Designing Queries

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Designing Queries

Data exists everywhere throughout your organization: on countless desktops, on shared network servers, in databases, in the cloud. It exists in various formats: as structured text files, as proprietary spreadsheet documents, as records in databases of multiple types, as streams from calls to a 3rd party API. Informer discovers intelligence from these disparate silos in a single source repository. But first, you must get the data in!

Query Types

There are two types of queries available in Informer, and either one of these can be shared with you.

- **Ad-hoc Queries** are real time queries that run against your database. You must run the query to populate the data in order to interact with the results, and they are found under the Reports listing page.
- **Datasets** are pre-populated queries that have been updated on demand or via a schedule and they are found under the Datasets listing page. The data is already populated and you can interact with the results.

Query Options

There are three options available when creating Queries:

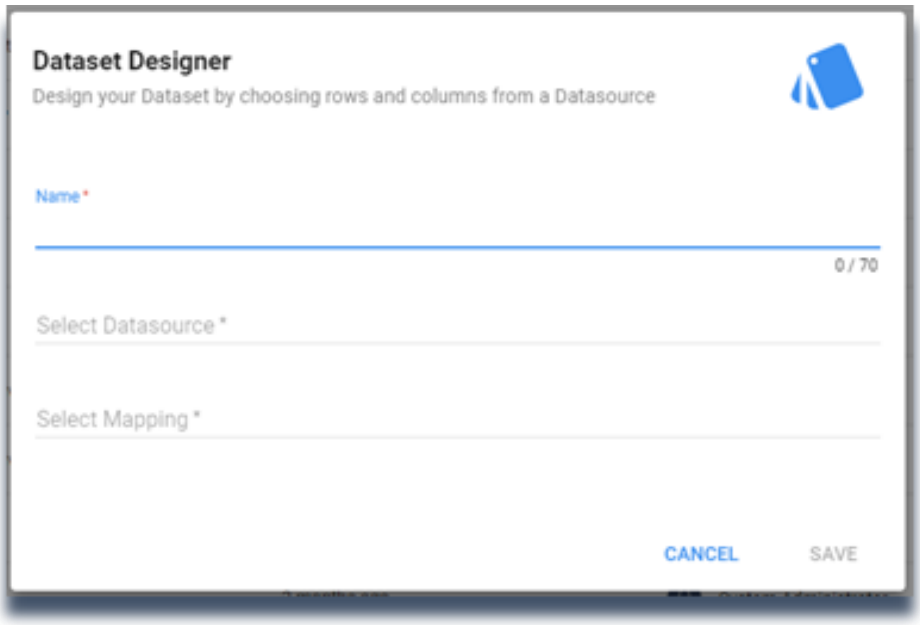
- Query Designer
- Native SQL
- Upload a file

Query Designer

The query designer is the most user-friendly and recommended of these three options, as you don't need to be familiar with writing queries in the native database language (SQL, TCL/ECL, etc.). After a few clicks, Informer 5 will do all the footwork on the back end and translate the query you design through the UI into a readable query that gets sent off to the database.

When using the query designer, you first need to provide some basic information about the Dataset/Ad-hoc Query.

- **Name** - What is this Query going to be called?
- **Select Datasource** - Which Datasource is this Query going to be built from?
- **Select Mapping** - Which mapping inside of Informer 5 is this Query going to start in?



Native SQL

A Native SQL Query is an option for users wanting more control over how their query is structured. It allows for users to directly enter in their SQL query, which also gets sent back to the database. This means the user will need to be familiar with writing native SQL code, as this route does not offer the other UI options that the query designer provides. This is also a useful option for users that are wanting to migrate pre-existing queries from other systems.

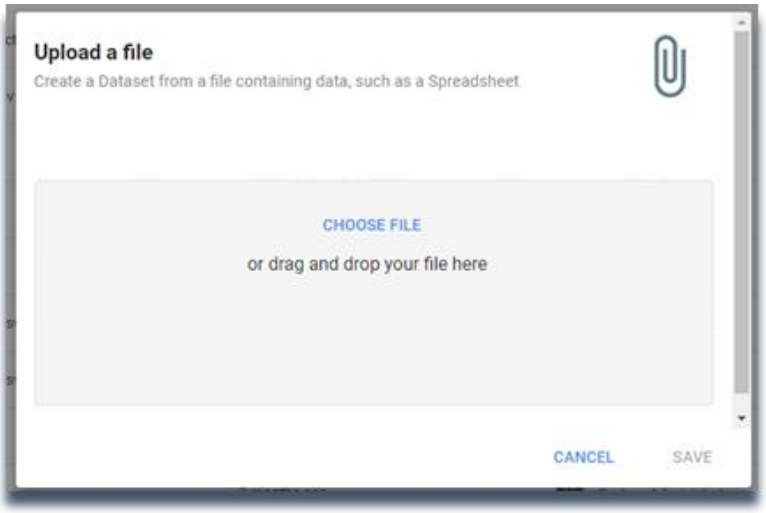
When making a native SQL Query, you first need to provide some basic information about the Query.

- **Name** - What is this Query going to be called?
- **Select Datasource** - Which Datasource is this Query going to be built from?

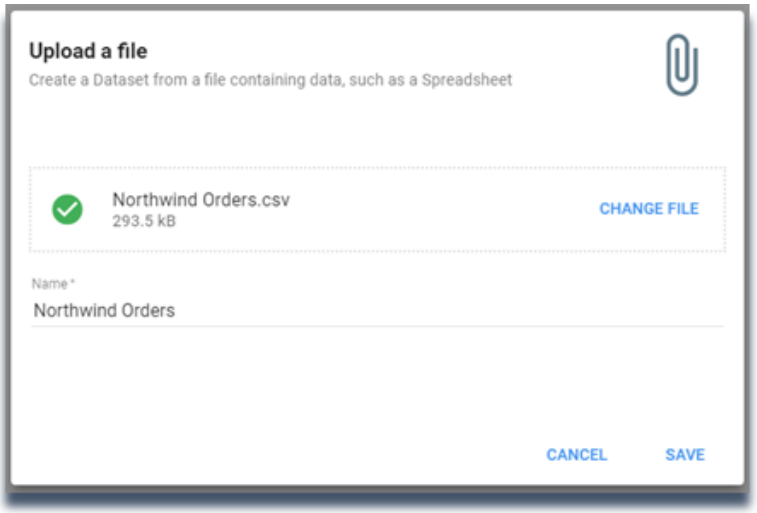
File Upload

This option is only available for Datasets. Uploading a file into Informer 5 will take the data of that file - usually a CSV - and convert it into a Dataset. The resulting Dataset will contain static information that is not based off any database query. Whatever the data from the file contained is what the Dataset will contain as well. This option is generally used when wanting to consolidate data from multiple sources into Informer 5. It's also helpful if you're wanting to create any Informer 5 visuals off a spreadsheet, as you can only create visuals inside of Informer 5 from Datasets.

When uploading a file, you'll first need to tell Informer where the file is located on your machine. You can either drag and drop a file into the Informer 5 window, or you can click 'Choose File' to bring up a file explorer where you can browse for your file.



After selecting your file, you'll need to provide a name for the Dataset that is going to be created.



Query Designer Edit Mode

If you're using the query designer, you will have the following options in the Query Edit screen:

- Query Information
- Fields
- Criteria
- Order By
- Inputs
- Flow Steps

Query Information

- **Manage fields** – allows you update several fields at once, including changing the name, alias, data type, or remove them from the Query
- **Remove all fields** – removes all fields that have been added to the Query
- **View code** – shows the database code generated by the Query. This is the Query that Informer is sending to your database.
- **Clear field settings** – allows you to reset all Fields to their default configuration
- **Remove all flow steps** – removes all flow steps that have been added to the Query

Fields

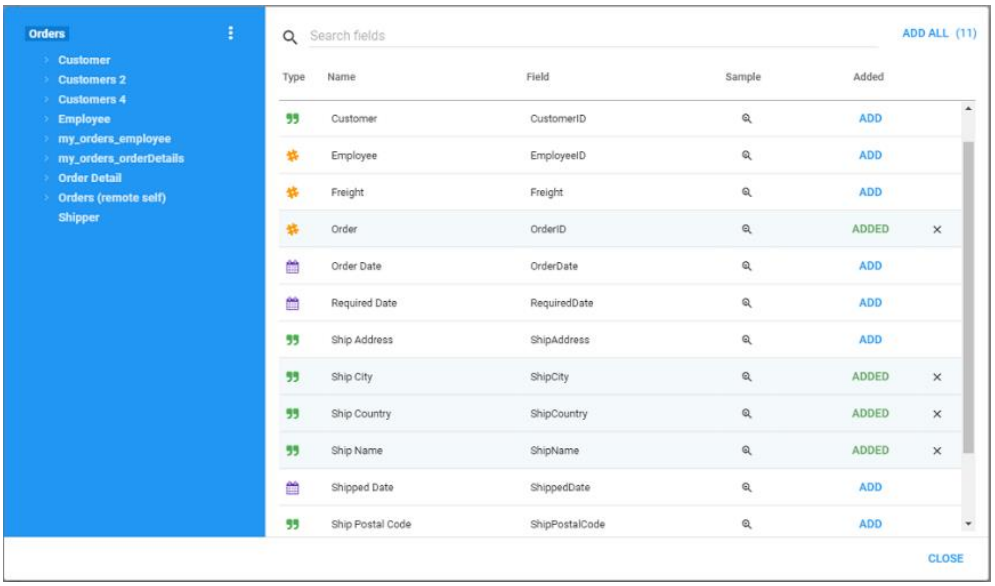
Fields are number, text, and date values that make up the data you see within your query. Generally, these fields come from a Datasource, which in turn is connected to your database. In Informer 5, Fields are represented by columns within your Query.

Add Fields

To add Fields to the query, click the '+' icon next to 'Fields' in the left panel. This will open a window allowing you to add the Fields you want.

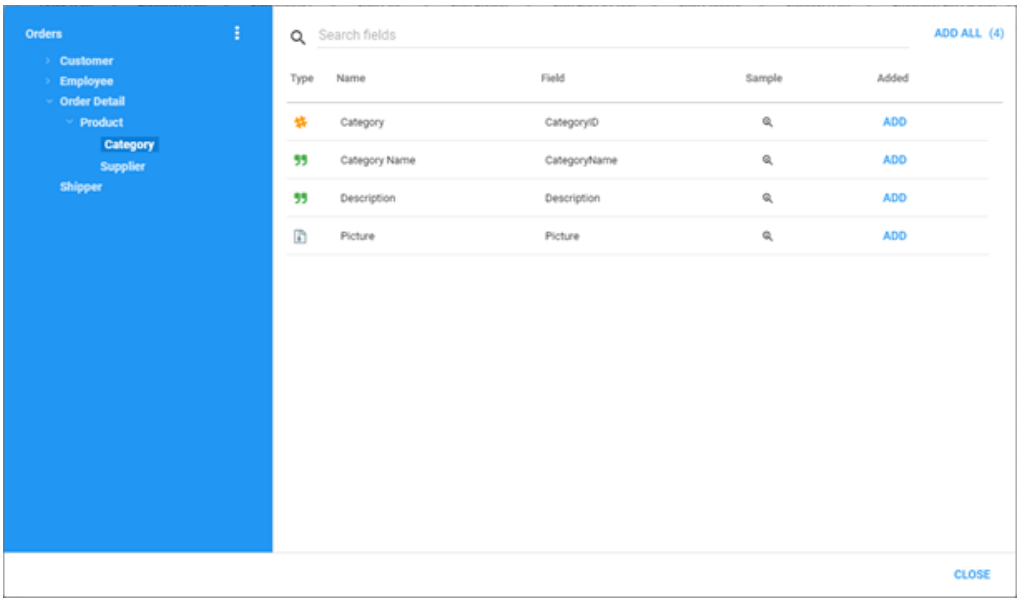
A panel will pop up showing a list of all the Fields in the file or table that the Query is built off of. Along the left side of the panel will be a list of other Mappings that have been linked to your starting Mapping. The list of Fields provides basic information about the field's data type, formatted name, and database name.

To view a sampling of what a field looks like, you can click the magnifying glass icon under the Sample column for the specific Field you want to see. To add a Field, click the 'Add' button next to each Field you want to add to the Query. Alternatively, you can click 'Add All' in the top-right of the panel to add every Field. If a Field has been added that you wish to remove, click the 'X' button to the right of that Field's row.



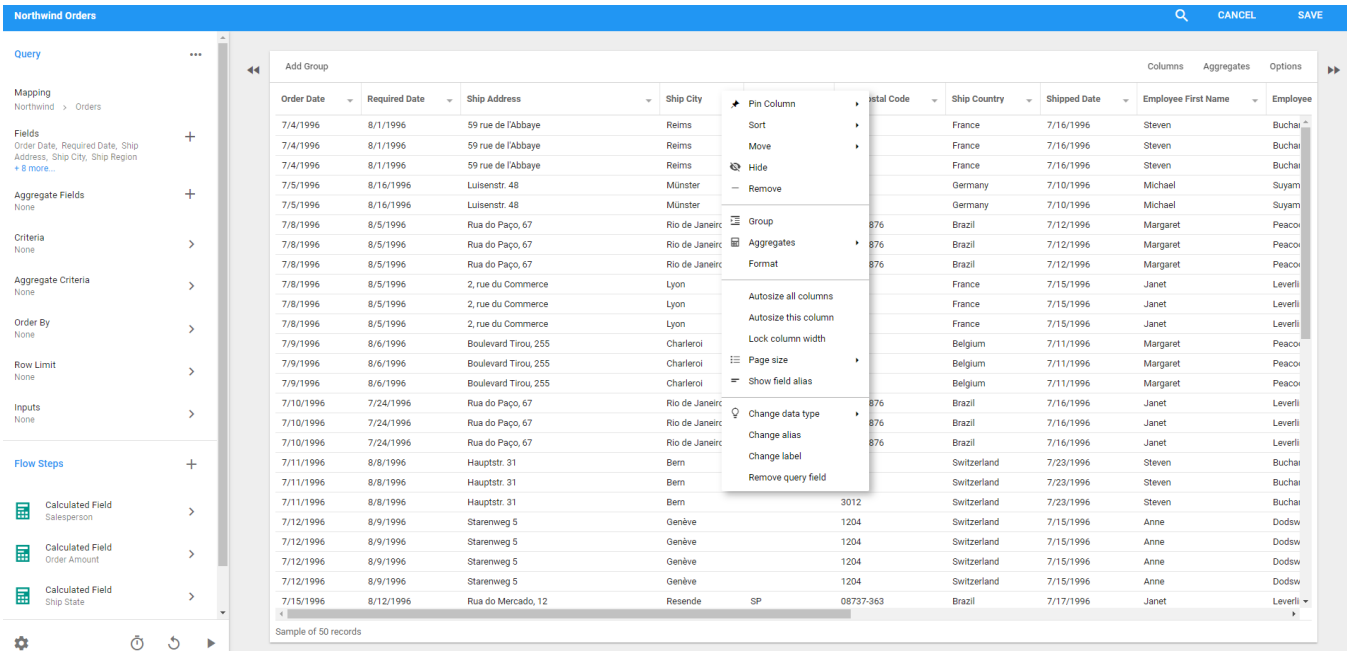
After adding any desired Fields, click 'Close' at the bottom-right corner of the screen. You will see a sample of the records in the Query showing the selected Fields. Click 'Save' in the top-right corner to save your changes.

To add a Field from a linked mapping, you can click on the links on the left side of the panel. The Fields on the right side will change to reflect that you are now looking at a different mapping's Fields.



Field Options

Field options allow you to modify the appearance of the columns of your Query, as well as its underlying structure. To change the Field options of a Query, edit the query and click the down arrow next to a Field to open its Field options menu.



The various Field options are detailed below. **Note**: Some of the options shown are dependent on the data type of the Field being modified.

Field Option	Description
Pin Column	Pins the column to the left or right side of the table, keeping it there as you scroll left and right. To unpin a Field, select 'No pin' under the 'Pin' sub-menu of the Field options, or simply drag the column header away from the side of the table it is pinned to.
Sort	Sorts the selected Field in either ascending or descending order or removes sorting from the column entirely. You can also cycle through these options by clicking the header of a column.
Move	Moves a column to the beginning, to the end, or after some other specific column. Columns can also be moved by dragging the headers left and right.

Field Option	Description
Hide, Reveal hidden fields, and Unhide	Hides a column from view, which also excludes the column from any exported files. If there are already hidden fields, the 'Reveal hidden fields' option will make hidden fields visible again and any revealed columns will be grayed out and italicized to indicate that it is hidden. For hidden columns, the 'Unhide' option will make a column fully visible again and include them on any export files.
Remove	Removes the column from the grid, same as hiding a Field. To add a Field back to the grid, click the “Columns” button in the settings bar at the top of the grid, find the Field in the list, and check it back on. This column selector shows a list of all the columns in the Query, filterable by data type.
Group	Groups the data into separate tables based on distinct values of the selected Field. To add nested groupings, click the '+' icon at the top and select the next Field you wish to group by. When data is grouped, you have the option to see an overall summary without the details by clicking on *Summary Only*. This option is available in the query edit page, query results page, and in Jobs.
Aggregates	Displays aggregate values below the selected field. The options vary depending on the field’s data type.
Format	Allows you to set the alignment, style, and width of a column, as well as add CSS formatting
Number Options	Allows you to change the formatting of numbers based on what the values represent. These options are only available for Integer and Decimal Number Fields.
Date/Time Format	Allows you to choose how dates or times in a column are formatted. Examples of common formats are shown, as well as an option to create a custom format using moment.js formatting
Column Width	'Autosize all columns' will automatically adjust the columns widths in the result set so that none of the headers or cell values are truncated. 'Autosize this column' will perform the same action for only the selected column. 'Lock column width' will prevent the selected column's width from changing.

Field Option	Description
Page Size	The default view for a result set shows all the records on one page. If you want to change these default so that the result set is grouped into page, the 'Page size' option provides a few settings to configure how many results are on each page.
Show Field Alias	Shows the alias of the Field under the label. If Field aliases are already shown, this option will change to 'Hide field alias'.
Change Data Type	Changes the Field's data type. If information is lost, such as when changing a Decimal Number to an Integer, it can be regained by switching back to the original data type.
Change Alias	Changes the field's alias – this is the name used internally by the Dataset and has stricter naming guidelines than the field name seen by the user. If a field alias is changed, any calculated values using the field must be updated with the new alias. Changing field alias is not common.
Change label	Changes the column header name of the selected field.
Remove Query	Removes the selected Field from the Dataset. If there are any Calculated Fields using it, they will no longer work until the Field is re-added. If you wish to remove a Field that is being used in calculations, consider hiding the Field or using a 'Remove Fields' Flow Step

Aggregate Fields

This functionality is only available for SQL queries.

Aggregate Fields allow to you group by the following predefined functions; Count, Count Distinct, Minimum, Maximum, Average, Average Distinct, Total, and Total Distinct. When creating or editing an Ad-Hoc Query / Dataset, select the desired Aggregate Fields on the left panel.

These Aggregate Fields need to be to be paired with relevant non-Aggregate fields in order to output useful results. Each non-Aggregate field added creates group by for the Aggregate Fields.

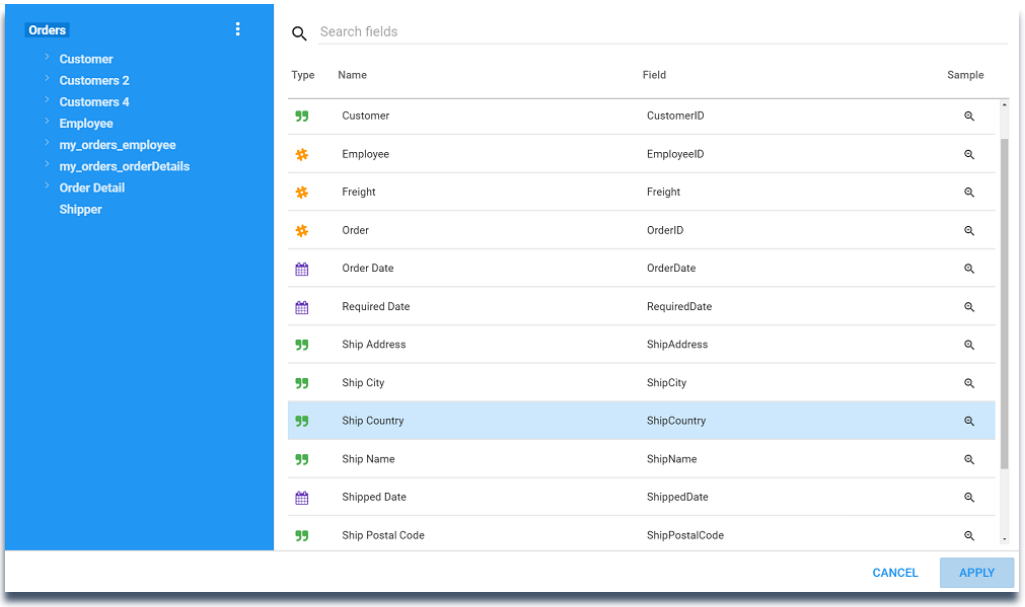
Once an Aggregate Field has been selected you may then select one or more aggregate functions (count, min, max, etc.) to the output. You may also have more than one Aggregate Field per Ad-Hoc Query / Dataset.

Criteria

Criteria are used to define which records are retrieved from your Datasource by the Query. There are three types of Criteria you can use to determine which records are returned by the query: **Field, Value, Saved List, Variable** and **Input.**

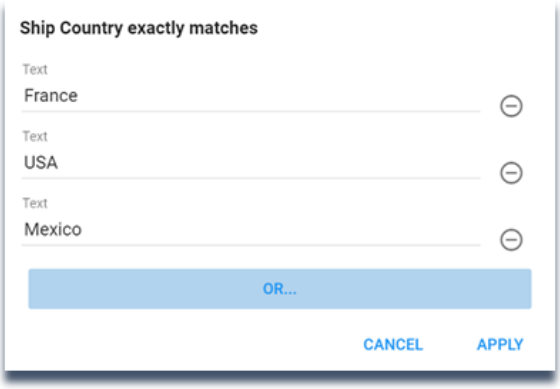
Field

Field Criteria allows you to select records where a specific field is relative to some other provided field. This lets you filter Field A in relation to Field B. For example, you could have Informer return records only when the Shipped Date is the same as the Order Date.



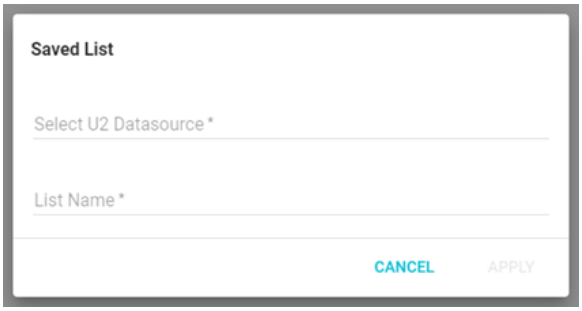
Value

Value Criteria is the most common type of criteria and allows you to match a selected field with a provided literal value. For example, if you only wanted to return records where the Ship Country matched France, USA, or Mexico, you could use a Value Criteria.



Saved List

Saved list criteria allows you to match a selected field with the value in a saved list that exists in a U2 Datasource.

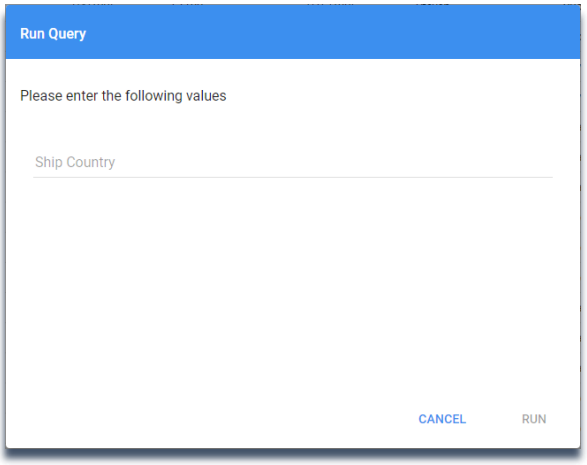


Variable

Variable criteria returns records where the value of a selected field matches with an existing User Field that has been assigned to specific users. See User Fields for instructions on how to create User Fields.

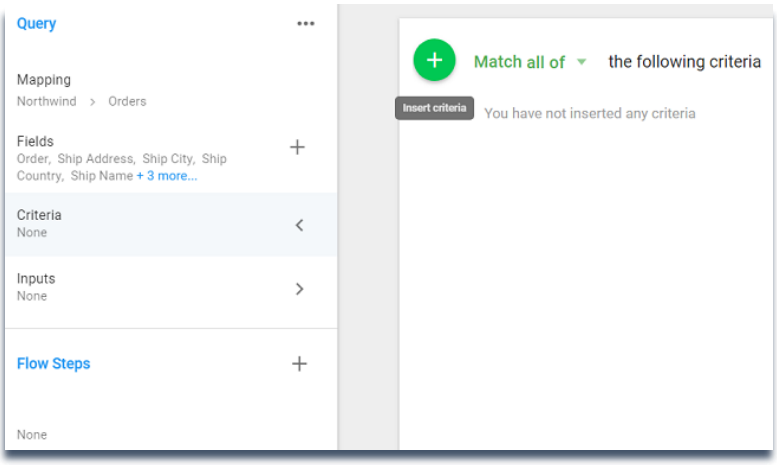
Input

Input Criteria return records where the value of a selected field matches with a user-defined Input or prompt, provided at run-time. This allows queries to be left more up to the user to determine which records are brought back. This is helpful when you want to share a query with multiple users and their needs may be different from each other.



Adding Criteria

Selecting 'Criteria' will open a screen that will allow you to add Criteria to the Query. Click on the green circle containing the '+' icon and select 'Criteria'.

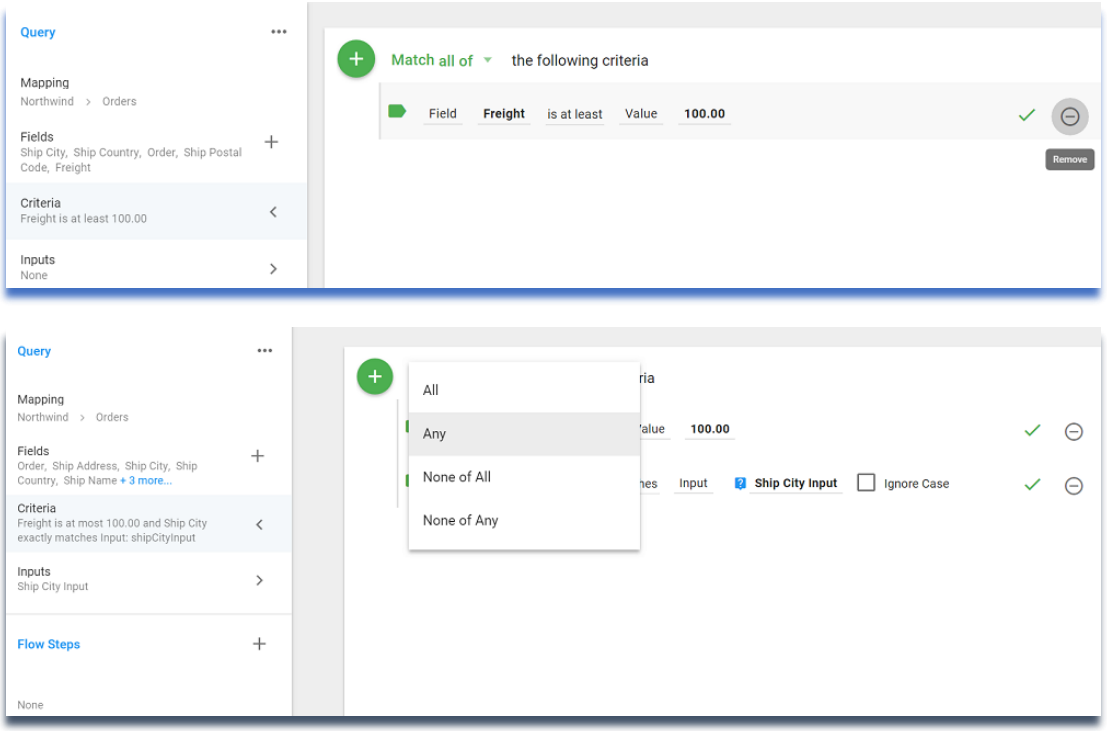


Criteria Options

When you create a new Criteria, there are six different options you can set.

Criteria Option	Description
Field/Value	Choose whether the Criteria applies to a field or literal value (By default, "Field")
Select Field	Select which field the Criteria should use. If applying Criteria to a literal value, this allows you to enter the desired value.
Logic Predicate	Choose the logic that will be comparing the left and right sides of your criteria. The type of logic available for selection depends on the type of field it's being compared against. For example, date fields will allow for 'after', 'on', and 'before' selection, whereas text fields would allow for 'contains', 'starts with', and 'ends with'. (By default, "Exactly Matches")
Field/Value/Saved List/Variables/Inputs	Choose what type of Criteria to apply. If selecting an Input type, you'll be able to choose between creating a new Input or to use an Input already created on this Dataset
Enter Value	Select which value, field, or input the initial value is compared to. • If a Field Criteria was selected, you'll be presented with a Field picker. • If a Value Criteria was selected, you'll be prompted to type in the literal value you want to match with. • If you want to add multiple literal values in the criteria, you can separate them with a comma, or you can choose 'OR' and create a separate value. • If an Input Criteria was selected, you can alter the specifics of the selected Input
Ignore Case	If checked, ignores capitalization in both values when comparing them

After selecting all required options for the Criteria, the red 'X' on the right should turn into a green check mark, indicating that it is valid. You can add as many Criteria to the query as you want. The 'Match all of' option at the top allows you to change which Criteria must be true for a record to be added to the Dataset.



- **All** - Returns records that match all Criteria
- **Any** - Returns records that match any Criteria
- **None of All** - Returns records that do not match every Criteria, but may match some
- **None of Any** - Returns records that do not match any Criteria

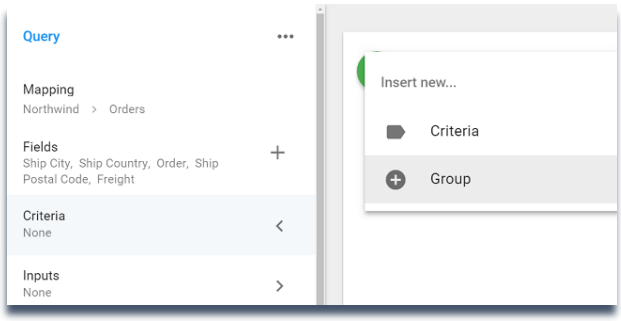
If you add multiple Criteria, they can be rearranged by clicking the label icon to the left of the Criteria you wish to move and dragging it to the desired position. Click 'Done' in the bottom-right corner to view a sample of the Dataset with the Criteria applied, then 'Save' in the top-right to save your changes.

Removing Criteria

To remove a Criteria, click the white '-' icon to the right of the Criteria you wish to remove.

Grouping Criteria

Grouping Criteria together allows you to configure Boolean conditions on multiple sets of criteria at the same time. Rather than applying the same matching rule to all Criteria, Groups allow you to decide which rules apply to each. Adding a Criteria Group is very similar to adding a single Criteria. Open the Dataset and click 'Edit' at the top-right corner to enter the Dataset Edit screen, then select 'Criteria' in the Left Navigation Panel. Click on the green circle containing the '+' icon and select 'Group'.



Click the '+' icon next to the newly created Group in order to add Criteria or more Groups. Next to each of these is a 'Match' option that allows you to change the matching rules of each Group individually. For example, the criteria below will return records where:

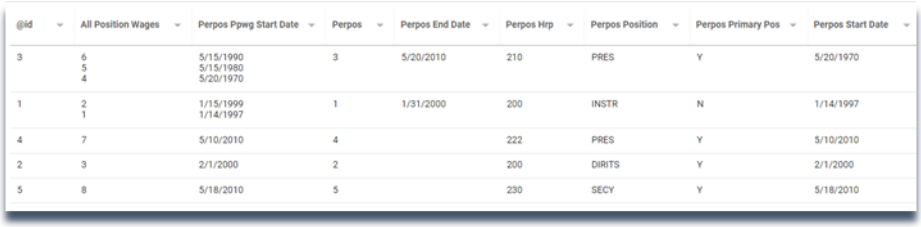
Criteria Options for U2 Databases

If you are working with U2 Databases, you will have different options when adding criteria to your query:

- WHEN Group
- Select Returning
- TCL/ECL block
- GET.LIST

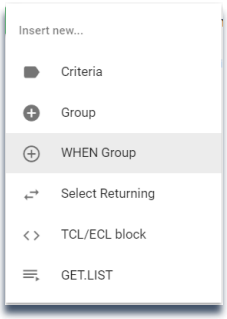
WHEN Group

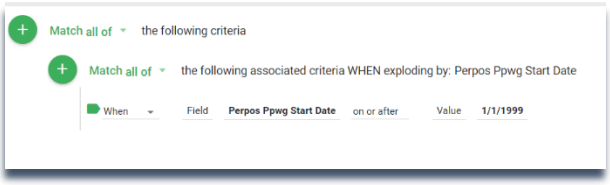
When working with multi-value data, sometimes you want to be able to select one of the values from the multi-value list. In the example below, the first two rows of data show how a multi-value field would display if it had more than one value. For instance, if you wanted to only display any rows that had a start date of On or After 1/1/1999, so that you only return the first value in the start date field that second row of data, you would use a WHEN Group criteria.



@id	All Position Wages	Perpos Ppwg Start Date	Perpos	Perpos End Date	Perpos Hrp	Perpos Position	Perpos Primary Pos	Perpos Start Date
3	6 5 4	5/15/1990 5/15/1980 5/20/1970	3	5/20/2010	210	PRES	Y	5/20/1970
1	2 1	1/15/1999 1/14/1997	1	1/31/2000	200	INSTR	N	1/14/1997
4	7	5/10/2010	4		222	PRES	Y	5/10/2010
2	3	2/1/2000	2		200	DIRITS	Y	2/1/2000
5	8	5/18/2010	5		230	SECY	Y	5/18/2010

To Create the criteria, go to the edit screen and add criteria. Choose the WHEN Group and then add criteria inside the WHEN Statement.

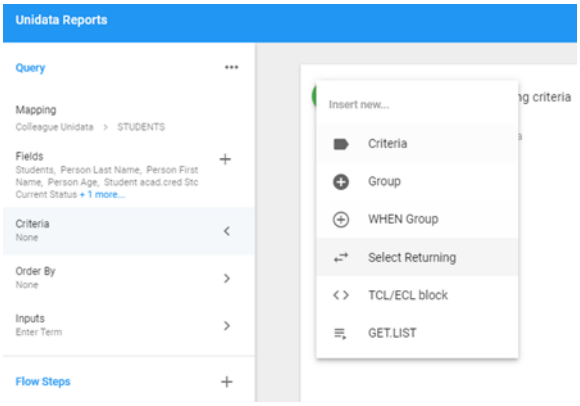




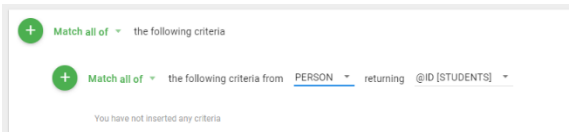
When you run the query, it does an explode by and returns only the value of the multi-values that meet that criteria. If you don't use the WHEN Group, it would display all the multi-values if any of them met the criteria.

Select Returning

U2 databases have a limitation that does not allow you to query on a virtual field from a linked mapping. Select returning allows you to use virtual fields (i-descriptors) from other files, as long as a link has been created. Go to the edit screen and add criteria. Choose the Select Returning:



From the drop down box, select the mapping you need to query from and then the returning mapping:

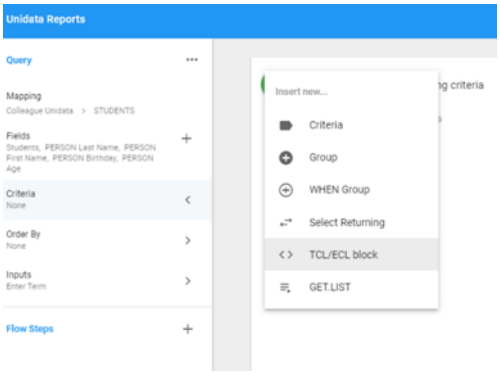


You have now changed the mapping that the query is built on and can add criteria using the new file, including virtual fields. Click on add criteria and notice that now you see PERSON as the starting file:

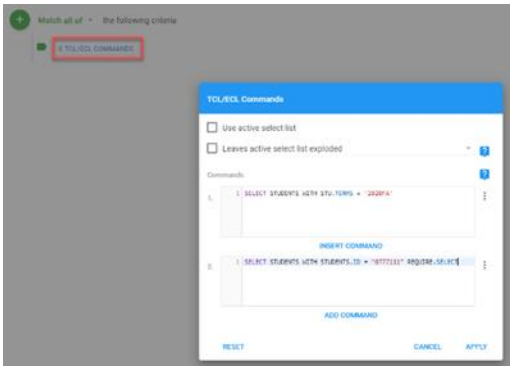
Add criteria as needed using the linked file:

TCL/ECL Block

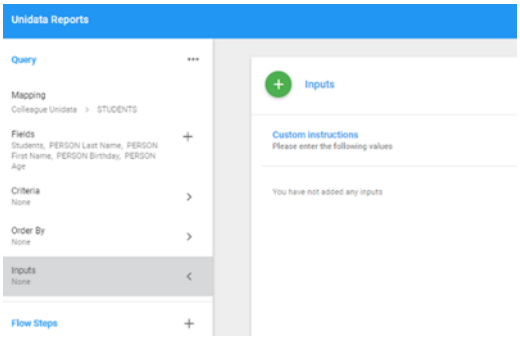
TCL/ECL Block allows you to specify database commands directly. This is used when users have a specific SELECT statement already and would rather specify the statement(s) rather than creating the criteria using the Informer criteria. Informer does not check for syntactically correct statements or specific verbs, so it is possible to type anything in this block. Go to the edit screen and add criteria. Choose TCL/ECL Block:



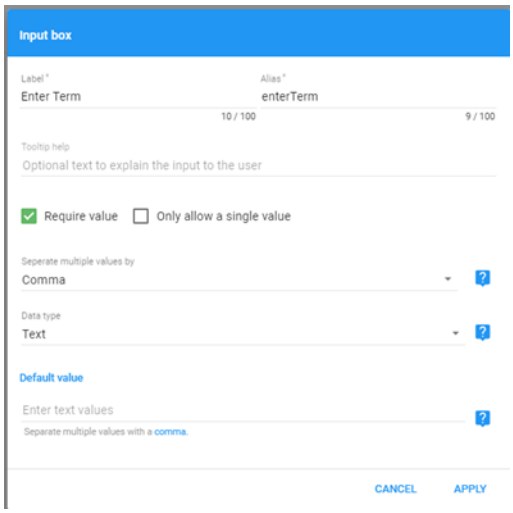
Click on the TCL/ECL Commands box to start entering criteria. Click on **ADD COMMAND** or **INSERT COMMAND** to add criteria



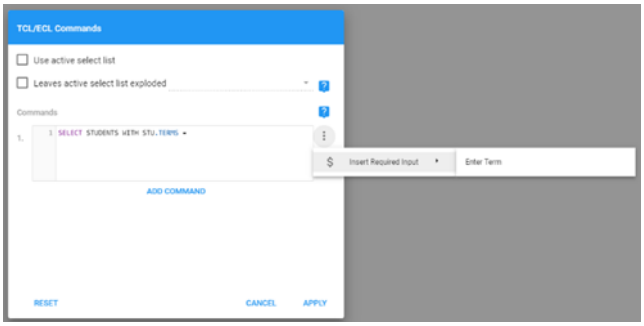
You can add prompts to your TCL/ECL commands by using inputs. You must first create the input under the Inputs section



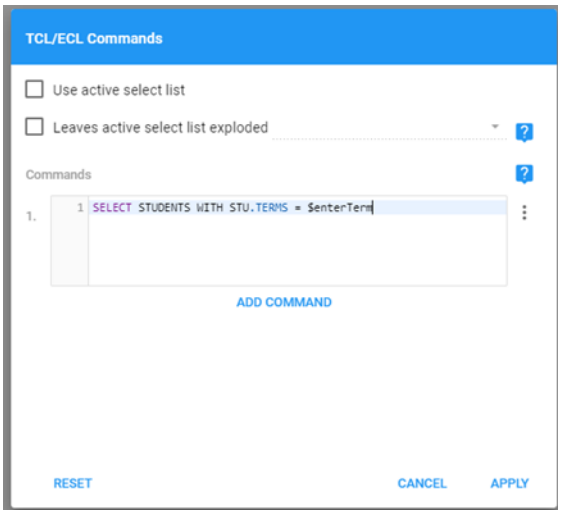
Click on the plus sign to add a new input. The input must be flagged as required in order to use it in the TCL/ECL command



Once the input is created, you can use it in the ECL/TCL command by clicking on the three vertical dots to the right of the command box

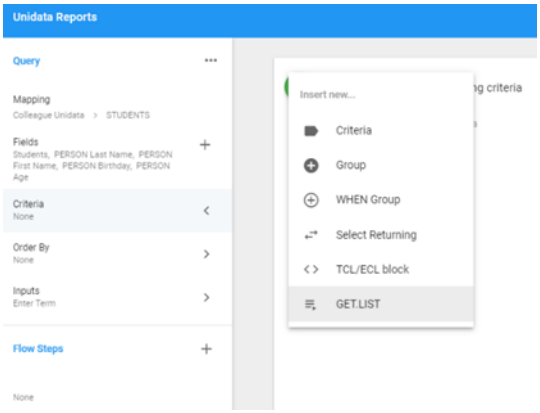


Now that the command includes an input, the user will be prompted for the term when the query is run



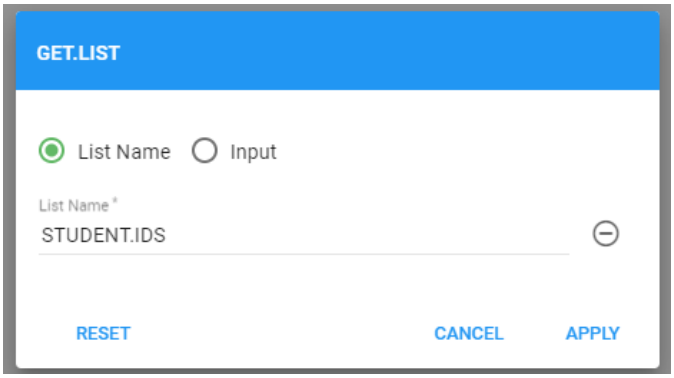
GET.LIST

The GET.LIST command allows you to run a query from an existing list of IDs, using the SAVEDLISTS file. The savedlist should be a list of primary key values for the table on which the query is built, and needs to be entered in UPPER case. Go to the edit screen and add criteria.



When using GET.LIST, you have two options:

- **List Name** - enter the name of the existing savedlist
- **Input** - create an input to prompt the user for the list name. For this option, the Input must be created first

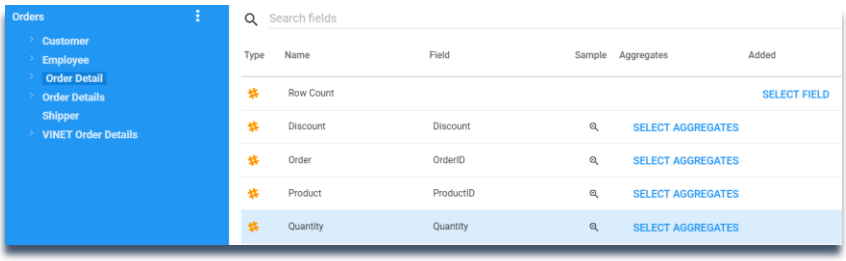


Aggregate Criteria

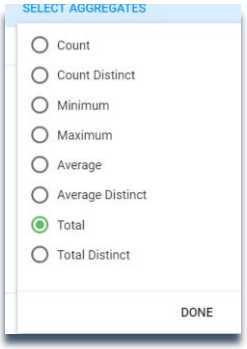
This functionality is only available for SQL queries

The Aggregate Criteria feature is used to query aggregates of numeric fields. You can use this in conjunction with adding Aggregates Fields to Dataset or Ad-hoc query. To add Criteria to a Dataset, go to the Dataset

Listing Page and open the Dataset where you are adding the Criteria, then click 'Edit' at the top-right corner. If the Dataset was created using the Query Designer, you will see a panel to the left with Fields, Aggregate Fields, Criteria, Aggregate Criteria, Inputs, and Flow Steps. Choose Aggregate Criteria and select the field you would like to aggregate.



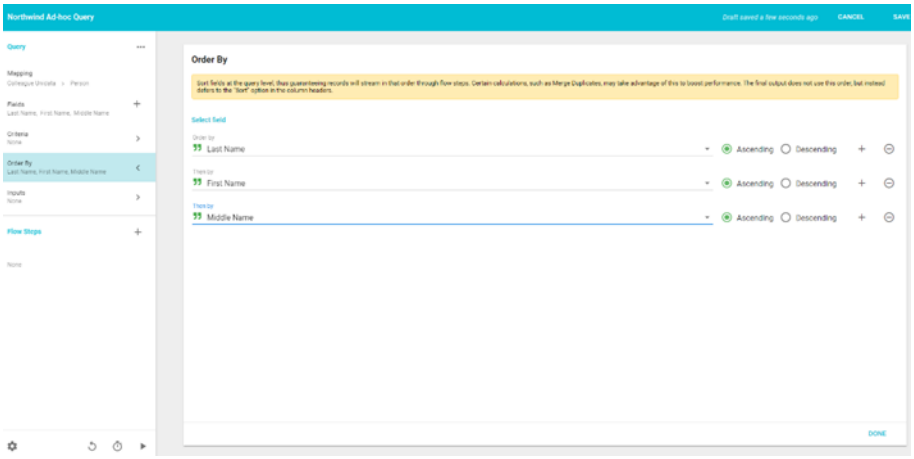
Click on SELECT AGGREGATES and choose aggregate type (Total, Min, Max, etc.)



Order By

Field

Order By allows you to specify a default order for the query. You can sort in ascending or descending order by any field that has been added to the query. You can add as many sorts as you need.

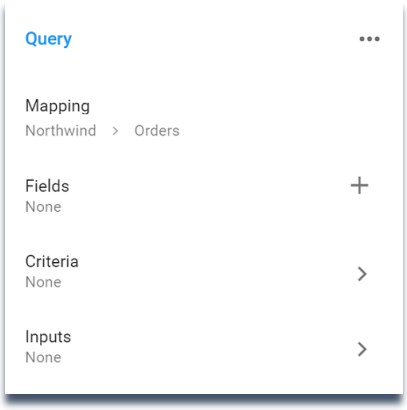


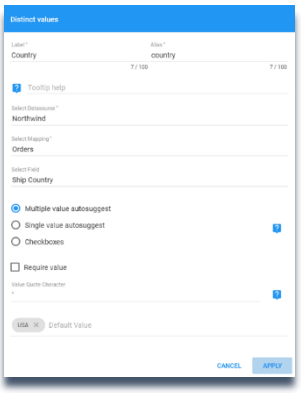
Inputs

Field

Inputs allow a Query author to make use of User provided values for constructing a Query. Informer prompts the User for Input values before the Query is executed the first time or after an Edit requiring a Query refresh. These input values can be used in either filtering the Query or in created calculated fields to append to the Query.

If Inputs are used in Datasets, subsequent Dataset refreshes use the existing Input values unless explicitly modified through Actions > Change Inputs. As such, Datasets with Inputs should not be confused as an alternative for Ad-hoc Queries with Inputs – Datasets do not prompt for Inputs on each execution as Ad-hoc Queries do.





Select 'Inputs' to open the list of Inputs, then click on the blue circle containing the '+' icon. Choose the type of Input you want to add, then fill out the blanks on the prompted form as necessary based on the type you chose.

- **Label** - The name of the Input
- **Alias** - Auto-generated based from the Label, although it can be manually changed. The alias is used to reference the Input's value in any calculated fields or power script flow steps
- **Tooltip help** - Descriptive text that can be clicked on by the user when they're presented with the Input (Optional)
- **Select Datasource** - Allows users to specify which field the autosuggested values are coming from (Only available for Autosuggest Inputs)
- **Select Mapping** - Allows users to specify which field the autosuggested values are coming from (Only available for Autosuggest Inputs)

- **Select Field** - Allows users to specify which field the autosuggested values are coming from (Only available for Autosuggest Inputs)
- **Require Value** - If checked, the user will be required to enter in a value for the Input when prompted
- **Default Value** - This will be the default value used for the Input if no value is specified by the user. (Optional)

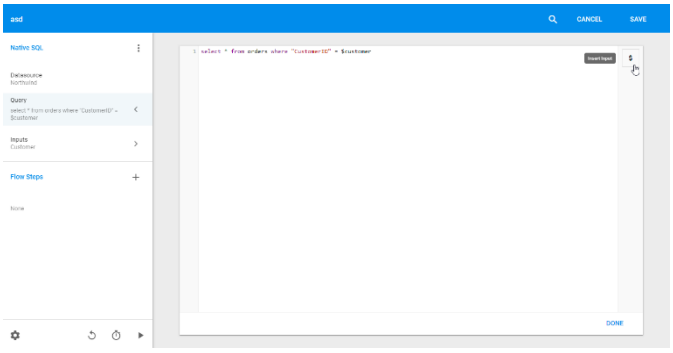
Once the form is complete, click 'Apply' to add the Input. There are several different types of Inputs available in the system depending on what type of field you're trying to select from. This means that certain types of Inputs lend themselves better to certain data types in the system. These different types are detailed below.

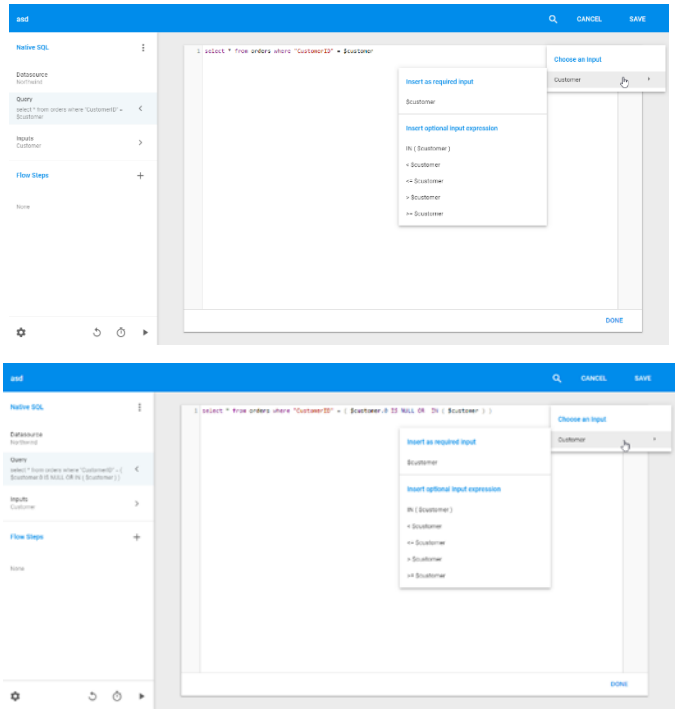
Input Type	Description
Autosuggest	Autosuggest Inputs provide the user with a set of values to choose from based on the values of a given Field that exists within any Dataset: • Value-Label Pairs lets you choose two fields to use for the values and labels in a dropdown menu, then lists all pairings within the Dataset • Distinct Values allows you to select from a generated list of unique values within a certain field
Checkbox	Boolean Inputs that allow the user to check a box to select whether a value is True (checked) or False (unchecked).
Switch	Like Checkboxes, but are generally used to toggle settings, such as whether a certain Field is generated, rather than for selection.
Radio Buttons	Inputs that allow the user to select a value from a selection. Unlike Distinct Value Checkbox groups, however, Radio Buttons only allow you to select a single value.
Date Picker	Allow the user to type a date into the provided text box or select one from a calendar interface (to open, click the calendar icon to the left of the text box).
Number	Inputs allow you to type a number into a text box or use the arrows to the right to increment/decrement between integer values.

Input Type	Description
Number Slider	Allow you to specify a minimum and maximum value, then provides a slider to the user that spans the given range. Users can click and drag the blue circle to change the value given as input or type a value into the text box to the right.
Text	Provides a text box to type one or more values
Text Area	Allows you to type multiple lines of text, dates, or numbers. Because they allow you to specify how to separate multiple values, they can be very useful for pasting many values from another source at once.
Select Dropdown	Dropdown menus that use custom values.

Adding an Input to Native SQL Queries

As Native SQL queries do not use the Query Designer, adding Informer 5 Inputs needs to happen directly inside the Native SQL code. In order to facilitate this, there is an 'Insert Input' button available on the right-hand side of the code editor. This button will give you a list of all the Inputs you currently have configured on this Query, and allows you to click on which input syntax you'd like to use inside your query. These syntax options allow for Input criteria with multiple values or optional Input criteria.





Flow Steps

Field

Flow Steps are actions performed on a Query after it has been run. They allow you to add new Fields and modify existing ones based on results from the query or user input. For example, a Flow Step could be used to combine two Fields containing first and last names into a single Field containing full names. Another could then be used to remove the original Fields that are no longer needed from the Query.

Types of Flow Steps	Description
Add Field	Provides pre-built functions to generate the most common types of calculated fields: • Calculated Field is used to create fields using custom calculations • Code Field allows to add a new field using existing Codes • Concatenate joins two or more fields together with a delimiter • Coordinates from Lat/Lon combines Latitude and Longitude values into a single location value • Counter assigns each record returned by the query a unique, auto-incremented inter value

Types of Flow Steps	Description
	• Fields from another Dataset allows you to join records from two different Datasets that share a common field • Percent of Total calculates the sum of a field from all records returned by the query and finds what percentage of the total value each value makes up • Fields from another Datasource joins records from two different Datasources that share a common field • Templated Field allows you to create formatted fields using JavaScript's template literals • Time Between calculates the amount of time between two date fields • Zip2Geo converts a zip code into geographical coordinates.
Transform	Modify the existing fields, values and structure of the Query: • Field Settings allows you to modify the label, data type and default value of the fields in your Query • Find and Replace replaces all instances of certain values of a field with alternate values • Merge Duplicates merges records containing the same value for a field into a single row • Normalize split array values into individual rows for each value in the array
Advanced	Provide advance functionality for more complex calculations. They are commonly used for obtaining values that rely on multiple records, such as a percentage of a total value: • Flush instructs the system to finish processing all records from the Flow Steps preceding it before beginning the ones after it • Java Calculated Field runs calculations on the row via the Java Scripting interface (such as those migrated from I4)

Types of Flow Steps	Description
	• Power Script are advanced scripts that give you complete control over your data, allowing you to manipulate every value that is returned from the query. They are build using JavaScript
Remove	Removes fields from the Query. This is commonly used for fields that are needed for calculations but aren't needed afterwards

Query Designer Options

When in Edit mode, the following additional options are available:

- Sample Options – allows you to change how Informer issues a sample request
- Run a live sample
- Include criteria
- Row limit
- Benchmark – launch a test-run of the Query to identify bottleneck in performance. The test run will not impact your Query results
- Refresh sample – re-runs the Query and returns sample results
- Run – runs the Query

Post Query Options

Once the query has been executed, and depending on your access, you may have the ability to:

- Edit
- Refresh
- Apply/Create Filters
- Actions
- Pivot Tables
- Discover
- Visuals
- Filters Management
- Access

- Jobs
- Comments
- Settings

Edit

Click on Edit to make changes to the Query including Fields, Criteria, Inputs, and Flow Steps.

Refresh

Click on Refresh to refresh the Query results on demand.

Apply/Create Filters

Using a Post Query Filter, you can narrow down a query to a more specific subset of information. A filter will limit the row results only to data that meets your filter criteria. The changes will be made dynamically as you create a filter, so the query will not have to be refreshed for any post query filters to take effect.

Types of Filters

Depending on how the end user wants to filter their result set, there are several different post-query filter options available:

Filter Type	Description
Distinct Values	Provide a menu of check box options that lists the unique data values in the property. This filter can be applied to text, integer/decimal numbers, and date/timestamp data types.
Like	Allows a partial match of the property by leveraging wildcard characters. Normally filters must match entire words or character strings, but Like allows for partial matches. Wildcard characters are '*' for any string of characters and '?' for a single character. You can only enter one string to match with the like per property.

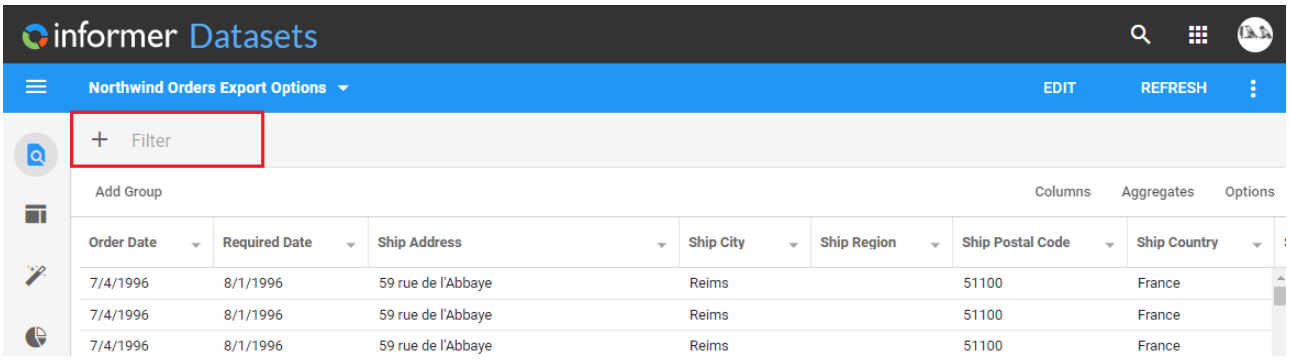
Filter Type	Description
Enter Values	Allows the user type in a value to match. It must match exactly, or nothing will be found. Multiple values can be provided (use the gray + on the right of the panel). If ANY of these values match, the row meets the filter criteria.
Is Empty / Is Not Empty	Toggles to filter for properties that do or do not have a value. You do not have the option of adding other property filters from this panel. Once either is selected, a filter chip is created showing the property name and the state.
Variable	Allows the user to filter data based on User Fields that have been defined and assigned to Informer Users.
Number Ranges	Facilitate creating a filter by selecting discrete ranges of numbers. One or more ranges can be selected. The number of entries that are in the category are listed to the right in gray. To change the ranges, choose Configure.
Number Range Slider	Facilitates creating a min/max filter using a visual slider or by entering values.
Number Value Slider	Is only available for Integer Numbers. It operates in a similar fashion to the Number Range Slider but filters to a single discrete value. If you click and drag the slider, you will see the values change in the dataset display dynamically.
Date Range	Creates a filter that will restrict data based on a range of dates. Enter the start and end date either by typing in the data or choosing it from a pop-up calendar.
Date Relative to Now	Creates a filter that defines dates in a past or future range. The first field can be 'Next' or 'Past'. The middle field is a positive integer number that can be typed in then adjusted with up/down arrows. The final field provides a selection of days, weeks, months or years.
Date Keyword	Creates a filter that created relative dates based on keyword. The help icon, provides detailed information on the available options:

Filter Type	Description
Location Range	Filters query results based on how far away Location values are from a given point. Enter a distance and select the units you would like to use in the filter panel to the left, then click the '...' icon and select 'Configure'

Creating a Filter

Using post-query filters is a powerful function that lets you quickly view and filter that data you want to see, without having to re-run a Query.

To access the post-query filters, open the Query and click “+” on the Filter Bar:



A Query can have two main types of Filters: General Filters and Field-Specific Filters. The result of creating a Filter is a green capsule (Filter Chip) added to the Filter Bar.

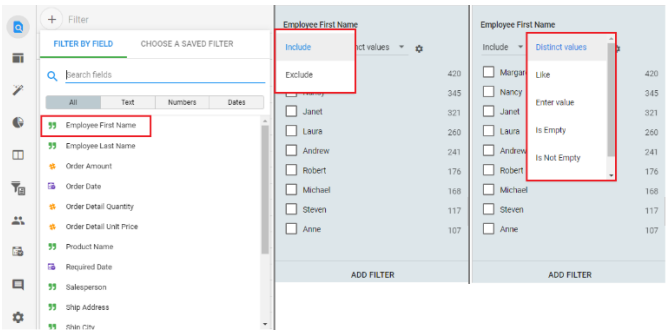
General Filters

To create a general filter, position the cursor in the new filter field next to the '+' icon and start typing. When you complete the search term (one or more words or groups of letters and numbers), press <enter>. The entire string you entered will become a Filter Chip. It will be displayed on the filter bar and the dataset display will only display rows that meet the filter criteria.

Field-Specific Filters

To restrict criteria values to a specific property, click the '+' sign at the far left of the filter bar and you'll be presented with a drop-down list of the properties in the report that can be filtered. If you already know the property name, you could also opt to type it into the filter bar.

To begin filtering, select the Field to filter by in the dropdown menu, select “Include” or “Exclude” depending on desired results (Include is the default) then choose the type of filter in the resulting sub-menu.

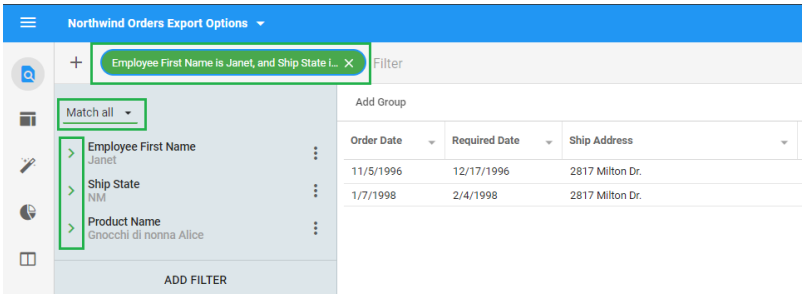


You can continue adding more Filter Chips to narrow down the results even further. By default, when you add multiple filters, only information that matches **all** the values will display. However, you can change how the filters are evaluated by using AND, OR and NOT.

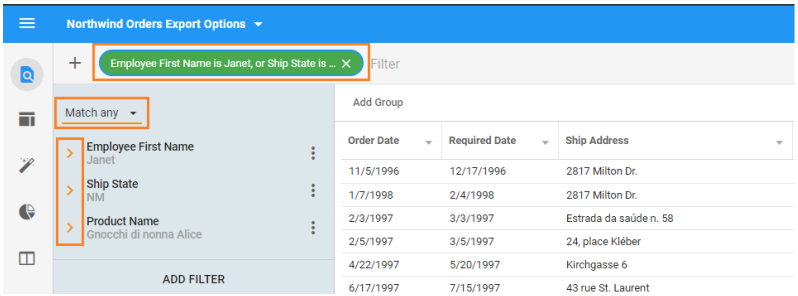
Filtering Using AND, OR, and NOT

If you have at least two Filter Chips on the filter bar, you have the option to change how the filters are evaluated using All (logical AND), Any (logical OR), or None (logical NOT).

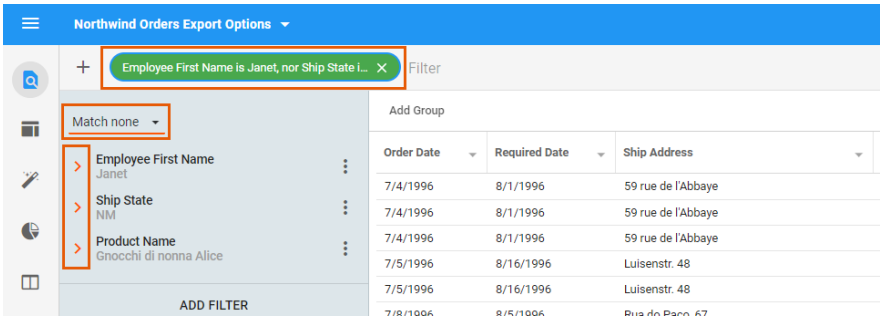
Match all: all the Filter Chips must be satisfied. The Filter Chips will be displayed in green to reflect the 'ALL' condition. In the example below, the rows that meet the filter criteria must contain Employee First name “Janet”, State “NM”, **and** Product name “Gnocchi”:



Match any: any of the Filter Chips can be satisfied. The Filter Chips will be displayed in orange to reflect the 'ANY' condition. In the example below, the rows that meet the filter criteria must contain Employee First name “Janet”, State “NM”, **or** Product name “Gnocchi”:

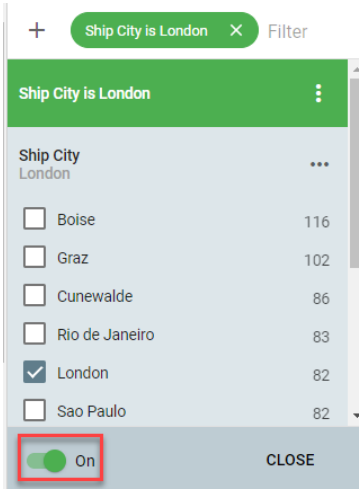


Match none: results will not contain any row that is satisfied by the Filter Chips. The Filter Chips will be displayed in dark orange to reflect the 'NONE' condition. In the example below, the rows that meet the filter criteria **cannot** contain Employee First Name “Janet”, Ship State “NM” **or** Product Name “Gnocchi”.



Removing a Filter

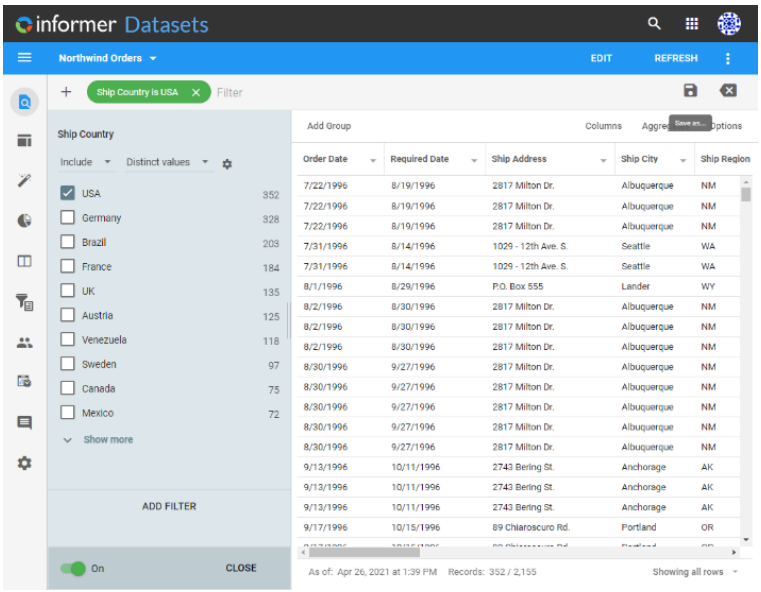
To remove a filter that is no longer needed, click the 'X' icon on the right side of the corresponding Filter Chip. If you only want to disable the filter without removing it from the filter bar, select the Filter Chip and click the switch in the bottom-left corner of the filter panel to turn off the filter.



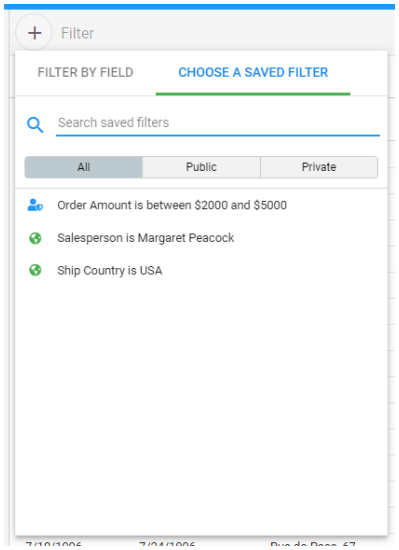
Saved Filters

Saved Filters on Queries allow you to create and re-use filters that either you or members of your team will find useful. Once you save a Filter, you can freely toggle it on or off depending on the results you're wanting to see. Filters can be saved as public or private. Public filters will be available to anyone who has access to the Query, and private filters will only be available to the user that saves it.

To save a filter, click the “Save as…” icon on the right side of the Filter Ribbon, enter a name for the filter, and click “Save”. Newly saved Filters are private by default.

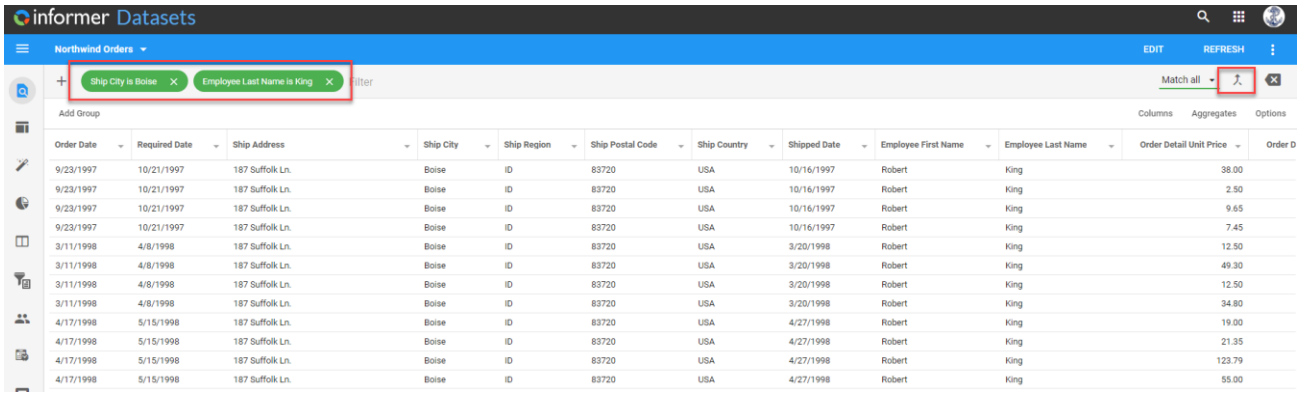


To apply a saved Filter to a Query, click the "Add a Filter" button in the Filter Ribbon, click onto the "Choose a saved Filter" tab, then click the desired Filter to add it to the Query. All the available saved Filters will show in this list or click the "Public" or "Private" tabs to see a list of only those Filters.

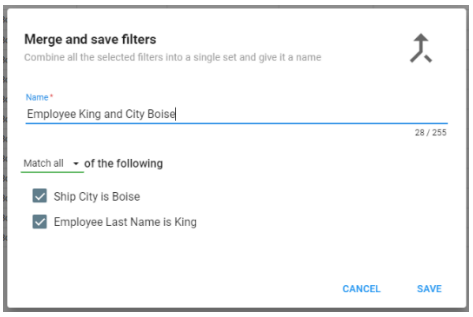


Merging Filters

If you have two filters that are commonly used together, you may wish to merge them into a single filter. To do this, add all the filters you want to merge to the Dataset and click the Merge icon on the right side of the filter bar:



Enter a name to assign to the merged filter, then select 'Match all' (logical AND), 'Match any' (OR), or 'Match none' (NOT) in the dropdown menu. Uncheck the boxes next to any filters you do not want to be merged, then click 'Save' to merge the filters.



Actions

The Actions menu contains actions that allow you to view, modify, and distribute the data within your Query. The different options available to you are outlined below and will depend on your level of access as well as the type of Query (Dataset or Ad-hoc Query):

Options	Description
Export	Creates a local file containing the results of your query. Data can be exported to any of the following file types: • CSV • HTML

Options	Description
	• Live Excel • JSON • Excel • XML • Tabbed • Custom • Fixed • PDF
Add to Bundle	Adds the selected query to an existing bundle or creates a new bundle
Assign Tags	Allows you to assign existing tags to your query
Benchmark	Allows you to run a benchmark on your query, flow steps, and indexing to identify potential bottlenecks in performance
Bundle and Download	Creates a bundle with the selected query and downloads the file
Change Inputs	Allows you to set the values given as Inputs when the query is run (only available in Datasets)
Change Owner	Gives ownership of the query to another team or user
Clear User Settings	Clears user-specific settings set within the query to their default values
Clear data	Removes all the data in the query (only available in Datasets)
Copy	Creates a copy of the current query
Create Dataset	Creates a Dataset using current query (only available in Ad-hoc Query)

Options	Description
Create Data View Report	Generates a Data View Report using the current query (only available in Datasets)
Create a Data Access Token	Allows you to share data with authorized users outside of Informer (only available in Datasets)
Create a query token	Generates a token that can be used to access the query outside of Informer (only available in Ad-hoc Query)
Delete	Permanently deletes the query
Edit	Opens the query Edit page. This can also be accessed by clicking the 'Edit' button in the top-right corner
Move to Folder	Moves the query to a new or existing folder
Refresh	Runs the query to update the data in the Dataset (only available in Datasets)
Rename	Allows you to change the name and description of the query

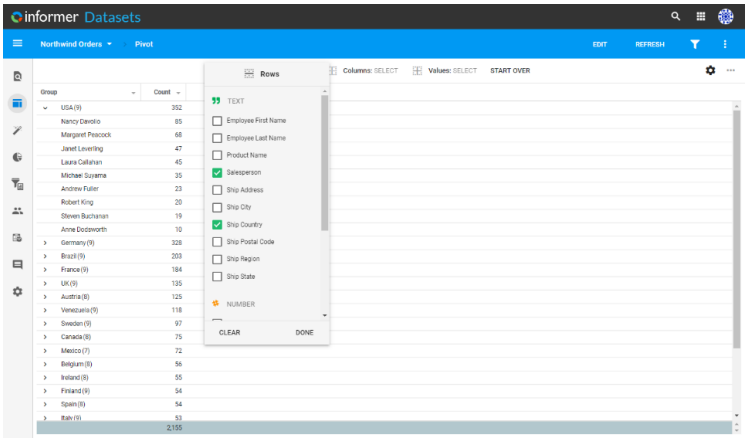
Pivot Table

Pivot Tables are one of the Visual options for queries and transform data into a row and column table with values that can be customized. Pivot Tables can be saved on Datasets (depending on your level of access) but cannot be saved in Ad-hoc Queries.

Create a Pivot Table

When creating a Pivot Table, options available include setting Rows, Columns, and Values, as well as a 'Start Over' button that clears all selections

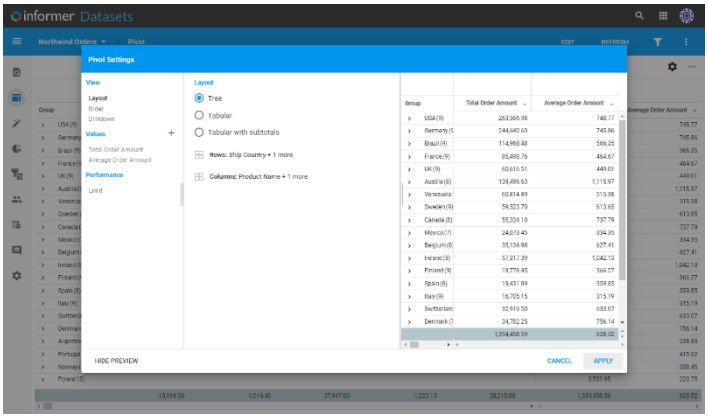
- **Rows** - Choose any fields to represent the rows of your table. If multiple rows are selected, they will be nested in the order they are selected.
- **Columns** - Choose any fields to represent the columns of your table.
- **Values** - Choose the values you want your table to represent.



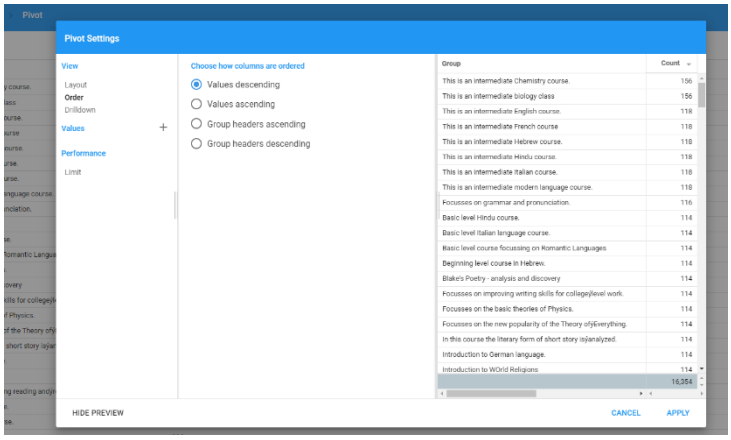
Settings

In addition to having full control over which rows, columns and values get displayed in your pivot table, there are also other display options that can be adjusted. Click on the 'configure' gear icon in the top-right of the pivot table window.

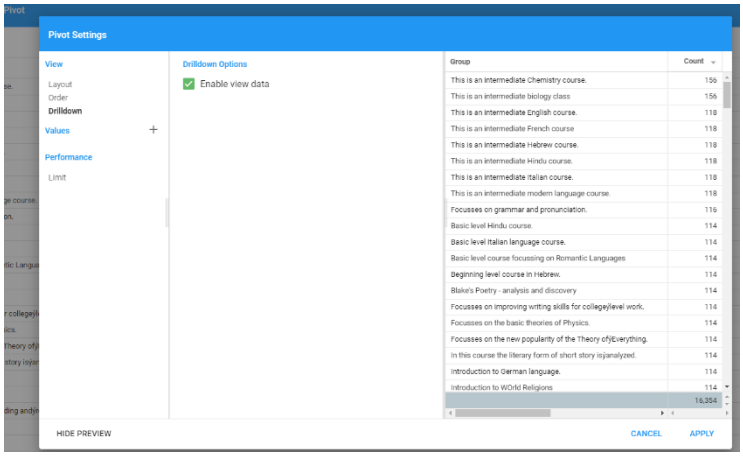
- Layout – allows to change how many nested groupings for your rows are displayed
- Tree – it's the default type where you need to click on a top-level grouping to expand it and show lower-level groupings. Any sub-totals of a row's values are displayed on the right-side of the pivot table
- Tabular – this will normalize all row groupings so that users do not have to click on any top-level grouping to expand options. Sub-totals are displayed.
- Tabular with subtotals – same as tabular layout type, with additional top-level subtotal rows.



Order – allows to change the ordering of the columns based on their values. You can choose from values ascending or descending, or alphabetically by group header.

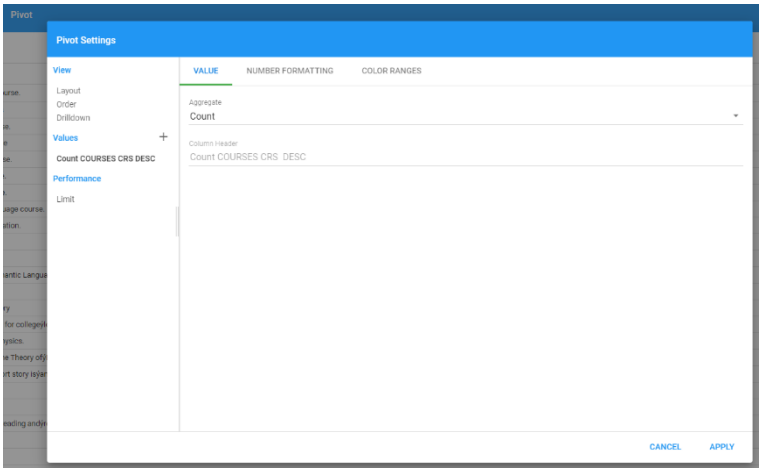


Drilldown – enable or disable the ability for end users to drill down into a specific cell's data

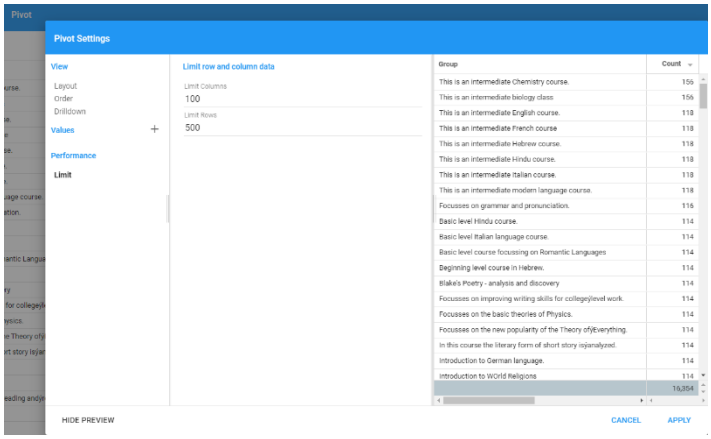


Values – options for each value or aggregate in your pivot:

- Change column header on values
- Number formatting
- Color ranges



Performance – limits how many groupings are included in the pivot (you might only want to see the top 100 groups)



Discover

Informer suggests interesting Visuals based on the Fields that you select. To begin making Visuals, select the Fields you want to represent in the right panel. The center panel will show several different types of Visuals based on the Fields you pick. Visuals with multiple groups, such as charts and tables, will create groupings based on the order in which the Fields were selected. To remove Fields, uncheck the checkboxes by the ones you wish to remove, or click 'Start Over' next to the list of Fields above the Visuals to remove all Fields. Each Visual that is generated using Discover can be customized using the icons at the top and bottom

Options	Description
Expand	The first icon in the top-right corner of the Visual is 'Expand'. This shows a larger view of the Visual.
Options Menu	The '...' icon in the top-right corner opens a menu with additional Visual options:

Options	Description
	• *Download* - Saves a local copy of the Visual as an image or HTML file that can be used outside of Informer 5 • *Configure* - Allows you to change the configuration of the Visual. • *Pin copy to Homepage* - Pins a copy of the Visual to your Homepage with the current configuration. Any changes made to the Visual afterwards will not affect the pinned version. • *Rename* - Renames the Visual • *Revert* - Reverts any changes that you've made to the Visual's configuration since it was generated by Discover • *Information* - Tells you the last time the data in the Visual was updated

Common Configuration Options

Many Visuals have icons in the bottom-left corner that allow you to change common configuration options more quickly than through the configuration screen. These include:

- Change chart type
- Change groups
- Change series
- Filter
- Save Visual to Saved Visuals (only available for Datasets)

Visuals

Go to the 'Visuals' section on the Dataset to create a new visual from scratch. If there are Visuals already associate with the Dataset, you will see a list of them. Click on 'New Visual' to create a new one.

Types of Visuals

There are several different options for visuals depending on how you want to display your data:

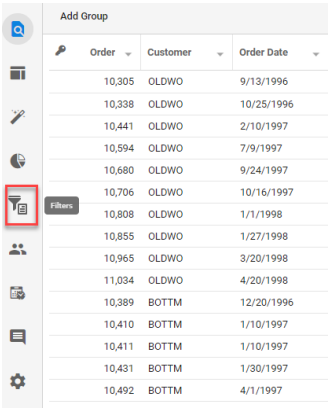
- Line, Spline and Area Charts
- Bar and Column Charts
- Pie Charts
- Trend Charts

- Scatter Plots
- KPIs
- Maps

Filters can also be applied to Visuals, just like post-query filters on a Dataset or Ad-hoc Query.

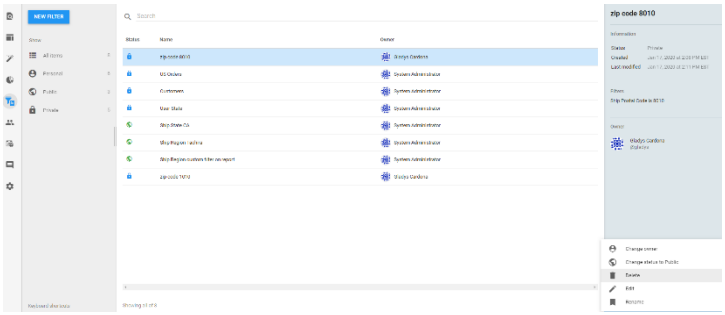
Filter Management

To access the Filters Management Page, click on the Filters icon on the left panel



Order	Customer	Order Date
10,305	OLDWO	9/13/1996
10,338	OLDWO	10/25/1996
10,441	OLDWO	2/10/1997
10,594	OLDWO	7/9/1997
10,680	OLDWO	9/24/1997
10,706	OLDWO	10/16/1997
10,808	OLDWO	1/1/1998
10,855	OLDWO	1/27/1998
10,965	OLDWO	3/20/1998
11,034	OLDWO	4/20/1998
10,389	BOTTM	12/20/1996
10,410	BOTTM	1/10/1997
10,411	BOTTM	1/10/1997
10,431	BOTTM	1/30/1997
10,492	BOTTM	4/1/1997

The Filter Management page displays all the existing filters for the Dataset, and the status of either private or public. You can add new filters or edit existing ones. To edit an existing filter, highlight it and click **Actions** on the bottom right-hand corner



- **Change owner** - change the filter ownership to a team or user
- **Change status** - if the filter is private, you will have the option to change it to public, and vice versa
- **Delete** - delete the filter
- **Edit** - make changes to the filter
- **Rename** - change the displayed name of the filter

Access

Under the Access section, you can change the ownership of a Query as well as sharing to other Users and/or Teams. There are two ways to grant Users or Teams access to a Report - either by sharing or giving ownership.

Ownership

The default Owner of a Query is the creator. This User has full access and can change the Owner to another Team they belong to. In order to have Edit access to Queries, Users must belong to a Team that owns the Query and have a role of Data Designer or greater. Super Users are the exception - they can share to any User and/or Team.

Sharing

Sharing a Query with a Team will grant read-only access to the results, allowing for the creation of Filters and Jobs. The Query owner is the only one able to modify the Query or share its' data with other Users or Teams. When sharing a Dataset, existing saved filters can be used to limit Users or Teams access to the Query results. Note that this filter will apply to any content built off the Dataset (Dashboard, Comparison Boards, Data View).

Jobs

A job is any task or collection of tasks to be executed using data in your system. These tasks can be executed as needed or using a schedule. This is a user-level permission, so not everyone will have access to create and schedule jobs. Jobs can be created from the Jobs page or from inside a query.

The three main components of a Job are the data, actions the job will execute, and the automated schedule used to run the Job.

Data

The first part of configuring a job is defining the data to use. You can choose one or more Datasets or Ad-hoc Queries. Once the Data has been added, additional options will display on the screen to interact with the query results.

Please note that if this is an Ad-hoc Query, you must first ‘Run’ the query.

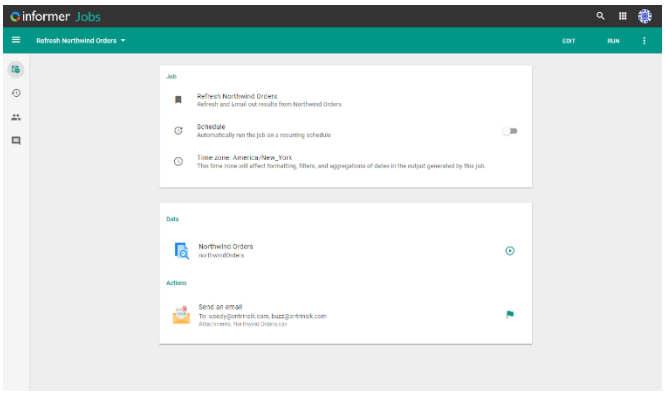
Actions

Once the data for the Job is established, you can setup Actions. Multiple actions can be defined and these actions can include filtered data. These are the available options:

- **Send an email** – Use a rich email editor to send an email using content sourced from the data components of the Job. You can also add file attachments to the email – a new HTML file, a new text file, a new zip file, a file from the file system, or the data components of the Job in a certain file format.
- **Send an email burst** – Use a rich email editor to send emails to different individuals using only specific content per email sourced from the data components of the Job. You can also add file attachments to the email –a new HTML file, a new text file, a new zip file, a file from the file system, or the Data components of the Job in a certain file format.
- **Send to FTP** – Establish and send files via an FTP connection. Choose the files to send - add a new HTML file, a new text file, a new zip file, upload files, or send from the data components of the Job.
- **Send to file system** – Save files to the file system of your Informer instance. Choose the files to send - add a new HTML file, a new text file, a new zip file, upload files, or send from the data components of the Job.

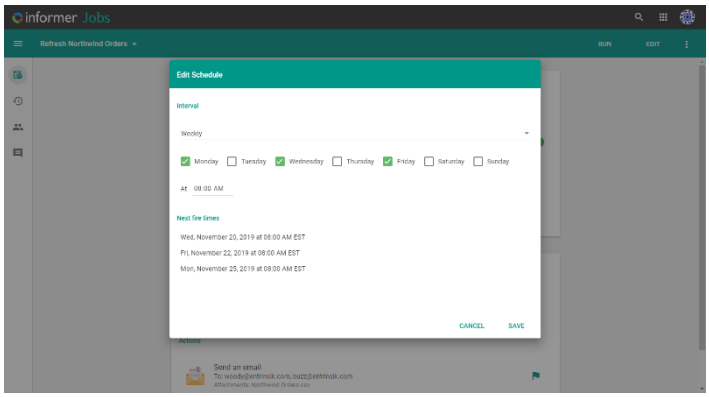
After adding Data components and configuring actions, the Job Details page will display. This page outlines everything that the job is doing.

- **Edit** – displays the Job's edit page where you can modify or add new Data components or Actions to the job
- **Run** – executes the Job as it is currently configured



Schedule

To setup a schedule on a job, toggle on the 'Schedule' option from the Job details page. The 'Edit Schedule' page opens where you can specify the schedule interval (minutes, hourly, daily, weekly, monthly, yearly, or some other custom interval as determined by a CRON syntax Job.



Comments

Enter comments on this Query. The comments will be available to all users who can access the Query.

General Settings

There are different options when setting your Dataset to refresh. The Settings icon on the left panel allows you to set the Dataset to either replace, append, or upsert the data upon refresh. The description of each of these options are below:

- **Replace** - (default) - remove all records and replace them with the new results.
- **Append** - add records each refresh. Never remove records.
- **Upsert** - add new records, and update existing based on an ID field. Never remove records.

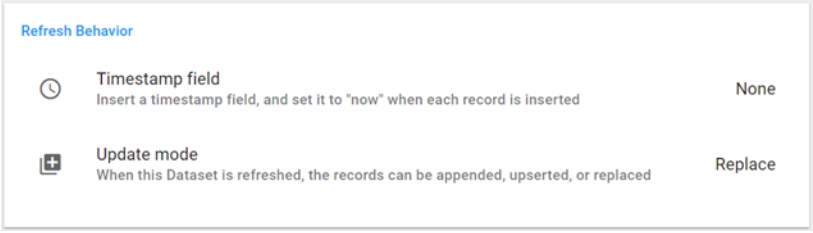
The Replace mode - which is the default refresh mode - replaces all of the data in a Dataset at refresh time. This means the pre-existing records in the index will be deleted, and all the data streaming in from the query will be added to a new index.

The Append mode will append a query's result set to any pre-existing records that are already in the Dataset. This, in combination with an added timestamp field, allows you to compare old versus new data by the timestamp. One might create a trend chart based on timestamp. If you have a very large Dataset and are refreshing quite often, be aware of how big your Dataset can grow.

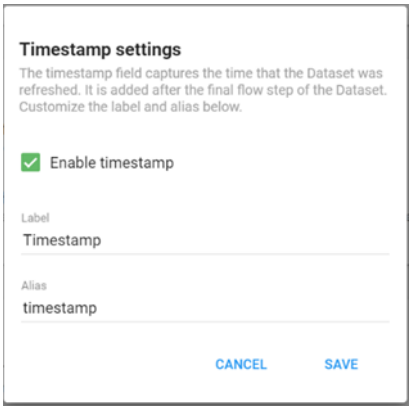
The Upsert mode allows you to choose an index field, such as an Order Id or Person Id that is in Dataset and only update any rows that have changes to them. It will not remove any old data, but will add any new rows

or change any existing rows of data. If you have a change or add date that is associated with this date, you can even get the deltas by using a Last_Queried_At date keyword in a criteria.

To set up each of these options, click on the gear in the left panel and Navigate to the Refresh Behavior area.

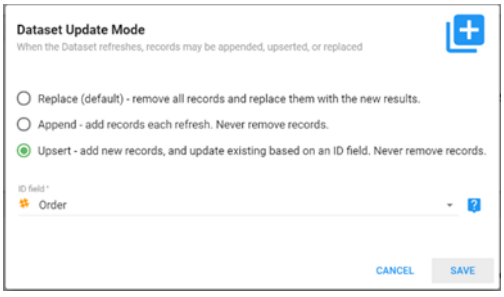


If you are going to Append the data, you will most likely want to add a Timestamp Field. Choose that option and then name the column. Check Enable timestamp and name the Column and the alias or leave as the default values.



To use Append, choose the Append in the Dataset Update Mode.

If you would like to use the Upsert mode, choose that option and then choose the ID field that is unique to each row. When the Dataset refreshes, it will look at that ID and see if anything in the row of the data and changed and update it.



When using Upsert mode, you can also add a criteria to the Dataset to query only records that have been changed since the last time the Dataset was refreshed. This way, you're only querying a much smaller subset of data, resulting in a much faster query run time. You would need an add/change date in your database associated with the data that is being queried. The criteria would use the date field and then use the date keyword LAST_QUERIED_AT