



Basic Data Queries

a.k.a. Aggregates



Topics

- Aggregates Overview
- Creating Aggregates
- Aggregates
 - Sources
 - Filters
 - Sorting
 - Testing
 - Output
 - Properties

Aggregates Overview

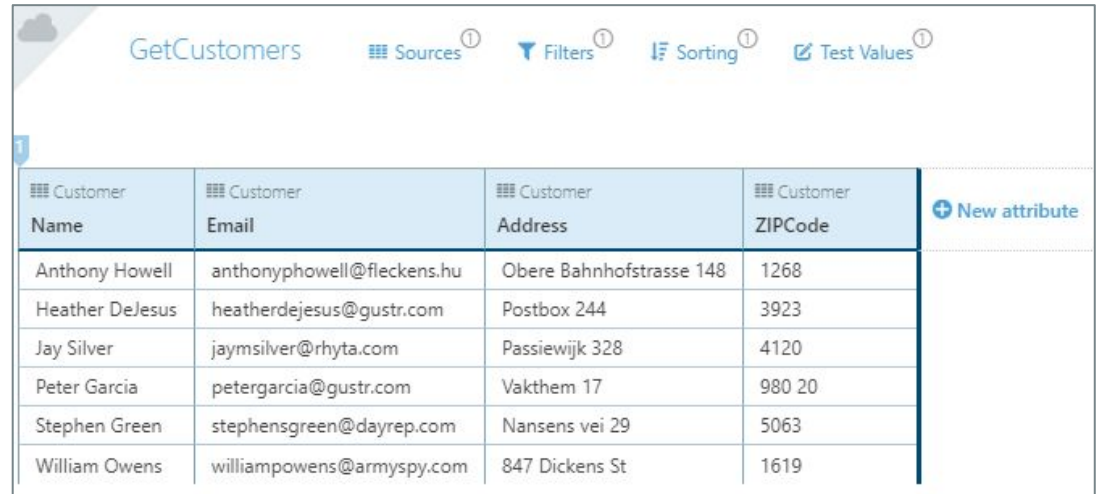
Most web applications need to fetch data from the database

Aggregates allow us to define database queries in a visual way

- Add Sources
- Create filters
- Define sorting

Aggregates are easy to create and maintain

- Excel-like display of real data
- SQL knowledge is NOT required

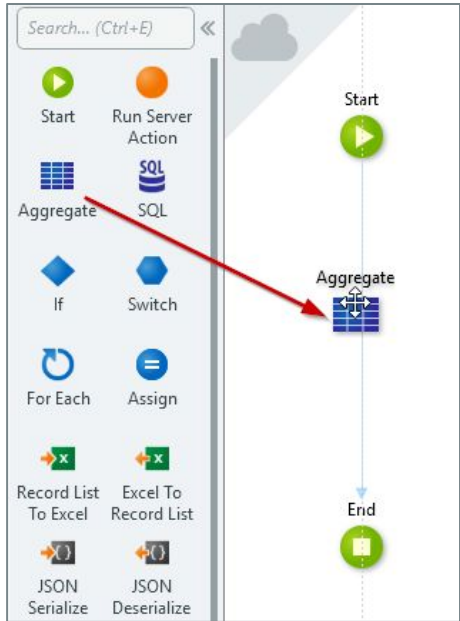


The screenshot shows a web application titled "GetCustomers". At the top, there are four icons with circled numbers: "Sources" (1), "Filters" (1), "Sorting" (1), and "Test Values" (1). Below the header, there is a table with 4 columns and 7 rows. The columns are labeled "Customer Name", "Customer Email", "Customer Address", and "Customer ZIPCode". The rows contain customer data. To the right of the table, there is a button labeled "+ New attribute".

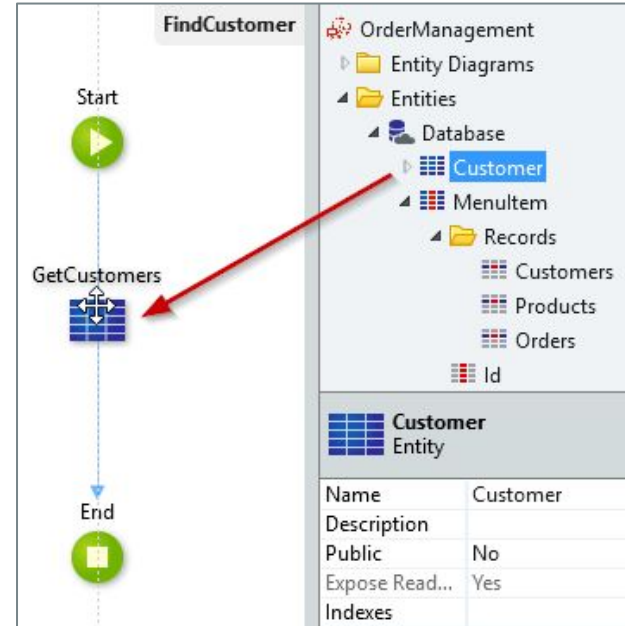
Customer Name	Customer Email	Customer Address	Customer ZIPCode
Anthony Howell	anthonyphowell@fleckens.hu	Obere Bahnhofstrasse 148	1268
Heather DeJesus	heatherdejesus@gustr.com	Postbox 244	3923
Jay Silver	jaysilver@rhyta.com	Passiewijk 328	4120
Peter Garcia	petergarcia@gustr.com	Vakthem 17	980 20
Stephen Green	stephensgreen@dayrep.com	Nansens vei 29	5063
William Owens	williampowens@armyspy.com	847 Dickens St	1619

Creating an Aggregate

Drag an Aggregate from the Toolbox to an Action flow



Drag an Entity to an Action Flow (accelerator)

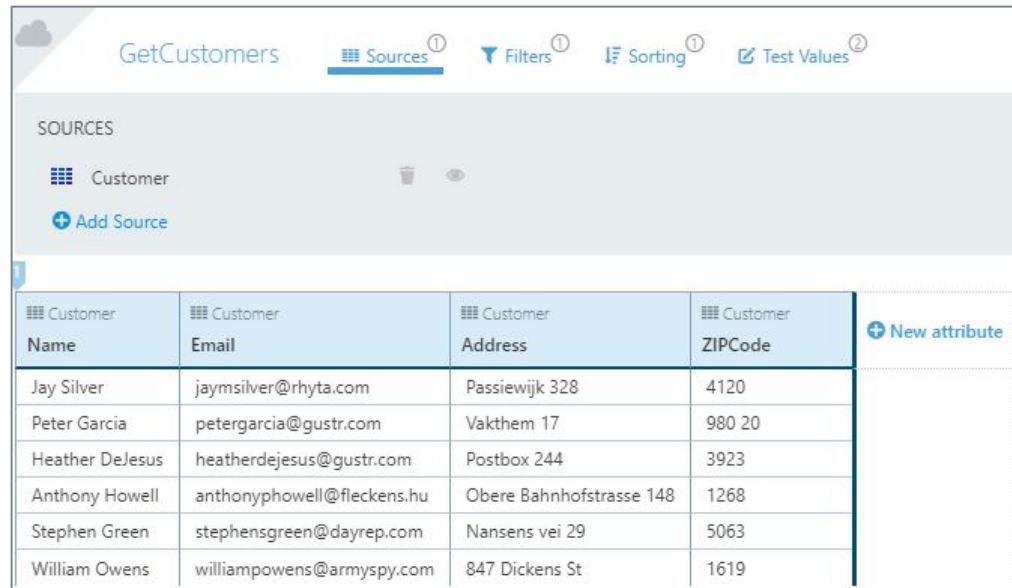


Aggregate Sources

Aggregates support one or more source Entities

The sources determine the type of the Aggregate's Output List

- e.g. Customer List



The screenshot shows the 'GetCustomers' application interface. At the top, there are navigation tabs: 'Sources' (selected), 'Filters', 'Sorting', and 'Test Values'. Below the tabs, the 'SOURCES' section displays a single source entity 'Customer' with an 'Add Source' button. The main area contains a table with customer data. The table has four columns: 'Name', 'Email', 'Address', and 'ZIPCode', each with a 'Customer' icon. A 'New attribute' button is visible on the right side of the table.

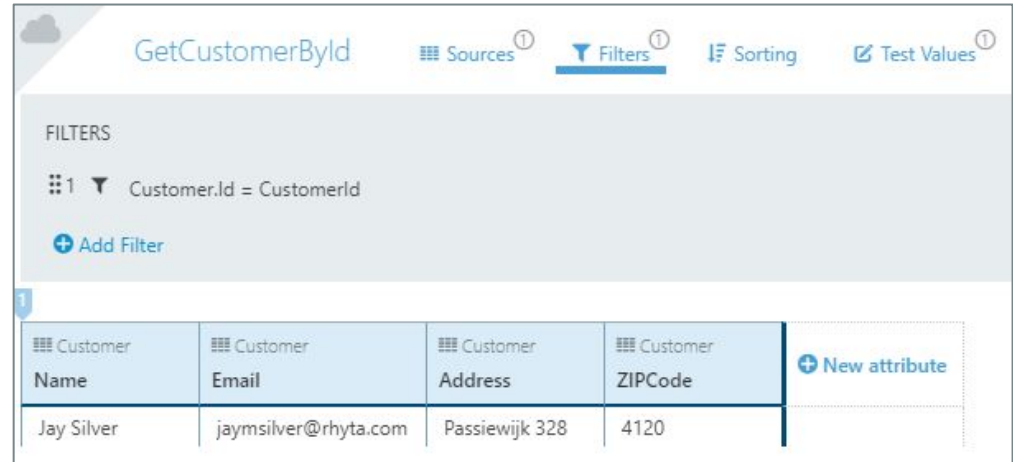
Customer Name	Customer Email	Customer Address	Customer ZIPCode	New attribute
Jay Silver	jaysilver@rhyta.com	Passiewijk 328	4120	
Peter Garcia	petergarcia@gustr.com	Vakthem 17	980 20	
Heather DeJesus	heatherdejesus@gustr.com	Postbox 244	3923	
Anthony Howell	anthonyphowell@fleckens.hu	Obere Bahnhofstrasse 148	1268	
Stephen Green	stephensgreen@dayrep.com	Nansens vei 29	5063	
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Aggregate Filters

Adds one or more conditions to the query to filter the output records

- Support for multiple filters
- Supports logical operators
 - =, <>, and, or, ...
- Support for some built-in functions
 - CurrDateTime()
 - If(Condition, True, False)

Equivalent to a SQL **WHERE** Clause



The screenshot shows the OutSystems console interface for a query named 'GetCustomerById'. The 'Filters' tab is selected, showing a single filter: 'Customer.Id = CustomerId'. Below the filter, a table displays the results for a customer named 'Jay Silver'.

Customer Name	Customer Email	Customer Address	Customer ZIPCode	New attribute
Jay Silver	jaymsilver@rhyta.com	Passiewijk 328	4120	

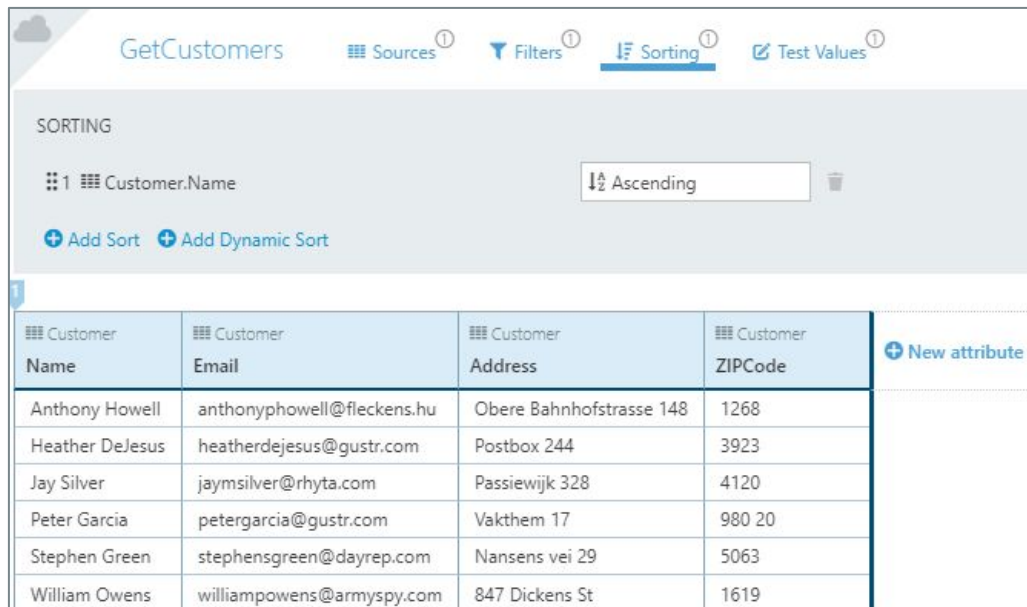
Aggregate Sorting

Defines the Entity's attribute to sort by and in which direction

- Ascending
- Descending

When defining multiple sorts the order is relevant to the result

Equivalent to a SQL **ORDER BY**



The screenshot shows the 'GetCustomers' application interface. At the top, there are tabs for 'Sources', 'Filters', 'Sorting', and 'Test Values'. The 'Sorting' tab is active, displaying a 'SORTING' section. In this section, a single sort rule is defined: '1 Customer.Name' with a dropdown menu set to 'Ascending'. Below the sorting configuration, there are two buttons: '+ Add Sort' and '+ Add Dynamic Sort'. At the bottom of the interface, a table displays the sorted data. The table has four columns: 'Name', 'Email', 'Address', and 'ZIPCode'. The data is sorted by Name in ascending order. A '+ New attribute' button is visible on the right side of the table.

Customer Name	Customer Email	Customer Address	Customer ZIPCode
Anthony Howell	anthonyphowell@fleckens.hu	Obere Bahnhofstrasse 148	1268
Heather DeJesus	heatherdejesus@gustr.com	Postbox 244	3923
Jay Silver	jaymsilver@rhyta.com	Passiewijk 328	4120
Peter Garcia	petergarcia@gustr.com	Vakthem 17	980 20
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Aggregate Test Values

Allows specifying values for external variables used in the filter or sort conditions

- Has as many inputs as external variables

Used to test the Aggregate and preview the output records

- Does not have any influence on the actual output

The screenshot shows the 'GetCustomerByld' interface with the 'Test Values' tab selected. The 'TEST VALUES' section contains a 'CustomerId' input field with the value '1'. Below this, a table preview shows the output records for the 'Customer' aggregate.

Customer Name	Customer Email	Customer Address	Customer ZIPCode	+ New attribute
Jay Silver	jaymsilver@rhyta.com	Passiewijk 328	4120	

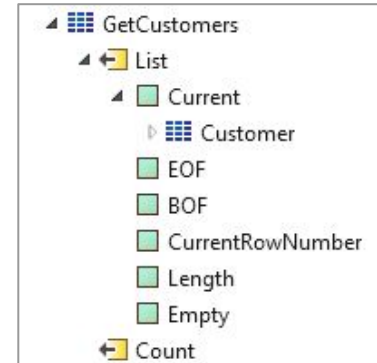
Aggregates Output

List of records with several properties

- Length - number of elements returned
- Empty - True if no records were returned
- EOF, BOF, CurrentRowNumber - filled while iterating the List

Aggregate Get<Entity> contains a “List.Current”

- Type matches the definition in the query
- The “Current” cursor moves through the List when iterating
 - Points at first row by default
- Filled in with default values if no rows returned by query
 - Empty List



Count has the total number of records that match the criterias defined in the Aggregate

Aggregate Properties

It is possible to limit the Aggregate's output to a maximum number of records

- **Max. Records** property
- Does not impact the Count output

Aggregate Editor is SQL-dialect agnostic

- SQL is generated according to the DBMS used
- **Executed SQL** property shows the SQL statement generated from the Aggregate
- SQL SELECT statements are optimized by the platform according to the output usage

GetCustomers Aggregate	
Name	GetCustomers ...
Description	...
Timeout	
Cache in Minutes	
Max. Records	10 ▼
Executed SQL	SELECT TOP (10) ENCustomer.[ID] o0, ENCustomer.[NA ...
Sources	
Customer	...
Filters	
Customer.Name like "%" + Session.Customers_SearchKeyword + "%" or	...
Sorting	
Customer.Name (ASC)	...

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A city skyline at night, featuring several tall skyscrapers with illuminated windows. In the foreground, there are bright, horizontal light trails from traffic, suggesting a long-exposure photograph. The overall scene is vibrant and modern.

Basic Data Queries
Thank You!