listed in the **Left** field under **Margin Size**.
14. Type *0* in the **Left** field.
15. Repeat steps 12 and 13 for the following fields:
 - **Right**
 - **Top**
 - **Bottom**
16. Type *50* in the **Height** field.
17. Type *100* in the **Width** field.
18. Click the **X** (close) icon to close the **Report Settings** pane.
19. Click the **Results** button to view the report.
20. Click the **Report** icon.
21. Click the **Save** list item to save the report.
22. Click the **shared** folder if not already selected.
23. Type *Subreport* in the **Report Name** field.
24. Click the **Save** button.

Check your understanding



The steps for configuring a subreport display below in the wrong order. Reorder the steps from 1-5 to reflect the correct sequence.



Adjust chart properties to accommodate band placement	
Hide the table	
Create a basic chart	
Adjust report page layout to accommodate band placement	
Add a prompted filter to pass parameters	



Any report can act as a container report by adding another report (subreport) into one of its bands.

- a) True
- b) False



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 6: Embed subreport into the container report

Estimated time

.50 hours

Learning objectives

After completing this lesson, you will be able to embed the subreport into the existing banded report. In this lesson, you will:

- Configure the subreport to be embedded into the container report.

Topics

- Embedding subreport overview
- Adding a subreport to the banded report
- Sizing bands for element placement

Embedding subreport overview

A powerful feature of the Layout mode is the ability to embed subreports. As stated previously, a subreport is a report within a report. For example, if you group a report by Year and Category to view the detail of each product and want to see a trend line for each product, you can embed a subreport to accomplish this task. When a subreport is embedded into another report, the main report is then referred to as the container report.



Adding a subreport to the banded report

To add a subreport to the banded report, select the band you want to add the subreport to and click the Add Entity icon. An error message may display if the size of the band is not large enough for the subreport element. This means you must resize the band to accommodate the subreport size.



Sizing bands for element placement

You can change the height of the band by accessing the Band Properties or you can change the height of the band by hovering your mouse over the bottom of the band until an up and down arrow displays for you to stretch the band larger in height. You can also set conditional display by clicking the Conditional Display icon on each band. Once the subreport is embedded, switch to the Results mode to view the results.





Exercise 6.1: Embed the subreport into the existing banded report

In this exercise, you will embed the subreport into the existing banded report.

Before you begin:

- Ensure you have completed Exercise 5.1 because it provides data or configurations for this exercise.
- Ensure you are logged in to the Designer module of the Birst application.

Exercise steps

Part 1: Name and save the report

1. Open the **Current Month Sales** report created in Exercise 4.1. Click the **Report** icon.
2. Click the **Open** list item.
3. Click the **shared** folder if not already selected.
4. Click the **Current Month Sales** file.
5. Click the **Report** icon.
6. Click the **Save as** list item.
7. Click the **shared** folder if not already selected.
8. Type *Current Month Sales Container* in the **Report Name** field.
9. Click the **Save As** button. The **Current Month Sales Container** report is saved.

Part 2: Change the layout options

1. Click the **Layout** button.
2. Click the **Report Settings** icon on the toolbar.
3. Click the **Band Properties** list item.
4. Highlight the **Band Height** in the **Detail** field.
5. Type *200* in the **Detail** field for band height.
6. Click the **X** (close) icon to close the **Report Settings** pane.
7. Click the **Add Entity (+)** icon on the **Detail** band.
8. Click the **Add Subreport** list item. The **Subreport** window opens.
9. Click the **Report** icon to browse for the report. The **Report Catalog** window opens.
10. Click the **shared** folder if not already selected.
11. Click the **Subreport** file.

Note: Verify that the **Take value from parent query** check box is checked. This must be enabled as part of the parameter pass into the subreport.

12. Click **Save**.
13. Click the **Results** button.

Note: It will take a while to render since a line report is being created for each product. If the band size is too large, return to Layout mode and adjust.

14. Click the **Layout** button.
15. Hover the mouse on the **Detail** band's bottom border to display the double-headed resizing arrow.
16. Drag the **Detail** band border up to just below the subreport.
17. Click the **Results** button to view the outcome.
18. Click the **Report** icon to save the report as **Monthly Sales**.
19. Click the **Save as** list item.
20. Type *Monthly Sales* in the **Report Name** field.
21. Click the **Save As** button.

Check your understanding



In Layout mode, if your subreport is too big to fit in your target band, what should you do?

- a) Expand the height of the band by going to Report Settings > Band Properties or drag band height.
- b) Resize the subreport chart within the report.
- c) Put the chart into a different band in Layout mode.
- d) a and/or b.



When a subreport is embedded into another report, the main report is then referred to as the container report.

- a) True
- b) False



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 7: Advanced report scheduling

Estimated time

.75 hours

Learning objectives

After completing this lesson, you will be able to provide an overview of the features and the capabilities of report distribution and scheduling. In this lesson, you will:

- Identify the pieces needed to set up a bursting report.
- Explain the scheduling set up in the Admin module.

Topics

- Review the main components of a bursting report setup
- Apply a prompt filter on the column that will burst
- Create a distribution report
- Schedule the content report to burst
- Trigger report schedule

Review the main components of a bursting report setup

Report bursting is the process of creating a single base report that delivers different results to each person viewing that report. For example, you can “burst” on Employee Last Name.

To burst a report, you’ll need a content report with a filter on the desired column you want to burst. This also requires a distribution report containing emails and the filter column, as well as a delivery schedule.

Note: Administrator access is required to burst reports.



Apply a prompt filter on the column that will burst

When setting up the filter, the filter prompt must match the column name that will be on the Distribution report. On the content report you must set a filter, use the **Display** filter type, select the **Prompted** check box and ensure name in the **Prompt Name** field matches the name in the **Column** field.

For the analyst role, you can create a distribution report from existing data. For the admin role, you can build a source containing Email (as the first column) and the filter column.





Demo 7.1: Apply bursting filter to the existing banded report

This demonstration shows how to apply a bursting filter to the existing banded report.

Before you begin:

- Ensure you have completed Exercise 6.1 because it provides data or configurations for this exercise.
- Ensure you are logged in to the Designer module of the Birst application.

Demo steps



If you are taking this course as instructor-led training, the instructor will complete this demo.

1. Open the **Monthly Sales** report created in Exercise 6.1.
2. Click the **Report** icon.
3. Click the **Open** list item.
4. Click the **shared** folder if not already selected.
5. Click the **Monthly Sales** file.
6. Click the **Layout** button.
7. Click the **Filters** icon on the toolbar.
8. Click the **Add Filter (+)** icon to create a new filter.
9. Click the **Filter** list item.
10. Click the **Admin** Subject Area.

11. Click **Attributes > Employees > Last Name** to filter.
12. Click the **Last Name** list item.
13. Click the **Display filter** button.
14. Click the **More options** icon in the lower-left corner of the pane.
15. Click the **Prompted** button to **toggle** Prompted on. The **Prompt Name** field displays.
16. Highlight the **Prompt Name** listed in the **Prompt Name** field.
17. Press **Delete**.
18. Type *LastName* in the **Prompt Name** field.
19. Click the **Apply** button.
20. Click **Report > Save** to save the report.

Create a distribution report

You may need to create an email distribution report that may already be available in the existing data. If the data does not exist, an Admin will need to upload and model the required data.

When building the distribution report ensure that Email is the first column.

Note: The logical name of the column must be "Email." It's not sufficient to rename the column in the report.





Demo 7.2: Create a distribution list

This demonstration shows how to create a distribution list.

Before you begin:

- Ensure you are logged in to the Designer module of the Birst application.

Demo steps



If you are taking this course as instructor-led training, the instructor will complete this demo.

1. Click **Report > New** to create a new distribution report.
2. Click the **Subject Area** icon.
3. Click **Admin > Attributes > Employees > Email**.
4. Click **Attributes > Employees > LastName**.
5. Click **Attributes > Employees > Title**.

Note: Filter to include only the sales representatives and both sales directors.

6. Click the **Filters** icon on the toolbar.
7. Click the **Add Filter (+)** icon.
8. Click the **Filter** list item.
9. Click **Admin > Attributes > Employees > Title**.
10. Click the **Title** list item.

11. Click to select the **Sales Director Americas** check box.
12. Click to select the **Sales Director APAC-EMEA** check box.
13. Click to select the **Sales Representative** check box.
14. Click the **Apply** button.
15. Click the **X** (close) icon to close the **Filters** pane.
16. Click the **down** chevron to expand the **Detail** band.
17. Hover over the **Title** list item.
18. Click the **Entity Actions** icon.
19. Click the **Remove Entity** list item.
20. Click the **Report** icon.
21. Click the **Save** list item to save report.
22. Click the **shared** folder if not already selected.
23. Type *Bursting Distribution List* in the **Report Name** field.
24. Click the **Save** button.

Schedule the content report to burst

You can create a report schedule from the Admin module. **Note:** Administrator access is required.

From the Admin module access Notifications. User Report Driven for the “To” section of Notifications and add the Distribution list report. In the “Report” section Add the content report. This will send the email out to users with the prompted filter securing the content of the report.





Demo 7.3: Schedule the report to burst in Admin

This demonstration shows how to schedule the report to burst in Admin.

Before you begin:

- Ensure you are logged in to Birst.

Demo steps



If you are taking this course as instructor-led training, the instructor will complete this demo.

1. Click the **Admin** icon at the bottom of the Spaces pane to access the **Admin** module in Birst.
2. Click the **Space Management** button.
3. Click the **space** on the **Spaces** pane.
4. Click the **Notifications** button.
5. Click the **Create New Notification (+)** icon on the **Notifications** pane.
6. Type *Current Month Sales* in the **New Notification** field.
7. Click the **green check mark** icon to save.
8. Click the **Report Driven** button.
9. Click the **open (folder)** icon in the **Search Reports** field. The **Report Catalog** opens.
10. Click the **Bursting Distribution List** list item. The report opens.
11. Type *Current Month Sales per rep* in the **Subject** field.
12. Click the **hour** drop-down arrow.

13. Click the **4** list item.
14. Click the **minute** drop-down arrow.
15. Click the **15** list item.
16. Click the **AM/PM** drop-down arrow.
17. Click the **PM** list item.
18. Click the **Time Zone** drop-down arrow.
19. Click the **PST** list item.
20. Click the **open (folder)** icon in the **Search Reports** field. The **Report Catalog** opens.
21. Click the **Monthly Sales** list item.
22. Click the **Inline HTML** icon in the **Attachment Format** field.
23. Click the **PDF** icon in the **Attachment Format** field.
24. Click the **Save** button. The Current Month Sales notification displays in the **Notifications** pane.
25. Click the **down arrow** icon on the Current Month Sales notification to run the notification now.
26. Click the **Run now** list item. The report runs.

Check your understanding

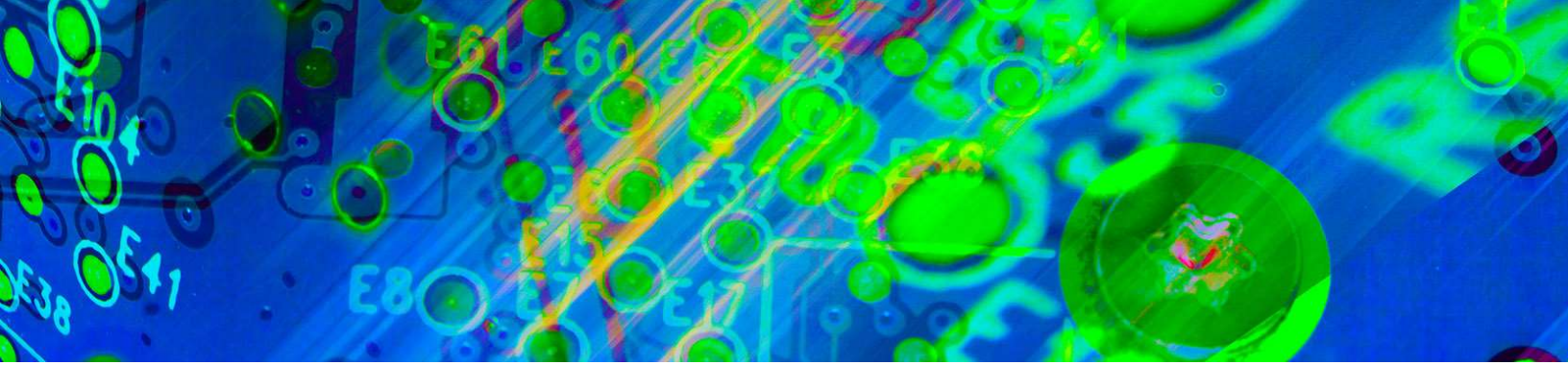


Which of the following is not needed to burst a report?

- a) Content report
- b) Distribution report
- c) Ledger report
- d) Delivery schedule



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 8: Visualizer overview

Estimated time

.50 hours

Learning objectives

After completing this lesson, you will be able to describe the Visualizer module. In this lesson, you will:

- Identify the areas of the Visualizer.
- Describe how to create a visualization.
- Explain how to enhance a visualization.

Topics

- Visualizer anatomy overview

Visualizer anatomy overview

Visualizer is designed for casual business use. It has an intuitive interface (HTML) with guided interactions and helpful recommendations provided throughout.

Accessing Visualizer

From the Navigation menu, you can launch Visualizer from the Birst home page. Select a space that you can work in and click the Visualizer module on the left menu. If you have access to other modules, click the Visualizer module at the top of the page. Click the Main Menu to access the Home page or other modules.

Subject Areas

Once logged in to Birst, the default Subject Area displays on the left side of the screen. Within the Subject Area, are the measures and attributes. A measure contains any data that is measurable (e.g., a sum or count). Attributes are descriptors of the data (e.g., name, address, time). You can add measures and attributes to the report canvas by clicking the desired measure or attribute or dragging the measure or attribute to the report canvas. If you need to use the search function to find a specific measure, Birst auto-fills as you type, narrowing the available choices with each letter typed.

Chart builder

To start with the desired chart type, click the Guided Mode icon in the upper right and select the type of chart desired. Then follow the prompts provided by Birst.

Visualization enhancements

In Visualizer, you can drag attributes and measures to the buckets in the Chart Builder. You can also drag attributes and measures to the report canvas for chart enhancement recommendations.

Formatting measures and attributes in a chart

There are various formatting options in Visualizer. For example:

- Change column name
- Chart type indicator shows the chart type icon to the right of the measure name
- Measure data formatting options:
 - Aggregation
 - Date type
 - Time series type
 - Chart type
 - Data formatting
 - Calculation - By default, the calculation is the absolute value of the measure value.
Percentage Across: each column or row is a percentage of the total
- Group by color toggle on/off

Applying filters

There are several ways to apply filters to a Visualizer report, including:

- Drag across part of a chart to drill down
- Drag a measure or attribute to the chart builder to the filter bucket
- Open the Subject Area and select a new measure or attribute

- Use the Column header menu in Tables to filter on that column
- Create a new expression using the Expression Builder

Toolbar enhancements

You can access additional features through the Toolbar. More advanced features and formatting include:

- Expression Builder
- Chart settings
- Advanced tools
- Top N
- Export options

Expression Builder

The Expression Builder is used to create custom attributes, measures, and filters based on BQL expressions. To add a custom measure or custom attribute, click the Expression Builder icon. Enter a name for the expression. Next, select a measure or attribute and build the expression by selecting the first box in the builder. Then, select the column to begin the expression. Add operators and columns until the expression is complete. Click **Done** to save the expression.

Note: Expressions can be marked as Global to be saved to a Subject area for future use on other reports; otherwise, it will only be used in the report for which they are created.





Demo 8.1: Navigate the Visualizer module

This demonstration shows how to navigate the Visualizer module.

Before you begin:

- Ensure you are logged in to the Birst application.

Demo steps



If you are taking this course as instructor-led training, the instructor will complete this demo.

Part 1: Navigation

1. Click **VISUALIZER** in the module menu along the top of the **Designer** page. Subject Areas displays on the left.

2. Click the **Admin** list item. Folders of data display.
3. Click the **Attributes** folder. The folders of data for attributes display.
4. Click the **Customers** folder. Descriptor fields for customers display.
5. Click the **Attributes** folder to close the **Customers** folder.
6. Click the **Admin** folder to close the **Attributes** folder.
7. Click the **Measures** folder. The various measures display in folders.
8. Click the **EmployeeID** folder. The data displays ordered by date.
9. Click the **By Load Date** folder. The count options display.
10. Click the **Admin** folder.
11. Click the **Time Series Measures** folder. The options display for time comparison.
12. Click the **Quarter ago** measure. The measures available for Quarter ago display.
13. Click the **Subject Area** icon to close all folders in the **Subject Area** pane.
14. Click the **Search** icon to search for specific measures or attributes.
15. Click the **X (close)** icon to close the **Search** field.
16. Click **Admin > Attributes > Customers**.
17. Drag **CustomerType** from the **Subject Area** to the **Category** bucket.
18. Click **Admin > Measures > CustomerID > By Load Date**.
19. Drag **Count distinct** from the **Subject Area** to the **Measures** bucket.
20. Click the **Create a new chart** icon to create a new report.
21. Click the **Delete Draft** button.
22. Click the **Change Visualization** (Guided Mode) icon.
23. Click the **area** icon. A prompt displays next to the Measures and Category buckets.
24. Click **Admin > Attributes > Customers > CustomerType**.
25. Click **Admin > Measures > Sales > By OrderDate > Sum**. The area chart displays.
26. Click **Admin > Attributes > Customers**.
27. Click and hold **Country** to display the recommendations of chart options to create.
28. Drag it on the **trellis** chart option.
29. Drag the **Country** option from the **Trellis** bucket to the **area: add color and stack** recommendation option.
30. Click the **Change Visualization** icon.
31. Click the **column** icon.
32. Click the **Chart Settings** icon.
33. Click the **Group** setting under **Color**.
34. Click the **Percent** setting under **Color**.
35. Click the **Stack** setting under **Color**.

36. Click the **Display Segment Values** button.
37. Click the **Display Values** button.
38. Click the **Delay Charting** button.
Note: You can use the Delay Charting button to delay the chart from being updated instantly. This is useful for large data sets.
39. Click the **Delay Charting** button again.
40. Click and drag a **square area** on the chart to visually filter. The application drills down on the area selected.
41. Click the **Original** tab to display the original chart.
42. Click the **Country** option in the **Color** bucket.
43. Click the **Delete** icon.
44. Click the **Recent** bucket to view the recently deleted **Country** option.
45. Click the **Recent** bucket again to close the view.
46. Click **Admin > Measures > Discount > By OrderDate**.
47. Drag **Sum** from the **Subject Area** to the **Color** bucket.

Part 2: Data formatting options

1. Click the **Measures** bucket to view the pane with options.
Note: In this example, the aggregation and date type cannot be changed because it is a customized Subject Area. You can change the chart type and add an additional measure for layering.
2. Click the **Subject Area** icon to access the **Admin** Subject Area.
3. Click **Admin > Measures > SalesDiscounted > By OrderDate > Sum**. A second column displays for comparison.
4. Click the **Measures** bucket to view the pane with options. Measures for Sales and SalesDiscounted display.
Note: You can change the chart type of the SalesDiscounted measure.
5. Click the **chart type** option in the SalesDiscounted measure.
6. Click the **line** icon. The SalesDiscounted measure displays as a line chart type.
7. Double-click the **Sales** measure at the top of the formatting menu to rename the field.
8. Type *Total* in front of **Sales** in the title.
9. Click the **green check mark** to save.
10. Click the **Color** bucket to view the pane with options.
11. Click the **Data Formatting** menu option.
12. Click the **% (multiply by 100)** radio button in the **Units** option.
13. Click the **Auto** radio button in the **Units** option.
14. Click the **Measures** bucket to change formatting to SalesDiscounted.
15. Click the **Data Formatting** menu option.

16. Click the **\$** radio button in the **Currency** option.

Note: The options you select are updated on the axes, the data points, and the tool tips on the chart.

Part 3: Filtering options

1. Click and drag a square area to highlight **Restaurant**, **Specialty** and **Supermarket** columns on the chart.

Note: The chart displays these columns only and applies this to the **Filters** bucket. This is called visual filtering.

2. Click the **Filters** bucket.
3. A preview of the filters display. Click the **toggle** button to toggle the filter on and off.
4. Click the **filter** to edit the filter.

Note: You can click the **Undo** button to undo an action.

Note: You can also filter by dragging an attribute or measure to the **Filters** bucket.

5. Drag **CustomerType** from the **Category** bucket to the **Filters** bucket. The CustomerType pane with filter options displays.
6. Click to select the **Convenience Store** check box.
7. Click to select the **Supermarket** check box.
8. Click the **Apply** button. The **Convenience Store** and **Supermarket** columns display on the chart.
9. Click the **CustomerType** filter in the **Filters** bucket.
10. Click the **Delete** icon.

Note: You can also filter by dragging an attribute or measure from the **Subject Area** to the **Filters** bucket and adjust the data as needed.

11. Click the **Subject Area** icon.
12. Click **Admin > Measures > Quantity > By OrderDate**.
13. Drag **Sum** from the **Subject Area** to the **Filters** bucket. The pane displays with filtering options.
14. Click the **operator** drop-down arrow under **Aggregation**.
15. Click the **> Greater Than** list item.
16. Type *40,000* in the **Value** field.
17. Click the **Apply** button. The results display.

Note: You can also create your own filters using the Expression Builder.

18. Click the **BQL Editor** icon.
19. Click the **BQL Editor** list item. The Expression Builder pane opens. You can create custom measures, attributes and filters using the Expression Builder.

Note: The custom measures, attributes or filters you create can be made available to other users with access to the same Subject Area by clicking to select the **Make Global** check box.

20. Click the **Function** tab. The list of functions displays.
21. Click the **Math** list item.

22. Click the **Ceiling** list item. The definition of Ceiling and an example displays.
23. Click the **Cancel** button.
24. Click the **Advanced Tools** icon. The menu of **Advanced Tools** displays.
25. Click the **Badge** icon. The top 100 results display by default.
26. Click the **Export** icon. The menu of Export options displays.
27. Click the **question mark** icon. A window with video tutorials open.



Check your understanding



Which of the following is a way to apply a filter to a Visualizer report?

- a) Click the paintbrush icon and select the filter option
- b) Right-click the measure in the chart or table and select filter
- c) Drag the attribute or measure into the filter bucket
- d) All of the above



Expressions can be marked as Global to be saved to a Subject Area for future use on other reports.

- a) True
- b) False



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 9: Chart creation in Visualizer

Estimated time

1 hour

Learning objectives

After completing this lesson, you will be able to use Visualizer features and formatting to create a chart. In this lesson, you will:

- Add time series measures and attributes.
- Change layer chart type.
- Update field names.
- Change Top N settings.
- Add display values.
- Use filters.
- Experiment with available chart formatting options.

Topics

- Creating a multi-layer chart starting with data
- Modifying data fields
- Chart formatting

Creating a multi-layer chart starting with data

You can use the Chart Builder to create a multi-layer chart in Visualizer. Single-click or drag measures and attributes from the Subject Area to sections in the Chart Builder. For example, you can drag an attribute to the Color section to visualize the attribute as a color or drag the attribute to the Trellis section to create a trellis chart using that attribute. Shape and size are available options for some charts. Chart Builder displays sections that are applicable to the type of chart you build.

Formatting measures and attributes in a chart

Visualizer provides formatting options for measure data displayed in axis, tooltips, and display values. You can format:

- Unit symbols that represent magnitude, such as M for millions
- Suffix symbol for percentages (%)
- Decimal precision display
- Currency symbols

You can format currency symbols and decimal places for any measures, including:

- Measure type expressions created in Visualizer.
- Saved expressions created in Designer and listed as Other Expressions in the Subject Area.
- Custom measures created in the Admin module.

Toolbar enhancements

The Visualizer toolbar provides a full suite of tools to format and customize charts. The left side of the toolbar contains the Main menu, default Subject Area icon, the Search feature, and the chart name. The right side of the toolbar contains compensation tools (Undo-redo, Create New, Save/Save As and Open) and advanced features and formatting tools (Expression Builder).

A description of each toolbar feature is provided in the following table.

Toolbar feature	Description
Main Menu	The Main Menu opens a menu with quick access to other modules, settings, support, and in-app help.
Subject Area	The Subject Area icon lets you view the various stored Subject Areas. You can close the open areas by clicking the icon.
Search	The Search feature is used to search for a measure or attribute by name with a search ahead function. For example, searching by Region returns several results that vary by folder of data.
Chart name	This feature displays the name of the chart above the Chart Builder, which displays untitled until you save the report.
Undo	The Undo icon is used to go to the previous step.
Redo	The Redo icon is used to go forward a step.

Toolbar feature	Description
Create a new chart	To create a new chat, you click the Create a new chart icon.
Save	To save a report, you click the Save icon. Note: Enter a name and select the folder where you would like to store the report. If you save to the shared folder, the report will be available for the public to access and edit.
Save As	To save your report with a different name, you click Save As.
Open	To open the folder catalog, which includes all reports saved within Visualizer, you click the Open (folder) icon.
Expression builder	Expression Builder is used to create custom attributes, measures, and filters. The Make Global check box allows custom measures and attributes to be reused on other reports. Filters in Visualizer can also be made Global if you have the Modify a Saved Expression user privilege enabled in Admin. Filters created in the Dashboards module are also globally reusable across all dashboards. Generally, it is best practice to apply filters at the dashboard level, but there will be occasions where filters need to be applied at the report level.
Chart Settings	These differ based on the chart type. For graphical charts, you can adjust how the measures and color attributes display, as well as displaying segment values and display values. You can turn on Delay Charting, which brings in attributes and measures prior to rendering the chart to speed chart building.
Advanced Tools	Access Advanced Tools to view the queries the report generates when Birst renders the chart, view the log history of the report generating, create drill paths from one attribute to another and create column selectors.
Top N	The Top N feature is used to select the top records you want to display on your report. The default is 100. You can select from the options listed or enter a specific number in the field.
Export	The Export feature is used to export a report to a variety of formats, including PDF and Excel, along with the option to include details such as time stamp and filters used. You can also copy the URL and email it to other users.
Help	The Help (question) icon accesses quick tutorials on Birst basics. You can view a tour of how Birst reporting and dashboard modules work.
Chart formatting	The Chart formatting icon is used to change the appearance of your reports from one palette, such as X and Y axis, Legends, Tooltips and

Toolbar feature	Description
	Display Values. You can also add conditions to alter the appearance depending on the chosen criteria.
Advanced Analytics	The Advanced Analytics icon is used to access advanced ways of report display. These depend on chart type and can include Cluster, Benchmark and Trendline.
Guided Mode	The Guided Mode chart visualization menu lets you select a chart type for your report from a wide range of options.



Exercise 9.1: Create a visualization

In this exercise, you will create a visualization.

Before you begin:

- Ensure you are logged in to Birst and are in the Visualizer application.

Exercise steps

Part 1: Create a line chart

1. Click **Admin > Measures > SalesDiscounted > By OrderDate > Sum**.
2. Click **Admin > Time Series Measures > Year Ago > SalesDiscounted > By OrderDate > YAGO Sum**.
3. Click **Admin > Attributes > Time > Year**.
4. Click the **Badge** icon on the toolbar to set **Top N** to All.
5. Click the **All** radio button.
6. Click the **Measures** bucket to change the chart type of YAGO SalesDiscounted from a column to a line.
7. Click the **chart type** option in the **YAGO SalesDiscounted** measure.
8. Click the **line** icon. The **YAGO SalesDiscounted** measure displays as a line chart type.

Part 2: Merge the axes on the chart

1. Hover your mouse over **YAGO SalesDiscounted**.
2. Click the **Edit** icon.
3. Click the **Merge All Axis on Left** list item. The axes merge.
4. Click the **Chart Settings** icon on the toolbar to add **display values** to the column and line values.
5. Click the **Display Values** button to toggle on **Display Values**.

Note: Display Values must be enabled in Chart Settings from the toolbar. Changes made through the data formatting tab will not display unless Display Values is first toggled on.

6. Click the **Save** icon to save the report.
7. Click the **Shared** tab.
8. Type *Sales Discounted vs YAGO* in the **Report Name** field.
9. Click the **Save** button. The title displays at the top of the **Chart Builder**.

Modifying data fields

You can drag an attribute or measure to the Filters option of the Chart Builder to apply filters to your data. A Filter menu displays on the left with options that vary by attribute or measure type. For example, a checklist option and text input option displays based on CategoryName. You can modify the operation, search for specific attributes in the type ahead field, and select which options to include on your report.





Exercise 9.2: Modify and enhance an existing visualization

In this exercise, you will modify and enhance an existing visualization.

Before you begin:

- Ensure you have completed Exercise 9.1 because it provides data or configurations for this exercise.
- Ensure you are logged in to the Visualizer module with the **Sales Discounted vs YAGO** open.

Exercise steps

Notes:

- By utilizing drill levels on existing chart data, you can analyze a lower level of data from the chart created in Exercise 9.1.
 - Year in the report is drillable and can be changed to Year/Quarter for a more detailed view on time.
 - Filtering the results removes data that isn't as relevant.
1. Click the **Category** bucket to view the **Drill Level**.
 2. Click **Drill Level** to view the next drillable column, **Year/Quarter**.
 3. Click **Year/Quarter** to change the attribute in the **Category** bucket.
 4. Drag the **Year/Quarter** attribute in the **Category** bucket to the **Filters** bucket in the Chart Builder.
 5. Click the **operator** drop-down arrow.
 6. Click the **Equal To** list item.
 7. Type **2021** (current year) in the **Search** field.
 8. Click to select the **2021/Q1** check box.

9. Repeat **step 8** for the following:
 - **Q2**
 - **Q3**
 - **Q4**
10. Click the **Apply** button to save the filter.
11. Click the **Save As** icon in the top menu bar to save the report as ***Current Sales Discounted vs YAGO YrQtr***.
12. Type *Current Sales Discounted vs YAGO YrQtr* in the **Report Name** field.
13. Click the **Save As** button.

Chart formatting

Most aspects of a chart can be formatted. Visualizer includes several tabs for chart formatting, including:

- Chart color
- Axis formatting
- Legend control
- Tool tip customizations
- Display values modification
- Conditional formatting based off chart threshold values

Color palette

You can assign an existing color palette to a graphical chart or create a new color palette. You can assign different palettes per measure or choose a single color globally for the chart to display. Color is a valuable way to provide visual cohesion across multiple reports. While individual reports can be color-formatted as unique visual statements, formal color themes and palettes can also be created, giving reports on the same dashboard or across multiple dashboards a related look and feel.

Axis

On the Axis tab, you can select Chart Formatting for Axis formatting and features, including:

- Toggle Axis Off
- Change Font style on either Axis
- Modify the data formatting for the Y-Axis
- Adjust Y-Axis tickmarks and Values
 - If you do not want a merged axis, hover over it, click the Axis menu and select Split Axis.
 - Double-click a label to change the text. To restore the label, click Reset Alias.
 - You can change the Y-Axis tickmark formatting (e.g., color, font, size, etc.).

Legend

You can modify the positioning of the legend on your chart, toggle on or off for the Legend to display and change the text font size and style. Additionally, as an end user, you can click a series to hide the view from the chart and select the reset icon to revert the view.

Tooltips

Tooltips are the text boxes with details that display when you hover your mouse over a chart component. You can decide which columns will display tooltips as well as format the font size, color, style, etc.

Display value

By default, Display Values is turned off. You must enable Display Values from the chart settings to format display values. For Display Values, the value sits fixed at the end of each measure in the chart.

For segment values, when color breakout is added the measure displays within each segment. Formatting at the tooltip level overrides formatting at the data level.

Note: You cannot specify font formats for each tooltip. Use All Display Values to specify font formatting. Also, Display Value will not display if the segment is too small to fit a value.

Conditional formatting

Conditional formatting applies format changes to columns based on specified conditions. There are two types of conditional formatting: Basic and Advanced. The two types are described in the following table.

Type	Description
Basic mode	The Basic mode requires a color breakout to set conditions for individual segments. You can toggle a condition off without changing all settings.
Advanced mode	The Advanced mode requires you to select a measure to apply advanced conditional formatting. Then, you apply a condition and select a color. You can use the query feature to locate a column and add multiple conditions on a measure.



Exercise 9.3: Apply chart formatting to the visualization

In this exercise, you will apply chart formatting to the visualization.

Before you begin:

- Ensure you have completed Exercise 9.2 because it provides data or configurations for this exercise.
- Ensure you are logged in to the Visualizer module.

Exercise steps

1. Open the **Sales Discounted vs YAGO** report from **Exercise 9.2**.
2. Click the **Chart Formatting** (paintbrush) icon to edit Chart Formatting. The **Chart Formatting** menu displays with the **GENERAL** tab open.
3. Click the **arrow** to the left of the color pallet under SalesDiscounted.
4. Click the **Impact** radio button.
5. Click **Back** to return to the main formatting pallet.
6. Click the **X-AXIS** tab. You can make the following changes on the **X-AXIS** tab:

Font	Tickmark labels	Axis	Units
Face	Font Face	Color	Suffix
Style	Style	Thickness	Decimal Precision
Size	Size	Toggle on/off	Currency
Color	Color		
Highlight	Highlight		

7. Change the **title** highlight color, font color, font face, size, and/or style of the axis, using the following steps:
 - a. Click the **color swatch** to display the **swatch menu** to change the font color.
 - b. Click the **eyedropper swatch** to show the color picker.
 - c. Click a color with the **spectrum slider** bar to choose a color family.
 - d. Click the **color shade box** to select the specific color.
 - e. Click the **X-Axis** button to toggle the X-Axis off.
 - f. Click the **X-Axis** button again to toggle the X-Axis on.

8. Click the **Y-AXIS** tab. You can make the following changes on the **Y-AXIS** tab:

Font	Tickmark labels	Gridlines	Axis	Units
Face	Font Face	Color	Color	Suffix
Style	Style	Thickness	Thickness	Decimal Precision
Size	Size	Toggle on/off	Toggle on/off	Currency
Color	Color		Axis Limits	
Highlight	Highlight			

9. Change the **Axis tickmark** label, following these steps:
 - a. Click the **color swatch** to display the **swatch menu** to change the font color.
 - b. Click the **eyedropper swatch** to show the **color picker**.
 - c. Click a color with the **spectrum slider** bar to choose a color family.
 - d. Click the **color shade box** to select the specific color, font color, face, size, and/or style of the axis.
10. View each **Axis Limits** type by clicking the following buttons:
 - a. Click **Automatic** to set the axis to automatic; the value is determined by the data.
 - b. Click **Zero (0)** to set the axis to zero.
 - c. Click **Manual** to set the axis value to manual scaling.

11. Click the **Manual (M)** icon.

12. Manually change the axis values, following these steps:

- a. Type *10* in the **Number of Axis Ticks** field.
- b. Type *500,000* in the **Max Value** field.
- c. Type *1,000* in the **Min Value** field.
- d. Click the **Automatic** button to reset the Axis Limits to automatic.

Note: Use the Manual option when focusing on smaller data variances and increase the number of tickmarks to get greater resolution on the axis values. Merging axes is used to consolidate two

disparate axis values while manual mode allows greater control of tickmarks (resolution) and variances by specifying upper and lower limits.

Note: Be mindful when using Manual, when used you have forced the values of min and max scaling, meaning if the data changes the axis will not.

13. Click the **LEGENDS** tab. You can make the following changes on the **LEGENDS** tab:

Position	Font	Background	Border
Toggle on/off	Face	Color	Color
Top	Style	Transparency	Thickness
Bottom	Size		Toggle on/off
Left	Color		
Right			

Note: Axes can also be removed at the dashboard level using the secondary dashlet formatting options.

14. Click the **Display Legends** button to toggle the Legends off and back on.
15. Click the **Top** button to change the legend position to the top.
16. Click the **Border** button to toggle the Border off and back on.
17. Click the **TOOLTIPS** tab. You can make the following changes on the **TOOLTIPS** tab:

Font	Data formatting
Face	By Measure:
Style	<ul style="list-style-type: none"> Suffix
Size	<ul style="list-style-type: none"> Decimal Precision
Color	<ul style="list-style-type: none"> Currency

18. Hover your mouse over one of the chart columns to view the tooltip.
19. Click **SalesDiscounted** under the TOOLTIPS tab.
20. Click to clear the **Year/Quarter** check box in the **Column Visibility** section.
21. Click the **\$** radio button in the **Currency** section.

Note: Data Formatting is also accessible from the main formatting pallet by clicking on a measure in the chart builder and selecting Data Formatting which will update all field areas on the chart.

22. Hover over a **SalesDiscounted** value to see the formatting changes.
23. Click the **DISPLAY VALUES** tab. You can make the following changes on the **DISPLAY VALUES** tab:

All Measures	Individual Measures
Suffix	By Measure:
Decimal Precision	<ul style="list-style-type: none"> Suffix

Currency	<ul style="list-style-type: none"> • Decimal Precision • Currency
----------	---

24. Click the **All Display Value** item. You can change the display properties on a global level, such as the look, feel and size.

25. Click the **Font Size** drop-down arrow.

26. Click the **15** list item.

27. Click the **CONDITIONAL** tab.

Note: An attribute or measure is required to be in the **Color** bucket for the Basic Conditional formatting to work properly.

28. Click the **Done** button.

29. Click the **Search** icon.

30. Type *category* in the **Search** field.

31. Drag **CategoryName** from the search results to the **Color** bucket.

32. Click the **Chart Formatting** icon.

33. Click the **CONDITIONAL** tab. The **CategoryName** now displays with color options for each category.

34. Click the **Beverages** drop-down arrow.

35. Click the **gray** color option. The color changes.

36. Click the **Done** button.

37. Drag **CategoryName** from the **Color** bucket to the **trash** icon to remove **CategoryName** from the **Color** bucket.

38. Click the **Chart Formatting** icon.

39. Click the **CONDITIONAL** tab.

40. Click the **Advanced** button.

41. Click the **SalesDiscounted** option.

Note: The logical column structure of the column name is needed for the advanced option, which you can access from the Advanced Tools menu.

42. Click the **Done** button.

43. Click the **Advanced Tools** icon.

44. Click the **Queries** list item. The Query pane displays.

45. Highlight **[OrderDate: Sum: SalesDiscounted]**.

46. Press **Control + C** on your keyboard to copy the text.

47. Click the **Done** button.

48. Click the **Chart Formatting** icon.

49. Click the **CONDITIONAL** tab.

50. Click the **Advanced** button (if not already open).

51. Click the **SalesDiscounted** option.
52. Press **Control + V** on your keyboard to paste the copied text in the **Condition** field.
53. Type `< 1000000` next to the copied text in the **Condition** field.
54. Click the **color swatch** to display the **swatch menu** to change the font color.
55. Click the **eyedropper swatch** to show the color picker.
56. Click a color with the **spectrum slider** bar to choose a color family.
57. Click the **color shade box** to select the specific color (orange).
58. Click the **Done** button.
59. Click the **Save** icon.

Check your understanding



In Visualizer, how do you display values in a chart?

- a) Click the paintbrush icon, click Display Values, and toggle the switch to on
- b) Click the query icon and add display values to the end of the expression
- c) Click the Change Visualization icon and click chart with display values
- d) Click the Chart Settings icon and toggle on display values



Which of the following describes conditional formatting?

- a) Only shows a column if it meets a specified condition
- b) Applies format changes to columns based on specified conditions
- c) Is applied through the expression editor
- d) Is accessed by clicking items in a chart or table



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 10: Creating complex charts

Estimated time

.50 hours

Learning objectives

After completing this lesson, you will be able to create several charts using different chart types and/or measures in multiple ways. In this lesson, you will:

- Create a bubble chart.
- Create a heatmap.
- Use a single measure as a measure, a filter, and to sort.
- Use a single measure as two different aggregation types.

Topics

- Complex charts overview

Complex charts overview

To capture more complex data, Visualizer enables report creators to select chart types that illustrate multiple measures (such sales, quantity, and average discount %) by an attribute (such as employee), or multiple attributes by a measure.

Some of the complex charts that can be created in Visualizer include:

- Bubble charts
- Heatmap charts
- Bar charts
- Column charts





Exercise 10.1: Create complex charts in Visualizer

In this exercise, you will create complex charts in Visualizer.

Before you begin:

- Ensure you are logged in to the Visualizer module.

Exercise steps

Part 1: Create a bubble chart

1. Click the **Create a new chart** icon on the toolbar to start a new report.
2. Click the **Change Visualization** icon on the toolbar.
3. Click the **bubble** option from the menu.

Note: The Guided Mode displays suggestions of what you need to add to the chart.

4. Click **Admin > Measures > Sales > By OrderDate > Sum**.
5. Click **Measures > Quantity > By OrderDate > Sum**.
6. Click **Measures > Discount > By OrderDate**.
7. Drag the **Avg** measure from the **Subject Area** to the **Size** bucket.

Part 2: Format the data

1. Click the **Size** bucket to open the **Discount** options.
2. Double-click **Discount**.
3. Type *Avg* in front of **Discount** to rename the title.
4. Click the **green check mark** to save.
5. Click the **Data Formatting** list item on the options pane.
6. Click the **% (multiply by 100)** radio button in the **Units** section.
7. Click the **Subject Area** icon to add an attribute.
8. Click **Admin > Attributes > Employees**.
9. Drag **Employee Full Name** from the **Subject Area** to the **Color** bucket.
10. Click the **badge** icon to expand the **Top N Results** to all.
11. Click the **All** radio button.
12. Click the **Save** icon to save the report.
13. Click the **Shared** tab.
14. Type *Sales, Disc Avg and Qty by Emp* in the **Report Name** field.
15. Click the **Save** button. The title displays at the top of the **Chart Builder**.

Part 3: Create a heatmap

1. Click the **Create a new chart** icon on the toolbar to start a new report.
2. Click the **Change Visualization (Guided Mode)** icon.
3. Click the **heat map** option.
Note: Visualizer provides prompts for the measures and attributes needed to complete the basic version of the selected chart type.
4. Click **Admin > Measures > UnitPrice > By OrderDate > Avg**.
5. Click the **Measures** bucket.
6. Double-click the **UnitPrice** title.
7. Type *Avg Unit Price* in the field.
8. Click the **green check mark** to save.
9. Click the **Subject Area** icon to add an attribute.
10. Click **Admin > Attributes > Products > CategoryName**.
11. Click **Admin > Attributes > Employees > SalesRegion**.
12. Click the **Badge** icon to set **Top N** to all.
13. Click the **All** radio button.
14. Click **Admin > Attributes > Time** to add a Year filter.
15. Drag **Year** from the **Subject Area** to the **Filters** bucket in the Chart Builder. The **Year Filter** formatting window opens.

16. Click the **operator** drop-down arrow.
17. Click the **Greater Than or Equal To** list item.
18. Type *2018* in the **value** field.
19. Click the **Apply** button to save the filter.
20. Click the **Save** icon to save the report.
21. Click the **Shared** tab.
22. Type *Avg Unit Price Heatmap* in the **Report Name** field.
23. Click the **Save** button. The title displays at the top of the **Chart Builder**.

Part 4: Create a bar chart

1. Click the **Create a new chart** icon on the toolbar to create a new report.
2. Click the **Change Visualization** icon on the toolbar.
3. Click the **bar** chart option.
4. Click **Admin > Measures > Discount > By OrderDate > Avg**.
5. Click the **Measures** bucket to rename the title.
6. Double-click the **Discount** title.
7. Type *Avg Discount* in the field.
8. Click the **green check mark** to save.
9. Click the **Data Formatting** list item on the options pane.
10. Click the **% (multiply by 100)** radio button in the Units section.
11. Click the **back** button.
12. Click the **Subject Area** icon to add an attribute.
13. Click **Admin > Attributes > Products > ProductName**.
14. Drag **Avg Discount** from the **Measures** bucket to the **Filters** bucket.
15. Click the **operator** drop-down arrow.
16. Click the **> Greater Than** list item.
17. Type *0* (zero) in the **Value** field.
18. Click the **Apply** button.
19. Drag and drop **Avg Discount** from the **Measures** bucket to the **Sort** bucket to sort the data.
20. Click the **Descending (3, 2, 1)** radio button.
21. Click the **Top N Results Badge** icon.
22. Type *15* in the **number or variable** field.
23. Click the **Apply** button.
24. Click the **Save** icon to save the report.
25. Click the **Shared** tab.
26. Type *Top 15 Discounted Products* in the **Report Name** field.

27. Click the **Save** button. The title displays at the top of the **Chart Builder**.

Part 5: Create a column chart showing Max vs Avg Discount by Sales Region

1. Click the **Create a new chart** icon on the toolbar.
2. Click **Admin > Measures > Discount > By OrderDate > Avg**.
3. Click the **Max** list item to add a second measure.
4. Click the **Measures** bucket to rename the titles of the measures.
5. Double-click the **Discount** title.
6. Type *Avg Discount* in the field.
7. Click the **green check mark** to save.
8. Double-click the **Discount** title.
9. Type *Max Discount* in the field.
10. Click the **green check mark** to save.
11. Click the **Data Formatting** list item on the options pane for **Avg Discount**.
12. Click the **% (multiply by 100)** radio button in the **Units** section.
13. Click the **back** button.
14. Click the **Data Formatting** list item on the options pane for **Max Discount**.
15. Click the **% (multiply by 100)** radio button in the **Units** section.
16. Click the **back** button.
17. Click the **Subject Area** icon to add an attribute.
18. Click **Admin > Attributes > Employees > SalesRegion**.
19. Hover your mouse over **Max Discount** to merge the axes on the chart.
20. Click the **Edit** icon.
21. Click the **Merge All Axis on Left** list item. The axes merge.
22. Click the **Save** icon to save the report.
23. Click the **Shared** tab.
24. Type *Max vs Avg Discount by Sales Region* in the **Report Name** field.
25. Click the **Save** button. The title displays at the top of the **Chart Builder**.

Check your understanding



Which four of the following are charts in Visualizer?

- a) Bubble charts
- b) Heatmap charts
- c) Bar charts
- d) Column charts
- e) Global charts
- f) Graph charts



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 11: Geomaps

Estimated time

.50 hours

Learning objectives

After completing this lesson, you will be able to create geomaps and use different layer types. In this lesson, you will:

- Create a single layer geomap.
- Create a geomap with a second geo-attribute as a new layer.
- Change geo-attribute layer types.

Topics

- Geomaps
- Create a single layer geomap
- Create a geomap with a second geo-attribute as a new layer

Geomaps

Geography maps or geomaps are popular charts for use of dashboards. Geomaps are easy to create; they require one GeoAttribute that refers to a region, such as country, and one measure, such as revenue.

Visualizer supports custom geomaps. For cases where the built-in geomaps do not provide the geography you need, you can use a custom map. Custom geomaps are supported using the Keyhole Markup Language (KML) format. KML custom mapping can be applied in Map Formatting along with conditional formatting for dynamic visuals.



Create a single layer geomap

Once you select your chart type as geomap, you can add your measures and attributes to the chart. After you add measures and attributes, Visualizer will prompt you to associate the map with an attribute.





Exercise 11.1: Create a geomap

In this exercise, you will create a geomap.

Before you begin:

- Ensure you are logged in to the Visualizer module of Birst.

Exercise steps

1. Click the **Create new chart** icon on the toolbar to start a new report.
2. Click the **Change Visualization** icon on the toolbar.
3. Click the **geomap** option from the menu.
4. Click **Admin > Measures > CustomerID > By OrderDate > Count distinct**.
5. Click **Admin > Attributes > Customers > Country**.
Note: The Visualizer application prompts you to associate the map with an attribute.
6. Click the **GeoAttribute** prompt to display the map menu.
7. Click the **Countries** radio button in the **World** section.
8. Click the **badge** icon to expand the **Top N Results** to all.
9. Click the **All** radio button.
10. Click the **Save** icon to save the report.
11. Click the **Shared** tab.
12. Type *Count of Customers Geomap* in the **Report Name** field.
13. Click the **Save** button. The title displays at the top of the **Chart Builder**.

Create a geomap with a second geo-attribute as a new layer

Geomaps can have multiple attributes listed in a single report by adding layers.





Exercise 11.2: Create a multi-layer geomap

In this exercise, you will create a multi-layer geomap.

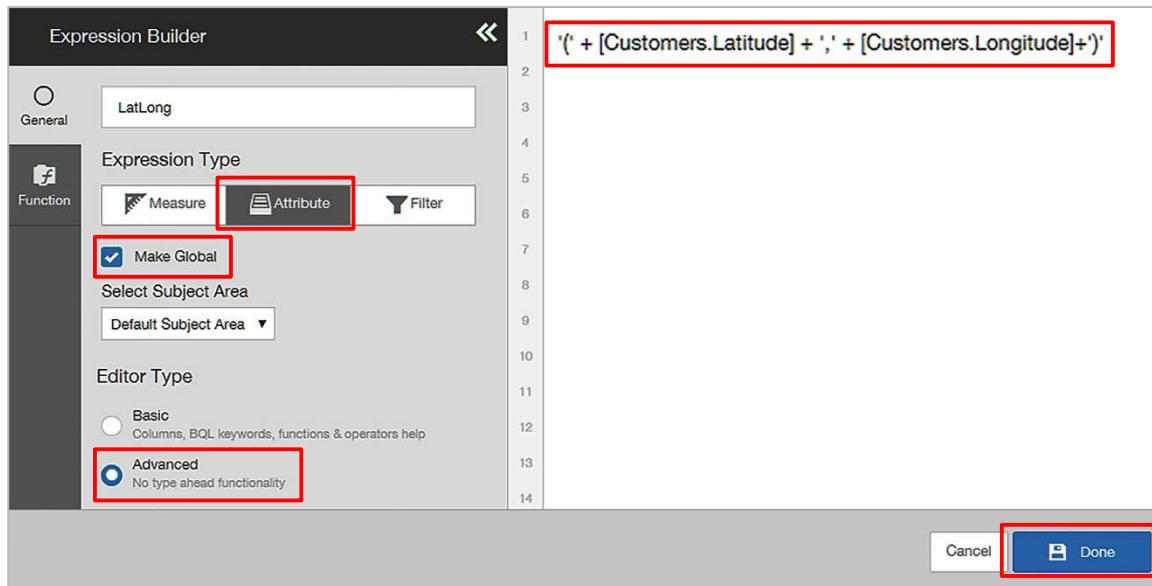
Before you begin:

- Ensure you have completed Exercise 11.1 because it provides data or configurations for this exercise.
- Ensure you are logged in to the Visualizer application.

Exercise steps

1. Click the **Add Layer** button on the Chart Builder.
2. Click the **Subject area** icon to access the available subject areas.
3. Click **Admin > Measures > Sales > By OrderDate**.
4. Drag **Sum** into the **Layer 1** measure bucket.
5. Click the **BQL Editor** icon on the toolbar.
6. Click the **BQL Editor** list item. The **Expression Builder** pane displays.
7. Type *LatLong* in the **Name of Custom Expression** field.
8. Click the **Attribute** button to change the Expression Type.
9. Click to select the **Make Global** check box.
10. Click the **Select Subject Area** drop-down arrow.
11. Click the **Admin** list item.
12. Type *Latitude* in the **expression** field on the right side of the pane.
13. Click the **Latitude** list item.
14. Click the **plus (+)** list item.

15. Type *Longitude* in the **expression** field.
16. Click the **Longitude** list item.
17. Click the *Advanced* radio button in the **Editor Type** section.
18. Type ' (a single quote) on each side of the outer parenthesis in the **expression** field.
19. Type + on the outside of each bracket in the **expression** field.
20. Type ', ' after the + in the center of the **expression** field. The expression should read as follows:
'('+[Customers.Latitude] + ',' + [Customers.Longitude]+')



21. Click the **Done** button. The data point displays on the canvas.
22. Hover over the bubble data points that are now plotted on top of the map, showing the size of sales for each customer latlong locations. Notice the way the tool tip displays the value of latitude and longitude.

Edit the tool tip value to reflect the customer's company name instead of the coordinates with a new expression.
23. Drag LatLong from the **Layer 1** bucket to the Trash icon. This will remove the attribute.
24. Click the **BQL Editor** icon on the toolbar to add a new advanced expression.
25. Click the **BQL Editor** list item. The **Expression Builder** pane displays.
26. Type *Customer Location* in the **Name of Custom Expression** field.
27. Click the **Attribute** button to change the Expression Type.
28. Click to select the **Make Global** check box.
29. Click the **Select Subject Area** drop-down arrow.
30. Click the **Admin** list item.
31. Click the **Advanced** radio button in the Editor Type
32. Type (((([Customers.CompanyName]+'('+[Customers.Latitude]) + ',' + [Customers.Longitude])+')) in the right pane. **Note:** You can copy and paste the text.

33. Click the **Done** button. This will add the company name to the tool tip instead of the Lat Long coordinates.
34. Hover over the data point to confirm.
35. Click the **Map Formatting** (paintbrush) icon to make any color or formatting adjustments.
36. Click the **Done** button on the **Map Formatting** pane once complete.
37. Click the **Zoom In** button to zoom in on one area of the map.
38. Click the **Save As** icon to save the report.
39. Type *Customer LatLong Sales GeoMap* in the **Report Name** field.
40. Click the **Save As** button.

Check your understanding



To create a geomap, one geoattribute and one measure is required.

- a) True
- b) False



Custom geomaps are supported using the Keyhole Markup Language (KML) format.

- a) True
- b) False



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 12: Using column selectors

Estimated time

.25 hours

Learning objectives

After completing this lesson, you will be able to create a column selector chart then preview it using advanced tools. In this lesson, you will:

- Create a base report.
- Add column selectors using advanced tools.
- View the column selectors as a preview.

Topics

- Column selectors
- Create column selectors
- Preview column selectors

Column selectors

Column selectors in Visualizer and Designer reports allow business users to modify a default report by selecting a different combination of attributes and measures for end users on the dashboards. By applying multiple attributes and measures as a drop-down option on a single chart, you allow end users flexibility on a dashboard by toggling the information in the report. Column selectors work on both graphical reports and tables.



Create column selectors

Reports with column selectors allow end users to change between multiple measures and attributes in a single report. To build column selectors, start with a simple chart including one measure and one attribute, or create a new report. You can access the column selectors functionality from the Advanced Tools menu. Search for the desired measures and attributes from the Subject Area. Drag the attributes and measures to the appropriate buckets and click Done to save.



Preview column selectors

It is possible to preview and validate the column selectors before embedding the report into a dashboard.





Exercise 12.1: Create column selectors and preview it using advanced tools

In this exercise, you will create column selectors and preview it using advanced tools.

Before you begin:

- Ensure you are logged in to the Visualizer application.

Exercise steps

Part 1: Create a new report

1. Click the **Create new chart** icon on the toolbar to start a new report.
2. Click the **Change Visualization** icon on the toolbar.
3. Click the **column** menu item.

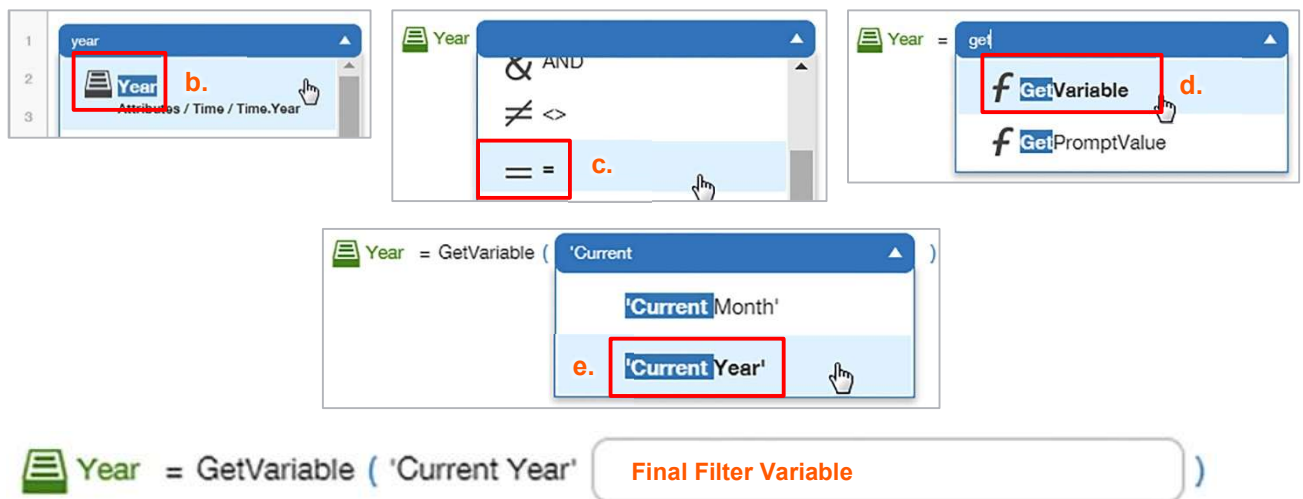
Note: The Guided Mode displays suggestions of what you need to add to the chart.

4. Click **Admin > Measures > Sales > By OrderDate > Avg**.
5. Click the **Measure** bucket to rename the title.
6. Double-click **Sales** on the format pane and type *Avg* in front of **Sales**.
7. Click the **green check mark** to save.
8. Click the **Subject Area** icon.
9. Click **Admin > Attributes > Products > CategoryName**.

Part 2: Add a current year variable as a filter

1. Click the **BQL Editor** icon.
2. Click the **BQL Editor** list item.
3. Type *Current Year* in the **Name of expression** field.
4. Click the **Filter** button.

5. Click to select the **Make Global** check box.
 6. Click the **Select Subject Area** drop-down arrow.
 7. Click the **Admin** list item.
 8. Type *Year* in the **expression** field on the right side of the pane.
 9. Click the **Year** list item.
 10. Click the **= (equals)** list item.
 11. Type *GetVariable* in the **expression** field.
- Note:** CurrentMonth displays by default in the expression field.
12. Click the **CurrentYear** list item.
 13. Click the **Done** button to save the expression and add it as a filter to the report.



Note: If the filter does not automatically populate to the Filter bucket, access the Subject Area in which it was marked as global.

14. Click the **Save** icon to save the report.
15. Click the **Shared** tab.
16. Type *Avg Sales by Employee Column Selector* in the **Report Name** field.
17. Click the **Save** button. The title displays at the top of the **Chart Builder**.

Part 3: Add Column Selectors to the report

1. Click the **Advanced Tools** icon.
2. Click the **Column Selectors** list item.
3. Click **Admin > Measures > Quantity > By OrderDate > Sum** to add measures and attributes.
4. Click **Measures > SalesDiscounted > By OrderDate > Sum**.
5. Click **Admin > Attributes > Employees > LastName**.
6. Click **Attributes > Customers**.
7. Click **CustomerType**.

8. Click the **Done** button.
9. Click the **Advanced Tools** icon to preview the column selectors.
10. Click the **Column Selectors Preview** list item. The preview pane displays. Explore column selector options.
11. Click the **LastName** drop-down arrow.

Note: The chart updates to display the new combinations of data. You can experiment with various combinations to see which are the most useful. Once the report is placed on a dashboard, end users have access to the various columns you've included by clicking on the report to expand it, so the selectors are accessible.

12. Click the **X** (close) on the **Column Selector** pane to close the preview.
13. Click the **Save** icon to save the report.

Check your understanding



You can access the column selectors functionality from the Advanced Tools menu.

- a) True
- b) False



Column selectors work on both graphical reports and tables.

- a) True
- b) False



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 13: Tables and crosstabs

Estimated time

.75 hours

Learning objectives

After completing this lesson, you will be able to use tables and crosstabs in Visualizer. In this lesson, you will:

- Create a table and crosstab report.
- Change table formatting.
- Create a custom measure.
- Add conditional formatting.
- Configure a drill map.

Topics

- Tables in Visualizer
- Table enhancements
- Drill paths
- Building a measure
- Using an expression

Tables in Visualizer

You can select the Table chart option from the Guided Mode on the toolbar. Once you select this type of chart, prompts display in the Chart Builder to add attributes and or measures as your table columns. The current chart types for tables are standard columnar and cross-tab. There are various enhancements and features that are supported with tables to accomplish your business needs.



Table enhancements

Column features

Column feature options from the More menu in the column header are described in the following table.

Option	Description
Break By	This option will let you group the table rows based on attributes and view summaries for each group in a column.
Grand Total	When you select the Grand Total option, it lets you add a grand total to both attribute and measure columns. Attributes can be totaled as a count and count distinct, while measures can be totaled as count, count distinct, simple average, maximum, minimum, and sum.
Filter	This option will let you apply a filter at the column level, such as by attribute, text, or operator.
Wrap	The Wrap option will wrap column header or cell text. Note: Make sure there are spaces between the words by double-clicking the text to rename, if necessary.
Percentage Of	This option lets you create a percentage column for a measure and supports % of grand and sub summaries.
Hide Column	You can hide columns for the display of the report but still have the data in the query of the report. The column does not show in the table. However, it is still in the Chart Builder and its name is grayed out. You can show the column to bring it back into the report from the Chart builder.
Delete	This option lets you delete a column that is not necessary using the column formatting options.

Note: Data formatting options for measures and numeric attributes can still be modified by clicking the Columns bucket and accessing the data formatting menu.

Additional table enhancements are described in the following table.

Option	Description
Aliasing of column Headers	You can customize your label using this option. In tables, click the label tile and type the new title.
Move Column	You can drag a column to change the its position.

Option	Description
Expand Width	Hover between columns and drag cursor to expand width.
Quick Sort	Click double arrows for quick sort, ascending or descending.
Export	This option is used for exporting data to PDF and Excel. Note: Excel removes all formatting and provides raw data. This includes crosstab; which also exports to Excel Pivot.

Table Settings

These settings are global and affect the table data verses the individual column.

Option	Description
Lock Column Headers	This option keeps the column headers frozen while scrolling.
Grand/ Sub- Summary	This option toggles the sum of fields off and on.
Wrap Headers/Cells	This option wraps the text to fit inside the column width.
Local Summary	When Top N is applied, Local Summary is the summary of the “N” results.
Delay Charting	This option allows you to set up a delay for the canvas to render the report on request instead of instantly. This helps with performance especially with large data sets.

Table Formatting

You can use the Table Formatting options to enhance tables in Visualizer from the paint brush icon. For example:

- Change colors and styles
- Re-name sub and grand summaries
- Customize individual columns
- Apply conditional formatting to values



Drill paths

Report level drill paths allow business analysts to create versatile reports without having to request assistance from the space admin. When determining drill paths, consider which attributes may be useful as links to additional details in a report. Attributes can come from the same source and can also be created by used attributes from several sources. It's possible to have more than one drill path in a report. However, an attribute can only be used in one drill path at a time in a report.

Report-Level Drilling also supports No Drill, to terminate a pre-configured drill that a field may be established with, such as time.

Create a drill path in Visualizer

It is recommended to create the drill path before you create the report. To do so, access report-level drilling from the Advanced Tools menu.

Build each level of the drill path using related attributes

Once you access the Advanced Tools menu, you can build each level of the drill path with related attributes. Click Add Drill Path, enter a name for the drill path and search for the starting attribute by using the type ahead field. Click the Drill To button to add the next step in the drill path and search for the second attribute. Repeat this process until you are finished creating the drill path. Click Done when the drill path is complete.

Use a hyperlink to navigate to an external site

You can add a hyperlink to a drill path's end point to search for specific field via an external site. Click the Hyperlink button and add your hyperlink to the box that displays. Select whether the link will open in a new window or the same window and save the drill path by clicking Done.



Building a measure

To add a custom measure or custom attribute, open the Expression Builder tool. Enter a name for the expression and select a measure or attribute. Build the expression by clicking the first box in the builder. Select the column to begin the expression; then, continue adding operators and columns until the expression is complete. Clicking Done saves the expression.

Note: Expressions can only be used in the report for which they are created unless you select the Make Global check box.



Using an expression

If an expression is marked as Make Global, the expression will be available for future use in the Subject Area. Otherwise, the expression can only be used in the current report.



In the exercise that follows, it is important to note that the date type is set to by LoadDate since not every employee has sales data (and therefore no OrderDates) associated with his or her employee name. You can then compare the list of employee names when date type is set to the default by OrderDate against the results when using by LoadDate. When using OrderDate, none of the employees based at the company headquarters (the executives, HR, and Warehouse employees) display.

Also, you will see that Aggregation is changed from Sum to Max since you are looking for the actual number of days. In practice, you can experiment with the various aggregations to see the effect they have on the measures in the table.



Exercise 13.1: Create a table chart

In this exercise, you will create a table chart.

Before you begin:

- Ensure you are logged in to the Visualizer application.

Exercise steps

Part 1: Create a new report

1. Click the **Create a new chart** icon on the toolbar to create a new report.
2. Click the **Change Visualization** icon.
3. Click the **table** menu item.

Note: The Guided Mode displays suggestions of what you need to add to the chart.

4. Click **Admin > Measures > PTO Days Taken > By Load Date > Max**.
5. Click **Measures > PTO Days Available > By Load Date > Max**.
6. Click **Admin > Attributes > Employees > Employee Full Name**.

Part 2: Change the column Custom Summary to Sum on both measures

1. Click the **More** arrow (down arrow) on the **PTO Days Available** column.

2. Click the **Grand Total** list item.
3. Click the **Sum** list item.
4. Click the **More** arrow on the **PTO Days Taken** column.
5. Click the **Grand Total** list item.
6. Click the **Sum** list item. Next, rename the titles of each table column.
7. Double-click **Employee Full Name** and type *Employee* in the field.
8. Click the **green check mark** to save.
9. Hover to the left of the double headed sort arrows to display the Move handle to adjust the column order so that PTO Days Available displays before PTO Days Taken.
10. Drag the **PTO Days Available** column to the left of the **PTO Days Taken** column.

Part 3: Wrap the PTO Days Available header and adjust the column width

1. Click the **More** arrow in the **PTO Days Available** column header.
2. Click the **Wrap** button to toggle on Wrap Header.
3. Hover your mouse over the line separating the column titles to display the resize icon to adjust the Employee column width.
4. Click and drag the **column width** to the left to make it narrower.
5. Click the **More** arrow to display the options menu to add a grand total to the Employee Column to track headcount.
6. Click the **Grand Total** list item.
7. Click the **Count Distinct** list item.

Part 4: Create a custom measure for Total PTO Days

Creating a custom table makes it easy to see which employees have not used their PTO time and HR can send out reminders to schedule time off. This reduces the number of PTO hours on the books and decreases company financial liability.

1. Click the **BQL Editor** icon.
2. Click the **BQL Editor** list item. The **Expression Builder** displays.
3. Type *Total PTO* in the **Name of Custom Expression** field.
4. Click the **Measure** button to change the Expression Type.
5. Click to select the **Make Global** check box.
6. Click the **Select Subject Area** drop-down arrow.
7. Click the **Admin** list item.
8. Click in the field window and type *PTO* in the **expression** field on the right side of the pane.
9. Click the **PTO Days Taken** (Measure) list item.
10. Click the **plus (+)** list item.
11. Type *PTO* in the **expression** field.
12. Click the **PTO Days Available** (Measure) list item.

13. Click the **green arrow** to the right of the PTO Days Taken name to open the options menu.
14. Click the **Max** radio button in the **Aggregation** list.
15. Click the **By Load Date** radio button in the **Analyze By Date** list.
16. Click the **Done** button.
17. Click the **green arrow** to the right of the PTO Days Available name to open the options menu.
18. Click the **Max** radio button in the **Aggregation** list.
19. Click the **By Load Date** radio button in the **Analyze By Date** list.
20. Click the **Done** button to save the expression and add it as a filter to the report.
21. Click the **Done** button again.
22. Click the **Admin** Subject Area. The **Total PTO** custom expression displays in the list of options.
23. Click the **Save** icon to save the report.
24. Click the **Shared** tab.
25. Type *Employee PTO Days* in the **Report Name** field.
26. Click the **Save** button. The title displays at the top of the **Chart Builder**.
27. Click the **Table Formatting** (paintbrush) icon to add conditional formatting to the table to make it easier to determine PTO usage.
28. Click the **CONDITIONAL** tab.
29. Click the **PTO Days Available** list item.
30. Click the **two-condition** icon.
31. Type *19* in the **top** value field.
32. Type *16* in the **bottom** value field.
33. Click the **shape** drop-down arrow for the **top** value field.
34. Click the **hexagon** shape.
35. Click the **red** color.
36. Click the **shape** drop-down arrow for the **middle** value field.
37. Click the **point down triangle** shape and keep the default color **yellow**.
38. Click the **shape** drop-down arrow for the **bottom** value field.
39. Click the **transparent** (red diagonal line) color.

Note: The PTO Days Available column now displays days available in the formatting specified. Using both symbols and colors ensures that users with color vision impairment can see the conditions and act on them.
40. Click **Done** to close the formatting pane.
41. Click the **Save** button.



Exercise 13.2: Create a crosstab with a drill map

In this exercise, you will create a crosstab table with a drill map.

Before you begin:

- Ensure you have completed Exercise 13.1 because it provides data or configurations for this exercise.
- Ensure you are logged in to the Visualizer application.

Exercise steps

Part 1: Create a new report

1. Click the **Create a new chart icon** on the toolbar to create a new report.
2. Click the **Change Visualization** icon on the toolbar.
3. Click the **crosstab** option from the menu.
Note: The Guided Mode displays suggestions of what you need to add to the chart.
4. Click **Admin > Measures > Sales > By OrderDate > Sum**.
5. Click **Measures > SalesDiscounted > By OrderDate > Sum**.
6. Click **Measures > Discount > By OrderDate > Avg**.
7. Click the **Measures** bucket to open the formatting pane.
8. Click the **Data Formatting** list item under **Sales**.
9. Click the **2 Decimals** radio button in the **Decimal Precision** section.
10. Click the **\$** radio button in the **Currency** section.
11. Click the **back** button.
12. Click the **Data Formatting** list item under **SalesDiscounted**.
13. Click the **2 Decimals** radio button in the **Decimal Precision** section.
14. Click the **\$** radio button in the **Currency** section.
15. Click the **back** button.
16. Double-click the **SalesDiscounted** measure to rename the field.
17. Type *Sales Discounted* in the field.
18. Click the **green check mark** to save.
19. Double-click the **Discount** measure to rename the **Discount** field.
20. Type *Avg Discount* in the field.
21. Click the **green check mark** to save.
22. Click the **Data Formatting** list item under **Avg Discount**.
23. Click the **% (multiply by 100)** in the **Units** section.
24. Click the **Subject Area** icon.
25. Click **Admin > Attributes > Time > Year/Month** to add an attribute to rows.

26. Click **Attributes > Products > CategoryName** to add another attribute to rows.
27. Click **Attributes > Employees > Employee Full Name** to add another attribute to columns.
Note: If necessary, drag to change the attribute order on Rows so that Year/Month is first and serves as a break by.
28. Click **Admin > Global Filter > Current Year** to filter to the Current Year.
29. Click the **Table Settings** icon to wrap the column headers.
30. Click the **Wrap Headers** button to toggle on the wrap function.
31. Click the **Measures** bucket to change the Avg Discount summary aggregation to a simple average.
32. Click the **Custom Summary** list item under the **Avg Discount** section.
33. Click the **Simple Avg** radio button.

Part 2: Set up the drill paths, including terminating drill on the time column

1. Click the **Advanced Tools** icon on the toolbar.
2. Click the **Report-Level Drilling** list item. The **Report-Level Drilling** pane displays.
3. Click the **Add Drill Path** button.
4. Type *No Drill* in the **New Drill Path** field.
5. Click the **green check mark** to save.
6. Type *Year* in the **Search columns** field.
7. Click the **Year/Month** list item.
8. Click the **No Drill** button.
9. Click the **Add Drill Path** button to add another drill path.
10. Type *Cat to Prod* in the **New Drill Path** field.
11. Click the **green check mark** to save.
12. Type *cat* in the **Search columns** field.
13. Click the **Products.CategoryName** list item.
14. Click the **Drill To** button.
15. Type *product* in the second **Search columns** field.
16. Click the **Products.ProductName** list item.
17. Click the **Hyperlink** button.
18. Type '[https://www.google.com/search?q=\[Products.ProductName\]](https://www.google.com/search?q=[Products.ProductName])' in the **Enter URL using BQL syntax** field.
19. Click the **Done** button.

Note: The drill on Year/Month has been terminated and Category Name is styled as a hyperlink. Test the drill down on Category. Notice that Product Name is not hyperlinked with the google search URL. Crosstab tables do not support hyperlink configurations. If you wish to test out the hyperlink; change this crosstab to a table, then click on the product name. To revert back to the crosstab report, click undo last a couple of times.

20. Click the **Table Formatting** (paintbrush) icon to open the **Table Formatting** pane to apply table formatting to the crosstab report.
21. Click the **GENERAL** tab.
22. Click the **color swatch** in the **Even Row Color** field to alternate row color.
23. Click the **light green color**.
24. Click the **Done** button to save.
25. Click the **Save** icon to save the report.
26. Click the **Shared** tab.
27. Type *Sales Info by Employee Crosstab* in the **Report Name** field.
28. Click the **Save** button. The title displays at the top of the **Chart Builder**.

Note: The crosstab report is very wide. When placed in a dashboard and filtered by employee, the width is significantly reduced.

Check your understanding



In Visualizer, how can you create a crosstab?

- a) Click and drag an attribute or measure into the report canvas
- b) Click C while holding Ctrl
- c) Drop an attribute or measure into the crosstab bucket
- d) Click the Change Visualization icon and choose crosstab



How do you change a column's title on a report in Visualizer?

- a) Change the name in Label Properties
- b) Double-click the column's title and change it
- c) Change the name in Column Properties
- d) Edit the name of the column in the Subject Area



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 14: Dashboard planning

Estimated time

.25 hours

Learning objectives

After completing this lesson, you will be able to use value-based design to plan your dashboards. In this lesson, you will:

- Design a display dashboard.
- Design a diagnose dashboard.
- Design a decide dashboard.

Topics

- Value based design (VBD) overview
- VBD: House of value
- Value-based dashboards
- VBD display
- VBD diagnose
- VBD decide

Value based design (VBD) overview

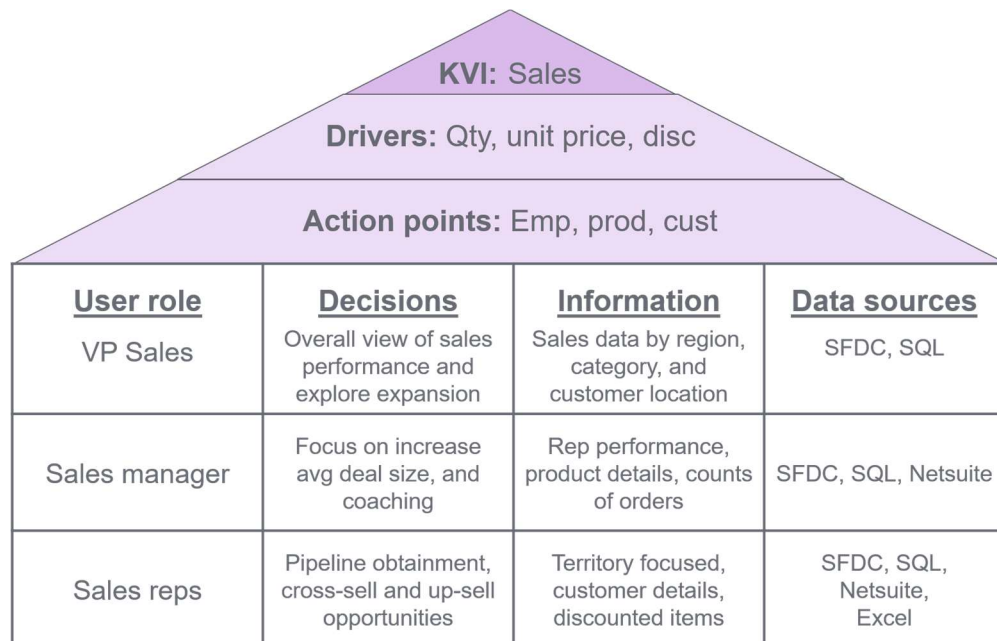
Value based design (VBD) is a philosophy for creating dashboards designed to go from data to decision in the quickest and most direct method possible. A dashboard should be generally understandable in under ten seconds. The Birst's VBD involves an approach to designing a dashboard collection that enables users to arrive at meaningful and effective business decisions quickly and with confidence.



VBD: House of value

Before starting, plan out each dashboard using VBD. Decide what information is required to empower the end users based on their roles and how it should be grouped together so every user role can make actionable decisions. The content consists of the following:

Content area	Description
Key Value Indicator (KVI)	The KVI is the top metric used to measure primary business performance for a department. Example: Sales
Drivers	The drivers are the metrics that cause the KVI to go up or down and are often components of the KVIs. Examples: Quantity, unit price
Action points	The action points are the key attributes that are usually an organizational role (who to call) and/or a step in a process (what influences what you ask them to do). Example: Employees, customers, products

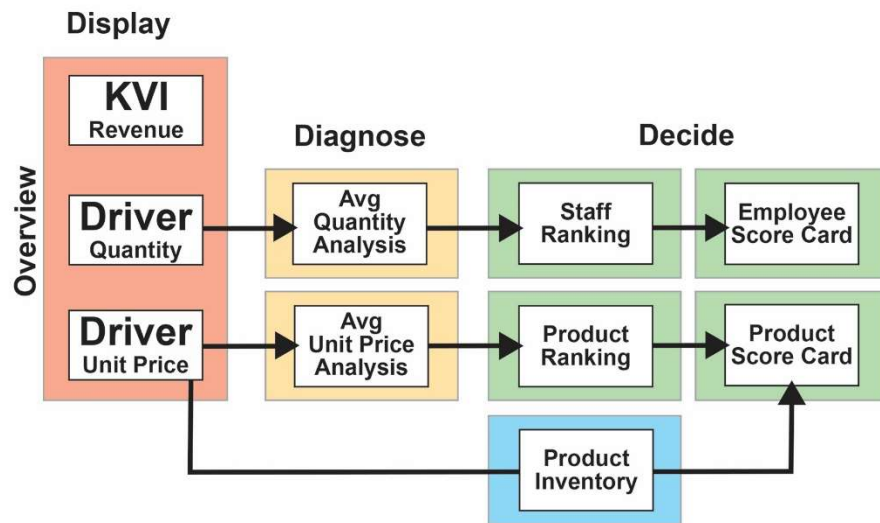


House of value example



Value-based dashboards

The layout uses the concept of VBD, a dashboard collection which takes the business users from a display page, that presents a broad overview of the business status, to diagnose pages that are topic specific and finally to decide pages which present a detailed analysis to determine what actions to take place.



Dashboard decision paths



VBD display

For a VBD display dashboard, you will want to include the key metrics and top action points a user needs to see to understand current critical trends at a glance (am I ok?). For example, the VP of Sales is hired or fired based on sales performance. He sees a spike or drop in revenue.



VBD diagnose

For a VBD diagnose dashboard, you'll want to include the factors affecting the key metrics and action points (why or why not - what caused it?). For example, the sales manager analysis reports supply facts on why that sharp change in sales occurred.



VBD decide

For a VBD decide dashboard, you'll want to include the details expanding on information on specific actions and/or people included on the diagnose dashboard so that next steps can be determined (who do I talk to?). For example, the sales manager can clearly see the detailed information about who made the sales that resulted in the change, where those sales occurred, marketing campaigns employed, regions where the change occurred, etc.

Result: The VP of Sales can now meet with the CEO and marketing company to review advertising campaigns employed, as well as with the sales team to evaluate what was done and replicate or remediate it across multiple regions or product categories.



Check your understanding



Complete the following sentence: “The _____ are the metrics that cause the KVI to go up or down and are often components of the KVs.”

- a) Indicators
- b) Action points
- c) Drivers
- d) Reports



Which of the following is an example of an action point?

- a) Quantity
- b) Sales
- c) Unit price
- d) Employees
- e) Reports



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 15: Dashboards overview

Estimated time

.25 hours

Learning objectives

After completing this lesson, you will be able to describe how to use the features and functions of the Dashboard and create a new dashboards page. In this lesson, you will:

- Identify how to access dashboards.
- Describe the anatomy of a dashboard.
- Identify the difference between the Edit and Published views.

Topics

- Accessing dashboards
- Anatomy of a dashboard
- Adding reports to dashboards
- Dashboards – report catalog
- Dashlet editing
- Editing report dashlet properties
- Test dashboard functionality

Accessing dashboards

Dashboards can be populated with reports previously built in Visualizer and or Designer. Once a catalog of reports is created, they can be added to a dashboard or a collection of dashboards. Select your space from the Home screen and click the Dashboards menu item to access the Dashboard module.

Note: Before you make a new dashboard, make sure you have the correct permissions to access the space that you want to use for the data, and permission to use the Dashboards. The space administrator sets these permissions.



Anatomy of a dashboard

If there are no dashboards created on the space, you will automatically be placed in edit mode and can start creating the dashboard. However, if this is an existing dashboard you will need to change the dashboard view to edit mode in order to make modifications and updates to the dashboard. Some of these editing features include adding key performance indicator (KPI) widgets, drill-across links, images, buttons, text boxes, and display pages from other websites.

Toolbar menu

The toolbar on the dashboard provides various functions and features to create, organize, and format the reports you add. Toolbar options include an Insert menu, Design menu, Refresh, Filters, Publish, Delete and Open. Each toolbar option is described in the following table.

Option	Description
Set Tab Order	This option allows you to define tabbing order on dashlets on a dashboard. The default tabbing order is from top left to bottom right.
Data Driven Dashboards	This option allows you to control dashboard content (make visible/hidden) based on the value of rules (columns, variables, and filters) enabling you to build a single dashboard that can dynamically display different components (views) based on data values, users, and more.
Insert	This option allows you to add main elements to your dashboard page such as; reports, KPIs, images, buttons, and webpages.
Dashboard Design	The Design menu provides ways to show or hide the dashboard title and filter cards. You can choose an auto layout dashlets based on the number of columns, which allows the capability to customize the background of the dashboard.
Refresh Dashboard	Dashboards are great tools for analyzing the state of the organization or project. However, they are not as useful if the data is stale. For this reason, the refresh rate determines how often a single dashboard refreshes its data and browser view. Multiple dashboards in a collection may update data at different rates. You can set the refresh frequency using the slider from the Refresh Dashboard icon. By default, it is disabled. Work with your admin to confirm when data gets published at a warehouse level, as this is most useful for Live Access data.
Filters	<p>To view the filters that are applied to the dashboard you click the Filters icon.</p> <p>You can enable pre-built filters on and off from this menu, and you can also create a new filter by clicking the add icon. Filters can consist of existing columns included in the data or parameters defined using BQL expressions.</p>

Option	Description
	The More options icon is used to apply a filter to all pages in the dashboard collection. You can also use it as a display filter or make it invisible.
Publish	Once you are finished making changes to your dashboard, click the Publish button to save them.
Delete	The Delete icon is used to exit out of the dashboard.
Folder	The Folder icon is used to view and or add/edit dashboard collections and the dashboard pages for the space.

Insert menu

The Insert menu enables analysts to add a wide range of things to the dashboard, such as an existing report, new report, text area, key performance indicator (KPI), image, embedded filter, button, web page or HTML link. The options are described in the following table.

Option	Description
Existing report	With the Existing report option, you can add an existing report from the report catalog.
New report	The New report option lets you open the Visualizer module to create a new report. Once finished creating the new report, you can save it to the report catalog and insert it on the dashboard without navigating out of the dashboard interface.
Text Area	You can insert a text box using the Text Area option, which can be used as a sub header for a dashboard or contextual information. Highlight the text to change font styles and colors.
KPI	You can insert a KPI widget to display the basic number of any measure or expression.
Image	You can add an image by using a previously loaded image in the report catalog loaded in the Admin module or by a secure https URL.
Embedded Filter	Embedded filters make it easy for end users to filter values directly on the dashboard. You can select an existing filter or create a new filter to add to the dashboard. When you select an existing filter, the filter is applied to all dashlets by default.

Option	Description
Button	You can insert a button with the Button option, which can be used for navigation between dashboards or link to external URLs via the Drill feature.
Web Page	You can insert a Web Page with the Web Page option; enter the desired web page in the Web Page Editor field and insert it on the dashboard with the Insert button. Note: The web page must be hosted by an https server.
HTML	To insert an HTML link, you can use the HTML option. For example, you can embed a third-party application (e.g., Twitter feed, D3 images, etc.) onto the dashboard.



Adding reports to dashboards

Existing reports

You can add existing reports to the dashboards from the insert icon or the circle icon on a new dashboard page canvas. Use the Layout mode to configure the options for automatic positioning or drag the reports along the grid for manual alignment.

New reports

You can also create a new Visualizer report directly from dashboards. Once a Visualizer report is created, click Save & Insert to add the report to the dashboard.



Dashboards – report catalog

You can add Visualizer or Designer reports from the report catalog. Navigate through the report catalogs or use the type ahead search option to identify the reports you would like to add. Selected reports display as thumbnails, which can be viewed and or removed. The Reports List also displays the columns used in the report and the type or style of report.

Note: Use the Search parameters ("faceted search") to narrow down the list of reports by creator, type and modification date.



Dashlet editing

Every Dashlet on a Dashboard contains an edit icon. Once clicked, an Edit Fan displays. Options vary depending on the dashlet type. For reports a V icon is present to edit report in visualizer instead of changing modules. Each dashlet or report on a dashboard is interactive. At the minimal each item will contain a Dashlet Properties icon that will allow modifications to be made for that specific dashlet.



Editing report dashlet properties

You can edit the following report dashlet properties:

- Title- rename or toggle off the title for the dashlet name
- Report- Change the report
- Options:
 - Enable Report Exporting : allows end users to export reports to a variety of formats for use in other presentations or documents. When enabled the Export menu displays on the dashlet.
 - Apply Prompts: Any prompted filter will apply if relevant.
 - Enable View selector: Toggle between a table and/or quick charts.
 - Description: The description displays in the published dashboard allowing context to be added to the dashlet.





Exercise 15.1: Create a display dashboard

In this exercise, you will create a display dashboard.

Before you begin:

- Ensure you are logged in to the Dashboard application.
- **Note:** Your dashboard will differ from the images shown based on the design decisions you make. Dashboard pictures are intended as examples, not as strict guidelines.

Exercise steps

Part 1: Create a dashboard

1. Click **[Your_Name]** space from the left pane on the **Spaces** menu. The **Dashboards** module menu displays.
2. Click the **Dashboards** menu item. Dashboards opens with a blank dashboard if the space has not yet had dashboards created in it.
3. Click the **New Dashboard** name to display the **Edit** tool to name the dashboard Sales Overview.
4. Type *Sales Overview* in the **Name of Dashboard** field.
5. Click the **green check mark** to save.

Part 2: Add an existing report

1. Click the **Start adding reports to this dashboard** icon on the canvas. The Report Catalog displays.
2. Click the **shared** folder.
3. Click the **Current Sales Discounted vs YAGO YrQtr** list item.
4. Click the **Sales, Disc Avg and Qty by Emp** list item.
5. Click the **Customer Sales Geomap** list item.
6. Click the **Done** button.
7. Click the **Customer Sales Geomap** (top dashlet).

Note: The Geomap dashlet displays in bold, a dashlet menu bar for customizing displays at the top, an Edit icon displays on the dashlet, scaling circles display around the dashlet for resizing and a move icon displays when the mouse hovers over the dashlet.

8. Drag the **Customer Sales Geomap** dashlet to the top right corner of the canvas.
9. Drag the **Sales, Disc Avg and Qty by Emp** dashlet to the bottom right corner of the canvas.
10. Drag the **Current Sales Discounted vs YAGO YrQtr** dashlet to the bottom left corner of the canvas. Size this dashlet and leave enough room at the top of the dashlet for KPIs.

Note: As you move the dashlets around on the canvas there is a snap to grid that helps align the dashlets. There is a dashed line at the bottom of the screen when moving dashlets around, that is a virtual page and where page scrolling begins.

11. Click the **Current Sales Discounted vs YAGO YrQtr** dashlet.
12. Click the **Legend** icon.
13. Click the **Top** list item to display the Legend at the top of the dashlet.
14. Click the **Edit** icon on the **Current Sales Discounted vs YAGO YrQtr** dashlet. A fan of options displays.
15. Click the **Edit in Visualizer** icon. The chart displays in Visualizer.
16. Click the **Chart Formatting** (paintbrush) icon to change your color palette.
17. Click the **arrow** next to the **Cool** Color Palette.
18. Click the **Impact** radio button. The chart colors change.
19. Click the **Done** button.
20. Click the **Save & Insert** button. The updated chart displays in the Dashboards module.
21. Click the **Current Sales Discounted vs YAGO YrQtr** dashlet.
22. Click the **Edit** icon.
23. Click the **Edit Dashlet Properties** icon. The **Edit Dashlet Properties** window opens.
24. Click the **Title** button to toggle the Title off.
25. Click to clear the **Enable View Selector** check box. This turns off the capability to view raw data.

Note: If you click to clear the **Enable Report Exporting** check box, this turns off the capability to export the report. For the purposes of this lesson, leave it selected.

26. Type *Check out sales!* in the **Description** field.

27. Click the **Apply** button.
28. Click the **Publish** button. Once you Publish, the dashboard saves in the Collection that displays on the top left corner, and you are in end user view.



Exercise 15.2: Explore end user functions

In this exercise, you will explore end user functions.

Before you begin:

- Ensure you have completed Exercise 15.1 because it provides data or configurations for this exercise.
- Ensure you are logged in to the Dashboards module, continuing from exercise 15.1.

Exercise steps

1. Right-click the **Current Sales Discounted vs YAGO YrQtr** dashlet from the Sales Overview dashboard Edit mode. A menu displays with **Visual Filter** and Drill on **Year/Quarter** list items.
2. Click out and hover over the dashlet.
3. Click the **Maximize** icon on the **Current Sales Discounted vs YAGO YrQtr** dashlet. The dashlet expands to full size.
4. Click the **Minimize** icon on the **Current Sales Discounted vs YAGO YrQtr** dashlet. The dashlet minimizes to its previous size.
5. Click the **down arrow** (Dashlet Actions) icon on the **Current Sales Discounted vs YAGO YrQtr** dashlet. The **Dashlet Actions** menu displays.

Note: The menu options that display depend on permissions. The double arrows indicate that the Admin sets up the permissions through their security settings.

6. Click the **Explore in Visualizer** list item. The **Current Sales Discounted vs YAGO YrQtr** chart displays in **Visualizer**.

Note: The end users can make changes to the chart. However, they can only export or save the chart as a new chart; the original chart cannot be changed through the **Explore in Visualizer** option.

7. Click the **Exit (red X)** icon. The chart displays as previously in the Dashboards module.
8. Click the **Description** icon on the **Current Sales Discounted vs YAGO YrQtr** dashlet. The description entered previously displays.
9. Click the **X** (close) icon.
10. Click the **down arrow** icon on the **Sales, Disc Avg and Qty by Emp** dashlet. The Dashlet Actions menu displays with additional options, including **View Selector**, **Export As** and **Create Notification**.
11. Click the **View Selector** list item. A menu displays with view options.
12. Click the **Table** icon. The chart updates to show the raw data in table form.
13. Click the **down arrow** icon on the **Sales, Disc Avg and Qty by Emp** dashlet.
14. Click the **View Selector** list item.

15. Click the **Bubble** icon. The chart updates to show the original bubble chart dashlet.
16. Click the **down arrow** icon on the **Sales, Disc Avg and Qty by Emp** dashlet.
17. Click the **Export As** list item. A menu displays with export options.
18. Click the **Create Notification** list item on the **Dashlet Actions** menu. The **Create Notification** pane displays.

Note: On the **Create Notification** pane, you can name the Notification, enter delivery recipients (use a semi-colon for multiple emails), enter a Title, Message, schedule the recurrence and add the attachment in various formats. Once the notification is saved, it displays in the **Notifications** icon on the top toolbar. To send a notification for the full dashboard page you can select the notification icon from the top tool bar and clicking the plus sign.

19. Click the **Edit** button on the top toolbar.

Check your understanding



All dashlets contain the same editing features on the edit fan.

- a) True
- b) False



The Publish button both saves the dashboard and makes it available to users.

- a) True
- b) False



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 16: Enhance the display dashboard

Estimated time

.50 hours

Learning objectives

After completing this lesson, you will be able to enhance the display dashboard. In this lesson, you will:

- Build KPIs.
- Import images.
- Add and arrange reports.
- Add and explore filters.

Topics

- KPI
- Text Area
- Images
- Filters

KPI

A Key Performance Indicator (KPI) widget displays the basic number of any measure or expression as a dashlet on a dashboard. It can include a title, an icon indicator, and chart based on your configuration.

Access the KPI Builder from the Insert icon. The KPI Builder search bar is used to search for an existing measure. Or, you can also use the brackets to create a custom expression. The measure can be toggled on and off once selected. Also, you can change the aggregation type and date type. **Note:** The default date type is the first name alphabetically.

The formatting of the KPI displays in the preview area to the left, where you can change the KPI title from the original measure name to a title that is clearer for end users. Units, currency symbols, and decimal precision can be applied to round the measure to fit the anticipated size of the KPI dashlet. The style settings format the title font, color and size. Color and shape indicators can be applied to the KPI using a measure.



Text Area

You can insert a text box using the Text Area option, to be used as a sub header for a dashboard or contextual information.

You can highlight the text to change font styles and colors, customize the dashlet properties, modify the alignment, or delete the text entirely.



Images

To insert an image, you would use the Image option, which can increase visual impact. This includes logos or other image types. Note that all images must be hosted by an https server or included in the Birst report catalog.

The Image Editor is used to browse the report catalog for an image or paste the URL in the search field. The selected image displays in the Image Editor preview area.



Filters

You can create filters from the Filter icon, which can be utilized globally, across the entire space and used across multiple pages. When building a standard filter, end users can access and select filters from the filter drawer located at the top. A standard filter displays as a filter card. An embedded filter is embedded on the dashboard page.

Creating basic filters

The basic filters are described in the following table.

Filter type	Description
Basic mode	You can specify a default value and a custom expression using the basic mode filter type. By default, regular filters are query-based. Depending on the column type it can also be a range or customized under Custom List.
Query-based	Users can pick from values provided by the system, specify a default value or values, or a custom expression using the query-based filter.
Custom list- or range-based	With a Custom list- or range-based filter, users can pick from a list (text-based) or range (numeric) values that you define. This is helpful if you want to show different labels. Naturally, these values must exist in the data source. For a list you specify whether it's a radio button or check box, enter the labels and values, and click the defaults. For a range you specify the maximum number, minimum number, and a default number.

Creating advanced filters

To create advanced filters, you must change the default filter type and apply operators. Filter types include:

- **Check List:** Users choose from a list of defined values.
- **Slider:** Users can move a slider to narrow the filter results; supports: Date, date time and integer.
- **Value:** Users type a value that would match a filter value.
- **Date Picker:** Calendar date picker filters are supported for date data types; cannot be embedded

Operators: You can change operators from the drop-down menu. You can lock the operator to force the filter use.

More options include:

- Use a variable as a default value
- Apply to all pages
- Display filter
- Invisible
- Make mandatory





Exercise 16.1: Enhance the display dashboard

In this exercise, you will enhance the display dashboard.

Before you begin:

- Ensure you have completed Exercise 15.1 and 15.2 because it provides data or configurations for this exercise.

Exercise steps

Part 1: Add KPIs to the dashboard

1. Click the **Insert** icon on the toolbar to add a KPI for Sales.
2. Click the **KPI** list item. The **KPI Builder** displays.
3. Click the **Measure** tab to set the KPI to the Measure Sales.
4. Type *Sales* in the search field. All measures with Sales in the name display.
5. Click the **Sales** radio button.
6. Click the **Date Type** list item to change the Date Type to By OrderDate. The **Date Type** pane displays.
7. Click the **By OrderDate** radio button.

Part 2: Format the KPIs

Note: Change the Sales figure to include a currency symbol, set Decimal Precision to zero (0) and Units to M.

1. Click the **Data Formatting** list item on the **Measure** tab.
2. Click the **M (divide by 1,000,000)** radio button in the **Units** section.
3. Click the **0 Decimal** radio button in the **Decimal Precision** section.
4. Click the **\$** radio button in the **Currency** section.
5. Click **Back** to return to the **Measure** menu.

Notes:

Do **not** click the Save button yet. Complete all the formatting steps in the KPI before saving. Saving closes the KPI builder.

If you close the KPI before completing, you can reopen the editing features by clicking the KPI to display the Edit fan and then clicking the edit (pencil) icon to continue.

6. Click the **Style Settings** list item on the **Measure** tab to change the color and/or font of the KPI Measure.

7. Click the **Font Face** drop-down arrow to change the font and/or font color.
8. Click the **Trebuchet MS** list item (or a desired font).
9. Click the **Font Color** to open the color picker.
10. Click the **burgundy** color swatch (or a desired color).
Note: You can change the color with the eyedropper icon or type a hex code in the color field.
11. Click the **Title** tab.
Note: The title tab allows you to make some edits to the KPI title such as name and font color and style, but it is toggled off by default. Once you save the KPI, the dashlet title based on the measure name displays at the top left corner of the KP.
12. Click the **Title** button to toggle the title on.
13. Click the **Indicator** tab to add an indicator to the KPI.
14. Click the **Select Measure** list item.
15. Type *Sales* in the **search** field to search for the **Sales** measure.
16. Click the **Sales** radio button.
17. Click the **Date Type** list item to change the Date Type to By OrderDate. The **Date Type** pane displays.
18. Click the **By OrderDate** radio button.
19. Click the **Conditional Formatting** list item.
20. Click the **two condition** button.
21. Type *1,000,000* in the **upper condition** field.
22. Type *500,000* in the **lower condition** field.

Part 3: Change the indicators for each condition

1. Click the **shape** drop-down arrow for the **upper condition**.
2. Click the **up-arrowhead** shape.
3. Click the **shape** drop-down arrow for the **middle condition**.
4. Click the **diamond** shape.
5. Click the **shape** drop-down arrow for the **lower condition**.
6. Click the **down-arrowhead** shape.
7. Click **Back** to return to the **Indicator** menu.
8. Click the **Save** button. The **Sales KPI** dashlet is added to the middle of the dashboard.
9. Click the **Sales KPI** dashlet.
10. Drag the **Sales KPI** dashlet to the top-left corner of the canvas.
11. Click the **Insert** icon on the toolbar to add a Quantity KPI to the dashboard.
12. Click the **KPI** list item. The **KPI Builder** displays.
13. Click the **Measure** tab to set the KPI to the Measure **Avg Quantity**.
14. Type *Quantity* in the search field.
15. Click the **Quantity** radio button.

16. Click the **Aggregation** list item.
17. Click the **Avg** radio button.
18. Click the **Date Type** list item to change the Date Type to By OrderDate. The **Date Type** pane displays.
19. Click the **By OrderDate** radio button.
20. Click the **Data Formatting** list item.
21. Click the **0 Decimal** radio button in the **Decimal Precision** section.
22. Click the **Back** button.
23. Click the **Chart** tab.
24. Click the **Select Attribute** list item.
25. Type *Year* in the search field to search for Year/Quarter.
26. Click the **Year/Quarter** radio button.
27. Click the **Line** Chart Type.
28. Click the **Save** button.
29. Click the **Quantity KPI** dashlet.
30. Drag the **Quantity KPI** dashlet to the right of the Sales KPI dashlet.

Part 4: Resize and arrange the KPIs along the top of the dashboard

1. Click the **Sales** KPI to display the **resize handles** on the corners.
2. Drag the **handles** in or out at the corners or sides to change the KPI's shape.
3. Use the multi-headed Move tool to reposition the KPIs. Click the **Sales** KPI to display the **Move** tool.
4. Drag the **Sales** KPI to the desired location.
Note: The KPI title displays twice: Centered over the measure, and also at the top-left corner. Since you don't need the title to display twice, decide which position you prefer.
5. Click the center of the **Sales KPI** to display the **Edit** button to remove the top-left corner title.
6. Click the **Edit** button to open the **Edit fan**.
7. Click the **Edit Dashlet Properties** icon. The **Edit Dashlet Properties** window opens.
8. Click the **Title** button to toggle the **Title** off.
9. Click the **Apply** button to save the changes.

Note: You can also use this editing option to change the name of a KPI or report from the default.

Note: At this point, you can play with the formatting of your dashlets on the dashboard. When you click a KPI, a secondary formatting menu displays along the top of the dashboard. From here you can make changes to the layer order of reports (dashlets), as well as apply background and border colors, change border, border line weight, add padding, add drop shadows and dashlet title changes.

Part 5: Add an image to the dashboard

1. Click the **Insert** icon to add an image to the dashboard.
2. Click the **Image** list item. The **Image Editor** window opens.

3. Click the **browse** folder icon to search for an image.
4. Click the **shared** folder.
5. Click the **SE Logo** list item.
6. Click the **Done** button.
7. Click the **Insert** button. The image displays in the center of the dashboard.
8. Click the **image**.
9. Drag the **handles** in at the corners or make the image smaller.
10. Drag the **image** to the top-right corner of the **Customer Sales Geomap** dashlet.
11. Click the **background color** icon from the dashlet formatting pane.
12. Click the **transparent** list item.
13. Click the **Border Color** icon.
14. Click the **transparent** list item.

Part 6: Add Filters

1. Click the **Filters** icon to open the **Filter** pane from the **Edit** mode.
2. Click the **Manage** button to create a new filter.
3. Click the **Create new filter (+)** icon.
4. Click the **Filter** list item.
5. Type *Year* in the **Filter On** field.
6. Click the **Time.Year** list item.

Note: New filters are saved with the measure or attribute name by default unless you rename them.

7. Type *Current* in front of *Year* in the **Create filter** field to rename.
8. Click the **green check mark** to save.
9. Click the **More options** icon in the lower-left corner.
10. Click in the **Search variables** field.
11. Click the **CurrentYear** list item.
12. Click the **Save filter** button.

Part 7: Enable the filter

1. Click to select the **Current Year** filter check box. The box activates blue.
Note: Indicators display on the bottom right of each dashlet. You can click a dashlet to disable the filter and click it again to re-enable it.
2. Click the **Done** button.
3. Click the **Filter** icon to close the **Filter** pane.
4. Click the **Publish** button to save the dashboard. The dashboard updates with your changes.

Check your understanding



How is an indicator added to the KPI?

- a) Click Indicator on the Insert menu.
- b) In the KPI dialog box, click conditional formatting and set up the conditions.
- c) Create a text box.
- d) All of the above.



Complete the following sentence: “Changes made to Visualizer charts when using the Explore in Visualizer feature of a published dashboard _____.”

- a) Can be saved and will overwrite the existing report on the dashboard
- b) Cannot be saved
- c) Can be saved as but will not overwrite the existing report
- d) Cannot be saved until the existing report is saved

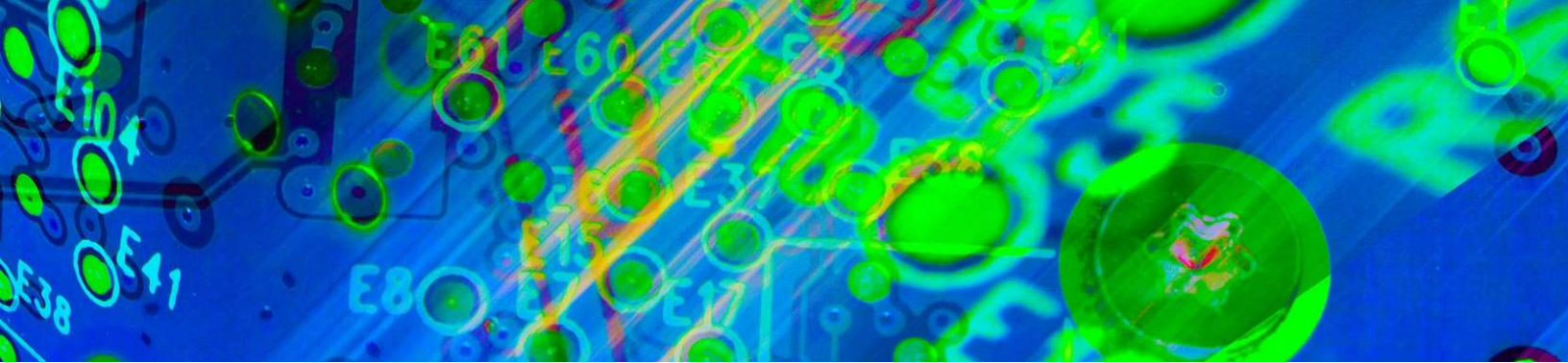


Dashlets can be scheduled for email delivery to an individual who does not have a Birst user account.

- a) True
- b) False



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 17: Create a diagnose dashboard

Estimated time

.75 hours

Learning objectives

After completing this lesson, you will be able to build a diagnose dashboard and create a dashboard collection to hold completed dashboards. In this lesson, you will:

- Create a new dashboard.
- Experiment with dashboard collection options.
- Arrange reports using Column Layout.
- Add background images and colors.
- Add existing charts.
- Add an embedded filter.

Topics

- Dashboard collections and pages
- Dashboard design

Dashboard collections and pages

Collections are used to organize related dashboards. Use the Dashboard icon to open the Dashboard drawer. There are several options for dashboard collections, including:

- Create a new Collection
- Create a new Dashboard in a Collection
- Clone
- Delete
- Make Personal

You can rearrange collections and/or dashboards by dragging the handle on the left. The first dashboard listed in the first collection will default as the dashboard displayed.



Dashboard design

There are several ways you can design the dashboard.

Option	Description
Design menu	You can toggle off the dashboard title if it's not needed with the Display Title option. You can also toggle on and off the display filter card option.
Layout option	You can use the Layout option from the Design menu to quickly change the number of columns to arrange the reports.
Dashboard Background	You can add a background image or color to the dashboard using the Dashboard Background option. Keep in mind the image or color you add should not compete with the reports on the dashboard. You can add an image from the report catalog, add an https secure image or add a background fill color using the Fill icon.





Exercise 17.1: Create a diagnose dashboard

In this exercise, you will create a diagnose dashboard.

Before you begin:

- Ensure you are logged in to the Dashboards module and in Edit mode.

Exercise steps

Part 1: Create a new dashboard

1. Click the **Folder** icon at the top-right corner to open the **Dashboards** pane.
2. Hover your mouse over the **Collection** list item.
3. Click the **Create new dashboard** icon. The **New Dashboard** page displays.
4. Click the **New Dashboard** name to display the **Edit** tool.
5. Type *Employee Performance* in the **Name of Dashboard** field.
6. Click the **green check mark** to save.

7. Click the **Insert** icon on the toolbar.
8. Click the **Existing Report** list item. The **Report Catalog** displays.
9. Click the **shared** folder.
10. Click the **Avg Sales by Employee Column Selector** list item.
11. Click the **Employee PTO Days** list item.
12. Click the **Sales Info by Employee Crosstab** list item.
13. Click the **Current Month Sales** list item.
14. Click the **Done** button.

Part 2: Use Column Layout to arrange reports

1. Click the **Dashboard design** icon on the toolbar.
2. Click the **Layout** list item.
3. Click the **2 Column** list item. The dashboard displays the four reports in two rows of two reports each.
4. Click the **bottom right** dashlet to adjust the width of the bottom right dashlet to make room for a filter.
5. Drag the bottom right **move handles** to the left to make room for a filter (1-2 inches).

Part 3: Add background colors

1. Click the **Dashboard design** icon on the toolbar.
2. Click the **Dashboard Background** list item.
3. Click the **Dashboard Background Color** icon on the toolbar (top left).
4. Click the **green** color swatch.
5. Click the **folder** icon next to the **Browse Catalog or Paste an image URL** field.
6. Click the **World Map** list item from the shared folder.
7. Click the **Done** button.

Next, adjust the transparency of the image to reduce contrast, providing a more neutral background for the dashlets.

8. Click the **slider** in the background formatting toolbar and set transparency to **50**.
9. Click the **Filters** icon on the toolbar to apply an embedded filter to the dashboard.
10. Click the **Manage** button to create a new filter.
11. Click the **Create new filter (+)** icon.
12. Click the **Filter** list item.
13. Type *Employee Full Name* in the **Filter On** field.
14. Click the **Employees.Employee Full Name** list item. The results display.
15. Click the **Save filter** button.
16. Click to select the **Employee Full Name** filter check box to enable the filter.
17. Drag the **Employee Full Name** filter to the open area on the canvas.

18. Click the **Done** button.
19. Click the **Filter** icon to close the **Filter** pane.
20. Click the **Employee Full Name** filter and drag the **move handles** as necessary to adjust the size and position.
21. Click the **Publish** button to save the dashboard. The dashboard updates with your changes.

Additional end user dashboard functionality

The toolbar at the top of each dashboard page provides several methods for navigating and sharing the dashboard as described in the following table.

Option	Description
Copy URL widget	This option allows a user to copy the exact URL from the dashboard and email it to other space users to share the information.
Notifications	This option can be used to set up and share updates to the dashboard with other space users. The report can be scheduled to repeat at various intervals and will be emailed to users at the time selected.
Log	Clicking a log opens a new browser window that shows all query activity that occurred when the dashboard loads. This can be helpful in troubleshooting performance issues, though most business users will not use this tool regularly.
Export	Dashboards can be exported as basic PDFs or PDFs with details, including the name of the collection, the dashlet, applied filters, and the timestamp. This is useful for sharing dashboards with users that do not have access to the space itself.
Bookmark	<p>You can save a customized version of the dashboard page by bookmarking it. A bookmark saves a filter setting, column and view selections, added and removed columns, and report layout changes. A bookmark does not save the result set.</p> <p>Note: Bookmarks must be enabled in the dashboard global properties for dashboard users to be able to create bookmarks.</p>
Filter	This option allows users to see which filters are available for the dashboard. These filters are created by the analyst when the dashboard is built and can be toggled on and off by end users. Visual filters display in the number badge to the right of the icon.
Reset	The Reset option, when clicked, refreshes the dashboard page and each dashlet re-renders. This resets variables that have been updated by prompts back to their default values.
Collections	To open the collection drawer, you click Collections. Individual dashboards display within each collection when the arrow to the left of the collection is clicked. The current dashboard in a collection displays in blue.



Exercise 17.2: Explore end user functions for a diagnose dashboard

In this exercise, you will explore end user functions for a diagnose dashboard, creating a bookmark for sales reps so that you do not have to filter in the future.

Before you begin:

- Ensure you have completed Exercise 17.1 because it provides data or configurations for this exercise.
- Ensure you are logged in to the Dashboards module, continuing from exercise 17.1.

Exercise steps

1. Click to select the **Alex Chu** check box on the **Employee Full Name** dashlet filter.
2. Click to select the **Andrew Fuller** check box on the **Employee Full Name** dashlet filter.
3. Click to select the **Anne Dodsworth** draw check box on the **Employee Full Name** dashlet filter.
4. Click the **Bookmarks** icon on the toolbar. The **Bookmarks** pane displays.
5. Click the **Create Bookmark (+)** icon.
6. Type *My reps* in the **Bookmark** field.
7. Click the **green check mark** to save.
8. Click the **Bookmarks** icon on the toolbar to close the **Bookmarks** pane.
9. Click the **Reset** icon on the toolbar. The dashboard displays to its original view with no filters selected.
10. Click the **Bookmarks** icon.
11. Click the **My reps** list item. The dashboard displays filtered with reps you selected in the Bookmark.
12. Click the **Copy dashboard link** icon on the toolbar. The **Copy Bookmark URL** window opens.
13. Click the **Copy URL** button. This allows you to share the dashboard view with other users that have access to it, with filters applied.
14. Click the **Export** icon on the toolbar. The **Export** menu displays.
15. Click the **Export** button to toggle the **Export** function on; this will include filters and dashboard details at the time of exporting.

Check your understanding



Dashlets can be scheduled for email delivery to an individual who does not have a Birst user account.

- c) True
- d) False



Match each of the following toolbar items with the description through which it is defined. The possible items are: **Copy URL widget, Notifications, Log, Filter, Reset, Bookmark.**



Item to define	Screen
This option allows a user to copy the exact URL from the dashboard and email it to other space users.	Matching answer
This option can be used to set up and share updates to the dashboard with other space users.	Matching answer
This option opens a new browser window that shows all query activity that occurred when the dashboard loads.	Matching answer
This option allows users to see which filters are available for the dashboard.	Matching answer
This option allows users to save a customized version of the dashboard page.	Matching answer
This option refreshes the dashboard page and each dashlet re-renders.	Matching answer



Refer to [Appendix B](#) for answers to the check your understanding questions.



Lesson 18: Drill across

Estimated time

.25 hours

Learning objectives

After completing this lesson, you will be able to apply drill navigation with and without passing filter parameters. In this lesson, you will:

- Configure a navigation drill on a button.
- Configure a navigation drill on a report that will include a filter parameter.
- Describe dashboard feature functionalities.

Topics

- Drill across
- Additional features

Drill across

A drill across connects a chart, table, button, KPI and more with another dashboard page. To create drill-across links, the source and target dashboards must be completed, and any filters or parameters that you want to pass from one to the other must be in place. Here are some considerations for using drill-across links:

- Drill-across links cannot go across spaces.
- Text areas and embedded websites cannot use a drill-across link.
- Drill-across links can pass filters or conditional display configurations as parameters.

End users can right-click a dashlet to choose between a drill across at dashboard level or drill down into the report.

Note: Drill across configurations for designer reports must be set on the report in Designer from the column properties window.

Passing parameters with drill across

When passing filters, make sure that the filter value being passed is compatible between the source and the target. Only one value can be passed from a filter. If the target requires two values, such as for a BETWEEN operator, the target dashboard will not be filtered correctly.

Chart reports can also pass column values.

- For links that pass the current value of a chart or table column, make sure the target dashboard has a filter on the same column.
- For links that will pass parameters, such as buttons, make sure that the target dashboard has a filter or conditional display setting that matches the parameter.





Exercise 18.1: Configure and test drill across with button and report

In this exercise, you will configure and test drill across with button and report.

Before you begin:

- Ensure you have completed Exercise 17.1 because it provides data or configurations for this exercise.
- Ensure you are logged in to the Dashboards module, in Publish mode.

Exercise steps

1. Click the **Employee Performance** dashboard on the top left. The **Dashboards** menu displays.

2. Click the **Sales Overview** dashboard list item.
3. Click the **Edit** button on the toolbar.
4. Click the **Insert** icon on the toolbar.
5. Click the **Button** list item. A button displays on the dashboard.
6. Type *Employee Performance* in the button.
7. Click **outside** of the button for the text to finalize.
8. Click the **Employee Performance** button.
9. Drag the **Employee Performance** button over the title of the **Sales, Disc Avg and Qty by Emp** dashlet.
10. Drag the **right move handles** of the **Employee Performance** button to match the width of the **Sales, Disc Avg and Qty by Emp** dashlet so that the button lays on top of the **Sales, Disc Avg and Qty by Emp** dashlet title.
11. Click the **Edit** icon on the **Employee Performance** button. The **Edit** fan displays.
12. Click the **Drill Across** icon. The **Drill Across** window opens.
13. Click the **Employee Performance** radio button in the **Collection** section.
14. Click the **Apply** button.
15. Click the **Publish** button to save the dashboard.
16. Click the **Employee Performance** button on the dashboard to test the functionality. The **Employee Performance** dashboard opens.
17. Click the **Employee Performance** dashboard on the top left to navigate back to the Sales Overview dashboard. The **Dashboards** menu displays.
18. Click the **Sales Overview** dashboard list item. The **Sales Overview** dashboard displays.

Note: The Column names on the Employee Performance bubble chart are filtered by Employee Full Name. This indicates a successful parameter passing on the drill across, meaning the data is filtered on the embedded filter of the dashboard to which it is linked.

19. Click the **Edit** button on the toolbar.
20. Click the **Employee Performance** dashlet (**Sales, Disc Avg and Qty by Emp**).
21. Click the **Edit** icon. The **Edit** fan displays.
22. Click the **Drill Across** icon. The **Drill Across** window opens.
23. Click the **Employee Performance** radio button in the **Collection** section.

Note: Linked columns now displays on the right.

24. Click the **Apply** button.
25. Click the **Publish** button to save the dashboard.
26. Click a **data point** (e.g., **Alex Chu**) on the **Employee Performance** dashlet. The dashboard filters on the employee you selected.

Note: The filter displays on the top-left corner as a filter card.

Additional features

Logs

Logs are used for troubleshooting. For example, if you need to submit a support ticket to your IT department, they may request access to the Logs to see what went wrong behind-the-scenes. You can access the queries and raw data from this feature. Some troubleshooting questions include: What queries were run to render the dashboard? Did the queries run against the cache or against the database? How long did it take to get results? You can also access the queries and raw data from this feature.

In Log History you can:

- Set a start and end date for the time frame of the logs you want to view.
- Sort by:
 - Timestamp: newest to oldest or vice versa.
 - Source: what is tracked in the logs, such as a Visualizer report, KPI, etc.
 - Runtime: the duration in milliseconds of how long it took the submitted report query to return results.
 - Cache Hit: whether or not the query was run against the cache, or against the database. In some cases, the report or filter was changed, and those results are in cache. Subsequent queries may be executed against the cached results.
- Search by type of source or report name.
- View the BQL query definition.
- View the raw DEBUG and INFO log files.
- Refresh the log list to see the most recent logs.

Refresh rates on a page

Use the Refresh function within Edit mode to set the data to refresh at an interval, e.g., every two minutes. The data will refresh to the specified time set up. Once in Publish mode, a countdown displays indicating the data will refresh in that time frame.

Data driven dashboards

Data driven dashboards is a way to control the dashboard content using conditions. You can control what will be displayed on your dashboard. You can add a condition for columns, variables, or existing filters. For example, if you want a dashlet to display, such as an image of a dairy product, you can create a condition on the category name column for when the field name is matches the image, it will display on the dashboard.

Themes

If your organization has a particular color schema, you can customize the look and feel of the Dashboards module using the Themes function located on the main menu.



Check your understanding



A drill across connects a chart, table, button or KPI with another dashboard page.

- a) True
- b) False



Refer to [Appendix B](#) for answers to the check your understanding questions.



Course summary

Estimated time

16 hours

Learning objectives

Now that you have completed this course, you should be able to:

- Describe the Designer module and its features and functions.
- Explain how to create a banded report.
- Describe and apply Birst Query Language (BQL).
- Create a chart using various charting features.
- Create a subreport to embed in an existing report.
- Embed the subreport into the existing banded report.
- Create and distribute individualized reports by audience needs.
- Describe the Visualizer module.
- Use Visualizer features and formatting to create a chart.
- Create several charts using different chart types and/or measures in multiple ways.
- Create geomaps and use different layer types.
- Create a column selector chart then preview it using advanced tools.
- Use tables and crosstabs in Visualizer.
- Use value-based design to plan your dashboards.
- Describe how to use the features and functions of the Dashboard and create a new dashboards page.
- Enhance the display dashboard.
- Build a diagnose dashboard and create a dashboard collection to hold completed dashboards.
- Apply drill navigation with and without passing filter parameters.

Topics

- Course review

Course review



Adding a group to a banded report in Designer adds how many bands?

- a) 2
- b) 3
- c) 4
- d) 6



How do you add a layer to a chart in Visualizer?

- a) Add a second chart to the report
- b) With two or more measures in the measure bucket, click the chart icon beside one of the measures and change the chart type
- c) Click a quick chart
- d) Open an existing report with a chart already built into it and click the "Add" button



How do you remove a chart in Visualizer?

- a) Click the chart and press the Delete button
- b) Click the paintbrush and select remove
- c) Cannot remove a chart or table in Visualizer
- d) Click the chart and select remove



The Top N feature in Visualizer:

- a) Ranks the data in your report
- b) Sorts the columns in your report
- c) Allows a report designer to limit the number of rows that display when creating reports
- d) Shows you the highest value in a measure column



How do you change the color of the dashboard background?

- a) Click the navigation drawer, choose Themes, and modify the color
- b) Choose dashboard properties

- c) Choose Color from the Insert menu
- d) None of the above



How is access to dashboards restricted?

- a) Administrator moves the collection to a folder with restricted access
- b) Mark dashboard as invisible
- c) Mark as personal
- d) All of the above



Refer to [Appendix B](#) for answers to the course review questions.



Appendices

The following are included in this section:

- Appendix A: User accounts
- Appendix B: Check your understanding (CYU) answers

Appendix A: User accounts

Your instructor will assign you a student user ID from the table listed below to use for class exercises.

Note: If you are taking this course as SDL, refer to the Training Desktop Login Instructions on the Lab On Demand screen.

Course Name/Code – Birst: Foundation for Analysts (01_0920760_IEN0103_BBI)		
Training Environment entry point (VM)		
https://login.bws.birst.com/Login.aspx or https://app2103.bws.birst.com/login.html		
Application	User name	Password
Instructor login (for course demos): Birst	instructorXX@class.com	tr@ining
Student logins (for course exercises): Birst	studentXX@class.com	tr@ining
	studentXX@class.com	tr@ining
	studentXX@class.com	tr@ining
	studentXX@class.com	tr@ining
	studentXX@class.com	tr@ining
	studentXX@class.com	tr@ining
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	studentXX@class.com	tr@ining
	studentXX@class.com	tr@ining
	studentXX@class.com	tr@ining
	studentXX@class.com	tr@ining

Appendix B: Check your understanding answers

This section provides the answers to the questions found at the end of each lesson.

Lesson 1: Designer overview



Designer creates highly formatted reports.

- a) True
- b) False



You can only filter on a column that is actively on the report.

- a) True
- b) False

Lesson 2: Banded reports



How do you access truncated columns when working in Layout mode?

- a) Use a pivot table
- b) Open the Report Properties window
- c) Use Report Page Layout to change page size
- d) Delete columns in results mode



Aggregation on measures can be done on Group Headers and Footers.

- a) True
- b) False



The row level query of the report occurs on the Detail band.

- a) True
- b) False

Lesson 3: Birst Query Language (BQL)



In BQL format, logical column names are always inside of brackets [] and are case, space, and punctuation specific.

- a) True
- b) False



In the Expression Builder, what is the way to save and reuse an expression created?

- a) Make Global
- b) Display sorting
- c) Ascending sorting
- d) Display Filter

Lesson 4: Designer chart creation



Charts can be created either using the data from the report you are currently on or data from a different Designer report.

- a) True
- b) False



How do you access charts in Designer?

- a) Click the Add Entity icon on a band
- b) Access Report Settings
- c) Click the Filters icon on the toolbar
- d) Click the sort icon on the toolbar

Lesson 5: Creating subreports



The steps for configuring a subreport display below in the wrong order. Reorder the steps from 1-5 to reflect the correct sequence.



Adjust chart properties to accommodate band placement	4
Hide the table	3
Create a basic chart	1
Adjust report page layout to accommodate band placement	5
Add a prompted filter to pass parameters	2



Any report can act as a container report by adding another report (subreport) into one of its bands.

- a) True
- b) False

Lesson 6: Embed subreport into the container report



In Layout mode, if your subreport is too big to fit in your target band, what should you do?

- a) Expand the height of the band by going to Report Settings > Band Properties or drag band height.
- b) Resize the subreport chart within the report.
- c) Put the chart into a different band in Layout mode.
- d) a and/or b.



When a subreport is embedded into another report, the main report is then referred to as the container report.

- a) True
- b) False

Lesson 7: Bursting reports



Which of the following is not needed to burst a report?

- a) Content report
- b) Distribution report
- c) Ledger report
- d) Delivery schedule

Lesson 8: Visualizer overview



Which of the following is a way to apply a filter to a Visualizer report?

- a) Click the paintbrush icon and select the filter option
- b) Right-click the measure in the chart or table and select filter
- c) Drag the attribute or measure into the filter bucket
- d) All of the above



Expressions can be marked as Global to be saved to a Subject Area for future use on other reports.

- a) True
- b) False

Lesson 9: Chart creation in Visualizer



In Visualizer, how do you display values in a chart?

- a) Click the paintbrush icon, click Display Values, and toggle the switch to on
- b) Click the query icon and add display values to the end of the expression
- c) Click the Change Visualization icon and click chart with display values
- d) Click the Chart Settings icon and toggle on display values



Which of the following describes conditional formatting?

- a) Only shows a column if it meets a specified condition
- b) Applies format changes to columns based on specified conditions
- c) Is applied through the expression editor
- d) Is accessed by clicking items in a chart or table

Lesson 10: Creating complex charts



Which four of the following are charts in Visualizer?

- a) Bubble charts
- b) Heatmap charts
- c) Bar charts
- d) Column charts
- e) Global charts
- f) Graph charts

Lesson 11: Geomaps



To create a geomap, one geoattribute and one measure is required.

- a) True
- b) False



Custom geomaps are supported using the Keyhole Markup Language (KML) format.

- a) True
- b) False

Lesson 12: Using column selectors



You can access the column selectors functionality from the Advanced Tools menu.

- a) True
- b) False



Column selectors work on both graphical reports and tables.

- a) True
- b) False

Lesson 13: Tables and crosstabs



In Visualizer, how can you create a crosstab?

- a) Click and drag an attribute or measure into the report canvas
- b) Click C while holding Ctrl
- c) Drop an attribute or measure into the crosstab bucket
- d) Click the Change Visualization icon and choose crosstab



How do you change a column's title on a report in Visualizer?

- a) Change the name in Label Properties
- b) Double-click the column's title and change it
- c) Change the name in Column Properties
- d) Edit the name of the column in the Subject Area

Lesson 14: Dashboard planning



Complete the following sentence: "The _____ are the metrics that cause the KVI to go up or down and are often components of the KVIs."

- a) Indicators
- b) Action points
- c) Drivers
- d) Reports



Which of the following is an example of an action point?

- a) Quantity
- b) Sales
- c) Unit price
- d) Employees
- e) Reports

Lesson 15: Dashboards overview



All dashlets contain the same editing features on the edit fan.

- a) True
- b) False



The Publish button both saves the dashboard and makes it available to users.

- a) True
- b) False

Lesson 16: Enhance the display dashboard



How is an indicator added to the KPI?

- a) Click Indicator on the Insert menu.
- b) In the KPI dialog box, click conditional formatting and set up the conditions.
- c) Create a text box.
- d) All of the above.



Complete the following sentence: “Changes made to Visualizer charts when using the Explore in Visualizer feature of a published dashboard _____.”

- a) Can be saved and will overwrite the existing report on the dashboard
- b) Cannot be saved
- c) Can be saved as but will not overwrite the existing report
- d) Cannot be saved until the existing report is saved



Dashlets can be scheduled for email delivery to an individual who does not have a Birst user account.

- a) True
- b) False

Lesson 17: Create a diagnose dashboard



Dashlets can be scheduled for email delivery to an individual who does not have a Birst user account.

- a) True
- b) False



The first dashboard listed in the first collection will default as the dashboard displayed.

- a) True
- b) False



Match each of the following toolbar items with the description through which it is defined. The possible items are: **Copy URL widget**, **Notifications**, **Log**, **Filter**, **Reset**, **Bookmark**.



Item to define	Screen
This option allows a user to copy the exact URL from the dashboard and email it to other space users.	Copy URL widget
This option can be used to set up and share updates to the dashboard with other space users.	Notifications
This option opens a new browser window that shows all query activity that occurred when the dashboard loads.	Log
This option allows users to see which filters are available for the dashboard.	Filter
This option allows users to save a customized version of the dashboard page.	Bookmark
This option refreshes the dashboard page and each dashlet re-renders.	Reset

Lesson 18: Drill across



A drill across connects a chart, table, button or KPI with another dashboard page.

- a) True
- b) False

Course review



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