Designing Ad hoc Reports

Intellicus Enterprise Reporting and BI Platform

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Business Insights Platform

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Acknowledgements

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For details, visit: http://www.intellicus.com/acknowledgements.htm

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Ad hoc Wizard

Ad hoc Wizard is a tool for non-technical, business end users to design or modify reports. Report design has simple steps - selecting a data source and fields, applying grouping and filtering. You can view the report immediately after it is designed.

Ad hoc report may have tabular data arrangement, a matrix as well as a chart. On Ad hoc Wizard, you can also:

- Sort the data to re-arrange it in order of your choice
- Get totals / summaries
- Highlights selective records (when a condition is met)

When you run an ad hoc report in HTML output format, the viewer provides Power Viewer that helps altering the report on the viewer itself.

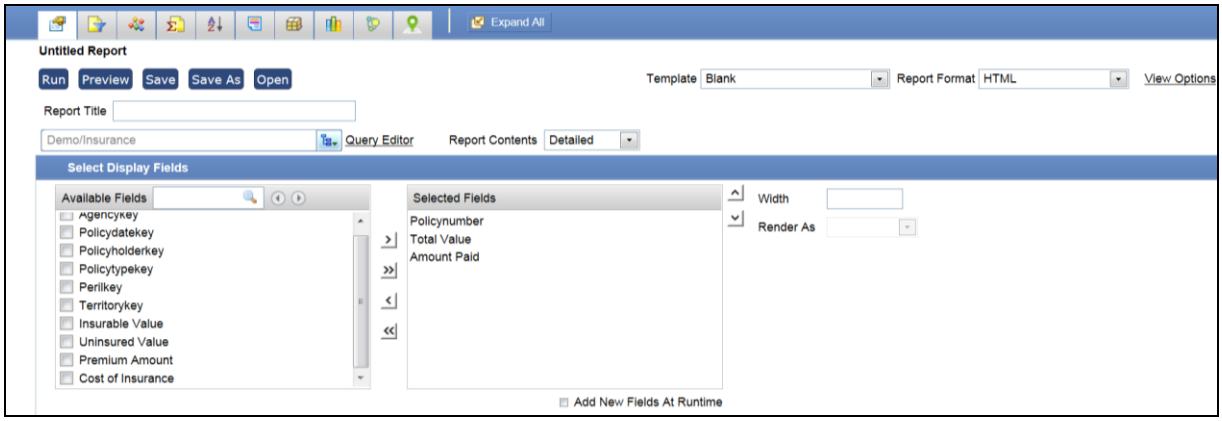


Figure 1: Ad hoc Wizard

Information: Ad hoc Wizard is configurable for many options that it provides. Your administrator may further simplify your experience in creating or editing by removing some options on the Wizard.

This document mentions all the options on the Wizard.

The Ad hoc Wizard is divided into sections, which appear as tabs. Each section's functionality goes as follows:

General settings

General settings appear on top of all tabs.

General settings properties:

Item	Values	Comments
Template	Select from the list	A template defines the layout part of the ad hoc report. This generally applies to coloring, fonts and page size of the report. Some templates could be specifically designed for certain reports – such as wide report etc.
Report Format	Select from the list: HTML ACROBAT PDF MS EXCEL COMMA SEPARATED TEXT MS WORD iHTML JVISTA XML RAW TEXT	 HTML = Default format. Opens report in HTML Report Viewer with navigation options ACROBAT PDF = Opens report in PDF viewer MS EXCEL = Downloads report in XLS format COMMA SEPARATED = Downloads report in CSV format TEXT = Downloads report in TXT format MS WORD = Downloads report in DOC format iHTML = Opens report in single page HTML with Grid and Interactive Charts JVISTA = Opens report in Intellicus Applet Viewer XML = Downloads report in XML format RAW TEXT = Downloads large reports in zipped CSV format, with no formatting
Report Title	Type yourself	Type the title of the report
Data Source	Select from Query Object Selector	 Open the Query Object Selector, Navigate to containing folder and select the data source Query Object for this report. Selecting a Query Object populates its fields in all the sections of the Ad hoc Wizard
Query Editor	Open Query Editor	If you are a Data Administrator you can edit the selected Query Object
Report Contents	Detailed Summarized	Detailed = Shows detail section, hence showing the lowest level detail of the report Summarized = Hides detail section,

		hence showing the lowest group level summary of the report. Summarized Report shows useful data only when groups and summaries are applied

View Options:

View Options are format specific settings for the report:

View Option	**Values**	**Comments**
Download Zipped	Check/Uncheck	Applicable to downloadable formats. Check = Zip the file and download
Multipage	Check/Uncheck	Check = Break report into pages according to size mentioned in template Uncheck = Merge all pages into single page (Note: Single page reports will be slower to download and also viewers carry their limitations in opening these files)
Pagination (Alternate property to Multipage)	Single Multiple Horizontal Breaks	Single = Merge all pages into single page Multiple = Break report into pages according to size mentioned in template Horizontal Breaks = Break report only on the length part and keeps the width to actual size required at run time. (This breaking is required for reports with large number of fields or matrix fields when you don't want pages to split vertically)
MS EXCEL View Options		
Remove Blank Rows, Columns	Check/Uncheck	Check = Compact the Excel Report by removing blank rows and columns
Repeat Page Header and Footer	Check/Uncheck	Check = Repeat column headers on each page Uncheck = Merge all detail data under a single instance of column headers
COMMA SEPARATED and RAWTEXT View Options		
Separator	Select (under	Select the separator character to be

	Predefined) or Type yourself (under Custom)	inserted between columns in the CSV/RAW TEXT output
Enclosure	Select (under Predefined) or Type yourself (under Custom)	Select the enclosure character to be used to enclose each column value in the CSV/RAW TEXT output

Action Buttons:

Button	Comments
Run	Run the report with full data in desired format. This loads the respective report viewer
Preview	Run the report with initial partial data. This will also run the report with data that was cached in previous preview of the same report in same session
Save	Save the settings of this report – data source, fields, groupings etc. A save dialog will prompt for report name and folder location
Save As	Save the settings of this report with a different name. A save dialog will prompt for report name and folder location
Open	Open previously saved ad hoc report for editing. An Open dialog will prompt for selecting the folder and report

Display Fields

Under the DataSource tab, you can select the fields to be displayed on the report.

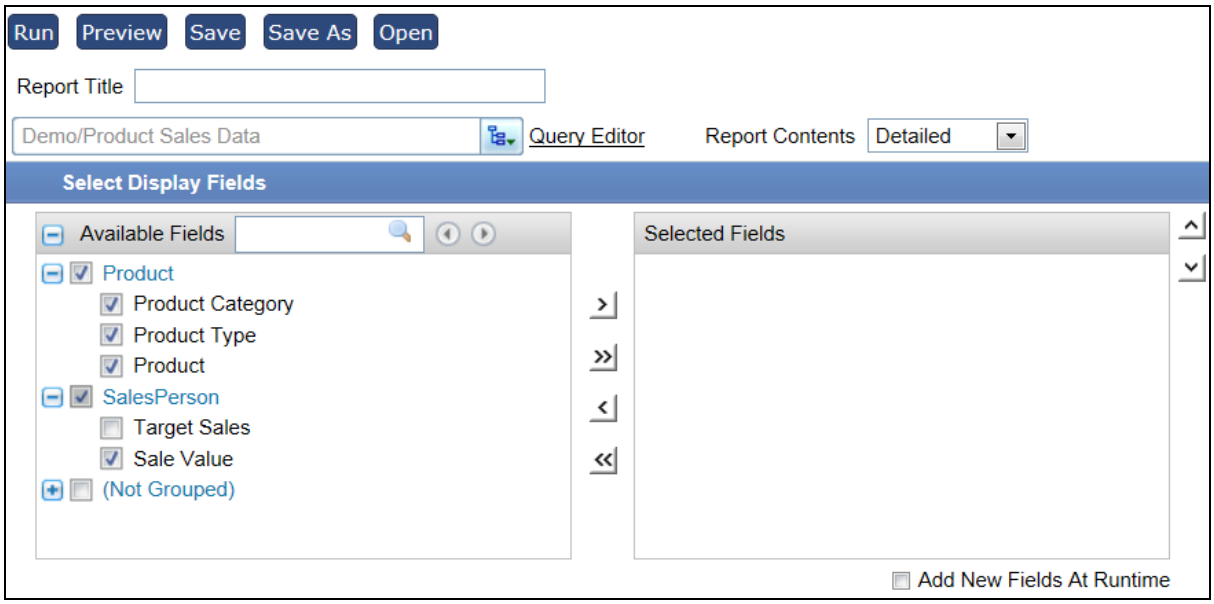


Figure 2: Selecting Display fields

Selecting fields

To select a field, check the checkbox displayed before each field from **Available Fields** and click > button to bring the fields in **Selected Fields**. To select all the fields, click >> button.

To select a group, check the checkbox displayed before the group and click > button.

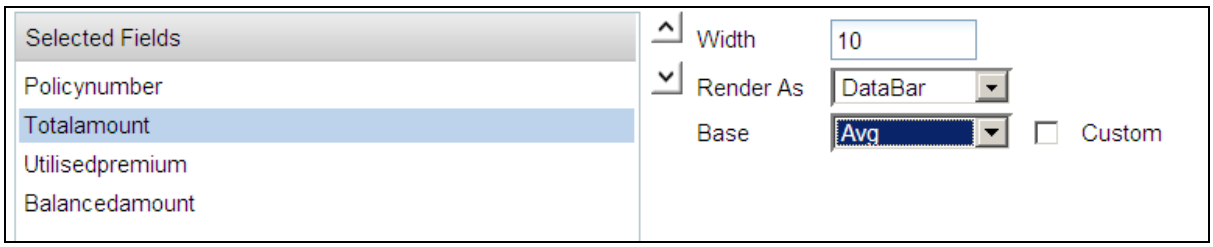
When selecting display fields through dual list, fields may be arranged in tree view. To select all the fields within branches, select top branch. To deselect a field, highlight it from **Selected Fields** and click < button. To deselect a group, highlight the group-name from **Selected Fields** and click < button. Click << button to deselect all the fields.

Display Field Properties

Item	Values	Comments
Width	0-N	Number of characters of this field to show on the report. Field data may wrap beyond this width
Render As	(Default)	Applies to Number Data type fields Blank option (Default) = render numbers as numbers

	DataBar	DataBar = render numbers as a horizontal bar whose size is in ratio to its value
DataBar Base	0-N (in case Custom option is checked)	Custom = Choose your base number for Data bar. Rows with value equal to base value will show zero width data bar. All greater numbers will be green bars towards right and lower to base will be red bar towards left.
	Avg	Avg = Average of the group becomes base of data bar. All values below average will be red bars and all values above average will be green bars
	Min	Min = Minimum of the group becomes base of data bar
	Max	Max = Maximum of the group becomes base of data bar

Rendering data bars



In case **Update Query Object** is set TRUE and you have added a new field in the database file, you would see the new field when **Add New Fields At Runtime** is checked here. In case this is unchecked, then you can add new fields from PowerViewer.

Applying Filters

Filter is an ad hoc condition, which you can choose to apply on your report. The data of the report will filter-in based on this condition. You can apply multiple conditions including AND/OR combination.

Filter Section properties

Item	Values	Comments
Max. Rows	0-N	Maximum number of rows to be fetched for this report. When you are using a data set that returns too many rows or when you are not sure of number of rows, this is the tool to restrict the size of the report. (Note: Reports generated with Max. rows set may contain incomplete information of your business data)
Suppress Duplicates	Check/Uncheck	Yes = Removes consecutive duplicate records from the report. (Note: Distant duplicate rows may still exist in the report) (Note: Make sure that the report is sorted on all the report fields)

Ad hoc Filters

Item	Values	Comments
Field	Select from list	Select the field on which you wish to apply filter
Use Field	Check/Uncheck	Check = When Use Field is checked, Value gets populated with Field values for comparison
Criteria	Select from list	Select the operator to be used in the filter. These are comparison operators based on the data type of the selected field. The between operator prompts for two values
Value	Type yourself or select from list	Based on the configuration of this field in the meta layer, the value list appears
Relation	AND OR	AND = The next condition is applied with combined conjunction of this condition OR = The next condition is applied in alternate conjunction of this condition
Open/Close	((((((((((	Braces to group a set of conditions for applying appropriate AND/OR combination

	((((( )))))))))))))))	

Actions

Item	Comments
Add Filter	Add a new filter condition row
Remove Filter	Remove current filter condition row

Selecting values from Lists and Multi-Select List

The value select list may behave differently for different fields based on how they have been configured by your data administrator for best performance. You can configure Lookup Values for fields while designing the Query Object.

List behavior

Criteria	List behavior	Comments
In List	Pre-populated List is loaded as soon as the field is selected	This field generally has less number of values, it is always faster to pre-fetch the values before loading the Ad hoc Wizard
	List populates when you pull the drop down	This field generally has medium number of values, it is better to fetch values only when you try to use this field for filtering
	List shows a hint "Search.." with a search drop down icon	This field generally has a large number of values. You start typing in first few characters and a shortlist will automatically appear for selection

Entering values for Network ID formatted fields

- **IP:** It needs to be specified as a set of 4 numbers (decimal) separated by dots. Each of the number needs to be between 0 and 255. Example: 90.233.245.162.
- **MAC Address:** It needs to be specified as a set of 6 numbers (hexa) separated by colon. Each of the number needs to be between x00 (00) and xFF (FF). Example: 15:FF:01:F1:01:B4.

TIP: While specifying MAC address, putting a colon between the hexa digits is not necessary. The application will automatically insert colon after every second 'digit' (starting from right side). Example: number entered is FF101B4; Number changed to is 00:00:0F:F1:01:B4.

Linked Filters

A Field could be linked to one or more other fields for fetching available values for filtering.

This is to handle situations like short listing states when a country is selected.

You may need to select parent field, apply filter before selecting a child field to apply filter.

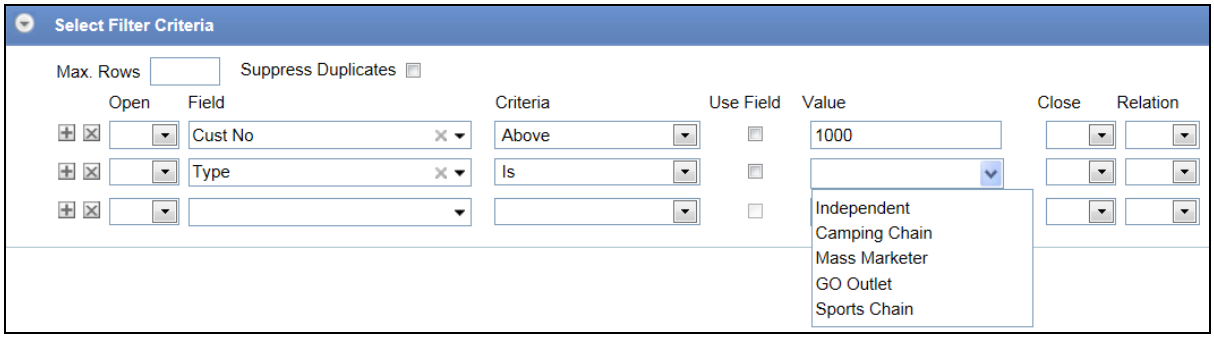


Figure 3: Filters as Link Lookup

Selecting dynamic Dates

When you select a date field to apply filter, you have an option to specify a dynamic date variable – today, in last 5 days etc.

This helps to re-run saved reports without having to change the date value to get then current date range applied.

For example,

- Date of hire **is in last** 10 *days* from today (report generation date).
- Date of sales transaction is **in this** *Quarter*.
- Transaction Date **is in last** *month*.
- Date of retirement **is in next** *month.*

For criteria, you may select any of the following:

- is in last
- in this
- is in next

If **in this** is selected as **Criteria**, the **Value** drop down box has following options to choose from:

- Year
- Quarter
- Month
- Week
- Day
- Hour
- Minute

If **is in last** or **is in next** is selected in **Criteria**, specify the number of Day(s), Week(s), Month(s), Quarter(s) or years (as the case may be) in **Value** entry box. Explanation for each of the option is given below:

- **Year(s):** The number of years from the date of report generation.
- **Quarter(s):** The number of quarters from the date of report generation. A quarter is January to March, April to June, July to September and October to December.
- **Month(s):** The number of months from the date of report generation.
- **Week(s)**: The number of weeks from the date of report generation. A week is considered from Sunday to Saturday.
- **Day(s):** The number of days from the date of report generation.
- **Hour (s):** The number of hours from the date of report generation.
- **Minute (s):** The number of minutes from the date of report generation.

Applying Grouping

Grouping brings together the related data of a report based on the grouping key. Group key can be arranged in ascending or descending order, based on group key value or a detail field's summary value.

For example, if you group population details by region, you can arrange regions by name or by highest to lowest population.

Ad hoc reports support multi-level grouping, for example, you can group the report data by country; within country by states and within states by cities.

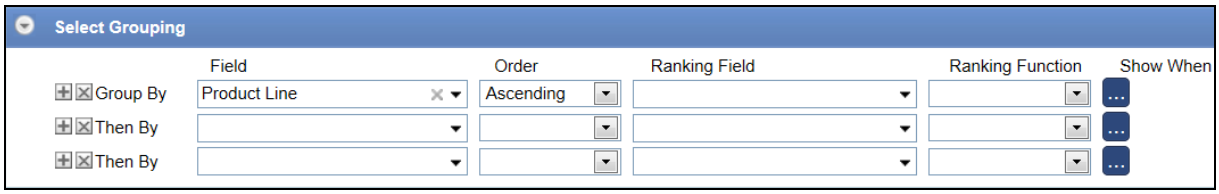


Figure 4-a: Selecting Grouping

Select grouping options

If not already open, click **Grouping** tab header to open the tab.

Group properties

Item	Values	Comments
Field	Select from list	Group By field is the highest priority field selected for grouping. It specifies top level grouping. Then by field specifies fields of next priority and level for grouping
Order	Ascending Descending	Select the order of grouping
Ranking Field	Select from list	Select the field to apply ranking function to decide the order of appearance of groups
Ranking Function	Sum, Avg Count, Min, Max, Variance, PopVariance, StdDeviation, PopStdDeviation and Distinct functions	Select the function to apply on the ranking field and find rank
Show When	Specify the criteria	Show When button helps to specify condition to be met in order to show that group

Actions

Item	Comments
Add Group	Add a new group
Remove Group	Remove current group

Date fields grouping

If you select date type field in Field dropdown, you can also group dates by:

- Minute: Number of the minute indicating the minute of an hour
- Hour: Number of the hour indicating the hour of the day
- Day: Day of the month
- Week: Week number of the month
- Month: Month number
- Quarter: Quarter number
- Year: Number indicating the year

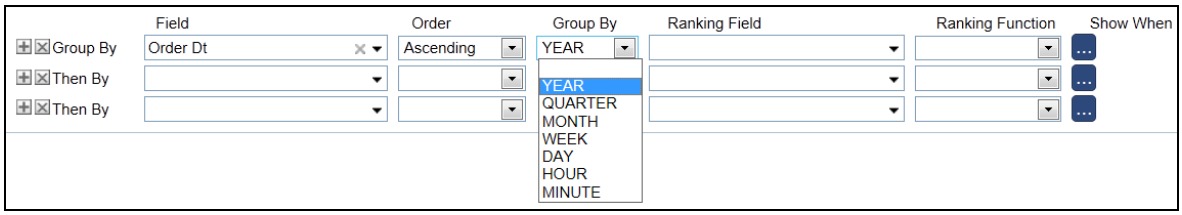


Figure 5-b: Selecting Grouping

Applying Totals

Applying totals summarizes detail rows. The summaries can be applied at group level (in case grouping is applied), page level or report (grand total) level.

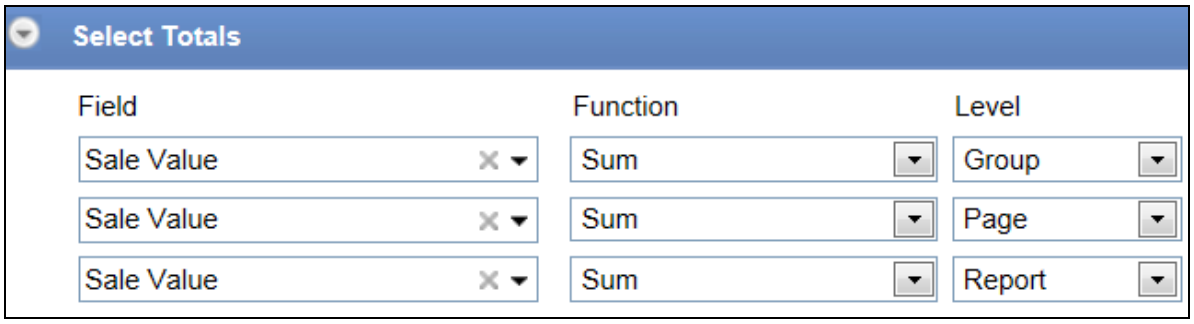


Figure 6: Selecting Totals (summary)

Item	Values	Comments
Field	Select from list	Select the field on which the summary needs to be applied
Function	Select from list Sum, Avg Count, Min, Max, Variance, PopVariance, StdDeviation, PopStdDeviation and Distinct functions	Select the function to apply on the summary field
Level	Group Page Report	Group = Apply and display total at each group level Page = Apply and display total once per page for all detail rows appearing in that page Report = Apply and display grand total at report level

On a summarized report (Report Content = Summarized), only the group Keys and these summaries appear, hiding the detail rows.

In an iHTML grid report you can collapse group keys to show only summary and hide details. You can also expand the group keys to show detail rows.

Note: If total is applied on field that is not in display fields, it will be automatically added in the **Display Fields** list.

Applying Sorting

You can sort the report to get the report data in a pre-determined (ascending or descending) order.

> **Note:** If you have setup grouping for a report, you need not set sorting for it. This is because data is already sorted to make groups.

Application supports multiple level of sorting. For example, you can Sort By "Country"; then within "Country", sort by "State" and within "State" sort by "City".

If not already expanded, click **Sorting** tab header to expand it. The number of sort levels you have selected is displayed on right side of the header.

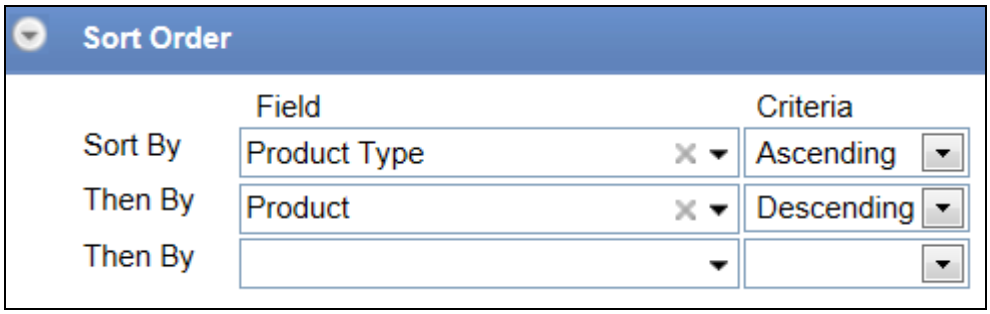


Figure 7: Specifying Sort Order

In **Sort By** row, select the **Field** on which sorting is to be applied. After selecting the **Field**, select the sort order from **Criteria** dropdown menu. You can set sort on more than one field.

To apply sorting on one field specify field in **Sort By** row. To set sorting on another field select the field from **Then By** field.

You can choose to alter given sorting settings at the run time from Power Viewer.

Highlighting

Highlight is a visual indication on an ad hoc report. It catches user's attention to specific records or groups while viewing the report output. Each highlight is configured along with an ad hoc condition or multiple conditions related by AND/OR operators.

When report extends to multiple pages and you browse through pages, you may not notice a highlight visually. Setting alert for a highlight creates a special TOC for highlighted records.

You can set multiple highlights on a report; a record falling into multiple highlights will be highlighted in combination style.

A highlight can be set at Detail level or Report level. If the report is grouped, highlight can be set at group level too.

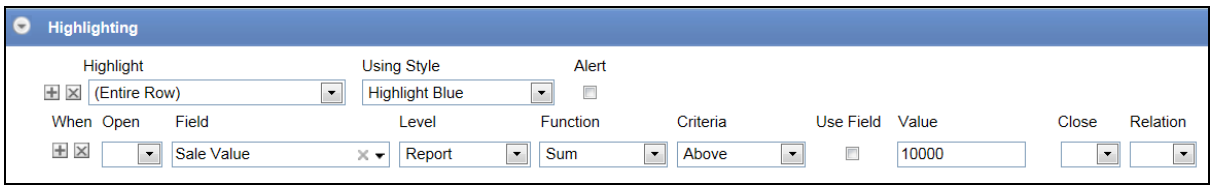


Figure 8: Setting highlighting

Highlighting properties

Item	Values	Comments
Highlight	Select from list: (Entire Row) Group->Field Name(Entire Row) Field Name	(Entire Row) = Apply below mentioned highlighting style to entire row of detail. Group->Field Name(Entire Row) = Apply style to entire row of field under group header Field Name = Apply style to individual field value
Using Style	Select from list	Select the style to apply on highlighting item
Alert	Check/Uncheck	Check = In addition to applying style on the report item, the report tool bar also shows an alert icon, if a highlight condition occurs. When this report is saved, users can subscribe to this alert from notification screen Uncheck = visual style applying only
Open	((((((((((((((	Braces to group more than one conditions using AND/OR

Field	Select field from list	Field to apply condition on
Level	Select field from list: Detail Report Group	 Detail = field's value to be compared at row level Report = field's value to be aggregated at report level and then compared Group = field's value to be aggregated at mentioned group level and then compared
Function	Select from list Sum, Avg Count, Min, Max, Variance, PopVariance, StdDeviation, PopStdDeviation and Distinct functions	Aggregation function, used in case of field level is Report or Group
Criteria	Select from list	Operators to compare
Use Field	Check/Uncheck	Check = The value box turns into a field selector. Helps in comparing one field with another for the condition Uncheck = The value box shows text box, select list or calendar to manually enter or select values
Value	Enter or select value	Shows text box, select list or calendar to manually enter or select values
Close	))))))))))))))))	Braces to group more than one conditions using AND/OR
Relation	AND OR	AND = The next line condition relates to this condition with an AND operator. This is default behavior when blank is selected OR = The next line condition relates to this condition with an OR operator

Creating Matrix

Use matrix to summarize your report data in the form of cross-section of fields in rows and columns. For example, product-groups and products in columns; zone and area in rows. A cross section of group, product and zone, area will display sales of that product in that area.

Under **Select Display Fields** tab, select the data source.

To get only matrix on the report, don't select any display fields on **Select Display Fields** tab. If you select display fields, matrix will be placed below the tabular data.

If not already open, click **Matrix** tab header to open the Matrix tab.

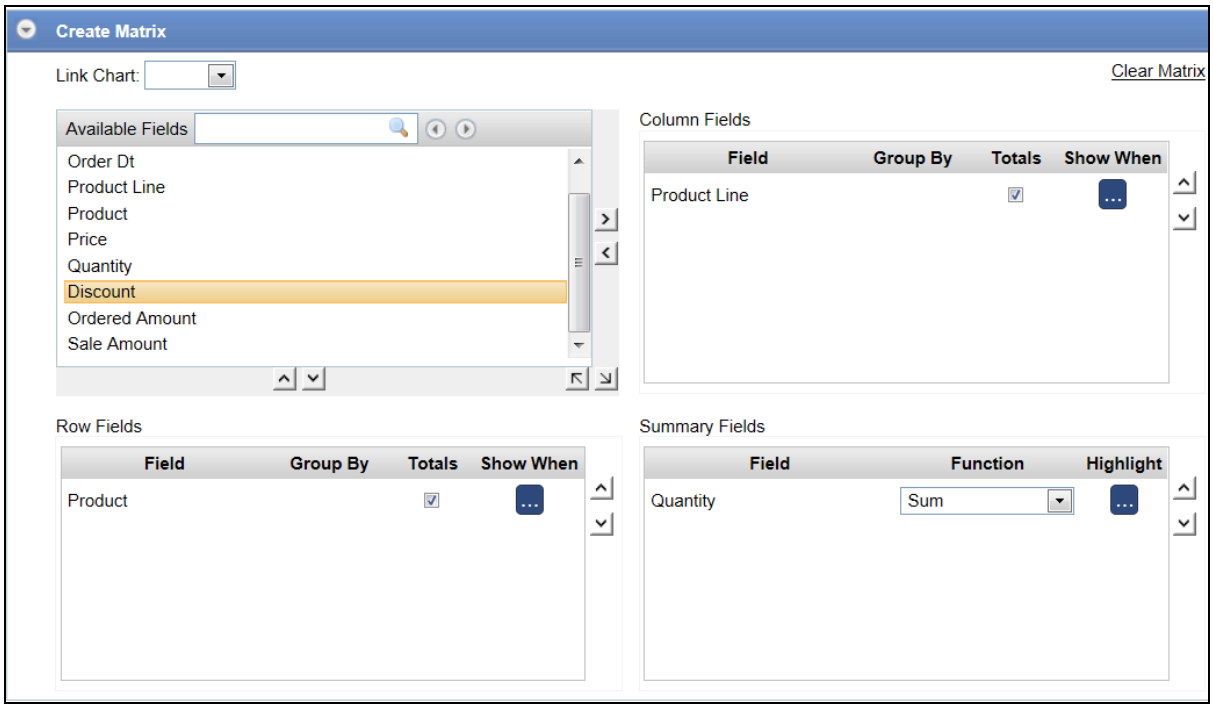


Figure 9: Creating a matrix

To place a field as matrix row, drag it from **Available Fields** list and drop it in **Row Fields** (or, select a field and click button). To place a field as matrix column, drag it from Available Fields list and drop it in **Column Fields** (or, select a field and click button).

You can group a Date type or Numeric type field placed in Row Fields, or Column Fields box.

Last column of the matrix contains total of all the summary cells in a row. Last row of matrix contains total of all the summary cells in that column.

To place a field on summary (intersection of row and column), drag a field from **Available Fields** list and drop it in **Summary Fields** (or click button).

These fields will be calculated for summary/totals. Functions listed in **Function** dropdown box will depend on data type of the Summary Field.

You can drop multiple fields in **Row Fields**, **Column Fields** and **Summary Fields** box. Fields appear higher in sequence in **Row Fields** and **Column Fields** will appear on outer side on matrix. Fields are placed left to right in **Summary Fields**. To move a field up or down, click  or  button.

First field dropped in **Row Fields** and **Column Fields** will have **Totals** checkbox checked. To get totals for other fields, select **Totals** checkbox of the field.

Show When opens up filtering criteria to apply on column and row fields. The column/row that meets the condition shows up on the matrix when you run the report.

You can highlight a Cell, Cell Family, or an Entire Row or Column of a matrix based on a condition. The matrix highlights using the specified Style.

Grouping values of Numeric fields

You can make range of values by specifying grouping. For example, to have groups of 0-9, 10-19,... specify 10 in **Group By** box of respective row in Row Fields or Column Fields box.

Grouping values of Date type fields

You can group a date by **Minute**, **Hour**, **Day**, **Week** (Sunday to Saturday), **Month**, **Quarter** (Jan-Mar, Apr - Jun, Jul - Sep, Oct - Dec), **Year**. Select an option from **Group By** box of respective row in **Row Fields** or **Column Fields** box.

After making a matrix if you think that is not something you wanted to make, click **Clear Matrix** link to clear matrix to start all over again.

You may choose to have a matrix on your report since it presents a summary of data. Make sure that the right query object is selected (under **Select Display Fields**).

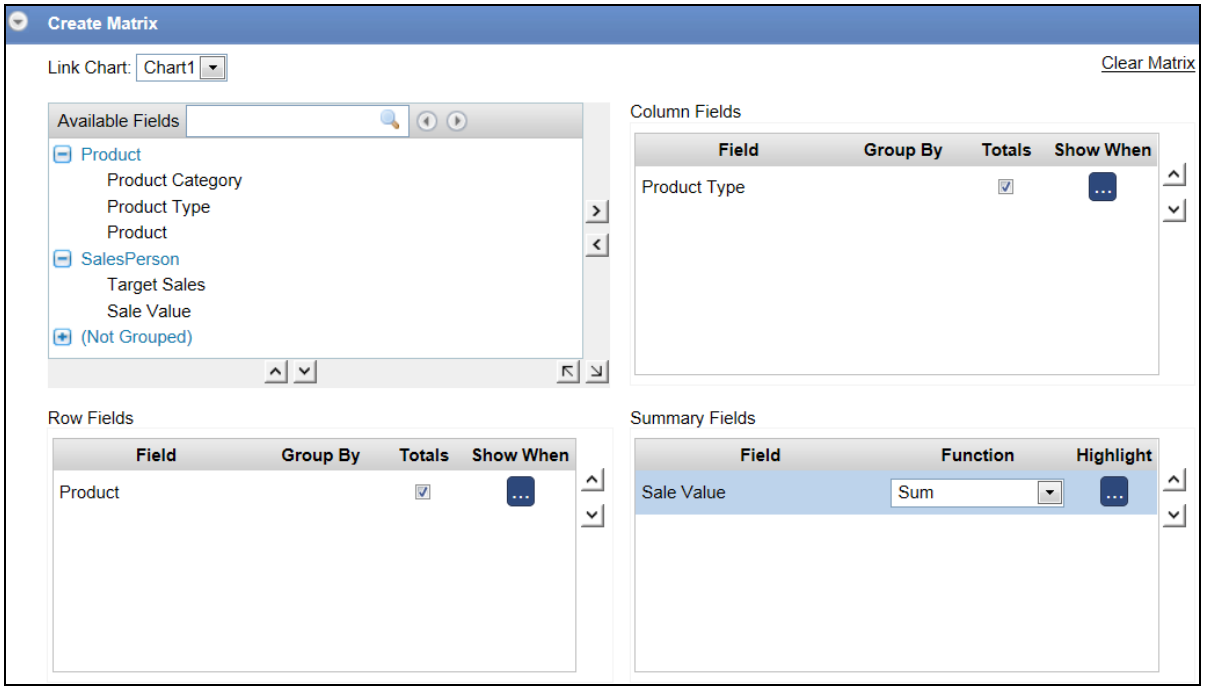


Figure 10: Link Matrix and Chart

Designers/Users can link Matrix and Charts so that any changes made in one component gets reflected automatically in the other. Linking can be done in both ways--Matrix to Chart and vice versa.
If Designer has not linked the chart and matrix then user has an option to link them at runtime (in Power viewer).

At Runtime if user wants to add a new field (Target Sales) to visualize the comparative performance of the salesman then he just need to use power viewer and choose to add the new field in matrix.

Creating Chart

Chart is used for graphical representation of data. To address your charting needs ad hoc report supports most of the popular chart types like bar, line, pie and radar.

You can create multiple charts on an Ad hoc report.

Chart section provides + button to add more charts and specify the chart details in the new chart tab.

In the Ad hoc template you can control the number of charts displayed by the size. More charts flow to next row.

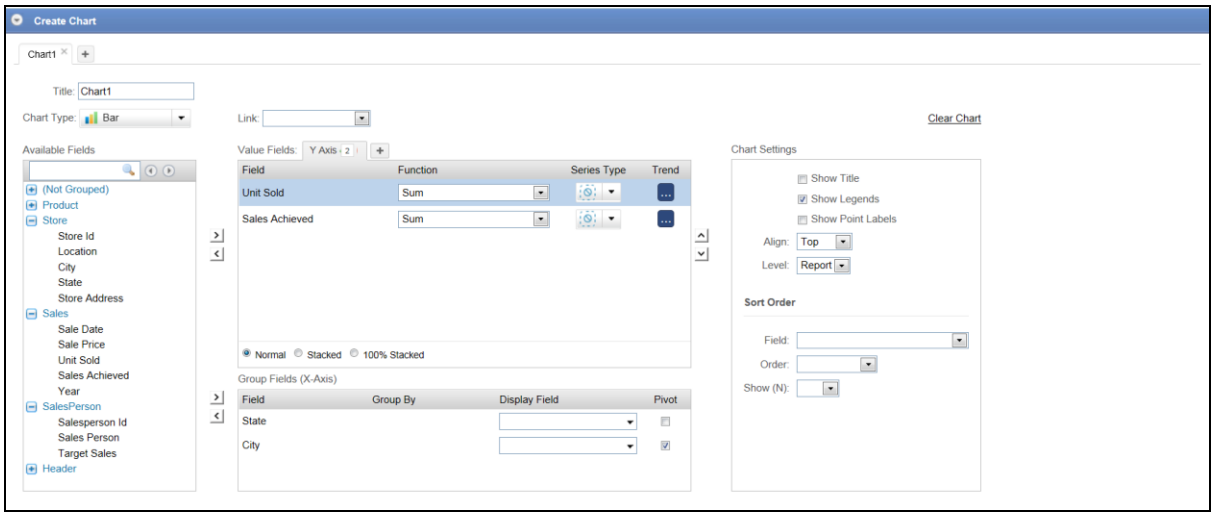
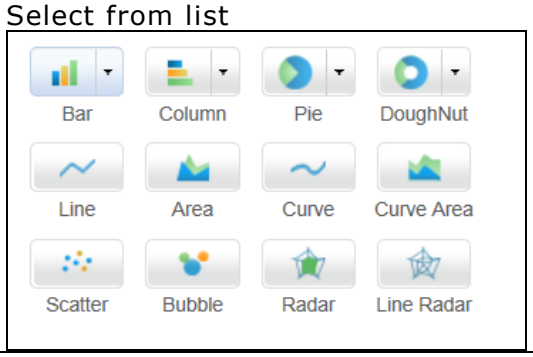
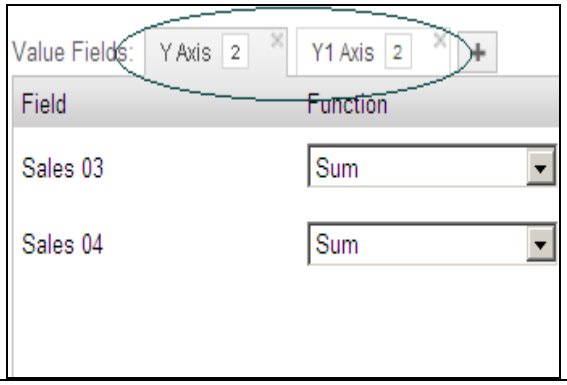
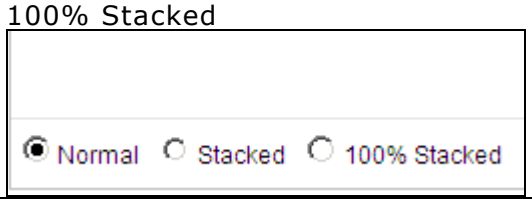
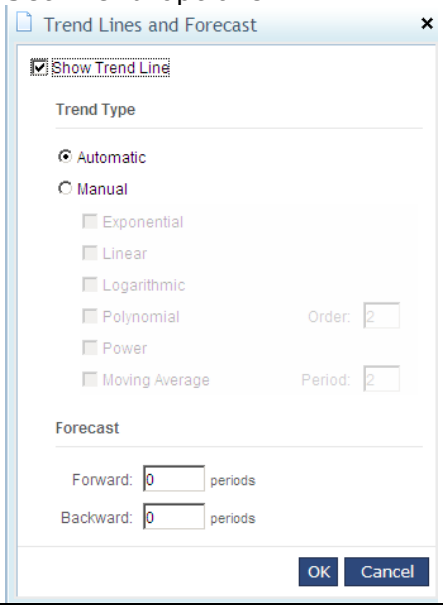


Figure 11: Creating Chart

Chart properties

Item	Values	Comments
Chart Type	Select from list 	Select the base chart type
Link	Select from list: Report Fields	 Report Fields = Take report grouping fields as chart grouping fields and number fields from detail or

	Matrix	summary section as chart series fields at run time Matrix = Take row and column group fields as chart group fields and cell value fields as chart series fields
Value Fields		
Value Fields Field (Y Axis)	Drag from available fields	Each field becomes a Y axis on chart series
Value Fields Function	Select from list Sum, Avg, Count, Min, Max and others	Value Fields will be aggregated on chart using this function
Value Fields Axis	Tabs Y Y1 Y2 Y3 + 	Create new tab using + for secondary Y axis. Drag fields on respective Y Axis tab
Axis Stacking	Select from options: Normal Stacked 100% Stacked 	Normal = No stacking Stacked = Stack all series of this Y axis 100% Stack = 100% stack all series of this Y axis
Value Fields Series Chart Type	Select from list	Select series level chart type. (Parent) = No series level chart type applied, use base chart type

		
Value Fields Trend	Set Trend options 	Opens trend dialog
Value Fields Show Trend Line	Check/Uncheck	Check = Adds a trend line to this series. Trend line will be a line type chart irrespective of base chart type and series chart type Uncheck = Switch off trend line for this series
Value Fields Trend Type	Automatic Manual	Automatic = The tool selects one of the trending algorithms automatically based on the data Manual = You can choose one of the algorithms for drawing trend line: Exponential, Linear, Logarithmic, Polynomial, Power, Moving Average

Value Fields Trend Manual Polynomial Order	0 – 5	Defines the order of polynomial trend line. The order of the polynomial determines by the number of fluctuations in the curve
Value Fields Trend Manual Moving Average	0-N	Determines the number of data points to average and use as average value for trending
Forecast	Forward Backward	Specify trend line for future or back period of time
Group Fields		
Group Fields (X Axis)	Drag fields from available fields	Each field becomes X axis on a chart series
Group Fields Group By	Select from list YEAR QUARTER MONTH WEEK DAY HOUR MINUTE	Applicable for Date data type fields
Group Fields Display Field	Select a field from list	On X axis data label, show the selected fields' values instead of group field value
Group Fields Pivot	Check/Uncheck	Check = Convert into series. All the values from this field become series at runtime
Chart Settings		
Show Title	Check/Uncheck	Switch On or Off title
Show Legends	Check/Uncheck	Switch On or Off legends
Show Point Labels	Check/Uncheck	Switch On or Off Data point labels
Align	Select from list	Position of chart when report has detailed data

	Top Bottom	Top = Show the chart at the top of report Bottom = Show the chart at the bottom of the report
Level	Select from list Report Page	Level of data to aggregate for chart Report = All of report data will be aggregated in to one chart per report Page = Data rendered in one page of detail section will be aggregated into a chart per page
Sort Order Field	Select field from list	The X Axis values will be sorted based on the value of selected field
Sort Order Order	Ascending Descending	Order of sorting
Show (N)	Select from list (All) 1-50	Restrict number of X axis values to given number
Clear Chart	Action	Removes all chart settings

Creating GIS Maps

Create GIS maps on ad hoc reports and achieve the following:

1) Heat map
2) Attributes on balloon
3) Drill down

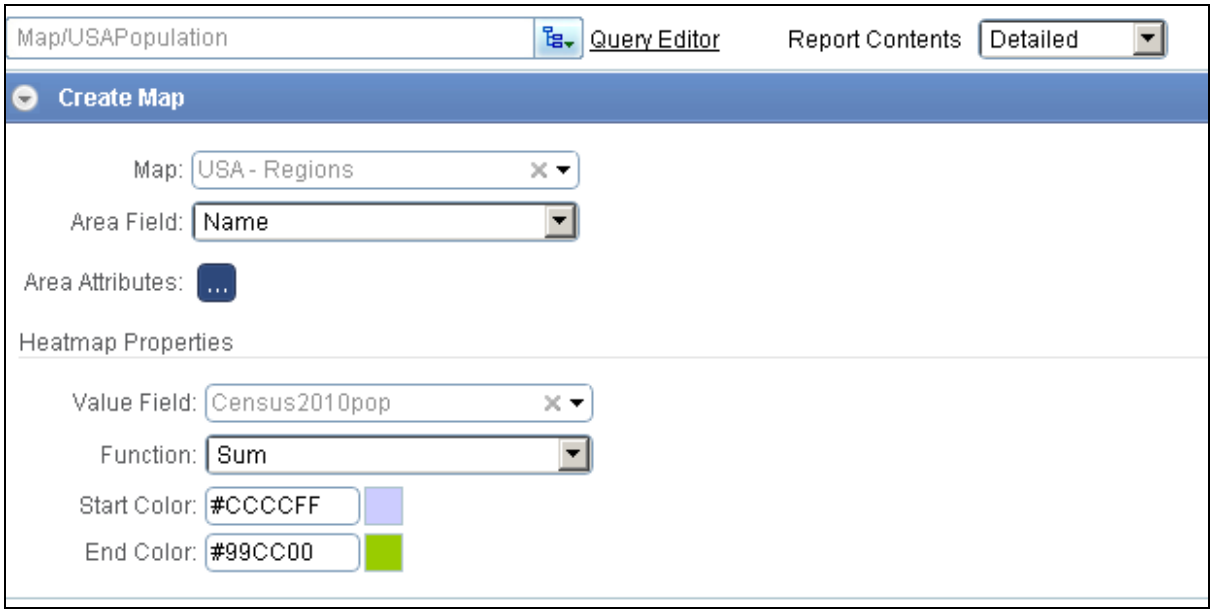
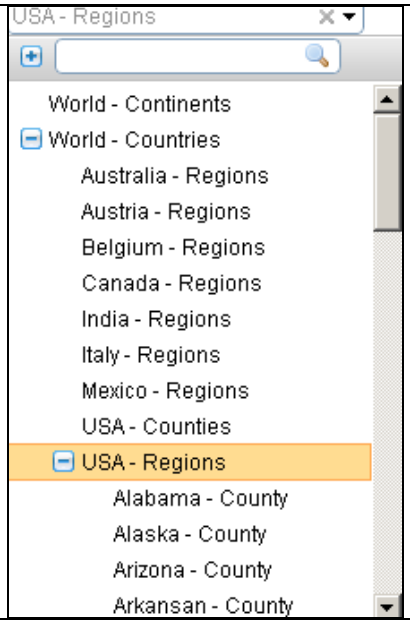


Figure 12: Creating Map

GIS section properties

Item	Values	Comments
Map	Select Map Data:	This list populates according to map data available on your system. Select the map name for initial loading of data. For example, if you want to depict US states heat map then select "USA – Regions". If you want World countries heat map then select "World - Countries" map

		
Area Field	Select field from list	This list populates GIS enabled fields from your selected data set. Select appropriate field for grouping of data. For example: the field that contains state name, country name etc.
Area Attributes	Opens Attributes dialog (See image below this table)	Area attributes dialog helps you design the content of the balloon that opens when user clicks an area on the map
Area Attributes Prefix	Type yourself	Prefix caption value for the field
Area Attributes Field	Select field from list	Value of the field
Area Attributes Function	Select summary function	Select the aggregation summary function applied on the field
Area Attributes Suffix	Type yourself	Append suffix caption for the field
Area Attributes As Title	Check/Uncheck	Check = This line appears on the title bar of the balloon Uncheck = This line appears on the canvas area of the balloon
Area Attributes Preview		The balloon content formation is previewed here
Heatmap		This section helps you design

Properties		the heat map on the GIS map
Value Field	Select field from list	Select the value field using which the heat map is calculated
Function	Select summary function	Select the aggregation summary function applied on the field
Start Color	Select color from palette	Select the lowest value color
End Color	Select color from palette	Select the highest value color. All the in-between values will be assigned respective colors automatically by an even distribution

Attributes Dialog

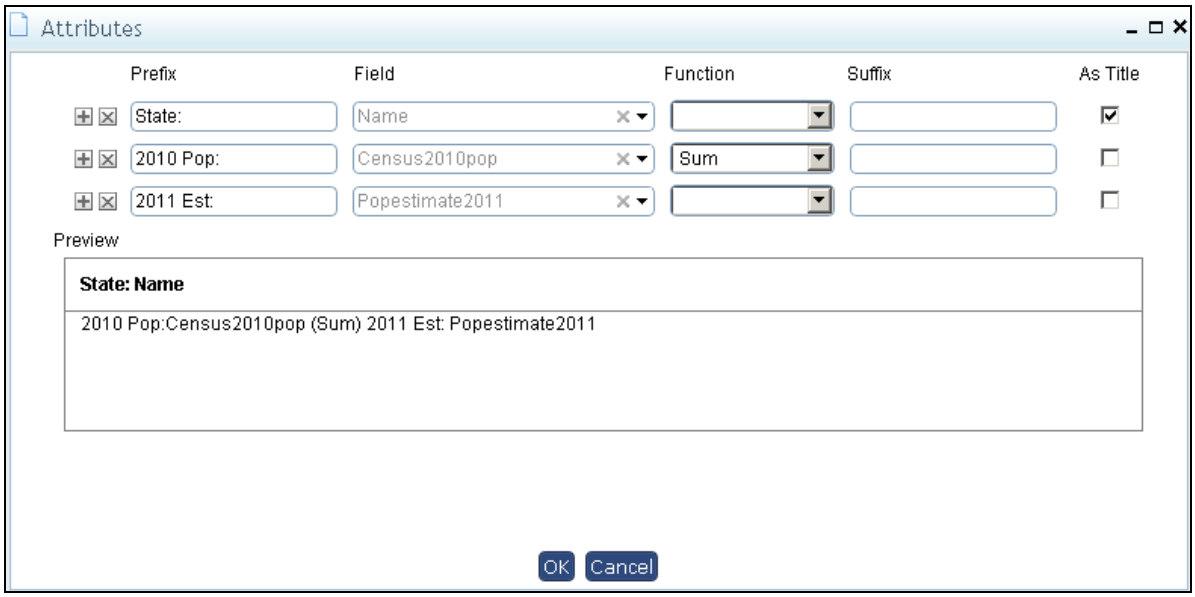


Figure 13: Attributes Dialog

Ad hoc Report Toolbar

When you run an ad hoc report you will get Ad hoc Report toolbar on the report viewer.

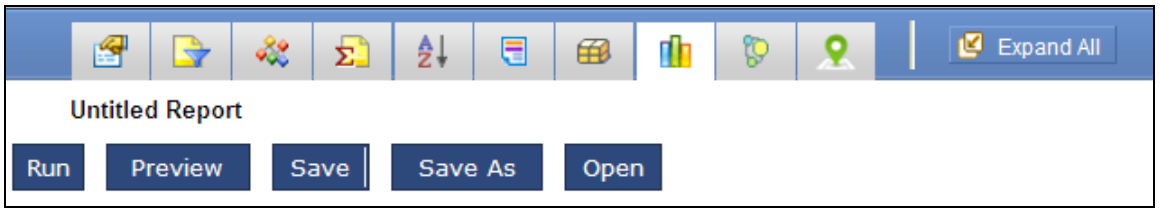


Figure 14: Ad hoc Wizard on HTML Viewer

Important: If the viewer is set to open in a new window, the new window will not have Ad hoc Report Toolbar.

Ad hoc Report toolbar has buttons that will open respective tab of Ad hoc Wizard.

When you click a button, its tab opens up. You can change respective settings on the tab and run the report again. To close an open tab, click that button again.