Working with Query Objects

Intellicus Enterprise Reporting and BI Platform

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Enterprise Reporting and
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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Query Objects

Query Objects form the business Meta layer for end user reporting. Query Objects hides the physical database details, SQL complexities, table names from the end user who can design ad hoc reports, charts, KPIs and dashboards without knowing where and how the data is fetched from the database.

A query object contains details to fetch desired data from a desired data connection. A Query Object provides data for reports and Cube Objects.

A Query Object can be a source for another Query Object.

Pre-requisites

License

Ensure that Intellicus system you are using is licensed for Ad hoc Reporting feature.

Access Rights

Ensure that currently logged in user has 'Data Administrator' privilege.
Ensure that currently logged in user has access rights granted on the database connections on which Query Object needs to be designed.

Workflow Enabled Query Objects

Query Object Editor

Following are main sections in the query object designer.

1) Editor or design canvas - the central area of the Query Object designer that diagrammatically represents the design of the currently opened Query Object.
2) Step Selector – the left pane from where you can drag required Steps to design the Query Object
3) Properties tab – the bottom area where you can edit properties of any selected item on the editor
4) Results tab - the bottom area where you can view data result set processed up to currently selected step
5) Button palette – Action buttons on the top for CRUD operations

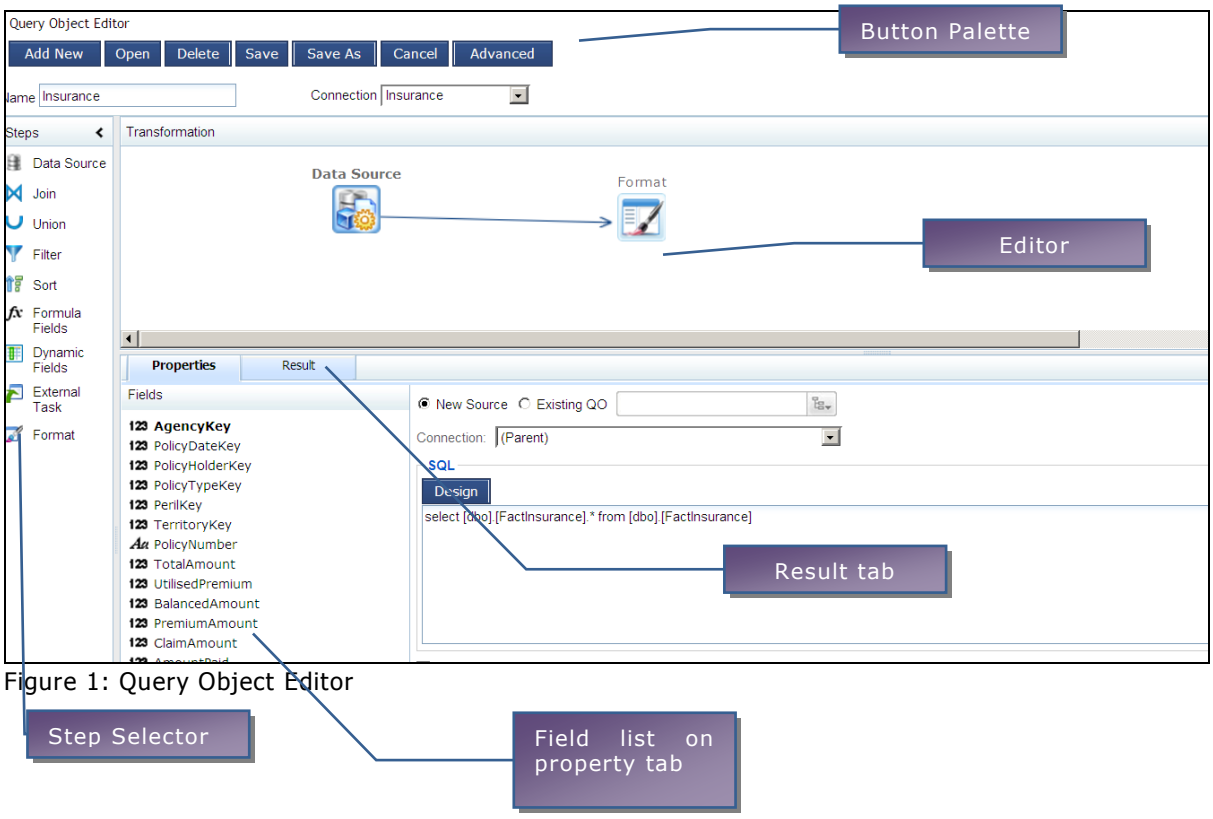


Figure 1: Query Object Editor

Editor section is a plain canvas. When you add a new Query Object the designer gives you already created two steps – data Source and Format.

An edge line joins the two steps, with an arrow depicting the flow of data.

You can select a new step from the step selector and drag it on the editor and then join the step with another. Draw the joining line in the direction of dataflow.

You can also directly drop a step on an existing edge line, to insert the new step between the two existing ones joined by that line. For example, to insert a filter step between Data Source and Format, drop the Filter step on the line.

You can have multiple Data Source steps in a Query Object.

Based on standard data processing rules, some steps can take multiple inputs. For example, a join step can take two inputs and a Union can take more than two inputs.

At each step you can select the Result tab to see the result data set up to selected step. This is a sample data set and may not be complete data.

Simple Steps

Following are the primary steps with their behaviour and properties explained:

Data Source step

The Data Source step brings data into this Query Object.

We can bring data into this Query Object from
i) RDBMS source using SQL or stored procedure
ii) File source
iii) Web service
iv) Another Query Object

There can be any number of Data Source steps in a Query Object.

Each Data Source step has following properties to set:

Properties

Property	Values	Comments
New Source/ Existing QO	New Source/ Existing QO	You choose whether a new SQL or file source to be created or you can use an existing Query Object
Connection	Select from available list or Select (Parent)	When selected (Parent), then this Data Source fetches data from the connection specified at Query Object level (at the top, below the button palette), or falls back to default connection configured for the user. When a connection name is selected, then this Data Source fetches data only from that connection, irrespective of Query Object connection or connection of other Data Source in this Query Object
SQL	A Complete SQL statement designed with the help of SQL Wizard	This property is visible when you select a connection that points to an RDBMS. The SQL Designer window opens for you to design an SQL or procedure. See below for SQL Designer details.
File/Stream Source	File name, File type and parsing details designed with help of File Selector Wizard	This property is visible when you select a connection that points to a file system. The File Selector window opens for you to specify File name, File type and parsing details
Web Service	Web service, method name and	This property is visible when you select a connection that points to a Web Service.

	Record pattern details designed with help of Web Service Selector	The Web Service Selector window opens for you to specify Web service, port, method name and Record pattern
Existing QO	Select an existing Query Object	The output of the select Query Object becomes input of this Data Source
Sorted	Check/Uncheck	Check = You specify if this data is already sorted on one or more fields. This flag helps in optimizing sort dependant steps or processes later in the data flow
Fields	Lists all fields available in this Data Source	The fields along with Field Properties can be set as discussed later

SQL Designer

This wizard allows you to design SQLs by dragging and dropping tables (Design tab) or by typing the complete SQL (Edit tab).

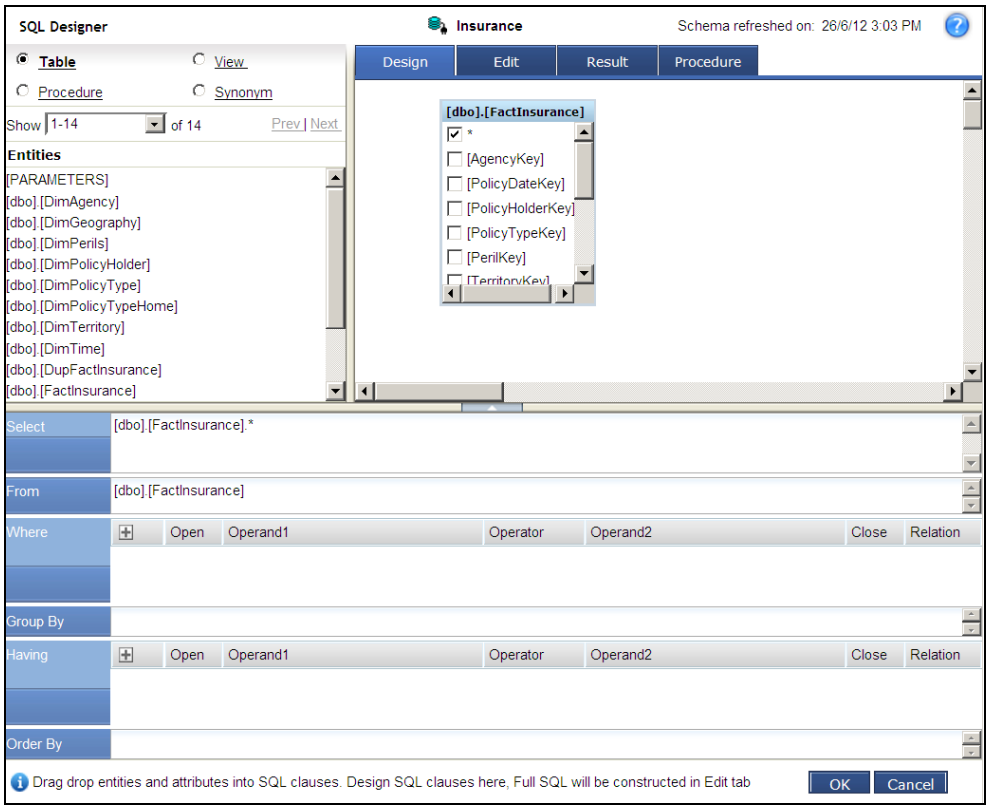


Figure 2: SQL Designer

File Selector

This wizard allows you to select a file and provide parsing properties to fetch records from that file.

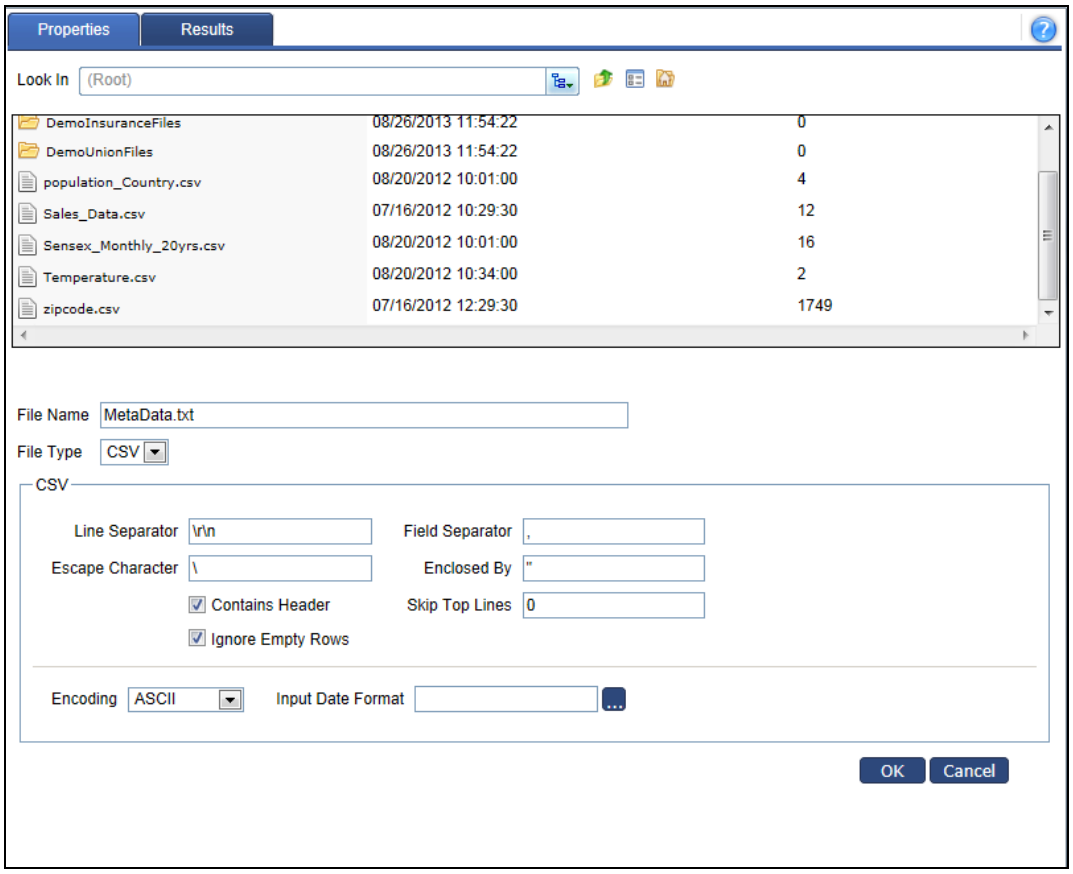


Figure 3: File Selector

Web Service Selector

This wizard allows you to select a web service available from the connected web Service provider and also provide Method, Record pattern details.

By reading the WSDL, it also prompts for parameters required to request the Web Service.

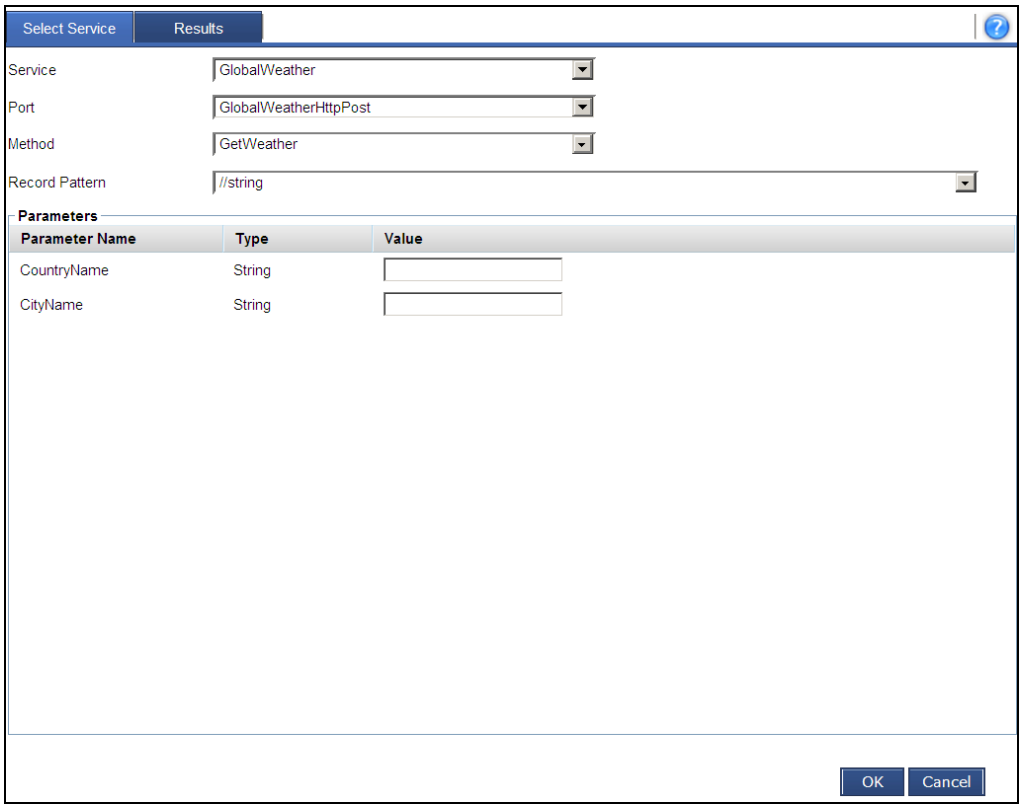


Figure 4: Web Service Selector

XML as Source

You can use XML as the source for designing query objects. The XML can be fetched from a Local path, Network path, HTTP URL or from a Database field.

You can create a connection to a Web URI. From that Web URI, data administrator can query (SOAP) whichever web services are available and create Query Objects from Web Service Result.

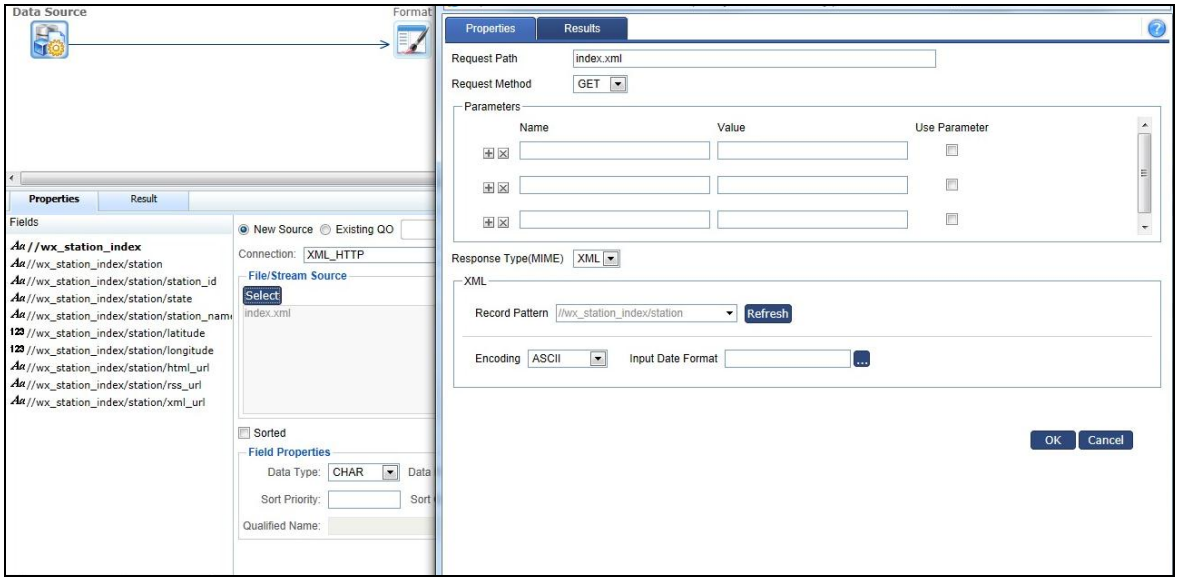


Figure 5: XML as Source

Field Level Properties at Data Source step

Figure 6: Field Level Properties

Property	Values	Comments
Data Type	CHAR, NUMBER, DATE, BINARY	Select the data type of the incoming data
Data Format	Format String	Specify the format of the incoming data. This is useful only if Date or IP Address type data are incoming in CHAR fields but needs to be converted to Date and Number types for further use
Database Time Zone	Select Time zone from the list	Specify the time zone in which the incoming date data is stored. This is useful only if date time data needs to be converted to other time zone data based on reporting requirement. For example when incoming GMT data need to show EDT (or any requested TZ) value in report, specify that the incoming data is GMT. The output format is generally specified in Format step or in user preference
Length/Precision	Type yourself	Length of field for Char data type Precision or length of field for Number data type
Scale	Type yourself	Scale or number of digits after decimal point
Locale	Select from the list	Select the language/ country in which the incoming date data is stored
Sort Priority	Number 0-N	If the data is sorted on multiple fields then specify sort priority number of this field. Primary sort field should be the lowest number
Sort Criteria	Ascending/ Descending	Specify sort as either ascending or descending order
Qualified Name	Type yourself	This name helps using the field name in all the SQL clauses such as WHERE and ORDER BY or to resolve field name ambiguity when same field comes from two tables or expressions

Format step

Format step primarily lists all fields provided by this Query Object.
Format step generally is the last step, captures captions etc. and acts as business view of the Query Object.

Figure 7: Format Step

For each field following properties are set:

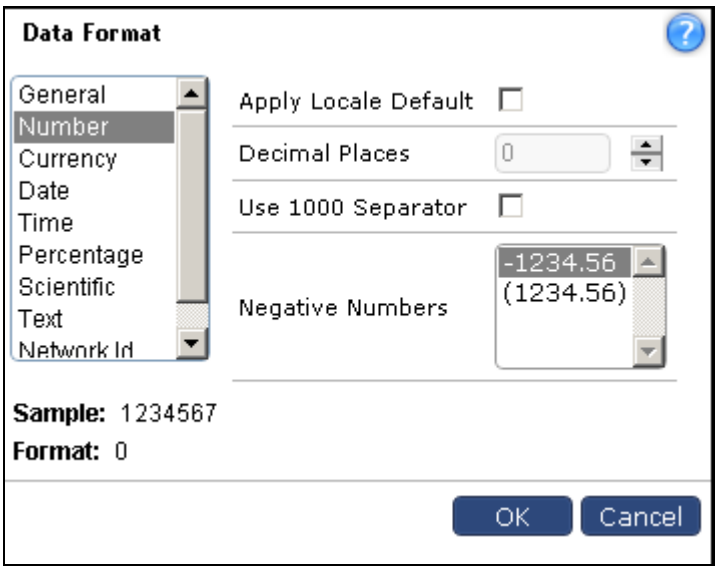
Property	Values	Comments
Field	Name of Field (read only)	Original name of field. When you change the caption, the caption keeps showing in the field list
Source	Step Name (read only)	In which step did this field originate in this Query Object. Helps in tracking a field source in a complex Query Object
Caption	Type yourself	This is what end user sees this field as
Hyperlink	Drilldown detail or Hyperlink URL	Detailed steps of specifying hyperlink is mentioned below in a separate section
Group Label	Type Yourself or Select from list	To create a new group, Type the new group name. To put this field into an existing group, select group name from the drop down list
Hidden	Check/Uncheck	Check = makes this field invisible to users for reporting process. It also hides this field from next Query Object if this Query Object is used as a Data Source
GIS Enabled	Check/Uncheck	Check = This field has GIS classification data such as country names, state or city names. GIS enabled field appear in selection list for grouping option in GIS mapping visualization screens
Format		

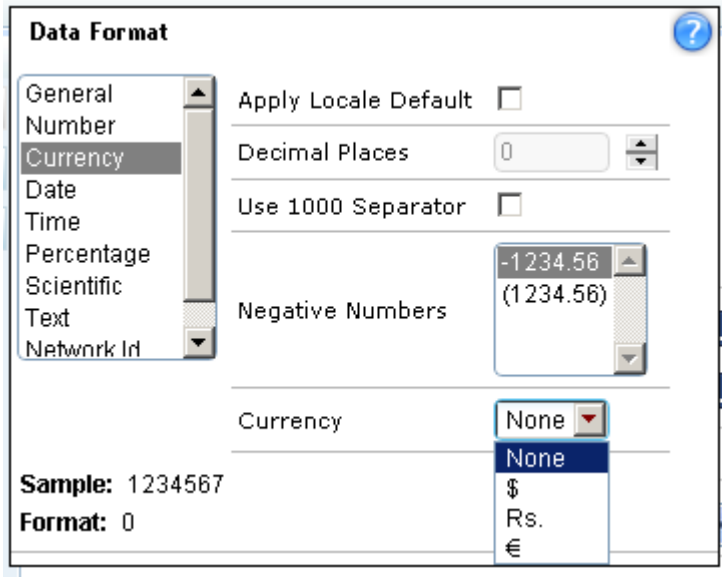
properties		
Width	Number 1-100	Default width of this field when dragged onto a report
Output Format	Format String	This field value will be formatted using this format string. Useful for Date and Number formatting. If you need to decide the format string at run time, then select "Apply Locale Default" property in the Format String selector dialog
Align	Left, Right, Center	This field, when put on a report, its values will be aligned to the selected side by default
Input Format	Format String	This format string decides the Prompting format for the value for this field in Ad hoc Filter screen. This is useful in prompting date values in desired format. This is also used to input IP Address format for number values
User Time Zone	Select Time zone	Specify the time zone in which the date data is to be converted and displayed. The Report Server calculates the difference between Database Time Zone and User Time Zone, and does time conversion. For deciding User Time Zone at run time, select SYS_USER_TZ value.

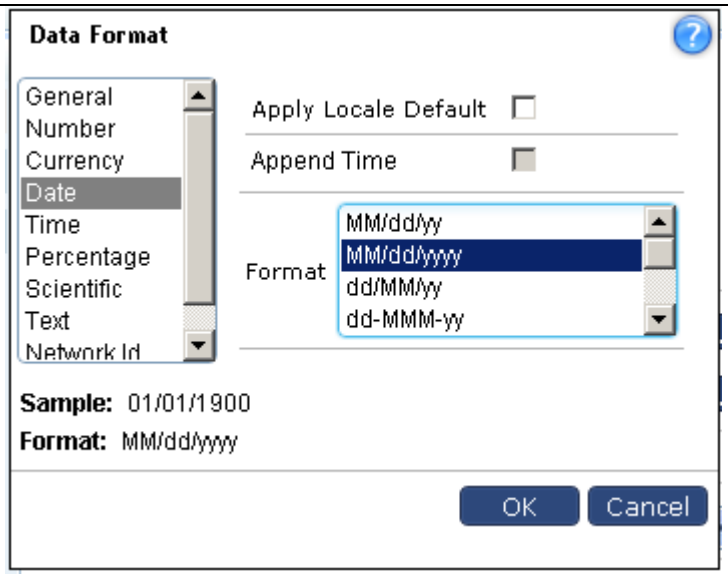
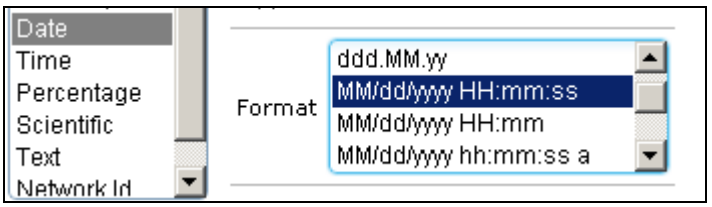
Data Format Dialog

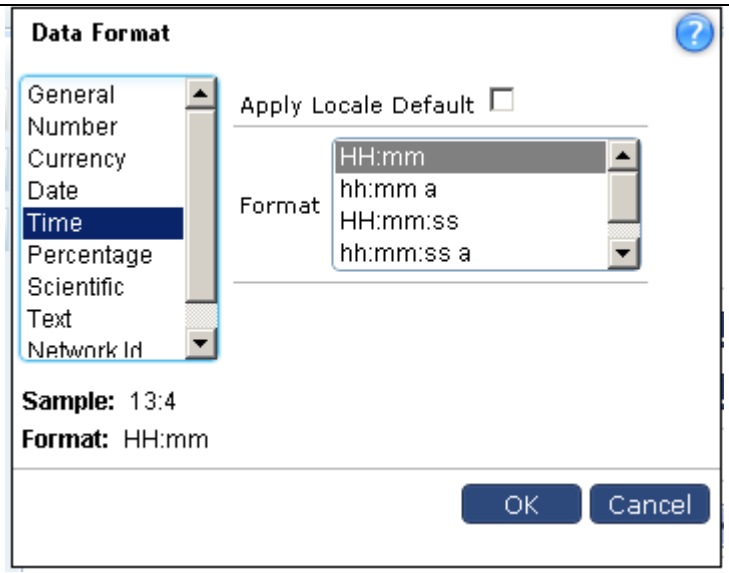
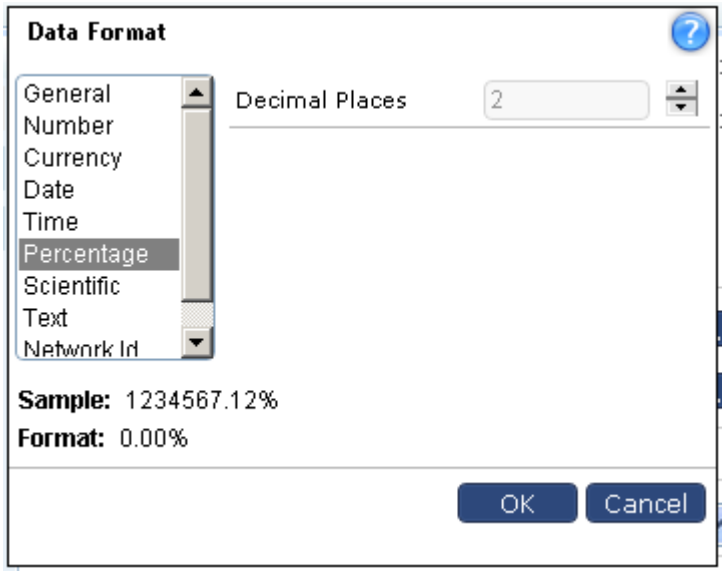
Data Format dialog is used to set the format string using selections. As an alternate you can also type-in the format string in the format text box.

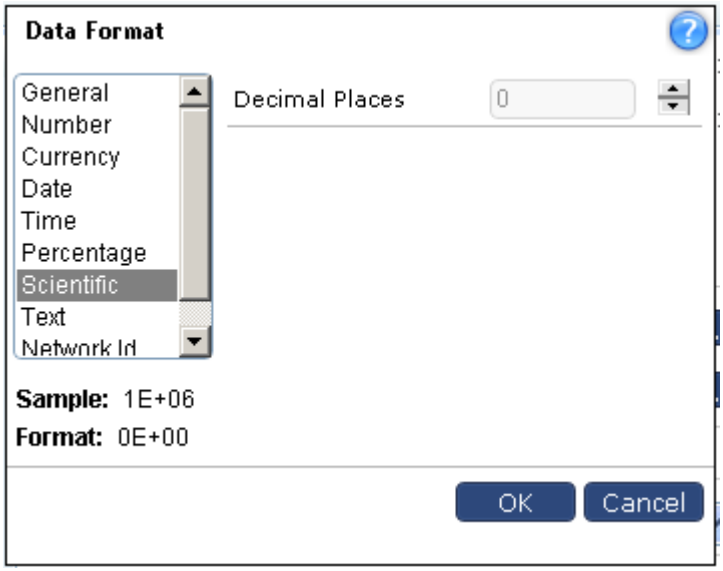
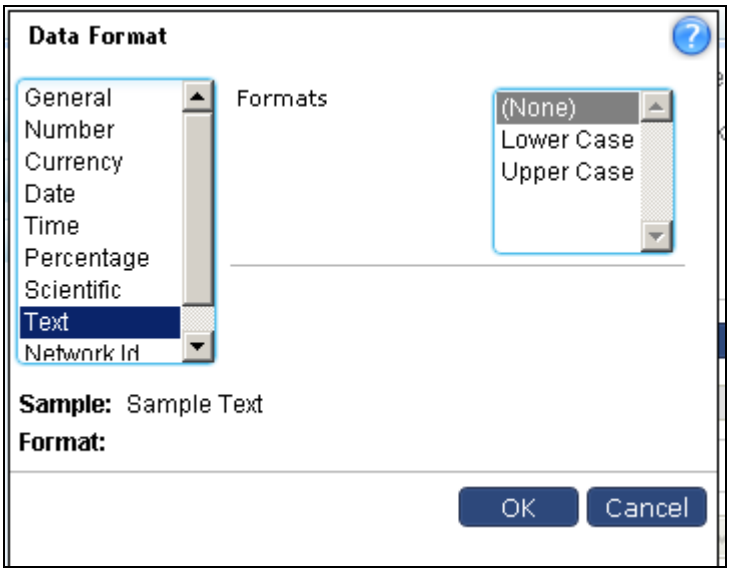
Data format dialog properties:

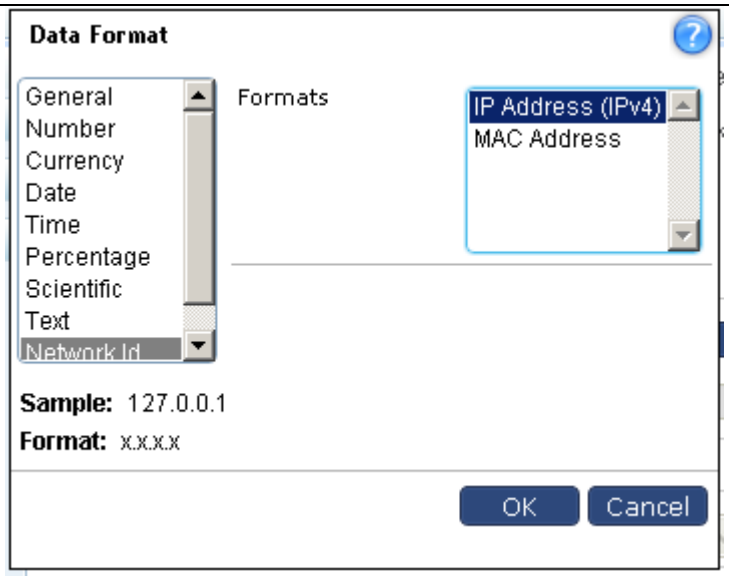
Format	General Number Currency Date Time Percentage Scientific Text Network ID	Specifies general data type of data being input or output
	General	No special treatment to the data
	Number	Treat the data with number validations and with validations according to detailed settings.  Apply Locale Default = Instead of providing a fixed format here, pick the format from Localeconfigurations.xls for user's current selected locale or the default settings. Decimal places = maximum number of decimals allowed in input Padding or rounding up to these many decimals in output Use 1000 Separator = Yes = apply thousand separator in output Negative numbers = whether to enclose in braces or prefix with minus
	Currency	Treat the data with currency number validations and with validations according to detailed

		settings.  Apply Locale Default = It picks the format from Localeconfigurations.xls for user's current selected locale or the default settings Decimal places = maximum number of decimals allowed in input Padding or rounding up to these many decimals in output Use 1000 Separator = Yes = apply thousand separator in output Negative numbers = whether to enclose in braces or prefix with minus Currency = Select currency symbol/chars to prefix
	Date	Treat the data with date validations and with validations according to detailed settings.

		 Apply Locale default = Instead of providing a fixed format here, pick the date format from localeconfigurations.xls for user's currently selected locale or the default settings Append Time = Append the time format from the localeconfigurations.xls and create date + time format string for user's currently selected locale Format = Select a format string from the fixed formats' list (Some formats may not be supported by the calendar control that helps end user to fill the date value) In case you need fixed format date + time input or output formats select the format strings that contain both date and time parts 
	Time	Treat the data as time part only.

		 Apply Locale default = Instead of providing a fixed format here, pick the time format from localeconfigurations.xls for user's currently selected locale or the default settings Format = Select a format string from the fixed formats' list (Some formats may not be supported by the calendar control that helps end user to fill the date value)
	Percentage	Treat the data as percent division so multiply by 100.  Decimal places = Decides number of decimal places in the output
	Scientific	Treat the data as a big number that needs conversion into scientific format.

		 Decimal places = Decides number of decimal precision places in the output
	Text	Process the text data according to the format string.  Formats = Select format types UCase = Convert text into all upper case LCase = Convert text into all lower case
	Network ID	This format is applicable on number fields. This format treats the number 32 bit IP number and converts to respective IP display formats.

		 Formats: Select format types IP Address (IPV4) = Converts user entered dotted quad notation IP address into 32 bit IP number in input fields Converts 32 bit IP number into quad dotted notation of IP address in output fields MAC Address = Converts user entered MAC address string into its EUI-48 number in input fields Converts EUI-48 number into its MAC address string in output fields

The path for locale configuration file is:

Folder: <Install Dir>\ReportEngine\Config\i18n
File: localeconfigurations.xls

You may need to consult with your system administrator, in case you don't have access to this file.

Filter Step

Filter Step is used to apply pre-defined filters and set Lookup values.

Filter step can take input from any step and provide output to any step in the flow of Query Object.

The properties tab shows two sections for a Filter step.

1) Ad hoc Filters
2) Field properties

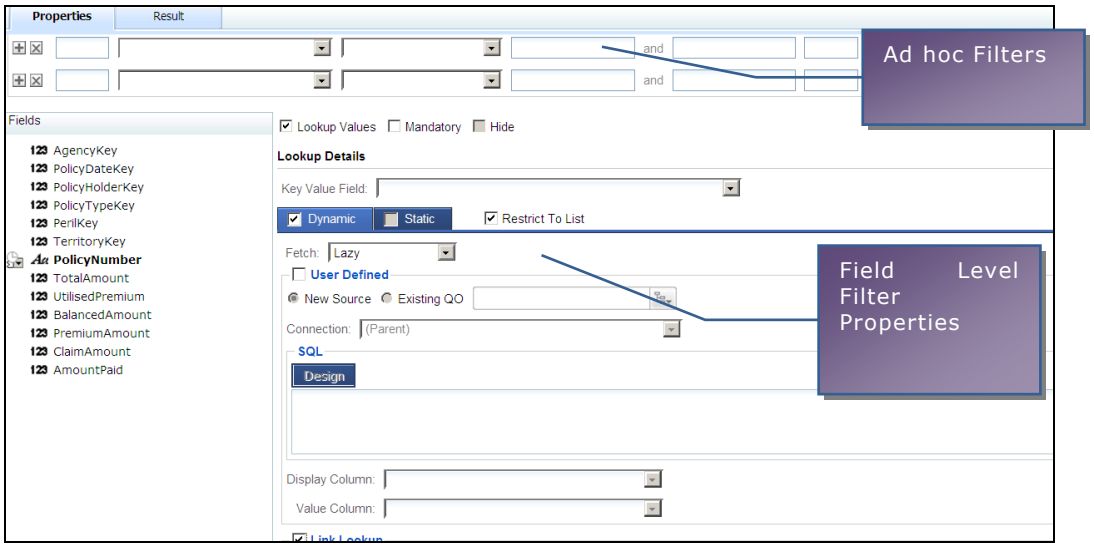


Figure 8: Filter Step

Ad hoc Filters

You select available Field name, Criteria and Value to apply ad hoc filters for this step.
Only the data that matches the filters can pass through this step.

Field Properties

For each select field, following properties are set:

Property	Values	Comments
Lookup Values	Check/Uncheck	Check = Whether this field provides a list of lookup values for end user to easily choose values to apply filter
Mandatory	Check/Uncheck	Check = Will mandate reports using this Query Object to apply filter on this field
Hide	Check/Uncheck	Check = Will remove this field for filter options. End user will not see this field in filter-on field list A field can either be set as Mandatory or be set as Hide
Lookup		

Details		
Key Value Field	Select a field	When we have Lookup values with display and value columns, the value should apply to filter on key field, instead of display applying filter on this field. This is a SQL optimization option. If you create a lookup with customerID and customer name and your table is indexed on customerID, then for the customer name field, set customerID as Key value Field
Dynamic	Check/Uncheck	Check = You can set a source (SQL or another Query Object) for the Lookup values
Static	Check/Uncheck	Check = You can type in the lookup values
Restrict to list	Check/Uncheck	Check = The list shown to the end user for selecting values for filtering should not allow typing in new value other than list
Fetch	Now, On Every use, Lazy, By Search	Now = Fetch the values only upon saving of this Query Object On Every Use= Fetch the values every time end user screen loads for prompting filters Lazy = Fetch the values when user selects this field for filtering and clicks on combo for value selection By Search = Fetch matching values when user starts typing values in the filter
Min. Key Length	Number 0-4	By search fetching of data starts only after these many characters are typed by the user
User Defined	Check/Uncheck	Check = You will provide a user defined SQL or data source of lookup values Uncheck = Automatically generates DISTINCT based query to get lookup values
New Source/ Existing QO	New Source/ Existing QO	Whether user defined is new SQL or an existing Query Object
Display Column	Select from List	From lookup value result set, select the field of display
Value Column	Select from List	From lookup value result set, select the field of values
Link Lookup	Check/Uncheck	Check = Specifies that this is a nested lookup
Link to Parent Field	Check/Uncheck	Check = Select the parent field to which this field will be nested. For example, Set Country as the parent field for this property of State field Note that you must use the parent value in the where clause of lookup SQL
Link	Check/Uncheck	Check = Before applying a filter on Parent

Mandatory		field, the nested field lookup values will not be listed Uncheck = Before applying a filter on Parent field, ALL values will be listed for nested field. When a filter is applied on parent field, NESTED values will be listed

Sort Step

Data passing through a Sort step gets sorted based on the properties set in the step.

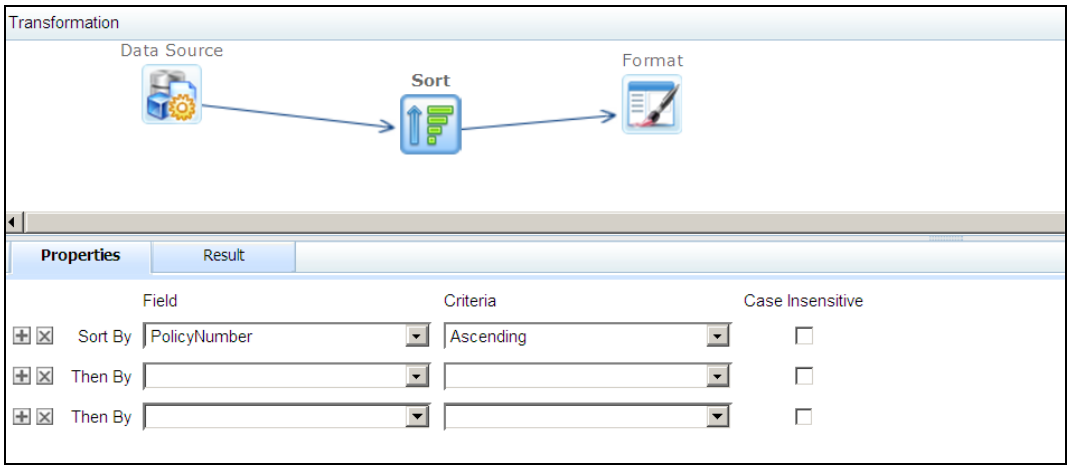


Figure 9: Sort Step

The properties to set are:

Property	Values	Comments
Sort by Field	Select field from list	You can add multiple such fields using Sort by and Then by lines based priority order of sort need
Criteria	Ascending/Descending	Sorting criteria as either ascending or descending order
Case Insensitive	Check/Uncheck	Check = ABC is at same level as ABc XYZ is smaller than abc Uncheck = ABC is smaller than ABc XYZ is bigger than abc

Formula Fields Step

Formula Fields step allows you to add calculated fields that are populated at run time. These calculated fields are generally based on existing fields.

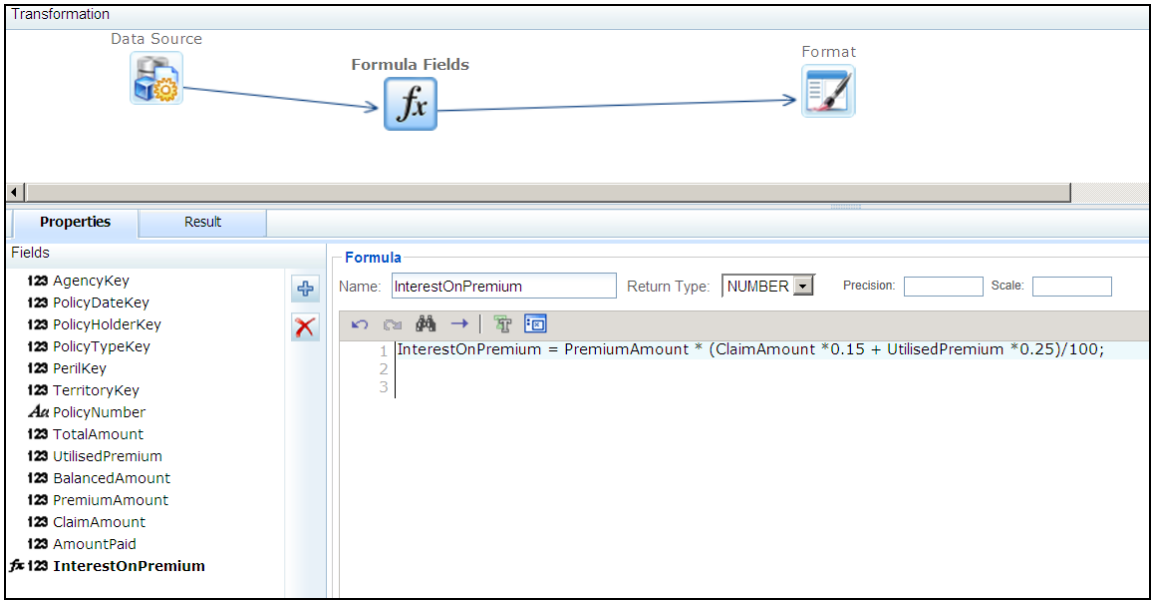


Figure 10: Formula Fields Step

Action Button	Comments
Add	To add a new formula field
Delete	To delete the selected formula field

For each added formula field, following properties are set:

Property	Values	Comments
Name	Type Yourself	Name and caption of the field, as visible in next steps and to the end user
Return Type	Number Char Date	Determines the data type of the formula field
Length/Precision	Type yourself	Length of field for Char data type. Precision or length of field for Number data type.
Scale	Type yourself	Scale or number of digits after decimal point
Formula	Formula String	Java script syntax formula

Formula String Syntax

Follow JavaScript Syntax to create a formula. To create a formula, you can use field names and define variables. A formula may have 'if' construct as well as 'nested if' construct. You can use logical operators too. If want to add more than one statements in formula, use semicolon ';' as separator between two statements.

Example:
For a formula field named TotalAmount,

```
var total ;
if (unitprice < 10 )
{total = unitprice*quantity;}
else
{total = unitprice;}
TotalAmount = total;
```

Advanced Steps

Merging two sources

Intellicus Query Objects support two types of merging of data sets.

1) Join – Equijoin, Outer joins
2) Union – Equal columns, Unequal columns

Join

This step takes two inputs. When the data is passing through this step, the data of both inputs will be joined based on properties set for this step.

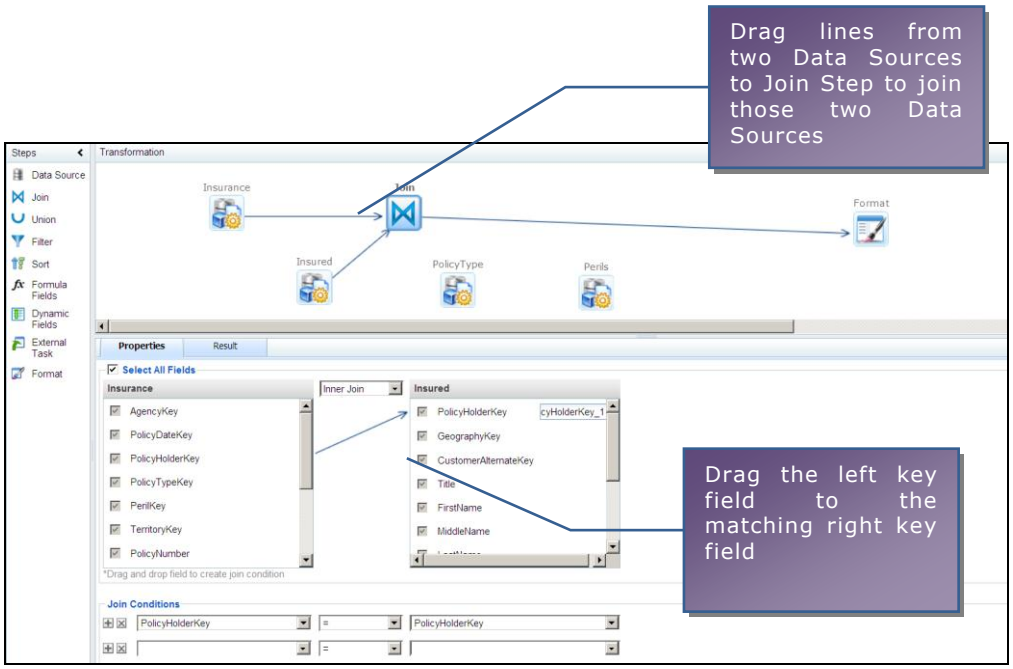


Figure 11: Join Step

The Join step properties are:

Property	Values	Comments
Select All Fields	Check/Uncheck	Check = All fields from both the sources will be available in the output of this step The ambiguous field names will be automatically renamed (suffixed with a underscore and number) Uncheck = You can choose which fields should be available in the output of this step Choosing is done by selecting the checkbox adjacent to field names of both inputs
Join Type	Select from: Inner Join	Select the type of join from the available list

	Left Outer Right Outer Full Outer	
Join Conditions	Field name Operator Field Name	Forms the Join Key

Union

Union step takes two or more inputs. The data passing through this step appends to one another and forms a single output.

Generally the data inputs selected for Union are of same structure i.e. the columns are same. But this step supports exceptions and allows having extra columns in some inputs. You can decide whether to carry forward the fields coming from only some inputs to output.

During the union process you can decide to take the out sorted or you can prefer unsorted appending.

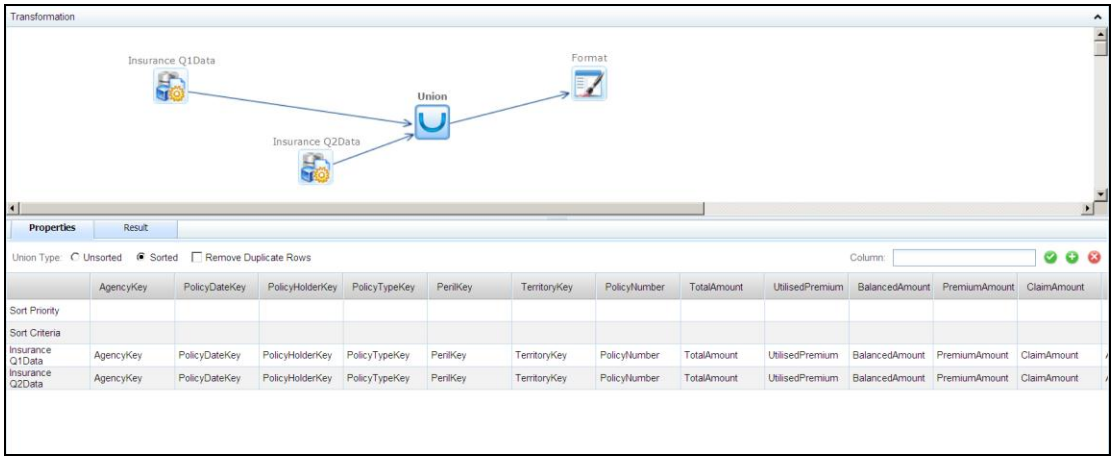


Figure 12: Union Step

The properties of Union step are:

Property	Values	Comments
Union Type	Unsorted Sorted	The output of this step shall be sorted or not
Sort Priority	Number 1-3	This property is at field level. This is set below the field name. Set the number 1, 2 or 3 to the fields which should be sort key
Sort Criteria	Ascending Descending	Sorting criteria as either ascending or descending order
Remove Duplicate Rows	Check/Uncheck	Check = To get distinct rows from Union step
Column	Type Yourself	The selected field name populates automatically. You can change the caption of the resultant field

Action Button	Comments
Add Column	To add a new Column
Rename Column	To apply typed name to the selected column
Delete Column	To delete the selected Column

Query Objects with Dynamic Fields

Dynamic Fields Step

Dynamic Fields step allows you get flexibility of adding or removing fields to a Query Object at run time based on your meta information.

This step has capacity to

1) Add dynamic fields by Pivoting data from input Data Source
2) Dynamically fetch meta data for field properties

This step takes one input Data Source.

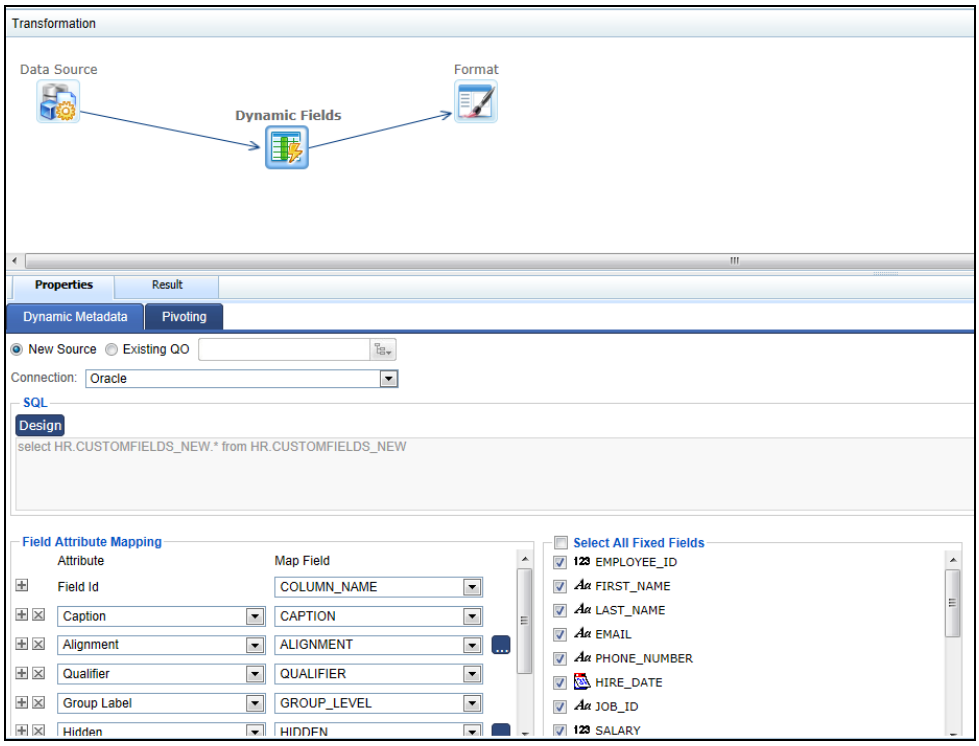


Figure 13: Dynamic Fields Step

Dynamic Metadata

This step takes an SQL or other Data Source that defines the metadata of the dynamic result set at run time.
This SQL will be fired just before fetching the input Data Source.

The Field Attribute Mapping section takes each field from the metadata result set and maps it to Query Object field properties.
The important mappings are Field ID, Field Name, Caption and Data Type.

Pivoting

Pivoting allows you to convert highly normalized, Name Value paired data into flattened tabular data.

Pivot Columns: specifies which column has field ID and which column has value.

Select Grouping: specifies grouping fields, when grouped on which, the normalized data converts to flat table.

Custom Step

External Task

External task step allows you to call standard and custom 3rd party processes from within Intellicus Query Object. Some may be in-proc and some tasks may be sent to remote execution by appropriate bridge components.

There are few pre-configured external tasks. More external task types can be configured.

Pre-configured external task types:

Task Type	Comments
R Job	R Analytics Server scripts can be executed and results be retrieved
Hive Job	Hive jobs can be executed and results retrieved for analysis
Pig Job	Jobs created using Pig scripts can be executed using this option
Custom MapReduce Job for Hadoop	If you have custom-written scripts, you can use this option to execute such jobs

Properties in case of an R Job are discussed below:

Property	Values	Comments
Server IP	Type Yourself	This is the IP address of R Server
Plot Type	Select from List: Box Scatter Bar Groupbar Histogram Pie Custom None	You can select the Plot Type in case of Format Type as image
Format Type	Select from List: PNG JPEG BMP TIFF CSV	You can specify format of the output
Model_File	Type Yourself	Location of the R Model file
No_Of_Images	Type Yourself	In case the Format Type is an image, you can specify number of images in the output
Script	Type Yourself	R script to be performed on the data
Validate	Click the action button	Checks and validates R job

Let us take an example where the Query Object has multiple data sources from .csv files. We have an R script that contains code to process this data.

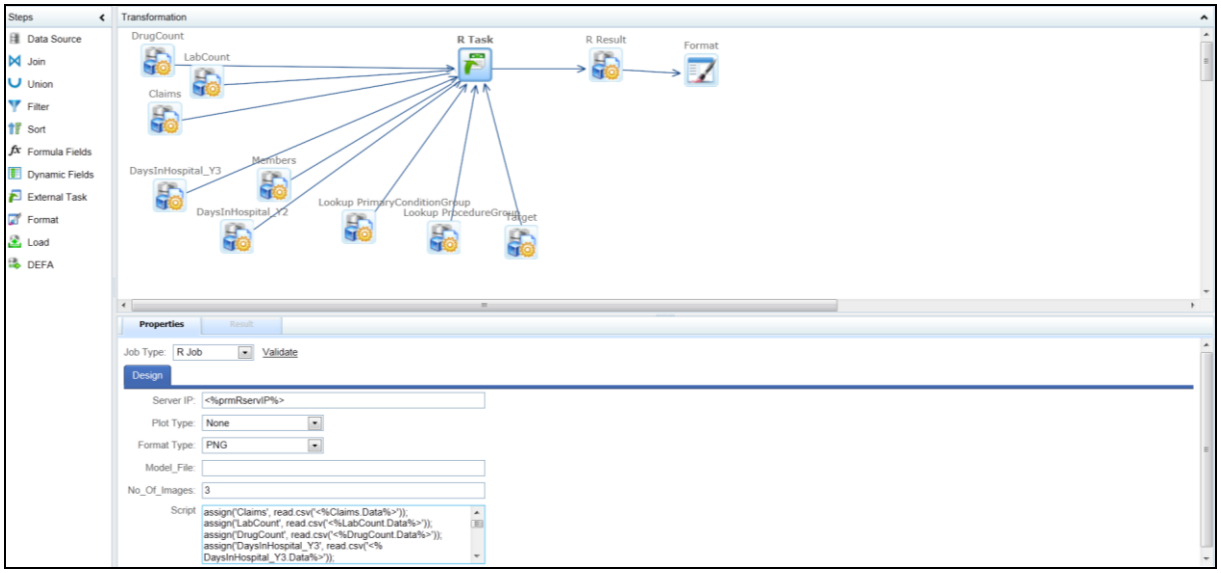


Figure 14: R Job Example

The output generated is in the form of images as shown below:

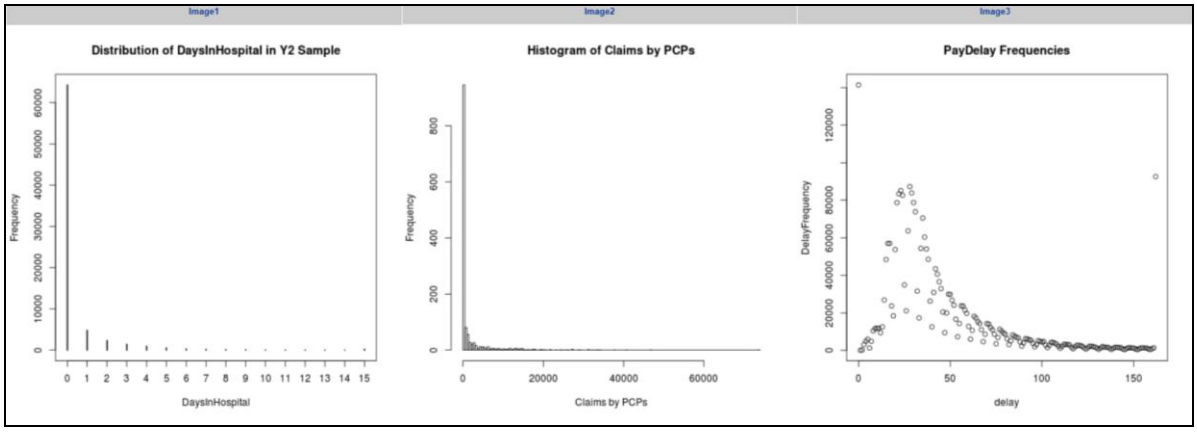


Figure 15: R Job Output

Data Extraction and Forwarding Agent (DEFA) Step

Data Extraction and Forwarding Agent (or DEFA) collects identified data at predefined intervals from a data source and forwards it to a data collector component (Intellicus Report Server) which can transform and load this data. It gives you an ease of receiving only the incremental data as well.

DEFA step in Query Object

A DEFA step will be defined for receiving data from one or more DEFA agents.

For defining a DEFA step, you need to have a snap shot of data that can be received by this DEFA step. This sampling data is used to understand structure of data that will be sent by configured DEFA agent(s) for this step.

You need to specify a connection for metadata for designing a query. This would help DEFA know which data to fetch.

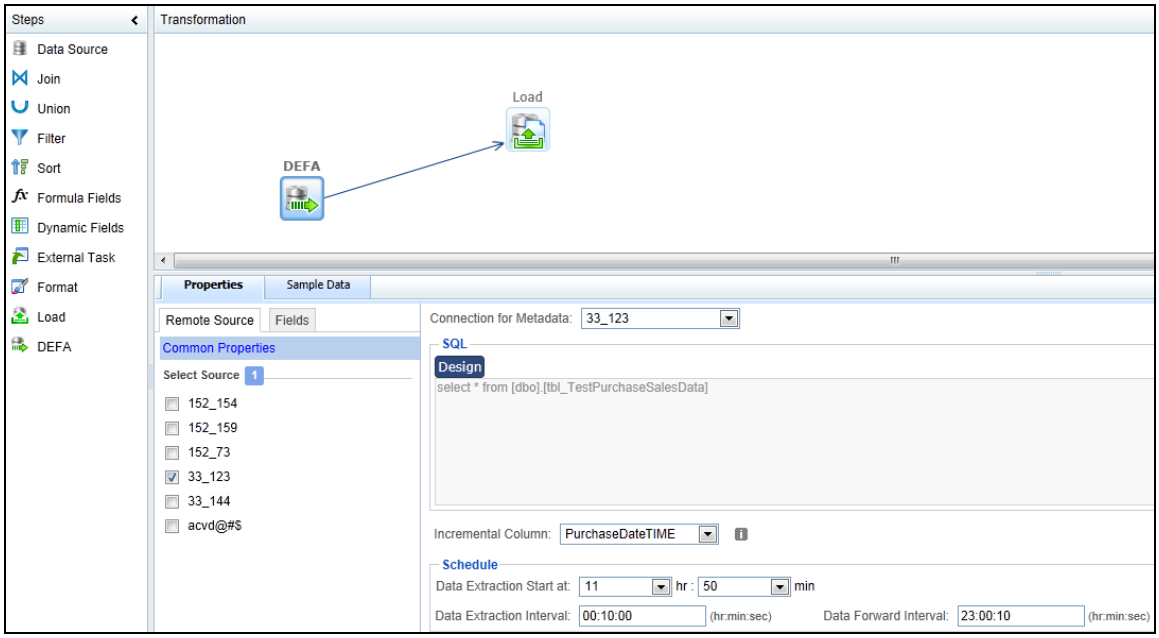


Figure 16: DEFA Step

The properties to be defined for DEFA are mentioned in the underneath table.

Property		Values	Comments
Connection for Metadata		Select from list	Connection to be used to design query for metadata. Select from already created connections on the Configure>Databases tab
Incremental Column		Select from list	Identity column for DEFA to extract incremental data
Schedule	Data	Select from	Start time for DEFA to

	Extraction Start at	list	fetch(extract) data
	Data Extraction Interval	Type Yourself (as hr:min:sec)	Time interval after which DEFA should fetch data
	Data Forward Interval	Type Yourself (as hr:min:sec)	Time interval after which DEFA should send (forward) data to Report Server

Field Properties

Property	Values	Comments
Data Type	CHAR, NUMBER, DATE, BINARY	Select the data type of the incoming data
Data Format	Format String	Specify the format of the incoming data. This is useful only if Date or IP Address type data are incoming in CHAR fields but needs to be converted to Date and Number types for further use
Sort Priority	Number 0-N	If the data is sorted on multiple fields then specify sort priority number of this field. Primary sort field should be the lowest number
Sort Criteria	Ascending/ Descending	Specify sort as either ascending or descending order
Length	Type yourself	Length of field for Char data type
Scale	Type yourself	Scale or number of digits after decimal point
Database Time Zone	Select Time zone from the list	Specify the time zone in which the incoming date data is stored. This is useful only if date time data needs to be converted to other time zone data based on reporting requirement. For example when incoming GMT data need to show EDT (or any requested TZ) value in report, specify that the incoming data is GMT. The output format is generally specified in Format step or in user preference
Locale	Select from the list	Select the language/ country in which the incoming date data is stored
Qualified Name	Type yourself	This name helps using the field name in all the SQL clauses such as WHERE and ORDER BY or to resolve field name ambiguity when same field comes from two tables or expressions

Load Step

Load step under Query Object loads the incoming data (after extraction and transformation) into a target system (File, Relational database, HDFS, No SQL / Columnar system etc.).

You need to select a target Intellicus connection (already created under Configure > Databases) on which data should be loaded. One of the important configurations is the unchecking of the 'Read Only' setting of the target system. If not unchecked, this will not show in the list of target system where the extracted data can be loaded.

There are target connection specific properties required to load data into the system.

You can fetch list of existing Tables/Files from the connection.

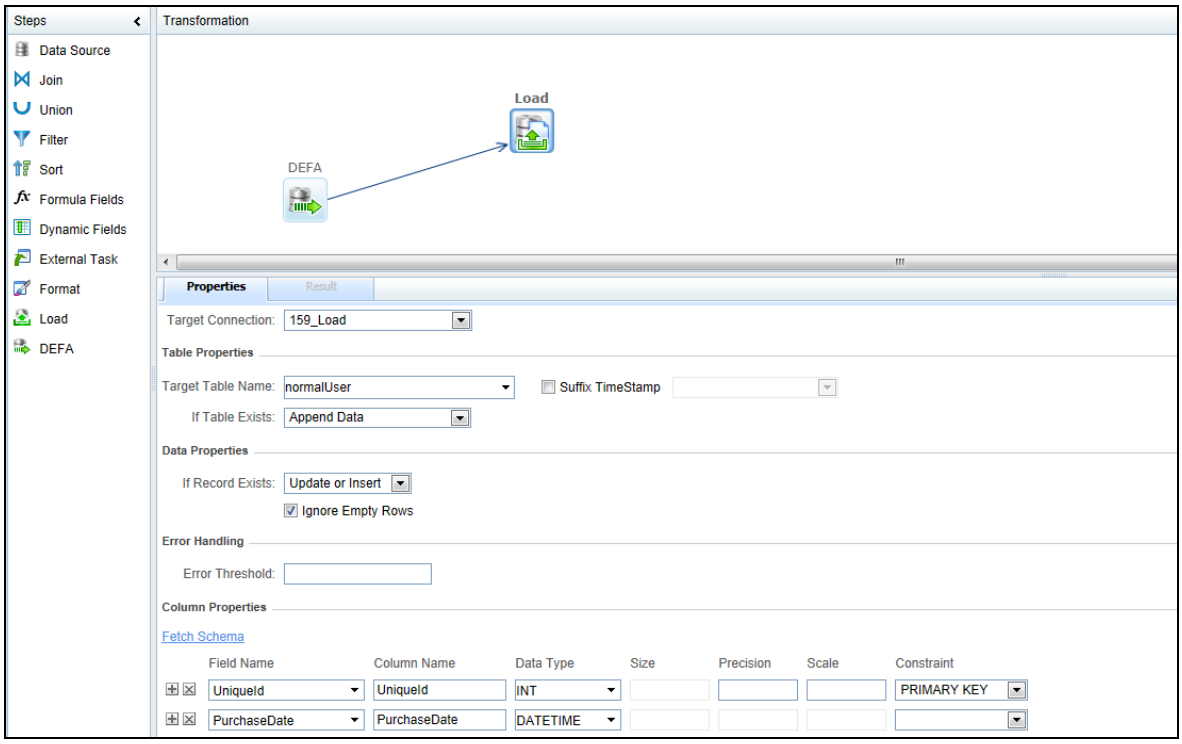


Figure 17: Load Step

The properties of Load step (in case target system is an RDBMS) are:

Property		Values	Comments
Target Connection		Select from list	Select a target connection on which data should be loaded
Table Properties	Target Table Name	Select from list	Select target table name using the selected Target Connection
	If Table Exists	Select from list:	Action to be performed in case table exists:

		Append Data Delete Existing Data Skip Load Drop and Create New Table Truncate Existing Data	To append data in the end To delete data in existing table To not perform any action on table and skip load step To drop the table and create new table with same name and new schema. To delete data in existing table, but Admin user is able to roll back this data
	Suffix TimeStamp	Check/Uncheck	Check= suffix timestamp in the chosen format to table Select from the available list
Data Properties	If Record Exists	Select from list: Insert Only Update Only Update or Insert	Action to be performed in case record exists: Insert the new record Update the existing record with the new In case of an existing record, update it with the new record Else insert the new record
	Ignore Empty Rows	Check/Uncheck	Check= ignores empty rows in table while loading
Error Handling	Error Threshold	Type Yourself	Specify count of error after which loading process should stop. Any positive number>0 means stop processing after that many +1 errors i.e. if its value is 2, stop processing upon 3rd error.
Column Properties	Fetch Schema	Click the option	Fetches schema of the existing table You can see the field details of the data to be loaded under Column Properties section
	Remove All Columns	Click the option	Removes all columns in the target table

You can run and schedule Query Objects which are of Load type from under Data Model.

Load step can also be followed by the Data Source step further followed by Format step to be used for generating reports.

Note: To know about loading into file, HDFS, NoSQL (Columnar) system, please refer WorkingwithLoadStep.doc

Query Object Properties

Connection

Query Object at the top level has two properties:

Property	Values	Comments
Name	Type yourself	Name of the Query Object
Connection	Select from list	(Default) = Use default connection available at run time based on priority of user selection or server configuration Connection Name = Always run using this named connection, irrespective of user selection

Access Rights

Access rights on a Query Object can be granted to everyone, selected organizations or select users. Access rights given at Query Object level supersede folder level access rights.

Access rights applicable to Query Object are:

Access Right	Comments
Read	User can see the definition of the Query Object User cannot edit, delete the Query Object User cannot run reports using this Query Object
Write	User can delete, edit the Query Object. This right when given at folder level, user can create new Query Object in that folder, provided that user has Data Administrator system privilege
Execute	User can execute reports using this Query Object. User can create new reports using this Query Object

Advanced Properties

Advanced properties can be at each Query Object level to control the behaviour of the Query Object and reports generated using this Query Object.

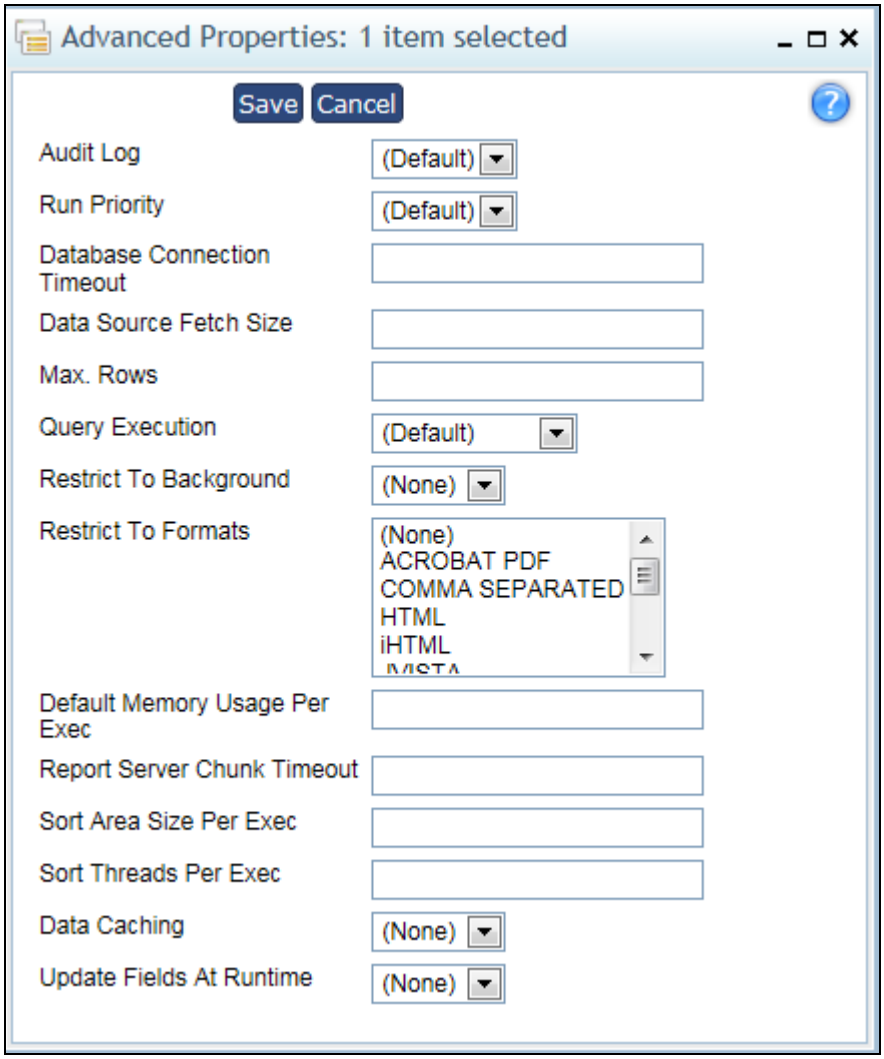


Figure 18: Advanced Properties

Property	Values	Comments
Audit Log	(Default) Enable Disable	You can switch ON or OFF audit logging for reports generated using this Query Object, irrespective of global audit logging setting
Run Priority	(Default) Low Medium High	Decides the priority in the request queue of Report Server
Database Connection Timeout	Type Yourself	Overrides the same property value at connection or global level
Data Source Fetch Size	Type Yourself	Overrides the same property value at connection or global level
Max. Rows	Type Yourself	Maximum rows restriction from this Query Object. Report level Max. Rows value can further downsize, but that cannot upsize this value

Query Execution	(Default) Synchronous Asynchronous	Asynchronous = Useful to free rendering thread when database is taking long time to process the data before it starts sending data in. Example: Heavy sorting at database, Complex procedures processing data before sending data Synchronous = thread waits after sending database request till data returns
Restrict To Background	(None) Enable Disable	Enable = Reports using this Query Object shall be allowed by submitting to Run in back ground only. Useful for long time taking Query Objects. Disable = Both Run and Run in background options will be available. This facility is dependent on scheduler licensing
Restrict To Formats	(None) List of available formats	(None) = reports using this Query Object can run in all supported formats Selected Values = Reports using this Query Object will be allowed to run only mentioned formats. For example a report with few million rows in the output may be ok only in XLS and Raw text formats
Default Memory Usage Per Exec	Type Yourself	Overrides the same property value at connection or global level
Report Server Chunk Timeout	Type Yourself	Overrides the same property value at connection or global level
Sort Area Size Per Exec	Type Yourself	Decides thread limitations set for in-memory sorting of rows. Overrides the same property value at connection or global level
Sort Threads Per Exec	Type Yourself	Decides thread limitations set for in-memory sorting of rows. Overrides the same property value at connection or global level
Data Caching	Enable Disable	Enable= To create a copy of data in local data store retrieved by a Query Object to re-use for in-view and post-view operations of a report up to specific time
Update Fields At Runtime	Enable Disable	Enable = If database query returns new fields at run time, this Query Object exposes all of them to the user on Ad hoc Wizard or Power Viewer

Data Cache:

Data Cache creates a copy of data in local data store retrieved by a Query Object using a specific set of business parameter values, which can be re-used for in-view and post view operations of a report up to specific time.

The cache is created from final result set of Query Object, and re-used for in-view and post-view purposes that are automatically identified to work from this result set.
The operations that would re-use cached data are:

a) Add/Modify/Remove filter
b) Add/Modify/Remove highlighting
c) Add/Modify/Remove grouping
d) Add/Modify/Remove sorting
e) Add/Modify/Remove Charts, Matrix
f) Load lookup values derived from main result set

The Data Cache life is determined by DATA_CACHE_PURGE_TIME (in minutes) property in Server Properties. This is set to 30 minutes by default.

Caution:

1) When Query Object returns large data set with business parameters but filtered to small set with ad hoc filters, then enabling Data Cache is not recommended. The first run of reports could be too slow.

2) Dynamically constructed Query Object SQLs may cause cache to be used even when new fields are added in in-view process resulting in incorrect result set. Enabling Data Cache is recommended only for static fields Query Objects.

3) Data Cache can be re-used across report run requests depending on matching of business parameters and Cache Purge Time.

4) Local data store may not support some field nomenclature; you may have to rename Query Object fields by aliasing or other means to comply with local store, in such case.

Update fields at Run time:

Adding newly returned fields from a SELECT * type of SQL or a dynamic result set returning procedure to Query Object at run time is achieved by this property. The newly added fields do not get saved in the definition of the Query Object permanently. The newly added fields are available in transient at each run time.

Caution:

When Query Object is marked for Update fields at run time, then the Query Object may have to be executed more than once to find newer fields, causing slowness.

Upgrading from Intellicus 4 or 5

If you are upgrading from Intellicus 4 or 5, then you will observe the following changes:

Changes

- The Query Object Editor has completely changed into a graphical editor
- The New Query Object is based on Multiple Steps concept
- The Query level properties and Field level properties have been categorized and moved into separate steps or sections

Backward Compatibility

All of your Query Objects created in previous versions of Intellicus are automatically upgraded to the new structure. All reports based on those Query Objects will run properly without doing any manual changes to the Query Object.

When you open the Query Object created in previous versions of Intellicus, then it opens properly in the new designer.

You may have to slightly learn the new graphical user interface, SQL Wizard, the property values are slightly placed differently than older version.

Mapping the Properties

Item		Previous Version	New Version
SQL		Edit button on Query Object Editor screen	Select Data Source step -> SQL Design Button on properties tab
Field properties			
	Formatting	Select field on Query Object Editor Screen, property appears next to the field on right side	Select Format step -> Select field name in the properties tab
	Field Source properties	Select field on Query Object Editor Screen, property appears next to the field on right side	Select Data Source step -> Select field name in the properties tab
	Field Lookup Values property	Select field on Query Object Editor Screen, property appears next to the field on right side	Select Filter Step -> Select field name in properties tab, Select Lookup Values check box
	Mandatory Filters	Filters section on right top section of	Select Filter Step -> Select field name in

		Query Object Editor	properties tab, Select Mandatory Checkbox

Miscellaneous

Hyperlink

When you make a field a clickable hyperlink, you can link a URL or a report with that report. You can make "drill-down" reports using hyperlinked field.

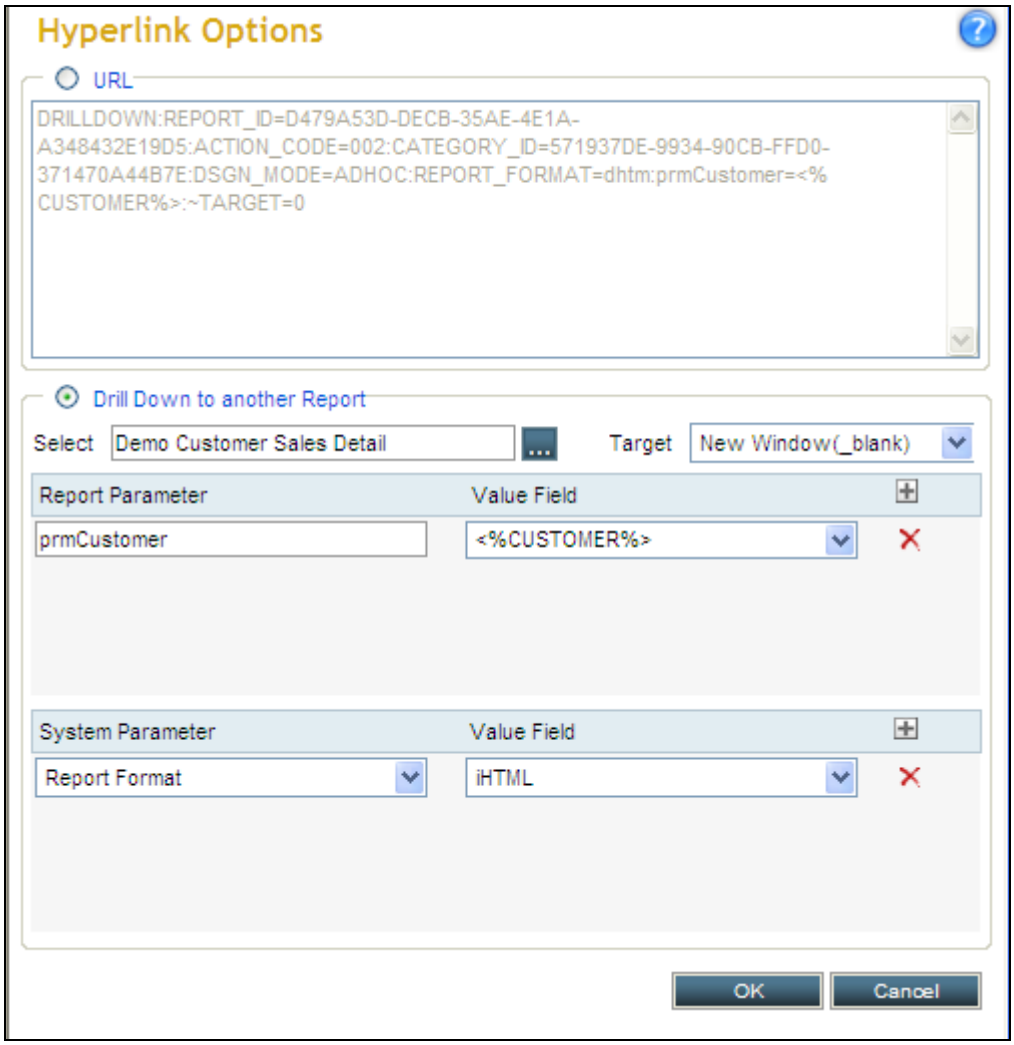


Figure 19: Hyperlink Options dialog box

Hyperlink dialog properties

URL
The URL is automatically constructed by the "Drill Down to another Report" settings.

You can over write the URL on your own.

For external links such as web links you have to write your own URL text.

Drill Down to another Report

Property	Values	Comments
Select Report	Select Report using Report Selector	Report to drill down to
Target	New Window Same Frame Parent Frame Parent Window	As per HTML standards
Report Parameter	Parameter of the child report	Specify parameter to be passed to child report
Report parameter Value Field	Select field from this report	Select the field whose value to be passed to child report as the selected parameter
System Parameter	Select from list	Select if you need to pass system parameter value from this report or exclusively
System parameter Value Field	Select value	For each system parameter you choose to pass, relevant values for that system parameter populates in the list automatically. You shall choose desired value