

Getting Started with InterSystems Reports

Presented by Carmen Logue

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Introduction

In a world of vast amounts of data, making your information accessible and readily interpretable is more important than ever. With InterSystems Reports, you can easily present complex data effectively.

This exercise is done inside a Virtual Machine loaded with an instance of InterSystems IRIS. You will pull data from a sample dataset taken from the imaginary grocery store HoleFoods, which only sells food with holes in it. Then you will use the data to generate reports in several different formats, including banded, bar chart, and crosstab tables. Finally, you will publish the report template to InterSystems Reports Server, where end-users can regularly run and export reports with the most current data available.

At any point in this exercise, you can view the completed solution. To find this, navigate to the InterSystems Report Designer and click **File > Open Catalog**. In the Solutions folder, select the HoleFoodsSample.cat catalog.

Many exercise steps are followed by screenshots that help you verify you have followed the steps correctly.

Getting Set Up with Your Learning Lab

You will be navigating the InterSystems Reports Designer interface within the VM in many of the exercise steps. By default, the VM desktop is quite small. Expand the VM to fit the full browser window by clicking the Expand icon () at the top of the screen. If the VM appears to be larger than your screen, you can click this button twice: once to make it smaller, then a second time to expand it to fit your current browser window.



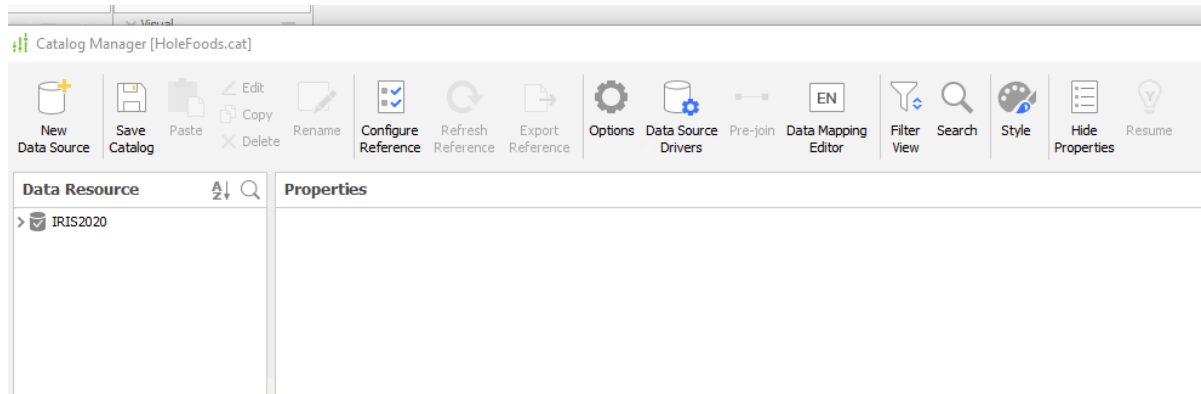
Optional: Open this exercise document in a separate tab on your local machine by clicking the Exercise Guide PDF link on the launcher page.

Task 1: Create a Catalog and Data Source to Connect to InterSystems IRIS

In this exercise, you will open Logi Report Designer and create a HoleFoods catalog with InterSystems IRIS as the data source. This catalog will help organize and package your data sources, queries, reports, and other resources. Each catalog can have any number of these resources, but only one catalog at a time can be actively edited from Designer.

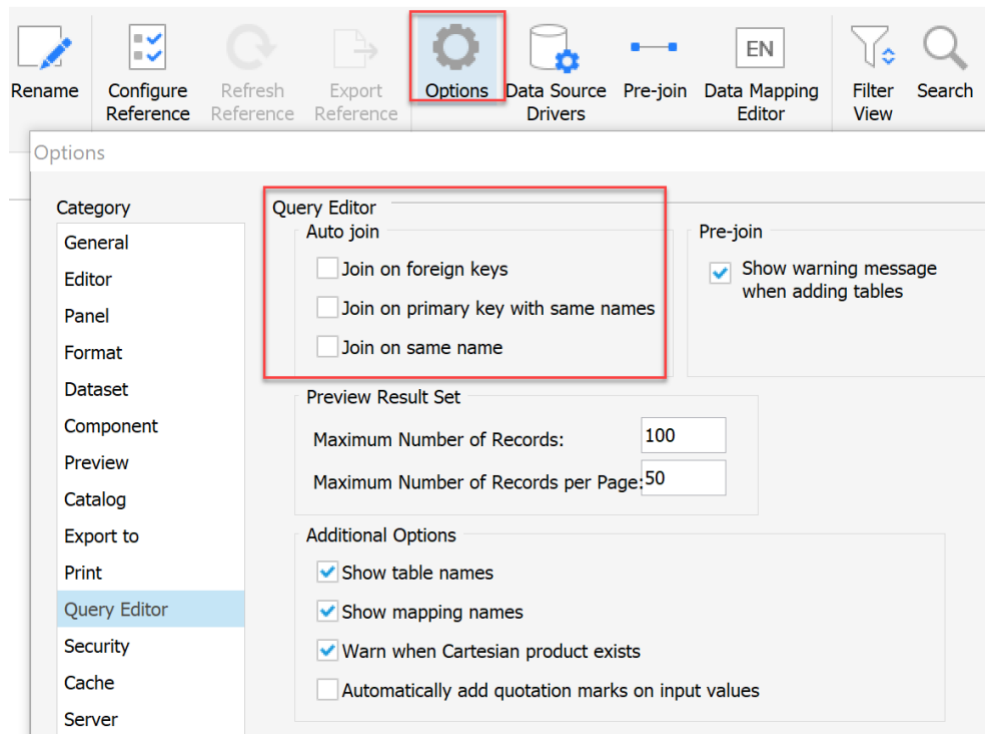
1. Click the Logi Report Designer desktop icon on your VM to open it.
 - a. When the Start screen appears, click the **X** to close it and go to the main workspace.
2. In Designer, click **File > New Catalog** and complete the fields as follows:
 - **Name:** HoleFoods . cat
 - **Data Source Name:** IRIS2020

After you create a catalog, the Catalog Manager automatically appears.

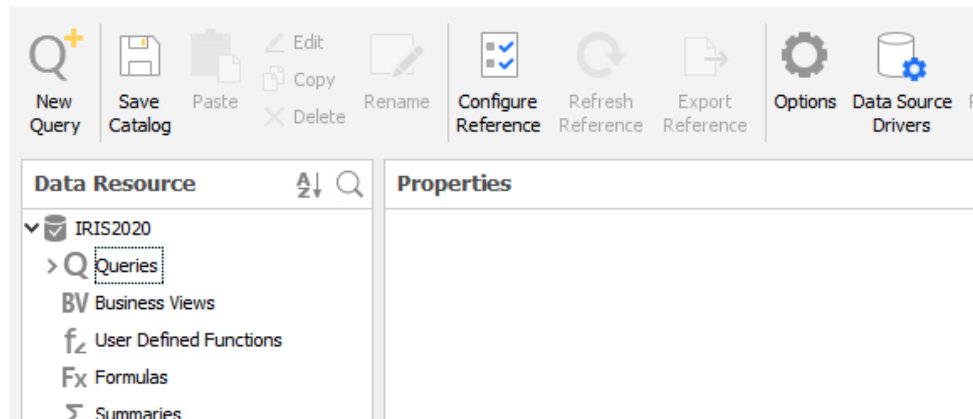


3. Right-click **IRIS2020** and then **New JDBC Connection**, and select **InterSystems IRIS** as the Connection Type. Complete the following fields:
 - **Server:** Localhost
 - **Port:** 51773
 - **Namespace:** USER
 - **User:** tech
 - **Password:** demo
4. Click **Test Connection** to verify that you can successfully connect to your instance of InterSystems IRIS, and click **OK**.
5. Click **Add Tables** in the pop-up window, and add the tables you will be referencing from this data source.
 - a. In **Schemas**, select **HoleFoods**.
 - b. Click **Refresh** to list all the tables in that schema.
 - c. Select all the available tables and click **Add**.
 - d. Click **Done**.
 - e. Click the **X** to exit the **New Queries or Business Views** pop-up window.
6. Many fields in the HoleFoods data set have the same names, such as *ID* and *Name*. To ensure you do not have to unlink these fields later, remove the automatic field-linking now:

- a. Click **Options > Query Editor**.
- b. Clear all **Auto Join** options and click **OK**.

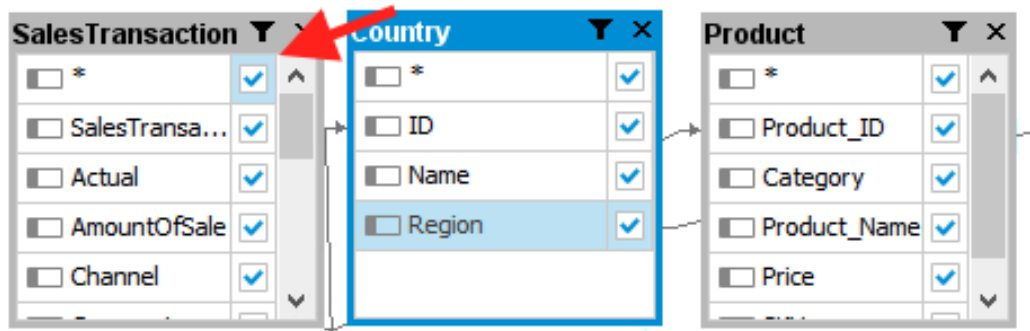


7. Next, create a new query named *HoleFoodsTransactionsQuery* that uses the InterSystems IRIS data source, including all tables and fields.
 - a. Click **Queries** to change the top ribbon menu in this window, then **New Query**.

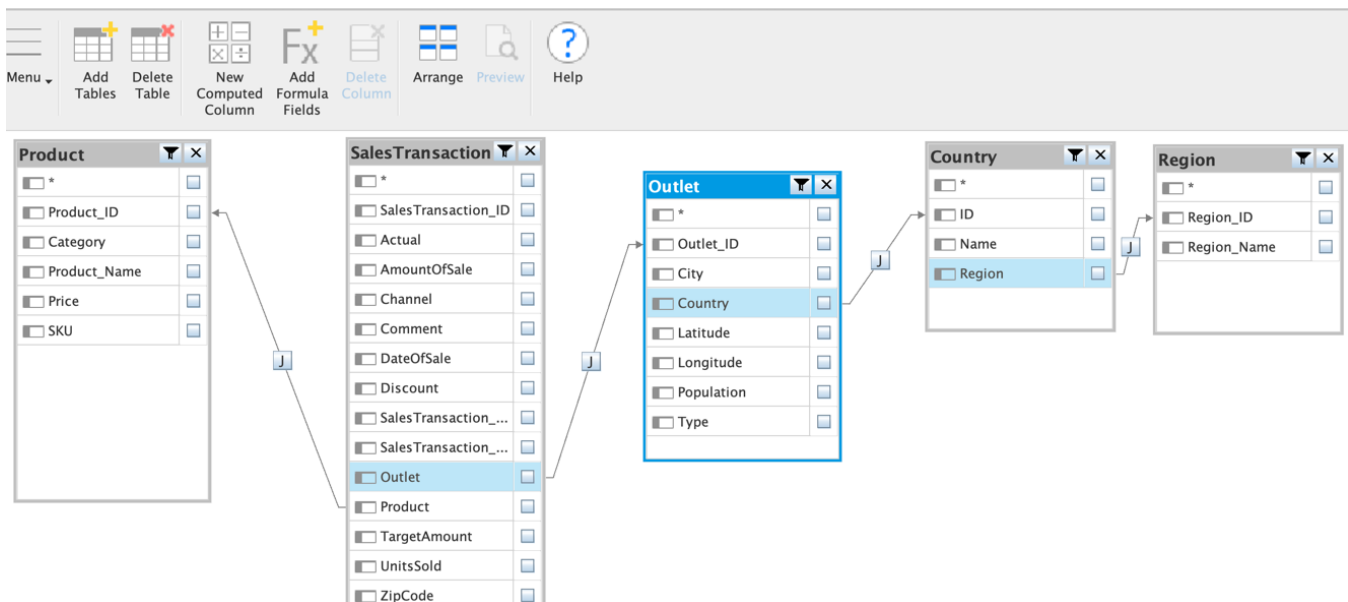


- b. Name the query *HoleFoodsTransactionsQuery*.
- c. When prompted to select tables to include in your query, expand your JDBC connection and select all the tables you added in Step 5.
- d. Click the right arrow () in the Wizard to add the tables, then click **OK**.

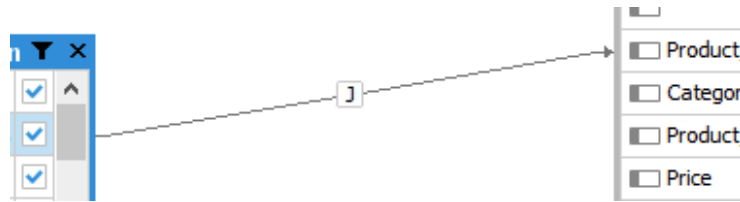
8. Specify the columns to query and which columns to join. The tables will appear in an interactive window at the top of the Query Editor. Each SQL column will be listed in the table as a row with a checkbox next to it.
- Check the asterisk (*) box in each table to select all columns for the query.



- Drag one SQL column to another to create a join between the following tables:
 - Join SalesTransaction.Product to Product.Product_ID.
 - Join SalesTransaction.Outlet to Outlet.Outlet_ID.
 - Join Country.Region to Region.Region_ID.
 - Join Outlet.Country to Country.ID.



- c. If you accidentally join the wrong columns, double-click the box with the letter **J** in the line joining the tables, click **Delete Join** in the pop-up window, and click **OK**.



9. Click **Save Catalog**.
10. Click **X** to exit the Catalog Manager.

Task 2: Use Queries and Summaries in a Banded Report

In this task, you will create a banded report that displays the number of units sold by each product. You will then add groupings and summaries to aggregate the data in a meaningful way. Finally, you will add a logo to the report to customize it for your business.

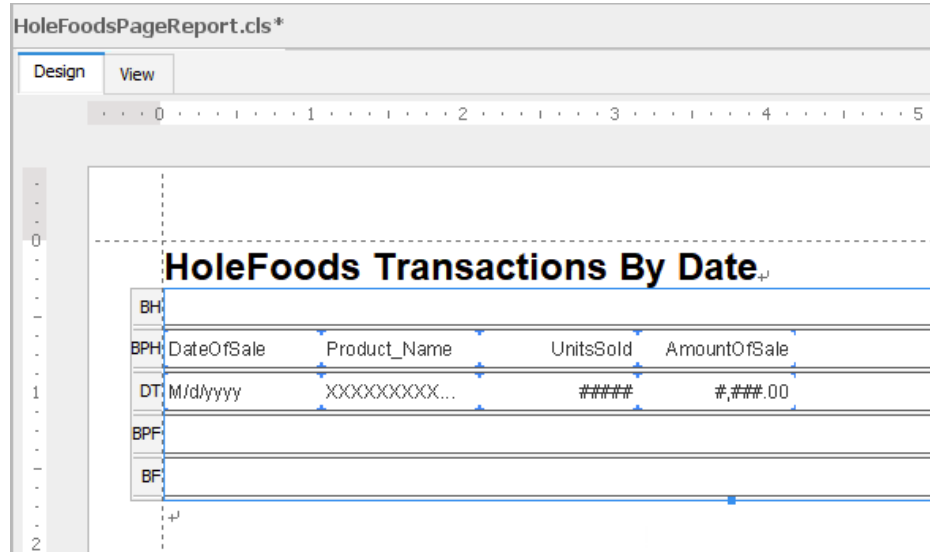
? A banded report is useful for reports that call for special layouts, groupings, totals, subtotals, summaries, charts, graphs, or embedded images. The bands repeat and allow you to organize your data with the same headings and other content.

1. In Designer, click **Home > New > Page Report**.
2. In the **Title** field, enter *HoleFoods Transactions by Date*.
3. Select **Banded**.
4. Click **OK** to enter the Banded Wizard.
5. In the Banded Wizard, select the **HoleFoodsTransactionsQuery**, then click **Next**.
6. Add the following columns to the display fields:

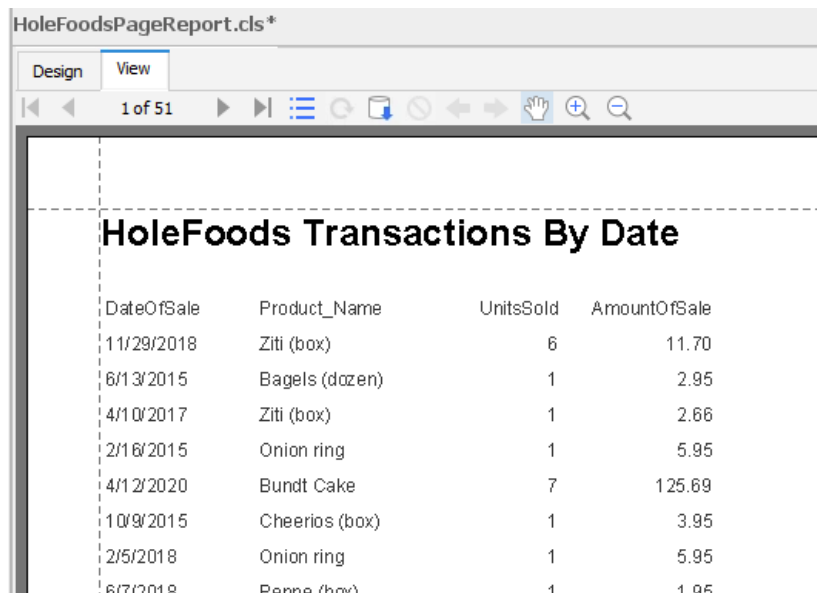
Table Name	Column Name
SalesTransaction	DateOfSale
Product	Product_Name
SalesTransaction	UnitsSold
SalesTransaction	AmountOfSale

- a. Click **Finish**, then select **File > Save** from the menu.

- b. Name the report *HoleFoodsPageReport.cls* when prompted.

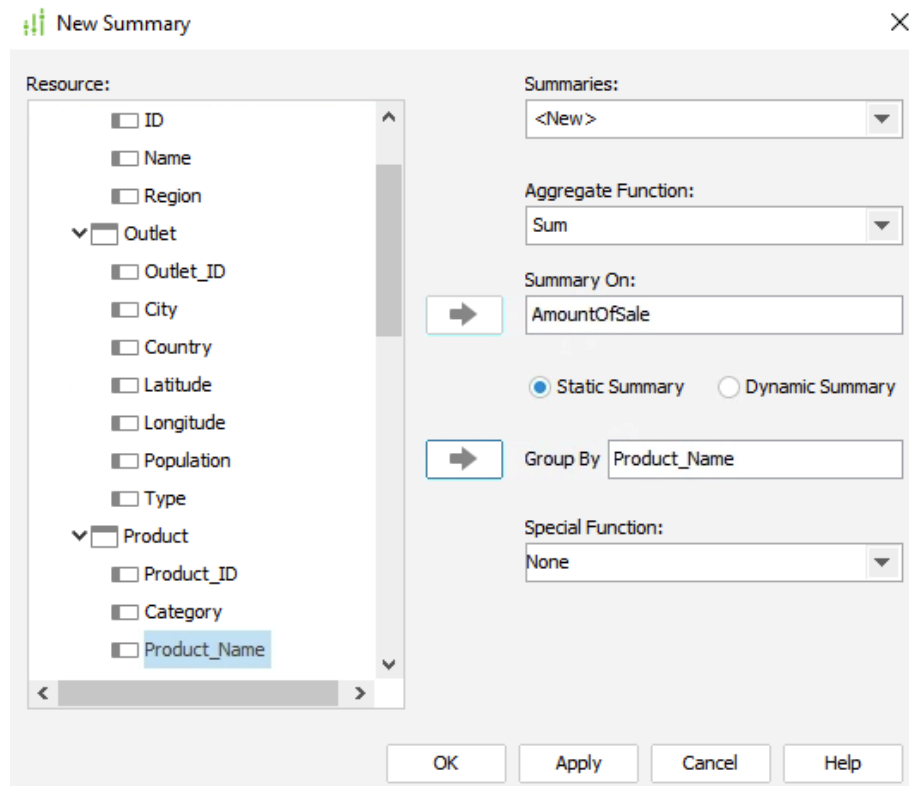


7. At the bottom left of the Design tab, right-click the report tab name to rename it *HoleFoodsTransactionsFullList*.
8. Click **View** to run the report. Note the large number of pages in the report:



The report currently yields all rows relevant to the search query rather than an aggregated summary, which would group together the total number of sales of each product. Next, you will create the aggregated summary.

9. Create a report that aggregates and summarizes these results:
 - a. Return to the **Design** tab and right-click the **HoleFoodsTransactionsFullList** report tab at the bottom of the report sheet and click **duplicate**.
10. Change the name of the new report to *Transactions By Product* by right-clicking the **Report Title** tab at the bottom and clicking **Rename**.
11. Create a summary for total sales:
 - a. In the Data panel on the left, scroll to the bottom and click **Summaries > New Summary**.
 - b. Complete the fields below using the Resource Pane and drop-down menus. Note that the fields allow for manual input, but you must use the arrow buttons on the page () to pull SQL columns into them effectively.
 - **Aggregate Function:** *Sum*
 - **Summary On:** *SalesTransaction.AmountOfSale*
 - **Static Summary:** *selected*
 - **Group By:** *Product.Product_Name*



New Summary

Resource:

- ID
- Name
- Region
- ▼ Outlet
 - Outlet_ID
 - City
 - Country
 - Latitude
 - Longitude
 - Population
 - Type
- ▼ Product
 - Product_ID
 - Category
 - Product_Name

Summaries:

<New>

Aggregate Function:

Sum

Summary On:

→ AmountOfSale

☒ Static Summary ☐ Dynamic Summary

Group By → Product_Name

Special Function:

None

OK Apply Cancel Help

- c. After clicking **OK**, enter *Total Sales* as the name.

12. Create a second summary for Total Units:

- a. In the **Data** panel, scroll down to the **Summaries** list and click **New Summary**.
- b. Complete the fields below using the Resource Pane and drop-down menus.
Note that the fields allow for manual input, but you must use the arrow buttons on the page (➡) to pull SQL columns into them effectively.
 - **Aggregate Function:** *Sum*
 - **Summary On:** *SalesTransaction.UnitsSold*
 - **Static Summary:** *selected*
 - **Group by:** *ProductName*

The screenshot shows the 'New Summary' dialog box. On the left, the 'Resource' pane displays a tree view with categories like Outlet, City, Country, Latitude, Longitude, Population, Type, Product, and Region. Under 'Product', 'Product_Name' is highlighted. On the right, the 'Summaries' section contains several fields: 'Summaries' (set to '<New>'), 'Aggregate Function' (set to 'Sum'), 'Summary On' (set to 'UnitsSold'), 'Static Summary' (selected), 'Dynamic Summary' (unselected), 'Group By' (set to 'Product_Name'), and 'Special Function' (set to 'None'). At the bottom are 'OK', 'Apply', 'Cancel', and 'Help' buttons.

- c. Click **OK** and enter *Total Units* as the name.
- d. Save the sheet.

13. In the Design tab, click anywhere inside the grid to display the banded row identifiers (BH, BPH, etc.) to the left of each row.

BH		
BPH	DateOfSale	Product_Name
DT	M/d/yyyy	XXXXXXXXXX...
BPF		
BF		

14. Within the report, right-click inside the BF or BPF rows in the **Design** tab and click **Banded Wizard**. Note that BF and BPF stand for Banded Footer and Banded Page Footer, respectively.
15. Click **Back** to return to the **Display** page and remove *DateOfSale* by clicking it and using the left arrow (←), then click **Next**.
16. Using the Resources pane and on-screen arrow buttons, choose **Product.Product_Name** as the Banded Object.
17. Click **Next** and select the **Classic** style, then click **Finish**.
18. In the report grid, find the box full of X's in the GH row that represents the banded object Product_Name, which you just created. Drag this box so it aligns with the Product_Name column.

BH	HoleFoods Transactions By Date		
BPH	Product_Name	UnitsSold	AmountOfSale
GH	XXXXXXXXXX...		
DT	XXXXXXXXXX...	####	#,###.00
GF			
BPF			

19. Reposition the columns so they are left-justified.
 - a. With your mouse outside of the table, click on the view and drag to create a box that encompasses all three remaining columns and the data rows beneath them.

BH	HoleFoods Transactions By Date		
BPH	Product_Name	UnitsSold	AmountOfSale
GH	XXXXXXXXXX...		
DT	XXXXXXXXXX...	####	#,###.00
GF			
BPF			

- b. Identify the field outlined in a solid blue line, and hover your mouse over this field to activate the move cursor. Having your mouse in this position will allow you to move the entire set of fields outlined in the previous step.

- c. Drag all the fields to the left to align them with the left side of the report.

HoleFoods Transactions By Date

Product_Name	UnitsSold	AmountOfSale
XXXXXXXXXX...	#####	#,###.00
XXXXXXXXXX...	#####	#,###.00

20. Drag the Total Sale summary to the Group Header (GH) under the AmountOfSale column.

- a. This will auto-populate a label along with the field. Delete this label, *Total Sales*, by right-clicking it and pressing **Delete**.

2 3 4 5 6 7

UnitsSold	AmountOfSale
	Total Sales #####
#####	#,###.00

- b. Drag the newly created data field representing total sales to align it with the AmountOfSale column.

21. Repeat this step with the Total Units summary:

- Drag the Total Units summary from the data panel on the left and drop it into the Group Header (GH) under UnitsSold.
- Delete the *Units Sold* label that auto-populates.
- Drag the newly created data field to align it with the UnitsSold column.

HoleFoods Transactions By Date

Product_Name	UnitsSold	AmountOfSale
XXXXXXXXXX...	Label #####	#,###.00
XXXXXXXXXX...	#####	#,###.00

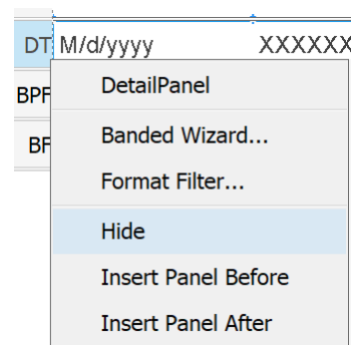
22. Click the **View** tab to see the report details and summary.

HoleFoods Transactions By Date

Product_Name	UnitsSold	AmountOfSale
Bagels (dozen)	31	87.34
Bagels (dozen)	1	2.95
Bagels (dozen)	1	2.95
Bagels (dozen)	3	7.97
Bagels (dozen)	1	2.95
Bagels (dozen)	1	2.66
Bagels (dozen)	1	2.95

23. To summarize the report by product, return to the **Design** tab.

- Hide the detail panel by right-clicking **DT** and then clicking **Hide**, then click **Save**.



24. Click **View** again to see the summarized report.

HoleFoods Transactions By Date

Product_Name	UnitsSold	AmountOfSale
Bagels (dozen)	31	87.34
Bundt Cake	141	2,635.53
Calamari (frozen)	171	3,722.63
Cheerios (box)	101	370.62
Donuts (dozen)		

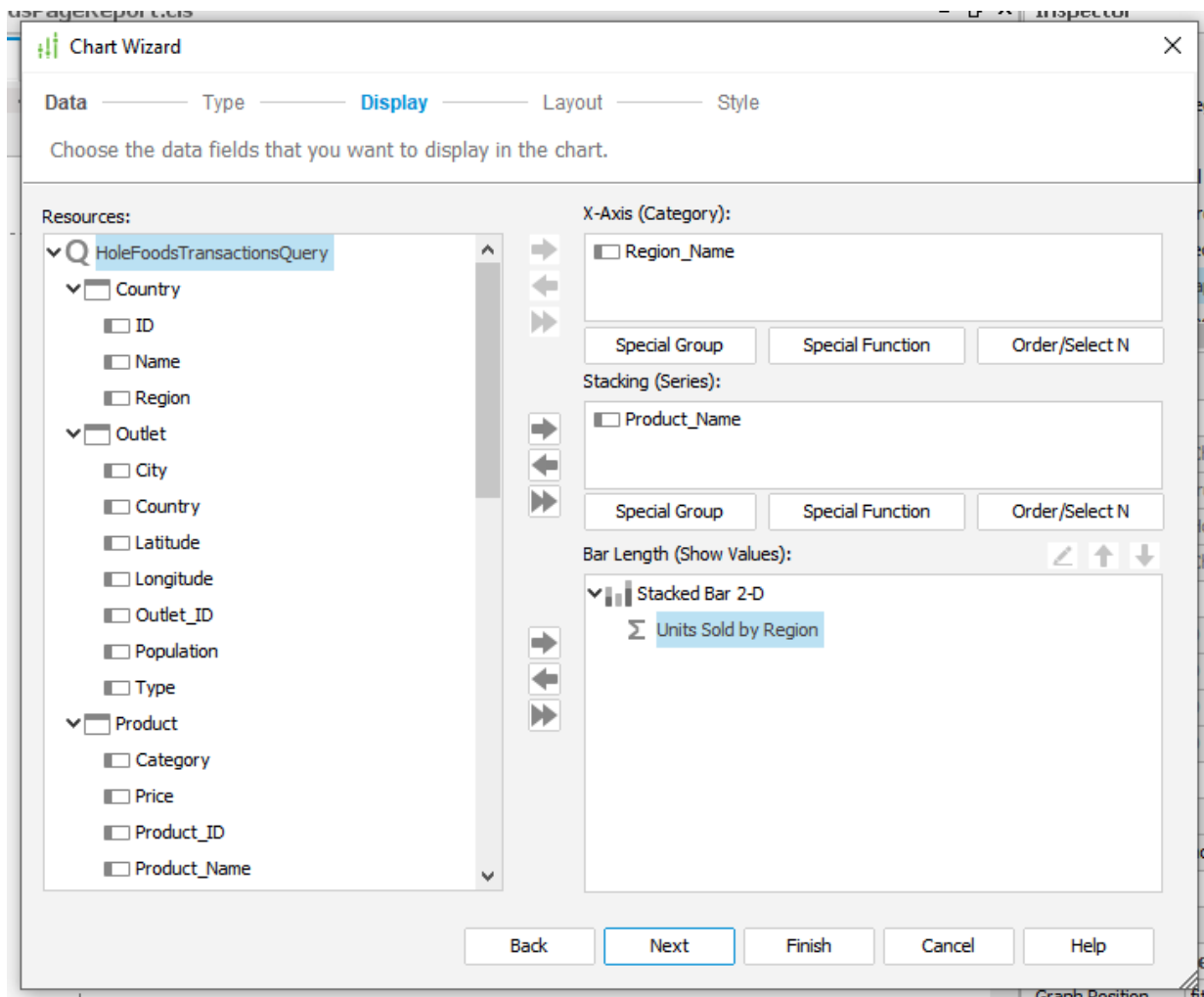
Task 3: Build a Stacked Bar Chart to Visualize Data

In this task, you will use a stacked bar chart to display products sold by region. Each region will have its own column, allowing you to see which region has sold the most product.

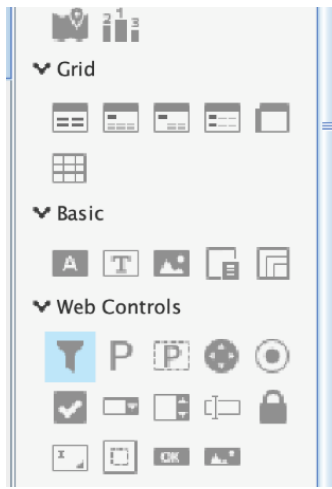
? A bar chart is likely familiar and allows you to easily see data across several groupings. Our bar chart will also include a dynamic filter so that end-users can change the data they are reviewing (in this case, product type).

1. Create a *Units Sold by Region* Summary:
 - a. In the **Data** pane, scroll down and click **Summaries > New Summary**.
 - b. Complete the following fields using the Resource Pane and drop-down menus.
 - **Aggregate Function:** *Sum*
 - **Summary On:** *SalesTransaction.UnitsSold*
 - **Static Summary:** *selected*
 - **Group by:** *Region.Region_Name*
 - c. Click **OK** and enter *Units Sold by Region* as the name.
 - d. Click **Save**.

2. Create a new chart tab inside the report by clicking **Home > New > Page Report Tab**.
 - a. Name the tab *Units Sold By Region Chart*.
 - b. Select **Chart**.
 - c. Click **OK**.
3. In the Create Chart Wizard, create a new stacked bar chart:
 - a. Select **HoleFoodsTransactionsQuery** as the query and click **Next**.
 - b. Choose **Bar** as the chart type.
 - c. From the sub-options under Chart Type: Bar, click **Stacked Bar 2-D**. Note that chart names appear when you hover over the images.
 - d. Click **Next**.
 - e. From the Resources box, use the right arrow to add *Region_Name* to the **x-Axis** field.
 - f. Add *Product.Product_Name* to the **Stacking** field in the same way.
 - g. Add the *Units_Sold_by_Region* summary to the **Bar Length** field.
 - h. Click **Finish**.

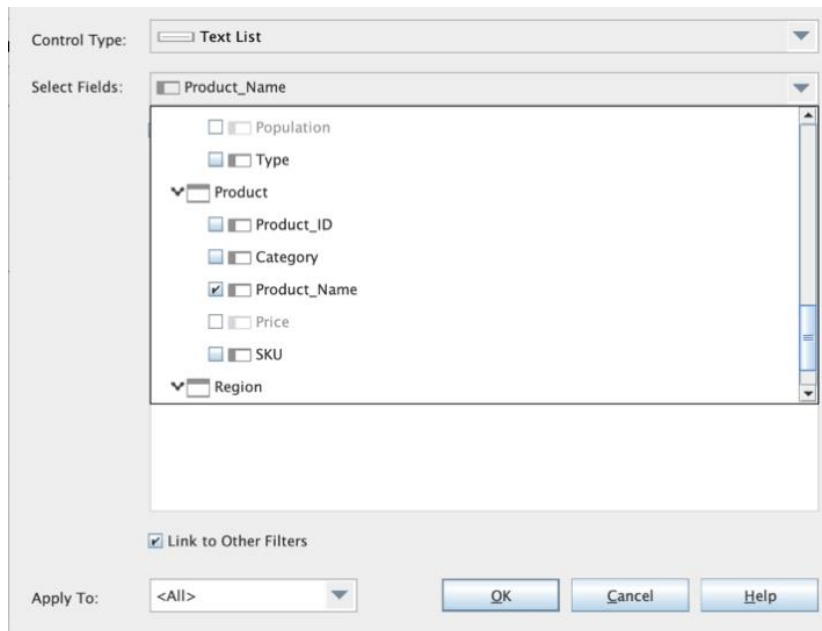


4. Add a filter control to the bar chart by selecting the Filter Control icon from the Components Panel and dragging it to the right side of the chart.



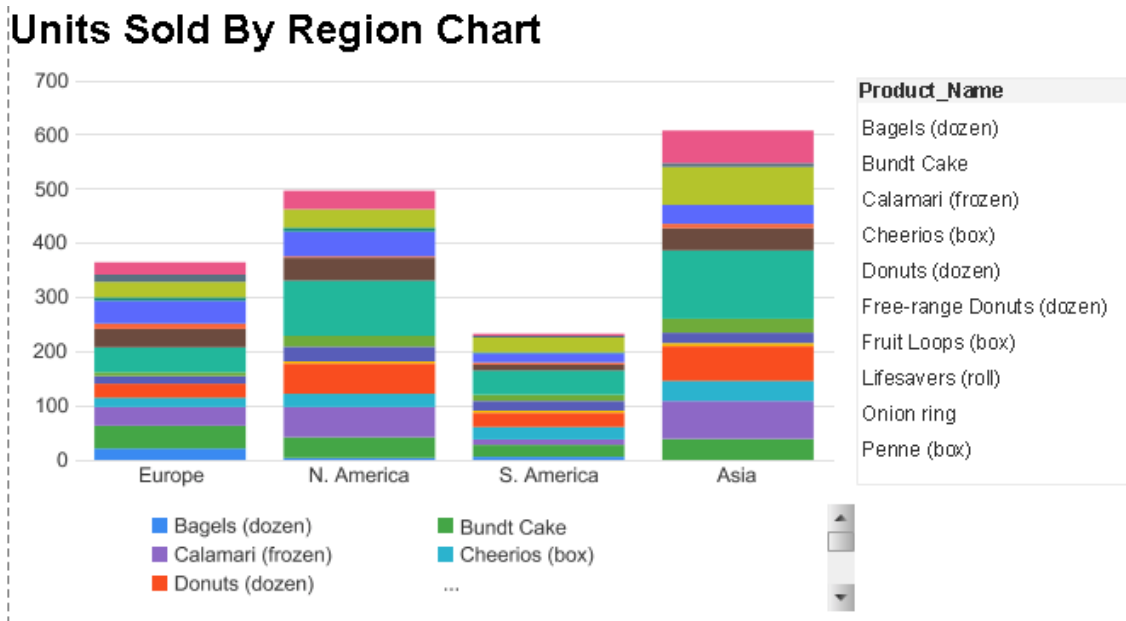
5. Complete the following fields and click **OK**:

- **Control Type:** *Text List*
- **Select Fields:** *Product_Name* from the Product table



6. Right-click the **Name** tab at the bottom and rename the chart *Units Sold By Region Chart*.

- Click the **View** tab to see the stacked bar chart containing HoleFoods data. Note that the Filter Control column on the right is interactive but does not change the chart. This tool is only functional on the server.



Task 4: Build a Report with the Crosstab Report Wizard

In this task, you will use the crosstab report to display products sold by country and region. Each unit will have its own column, allowing you to see which country and region have sold the most units for each product.

? A crosstab report shows the relationships between three or more query items. Data is shown in rows and columns with information summarized at all the intersection points. This is a compact way of analyzing a lot of data — in this case, data on how well products are selling in specific countries and regions.

- Start by creating a new tab: return to the **Design** tab and click **Home > New > Page Report Tab**.
- Name the tab *Crosstab Report*.
- Select **Crosstab** and click **OK**.
- In the Crosstab Wizard, select **HoleFoodsTransactionsQuery** as the query and click **Next**.

5. Choose the following data fields for display in the crosstab report by dragging them from the Resources box to the target field:

- **Columns:** Product.Product_Name
- **Summaries:** SalesTransactions.UnitsSold
- **Rows:** Region.Region_Name, Country.Name

Data — **Display** — Layout — Style

Choose the data fields that you want to display in the crosstab.

Resources:

- HoleFoodsTransactions
 - Country
 - ID
 - Name
 - Region
 - Outlet
 - City
 - Country

Define the crosstab by adding fields from the Resources box to the Columns, Rows, and Summaries boxes accordingly.

Columns:

Field	Label	Color	↑	↓	↕
Product_Name		Transparent	↑		

Rows:

Field	Label	Color	↑	↓	↕
Region_Name		Transparent	↑		
Name		Transparent	↑		

Summaries:

Field	Aggregate	Distinct On	Label	↑	↓	↕
UnitsSold	Count					

8. Click **Next** until you are on the **Style** stage.

9. Click **Classic** and click **Finish**.

HoleFoodsPageReport.cls*

Design View

0 1 2 3 4 5

Crosstab Report

		XXXXXXXXXX..	Total
XXXXXXXXXX..	XXXXXXXXXX..	#####	####
	Total	#####	#####
Total		#####	#####

10. Right-click the tab at the bottom and rename it *Crosstab Report*.

11. Click the **View** tab to see the crosstab report with HoleFood data.

Crosstab Report		Bagels (dozen)	Bundt Cake	Calamari (froz)	Cheerios (box)	Donuts (dozen)
Asia	China		13	16	9	
	India		7	8	6	
	Japan		8	9	8	
	Total		28	33	23	
Europe	Belgium		2			
	England	2	3	3		
	France		6	6	5	
	Germany	3	9	6	8	
	Italy	1	3	4		
	Netherlands				1	
	Spain	2	2	4	3	
	Total	8	25	23	17	
N. America	Canada		8	4	2	
	USA	4	18	24	17	
	Total	4	26	28	19	
S. America	Brasil	3	12	6	9	
	Chile	3	1	1	2	

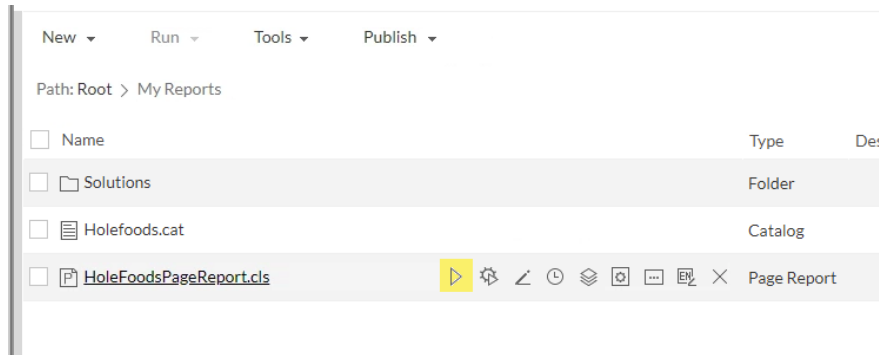
12. Click back to the **Design** tab and click **Save** to store the report.

Task 5: Publish and View Reports on InterSystems Report Server

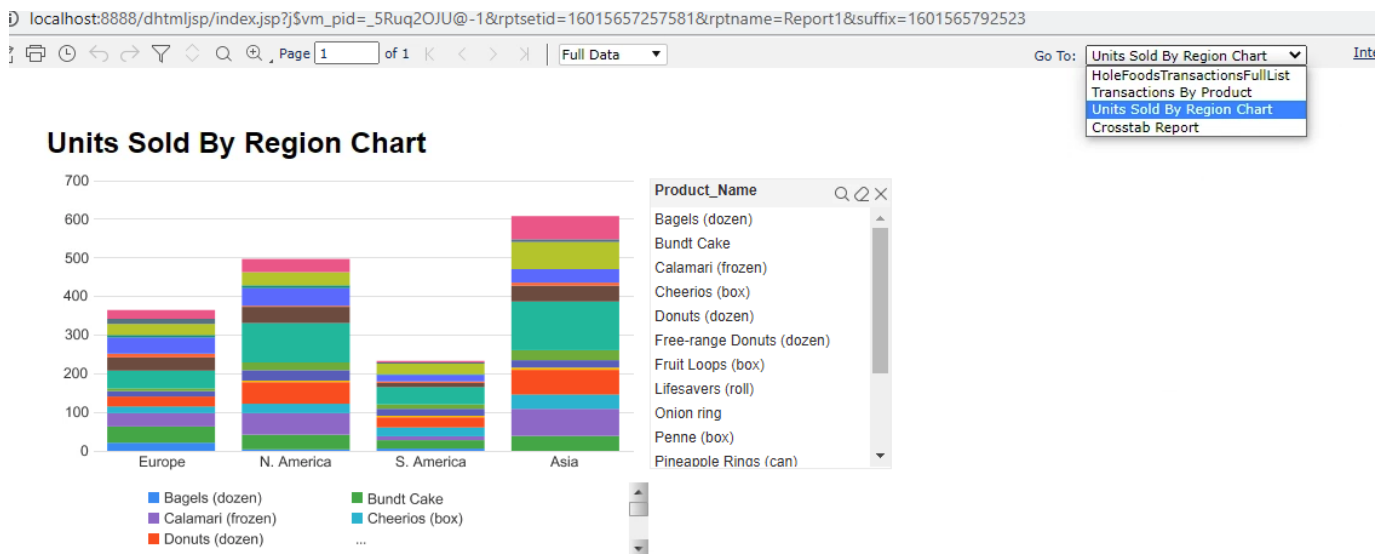
In this task, you will push the four report tabs that you made in previous steps to InterSystems Report Server and see how they will be displayed there. You will then schedule the report to be generated weekly.

1. Click **File > Publish > Publish Report to Server**.
2. Enter *tech* and *demo* for the username and password if prompted, then click **Connect**.
3. On the next screen, notice that both the catalog and the report, HoleFoods.cat and HoleFoodsPageReport.cls, respectively, are selected. The publication resource location is set to your personal folder. Keep the defaults and click **OK**.
4. On the next screen, you can select the styles available for this report on Server. Click the double arrow (>>) to make all available, then click **OK**.
5. Click **Yes** to indicate you are finished when the prompt appears.
6. Open the browser and click the **InterSystems Reports Server** bookmark, then log in with *tech* and *demo* for the username and password.

- Under Open, click **My Folder** to open the folder containing all the files that you created in InterSystems Reports Designer.
- Click the triangle button next to *HoleFoodsPageReport.cls* to run the report you created in Designer.

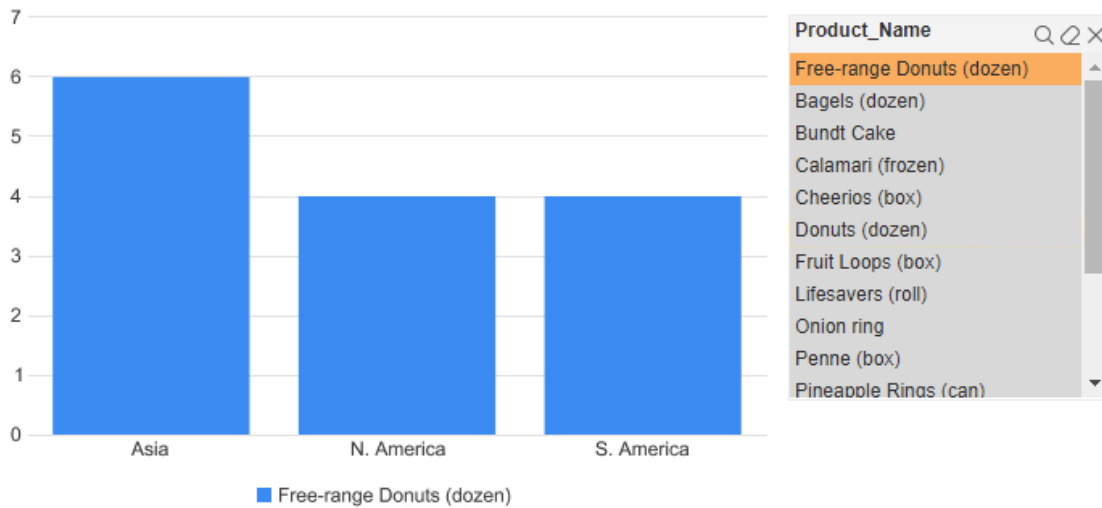


- Use the drop-down menu on the right to switch between the report tabs and view the **Units Sold By Region Chart** that you created.



- Using the Filter Control, select the products to display on the bar chart.

Units Sold By Region Chart



11. Close the report to return to the My Reports directory.
12. Next you will schedule weekly reports. Click **HoleFoodsPageReport.cls** then the clock icon to begin this process.
13. In the **General** tab:
 - a. Name the schedule *Weekly HoleFoods Report Export*.
 - b. Select **Export to One File** and click **Next**.
14. In the **Publish** tab:
 - a. Click the **To Disk** tab and select **Publish to Disk > PDF**.
 - b. In the input field under the **Publish To Server Resource Tree** dropdown, enter */HoleFoodsWeeklyReport*.
15. In the **Conditions** tab:
 - a. Select *Run this task periodically* from the drop-down menu.

To Version
To Disk
To E-mail
To Printer
To Fax

☒ Publish to Disk
File Path Example: For Publish to Server Resource Tree:

☐ Logi Report Result
☐ Page Report Result
☐ HTML
☒ PDF

Publish to Server Resource Tree

/HoleFoodsWeeklyReport

- b. Open the **Date** drop-down menu and choose *Weekly*
- c. Select **Monday** as the day of the week to run the report.

General

Parameter

Publish

Conditions

Notification

Time

Trigger

Time Zone:

America/New_York

▼

Time Type:

Run this task periodically

▼

Duration:

☐ Run after

☐ Run until

Date:

Weekly

▼

Every

1

weeks

On:

☐ Sunday

☒ Monday

☐ Tuesday

16. In the Notification Tab, click **New** and enter your email, then click **Finish**.

17. Select **My Tasks** to see the scheduled report.

Conclusion

Creating and publishing reports using the InterSystems Reports Designer and Server enables you to make your data readily interpretable. Using the intuitive interfaces, you can quickly aggregate, summarize, cross-tabulate, and visualize your data to highlight important patterns and improve your business intelligence.

In this exercise, you took on the role of Report Designer to develop reports that other members of the organization can customize and learn from. Then you became the end user, logging in to Server and distributing information contained in the reports across the organization.

To discuss how you can use InterSystems Reports at your company, contact your Sales Engineer.

Further Resources

Resource Guide: [Get Reports with InterSystems.](#)

This guide provides links to instructional videos, exercises, and documentation for InterSystems Reports.