Working with Ad hoc Visualizer

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 Visualizer

Ad hoc Visualizer is an intuitive web-based interactive interface to visualize and analyse large amounts of data packaged in reports ad hoc by the business users.

Ad hoc Visualizer helps to generate reports by simply selecting the data source. It enables end users to perform desired on-the-fly operations on the report. The operations range from re-arranging columns, to adding/removing charts, to sorting and grouping - to name a few.

To open the Ad hoc Visualizer, go to Navigation > Analytics > Ad hoc Visualizer

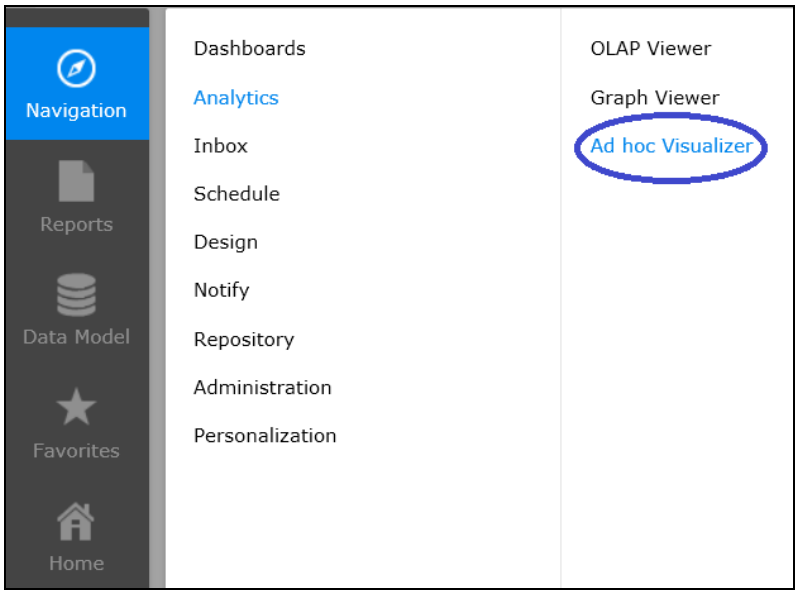


Figure 1: Invoking Ad hoc Visualizer

You can navigate to the desired folder (category) and choose to either select a Query Object or open an existing report:

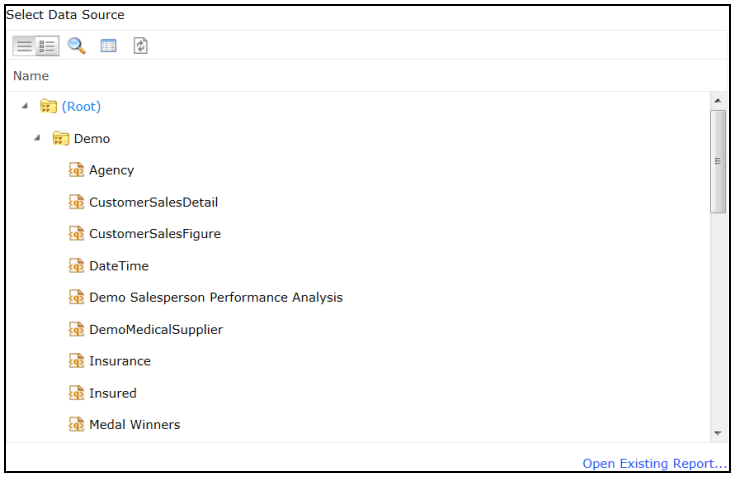


Figure 2: Ad hoc Visualizer – Data Source Selection

Action Items:

Item	Comments
List View	Shows the list of data sources
Detailed View	Shows the detailed view of data sources list. You can see details like the '**Owner'** and the '**Last Modified Date'** of data sources
Search	You can quickly search the desired data source from the shown list. The option of **Server Search** enables to specify search criteria on all categories available at the server end
Show Search Result	Shows the entire search result (fetched from client as well as server)
Refresh List	Refreshes the shown list of data sources

Ad hoc Visualizer – Design Mode

Upon selecting the data source, the Ad hoc Visualizer opens up in the **Design Mode** to specifically design your report (filtering, sorting, highlighting and more). You can at any time switch to View Mode in order to see your report output.

By default, the sample data set is loaded into a grid picking first 10 fields (columns) and 200 records (rows). This record count can be configured from **'Report Preview Record Count'** property under Administration > Configure > Server > RENDERING.

You can cancel the request to stop fetching records from the server.

You can also stop the processing in order to load specific record count in the grid. Select the option '**Load Complete Dataset**' upon clicking the down arrow next to the Data Source name to view the entire report after applying visualizations.

You can edit the report name upon double-click.

The Ad hoc Visualizer has the following visualizations under various tabs:

- Grid
- Matrix
- Chart
- Map

Figure 3: Ad hoc Visualizer – Tabs

Visualization applied to a single tab would refresh data across all tabs.

Report Options

The various actions that can be performed at the report level (under Design Mode > Report Options) are given in the table underneath:

Action Buttons:

Button	Comments
New	This helps to create a new report. It takes you to the 'Select Data Source' screen to select a Query Object for your report
Open	Opens previously saved ad hoc report for editing. An 'Open Report Layout' dialog will prompt for selecting the folder and report
Save	Saves the settings of this report – data source, fields, groupings etc. A 'Save Layout' dialog will prompt for report name and folder location (You can also see this option at the bottom-right of the report)
Save As	Saves the settings of this report with a different name. A 'Save Layout' dialog will prompt for report name and folder location (You can also see this option at the bottom-right of the report)
Change Data Source	This enables you to choose another Query Object (You can also see this option on the down arrow next to the Data Source name at the bottom of the report)
Edit Data Source	Opens up Query Object screen where you can edit the Query Object (You can also see this option on the down arrow next to the Data Source name at the bottom of the report)
Formulas	You can add a formula field to specify a formula expression that can use existing fields. Properties like the formula field name, caption for the formula field to appear on the report, its return type, etc. can also be specified. This formula field can be treated like any other field on grid, chart or matrix in the report
Refresh Data	Refreshes data under all views (reruns query to fetch data from server)
Properties	You can choose to apply a Report Template
Export	You can export your report in MS EXCEL, ACROBAT PDF, COMMA SEPARATED, TEXT and MS WORD formats

	MS EXCEL 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 Options	Separator	Select (under Predefined) or Type yourself (under Custom)	Select the separator character to be inserted between columns in the CSV 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 output
		Template	Select from list	Select an excel template (under Intellicus>ReportEngine >templates>excel) to export data to the first sheet of excel file.
		Include	Check/Uncheck	Select to export grid, chart, matrix or their combination data to CSV
	Options Common to all Formats	Download Zipped File	Check/Uncheck	Check = Zip the file and download
		Grid Column	Choose from: Selected All	 Exports only selected (visible on Ad hoc Visualizer) columns of the report Exports all columns of the report
Publish	When you publish a saved report, its output is generated and saved which can be opened and viewed in the future for a faster response. You can publish a report in any of the available Report formats from under **Report Format** dropdown (HTML, ACROBAT PDF, COMMA SEPARATED, TEXT, iHTML, SMART, MS WORD and MS EXCEL). You can specify report location, name, access mode as Public or Private and date of expiry. **Add Comment** helps you add descriptive comments to your published report			

Email	You can select to email your report as attachment or link in various formats and pagination options (along with 'Attach Zipped' option)
Upload	You can upload your report in various formats over FTP or Shared Folder (along with 'Upload Zipped File' option)
Generate Link	Intellicus user can share the saved report to the non-Intellicus user by generating a link enabling a non-Intellicus user to view the Intellicus reports. Select the output format in which the report will be available to the user under **View Output in**. The default value of output format is HTML. Other available formats are ACROBAT PDF, COMMA SEPARATED, TEXT, iHTML, SMART, MS WORD and MS EXCEL. You can optionally mention access code while creating a link. The access code has to be provided to the user who accesses the link. You also have the expiry date of the saved report
Print	Locally: You can select a printer and printing options in your local network on the open dialog Direct: You can directly print on the default set printer At Server: The portal can send request to the server for printing (on a configured printer at server) Direct with Comments: You can directly print on the default printer along with the comments added to your report

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 current 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	Check = 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)
Show Values on Viewer	Check/Uncheck	Check = Shows filter values on top of the report

Ad hoc Filters

Item	Values	Comments
Field	Select from list	Select the field on which you want to apply filter
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 (different for character, numeric or date). The between operator prompts for two values
Use Field	Check/Uncheck	Check = When Use Field is checked, Value gets populated with Field values for comparison
Value	Type yourself or select from list	Based on the configuration of this field in the meta layer, the value list appears
Prompt	Check/Uncheck	Check = Runs the report with default parameters. Prompts you to select from the list of Use Parameter

Use Parameter	Select from list	Lists all available parameters. You can specify filter conditions using parameter values
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	((((((((((((((( )))))))))) ǃǃǃǃǃ	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 Visualizer
	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.

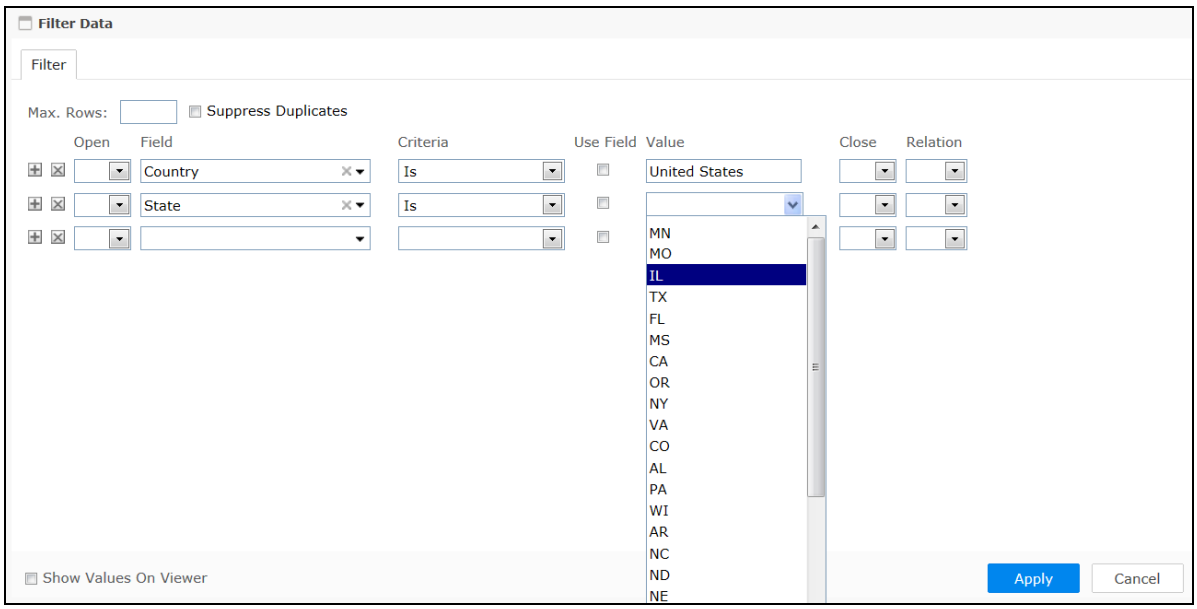


Figure 4: Filters as Link Lookup

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.

Parameters

The ad hoc report gets its data by running pre-prepared query objects. If a query needs a value at run time, it may have a user (run time) parameter included in it. The values of run time parameters are taken from the user while running the report.

Parameters are stored on repository and so can be used in one or more report and query objects.

The **Parameter** tab is shown within **Filters** icon on the Ad hoc Visualizer in case parameters have been applied to your report (showing the default set parameter values).

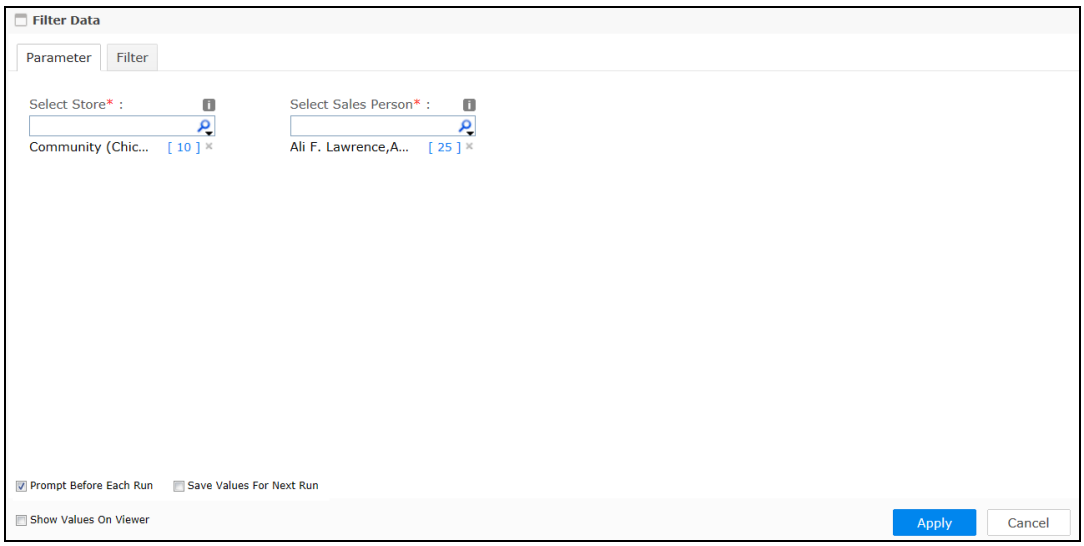


Figure 5: Parameter tab

When **'Prompt Before Each Run'** is checked, the Input Parameter Form (IPF) shows up before each report run to enable you change the default parameter value(s).

The IPF shows up in case of mandatory parameters even if this field is unchecked.

If '**Save Values For Next Run**' is checked, report runs with parameter values saved in last run (upon saving the report). In case this is unchecked, report runs using the default parameters.

When **'Show Values On Viewer'** is checked, it enables to view the list of parameters on top of the report.

In case multiple parameters as well as filters are applied, the parameters are separated from each other and from the filters using a pipe symbol.

Interactive Grid

By default, the data is visualized in the form of a grid populated from fetching the first 10 fields and a sample set of 200 records.

Agencykey	Agency Name	Agency Type	Industry Type	Insurance Category	Headquarters	Status
0	Others	Others	Others	Others	Others	ACTIVE
312	Chubb & Son	Public	Insurance & Finance	Commercial insurance	Warren(N.J.)	ACTIVE
310	Cumberland Mutual Fire Insurance	Subsidiary of Cumberland Insurance Group.	Insurance	Identity Theft Resolution Services	New Jersey.	REHABILITATION-LIMITED WRITE
313	Firemans Fund	Subsidiary of Allianz SE	Insurance	Personal auto insurance	California(United States)	ACTIVE
353	St. Paul Travelers Insurance Company	Public	Insurance	Risk management	New York City	LTR RESTRICTION-LIMITED WRITE
363	Selective Insurance Company	Public	Property and casualty	Flood insurance	Branchville(United States)	ACTIVE
359	Zurich American	Private	Financial services	Life and non-life insurance	Zurich(Switzerland)	ACTIVE
314	Fitchburg Mutual	Public	Financial services	Fire and casualty insurance	California(United States)	ACTIVE
311	Parkway Insurance	Subsidiary of Fireman's Fund Insurance Company.	Insurance	Auto insurance	Madison(WI)	ACTIVE
361	Philadelphia Contributionship Insurance	Public	Insurance	Homeowners Insurance	Philadelphia (United States)	ACTIVE

Figure 6: Ad hoc Visualizer – Grid View

The various grid properties as under **Design Mode** > **Grid Settings** are explained below:

Fields

You can select the fields to be displayed on the report.

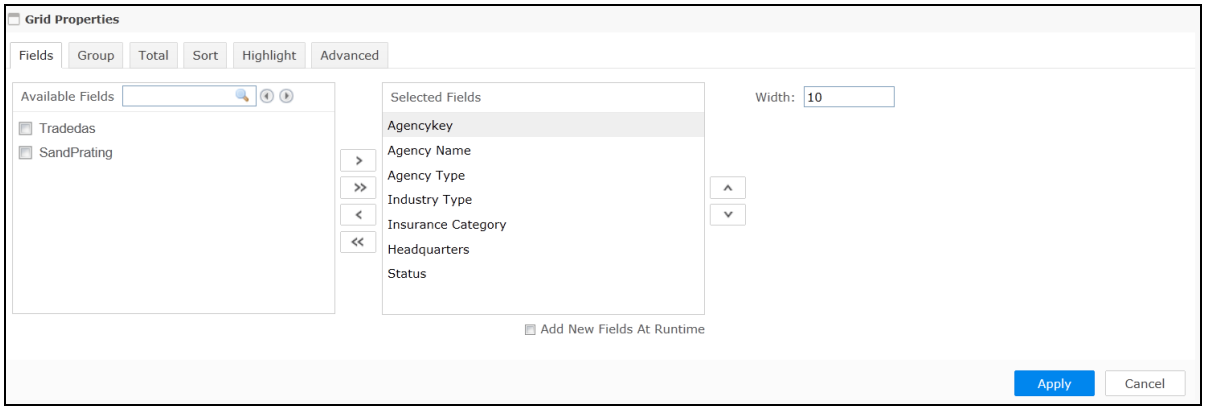


Figure 7: Selecting Fields

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.

In order to reposition fields on the report, you can use the up ^ and down v arrows.

Width denotes the number of characters of the selected field to show on the report. Field data may wrap beyond this width.

If you check **Add New Fields At Runtime** option, you can dynamically add more fields during runtime.

Group

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.

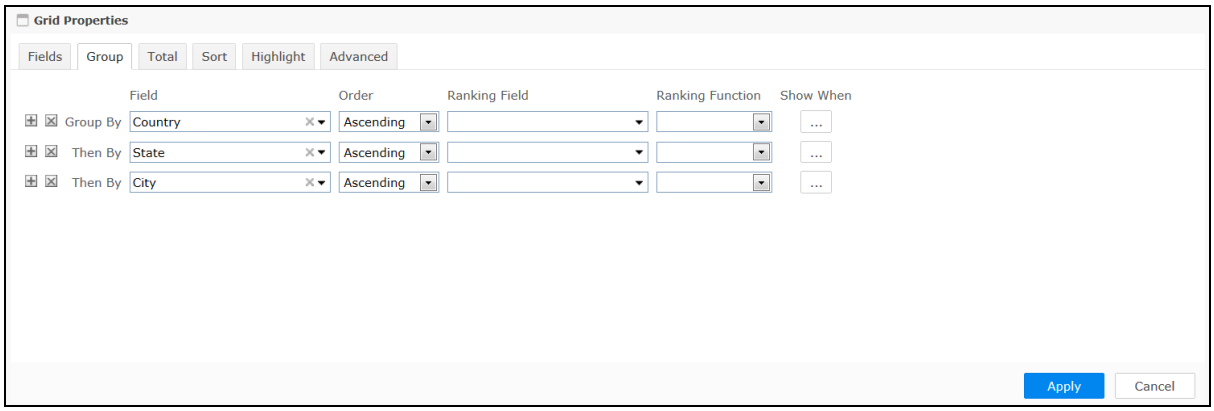


Figure 8: Specifying Group

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

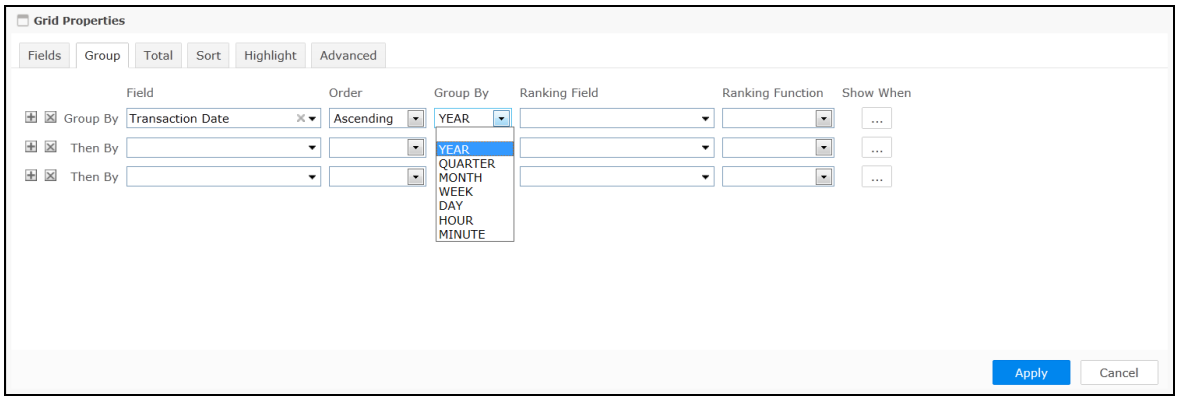


Figure 9: Date field Grouping

Total

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.

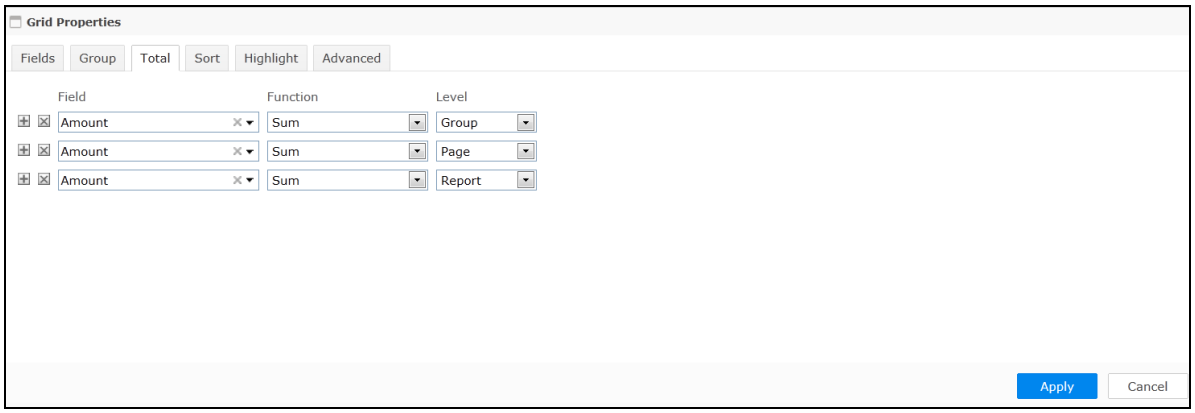


Figure 10: Applying Total (summary)

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. You can view the custom-defined functions in case the functions are defined as discussed under the section "Custom-Defined Functions".
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.

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

Custom-Defined Functions

You can also use custom-defined summary functions for summarizing data values in reports.

These summary functions can be defined in a class implementing IScriptFunction interface. The .jar file of this class should be placed in ReportEngine > lib folder.

There should also be an .xml file containing all the entries of .jar file and placed in ReportEngine > config folder.

Restart Intellicus Report Server and then Web Server to be able to see these summary functions as any other function in the list. The .xml file would look like:

```
<SUMMARYPROVIDERS>
  <!-- Summary Provider. Provider name is just a user friendly name to identify provider class.
  Class file is fully qualified java class name of the class containing summary functions.
  A summary provider may have as many summary functions as desired -->
       <SUMMARYPROVIDER PROVIDERNAME="PACKAGECAPTION"
         CLASSFILE="com.client.summaryfunctions.MathAlternate">
          <SUMMARYFUNCTIONS>
                <!-- Summary function that contain logic for applying business logic on the selected field. Name is just a user friendly name that is displayed in the dropdown. Id is a unique number that must be unique and separate from IDs of in-built summary functions.
                Recommended: Start IDs from 1001. APPLYONDATATYPES is a comma-separated list of data types on which this summary function is applicable.
                Possible values are CHAR|NUMBER|DATE. Rest all are ignored  -->
                <SUMMARYFUNCTION NAME="AlternateSum" ID="1001"
                      APPLYONDATATYPES="CHAR,NUMBER,DATE">
                </SUMMARYFUNCTION>
                <SUMMARYFUNCTION NAME="ReverseString" ID="1002"
                      APPLYONDATATYPES="CHAR">
                </SUMMARYFUNCTION>
                <SUMMARYFUNCTION NAME="ModTen" ID="1003"
                      APPLYONDATATYPES="NUMBER">
                </SUMMARYFUNCTION>
                <SUMMARYFUNCTION NAME="FutureDate" ID="1004"
                      APPLYONDATATYPES="DATE">
                </SUMMARYFUNCTION>
          </SUMMARYFUNCTIONS>
        </SUMMARYPROVIDER>
</SUMMARYPROVIDERS>
```

Sort

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

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

Ad hoc Visualizer supports multiple level of sorting. For example, you can Sort By 'Country'; then within 'Country', sort by 'State' and within 'State' sort by 'City'.

Figure 11: 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 further specify sorting on secondary field select the field from **Then By** field.

Highlight

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.

You can also specify **Alert** with or without highlight. Setting alert creates a special head listing the record count for mentioned condition(s) in the report.

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.

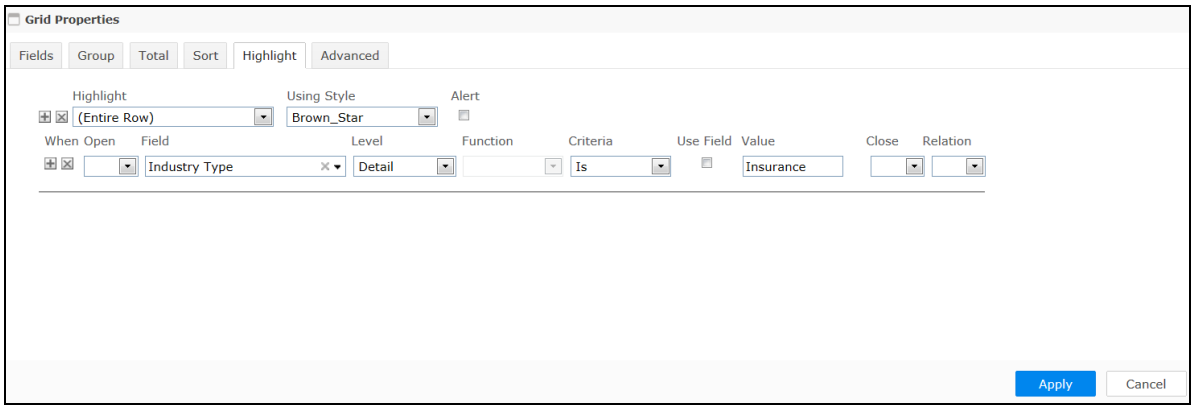


Figure 12: Setting Highlighting

Highlight 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 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 (combination of color and image) to apply on highlighting item You can select Custom Style in order to create highlights of your choice of font style and color.
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	AND = The next line condition relates to this condition with an AND operator. This

		is default behavior when blank is selected
	OR	OR = The next line condition relates to this condition with an OR operator

Advanced

Item	Values	Comments
Report Contents	Select from list: Detailed	Detailed = Shows detail section, hence showing the lowest level detail of the report
	Summarized	Summarized = Hides detail section, hence showing the lowest group level summary of the report. Summarized Report shows useful data only when groups and totals(summaries) are applied
Group Expansion Mode	Select from list: Fetch on Demand	Fetch on Demand = Fetches the data under groups from server only when expanded. By default, the groups appear in collapsed mode
	Prefetched	Prefetched = All the data under groups is pre-fetched from server but shown only when expanded
	Expanded	Expanded = All the data under groups is pre-fetched from server and shown in the expanded mode
Load Data For All Columns	Check/Uncheck	Check = When complete data set is loaded, you can see all the available fields upon right-clicking the field name header. You can check the fields you want to appear in the report Uncheck = When complete data set is loaded, you can see only the selected fields upon right-clicking the field name header (not all the available fields)

You can also edit the grid name by double-clicking on it.

You can delete a particular grid control by clicking **Delete Grid** icon on the top-right position of the grid.
Click **Delete** from under the down arrow next to **Grid** tab on the bottom-left in order to delete the entire grid view. A confirmation message pops up confirming the deletion.

Interactive Matrix

Click the '**Add Matrix'** option under **Add Tab (+)** icon in order to add a matrix view of your data.

Use matrix to summarize your report data in the form of cross-section of fields in rows and columns. For example, 'Product Type' and 'Product' in columns; 'Location' and 'State' in rows. A cross section of 'Product Type', 'Product' and 'Location', 'State' will display sales of that product in that location.

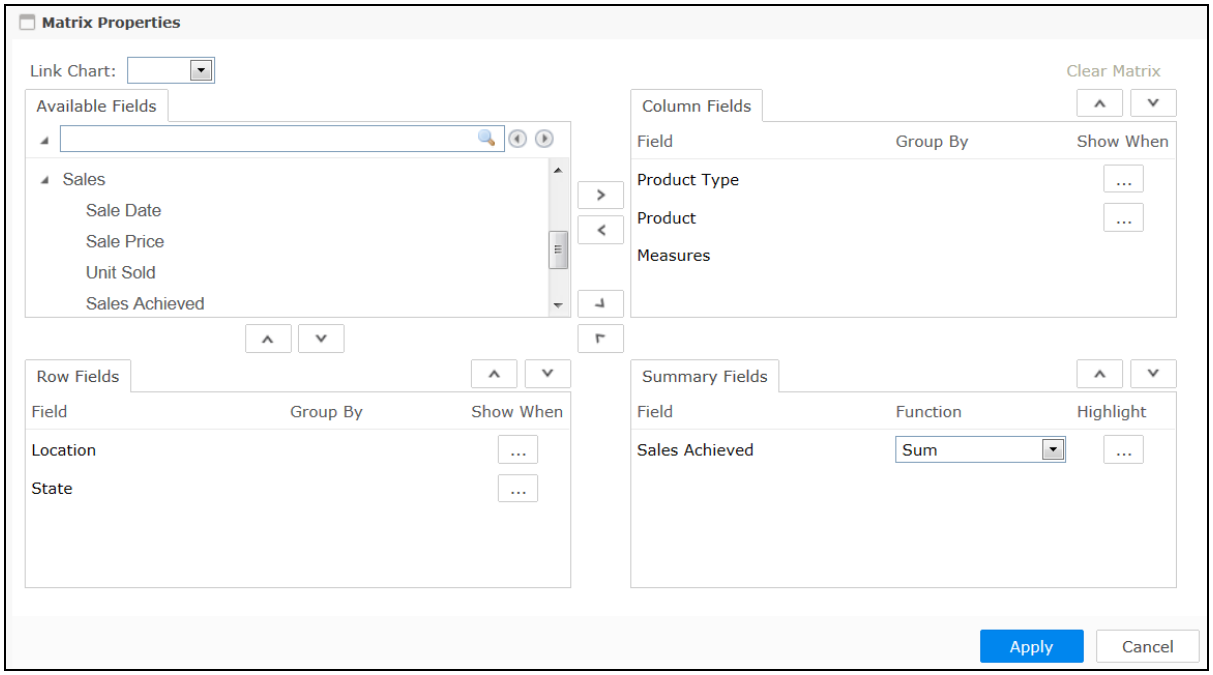


Figure 13: Creating a Matrix

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 v button.

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 properties to start all over again.

Designers/Users can link Matrix and Chart 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.

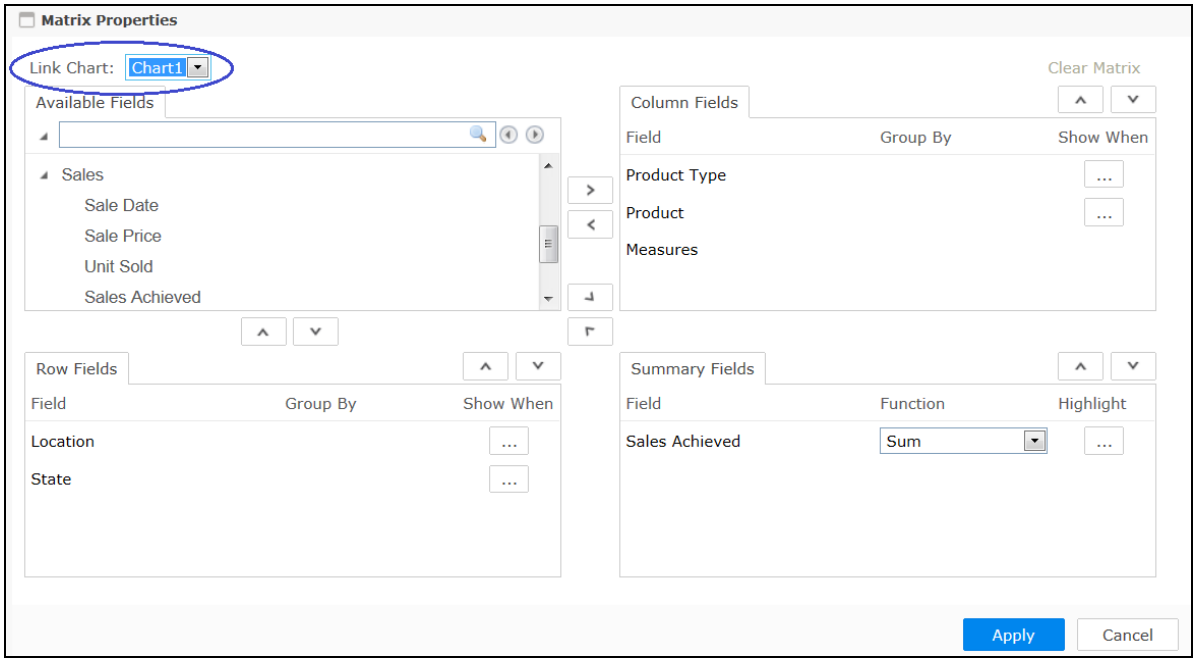


Figure 14: Link Matrix and Chart

You can also edit the matrix name by double-clicking on it.

You can delete a particular matrix control by clicking **Delete Matrix**  icon on the top-right position of the grid.
Click **Delete** from under the down arrow next to **Matrix** tab on the bottom-left in order to delete the entire matrix view. A confirmation message pops up confirming the deletion.

Interactive Chart

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

You can create multiple charts on an Ad hoc report.

The down arrow adjacent to Chart tab provides **Add Chart** option to add more charts and specify the chart details in the new chart tab. You can also control the number of charts to display by specifying **Charts Per Row**. More charts flow to the next row.

You have the option of **Move to Tab** for moving a chart to new or any existing tab (in case of multiple charts in a tab).

You can also edit the chart name by double-clicking on it.

You can delete a particular chart control by clicking **Delete Chart** icon on the top-right position of the chart.
Click **Delete** from under the down arrow next to **Chart** tab on the bottom-left in order to delete the entire chart view. A confirmation message pops up confirming the deletion.

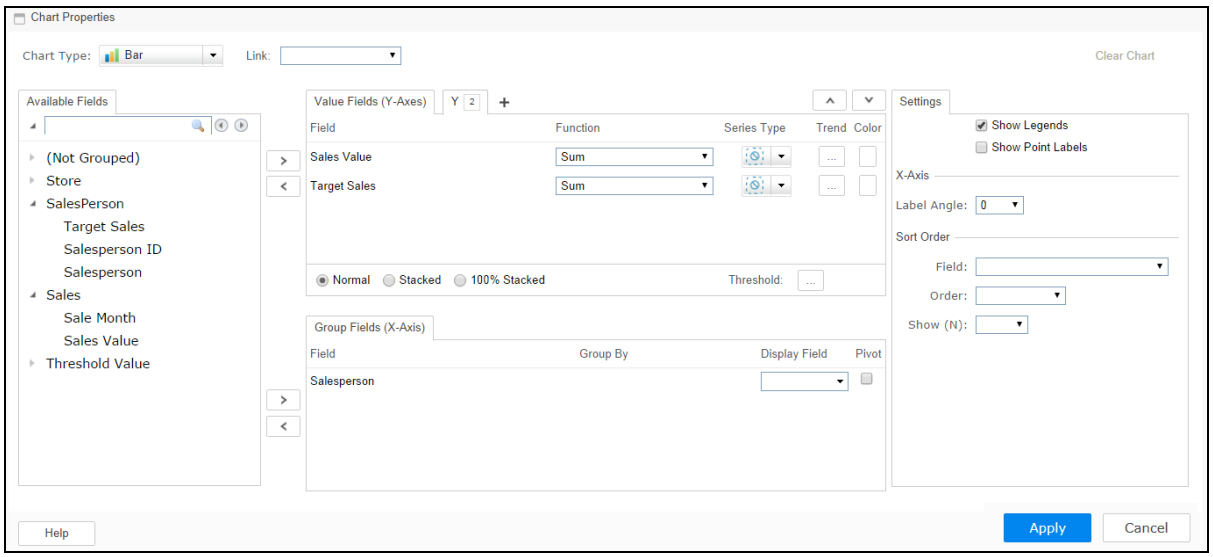
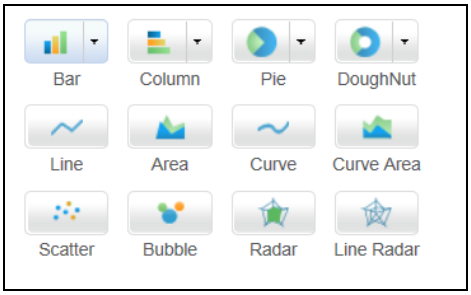
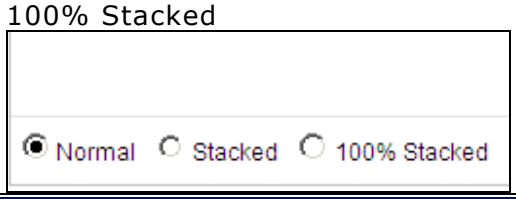
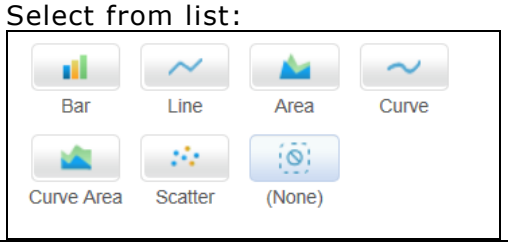
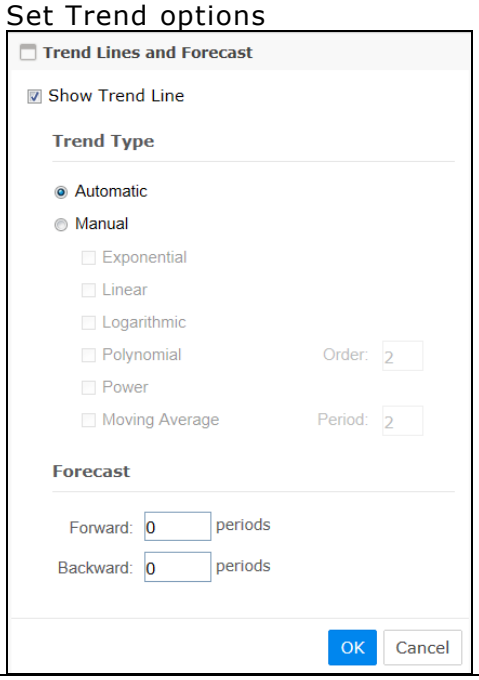
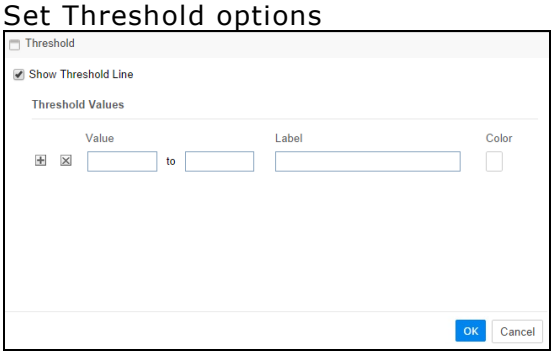


Figure 15: Creating Chart(s)

Chart properties

Item	Values	Comments
Chart Type	Select from list: 	Select the base chart type
Link	Select from list: With Report Fields Matrix	 Report Fields = Take report grouping fields as chart grouping fields and number fields from detail or 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	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 (Y-Axes)	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 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 (The trend line option will not be available if base chart type is - Column, Pie, DoughNut, Radar or Bubble) 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	Specify a value between 2-10	Defines the order of polynomial trend line. The order of the polynomial determines the number of fluctuations in the curve
Value Fields Trend Manual Moving Average	Specify a value between 0-N	Determines the number of data points to average and use as average value for trending
Forecast	Forward (x periods) Backward (x periods)	Specify trend line for future or back period of time
Value Fields Color	Select from color selector	You can select a color for the chart series or else default color would be picked from the system palette
Value Fields Threshold	Set Threshold options 	Opens threshold dialog
Value Fields Show Threshold Line	Check/Uncheck	Check = Adds a threshold line for this series. Uncheck = Switch off threshold line for this series
Value Fields Threshold Value	Specify value/range of values	You can either specify a value for Threshold Line or a range of values for Threshold Band
Value Fields Threshold Label	Enter text	Specify label text to appear for the threshold line or band on the chart
Value Fields Threshold Color	Select from color selector	Specify the color of Threshold Line or Band
Group Fields		
Group Fields (X - Axis) Field	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 Legends	Check/Uncheck	Switch On or Off legends
Show Point Labels	Check/Uncheck	Switch On or Off Data point labels
X – Axis Label Angle	Select from list: 0 30 45 60 90	Position or angle of labels on the X axis
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

Interactive Map

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

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

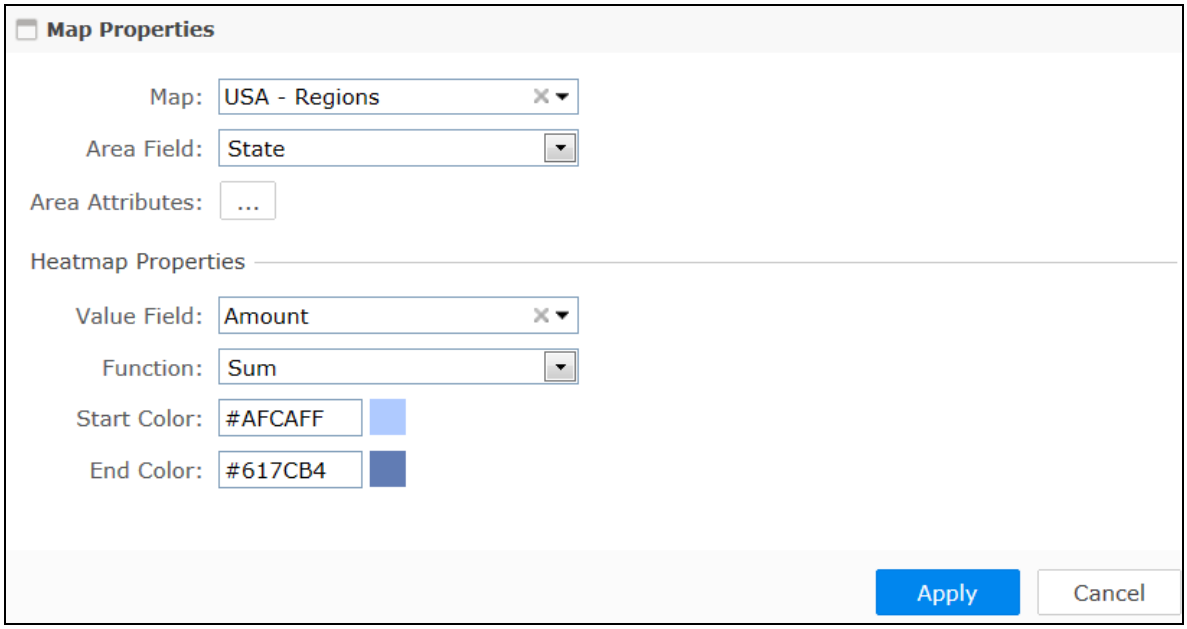
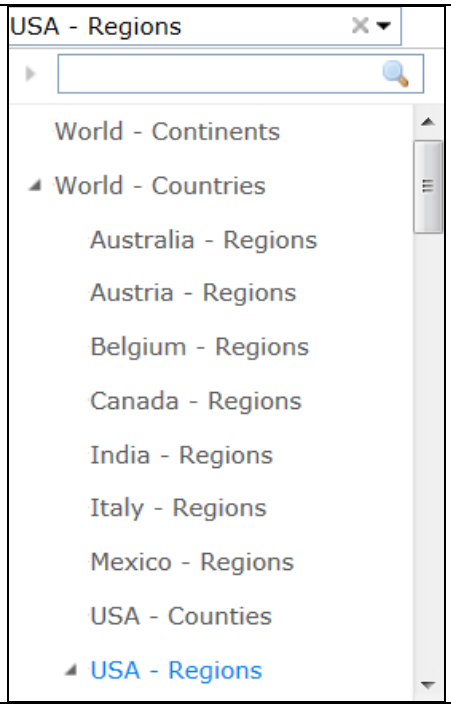


Figure 16: Creating Map

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 Properties		This section helps you design 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

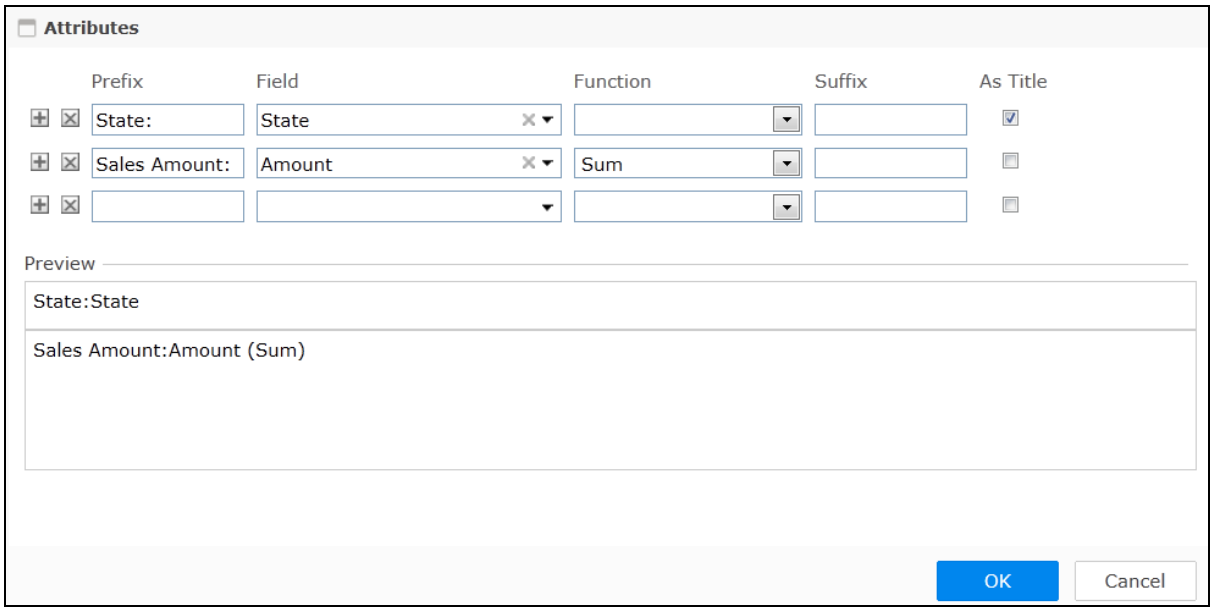


Figure 17: Attributes Dialog

You can also edit the map name by double-clicking on it.

You can delete a particular map control by clicking **Delete Map** icon on the top-right position of the grid.
Click **Delete** from under the down arrow next to **Map** tab on the bottom-left in order to delete the entire map view. A confirmation message pops up confirming the deletion.

Ad hoc Visualizer – View Mode

When an Ad hoc Report is viewed in View Mode (default: SMART format), you can do much more than just viewing the report.

While viewing a report you may want to see the effect of sorting or grouping or repositioning columns or viewing a chart in different ways. All these can be done in the View mode.

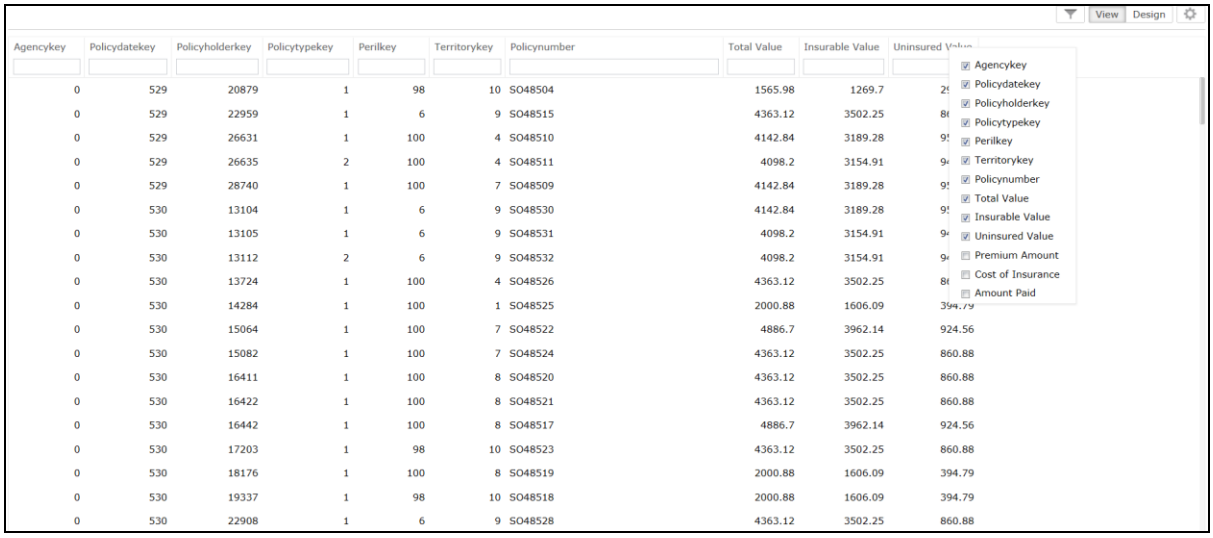
The various actions that can be performed at the report level (under View Mode > Report Options) and are similar to those under Design Mode are Refresh Data, Export, Publish, Email, Upload, Generate Link and Print (as discussed earlier under Ad hoc Visualizer - Design Mode > Report Options).

The following sections help you view your report output upon applying certain visualizations.

Interactive Grid

To hide/show a column

You can hide a column that is appearing on the report.



Agencykey	Policydatekey	Policyholderkey	Policytypekey	Perilkey	Territorykey	Policynumber	Total Value	Insurable Value	Uninsured Value
0	529	20879	1	98	10	SO48504	1565.98	1269.7	29
0	529	22959	1	6	9	SO48515	4363.12	3502.25	86
0	529	26631	1	100	4	SO48510	4142.84	3189.28	95
0	529	26635	2	100	4	SO48511	4098.2	3154.91	94
0	529	28740	1	100	7	SO48509	4142.84	3189.28	95
0	530	13104	1	6	9	SO48530	4142.84	3189.28	95
0	530	13105	1	6	9	SO48531	4098.2	3154.91	94
0	530	13112	2	6	9	SO48532	4098.2	3154.91	94
0	530	13724	1	100	4	SO48526	4363.12	3502.25	86
0	530	14284	1	100	1	SO48525	2000.88	1606.09	394.79
0	530	15064	1	100	7	SO48522	4886.7	3962.14	924.56
0	530	15082	1	100	7	SO48524	4363.12	3502.25	860.88
0	530	16411	1	100	8	SO48520	4363.12	3502.25	860.88
0	530	16422	1	100	8	SO48521	4363.12	3502.25	860.88
0	530	16442	1	100	8	SO48517	4886.7	3962.14	924.56
0	530	17203	1	98	10	SO48523	4363.12	3502.25	860.88
0	530	18176	1	100	8	SO48519	2000.88	1606.09	394.79
0	530	19337	1	98	10	SO48518	2000.88	1606.09	394.79
0	530	22908	1	6	9	SO48528	4363.12	3502.25	860.88

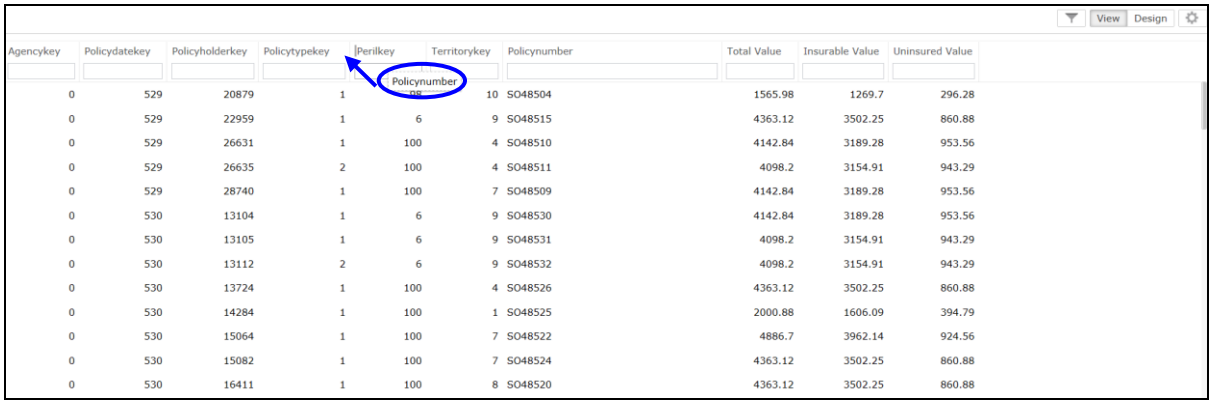
Figure 18: Hiding/showing a column

1. Right-click the mouse on the column title that you want to hide. A list of columns appears.
2. Uncheck the column(s) to hide.

The report will be refreshed which will not have the column(s) that were hidden. All the checked column(s) would show in the report.

To change column position on report

You can reposition a column already placed on the report.



Agencykey	Policydatekey	Policyholderkey	Policytypekey	Perilkey	Territorykey	Policynumber	Total Value	Insurable Value	Uninsured Value
0	529	20879	1	98	10	SO48504	1565.98	1269.7	296.28
0	529	22959	1	6	9	SO48515	4363.12	3502.25	860.88
0	529	26631	1	100	4	SO48510	4142.84	3189.28	953.56
0	529	26635	2	100	4	SO48511	4098.2	3154.91	943.29
0	529	28740	1	100	7	SO48509	4142.84	3189.28	953.56
0	530	13104	1	6	9	SO48530	4142.84	3189.28	953.56
0	530	13105	1	6	9	SO48531	4098.2	3154.91	943.29
0	530	13112	2	6	9	SO48532	4098.2	3154.91	943.29
0	530	13724	1	100	4	SO48526	4363.12	3502.25	860.88
0	530	14284	1	100	1	SO48525	2000.88	1606.09	394.79
0	530	15064	1	100	7	SO48522	4886.7	3962.14	924.56
0	530	15082	1	100	7	SO48524	4363.12	3502.25	860.88
0	530	16411	1	100	8	SO48520	4363.12	3502.25	860.88

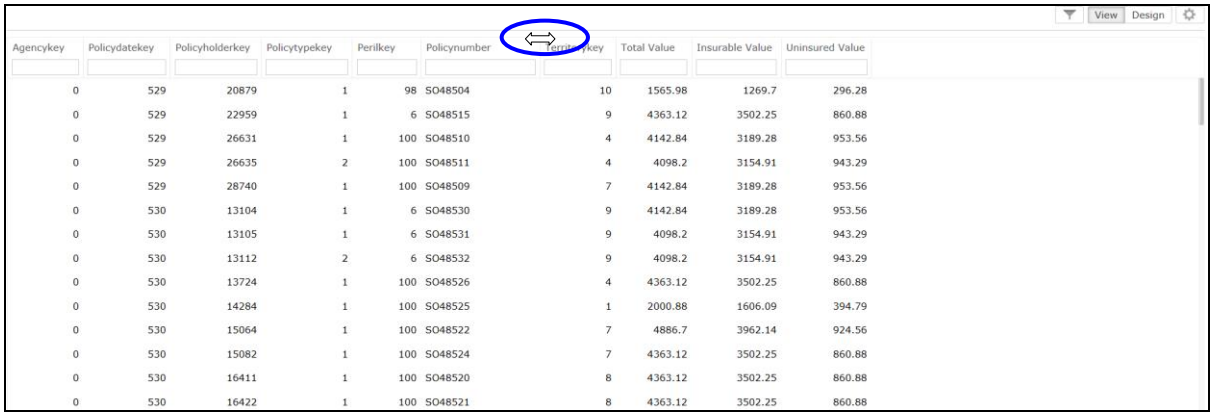
Figure 19: Changing position of a column

1. Click the mouse (on the title of the column that needs to be repositioned.) Markers appear on left and right edge of the column.
2. Drag the column header towards right or left side. A black line appears where the column will be placed.
3. After reaching at right place, leave the mouse key.

The report will be refreshed with the field placed at the new location.

To resize a column

You can resize a column already placed on the report. You can do the following to achieve this:



Agencykey	Policydatekey	Policyholderkey	Policytypekey	Perilkey	Policynumber	Terrritykey	Total Value	Insurable Value	Uninsured Value
0	529	20879	1	98	SO48504	10	1565.98	1269.7	296.28
0	529	22959	1	6	SO48515	9	4363.12	3502.25	860.88
0	529	26631	1	100	SO48510	4	4142.84	3189.28	953.56
0	529	26635	2	100	SO48511	4	4098.2	3154.91	943.29
0	529	28740	1	100	SO48509	7	4142.84	3189.28	953.56
0	530	13104	1	6	SO48530	9	4142.84	3189.28	953.56
0	530	13105	1	6	SO48531	9	4098.2	3154.91	943.29
0	530	13112	2	6	SO48532	9	4098.2	3154.91	943.29
0	530	13724	1	100	SO48526	4	4363.12	3502.25	860.88
0	530	14284	1	100	SO48525	1	2000.88	1606.09	394.79
0	530	15064	1	100	SO48522	7	4886.7	3962.14	924.56
0	530	15082	1	100	SO48524	7	4363.12	3502.25	860.88
0	530	16411	1	100	SO48520	8	4363.12	3502.25	860.88
0	530	16422	1	100	SO48521	8	4363.12	3502.25	860.88

Figure 20: Resizing a column

1. Click anywhere on the header of the column which you want to resize. Markers appear on left and right edge of the column.
2. Click the marker and drag the mouse pointer towards left or right side. The mouse pointer changes to a double-headed arrow.
3. After required resizing, leave the mouse key.

Report will be refreshed and refreshed report will have new size of the column.

To view Grouping

You can view multi-level grouping in your report, for example, group the report data by 'Year'; within 'Year' by 'Sale Date'; within 'Sale Date' by 'Store Address' and then by 'Product Category'.

Year, Sale Date, Store Address, Product Category	Sales Achieved
2008	$1,807,498.00
Jul/2008	$357,232.00
Downtown(Sonora - CA)	$90,256.00
Televisions	$56,727.00
Cameras	$22,847.00
Accessories	$10,682.00
Outlet Mall(MetroPark - NJ)	$60,156.00
Televisions	$40,904.00
Cameras	$12,851.00
Accessories	$6,401.00
Independent(Kuai - HI)	$47,994.00
Downtown(New York - NY)	$34,417.00
Downtown(Hermosa Beach - MA)	$28,660.00
Community(Ruston - KY)	$28,326.00
Outlet Mall(Lock Haven - ND)	$26,123.00
Community(Morgantown - MS)	$15,610.00
Community(Chicago - IL)	$13,211.00
Residential(Montgomery - AL)	$12,479.00
Aug/2008	$255,200.00

Figure 21: Grouping view in report

To view Totaling

In case you have applied **Sum** function to 'Sale Amount' at **Group** level, the report output would look like the following:

Product Line	Order No	Order Dt	Product Line	Product	Price	Quantity	Discount	Ordered Amount	Sale Amount
EarPhone									513.68
MP3 p1									14604.80
Recycled Products									439.56
VCD P									256.32
Water Purifiers									128985.60
	106	01/22/2004	Water Purifiers	Pro-Lite Water Filter	190.00	1.00	19.00	190.00	153.90
	254	04/29/2003	Water Purifiers	Pro-Lite Water Filter	165.00	20.00	45.00	3300.00	1815.00
	341	01/22/2003	Water Purifiers	Pro-Lite Water Filter	145.00	132.00	19.00	19140.00	15503.40
	344	04/29/2004	Water Purifiers	Pro-Lite Water Filter	145.00	132.00	19.00	19140.00	15503.40
	345	05/29/2003	Water Purifiers	Pro-Lite Water Filter	145.00	134.00	19.00	19430.00	15738.30
	346	05/29/2004	Water Purifiers	Pro-Lite Water Filter	145.00	135.00	19.00	19575.00	15855.75
	784	04/29/2005	Water Purifiers	Pro-Lite Water Filter	165.00	20.00	45.00	3300.00	1815.00
	871	01/22/2005	Water Purifiers	Pro-Lite Water Filter	145.00	132.00	19.00	19140.00	15503.40
	874	04/29/2006	Water Purifiers	Pro-Lite Water Filter	145.00	132.00	19.00	19140.00	15503.40
	875	05/29/2005	Water Purifiers	Pro-Lite Water Filter	145.00	134.00	19.00	19430.00	15738.30
	876	05/29/2006	Water Purifiers	Pro-Lite Water Filter	145.00	135.00	19.00	19575.00	15855.75

Figure 22: Totaling view in report

To view Sorting

Ad hoc Visualizer supports multiple level of sorting. For example, you can Sort By 'State' and within 'State' sort by 'City'.

You can click the column name in order to sort the column in ascending/descending order.

Transaction Date	Name	Amount	Payment Type	Zip	State	City
01/07/2009	Walter Burton	$364.60	Visa	36352	AL	Newton
01/05/2009	Colton Davenport	$616.04	Diners	72364	AR	Marion
01/13/2009	Eaton Browning	$889.43	Visa	92333	CA	Fawnskin
01/06/2009	Cade Finley	$568.99	Amex	91798	CA	Ontario
01/05/2009	Vincent Lee	$305.31	Visa	92274	CA	Thermal
01/18/2009	Sylvester Hester	$305.31	Visa	80162	CO	Littleton
01/10/2009	Jelani Farrell	$856.95	Visa	32626	FL	Chiefland
01/06/2009	Buckminster Arnold	$366.22	Visa	33663	FL	Tampa
01/15/2009	Dalton Peterson	$794.42	Amex	30603	GA	Athens
01/07/2009	Lane Morris	$867.76	Amex	51501	IA	Council Bluffs
01/05/2009	Tyrone Hoover	$589.37	Visa	50248	IA	Story City
01/03/2009	Matthew Gomez	$335.25	Visa	83420	ID	Ashton
01/02/2009	Marshall Dorsey	$379.85	Visa	60683	IL	Chicago
01/02/2009	Lamar Henry	$889.43	Visa	61020	IL	Davis Junction
01/18/2009	Colin Barton	$364.60	Visa	61041	IL	Hanover
01/04/2009	Nathan Tate	$111.53	Mastercard	61616	IL	Peoria

Figure 23: Sorting in report

To view Searching

You can enter field values in the text boxes below column names to see records matching the inline search criteria.

Order No	Order Dt	Product Line	Product	Price	Quantity	Discount	Ordered Amount	Sale Amount
		water purifiers						
106	01/22/2004	Water Purifiers	Pro-Lite Water Filter	190.00	1.00	19.00	190.00	153.90
254	04/29/2003	Water Purifiers	Pro-Lite Water Filter	165.00	20.00	45.00	3300.00	1815.00
341	01/22/2003	Water Purifiers	Pro-Lite Water Filter	145.00	132.00	19.00	19140.00	15503.40
344	04/29/2004	Water Purifiers	Pro-Lite Water Filter	145.00	132.00	19.00	19140.00	15503.40
345	05/29/2003	Water Purifiers	Pro-Lite Water Filter	145.00	134.00	19.00	19430.00	15738.30
346	05/29/2004	Water Purifiers	Pro-Lite Water Filter	145.00	135.00	19.00	19575.00	15855.75
784	04/29/2005	Water Purifiers	Pro-Lite Water Filter	165.00	20.00	45.00	3300.00	1815.00
871	01/22/2005	Water Purifiers	Pro-Lite Water Filter	145.00	132.00	19.00	19140.00	15503.40
874	04/29/2006	Water Purifiers	Pro-Lite Water Filter	145.00	132.00	19.00	19140.00	15503.40
875	05/29/2005	Water Purifiers	Pro-Lite Water Filter	145.00	134.00	19.00	19430.00	15738.30
876	05/29/2006	Water Purifiers	Pro-Lite Water Filter	145.00	135.00	19.00	19575.00	15855.75

Figure 24: Searching in report

To view Highlighting

You can set multiple highlights on a report; for example highlight Sales Persons with 'Sales Value' above Threshold; below Target Sales and above Threshold; and below Threshold in different colors and styles.

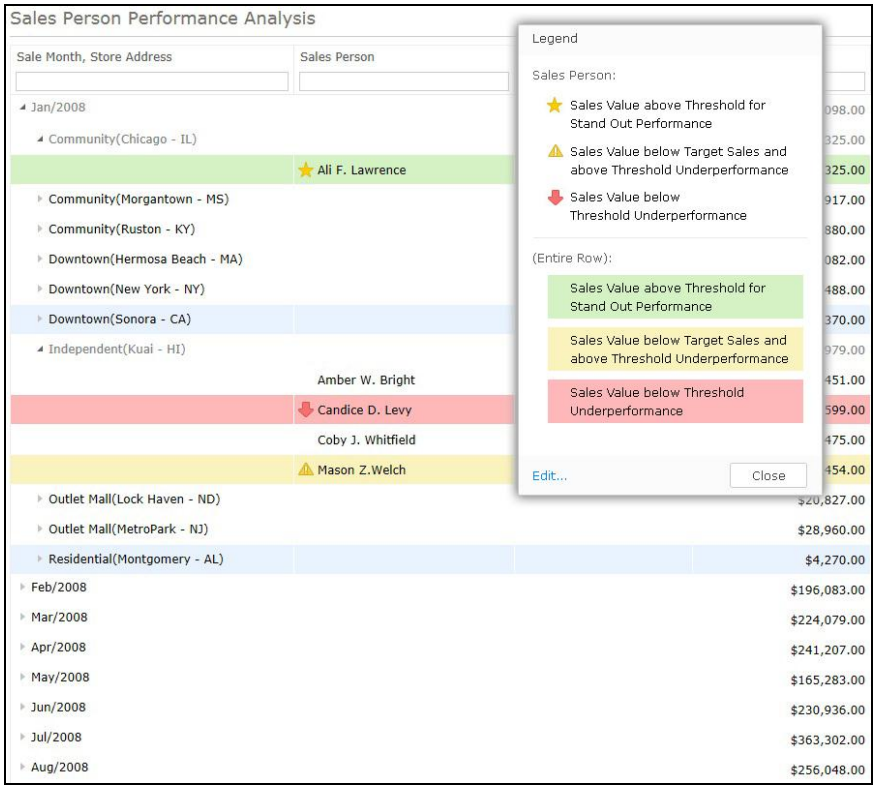


Figure 25: Highlighting in report

You can also view the alerts generated upon critical business scenarios.

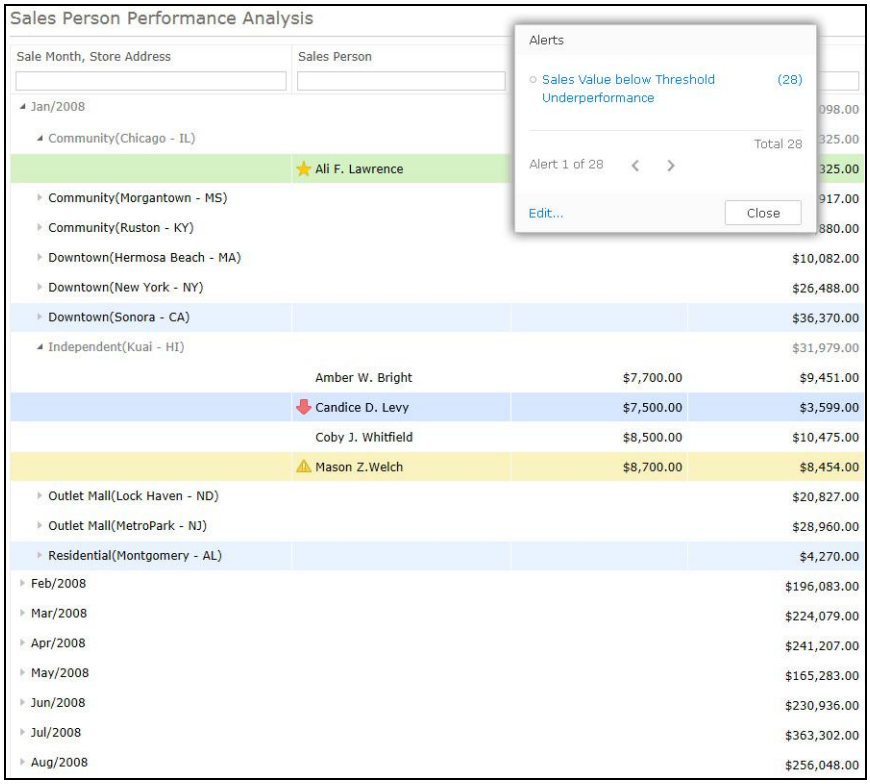


Figure 26: Alerting in report

Interactive Matrix

You can summarize your data set in the form of a pivot table with cross tabulated values on the matrix viewer. The matrix viewer provides expanding and collapsing on both rows and columns.

An interactive matrix where 'Product Category', 'Product Type' and 'Product' are displayed in rows and 'Manufacturer' is displayed in column. A cross section of 'Product Category', 'Product Type', 'Product' and 'Manufacturer' will display sales (in units & amount) of that product under that manufacturer.

			Manufacturer	Measures
			ALL	
Product Category	Product Type	Product	Unit Sold	Sales Achieved
ALL	ALL	ALL	2316	$1,807,498.00
	CRT	ALL	192	$332,946.00
	Camera Accessories	ALL	622	$133,760.00
	DLP	ALL	342	$556,158.00
	LCD	ALL	96	$160,180.00
	Plasma	ALL	66	$111,274.00
	Point-and-Shoot	ALL	284	$210,038.00
	SLR	ALL	78	$50,362.00
	TV Accessories	ALL	372	$85,104.00
	Video	ALL	264	$167,676.00

Figure 27: Interactive Matrix in report

Interactive Chart

Ad hoc Visualizer allows creating multiple charts on a data set and arranging them in one or more tabs. These can zoom and are animated charts for detailed analysis.

The below image shows a chart tab created with 2 charts - one showing breakup by location and card type and another showing trend on timeline.

Figure 28: Multiple Charts in report

Interactive Map

GIS map visualization provides heat maps on various location maps and drill down.

A map showing website visits from different locations of the USA is shown below.

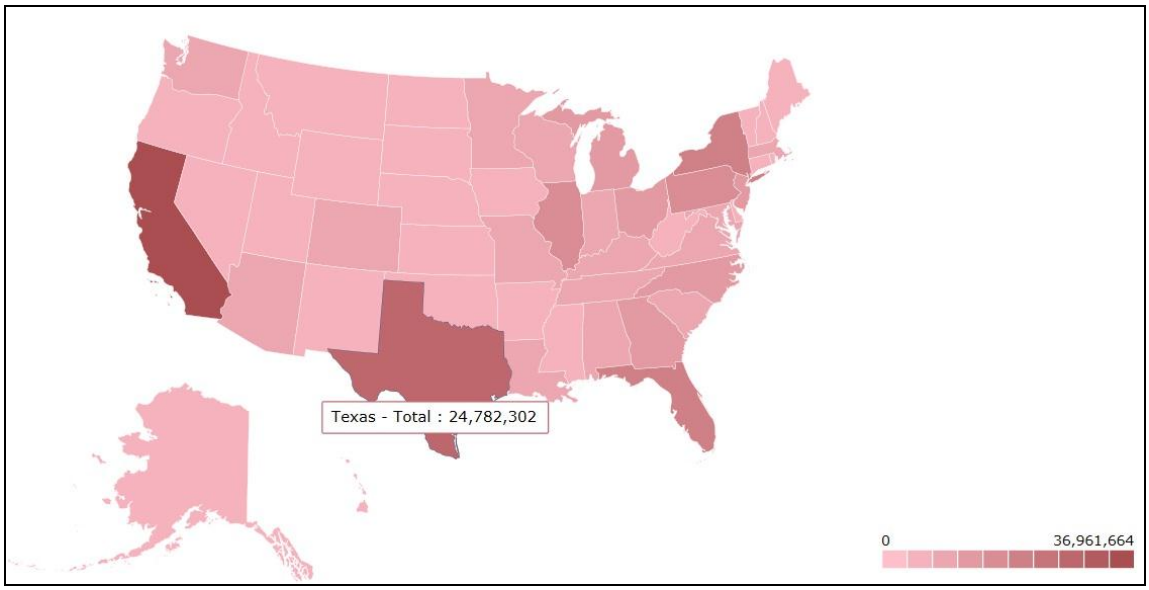


Figure 29: Interactive Map in report