

# End-User Course



## Data Retrieval and Analysis 2025 R1

Revision: 6/2/2025

# Contents

<b>Copyright.....</b>	<b>5</b>
<b>How To Use This Course.....</b>	<b>6</b>
<b>Company Story.....</b>	<b>9</b>
<b>Part 1: Getting Started with Generic Inquiries.....</b>	<b>11</b>
Lesson 1.1: Discovering DACs.....	11
DAC Discovery: General Information.....	11
DAC Discovery: To Inspect UI Elements.....	15
Lesson 1.2: Modifying a Predefined Inquiry.....	17
Modification of a Predefined Inquiry: General Information.....	17
Modification of a Predefined Inquiry: To Copy an Existing Generic Inquiry.....	18
Lesson 1.3: Modifying Inquiry Results.....	20
Modification of Inquiry Results: General Information.....	20
Modification of Inquiry Results: To Include an Additional Output Field.....	24
Lesson 1.4: Applying Sorting and Grouping.....	27
Sorting and Grouping: General Information.....	27
Sorting and Grouping: To Group and Sort Inquiry Data.....	29
Lesson 1.5: Using Conditions and Parameters.....	31
Conditions and Parameters: General Information.....	32
Conditions and Parameters: Condition Configuration.....	32
Conditions and Parameters: Parameter Configuration.....	35
Conditions and Parameters: To Add a Date Condition.....	39
Conditions and Parameters: To Add Period-Range Parameters to the Selection Area.....	41
Conditions and Parameters: To Add a Field Parameter to the Selection Area.....	43
Lesson 1.6: Using Formulas in Inquiry Results.....	45
Formulas in Inquiry Results: General Information.....	45
Formulas in Inquiry Results: To Highlight Row with Color.....	48
Formulas in Inquiry Results: To Concatenate Strings.....	50
Lesson 1.7: Enabling Navigation for Inquiry Results.....	52
Navigation Configuration: General Information.....	52
Navigation Configuration: Side Panel.....	56
Navigation Configuration: To Configure the Side Panel.....	57
Navigation Configuration: To Specify Visibility Conditions for a Side Panel.....	58
Navigation Configuration: To Configure Navigation to an External URI.....	61
Lesson 1.8: Using a Generic Inquiry as a Substitute Form.....	63

Generic Inquiry as a Substitute Form: General Information.....	63
Generic Inquiry as a Substitute Form: To Configure an Inquiry as an Entry Point.....	67
Generic Inquiry as a Substitute Form: To Suspend the Replacement of a Primary Form.....	68
Lesson 1.9: Transferring an Inquiry.....	69
Inquiry Transfer: General Information.....	69
<b>Part 2: Creating Generic Inquiries.....</b>	<b>71</b>
Lesson 2.1: Creating a Generic Inquiry.....	71
Creation of a Generic Inquiry: General Information.....	71
Creation of a Generic Inquiry: To Create an Inquiry Based on One DAC.....	75
Lesson 2.2: Getting Data from Multiple DACs.....	77
Data from Multiple Data Sources: General Information.....	77
Data from Multiple Data Sources: Use of Related Tables Dialog Box.....	81
Data from Multiple Data Sources: Use of Generic Inquiry as Data Source.....	84
Data from Multiple Data Sources: DAC Schema Browser.....	87
Data from Multiple Data Sources: Discovery of Key Fields.....	89
Data from Multiple Data Sources: To Create an Inquiry with Two Tables.....	93
Lesson 2.3: Managing Access Rights to Generic Inquiries.....	96
Access Rights to Generic Inquiries: General Information.....	96
Access Rights to Generic Inquiries: To Define Access Rights to a Generic Inquiry .....	98
<b>Part 3: Exposing an Inquiry Results by Using OData.....</b>	<b>100</b>
Lesson 3.1: Exposing an Inquiry Results by Using OData.....	100
Generic Inquiries and OData: General Information.....	100
Generic Inquiries and OData: Preparation of an Inquiry for Exposure.....	101
Generic Inquiries and OData: To Expose Inquiry Results Through OData.....	102
Lesson 3.2: Accessing the Exposed Inquiry Through OData.....	104
Generic Inquiry Access Through OData: General Information.....	104
Generic Inquiry Access Through OData: Data Retrieval.....	108
Generic Inquiry Access Through OData: To Access an Exposed Inquiry in Microsoft Excel.....	109
<b>Part 4: Configuring Pivot Tables.....</b>	<b>112</b>
Pivot Tables: General Information.....	112
Pivot Tables: Data Presentation.....	112
Lesson 4.1: Creating a Pivot Table as a Form.....	114
Pivot Tables: Creation of a Pivot Table as a Separate Form.....	114
Pivot Tables: To Create a Pivot Table as a Form.....	116
Pivot Tables: To Delete a Pivot Table as a Form.....	119
Lesson 4.2: Creating a Pivot Table as a Filter Tab.....	119

Pivot Tables: Creation of a Pivot Table on a Filter Tab.....	119
Pivot Tables: To Create a Pivot Table on a Filter Tab.....	121
<b>Part 5: Using Advanced Filters.....</b>	<b>124</b>
Lesson 5.1: Using Advanced Filters.....	124
Advanced Filters: General Information.....	124
Advanced Filters: To Create Advanced Shared Filters.....	129
Advanced Filters: To Remove an Advanced Filter.....	132
Advanced Filters: To Modify an Advanced Shared Filter.....	133
Advanced Filters: To Create a Personal Filter Based on a Shared Filter.....	135

# Copyright

---

**© 2025 Acumatica, Inc.**

**ALL RIGHTS RESERVED.**

No part of this document may be reproduced, copied, or transmitted without the express prior consent of Acumatica, Inc.

3075 112th Avenue NE, Suite 200, Bellevue, WA 98004, USA

## Restricted Rights

The product is provided with restricted rights. Use, duplication, or disclosure by the United States Government is subject to restrictions as set forth in the applicable License and Services Agreement and in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 or subparagraphs (c)(1) and (c)(2) of the Commercial Computer Software-Restricted Rights at 48 CFR 52.227-19, as applicable.

## Disclaimer

Acumatica, Inc. makes no representations or warranties with respect to the contents or use of this document, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. Further, Acumatica, Inc. reserves the right to revise this document and make changes in its content at any time, without obligation to notify any person or entity of such revisions or changes.

## Trademarks

Acumatica is a registered trademark of Acumatica, Inc. HubSpot is a registered trademark of HubSpot, Inc. Microsoft Exchange and Microsoft Exchange Server are registered trademarks of Microsoft Corporation. All other product names and services herein are trademarks or service marks of their respective companies.

Software Version: 2025 R1

Last Updated: 06/02/2025

# How To Use This Course

---

This course introduces the functionality of the Acumatica ERP data retrieval tools: generic inquiries, advanced filters, and pivot tables. The course is based on a set of examples demonstrating data retrieval and processing to form data representations. The course is intended for advanced Acumatica ERP users who are familiar with the user interface and the main principles of the system. Acumatica ERP application specialists and engineers might find the course useful as well. On completing the course, you will have an understanding of how to use Acumatica ERP to retrieve data and manage it.

## What Is in This Guide

The guide includes the *Company Story* topic and process activities. The *Company Story* topic explains the organizational structure of the company that has been preconfigured in the *U100* dataset, as well as the company's business processes and requirements. Each of the process activities of the course is dedicated to a particular user scenario and consists of processing steps that you complete.

## Which Training Environment You Should Use

All lessons of the course should be completed in an instance of Acumatica ERP 2025 R1 with the *U100* training dataset preloaded; this dataset provides the predefined settings and entities you will need as you complete the activities of this course.

You or your system administrator should prepare an instance of Acumatica ERP 2025 R1, as described in the *How to Create a Tenant with the U100 Dataset* section below.

## What Is in a Lesson

Each lesson provides a story describing a particular user scenario and an overview of the relevant features that have been enabled in the system; configuration settings that are related to the described scenario are also listed. The lesson provides a brief overview of the process that should be performed to complete the described scenario, and instructions that guide you through the process in Acumatica ERP.



The lessons are independent and can be completed in any order. However, depending on the sequence in which you complete the course lessons, the settings in the screenshots may differ from the settings in the system.

## What the Documentation Resources Are

Acumatica ERP provides a wide variety of documentation resources, which you can access from this course, from the system, or from the [Help portal](#). Links to related information are provided at relevant places throughout the course. The complete Acumatica ERP documentation is available on <https://help.acumatica.com/> and is included in the Acumatica ERP instance.

While viewing any form used in the course (or any other Acumatica ERP form), you can click the **Open Help** button in the top pane to bring up a form-specific Help menu; you can use the links on this menu to quickly access form-related concepts and activities and to open a reference topic with detailed descriptions of the form elements.

## How to Create a Tenant with the U100 Dataset

Before you complete this course, you need to add a tenant with the *U100* dataset to an existing Acumatica ERP instance. You will then prepare the tenant for completing the activities. To complete this preparation, perform the following instructions:

1. Go to [Amazon Storage](#).

2. Open the folder that corresponds to the version of your Acumatica ERP instance.
3. In this folder, open the **Snapshots** folder and download the **u100.zip** file.
4. Launch the Acumatica ERP instance and sign in.
5. Open the [Tenants](#) (SM203520) form and click **Add New Record** on the form toolbar.
6. In the **Login Name** box, type the name to be used for the tenant.
7. On the form toolbar, click **Save**.



When you create a system tenant, you may be signed out after its creation, depending on how many non-System tenants your Acumatica ERP instance already had:

- If you started with one non-System tenant (to which you are signed in) and you create a new one, the system signs you out to switch from single-tenant mode to multitenant mode.
- If the instance had multiple non-System tenants and you create another, it is already in multitenant mode. Instead of being signed out, you wait until the system completes the operation and then proceed.

8. On the **Snapshots** tab, click **Import Snapshot**.
9. In the **Upload Snapshot Package** dialog box, select the **u100.zip** file, which you have downloaded, and click **Upload**.  
The system uploads the snapshot and lists it on the **Snapshots** tab of the [Tenants](#) form.
10. Open the [Apply Updates](#) (SM203510) form and click **Schedule Lockout**.
11. In the **Schedule Lockout** dialog box, click **OK**.
12. Open the [Tenants](#) form again.
13. On the form toolbar, click **Restore Snapshot**.
14. If the **Warning** dialog box appears, click **Yes**.
15. In the **Restore Snapshot** dialog box, make sure that the correct snapshot package is being uploaded and click **OK**. The system will restore the snapshot and sign you out.
16. Sign in to the tenant that you have just created.
17. Open the [Apply Updates](#) form again.
18. On the form toolbar, click **Stop Lockout**.

## Which Credentials You Should Use

To complete the lessons, sign in as the following users:

1. Lesson 1.1: *gibbs*
2. Lesson 1.2: *gibbs*
3. Lesson 1.3: *gibbs*
4. Lesson 1.4: *gibbs*
5. Lesson 1.5: *gibbs*
6. Lesson 1.6: *gibbs*
7. Lesson 1.7: *gibbs*
8. Lesson 1.8: *gibbs*
9. Lesson 2.1: *gibbs*
10. Lesson 2.2: *gibbs*

11. Lesson 2.3. Step 1: *gibbs*, Step 2: *rains*
12. Lesson 3.1: *gibbs*
13. Lesson 3.2: *gibbs*
14. Lesson 4.1: *gibbs*
15. Lesson 4.2: *gibbs*
16. Lesson 5.1: *gibbs*

## Which License You Should Use

For the educational purposes of this course, you use Acumatica ERP under the trial license, which does not require activation and provides all available features. For the production use of this functionality, you have to activate the license your organization has purchased. Each particular feature may be subject to additional licensing; please consult the Acumatica ERP licensing policy for details.

# Company Story

---

This topic explains the organizational structure and operational activity of the company you will work with during this training.

## Company Structure

The SweetLife Fruits & Jams company is a midsize company located in New York City. The company consists of the following branches:

- SweetLife Head Office and Wholesale Center: This branch of the company consists of a jam factory and a large warehouse where the company stores fruit (purchased from wholesale vendors) and the jam it produces. Warehouse workers perform warehouse operations by using barcode scanners or mobile devices with barcode scanning support.
- SweetLife Store: This branch has a retail shop with a small warehouse to which the goods to be sold are distributed from the company's main warehouse. This branch is also planning on selling goods via a website created on an e-commerce platform to accept orders online. The e-commerce integration project is underway.
- SweetLife Service and Equipment Sales Center: This branch is a service center with a small warehouse where juicers are stored. This branch assembles, sells, installs, and services juicers, in addition to training customers' employees to operate juicers.

## Operational Activity

The company has been operating starting in the 01-2024 financial period. In November 2024, the company started using Acumatica ERP as an ERP and CRM system and migrated all data of the main office and retail store to Acumatica ERP. The equipment center began its operations in 01-2025 in response to the company's growth.

The base currency of the company and its subsidiaries is the US dollar (USD). All amounts in documents and reports are expressed in US dollars unless otherwise indicated.

## SweetLife Company Sales and Services

Each SweetLife company's branch has its own business processes, as follows:

- SweetLife Head Office and Wholesale Center: In this branch, jams and fruit are sold to wholesale customers, such as restaurants and cafes. The company also conducts home canning training at the customer's location and webinars on the company's website.
- SweetLife Store: In the store, retail customers purchase fresh fruit, berries, and jams, or pick up the goods they have ordered on the website. Some of the goods listed in the website catalog are not stored in the retail warehouse, such as tropical fruits (which are purchased on demand) and tea (which is drop-shipped from a third-party vendor).
- SweetLife Service and Equipment Sales Center: This branch assembles juicers, sells juicers, provides training on equipment use, and offers equipment installation, including site review and maintenance services. The branch performs short-term service provision.

The company has local and international customers. The ordered items are delivered by drivers using the company's own vehicle. Customers can pay for orders by using various payment methods (cash, checks, or credit cards).

## Company Purchases

The company purchases fruits and spices from large fruit vendors for sale and for jam production. For producing jams and packing jams and fruits, the company purchases jars, labels, and paper bags from various vendors. For

the internal needs of the main office and store, the company purchases stationery (printing paper, pens, and pencils), computers, and computer accessories from various vendors.

The company also purchases juicers and juicer parts from large juicer vendors, and it either purchases the installation service for the juicers or provides the installation service on its own, depending on the complexity of the installation.

# Part 1: Getting Started with Generic Inquiries

---

In the lessons of this part, you will learn how to work with generic inquiries.

## Lesson 1.1: Discovering DACs

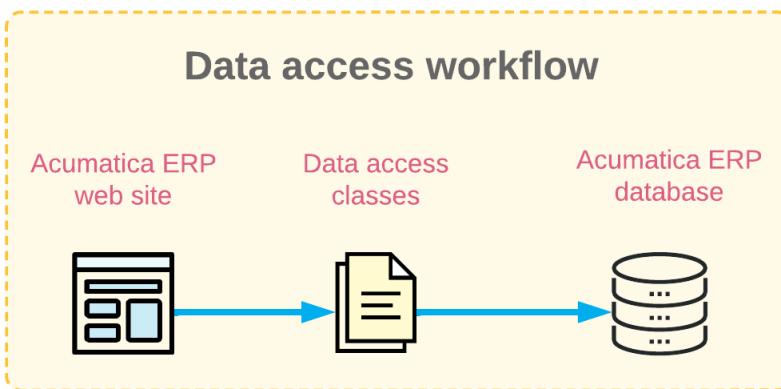
---

In this lesson, you will learn how to quickly retrieve the necessary data that you can use to customize generic inquiries or reports.

### DAC Discovery: General Information

---

In Acumatica ERP, the data is stored in a database. However, users of Acumatica ERP do not access the database directly. Instead, they access the data access classes (DACs), as shown in the illustration below. A data access class is a programming object used to represent and provide access to a database table in the code of Acumatica ERP.



Data access classes contain data fields that hold different data that has been entered in Acumatica ERP. The data fields that you select to retrieve data from will be the columns of the resulting generic inquiry form or will be linked to elements of the resulting report.

To work with a generic inquiry or report, you need to find the data access classes and data fields that underlie the key elements on the relevant data entry form or forms. To do this, you inspect these user interface elements.

For detailed descriptions of data access classes used by Acumatica ERP, look for the needed DAC in the [DAC Schema Browser](#). (For details about the DAC Schema Browser, see [Data from Multiple Data Sources: DAC Schema Browser](#).)

### Learning Objectives

In this lesson, you will learn how to inspect UI elements to find the underlying data fields.

### Applicable Scenarios

You may need to discover DACs when you are responsible for the customization of Acumatica ERP in your company, and you need to modify an existing generic inquiry or report to better meet the needs of a particular group of users or all users. Before you start to modify the inquiry or report, you need to find out what DACs store the data that you want to modify. For this purpose, you need to inspect the needed UI elements.

## Inspection of UI Elements

You usually create or modify a generic inquiry or report to retrieve data related to some business purpose, so you know which data you need to retrieve. Thus, you have to explore which data access classes and data fields you can use to access this data.

To find the underlying data access classes and fields, you explore the forms related to the needed data. For example, suppose that you want to find the data field that holds the reference number of a sales order. When you save a sales order on the [Sales Orders](#) (SO301000) form, the system assigns a reference number to it. To find out which data class and data field correspond to the sales order reference number, you open this form, press Ctrl+Alt and click the **Order Nbr.** element on the form (see Item 1 in the screenshot below).



As an alternative, you can click **Customization > Inspect Element** on the form title bar and then click the needed UI element.

The **Element Properties** dialog box opens. You are interested in the values in the **Data Class** and **Data Field** boxes (Item 2 in the following screenshot), which correspond to the data access class and data field you need to specify when you modify the generic inquiry or report.

The screenshot shows the Sales Orders form for SO 000068 - FourStar Coffee & Sweets Shop. The 'Order Nbr.' field (Item 1) is highlighted with a red box and a circled '1'. The 'Element Properties' dialog box is open over the form, showing the 'Data Class' set to 'SOOrder' and the 'Data Field' set to 'OrderNbr' (Item 2). Both the 'Data Class' and 'Data Field' fields are also highlighted with a red box and a circled '2'.

*Figure: Form element inspection*

You use the **Data Class** values you discover when you add data access classes on the **Data Sources** tab of the [Generic Inquiry](#) (SM208000) form for a generic inquiry or on the **Tables** tab of the Schema Builder in the Report Designer for a report. The generic inquiry or report can access various data fields of the data access classes that are listed on this tab. You will use the **Data Field** value to customize various generic inquiry parameters, conditions, and listed items in the results grid (that is, the table of the generic inquiry form that shows its results). In the Report Designer, you will use the **Data Field** value to customize report parameters and filters, to specify data sorting and grouping, and to link the elements with the data to be displayed in the report.

## Inspection of an Element with a Drop-Down Control

If you are inspecting an element with a drop-down control (see Item 1 in the following screenshot), you can also view the list of values for the element. To do this, in the **Element Properties** dialog box, you click the **Drop-Down Values** button (Item 2) and the system displays the **Drop-Down Values** dialog box (Item 3). In the dialog box, you can review the list of options available for the drop-down control. The **Value** column lists the values stored in the

database, and the **Description** column lists the corresponding captions that are displayed on the user interface. You use the values from the **Value** column in complex conditions and in formulas in generic inquiries and reports.

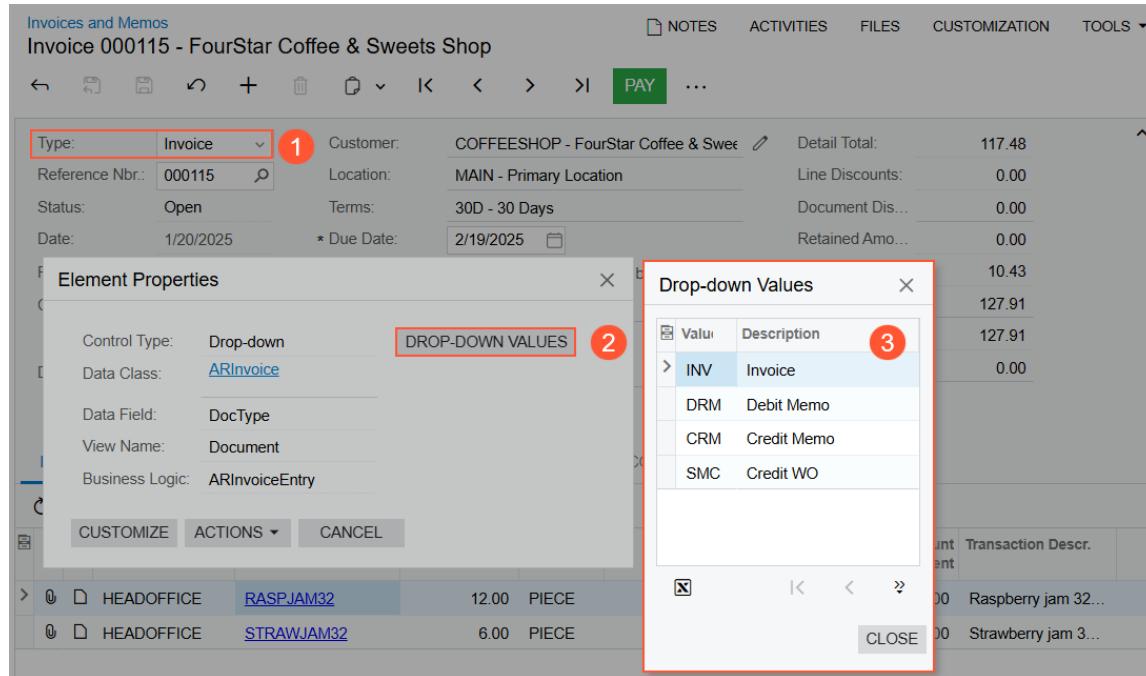


Figure: Inspection of a form element with a drop-down control

## Detailed Information About DACs

You can get more information about the data access class structure and its data fields by using the functionality of the **Element Properties** dialog box (see Item 1 in the following screenshot).

In the dialog box, you can click the link with the data access class name (Item 2). The system opens the DAC Schema Browser in a new browser tab with information about the selected data access class (Item 3). For more information about the DAC Schema Browser, see [Data from Multiple Data Sources: DAC Schema Browser](#).

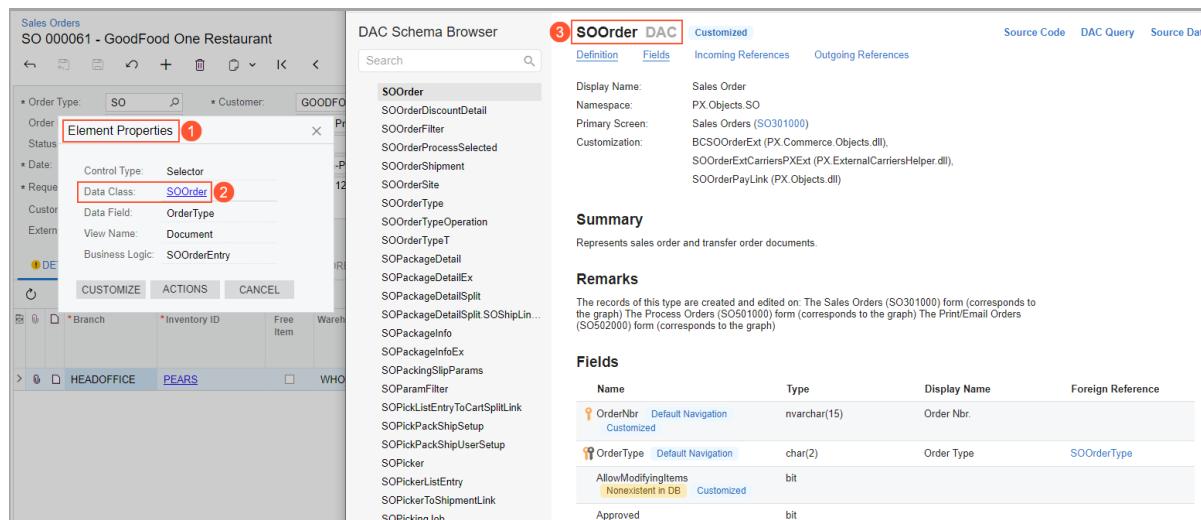


Figure: Form element inspection

Also, you can click **Actions > View Data Class Source...** in the dialog box (see Item 1 in the following screenshot). The system opens the **Source Code** (SM204570) form in a pop-up window with the details of the data access class (Item 2).

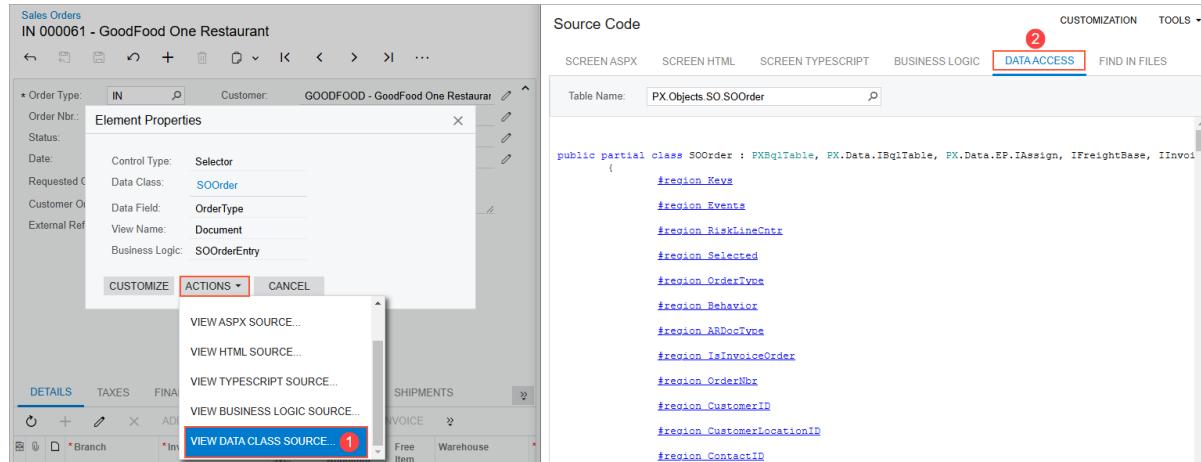


Figure: Form element inspection

## DAC Names and Aliases

The full name of any data access class consists of the namespace and the class name. For example, **PX.Objects.AR.ARPayment** is the full name of the data access class that holds information about accounts receivable payments, where **PX.Objects.AR** is the namespace and **ARPayment** is the class name.

For each data access class, you can specify a shortened version of the name used to designate the table. For example, **ARPayment** can be used as the alias for the **PX.Objects.AR.ARPayment** data access class.

You use aliases to specify (on other tabs of the form) which data access class the system will use to access a data field for a generic inquiry.

The following screenshot shows the list of data access classes and their aliases for the **SO-SalesOrder** generic inquiry (with the *Sales Orders* site map title).

Generic Inquiry			NOTES	FILES	CUSTOMIZATION	TOOLS
			PUBLISH TO THE UI	UNPUBLISH	...	
DATA SOURCES	RELATIONS	PARAMETERS	CONDITIONS	GROUPING	SORT ORDER	RESULTS GRID
ENTRY POINT						
<input type="button" value="○"/>	<input type="button" value="+"/>	<input type="button" value="X"/>	<input type="button" value="ADD RELATED TABLE"/>	<input type="button" value=" "/>	<input type="button" value="X"/>	
<input checked="" type="checkbox"/> * Source Name <a href="#">PX.Objects.AR.Customer</a>	Description					* Alias Customer
<input checked="" type="checkbox"/> * Source Name <a href="#">PX.Objects.CR.BAccount</a>	Represents a business account used as a prospect, customer, or vendor. Also, this is the base class for derived DACs: ...					BAccountR
<input checked="" type="checkbox"/> * Source Name <a href="#">PX.Objects.GL.Branch</a>	A branch of the company. Records of this type are added and edited on the Branches (CS102000) form (which correspon...					Branch
<input checked="" type="checkbox"/> * Source Name <a href="#">PX.Objects.PM.PMProject</a>	A planned set of interrelated tasks to be executed over a fixed period and within certain cost and other limitations. Each pr...					PMProject
<input checked="" type="checkbox"/> * Source Name <a href="#">PX.Objects.SO.SOOrder</a>	Represents sales order and transfer order documents.					SOOrder

Figure: The list of data access classes and their aliases

In the Acumatica Report Designer, you can specify aliases (if needed) on the **Relationships** tab of the Schema Builder. The following screenshot shows the aliases specified for some tables on the **Relationships** tab of the Schema Builder.

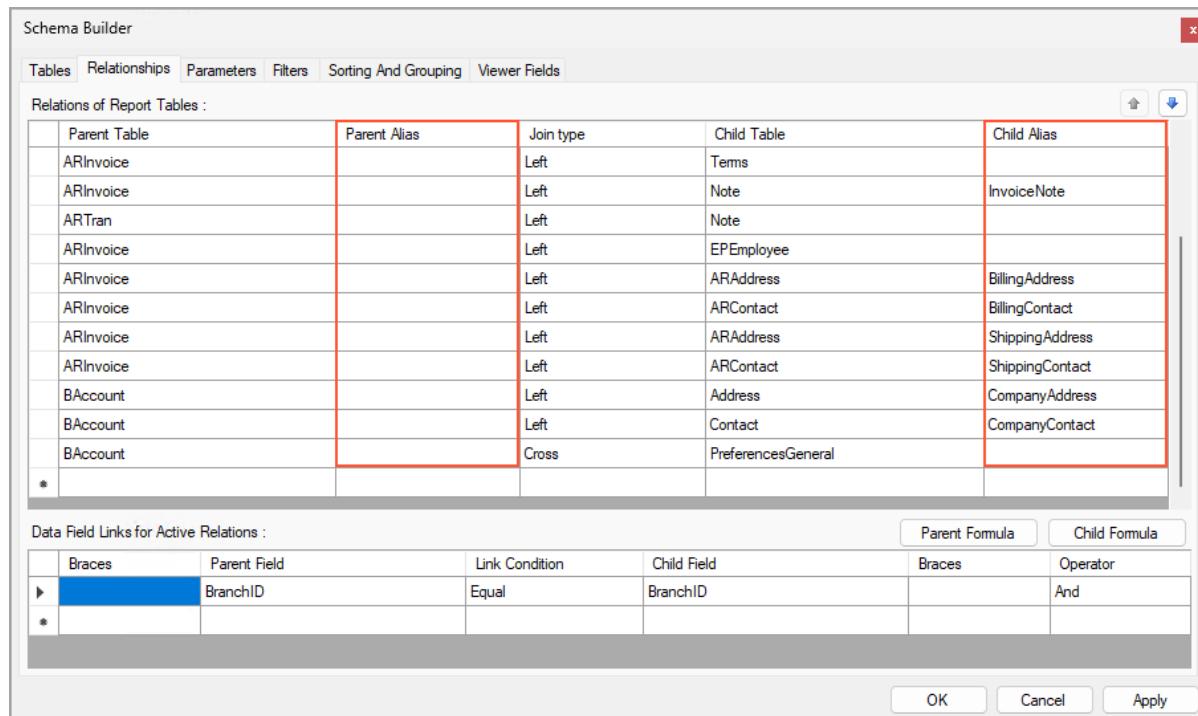


Figure: Aliases in the Schema Builder of the Report Designer

## DAC Discovery: To Inspect UI Elements

The following activity will walk you through the process of inspecting the user interface elements on Acumatica ERP forms to find the data access classes (DACs) and data fields related to these elements.



This activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations. A sales representative has requested that you create a generic inquiry that lists sales orders. The inquiry should include the following data for each listed sales order: the sales order number, the order type, the status, the date, and the customer name.

To get started in this effort, you need to inspect the relevant user interface elements on the [Sales Orders](#) (SO301000) form and the [Customers](#) (AR303000) form—the data entry forms on which sales orders and customers are created—in order to figure out which data access classes and data fields are related to them. (In this activity, you will only inspect the UI elements. You will not develop the generic inquiry.)

## Process Overview

In this activity, you will inspect the relevant user interface elements of the entry forms whose data will be used in the generic inquiry. To do this, for each relevant element on the form, you will invoke the **Element Properties** dialog box, which displays the data access class and data field you will need when you develop the generic inquiry.

## System Preparation

Launch the Acumatica ERP website, and sign in to a tenant with the *U100* dataset preloaded as system administrator Kimberly Gibbs. You should sign in by using the *gibbs* username and the *123* password.



The *gibbs* user is assigned the **Administrator** role, which has sufficient access rights to manage the system configuration and to modify generic inquiries, advanced filters, pivot tables, and dashboards.

## Step: Inspecting the UI Elements

To inspect the UI elements, do the following:

1. Open the [Sales Orders](#) (SO301000) form, which displays a single sales order.
2. Point to the **Order Type** box, press Ctrl+Alt, and then click. The **Element Properties** dialog box opens.



As an alternative, you can click **Customization > Inspect Element** on the form title bar and then click the needed UI element.

Note the values of the **Data Class** and **Data Field** elements (*SOOrder* and *OrderType*, respectively), which are the data access class and field you need.

The **Data Class** value reflects a data access class you need to add on the **Data Sources** tab of the [Generic Inquiry](#) (SM208000) form, so that the inquiry can access various data fields of the data access class. You will use the **Data Field** value when you customize various generic inquiry parameters and conditions, as well as listed items on the results grid (that is, the table showing the inquiry results).

3. Close the dialog box.
4. Inspect the UI elements listed in the **UI Element** column of the following table, and make a note of the data access class and data field of each element. Make sure that you get the same results as the following table shows.

UI Element	Data Access Class	Data Field
<b>Order Nbr.</b>	<i>SOOrder</i>	<i>OrderNbr</i>
<b>Status</b>	<i>SOOrder</i>	<i>Status</i>
<b>Date</b>	<i>SOOrder</i>	<i>OrderDate</i>

5. Open the [Customers](#) (AR303000) form.
6. Point to the **Customer ID** box, press Ctrl+Alt, and then click. The **Element Properties** dialog box opens.
7. Make a note of the values in the **Data Class** and **Data Field** boxes (*Customer* and *AcctCD*, respectively), which are the data access class and data field you need.
8. Close the dialog box.

9. On the **General** tab, inspect the **Account Name** element. Notice that the **Data Class** and **Data Field** values are *Customer* and *AcctName*, respectively.
10. Close the dialog box.

## Lesson 1.2: Modifying a Predefined Inquiry

---

In this lesson, you will learn how you can modify an existing generic inquiry and then revert the changes.

### Modification of a Predefined Inquiry: General Information

---

Acumatica ERP includes predefined generic inquiries, whose settings can be viewed on the [Generic Inquiry](#) (SM208000) form. These predefined generic inquiries are stored in the system data—that is, the data of the *System* tenant, which is the tenant installed by the system.

#### Learning Objectives

In this lesson, you will learn how to make a copy of an existing generic inquiry.

#### Applicable Scenarios

You may find the information in this lesson useful when you are responsible for the customization of Acumatica ERP in your company, and you need to modify a predefined generic inquiry to meet particular specifications.

### Modification of a Predefined Inquiry

You can adjust any predefined generic inquiry to the needs of your organization by changing the tables that are used in the inquiry, adding or removing parameters, or changing the results grid. However, note that the system does not update the settings of customized generic inquiries during an upgrade of Acumatica ERP. That is, after an upgrade, any predefined generic inquiries that you have customized will not include any changes that may have been made to the system data with this upgrade. For example, if a database table previously included in the generic inquiry was removed in the system data of a newer version of Acumatica ERP, after an upgrade to this version, the customized generic inquiry that includes this table will no longer work.

Thus, we strongly recommend that instead of directly modifying a predefined generic inquiry, you make a copy of the predefined inquiry and modify the copy.

### Copying of a Predefined Inquiry Configured as an Entry Point

Some predefined generic inquiries are configured as entry point forms on the [Generic Inquiry](#) (SM208000) form—that is, for these inquiries, the **Replace Entry Screen with this Inquiry in Menu** check box is selected on the **Entry Point** tab, and the navigation path to the corresponding entry form is configured on the **Navigation** tab.

When you copy one of these generic inquiries, the system does not copy the settings defined on the **Entry Point** tab. Also, on the **Navigation** tab, the system changes the value in the **Window Mode** box to *Same Tab* for the copied navigation path that was defined for the original generic inquiry on the **Navigation** tab, indicating that the entry point form will be opened instead of the predefined generic inquiry in the same browser tab.

### Resetting of Changes Made to a Predefined Inquiry

If you have directly customized a generic inquiry instead of making a copy and customizing the copy, you can revert your changes to the generic inquiry. You reset the settings of the customized generic inquiry to the default settings

by clicking **Clipboard > Reset to Default** on the form toolbar of the [Generic Inquiry](#) (SM208000) form. The system restores the predefined settings of the generic inquiry from the system data.



When you perform this step, all customizations for this generic inquiry in the tenant will be lost.

## Modification of a Predefined Inquiry: To Copy an Existing Generic Inquiry

In this activity, you will learn how to make a copy of a predefined generic inquiry and create a new inquiry based on the copied generic inquiry.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations. An accountant of your company has requested an inquiry that collects data about invoices and memos. You have offered the predefined Invoices and Memos (AR3010PL) generic inquiry form, but the accountant has requested some additions to the inquiry.

In this activity, acting as the technical specialist, you will copy the predefined generic inquiry to leave it intact, and you will later modify its copy as requested.

### Configuration Overview

You will work with the predefined Invoices and Memos (AR3010PL) inquiry form, which has the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified on the [Generic Inquiry](#) (SM208000) form.



The Invoices and Memos (AR3010PL) generic inquiry form, which is the list of the invoices and memos that have been created on the [Invoices and Memos](#) (AR301000) form, is the substitute form that is opened when you click the *Invoices and Memos* link in a workspace or a list of search results.

### Process Overview

To make a copy of the generic inquiry for modification while leaving the existing generic inquiry intact, you will use the [Generic Inquiry](#) (SM208000) form. On this form, you will copy the original inquiry, paste the copy, and save it with its new name. You will then publish the copied inquiry. In this activity, you will only make a copy of an existing inquiry; you will not modify it.



We recommend that you use naming conventions for the generic inquiries that you create or copy from predefined inquiries to easily identify them. For example, in this activity, the copied inquiry title will start with *DB* to indicate that the inquiry is being added to the database manually, rather than automatically during product installation.

### Step 1: Making a Copy of the Generic Inquiry

To make a copy of the generic inquiry with the inquiry title *AR-Invoices and Memos* and assign a different name to the copy, do the following:

1. Open the Invoices and Memos (AR3010PL) form.
2. On the form title bar, click **Customization > Edit Generic Inquiry**. The system opens the [Generic Inquiry](#) (SM208000) form with the settings of this generic inquiry. The inquiry title is *AR-Invoices and Memos*.
3. On the form toolbar, click **Clipboard > Copy**.

4. Click **Add New Record**.
  5. In the **Inquiry Title** box of the Summary area, type DB-ARInvoicesMemos.
  6. Press Tab on the keyboard, or move the focus to any other box on the form.
  7. On the form toolbar, click **Clipboard > Paste**.
  8. In the **Site Map Title** box, type Copy of Invoices and Memos.
- To avoid the identical titles causing confusion in the workspace, you have changed the site map title.
9. Click **Save**.

Now you are working with *DB-ARInvoicesMemos* (as shown in the following screenshot), a copy of the *AR-Invoices and Memos* generic inquiry that has a different name and can be modified as needed without the *AR-Invoices and Memos* inquiry being affected.

The screenshot shows the 'Generic Inquiry' form with the following details:

- Summary Area:**
  - \* Inquiry Title: DB-ARInvoicesMemos
  - Site Map Title: Copy of Invoices and Memos
  - Screen ID: GI640593
- View Inquiry Buttons:** NOTES, FILES, CUSTOMIZATION, TOOLS
- View Inquiry Options:**
  - Show Deleted Records
  - Show Archived Records
  - Expose via OData
  - Expose to the Mobile Application
- Search Options:** Select Top: 0 records, Records per Page: 0, Export Top: 0 records, Attach Notes To: Not Applicable
- Data Sources:** DATA SOURCES, RELATIONS, PARAMETERS, CONDITIONS, GROUPING, SORT ORDER, RESULTS GRID, ENTRY POINT
- Related Tables:**
  - + ADD RELATED TABLE
  - Source Name: Description \* Alias
  - PX.Objects.AR.ARInvoice: Represents the accounts receivable invoices, credit and debit memos, overdue charges and credit write-offs as well as th... ARInvoice
  - PX.Objects.AR.ARInvoice: Represents the accounts receivable invoices, credit and debit memos, overdue charges and credit write-offs as well as th... Correction
  - PX.Objects.AR.Customer: AR-specific business account data related to customer payment methods, statement cycles, and credit verification rules. BAccountR

**Figure: The copied inquiry**

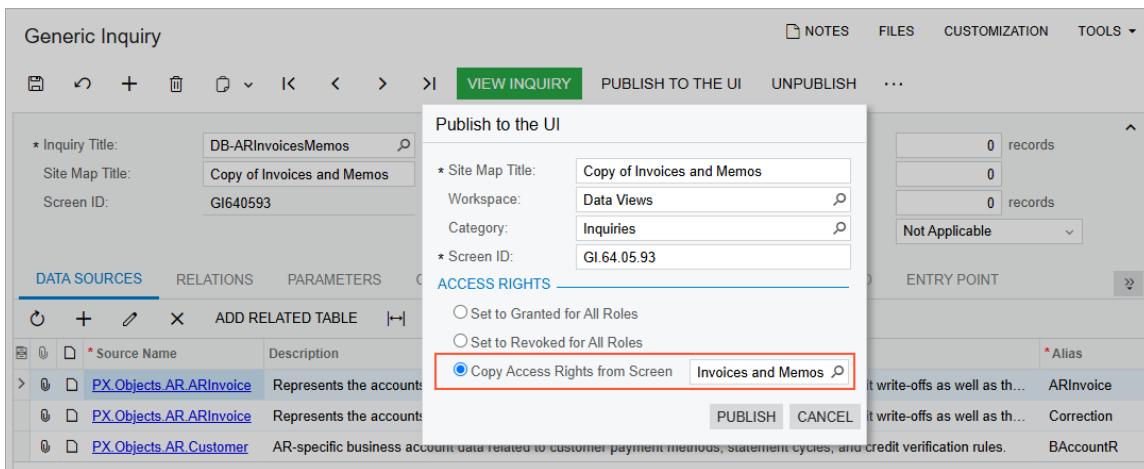
Notice that the system has assigned an ID to the copied inquiry. By default, the newly created inquiry form cannot be accessed from the UI. In the next step, you will publish the generic inquiry to make the inquiry form visible for users.

## Step 2: Publishing the Generic Inquiry

To make the copied inquiry visible for users, do the following on the *Generic Inquiry* (SM208000) form:

1. On the form toolbar, click **Publish to the UI**.
2. In the **Publish to the UI** dialog box, which opens, specify the following settings:
  - **Site Map Title:** *Copy of Invoices and Memos* (inserted automatically)
  - **Workspace:** *Data Views*
  - **Category:** *Inquiries*
3. In the **Access Rights** section, select **Copy Access Rights from Screen**, and then select *Invoices and Memos* with the *AR.30.10.PL* screen ID in the box next to the option button (as shown in the following screenshot). (To do this, you search for the screen ID in the lookup table.)

With these settings, users that have access to the *Invoices and Memos* (*AR3010PL*) list of records will also have access to the *Copy of Invoices and Memos* form.



**Figure: The set of access rights to the copied inquiry**

#### 4. Click **Publish**.

The system publishes the generic inquiry and adds it to the **Data Views** workspace. Now you can open it by searching for its identifier.

## Lesson 1.3: Modifying Inquiry Results

In this lesson, you will learn how to modify an existing generic inquiry in different ways to add or reorder columns in the results grid. You can also specify how many records will be displayed and whether you will include deleted records in the inquiry results.

### Modification of Inquiry Results: General Information

A generic inquiry has a table (also referred to as a *results grid*) with the inquiry results. To make minor modifications to the results of an existing inquiry, you may want to make changes to the following groups of elements on the [Generic Inquiry](#) (SM208000) form:

- The settings on the **Results Grid** tab, where you can define which data fields the system should display in the inquiry results (that is, which columns will appear in the results grid). Also, you can use the **Results Grid** tab to make quick modifications of an inquiry, as described in the following sections.
- The settings in the Summary area of the form, which you can use to specify how many records will be displayed and whether you will include deleted records in the inquiry results.

### Learning Objectives

In this lesson, you will learn how to modify an existing generic inquiry in the following ways:

- Hide or reveal columns
- Add a data field to the results
- Change the caption of a column
- Specify the default navigation setting of a column in the inquiry results
- Add a quick filter to the inquiry results
- Include deleted records in the inquiry results

- Select the table to which files and notes will be attached

## Applicable Scenarios

You may find the information in this lesson useful if you are responsible for the customization of Acumatica ERP in your company, and you have found an existing generic inquiry whose results are similar to those that you need but lacking some details. You want to copy the existing generic inquiry and make some modifications to the results.

## Additional Columns in Inquiry Results

You add a row to the table on the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form for each column to appear on the results grid, and in the row, you select the data field whose values the system should display. On this tab, you can select data fields of the data access classes that you have added on the **Data Sources** tab of the form.



Some data access classes have data fields whose values are not stored in the database as the values of ordinary data fields are. Moreover, an entire class can include only data fields whose values are not stored in the database. For example, the [Inventory Transaction Details](#) (IN404000) form uses the *InventoryTranDetEnqResult* data access class, which has no values stored in the database, to show summary information about the inventory transactions that have been posted within a selected financial period.

If you use a data field whose values are not stored in the database in your inquiry or report, this data field might return no data. Whether this data field returns any data depends on the way this field is calculated in the source code.

## Column Visibility

You hide or reveal the columns shown on a generic inquiry form by clearing or selecting the **Visible** check box on the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form. When you add a new row on this tab (which corresponds to a column in the results grid of the inquiry form), the check box is selected by default. If this check box is cleared, the column will not be visible initially but a user can make the column visible as needed by using the **Column Configuration** dialog box of the table on the inquiry form.

## Default Navigation

For any column of the results grid of the generic inquiry form, you can turn on or turn off the default navigation (that is, the user's ability to navigate to the default form for the field) by using the **Default Navigation** check box on the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form. The default navigation is available only for fields that have a default form specified in the source code. For example, for a row with a field that holds the reference number of an AR invoice, the default form is the [Invoices and Memos](#) (AR301000) form.

With the **Default Navigation** check box selected, the system displays the values in these fields as links in the inquiry results. When a user clicks such a link, the default form is opened in a pop-up window.

When you add a new row to the table on the **Results Grid** tab, the **Default Navigation** check box is selected by default.

## Use of Columns in Quick Searches

By selecting or clearing the **Use in Quick Search** check box, which is hidden by default, on the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form, you determine which columns of the resulting generic inquiry form are used by the Acumatica ERP search functionality. When you add a row on this tab, the check box is cleared by default, indicating that the system will ignore the values of the column while searching through the inquiry data. If the check box is selected, the system will search for keywords in the values of the column.

You might use these check boxes, for example, to set up the system to search in only columns that hold information about the customer identifier, customer name, and document description. By using only the columns with this information, you avoid possible matches in other columns and give users the most relevant search results.

## Column Captions

You can change the default caption to be used on the generic inquiry form for any column. To do this, on the [Generic Inquiry](#) (SM208000) form, you type the needed name in the **Caption** column of the corresponding row of the **Results Grid** tab. (By default, this column is hidden.)

## Quick Filters

You determine which columns are used as quick filters by default by selecting or clearing the **Quick Filter** check box, which is hidden by default, on the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form. With this check box selected, the system adds a quick filter for the column to the filtering area of the resulting generic inquiry form. For more information about filters in Acumatica ERP, see [Filtering and Sorting Capabilities: General Information](#).

## Column Width

If needed, you can specify the exact width of a column in pixels in the **Width (px)** column of the corresponding row of the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form. If you do not specify the width of a column, the system calculates the value automatically.

## The Number of Records Extracted from the Database

You can limit the number of records to be listed in the inquiry results. In the Summary area of the [Generic Inquiry](#) (SM208000) form, you can specify the following settings:

- **Select Top:** In this box, you specify the maximum number of records to be displayed in the table showing the inquiry results; the remaining rows of the inquiry results will not be shown at all. For example, if the specified value is 20, the system displays the first 20 results. By default, 0 is specified as the **Select Top** setting, and the system shows all the records in the inquiry results.  
If you specify a value in this box, the sort order you have specified on the **Sort Order** tab is applied before the specified number of records is selected for display. If you have not specified a sort order, the error icon is displayed on the **Sort Order** tab. In this case, at the bottom of the page on the **Sort Order** tab, the system displays the default sort order that is applied. For details, see [Applying Sorting and Grouping](#).
- **Records per Page:** In this box, you specify the number of records the system displays per page in the table of the generic inquiry form that shows the inquiry results. You specify this setting to make it convenient for users to view the inquiry results. If you specify a number of records that cannot fit on a page, the scroll bar will be shown. By default, 0 is inserted as the **Records per Page** setting, and the system automatically adjusts the number of records to the window in which Acumatica ERP is running.



If you specify numbers that are too large (based on the applicable configuration and inquiry) in the **Select Top** or **Records per Page** box (or in both boxes), these settings can increase the time to process the inquiry and can cause performance degradation in the server.

## Attachment of Files and Notes to Tables Used in the Generic Inquiry

While working with a list of records on a generic inquiry form, a user can attach a file, such as a scanned document with a signature, and a note, such as important information for colleagues about a customer, to a particular row of the table. When you design the generic inquiry, you can select the database table to which files and notes should be attached in the resulting generic inquiry form, or you can instead disable any attachments. In the Summary area of the [Generic Inquiry](#) (SM208000) form, in the **Attach Notes To** drop-down list, you can select one of the tables listed on the **Relations** tab of the [Generic Inquiry](#) form, or the *Not Applicable* option.

After you have designed a generic inquiry and specified a database table for files and notes, a user who is working with the records of the generic inquiry form can attach files or notes to any of the listed records. If you have specified the *Not Applicable* option in the **Attach Notes To** drop-down list for the generic inquiry, the user cannot attach files and notes to the listed records of the generic inquiry form. By default, *Not Applicable* is selected for newly created generic inquiries.

## Inclusion of Deleted Records in Inquiry Results

In some cases, you may want to include deleted records among the inquiry results.

For example, suppose that your company has provided services for a customer; it has generated the related invoice in Acumatica ERP and sent it to the customer. The company has later complained about the provided services, and a manager has approved the deletion of the invoice so that the customer no longer owes the company for the disputed services. You delete the invoice of the customer. (Because the invoice has not been released yet, it can be edited or deleted.) Then during your company's audit, you generate the [AR Register](#) (AR621500) report, in which the invoice number is missing. To give the interested parties a way to find and view invoices whose numbers are missing, you have decided to create an inquiry on the [Generic Inquiry](#) (SM208000) form based on the *AR-Invoices and Memos* inquiry, except that the results will include deleted records.

To include deleted records in the inquiry results, on the [Generic Inquiry](#) form, you do the following:

- On the **Results Grid** tab, add a row, and in this row, specify the DAC name whose deleted records you want to include in the **Object** column and the *DeletedDatabaseRecord* value in the **Data Field** column.
- In the Summary area, select the **Show Deleted Records** check box. By default, this check box is cleared.

With these settings, the system displays the deleted records in the inquiry results, indicating the deleted records by selecting the check box in a new column. By default, this column contains *Is Deleted*, but you can change this caption in the **Caption** column of the **Results Grid** tab of the form. We recommend entering a descriptive caption for this column—for example, *Deleted* followed by the type of record.

The following screenshot shows rows added to the **Results Grid** tab to show the deleted records of the *Batch* and *Ledger* tables. Notice that the *Deleted Batch* and *Deleted Ledger* column captions, respectively, have been specified for these tables.

The screenshot shows the Generic Inquiry form with the following configuration:

- VIEW INQUIRY** button is highlighted.
- RESULTS GRID** tab is selected.
- Show Deleted Records** checkbox is checked in the Summary area.
- DATA SOURCES** tab is selected.
- RELATIONS**, **PARAMETERS**, **CONDITIONS**, **GROUPING**, **SORT ORDER**, **ENTRY POINT** tabs are visible.
- RESULTS GRID** table rows are displayed:

	Active	Object	Data Field	Caption	Schema Field	Width (px)	Style	Visible	Default Navigation	Navigate To
0	<input checked="" type="checkbox"/>	Branch	BranchCD					<input type="checkbox"/>	<input type="checkbox"/>	
0	<input checked="" type="checkbox"/>	Batch	Module				<input checked="" type="checkbox"/>	<input type="checkbox"/>		
0	<input checked="" type="checkbox"/>	Batch	DeletedDatabaseRecord	Deleted Batch			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
0	<input checked="" type="checkbox"/>	Ledger	DeletedDatabaseRecord	Deleted Ledger			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
0	<input checked="" type="checkbox"/>	Batch	BatchNbr				<input checked="" type="checkbox"/>	<input type="checkbox"/>		GL30100 - Journal
0	<input checked="" type="checkbox"/>	Batch	Status				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
0	<input checked="" type="checkbox"/>	Ledger	LedgerCD		Batch.LedgerID		<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Figure: Rows added to show deleted records in the Journal Transactions inquiry

The following screenshot shows the *Journal Transactions* generic inquiry, in which the records of deleted batches and ledgers are now included. Newly added columns can be used for filtering records.

Journal Transactions								CUSTOMIZATION ▾	TOOLS ▾
Module: All	Status: All	Ledger: All	Post Period: All	Deleted Batch: = 'True'	▼	...	🔍		
Module	Batch Number	Deleted Batch	Deleted Ledger	Status	Ledger	Transaction Date	Post Period	Description	
> GL	GL000047	<input checked="" type="checkbox"/>	<input type="checkbox"/>	On Hold	ACTUAL			Allocate salary by headcount	
> GL	GL000046	<input checked="" type="checkbox"/>	<input type="checkbox"/>	On Hold	ACTUAL			Monthly payroll expense	

Figure: Records of the *Journal Transactions* inquiry filtered by the deleted batches

## Attributes and User-Defined Fields in Inquiry Results

If any attributes or user-defined fields are defined for the entity that corresponds to the data access class, you can include these attributes or user-defined fields to the inquiry results. You can find an attribute in the **Data Field** column on the **Results Grid** tab, where its name has the following format: *AttributeID\_Attributes*. For example, suppose that a stock item has an attribute with the *INGREDIENTID*, which is defined on the *Attributes* (CS205000) form. To add this attribute to the generic inquiry results, you select the *INGREDIENT\_Attributes* field.

You can find a user-defined field in the list in the **Data Field** column, where its name has the following format: *AttributeAttributeID*. For example, suppose that a sales order has the **Interest** user-defined field, which corresponds to the **INTEREST** attribute. To include this user-defined field in the inquiry results, you select the *AttributeINTEREST* field.

## Modification of Inquiry Results: To Include an Additional Output Field

In this activity, you will learn how to modify an existing generic inquiry to include an additional column of data in the results grid.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including those involving the creation, modification, and use of generic inquiries. An accountant of your company has requested an inquiry that displays data about invoices and memos. You have offered the predefined Invoices and Memos (AR3010PL) generic inquiry form. After reviewing this inquiry, the accountant has requested the following changes:

- Add the identifier of the related project (that is, the project related to the listed invoice) to the inquiry results in the column with the **Project ID** caption
- Add the ability to view the details of any project by clicking its identifier in the **Project ID** column
- Add the ability to filter the inquiry results by an identifier of a project
- Place the **Project ID** column after the column that holds the reference numbers of invoices and memos

### Configuration Overview

You will work with a copy of the predefined Invoices and Memos (AR3010PL) inquiry form, which has the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified on the *Generic Inquiry* (SM208000) form.

The copy you will work with has the *DB1-ARInvoicesMemos* inquiry title and the *S130 Invoices and Memos* site map title specified on the *Generic Inquiry* form.

## Process Overview

In the Summary area of the [Invoices and Memos](#) (AR301000) form, you will inspect the **Project/Contract** element to find the related data access class (DAC) and data field. Then you will make changes to the copied inquiry on the [Generic Inquiry](#) (SM208000) form. You will add a data field on the **Results Grid** tab of the form.

### Step 1: Inspecting UI Elements

To discover the data access classes and data fields you will need to use in future steps, do the following:

1. Inspect the **Project/Contract** element in the Summary area of the [Invoices and Memos](#) (AR301000) form to find the related data access class (DAC) and data field. For the exact steps to do this, see [DAC Discovery: To Inspect UI Elements](#).



While you are working with a generic inquiry on the [Generic Inquiry](#) (SM208000) form, you may find it convenient to have the form or forms containing the UI elements open in a separate browser tab, so that you can quickly switch between the [Generic Inquiry](#) form and the form you are using to inspect the elements.

2. Make a note of the discovered DAC and data field of the **Project/Contract** element (*ARInvoice* and *ProjectID*, respectively).

### Step 2: Adding a Data Field, Changing the Caption, and Setting Up Default Navigation and Filtering

To add a column to the results grid of the existing inquiry, do the following:



If some columns mentioned in the activity are not available in the table, make them visible by using the **Column Configuration** dialog box of the table.

1. Open the [Generic Inquiry](#) (SM208000) form.
2. In the **Inquiry Title** box of the Summary area, select *DB1-ARInvoicesMemos*.
3. In the **Site Map Title** box of the Summary area, type *Invoices and Memos with Projects*.
4. On the **Data Sources** tab, verify that the *PX.Objects.AR.ARInvoice* table is listed. This means that you do not need to add the table to retrieve project identifiers of invoices.
5. On the **Results Grid** tab, add a row, and specify the following settings in the added row:
  - **Object:** *ARInvoice*
  - **Data Field:** *ProjectID*

Notice that the **Visible** check box is selected by default, which indicates that the system will display the added column in the inquiry. Also notice that the **Default Navigation** check box is selected by default, indicating that the values in this column will be shown as links, because the [Projects](#) (PM301000) form is specified for the data field as the default form defined in the source code. In the generic inquiry resulting from these changes, when a user clicks a link in this column, the system opens the [Projects](#) form in a pop-up window with the selected project details.

6. In the **Caption** column (which is hidden by default), type the caption (name) of the requested column (*Project ID*).
7. In the **Quick Filter** column (which is hidden by default), select the check box for the added row.
8. On the form toolbar, click **Save**.

You have added the row that corresponds to the **Project ID** column. Currently, it is the last row (as shown in the following screenshot), so **Project ID** would be the rightmost column on the generic inquiry form.

The screenshot shows the 'Generic Inquiry' interface. At the top, there are buttons for notes, files, customization, and tools. Below that is a toolbar with various icons. The main area is titled 'RESULTS GRID'. It contains a table with columns: Row Style, Object, Data Field, Caption, Schema Field, Width (px), Style, Visibility, Default Navigation, Navigate To, Use in Quick Search, and Quick Filter. A new row has been added at the bottom, highlighted with a red border. This row contains 'ARInvoice' in the Object column and 'Project ID' in the Data Field column. The 'Project ID' column is the last one in the grid.

Row Style:	Object	Data Field	Caption	Schema Field	Width (px)	Style	Visi	Default Navigation	Navigate To	Use in Quick Search	Quick Filter
<input type="checkbox"/>	ARInvoice	BranchID								<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	ARInvoice	BranchID_De...								<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	ARInvoice	CreatedByL... <span style="color: yellow;">!</span>								<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	ARInvoice	CreatedDateT...								<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	ARInvoice	LastModifie... <span style="color: yellow;">!</span>								<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	ARInvoice	LastModified...								<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	ARInvoice	OwnerID			150			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
> <input type="checkbox"/>	ARInvoice	ProjectID	Project ID		150			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Figure: The added row in the inquiry

In the next step, you will move the row so that the column appears in the needed place on the inquiry form.

### Step 3: Moving the Rows and Previewing Your Changes

To move rows and preview the inquiry, do the following:

1. While you are still viewing the [Generic Inquiry](#) (SM208000) form with the *DB1-ARInvoicesMemos* generic inquiry selected, again open the **Results Grid** tab.
2. Drag the added row immediately after the row that holds reference number information (that is, the row with a **Data Field** setting of *RefNbr*).
3. On the form toolbar, click **Save**.
4. Click the eye icon on the side panel to preview how your changes have affected the *DB1-ARInvoicesMemos* inquiry (which has the *Invoices and Memos with Projects* site map title). Notice that the **Project ID** column has been added and placed after the **Reference Nbr.** column (see the following screenshot) so that an accountant can see the related projects while viewing the list of invoices and memos in the results grid.

Type	Reference Nbr.	Project ID	Status	Date	Post Period
Invoice	000118	X	Closed	2/7/2025	02-2025
Invoice	000117	X	Closed	2/6/2025	02-2025
Invoice	000116	X	Closed	1/25/2025	01-2025
Invoice	000115	X	Open	1/20/2025	01-2025
Invoice	000114	X	Closed	1/29/2025	01-2025
Invoice	000112	X	Open	2/5/2025	02-2025
Invoice	000111	X	Closed	1/12/2025	01-2025
Invoice	000110	X	Closed	1/19/2025	01-2025
Invoice	000109	X	Open	1/6/2025	01-2025
Invoice	000108	X	Open	1/5/2025	01-2025
Invoice	000107	X	Closed	1/12/2025	01-2025
Invoice	000106	X	Open	1/6/2025	01-2025
Invoice	000105	HOTELRT	Open	6/1/2025	06-2025
Invoice	000104	HOTELRT	Open	5/1/2025	05-2025
Invoice	000103	HOTELRT	Open	4/1/2025	04-2025
Invoice	000102	HOTELSM	Open	5/1/2025	05-2025
Invoice	000101	HOTELSM	Open	4/1/2025	04-2025
Invoice	000100	HMSTRAIN	Open	1/21/2025	01-2025

Figure: The Invoices and Memos with Projects generic inquiry

## Lesson 1.4: Applying Sorting and Grouping

In this lesson, you will learn how to apply grouping and sorting conditions to an existing generic inquiry.

### Sorting and Grouping: General Information

While a user is viewing the results in the results grid of a generic inquiry, the user can sort the data by using simple filters in column headers. In the settings of the generic inquiry, you can define how the inquiry data is sorted by default by specifying the columns to be used for sorting.

Also, you can group inquiry data by specifying grouping settings and by adding rows that return aggregated values for a group.

### Learning Objectives

In this lesson, you will learn how to modify an existing generic inquiry in the following ways:

- By grouping the inquiry output
- By aggregating the inquiry output
- By adding a default sort order for the inquiry output

### Applicable Scenarios

You may find the information in this lesson useful when you are responsible for the customization of Acumatica ERP in your company. To speed up inquiry creation, you have copied an existing generic inquiry that provides results similar to those you need. Now you want to group and aggregate the inquiry output and add a sort order to suit your needs.

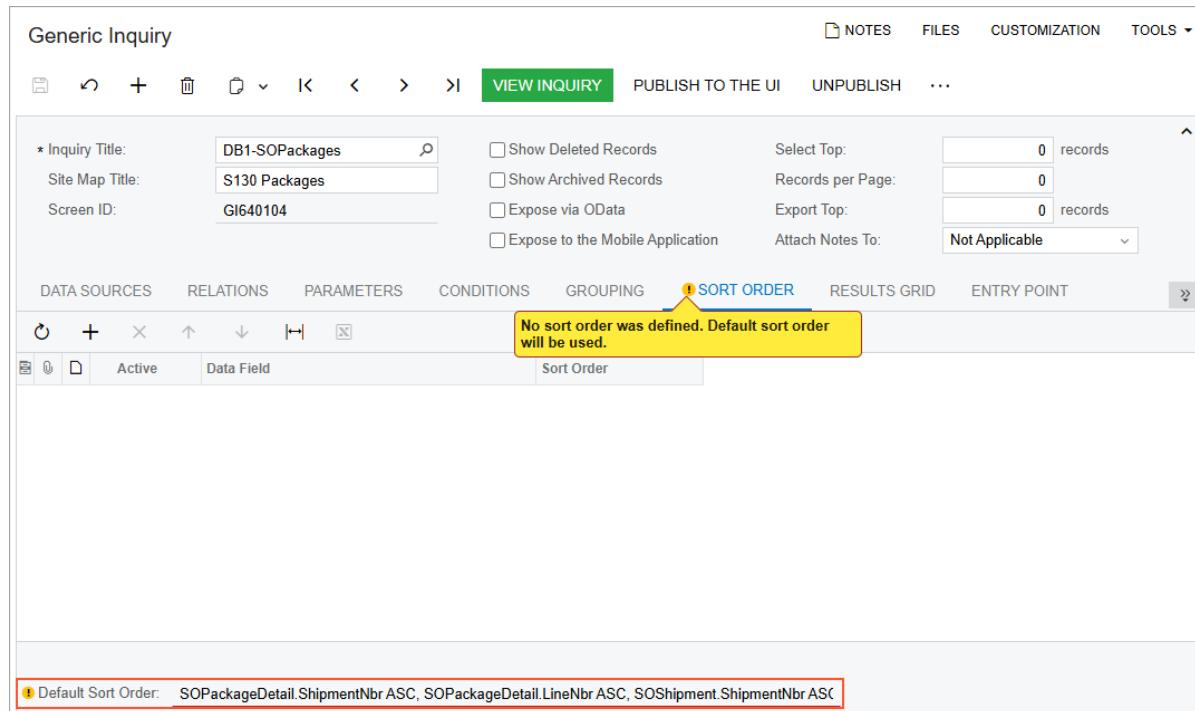
## Sorting Settings

You can use the settings on the **Sort Order** tab of the *Generic Inquiry* (SM208000) form to specify how the inquiry data is sorted—that is, the default order in which the results should be displayed on the generic inquiry form. For example, the inquiry results can be sorted by date and by customer name. To do this, on the **Sort Order** tab, you add a row for each data field of each particular column that you want to use for sorting the inquiry results. In these rows, you specify whether the results are sorted in ascending or descending order of the values in the column; the default *Ascending* sort order is selected when you add a row.



Any user-defined sorting that a user of an inquiry specifies (by clicking the column header and specifying a condition in the dialog box) overrides any default sorting you specify on the **Sort Order** tab.

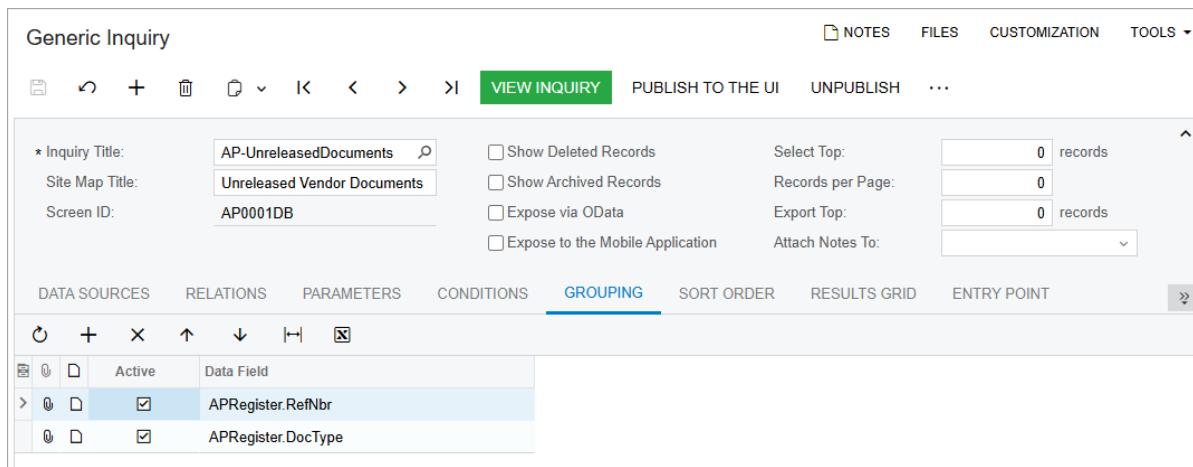
If an inquiry has no sorting settings specified on the **Sort Order** tab, the system displays a warning in the tab title, as shown in the following screenshot. Until you define sorting settings, the default ones, which are shown at the bottom of the screen, are used for the inquiry.



*Figure: Warning about the default sort order*

## Grouping Settings

On the **Grouping** tab (shown in the following screenshot) of the *Generic Inquiry* (SM208000) form, you can specify the data field or fields by which you would like to group data. On the **Results Grid** tab, you can also add rows that will hold the aggregated values of these groups. For example, you may want to group sales orders by date and status to get the count of sales orders, as well as their total and average amounts for each day and status.



**Figure: The Grouping tab of the Generic Inquiry form**

For data fields specified on the **Grouping** tab, you use the **Aggregate Function** column, which is hidden by default, on the **Results Grid** tab to define how the resulting values should be calculated for the grouped values. The following aggregate functions are available:

- **AVG**: Returns the average of all non-null values of the group
- **COUNT**: Returns a count of all values of the group
- **MAX**: Returns the maximum value of all values of the group
- **MIN**: Returns the minimum value of all values of the group
- **SUM**: Returns the sum of all values of the group

If no function is selected in the **Aggregate Function** column for a data field used for grouping, the following aggregate functions are applied by default:

- **SUM** is applied to the columns with the numeric type.
- **MAX** is applied to the other columns.



The aggregate function must correspond with the type of the field selected in the **Data Field** column. Selecting the **SUM** function for a character data type (such as a customer's name, an address, or an email address) causes a runtime error. For the calculated columns, you have to select the appropriate aggregation function manually, because no single function applies to them by default.

## Sorting and Grouping: To Group and Sort Inquiry Data

In this activity, you will learn how to modify an existing generic inquiry to add grouping and sorting conditions.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including those involving the creation, modification, and use of generic inquiries. An accountant of your company has requested a generic inquiry that collects data about invoices and memos. You have offered the predefined Invoices and Memos (AR3010PL) generic inquiry form, but the accountant would like the results to list not individual invoices but instead the average invoice amount of each customer, with these rows sorted in descending order by the average invoice amount.

## Configuration Overview

You will work with a copy of the predefined Invoices and Memos (AR3010PL) inquiry form, which has the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified on the [Generic Inquiry](#) (SM208000) form.

The copy you will work with has the *DB2-ARInvoicesMemos* inquiry title and the *S130 Invoices and Memos* site map title specified on the [Generic Inquiry](#) form.

## Process Overview

On the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form for the copied inquiry, you will look for the row that corresponds to the **Customer Name** column in the inquiry results and note the value in the **Data Field** column. You will add a grouping condition with the noted data field on the **Grouping** tab. Then you will add a row that will hold the average invoice amount on the **Results Grid** tab, and you will sort these rows in descending order by this amount.

### Step 1: Adding a Grouping Condition

To modify the generic inquiry to add a grouping condition, do the following:

1. Open the [Generic Inquiry](#) (SM208000) form.
2. In the **Inquiry Title** box of the Summary area, select *DB2-ARInvoicesMemos*.
3. In the **Site Map Title** box, type Average Invoice Amount by Customer.
4. On the **Results Grid** tab, look for the row with *AcctName* in the **Data Field** column; this row corresponds to the **Customer Name** column in the inquiry results.
5. On the **Grouping** tab, click **Add Row** on the table toolbar; in the **Data Field** column of the added row, specify the value you found (that is, *BAccountR.AcctName*).



This value consists of the name of the source table, which is specified in the **Object** column of the **Results Grid** tab, and the **Data Field** value.

6. On the form toolbar, click **Save**.

### Step 2: Adding a Row to Hold the Aggregated Value

To modify the generic inquiry to add a row with an aggregation function, do the following:



If some columns mentioned in the activity are not available in the table, make them visible by using the **Column Configuration** dialog box of the table.

1. While you are still viewing the [Generic Inquiry](#) (SM208000) form with the *DB2-ARInvoicesMemos* generic inquiry selected, on the **Results Grid** tab, find the row that holds the document balance (*CuryDocBal*), and specify the following settings:
  - **Visible:** Selected
  - **Caption:** Average Amount
  - **Aggregate Function:** AVG
2. Clear the **Visible** check box for all rows except for the requested two—that is, except for the rows with *AcctName* and *CuryDocBal* in the **Data Field** column.
3. On the form toolbar, click **Save**.

### Step 3: Adding the Default Sorting Order

To modify the generic inquiry to add a sorting condition, do the following:

1. While remaining on the [Generic Inquiry](#) (SM208000) form with the *DB2-ARInvoicesMemos* generic inquiry selected, on the **Sort Order** tab, clear the check box in the **Active** column of the only row. This deactivates the sorting condition that was copied from the source inquiry.
2. Click **Add Row** on the table toolbar, and specify the following settings in the added row:
  - **Active:** Selected
  - **Data Field:** *ARInvoice.CuryDocBal*
  - **Sort Order:** *Descending*
3. On the form toolbar, click **Save**.
4. Click the eye icon on the side panel to preview how your changes have affected the generic inquiry form. The generic inquiry form now has two columns, as shown in the following screenshot. The records are grouped so that the **Customer Name** column displays the customer names, with one row shown for each customer. The values in the **Average Amount** column display the average invoice amount of the customer listed in a row instead of the inquiry displaying each invoice value in a separate row. Also notice that the rows are sorted by the amounts in descending order (also shown in the following screenshot).

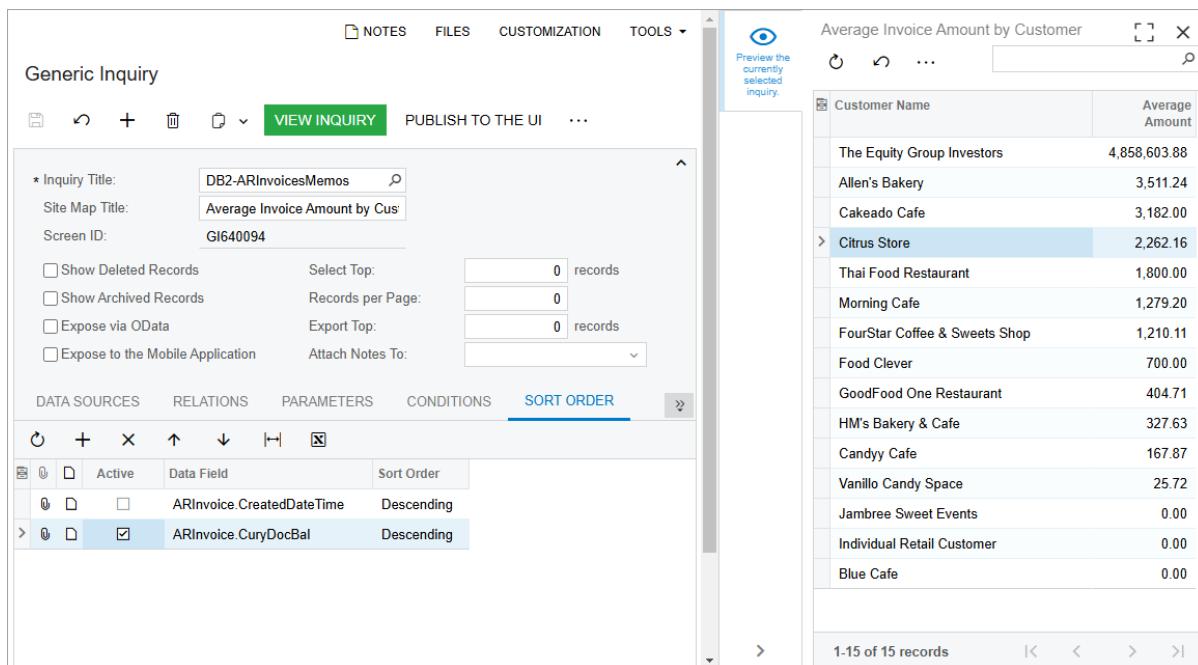


Figure: Generic inquiry with the average invoice amount grouped by customer name

### Lesson 1.5: Using Conditions and Parameters

In this lesson, you will learn about the conditions that you can use in an existing generic inquiry to limit the inquiry results. You will also learn how to define parameters to appear as selection criteria on the generic inquiry; by using these parameters, users can further narrow the data to meet their information needs.

## Conditions and Parameters: General Information

---

You can define the results of a generic inquiry—that is, the data in the results grid of the generic inquiry form—by adding default conditions to the inquiry on the **Conditions** tab of the [Generic Inquiry](#) (SM208000) form. On this form, you can also define parameters that will be shown in the Selection area of the resulting generic inquiry form, thus giving users the ability to specify conditions that limit the data.

### Learning Objectives

In this lesson, you will learn how to modify an existing generic inquiry as follows:

- Add a Selection area with parameters to the generic inquiry form so that users of the form can view the most relevant data for their current information needs
- Specify conditions to limit the listed data by default

### Applicable Scenarios

You may find the information in this lesson useful when you are responsible for the customization of Acumatica ERP in your company. In this case, you may want to modify an existing generic inquiry to use conditions to further customize the displayed data, or you may want to add or modify parameters so that users can view the needed data.

## Conditions and Parameters: Condition Configuration

---

For generic inquiries that you develop or modify, you can construct simple or complex conditions to be applied to the data to be displayed.

### Construction of Conditions

You can limit the data to be displayed in the results of a generic inquiry by adding conditions to the inquiry on the **Conditions** tab of the [Generic Inquiry](#) (SM208000) form. For example, suppose that you are designing or modifying an inquiry that lists open sales orders that have been created on the [Sales Orders](#) (SO301000) form. To do this, you will define the following conditions that must be met for inquiry results to be listed: The order type equals *SO*, and the order status equals *Open*.

You construct conditions by adding rows to the table on the **Conditions** tab and by specifying the applicable data fields (from the data access classes specified for the inquiry), logical conditions, and values. For this example, you add two conditions, as shown in the following screenshot, to limit the data to only orders with the *SO* order type and the *Open* status.

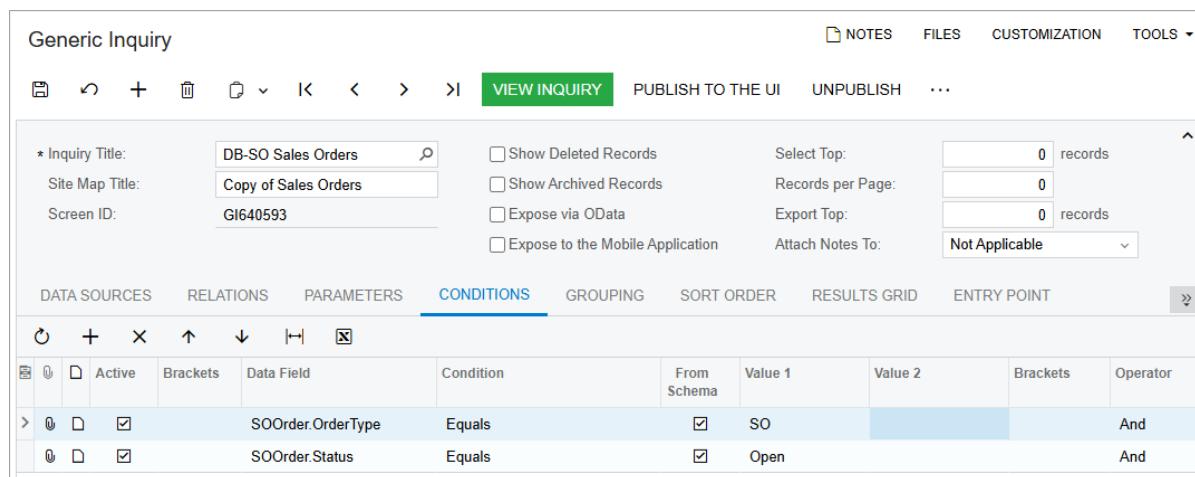


Figure: Condition to display only open sales orders

## Specification of Values in Conditions

While constructing conditions in a generic inquiry, you can use the predefined values of data fields in the database, such as document statuses, and the predefined names of options stored in the database, such as document types. (A document status value is generally inserted by the system, based on the defined workflow. A document type value is entered by a user, who selects the needed option from the drop-down list.)

To use the predefined values of data fields, on the **Conditions** tab of the [Generic Inquiry](#) (SM208000) form, you select the **From Schema** check box for the data field; as a result, the system displays the possible values in the drop-down list in the **Value 1** column and, for some conditions (for example, *Is Between*), the **Value 2** column. In the following screenshot, which shows the condition used to display sales orders with the *Open* status that have been created on the [Sales Orders](#) (SO301000) form, you can see that the **From Schema** check box is selected and the predefined document status values are shown in the **Value 1** column.

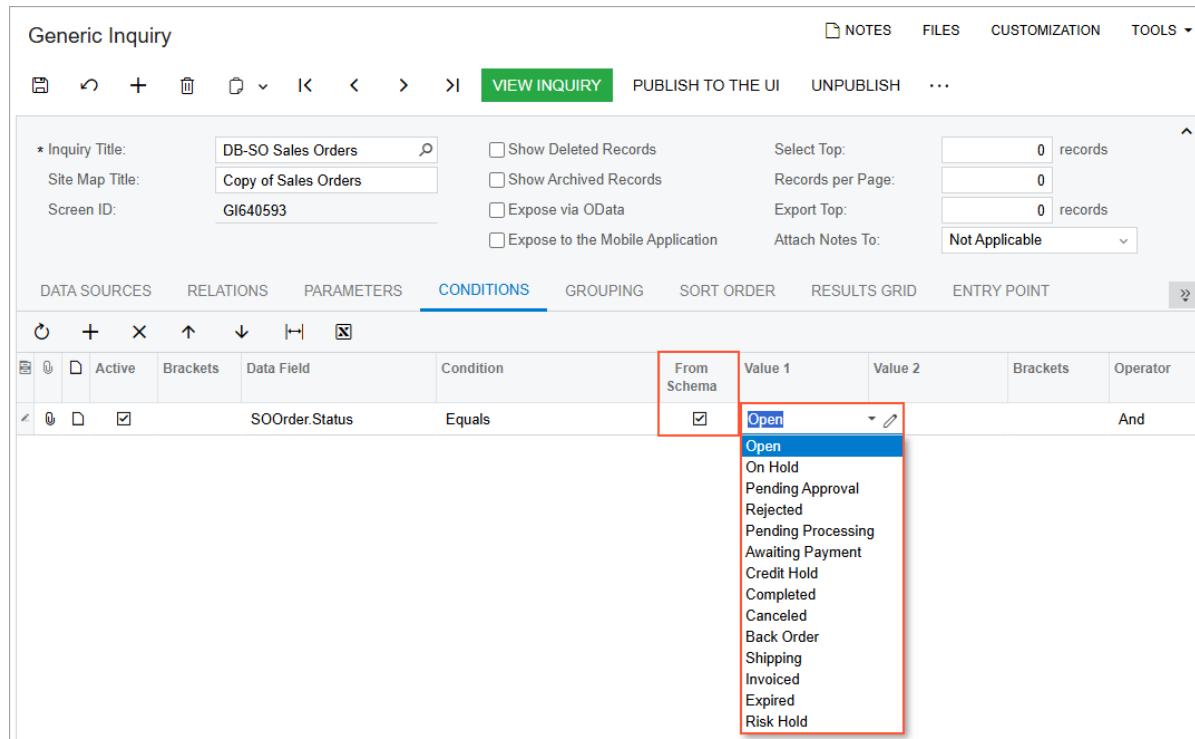


Figure: Condition that uses predefined values in the database

To use the predefined names of options, you perform actions that are similar to those described above. For example, the [Cash Sales](#) (AR304000) form has the **Type** drop-down list with the *Cash Sale* and *Cash Return* options. On the *AR-Cash Sales* inquiry (with the *Cash Sales* site map title), which lists documents created on the [Cash Sales](#) form, the **Type** column (which corresponds to the drop-down list on the entry form) lists the values in the `ARCashSale.DocType` data field.

Further suppose that you would like to copy the inquiry and modify the copy to return only cash sales with the *Cash Sale* type, which requires you to define a condition. As the value in the condition, you should use the option name stored in the database, which you can find by inspecting the element, as described in [Discovering DACs](#). On the [Cash Sales](#) form, you inspect the **Type** element, and note that the option name for *Cash Sale* is `CSL`.

Also, you can define a value to be a formula that uses the values of particular data fields. To specify a formula as a value, on the **Conditions** tab of the [Generic Inquiry](#) form, you click the edit button in the **Value 1** or **Value 2** column to open the Formula Editor dialog box. For details, see [Formulas in Inquiry Results: General Information](#). In a formula, if you use a value of a data field with a drop-down control, then you should use the value that is stored in the database, rather than the one that is displayed on the user interface. For details, see [DAC Discovery: General Information](#).

If you are designing a condition that is not based on predefined values—as you would for data fields that store amounts or dates, which vary widely and are not predefined in the system—you clear the **From Schema** check box in the row with the data field. For example, suppose that you are designing an inquiry that returns only sales orders that have been created on the [Sales Orders](#) form with a total amount that is greater than or equal to 2000. You would add the condition shown in the following screenshot.

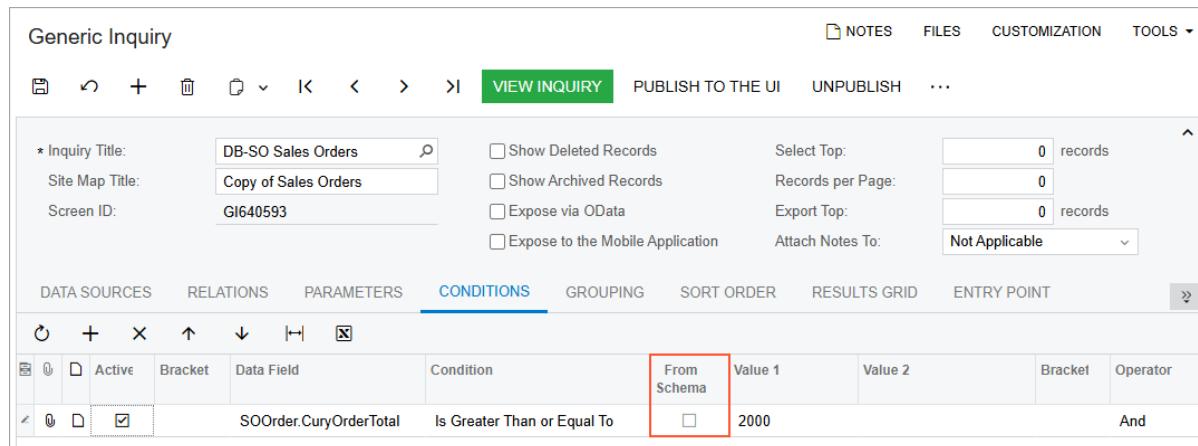


Figure: Condition that uses a value entered by a user

## Use of Brackets and Operators

To limit the results of a generic inquiry, you might need to compose complex conditions: logical expressions that consist of multiple conditions. To do this, on the **Conditions** tab of the [Generic Inquiry](#) (SM208000) form, you use opening and closing parentheses to indicate to the system the order of conditions, as well as the *And* or *Or* operator to join these conditions. By default, when you add a new row, the *And* operator is inserted for a row added to this tab.

The following screenshot displays two active conditions joined with the *And* operator. The resulting complex condition is applied to sales orders that have been created on the [Sales Orders](#) (SO301000) form. With this complex condition specified, the resulting generic inquiry returns only open sales orders with a total amount greater than or equal to 2000.

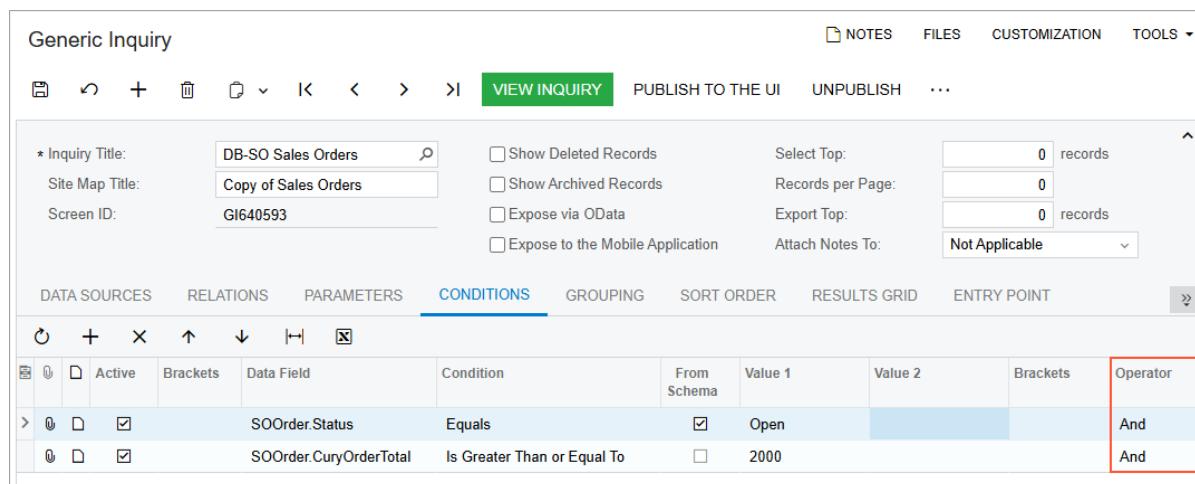


Figure: Two conditions joined with the **And** operator

## Conditions and Parameters: Parameter Configuration

You can configure parameters that correspond to UI elements on the generic inquiry form. By using these UI elements, users can narrow the inquiry results to meet their current needs for information.

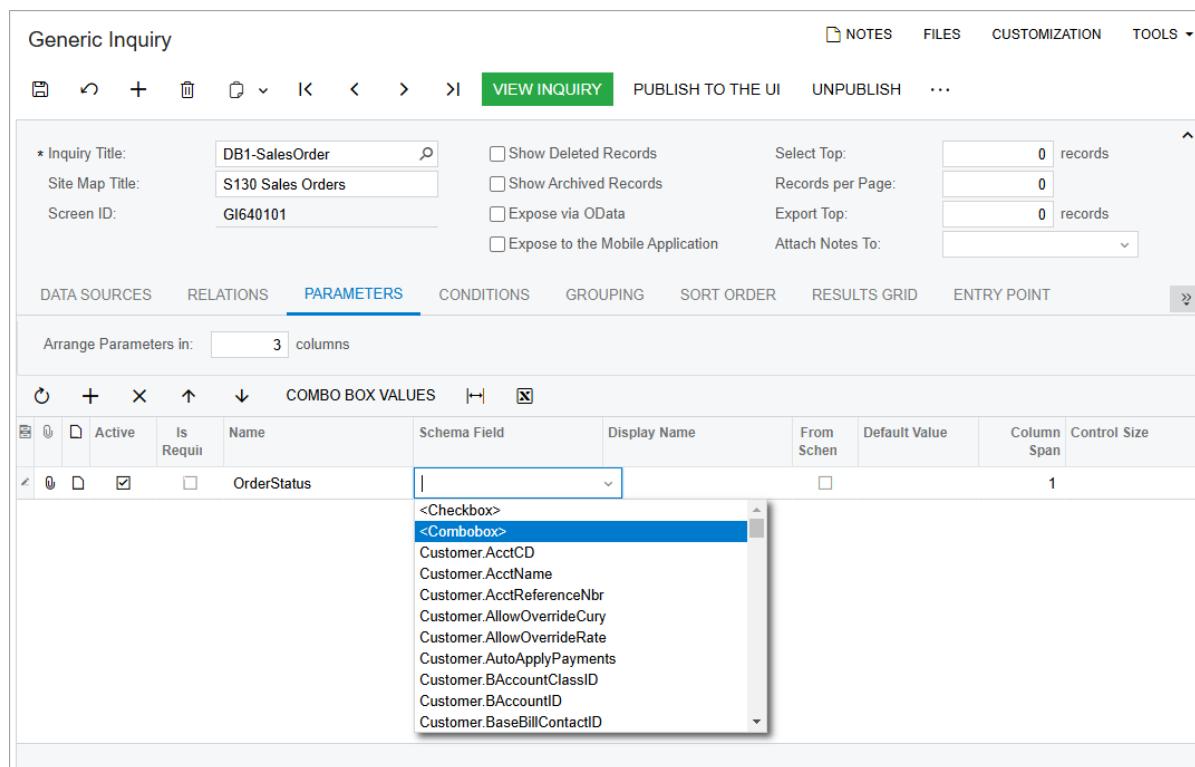
### Use of Parameters

Although some generic inquiry forms consist of only the table with the results, on others, users have the ability to make selections to view specific data displayed in the table of the inquiry form, such as that for a particular date range or warehouse (or both). On the **Parameters** tab of the [Generic Inquiry](#) (SM208000) form, you configure parameters, for which optional or required boxes and other controls will be placed in the Selection area of the generic inquiry form (above the table with the results) in the order and layout you specify.

On the **Parameters** tab, you add a row for each element to be added to the Selection area, with the appropriate settings so that the inquiry will retrieve the relevant data from the DACs. In the **Name** column, you specify the identifier of the parameter without spaces. You use this identifier to create conditions (on the **Conditions** tab) for the parameter. In the **Display Name** column, you specify the caption to be used for the element.

You define the type of control to be used for the parameter, which can be any of the following, by the value you specify in the **Schema Field** column:

- A selection box (that is, a lookup box that has a corresponding lookup table or a date box that has a calendar): In the column, you select the data field whose value you want to use for filtering.
- A check box: In the column, you select the <Checkbox> option.
- A drop-down list: In the column, you select <Combobox>, as shown in the following screenshot for a parameter being defined for an inquiry for sales orders that have been defined on the [Sales Orders](#) (SO301000) form. Because the parameter corresponds to the **Status** drop-down list on the form, you need to select <Combobox>. In this case, you also need to define the list of options in the **Combo Box Values** dialog box, which you invoke by clicking **Combo Box Values** on the table toolbar.



**Figure: Selection of the control type of the parameter**

Optionally, you can specify a default value for the parameter in the **Default Value** column. To make it possible to select a default value from a drop-down list or a lookup box, you can select the **From Schema** check box. If a field name is selected in the **Schema Field** column and you select the **From Schema** check box, then in the **Default Value** column, a lookup box, drop-down list, or check box (depending on the selected field) is displayed, and you can select a default value from the list of values.

## Creation of Conditions for Parameters

You must create a corresponding condition for every parameter that you define on the **Parameters** tab of the [Generic Inquiry](#) (SM208000) form. If a parameter does not have a corresponding condition specified on the **Conditions** tab, user selections for the element corresponding to the parameter will not affect the records that are returned; however, the element will still be displayed in the Selection area of the resulting inquiry form. For details on condition configuration, see [Conditions and Parameters: Condition Configuration](#).

On the **Conditions** tab, the inquiry parameters used in conditions appear in square brackets to distinguish them from data fields. You can specify inquiry parameters in any of the following columns: **Data Field**, **Value 1**, and **Value 2**. For example, suppose that you are modifying an inquiry that lists sales orders that have been created on the [Sales Orders](#) (SO301000) form. Further suppose that for the inquiry, you have added a parameter with the *OrderStatus* name on the **Parameters** tab of this form. On the **Conditions** tab, you can select the *[OrderStatus]* parameter as a data field or a value.

As another example, suppose that for an inquiry form that lists sales orders, you were asked to add the **Open Only** check box to the Selection area of the inquiry form instead of limiting the output to list only open sales orders by default. If a user selects the check box, the inquiry should display only open sales orders; if the check box is cleared, it should list all available orders. You first add the *OrderStatus* parameter on the **Parameters** tab of the [Generic Inquiry](#) form and define it as a check box that is cleared by default, as shown in the following screenshot.

The screenshot shows the 'PARAMETERS' tab of a Generic Inquiry form. It includes fields for Inquiry Title (DB1-SalesOrder), Site Map Title (S130 Sales Orders), and Screen ID (GI640101). Under the 'PARAMETERS' tab, there is a table where 'OrderStatus' is defined as a checkbox ('<Checkbox>'). The 'Display Name' is 'Open Only'. The 'From Schema' column has a checked checkbox, and the 'Default Value' column has an unchecked checkbox.

Active	Is Required	Name	Schema Field	Display Name	From Schema	Default Value	Column Span	Control Size
<input type="checkbox"/>	<input type="checkbox"/>	OrderStatus	<Checkbox>	Open Only	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	

Figure: The OrderStatus parameter defined as a check box

Then on the **Conditions** tab of the form, you add a complex condition for the parameter you added, as shown in the following screenshot. The condition has the following meaning: If the **Order Status** check box is selected, display only orders with the *Open* status; otherwise, display the records without regard to status.

The screenshot shows the 'CONDITIONS' tab of the Generic Inquiry form. It includes fields for Inquiry Title (DB1-SalesOrder), Site Map Title (S130 Sales Orders), and Screen ID (GI640101). Under the 'CONDITIONS' tab, there is a table with three rows. The first row has a checked checkbox in the 'Active' column and contains '[OrderStatus]' in the 'Data Field' column, with 'Equals' in the 'Condition' column and checked checkboxes in the 'Value 1' and 'Value 2' columns. The second row has a checked checkbox in the 'Active' column and contains 'SOOrder.Status' in the 'Data Field' column, with 'Equals' in the 'Condition' column and 'Open' in the 'Value 1' column. The third row has a checked checkbox in the 'Active' column and contains '[OrderStatus]' in the 'Data Field' column, with 'Equals' in the 'Condition' column and an empty checkbox in the 'Value 1' column. The 'Value 2' column for this row is highlighted in blue. The 'Brackets' and 'Operator' columns are also visible.

Active	Brackets	Data Field	Condition	From Schema	Value 1	Value 2	Brackets	Operator
<input checked="" type="checkbox"/>	((	[OrderStatus]	Equals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	)	And
<input checked="" type="checkbox"/>		SOOrder.Status	Equals	<input checked="" type="checkbox"/>	Open		)	Or
<input checked="" type="checkbox"/>		[OrderStatus]	Equals	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	)	And

Figure: A complex condition corresponding to the OrderStatus parameter

If you need the system to display the output results if a user of the generic inquiry form selects no values for a particular element in the Selection area that corresponds to a parameter, you should add a complex condition in which you indicate to the system that the parameter value can be empty. To create the complex condition, you add a row following the existing condition with the *OR* logical operator. In this new row, you specify the *IsEmpty* condition for the element mentioned in the **Value 1** column of the existing condition. Thus, you indicate that the complex condition is met if the element is left empty.

For example, suppose that for the inquiry you are modifying (which lists sales orders that have been created on the **Sales Orders** form), you have been asked to add the **Date From** and **Date To** boxes to the Selection area of the inquiry form to give users the ability to specify a date range for the sales orders to be listed; you also need to add the parameters on the **Parameters** tab of the **Generic Inquiry** form. If you do not indicate to the system that the values of these parameters can be empty, the system will not display any results if a user leaves the **Date From** and **Date To** boxes cleared.

Thus, for each of these date range parameters, you need to add a complex condition on the **Conditions** tab, as shown in the following screenshot, that specifies that the **Date From** and **Date To** boxes can be empty. If you add such a condition and a user leaves the **Date From** box empty and specifies a date in the **Date To** box, for example,

the inquiry results display sales orders that have been created before the date specified in the **Date To** box. If the user leaves the both boxes empty, the system displays all applicable sales orders without regard to date.



If you did not include a condition on the **Conditions** tab to indicate that the parameter can be left empty by specifying the *IsEmpty* value in the **Condition** column, and if a user left the **Date From** box empty on the generic inquiry form, the inquiry would compare the empty value with the dates of order creation. Because in the database there are no records with empty order creation dates, the inquiry results would be empty.

The screenshot shows the 'Generic Inquiry' configuration interface. The 'CONDITIONS' tab is selected. Under 'DATA SOURCES', there are four rows of conditions:

- Row 1: SOOrder.OrderDate Is Greater Than or Equal To [DateFrom] (Operator: Or)
- Row 2: [DateFrom] Is Empty (Operator: And)
- Row 3: SOOrder.OrderDate Is Less Than or Equal To [DateTo] (Operator: Or)
- Row 4: [DateTo] Is Empty (Operator: And)

Rows 2 and 4 are highlighted with a red border, indicating they are the focus of the note.

*Figure: Complex conditions to display results if a user clears either parameter value (or both values)*

## Arrangement of Elements on the Generic Inquiry Form

You can change the arrangement of the elements that are displayed in the Selection area of the generic inquiry form you are designing by using the **Arrange Parameters in X Columns** box on the Parameters tab of the [Generic Inquiry](#) (SM208000) form. In this box, you specify the number of columns in which the elements corresponding to parameters will be placed on the resulting inquiry form.

For example, if an inquiry has two parameters and **Arrange Parameters in X Columns** is set to 1 on the [Generic Inquiry](#) form, then the system arranges the elements corresponding to the parameters in a single column, as shown in the following screenshot, which shows a generic inquiry listing sales orders that have been created on the [Sales Orders](#) (SO301000) form.

The screenshot shows a generic inquiry form titled 'Copy of Sales Orders'. At the top, there are several buttons: a magnifying glass, a refresh symbol, a plus sign, a minus sign, a double arrow, and a close button. Below these are two date input fields: 'Date From: 11/14/2024' and 'Date To: 11/27/2025', both with calendar icons. Underneath these are four dropdown menus: 'Order Type: All', 'Status: All', 'Date: All', and 'Customer: All'. To the right of these dropdowns are three small icons: a downward arrow, a square with a diagonal line, and an ellipsis. Further to the right is a search icon. The main area contains a table with the following columns: Order Type, Order Nbr., Status, Date, Sched. Shipment, Customer, Customer Name, Ordered Qty., Order Total, and Currency. The table lists nine sales orders from various customers like DELIENERGY, COFFEE SHOP, and Cakeado Cafe, with details such as quantity (e.g., 5.00, 18.00) and total amount (e.g., 10,000.00, 127.91).

**Figure: Elements arranged in one column in the Selection area of the generic inquiry form**

If **Arrange Parameters in X Columns** is set to 2 on the [Generic Inquiry](#) form, then the system arranges the elements corresponding to the parameters in two columns, as the following screenshot demonstrates.

This screenshot is identical to the one above, but the 'Arrange Parameters in X Columns' setting has been changed to 2. As a result, the date range controls ('Date From:' and 'Date To:') are now displayed side-by-side in a single row, instead of being stacked vertically. The rest of the interface, including the dropdown menus and the data table, remains the same.

**Figure: Elements arranged in two columns in the Selection area of the generic inquiry form**

## Conditions and Parameters: To Add a Date Condition

In this activity, you will learn how to modify an existing generic inquiry to limit the data displayed to a specific range of financial periods—that is, to include a date condition.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including those involving the creation, modification, and use of generic inquiries. An accountant of your company has

requested an inquiry form that displays data about invoices. You have offered the predefined Invoices and Memos (AR3010PL) generic inquiry form, but the accountant wants the inquiry form to show results limited to a range of financial periods that the accountant wants to analyze. Specifically, the inquiry form should display only invoices (that is, no other document types) posted from the 12-2024 financial period through the 01-2025 financial period (including the starting and ending periods).

## Configuration Overview

You will work with a copy of the predefined Invoices and Memos (AR3010PL) inquiry form, which has the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified on the [Generic Inquiry](#) (SM208000) form.

The copy you will work with has the *DB3-ARInvoicesMemos* inquiry title and the *S130 Invoices and Memos* site map title specified on the [Generic Inquiry](#) form.

## Process Overview

You will inspect the relevant user interface elements of the *Invoices and Memos* (AR301000) form whose data will be used in the copied inquiry. On the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form for this generic inquiry, you will then look for the row that corresponds to the **Post Period** column of the inquiry and note the value in the **Data Field** column. Finally, you will add the condition for the inquiry on the **Conditions** tab of the [Generic Inquiry](#) form. With this condition, the results grid will display only documents that fall within the specified range of financial periods.

### Step 1: Inspecting the UI Elements

To inspect the UI elements, do the following:

1. Open the *Invoices and Memos* (AR301000) form, which displays a single invoice.
2. Point to the **Type** box, press Ctrl+Alt, and then click. The **Element Properties** dialog box opens.  
Make a note of the value in the **Data Field** box (*DocType*).
3. Close the dialog box.
4. Point to the **Post Period** box, press Ctrl+Alt, and then click. The **Element Properties** dialog box again opens.  
Make a note of the value in the **Data Field** box (*FinPeriodID*).
5. Close the dialog box.

### Step 2: Adding a Condition for a Document Type

To modify the generic inquiry by adding a condition for a document type, do the following:

1. Open the [Generic Inquiry](#) (SM208000) form.
2. In the **Inquiry Title** box of the Summary area, select *DB3-ARInvoicesMemos*.
3. On the **Results Grid** tab, look for the row that corresponds to the **Type** column, and make a note of the value in the **Data Field** column (*DocType*).
4. On the **Conditions** tab, click **Add Row** on the table toolbar, and specify the following settings in the added row:
  - **Data Field:** *ARInvoice.DocType*
  - **Condition:** *Equals*
  - **From Schema:** Cleared
  - **Value 1:** *INV*

5. On the form toolbar, click **Save**.

### Step 3: Adding a Date Condition

To modify the generic inquiry by adding a date condition, do the following:

1. While you are still viewing the *DB3-ARInvoicesMemos* inquiry on the *Generic Inquiry* (SM208000) form, on the **Results Grid** tab, look for the row that corresponds to the **Post Period** column, and make a note of the value in the **Data Field** column (*FinPeriodID*).
2. On the **Conditions** tab, click **Add Row** on the table toolbar, and specify the following settings in the added row:
  - Data Field:** *ARInvoice.FinPeriodID*
  - Condition:** *Is Between*
  - From Schema:** Selected
  - Value 1:** *12-2024*
  - Value 2:** *01-2025*
3. On the form toolbar, click **Save**.
4. Click the eye icon on the side panel to preview how your changes have affected the inquiry. The system has applied the conditions you have added, so that the resulting generic inquiry (see the following screenshot) displays only the invoices within the range of financial periods that you specified for the condition in the **Value 1** and **Value 2** boxes (12-2024 through 01-2025).

Type	Reference Nbr.	Status	Date	Post Period
Invoice	000118	Closed	2/7/2025	02-2025
Invoice	000117	Closed	2/6/2025	02-2025
Invoice	000116	Closed	1/25/2025	01-2025
Invoice	000115	Open	1/20/2025	01-2025
Invoice	000114	Closed	1/29/2025	01-2025
Invoice	000112	Open	2/5/2025	02-2025
Invoice	000111	Closed	1/12/2025	01-2025
Invoice	000110	Closed	1/19/2025	01-2025
Invoice	000109	Open	1/6/2025	01-2025
Invoice	000108	Open	1/5/2025	01-2025
Invoice	000107	Closed	1/12/2025	01-2025
Invoice	000106	Open	1/6/2025	01-2025
Invoice	000105	Open	6/1/2025	06-2025
Invoice	000104	Open	5/1/2025	05-2025

Figure: Generic inquiry with a date condition

### Conditions and Parameters: To Add Period-Range Parameters to the Selection Area

In this activity, you will learn how to modify an existing generic inquiry to give users the ability to limit the data displayed to a specific range of financial periods—that is, to add boxes corresponding to parameters to define the range.

#### Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including those involving the creation, modification, and use of generic inquiries. An accountant of your company has

requested an inquiry form that displays data about invoices and memos. You have offered the predefined Invoices and Memos (AR3010PL) inquiry form, but the accountant has asked you to design the inquiry form to give users the ability to limit the results to a user-defined range of financial periods—that is, a user should be able to specify the needed range of periods.

## Configuration Overview

You will work with a copy of the predefined Invoices and Memos (AR3010PL) inquiry form, which has the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified on the [Generic Inquiry](#) (SM208000) form.

The copy you will work with has the *DB4-ARInvoicesMemos* inquiry title and the *S130 Invoices and Memos* site map title specified on the [Generic Inquiry](#) form.

## Process Overview

On the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form for the copied inquiry, you will look for the row that corresponds to the **Post Period** column of the inquiry and note the value in the **Data Field** column. You will add two parameters (*Period From* and *Period To*) on the **Parameters** tab. Then you will specify how the system should apply the values of these parameters to the inquiry results by adding a condition on the **Conditions** tab.

### Step 1: Adding Parameters

To modify the generic inquiry to add parameters, do the following:

1. Open the [Generic Inquiry](#) (SM208000) form.
2. In the **Inquiry Title** box of the Summary area, select *DB4-ARInvoicesMemos*.
3. On the **Results Grid** tab, look for the row that corresponds to the **Post Period** column, and make note of the value in the **Data Field** column (*FinPeriodID*).
4. On the **Parameters** tab, click **Add Row** on the table toolbar, and specify the following settings in the added row:
  - **Name:** *PeriodFrom*
  - **Schema Field:** *ARInvoice.FinPeriodID*
  - **Display Name:** *Period From*
  - **From Schema:** Selected
  - **Default Value:** *01-2024*
5. Again click **Add Row** on the table toolbar, and specify the following settings in the added row:
  - **Name:** *PeriodTo*
  - **Schema Field:** *ARInvoice.FinPeriodID*
  - **Display Name:** *Period To*
  - **From Schema:** Selected
  - **Default Value:** *02-2025*
6. On the form toolbar, click **Save**.

### Step 2: Adding a Condition for the Parameters

To modify the generic inquiry by adding a condition, do the following:

1. While you are still viewing the *DB4-ARInvoicesMemos* inquiry, on the **Conditions** tab of the [Generic Inquiry](#) (SM208000) form, click **Add Row** on the table toolbar, and specify the following settings in the added row:
  - **Data Field:** *ARInvoice.FinPeriodID*
  - **Condition:** *Is Between*

- **From Schema:** Cleared
  - **Value 1:** [PeriodFrom]
  - **Value 2:** [PeriodTo]
2. On the form toolbar, click **Save**.
  3. Click the eye icon on the side panel to preview how your changes have affected the inquiry. The system has added the boxes corresponding to the parameters to the Selection area (see the following screenshot). You can specify a range of financial periods and view only the invoices and memos within the range of specified financial periods.

The screenshot shows the Oracle APEX Generic Inquiry interface. On the left, the 'CONDITIONS' tab is selected, displaying various ARInvoice-related conditions. On the right, a preview window titled 'S130 Invoices and Memos' shows a list of invoices and memos with their details like Type, Reference Nbr., Status, Date, and Post Period. Two parameters, 'Period From' (01-2024) and 'Period To' (02-2025), are highlighted in red at the top of the preview window.

Type	Reference Nbr.	Status	Date	Post Period
Credit Memo	000068	Open	1/23/2025	01-2025
Credit Memo	000071	Open	1/24/2025	01-2025
Credit Memo	000081	Open	1/24/2025	01-2025
Invoice	00000001	Closed	1/11/2024	01-2024
Invoice	00000002	Closed	1/20/2024	01-2024
Invoice	00000003	Closed	1/25/2024	01-2024
Invoice	00000004	Closed	2/11/2024	02-2024
Invoice	00000005	Closed	2/21/2024	02-2024
Invoice	00000006	Closed	2/25/2024	02-2024
Invoice	00000007	Closed	3/11/2024	03-2024
Invoice	00000008	Closed	3/25/2024	03-2024

Figure: Generic inquiry with parameters that define a range

## Conditions and Parameters: To Add a Field Parameter to the Selection Area

In this activity, you will learn how to modify an existing generic inquiry to give users the ability to limit the data displayed by a value of some data field. To give users the ability to select that value, you will include a parameter for this data field in the Selection area of the inquiry form.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including those involving the creation, modification, and use of generic inquiries. An accountant of your company has requested an inquiry that displays data about invoices and memos. You have offered the predefined Invoices and Memos (AR3010PL) generic inquiry form, but the accountant wants to give users the ability to filter the inquiry results by a particular customer—that is, users should be able to select a particular customer in the Selection area of the resulting generic inquiry form and review only that customer's invoices and memos.

### Configuration Overview

You will work with a copy of the predefined Invoices and Memos (AR3010PL) inquiry form, which has the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified on the [Generic Inquiry](#) (SM208000) form.

The copy you will work with has the *DB5-ARInvoicesMemos* inquiry title and the *S130 Invoices and Memos* site map title specified on the [Generic Inquiry](#) form.

## Process Overview

On the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form for the copied inquiry, you will look for the row that corresponds to the **Customer** column of the inquiry and note the value in the **Data Field** column. You will add the **Customer** parameter on the **Parameters** tab. Then you will specify how the system should apply the value of the parameter to the inquiry output by adding a condition on the **Conditions** tab.

### Step 1: Adding a Parameter

To modify the generic inquiry to add a parameter, do the following:

1. Open the [Generic Inquiry](#) (SM208000) form.
2. In the **Inquiry Title** box of the Summary area, select *DB5-ARInvoicesMemos*.
3. On the **Results Grid** tab, look for the row that corresponds to the **Customer** column, and note the value in the **Data Field** column.
4. On the **Parameters** tab, click **Add Row** on the table toolbar, and specify the following settings in the added row:
  - **Name:** Customer
  - **Schema Field:** ARInvoice.CustomerID
  - **Display Name:** Customer
  - **From Schema:** Selected
5. On the form toolbar, click **Save**.

### Step 2: Adding a Condition for the Parameter

To modify the generic inquiry by adding a condition, do the following:

1. While you are still viewing the *DB5-ARInvoicesMemos* inquiry, on the **Conditions** tab of the [Generic Inquiry](#) (SM208000) form, click **Add Row** on the table toolbar, and specify the following settings in the added row:
  - **Brackets:** (
  - **Data Field:** ARInvoice.CustomerID
  - **Condition:** Equals
  - **From Schema:** Cleared
  - **Value 1:** [Customer]
  - **Operator:** Or
2. Again click **Add Row** on the table toolbar, and specify the following settings in the added row:
  - **Data Field:** [Customer]
  - **Condition:** Is Empty
  - **From Schema:** Cleared
  - **Brackets:** )
3. On the form toolbar, click **Save**.
4. Click the eye icon on the side panel to preview how your changes have affected the inquiry form. The system adds the box corresponding to the parameter to the Selection area (see the following screenshot). You can select a particular customer account and view only invoices and memos for the customer, or you can leave the box empty.

The screenshot shows the Acumatica ERP interface. On the left, the 'Generic Inquiry' window is open, displaying settings for an inquiry titled 'DB5-ARInvoicesMemos'. The 'CONDITONS' tab is selected, showing a complex set of logical conditions involving ARInvoice.D... and ARInvoice.R... fields. On the right, the results grid for 'S130 Invoices and Memos' is displayed, filtered by the condition 'Customer: COFFEESHOP - FourStar Cc'. The results show a list of invoices with columns for Reference Nbr., Status, Date Post Period, Customer, and Customer Name.

Customer	COFFEESHOP - FourStar Cc
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	000115
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	000098
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	000088
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	000087
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	000078
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	000077
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	000073
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	000067
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	000066
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	000065
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	000064
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	000004
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	000003
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	000001
> <input type="checkbox"/> <input checked="" type="checkbox"/> Invoice	0000057

Figure: Generic inquiry with a box that filters data by customer

## Lesson 1.6: Using Formulas in Inquiry Results

In this lesson, you will learn how to perform different operations by using formulas in the inquiry results.

### Formulas in Inquiry Results: General Information

When you are developing or modifying generic inquiries in Acumatica ERP, you can use formulas to perform different operations with the values in the columns in the results grid, for greater flexibility to present the information users need.

You can use formulas to perform different operations with the values of the columns in the results grid. Formulas give you the ability to use advanced calculations and data transformation functions if some values in the inquiry rows are calculated or depend on data in other data fields. To do this, you can type formulas manually into certain boxes, or you can use the Formula Editor dialog box to construct or edit these formulas. These formulas are similar to the formulas used in Excel. You can define parameters and construct a formula with the parameters by using operators and functions.

### Learning Objectives

In this lesson, you will learn how to modify an existing generic inquiry by using formulas as follows:

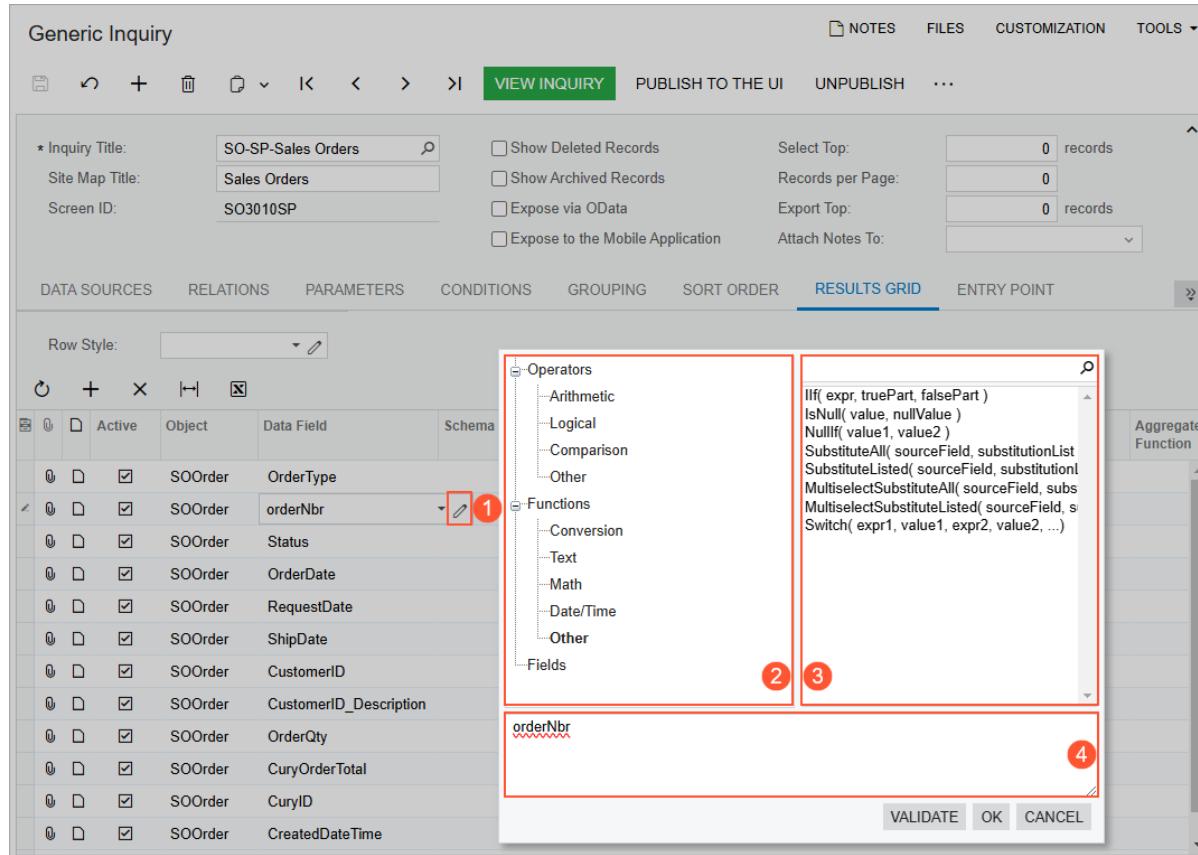
- Highlight a row, a column, or a cell with a particular color based on the value returned by the inquiry
- Concatenate multiple string values to make the contents of a column look like single values

### Applicable Scenarios

You may find the information in this lesson useful when you are responsible for the customization of Acumatica ERP in your company, including developing and modifying generic inquiries to give users information they need to do their jobs. In some situations, you may want to perform calculations on values before presenting them or transform the data in some way.

## Components of the Formula Editor Dialog Box

On the **Results Grid** tab of the *Generic Inquiry* (SM208000) form, each row represents a column in the resulting inquiry form. To specify a formula that determines the value in a column of the resulting inquiry form, you use the Formula Editor dialog box. To invoke the dialog box, you click a cell in the column of the needed row and then click the Edit button (see Item 1 in the following screenshot).



**Figure: The Formula Editor components**

The Formula Editor dialog box includes the following panes:

- Component Type (Item 2 in the screenshot above): Displays the types of operators, functions, and fields that can be used as formula components. You click any of the types to display the corresponding list of available components in the Component Selection pane.
- Component Selection (Item 3): For the component type selected in the Component Type pane, displays the list of available components. You click a component to add it to the formula at the bottom of the dialog box. You can search for the needed component by using the Search box at the top of the Component Selection pane.
- Formula Text (Item 4): Contains the text of the formula, which you can edit manually. The formula may include the selected components, arguments of the manually inserted components, and other elements, all arranged in accordance with the syntax of the formula.

You can enter the formula directly in the Formula Text pane or compose it by selecting fields and using operators and functions.

## Use of Formulas to Highlight Rows and Columns

On the **Results Grid** tab of the *Generic Inquiry* (SM208000) form, you can use formulas to specify the highlighting color of a row, a column or a particular cell in the inquiry results.

For example, suppose that you have an inquiry that lists open cases and shows the priority of each case in the **Priority** column, and that you would like to highlight with red the entire rows that display cases with a high priority. On the **Results Grid** tab of the *Generic Inquiry* form, you invoke the Formula Editor in the **Row Style** box (which is located in the Selection area of the tab). You use the `IIF` function for this purpose and compose the following formula: `=IIF([CRCCase.Priority]='H', 'red', 'default')`. The system processes the formula as follows: If the value in the **Priority** column equals *H*, then highlight it with red; otherwise, use the default color (which is predefined and has no highlighting).

If you would like to use red highlighting for only the cell in the **Priority** column for a case with high priority, you add the formula to the **Style** column for the row with the data field that holds the value of the case priority.

When you invoke the Formula Editor in the **Row Style** box or in the **Style** column of the **Results Grid** tab, the system displays the **Styles** component type in the Component Type pane of the Formula Editor. The Component Selection pane lists the available colors from this component type, as shown in the following screenshot.

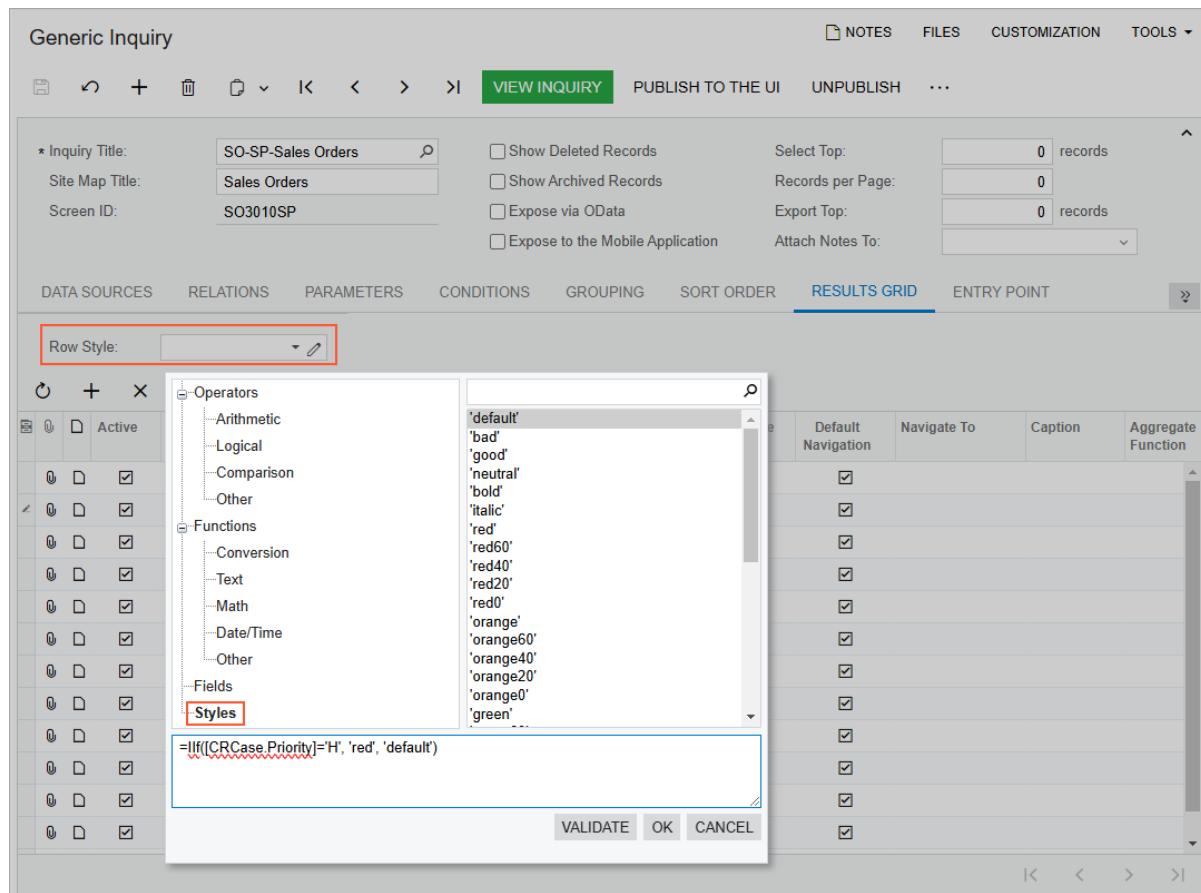


Figure: The Styles component type

## Usage of Formulas for String Values

You can use formulas for text strings—for example, to change uppercase to lowercase, to select a part of a string, to replace a string value with a new one, or to concatenate multiple strings. When you select the text category, you can find all the available functions listed in the Formula Editor.



When you construct a formula in the **Data Field** box of any row, it does not matter what value is specified in the **Object** box in the same row.

When you need to concatenate strings, you use the *Concat()* function. For example, suppose that in a column, you would like to see a value that is a combination of the sales order identifier and its description, separated by a space. In the **Data Field** box of the corresponding row, you construct the following formula: = *Concat*( [SOOrder.OrderNbr], ' ', [SOOrder.OrderDesc] ).

## Formulas in Inquiry Results: To Highlight Row with Color

In this activity, you will learn how to modify an existing generic inquiry to highlight all rows in the results grid that meet a condition.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including those involving the creation, modification, and use of generic inquiries. An accountant of your company has requested an inquiry form that displays data about invoices and memos. You offered the predefined *Invoices and Memos* (AR3010PL) generic inquiry form, but the accountant has asked you to develop a similar generic inquiry form in which you highlight with yellow the rows of documents whose balance exceeds \$1000.

### Configuration Overview

You will work with the copy of the predefined *Invoices and Memos* (AR3010PL) inquiry form, which has the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified on the [Generic Inquiry](#) (SM208000) form.

The copy you will work with has the *DB6-ARInvoicesMemos* inquiry title and the *S130 Invoices and Memos* site map title specified on the [Generic Inquiry](#) form.

### Process Overview

In this activity, on the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form, you will look for the row that corresponds to the **Balance** column of the copied generic inquiry form and note the value in the **Data Field** column for the row. You will add the formula in the **Row Style** box in the table toolbar of the tab by using the Formula Editor dialog box.

### Step 1: Inspecting the UI Elements

To inspect the UI elements, do the following:

1. Open the [Invoices and Memos](#) (AR301000) form, which displays a single invoice.
2. Point to the **Balance** box, press Ctrl+Alt, and then click. The **Element Properties** dialog box opens.  
Make a note of the value in the **Data Field** box (*CuryDocBal*).
3. Close the dialog box.

### Step 2: Invoking the Formula Editor Dialog Box

To invoke the Formula Editor dialog box in order to modify the generic inquiry to add a style formula for certain rows, do the following:

1. Open the [Generic Inquiry](#) (SM208000) form.

2. In the **Inquiry Title** box of the Summary area, select *DB6-ARInvoicesMemos*.
3. On the **Results Grid** tab, look for the row that corresponds to the **Balance** column, and note the value in the **Data Field** column (*CuryDocBal*). Select the **Visible** check box for the row.



If the **Visible** check box is cleared for a row, the corresponding column is not visible initially on the resulting inquiry form, but a user can make it visible as needed by using the **Column Configuration** dialog box of the table.

4. In the **Row Style** box, click the Edit button to invoke the Formula Editor dialog box.

### Step 3: Adding a Formula to Highlight Rows

On the table toolbar of the **Results Grid** tab of the *Generic Inquiry* (SM208000) form working with the *DB6-ARInvoicesMemos* generic inquiry, you invoked the Formula Editor dialog box for the **Row Style** box. While you are still in the Formula Editor dialog box, do the following:

1. In the Component Type (upper left) pane of the dialog box, click **Functions > Other**. The system displays the list of available functions in the Component Selection (upper right) pane of the dialog box.
2. In the Component Selection pane, double-click the *IIf( expr, truePart, falsePart )* function. The system copies it to the Formula Text (bottom) pane, where you can edit the formula.
3. In the Formula Text pane, replace the *expr* parameter in the copied expression with the data field that holds the document balance as follows:
  - a. In the Component Type pane, click **Fields**.
  - b. In the search box in the top right of the dialog box, start typing the data field name you have noted earlier (*CuryDocBal*).
  - c. In the Formula Text pane, select only the *expr* string in the copied expression.
  - d. In the search results in the Component Selection pane, double-click *[ARInvoice.CuryDocBal]*. (When you are indicating a data field in a formula, the DAC name precedes the data field name, and this complex name is enclosed in brackets.)

In the Formula Text pane, notice that the system has replaced the *expr* string with the selected data field name.

- e. After the field name, type *>1000* to specify a condition for the field value exceeding \$1000.
4. In the Formula Text pane, replace the *truePart* parameter in the copied expression with the requested color as follows:
  - a. In the Component Type pane, click **Styles**.
  - b. In the Formula Text pane, select only the *truePart* string in the copied expression.
  - c. In the Component Selection pane, double-click the 'yellow' value.

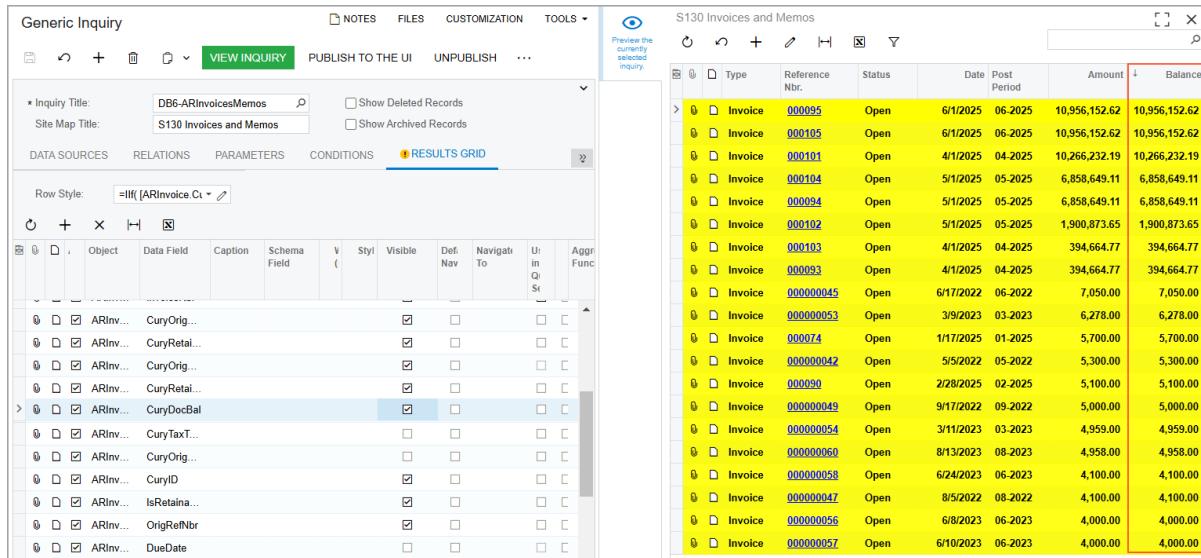
Notice that the system has replaced the *truePart* string with the selected value.

5. In the Formula Text pane, replace the *falsePart* parameter in the copied expression with the default color as follows:
  - a. In the Component Type pane, click **Styles**.
  - b. In the Formula Text pane, select only the *falsePart* string in the copied expression.
  - c. In the Component Selection pane, double-click the 'default' value.

Notice that the system has replaced the *falsePart* string with the selected value.

The resulting formula should look as follows: *IIf( [ARInvoice.CuryDocBal]>1000, 'yellow', 'default' )*. That is, highlight with yellow if the value of *ARInvoice.CuryDocBal* is more than 1000, and highlight with the default color if the value is less than 1000.

6. Click **OK** to save your changes and close the Formula Editor dialog box.
7. On the form toolbar, click **Save**.
8. Click the eye icon on the side panel to preview how your changes have affected the inquiry. The system applies the row style you have added, so that the resulting generic inquiry uses yellow highlighting for the rows with documents whose balance exceeds \$1000 (see the following screenshot).



The screenshot shows the SAP ERP generic inquiry interface. On the left, the 'Generic Inquiry' window displays the inquiry title 'DB6-ARInvoicesMemos' and the site map title 'S130 Invoices and Memos'. The 'RESULTS GRID' tab is selected. A formula is entered in the 'Row Style' field: '=IIf([ARInvLine.Bal] > 1000, "highlight", "")'. The right side shows the 'S130 Invoices and Memos' table with numerous rows of invoices. The rows where the balance is greater than \$1000 are highlighted in yellow, while others are white. The columns include Type (Invoice), Reference Nbr., Status, Date Post Period, Amount, and Balance.

Type	Reference Nbr.	Status	Date Post Period	Amount	Balance
Invoice	000095	Open	6/1/2025 06-2025	10,956,152.62	10,956,152.62
Invoice	000105	Open	6/1/2025 06-2025	10,956,152.62	10,956,152.62
Invoice	000101	Open	4/1/2025 04-2025	10,266,232.19	10,266,232.19
Invoice	000104	Open	5/1/2025 05-2025	6,858,649.11	6,858,649.11
Invoice	000094	Open	5/1/2025 05-2025	6,858,649.11	6,858,649.11
Invoice	000102	Open	5/1/2025 05-2025	1,900,873.65	1,900,873.65
Invoice	000103	Open	4/1/2025 04-2025	394,664.77	394,664.77
Invoice	000093	Open	4/1/2025 04-2025	394,664.77	394,664.77
Invoice	000000045	Open	6/17/2022 06-2022	7,050.00	7,050.00
Invoice	000000053	Open	3/9/2023 03-2023	6,278.00	6,278.00
Invoice	000074	Open	1/17/2025 01-2025	5,700.00	5,700.00
Invoice	000000042	Open	5/5/2022 05-2022	5,300.00	5,300.00
Invoice	000090	Open	2/28/2025 02-2025	5,100.00	5,100.00
Invoice	000000049	Open	9/17/2022 09-2022	5,000.00	5,000.00
Invoice	000000054	Open	3/11/2023 03-2023	4,959.00	4,959.00
Invoice	000000060	Open	8/13/2023 08-2023	4,958.00	4,958.00
Invoice	000000056	Open	6/24/2023 06-2023	4,100.00	4,100.00
Invoice	000000047	Open	8/5/2022 08-2022	4,100.00	4,100.00
Invoice	000000056	Open	6/8/2023 06-2023	4,000.00	4,000.00
Invoice	000000057	Open	6/10/2023 06-2023	4,000.00	4,000.00

Figure: The inquiry with the highlighted rows

## Formulas in Inquiry Results: To Concatenate Strings

In this activity, you will learn how to modify an existing generic inquiry to concatenate string values.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including those involving the creation, modification, and use of generic inquiries. The sales team of your company has requested that on the Sales Orders (SO3010PL) generic inquiry form, which has the *SO-SalesOrder* inquiry title and the *Sales Orders* site map title specified on the [Generic Inquiry](#) (SM208000) form, you add each sales order's description after its number in the **Order Nbr.** column, whose name (caption) should be changed to **Order Number and Description**. The column should contain this information in the following format: <order number>: <order description>.

### Configuration Overview

You will work with a copy of the predefined Sales Orders (SO3010PL) generic inquiry form, which has the *SO-SalesOrder* inquiry title and the *Sales Orders* site map title specified on the [Generic Inquiry](#) (SM208000) form.

The copy you will work with has the *DB1-SalesOrder* inquiry title and the *S130 Sales Orders* site map title specified on the [Generic Inquiry](#) form.

## Process Overview

In this activity, on the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form, you will look for the row that corresponds to the **Order Nbr.** column of the copied generic inquiry form. In this row, you will invoke the Formula Editor dialog box in the **Data Field** column and add a formula that corresponds to the requested format.

### Step 1: Invoking the Formula Editor Dialog Box

To invoke the Formula Editor dialog box in order to add a formula for a row, do the following:

1. Open the [Generic Inquiry](#) (SM208000) form.
2. In the **Inquiry Title** box of the Summary area, select *DB1-SalesOrder*.
3. On the **Results Grid** tab, in the **Data Field** column, look for the row that corresponds to the order number; it contains the *OrderNbr* value. Make sure the **Visible** check box is selected for the row.
4. Double-click the cell that contains *OrderNbr* in the **Data Field** column to see the Edit button, and then click the button to invoke the Formula Editor dialog box.

### Step 2: Adding a Formula for String Values

While working with the *DB1-SalesOrder* generic inquiry on the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form, you invoked the Formula Editor dialog box for the cell with *OrderNbr* in the **Data Field** column. While you are still in the Formula Editor dialog box, do the following:

1. In the Component Type (upper left) pane of the dialog box, click **Functions > Text**. The system displays the list of available functions in the Component Selection (upper right) pane of the dialog box.
2. In the Component Selection pane, double-click the *Concat(str1, str2, ...)* function. The system copies it to the Formula Text (bottom) pane, where you can edit the formula.
3. In the Formula Text pane, replace the *str1* parameter in the copied function with the data field that holds the order number as follows:
  - a. In the Component Type pane, click **Fields**.
  - b. In the Formula Text pane, select only the *str1* string in the copied expression.
  - c. In the search box in the top right of the dialog box, start typing the data field name you noted—*OrderNbr*—and in the search results in the Component Selection pane, double-click *[SOOrder.OrderNbr]*.

In the Formula Text pane, notice that the system has replaced the *str1* string with the selected data field name. (When you are indicating a data field in a formula, the DAC name precedes the field name, and this complex name is enclosed in brackets.)

- d. After the field name and the comma, type '`:`' , to separate the values of two fields.
4. By using actions similar to those in the previous instruction, replace the *str2* parameter in the function with the *OrderDesc* field name.

Notice that the system has replaced the *str2* with the selected data field name.

5. Delete the periods and comma after the second parameter of the function.

The resulting formula should look as follows: *Concat([SOOrder.OrderNbr], ':', [SOOrder.OrderDesc])*. This means that in the **Order Number** column, the system should display the concatenated string of the two strings retrieved from the *OrderNbr* and *OrderDesc* data fields.

6. In the bottom of the dialog box, click **Validate** to validate the function that you have constructed. Correct any mistakes.
7. Click **OK** to save your changes and close the Formula Editor dialog box.

8. On the **Results Grid** tab, in the same row with the inserted formula, in the **Caption** column, type the new caption as follows: Order Number and Description.
9. On the form toolbar, click **Save**.
10. Click the eye icon on the side panel to preview how your changes have affected the inquiry. The system applies the changes you have made, so that the resulting generic inquiry displays the order number and order description in the same column (see the following screenshot).

The screenshot shows the Acumatica Generic Inquiry interface. On the left, the 'RESULTS GRID' tab is selected in the ribbon. A formula is being defined in the 'Caption' column for the 'SOOrder' object, specifically for the 'OrderDesc' field, using the expression =Concat([SOOrder.OrderNbr], ': ', [SOOrder.OrderDesc]). To the right, the preview pane titled 'S130 Sales Orders' shows a grid of sales order data. The 'Order Number and Description' column is highlighted with a red border, demonstrating the concatenated string result.

Order Type	Order Number and Description	Status	Date
SO	000071. Sale of raspberry and strawberry jam	Shipping	1/2/2024
SO	000070. Sales of jam with shipping	On Hold	1/29/2025
SO	000069. Sales of jam with shipping	Completed	1/20/2025
SO	000068. Sales of jam with shipping	Shipping	1/15/2025
SO	000067. Sales of jam with shipping	Shipping	1/15/2025
SO	000066. Sale of grapefruits	Open	1/25/2025
SO	000065. sale of jams	Shipping	1/30/2025
SO	000064. sales of orange jam	Shipping	1/30/2025
SO	000063. sale of jams	Shipping	1/30/2025
SO	000062. Website order #00783 (tea)	Completed	1/15/2025
SO	000061. Sale of 12 pounds of pears	Open	1/29/2025
SO	000059. Sale of apple and orange jam	Shipping	1/28/2025
SO	000058. Sale of lemon jam	Shipping	1/28/2025
SO	000057. Sale of apple jam	Shipping	1/27/2025
SO	000056. Sale of apple and orange jam	Shipping	1/27/2025
SO	000055. Sale of orange and lemon jam	Shipping	1/26/2025
SO	000054. Sale of apple jam	Shipping	1/26/2025
SO	000053. Sale of apple jam	Shipping	1/26/2025

Figure: Inquiry results with the concatenated strings

## Lesson 1.7: Enabling Navigation for Inquiry Results

In this lesson, you will learn how to define navigation options to quickly access the necessary data from the resulting inquiry form.

### Navigation Configuration: General Information

When you design a generic inquiry by using the [Generic Inquiry](#) (SM208000) form, you can define navigation options that give users of the inquiry form the ability to quickly access related information and work more effectively. You can add a side panel with tabs that can display Acumatica ERP forms and external webpages related to a selected record on the inquiry form. You can also define any column of the results grid of the inquiry form to contain links to an Acumatica ERP form or to an external webpage; on the inquiry form, a user can click the link in the column to view the listed record on the form where it was created or the external webpage.

This topic presents information about the configuration of all types of navigation, as well as the specifics of navigation through the links in columns of the inquiry form, and the [Navigation Configuration: Side Panel](#) topic provides additional details about configuring a side panel.

### Learning Objectives

In this lesson, you will learn how to specify different navigation options from generic inquiries by doing the following:

- Configuring navigation to a particular form
- Configuring the display of related forms and webpages on the side panel of an inquiry form
- Configuring navigation to external webpages from an inquiry form

- Managing the ways the system should open the target forms or webpages
- Managing the visibility of tabs defined on the side panel

## Applicable Scenarios

You may find the information in this lesson useful when you work on the customization of Acumatica ERP in your company, including developing and modifying generic inquiries to give users information they need to do their jobs. You may want to give users flexible ways to navigate from generic inquiry forms to other Acumatica ERP forms and to webpages, according to your business requirements.

For example, as you are creating a generic inquiry form that lists purchase orders, you could turn on and configure built-in navigation for the **Vendor ID** column, which contains links to the [Vendors](#) (AP303000) form. With this configuration, on the generic inquiry form, in the row of any purchase order, a user will be able to click the link in this column to view the details of the vendor from which the items were purchased.

The ability to navigate to external webpages can be very useful, for example, in ecommerce solutions to monitor entities whose state can change. For example, suppose that your company uses the FedEx delivery services company to deliver packages. You can design a generic inquiry that lists the packages in shipments and the packages' FedEx tracking numbers. In this generic inquiry, you can configure navigation to a tracking page on the FedEx website. In the results grid of the inquiry form, in the column with tracking numbers, a user can click the link in a row of any package and open the page on the FedEx website that corresponds to the tracking number.

## Default Navigation

For any column of the results grid of the generic inquiry form, you can turn on or turn off the default navigation (that is, the user's ability to navigate to the default form for the field) by using the **Default Navigation** check box on the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form. The default navigation is available only for fields that have a default form specified in the source code. For example, for a row with a field that holds the reference number of an AR invoice, the default form is the [Invoices and Memos](#) (AR301000) form.

With the **Default Navigation** check box selected, the system displays the values in these fields as links in the inquiry results. When a user clicks such a link, the default form is opened in a pop-up window.

When you add a new row to the table on the **Results Grid** tab, the **Default Navigation** check box is selected by default.

## Specification of Navigation Settings

Whether users will access the navigation target through a side panel of the generic inquiry or a link in the inquiry results, the specification of navigation settings for a target involves three general steps: You specify the target to which you want to provide navigation, you select the navigation mode, and you specify the data field the system should pass to the target.



You do not need to specify any navigation settings for the default navigation.

On the **Navigation** tab of the [Generic Inquiry](#) (SM208000) form, in the **Navigation Targets** pane, you specify the list of navigation targets (with one row for each target) to which users can navigate from the resulting generic inquiry form. A navigation target can be either an Acumatica ERP form or an external webpage.

You can configure navigation to an Acumatica ERP form of any of the following types:

- Data entry and maintenance
- Mass processing
- Dashboard
- Inquiry
- Report

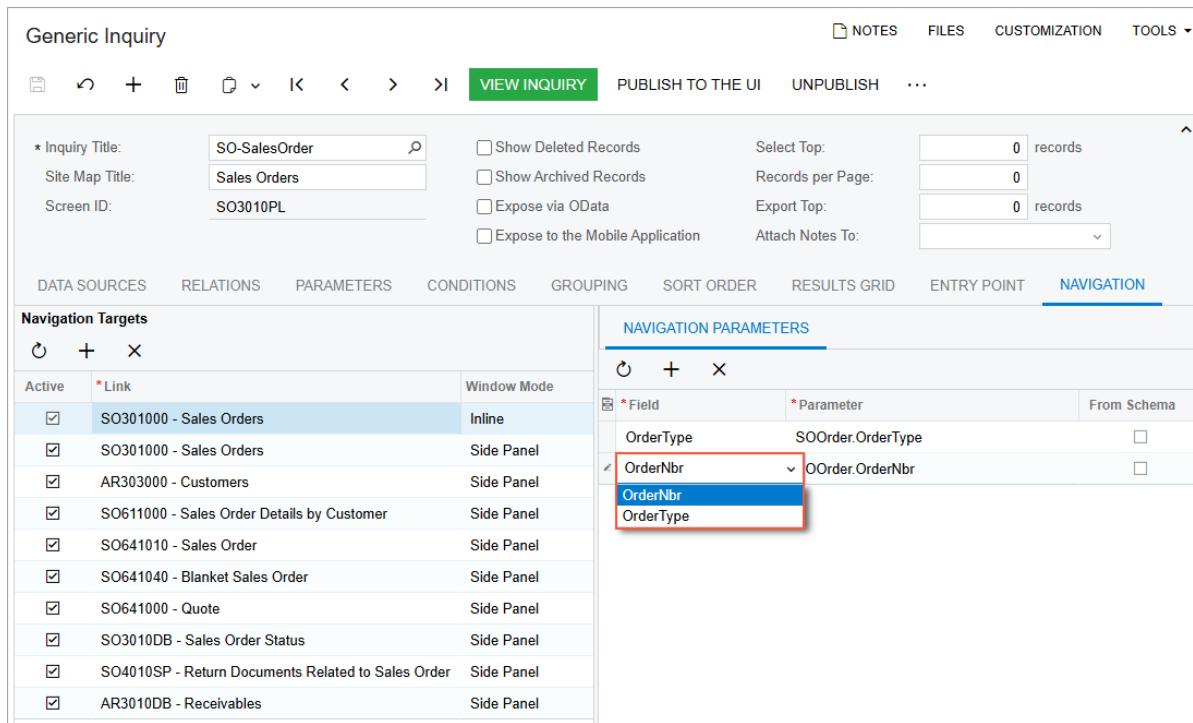
For each target, in the **Link** column, you specify the screen ID of the form or the uniform resource locator (URI) of the external website. In the **Window Mode** column, you select one of the following options, which determine the mode in which the system opens the form or page:

- *Same Tab* (default): In the same browser tab, replacing the generic inquiry form
- *New Tab*: In a new tab of the same browser
- *Pop-Up Window*: In a pop-up window
- *Side Panel*: In the side panel

Then with the row of the navigation target selected, on the **Navigation Parameters** tab on the right pane (of the **Navigation** tab), you specify the data field or fields the system should pass to the target or the name of the parameter from the URI in the **Field** column. For each data field you pass to the target, you specify the corresponding parameter in the **Parameter** column by selecting it from the fields of the generic inquiry that you are configuring.

In most cases, you need to pass the key fields, which are displayed on the UI and used to identify the record to be displayed on the target form. There are some forms with hidden key fields (that is, fields not displayed on the UI); an example of a form with hidden key fields is the [Email Activity](#) (CR306015) form. Regardless of the visibility of the key fields, in the **Field** column of the **Navigation Parameters** tab, the system offers for selection the key field or fields that correspond to the requirements of the navigation target.

For example, if the [Sales Orders](#) (SO301000) form is the selected navigation target, you need to pass the order type and the order number, which are the key fields. In the **Field** column, the system provides the key fields of the [Sales Orders](#) form for selection, as shown in the following screenshot.



**Figure: Key fields the system provides for selection**

If you specify an inquiry, a report form, or a dashboard as a navigation target and parameters have been defined for the target, the system instead provides the list of these parameters for selection in the **Field** column of the **Navigation Parameters** tab.

In the **Link** column of the table in the **Navigation Targets** pane, you can specify the same Acumatica ERP inquiry, dashboard, or report form more than once. For each row in which you list the same inquiry, dashboard, or report, you can specify different parameters in the table on the **Navigation Parameters** tab.

## Navigation to a Particular Form or Webpage

You use the **Navigation** tab of the [Generic Inquiry](#) (SM208000) form to specify the list of navigation targets: Acumatica ERP forms and webpages to which users can navigate from the generic inquiry form. For each navigation target you list, you specify navigation settings—in particular, the mode in which the system opens the form or page. For the navigation targets with a mode other than *Side Panel*, you need to associate a data field that should be displayed in the generic inquiry results as a link.

After you have finished specifying the navigation settings for the target, you switch to the **Results Grid** tab of the [Generic Inquiry](#) form. In the row of the data field that should be displayed in the inquiry results as a link, you cancel the default navigation by clearing the **Default Navigation** check box, and you select the configured navigation target in the **Navigate To** column.



If you were to leave the **Default Navigation** check box selected, the target selected in the **Navigate To** column would be ignored—that is, if a user clicked a link in the column of the inquiry results, the system would open the default form (if any was defined for the data field). If you were to clear the **Default Navigation** check box and not specify a form in the **Navigate To** column for the data field, the data field would not be displayed as a link.

## Specification of Navigation Settings for a Webpage

The process of configuring an external webpage as a navigation target is the same as that for a form, as detailed in the previous section. This section describes and illustrates the specifics of this process for a webpage.

On the **Navigation** tab of the [Generic Inquiry](#) (SM208000) form, in the **Navigation Targets** pane, you specify the URI and the window mode of the navigation target in the **Link** column. Within the URI, you also specify the parameters you would like to pass. Note that in the original URI of the target resource (the page to which you are configuring navigation), you must surround each parameter value with double or triple parentheses. The system recognizes these values as key fields it should pass to the URI and makes them available for selection in the **Field** column of the **Navigation Parameters** tab for the target. (You need to add a row on this tab for each parameter in the URI.) For each URI parameter selected in the **Field** column, you specify the corresponding data field of the generic inquiry or a formula in the **Parameters** column.



You surround each parameter value with double parentheses if you need the system to apply URL encoding for the values. Otherwise, you surround each parameter value with triple parentheses.

For example, suppose that the URI of the page to which you are configuring navigation is the following: `https://www.google.com/search?q=((query))&lang=((language))`. Then in the **Field** column, the drop-down list contains the following options: `((query))` and `((language))`. So you need to map each of these options to an inquiry field that returns a corresponding value—the query and the language of the query.

Alternatively, you can specify just a parameter value as a target in the **Link** column and on the **Navigation Parameters** tab you specify for this parameter the corresponding data field of the generic inquiry or a formula. The system will validate the resulted external URL before the navigation.

For example, you store the URL parts to be used before and after a tracking number as a carrier contact. You created a generic inquiry where you list these parts for each carrier. In the **Link** column, you specify just `((url))`. On the **Navigation Parameters** tab, you specify a formula for this parameter using needed data fields from the generic inquiry.

For the navigation target, if you selected a window mode other than *Side Panel*, you should associate the target with a data field that should be displayed in the inquiry results as a link. On the **Results Grid** tab of the form, for a data field of your choice, you select the URI in the **Navigate To** column and clear the check box in the **Default Navigation** column.

## Navigation Configuration: Side Panel

By configuring a side panel for a generic inquiry, you give users the ability to quickly access additional information related to a record that they select in the inquiry results, while still viewing the main generic inquiry form.

In the simplest use case of a side panel of the generic inquiry, you can configure the side panel to have a single tab with information—an Acumatica ERP form (or dashboard or report) or an external webpage—related to the record the user selects in the inquiry results. You can also configure multiple tabs to be available on a side panel for a generic inquiry, with each tab providing a different aspect of information (that is, a different form or webpage) a user may need while reviewing the inquiry results.

On the resulting generic inquiry form, the side panel shows the icons you specify for the tab or tabs, and a user can click an icon to view the tab in the side panel. (Only one tab can be displayed at a time.)

### Configuration of Tabs on the Side Panel

Whether the side panel you are configuring has one tab or multiple tabs, each tab is configured in the same way. You specify the navigation target—the Acumatica ERP form (which may be a dashboard or report) or external webpage to be shown on the tab—and the additional settings for the tab.

For the navigation target of each side panel tab, on the **Navigation** tab of the [Generic Inquiry](#) (SM208000) form, you add a row in the **Navigation Targets** pane. In the row, you specify its link and select the *Side Panel* option.

In the **Icon** box, which appears above the **Navigation Parameters** tab in the right pane, you select the icon to be displayed on the side panel bar for the tab. On the resulting generic inquiry form, if the user selects a record in the inquiry results and clicks the icon, the system opens the side panel with the tab displaying the navigation target.

The only factor limiting the number of side panel navigation targets (that is, tabs) is the set of data fields (specified on the **Data Sources** tab of the form) that can be passed as parameters. If a navigation target requires a parameter for which the generic inquiry has no data field to pass, the navigation will not work—that is, on the side panel of the generic inquiry form, the system will not display the record of the form or webpage to which navigation has been configured. You can expand the set of data fields that can be passed as parameters by adding new tables on the **Data Sources** tab and setting up table relations on the **Relations** tab.



If a data field is used as a navigation parameter, it becomes read-only on the target form or a dashboard when the form or dashboard is displayed in the side panel.

### Visibility of Tabs

You can specify the conditions that must be met for a side panel tab to be visible. In the **Navigation Targets** pane on the **Navigation** tab of the [Generic Inquiry](#) (SM208000) form, you can click any row with *Side Panel* selected in the **Window Mode** column, which makes the **Visibility Conditions** tab visible in the right pane (within the **Navigation** tab). On this tab, you can specify a condition or a set of conditions that must be met for the side panel to be visible for users.

### Deactivation of a Tab

You may need to deactivate a side panel tab temporarily—for example, while editing its settings. To do this, on the **Navigation** tab of the [Generic Inquiry](#) (SM208000) form, in the **Navigation Targets** pane, you clear the check box in the **Active** column of the row whose side panel tab should be deactivated. This check box is available for only the navigation targets for which **Window Mode** is set to *Side Panel*.

Once you save these changes to the generic inquiry and open the resulting generic inquiry form, the system does not display a side panel if the **Navigation Targets** pane has no other active rows with the *Side Panel* window mode.

If other active rows have the *Side Panel* window mode, then the system hides the icon corresponding to the now-deactivated side panel tab. Thus, the user cannot view the corresponding navigation target in the side panel.

## Modification of the Order of Tabs

You can quickly reorder the tabs in the side panel if multiple navigation targets have been configured to be displayed there. To reorder tabs in the side panel, on the **Navigation** tab of the [Generic Inquiry](#) (SM208000) form, in the **Navigation Targets** pane, you drag any row in the list to the needed place; you then save the generic inquiry. In the resulting generic inquiry form, the system displays the icons of the tabs in the side panel in the order in which the navigation targets are listed in the **Navigation Targets** pane.

## Navigation Configuration: To Configure the Side Panel

---

In this activity, you will learn how to modify an existing generic inquiry to add the ability to view the details of a record selected in the inquiry results in a side panel. You will configure a side panel with a single tab.

### Story

Suppose that you are a technical specialist in your company who works on simple customizations, including those involving the creation, modification, and use of generic inquiries. An accountant of your company has requested an inquiry form that displays data about AR invoices and memos. You have offered the predefined Invoices and Memos (AR3010PL) generic inquiry form, but the accountant has asked you to give users the ability to view the details of any listed invoice or memo in a side panel.

### Configuration Overview

You will work with a copy of the predefined Invoices and Memos (AR3010PL) generic inquiry form, which has the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified on the [Generic Inquiry](#) (SM208000) form.

The copy that you will modify has the *DB7-ARInvoicesMemos* inquiry title and the *S130 Invoices and Memos* site map title specified on the [Generic Inquiry](#) form.

### Process Overview

On the **Navigation** tab of the [Generic Inquiry](#) (SM208000) form, you will specify the *Invoices and Memos* (AR301000) form to be displayed in the side panel of the resulting inquiry form. You will also provide the navigation settings the system should use to display the details of the invoice or memo whose identifier the user clicks in the inquiry results.

### Step: Specifying Navigation Settings for the Side Panel

To modify the copied generic inquiry to specify the needed navigation settings for the side panel, do the following:

1. Open the [Generic Inquiry](#) (SM208000) form.
2. In the **Inquiry Title** box of the Summary area, select *DB7-ARInvoicesMemos*.
3. On the **Navigation** tab, in the **Navigation Targets** pane, add a row with the following settings:
  - **Link:** *AR301000 - Invoices and Memos*  
To select this value, click the selector icon; in the lookup table, type *AR301000* in the Search box, and double-click the row with the form.
  - **Window Mode:** *Side Panel*
4. On the form toolbar, click **Save**.

5. On the **Navigation** tab, while the row you added is still selected in the **Navigation Targets** pane, in the **Icon** box of the right pane, select *account details*.



This box appears for any navigation target row with *Side Panel* selected in the **Window Mode** column.

6. On the **Navigation Parameters** tab (also in the right pane of the **Navigation** tab), add a row, and specify the following settings in the added row:
- **Field:** *DocType*
  - **Parameter:** *ARInvoice.DocType*
7. Add another row, and specify the following settings:
- **Field:** *RefNbr*
  - **Parameter:** *ARInvoice.RefNbr*
8. On the form toolbar, click **Save**.
9. On the form toolbar, click **View Inquiry** to preview how your changes have affected the inquiry form.
10. Click a row with an invoice or memo, and notice that the system displays its details in the side panel (see the following screenshot).

Type	Reference Nbr.	Status	Date	Post Period	Customer	Customer Name	Description
Invoice	000118	Closed	2/7/2025	02-2025	BLUECAFE	Blue Cafe	Online training
Invoice	000117	Closed	2/6/2025	02-2025	FOODCLVR	Food Clever	Online training
Invoice	000116	Closed	1/25/2025	01-2025	BLUECAFE	Blue Cafe	Miscellaneous products
Invoice	000115	Open	1/20/2025	01-2025	COFFEEESHOP	FourStar Coffee & ...	Sale of raspberry and stra
Invoice	000114	Closed	1/29/2025	01-2025	ABAKERY	Allen's Bakery	Sale of peach and cranbe
Invoice	000112	Open	2/5/2025	02-2025	HMBAKERY	HM's Bakery & Cafe	End-Period Plus Contract
Invoice	000111	Closed	1/12/2025	01-2025	FOODCLVR	Food Clever	Installation and services
Invoice	000110	Closed	1/19/2025	01-2025	FOODCLVR	Food Clever	Installation services
Invoice	000109	Open	1/6/2025	01-2025	MORNINGCAF	Morning Cafe	Onsite training
Invoice	000108	Open	1/5/2025	01-2025	CAKEADO	Cakeado Cafe	Training services
Invoice	000107	Closed	1/12/2025	01-2025	HMBAKERY	HM's Bakery & Cafe	Training and consulting
Invoice	000106	Open	1/6/2025	01-2025	MORNINGCAF	Morning Cafe	On-site training
Invoice	000105	Open	6/1/2025	06-2025	EQUGRP	The Equity Group I...	Invoice for HOTELRT
Invoice	000104	Open	5/1/2025	05-2025	EQUGRP	The Equity Group I...	Invoice for HOTELRT
Invoice	000103	Open	4/1/2025	04-2025	EQUGRP	The Equity Group I...	Invoice for HOTELRT
Invoice	000102	Open	5/1/2025	05-2025	EQUGRP	The Equity Group I...	Invoice for HOTELSM (M)
Invoice	000101	Open	4/1/2025	04-2025	EQUGRP	The Equity Group I...	Invoice for HOTELSM (A)
Invoice	000100	Open	1/21/2025	01-2025	HMBAKERY	HM's Bakery & Cafe	Invoice for HMSTRAIN
Invoice	000099	Open	2/24/2025	02-2025	HMBAKERY	HM's Bakery & Cafe	Training on juicer usage (
Invoice	000098	Open	1/15/2025	01-2025	COFFEEESHOP	FourStar Coffee & ...	Website order #00783 (te

Figure: Generic inquiry with a side panel

## Navigation Configuration: To Specify Visibility Conditions for a Side Panel

In this activity, you will learn how to specify the visibility conditions for tabs on a side panel.

### Story

Suppose that you are a technical specialist in your company who works on simple customizations, including those involving the creation, modification, and use of generic inquiries. A sales representative of your company has requested an inquiry form that displays data about business accounts.

You have offered the predefined Business Accounts (CR3030PL) generic inquiry form, but the sales representative has asked you to give users the capability to view the following detailed information on a single tab of the side panel, depending on the type of the selected record:

- For a business account of the vendor type: Vendor details on the [Vendors](#) (AP303000) form
- For a business account of the customer type: Customer details on the [Customers](#) (AR303000) form
- For a business account of the business account type: Business account details on the [Business Accounts](#) (CR303000) form

## Configuration Overview

You will work with a copy of the predefined Business Accounts (CR3030PL) generic inquiry form, which has the *CR-BusinessAccounts2018R1* inquiry title and the *Business Accounts* site map title specified on the [Generic Inquiry](#) (SM208000) form. The original inquiry form has a side panel with eight tabs. For the purposes of this activity, the copy has been modified to have no navigation settings specified.



The Business Accounts (CR3030PL) generic inquiry form, which is the list of the business accounts that have been created on the [Business Accounts](#) (CR303000) form, is the substitute form that is opened when you click the *Business Accounts* link in a workspace or a list of search results.

The copy that you will modify has the *DB1-CRBAccounts* inquiry title and the *S130 Business Accounts* site map title specified on the [Generic Inquiry](#) form.

## Process Overview

On the **Navigation** tab of the [Generic Inquiry](#) (SM208000) form, you will configure navigation to the [Vendors](#) (AP303000) form, the [Customers](#) (AR303000) form, and the [Business Accounts](#) (CR303000) form with the *Side Panel* option selected as the navigation mode. You will provide the navigation settings that the system should use to display the details of the business account whose identifier the user clicks in the inquiry results. You will also specify the visibility conditions for each navigation target, which depend on the type of business account that the user clicks in the inquiry results.

### Step 1: Specifying the Navigation Settings for the Side Panel

To specify the needed navigation settings for the side panel of the generic inquiry, do the following:

1. Open the [Generic Inquiry](#) (SM208000) form.
2. In the **Inquiry Title** box of the Summary area, select *DB1-CRBAccounts*.
3. On the **Navigation** tab, in the **Navigation Targets** pane, add a row with the following settings:
  - **Link:** AP303000 - *Vendors*
  - **Window Mode:** *Side Panel*
4. On the form toolbar, click **Save**.
5. While the row you just added is still selected in the **Navigation Targets** pane, in the **Icon** box of the right pane of the **Navigation** tab, select *directions car*.
6. On the **Navigation Parameters** table (in the right pane within the **Navigation** tab), add a row with the following settings:
  - **Field:** *AcctCD*
  - **Parameter:** *BAccount.AcctCD*
7. On the form toolbar, click **Save**.
8. On the **Visibility Conditions** tab (in the right pane within the **Navigation** tab), add a row, and specify the following settings:

- **Data Field:** *BAccount.Type*
- **Condition:** *Equals*
- **From Schema:** Selected
- **Value:** *Vendor*



If the **Side Panel** option is selected in the **Window Mode** column, the **Visibility Conditions** tab is displayed in the right pane.

9. On the form toolbar, click **Save**.
10. On the **Navigation** tab, in the **Navigation Targets** pane, add one more row with the following settings:
  - **Link:** *AR303000 - Customers*
  - **Window Mode:** *Side Panel*
11. On the form toolbar, click **Save**.
12. While the row you just added is still selected in the **Navigation Targets** pane, in the **Icon** box of the right pane of the **Navigation** tab, select *shopping cart*.
13. On the **Navigation Parameters** tab (in the right pane), add a row with the following settings:
  - **Field:** *AcctCD*
  - **Parameter:** *BAccount.AcctCD*
14. On the form toolbar, click **Save**.
15. On the **Visibility Conditions** tab of the **Navigation** tab, add a row, and specify the following settings:
  - **Data Field:** *BAccount.Type*
  - **Condition:** *Equals*
  - **From Schema:** Selected
  - **Value:** *Customer*
16. On the form toolbar, click **Save**.
17. On the **Navigation** tab, in the **Navigation Targets** pane, add one more row with the following settings:
  - **Link:** *CR303000 - Business Accounts*
  - **Window Mode:** *Side Panel*
18. On the form toolbar, click **Save**.
19. While the row you just added is still selected in the **Navigation Targets** pane, in the **Icon** box of the right pane, select *badge*.
20. On the **Navigation Parameters** tab (in the right pane), add a row with the following settings:
  - **Field:** *AcctCD*
  - **Parameter:** *BAccount.AcctCD*
21. On the form toolbar, click **Save**.
22. On the **Visibility Conditions** tab of the **Navigation** tab, add a row, and specify the following settings:
  - **Data Field:** *BAccount.Type*
  - **Condition:** *Equals*
  - **From Schema:** Selected
  - **Value:** *Business Account*
23. On the form toolbar, click **Save**.

## Step 2: Verifying the Configuration of Visibility Conditions for the Side Panel

To verify the configuration of visibility conditions for the side panel, while you are still working on the [Generic Inquiry](#) (SM208000) form with the *DB1-CRBAccounts* inquiry selected, do the following:

1. On the form toolbar, click **View Inquiry** to preview how your changes have affected the resulting generic inquiry form.
2. In the inquiry results, click a row with a business account of the *Vendor* type, and notice that on the side panel, the system displays only one tab (with the directions car icon).
3. Click this icon, and notice that in the side panel, the system displays detailed information about the selected vendor on the [Vendors](#) (AP303000) form (see the following screenshot).

The screenshot shows two windows side-by-side. On the left is the 'S130 Business Accounts' inquiry form. It has a grid of business accounts with columns for Business Account, Business Account Name, Type, Class, Customer Status, and Country ID. A row for 'ALLFRUITS All Fruits Mall' is selected and highlighted with a red border. On the right is the 'Vendors' form for 'All Fruits Mall'. This form has tabs for GENERAL, FINANCIAL, PAYMENT, PURCHASE SETTINGS, and ATTRIBUTES. The GENERAL tab is selected. It displays vendor details: Vendor ID: ALLFRUITS - All Fruits Mall, Vendor Status: Active, Vendor Class: DEFAULT - Default Vendor Class. It also shows financial information: Balance: 1,139.10, Prepayment Balance: 0.00, Retained Balance: 0.00. Below these are sections for ACCOUNT INFO (Account Name: All Fruits Mall), ACCOUNT ADDRESS (Address Line 1: 3340 Deans Lane, Arlington, City: New York, State: NY - NEW YORK, Postal Code: 12603, Country: US - United States of America), and ADDITIONAL ACCOUNT INFO (Business 1: +1-212-555-0119, Cell: [redacted], Fax: [redacted], Account Email: sales@allfruits.example.com, Web: [redacted]).

**Figure: The list of business accounts on the inquiry form and the Vendors form in the side panel**

4. In the inquiry results, click a row with a business account of the *Customer* type, and notice that on the side panel, the system has changed the icon to the shopping cart icon. In the side panel, which is already opened, notice that the system displays detailed information about the selected customer on the [Customers](#) (AR303000) form.
5. In the inquiry results, click a row with a business account of the *Business Account* type, and notice that on the side panel, the system has changed the icon to the badge icon. In the side panel, notice that the system displays detailed information about the selected business account on the [Business Accounts](#) (CR303000) form.

## Navigation Configuration: To Configure Navigation to an External URI

In this activity, you will learn how to configure navigation from a generic inquiry form to an external URI.

### Story

Suppose that you are a technical specialist in your company who works on simple customizations, including those involving the creation, modification, and use of generic inquiries. A sales manager of your company has requested an inquiry form that displays a list of shipped packages. This generic inquiry should give the manager the ability to monitor the delivery of the packages by the FedEx delivery services company. The sales manager has asked you to

make it possible to click a link in a column for any row (that is, any package) and open a page on the FedEx site with the details of the package, based on the tracking number.

## Configuration Overview

In this activity, you will use and modify the generic inquiry that has the **DB1-SOPackages** inquiry title and the **S130 Packages** site map title specified on the [Generic Inquiry](#) (SM208000) form.

## Process Overview

For the generic inquiry, on the **Navigation** tab of the [Generic Inquiry](#) (SM208000) form, you will specify the link to the needed page on the FedEx site; this link will contain the tracking number parameter. You will also specify the navigation settings the system should use to display the webpage with the package whose tracking number the user clicks in the inquiry results.

### Step: Configuring Navigation to an External URI

To configure navigation to an external URI, do the following:

1. Open the [Generic Inquiry](#) (SM208000) form.
2. In the **Inquiry Title** box of the Summary area, select **DB1-SOPackages**.
3. In the **Navigation Targets** pane of the **Navigation** tab, add a row with the following settings:
  - **Link:** `https://www.fedex.com/apps/fedextrack/?action=track&trackingnumber=((TrackingNumber))`
  - **Window Mode:** `Pop-Up Window`
4. On the form toolbar, click **Save**.
5. On the **Navigation Parameters** tab of the right pane, add a row, and specify the following settings in the added row:
  - **Field:** `((TrackingNumber))`
  - **Parameter:** `SOPackageDetail.TrackNumber`
6. On the form toolbar, click **Save**.
7. On the **Results Grid** tab, in the row with **TrackNumber** in the **Data Field** column, clear the **Default Navigation** check box.



If the column is not available in the table, make it visible by using the **Column Configuration** dialog box of the table.

8. In the same row, in the **Navigate To** column, select the URI that you have entered in the **Navigation Targets** pane of the **Navigation** tab—that is, `https://www.fedex.com/apps/fedextrack/?action=track&trackingnumber=((TrackingNumber))`.
- In the resulting generic inquiry form, the system will display tracking numbers that are links in the **Tracking Number** column. When a user clicks a link in this column, the system will open the window with the FedEx tracking information of the package, based on the tracking number.
9. On the form toolbar, click **Save**.
  10. Click the eye icon on the side panel of the [Generic Inquiry](#) form to preview how your changes have affected the resulting generic inquiry form. In the **Tracking Number** column, click 398305336614. Notice that the system opens a pop-up window and navigates to the `https://www.fedex.com/apps/fedextrack/?action=track&trackingnumber=398305336614` URI (see the following screenshot).



The data on third-party webpages is subject to change. Therefore, the resulting generic inquiry form may differ from the data shown in the screenshot.

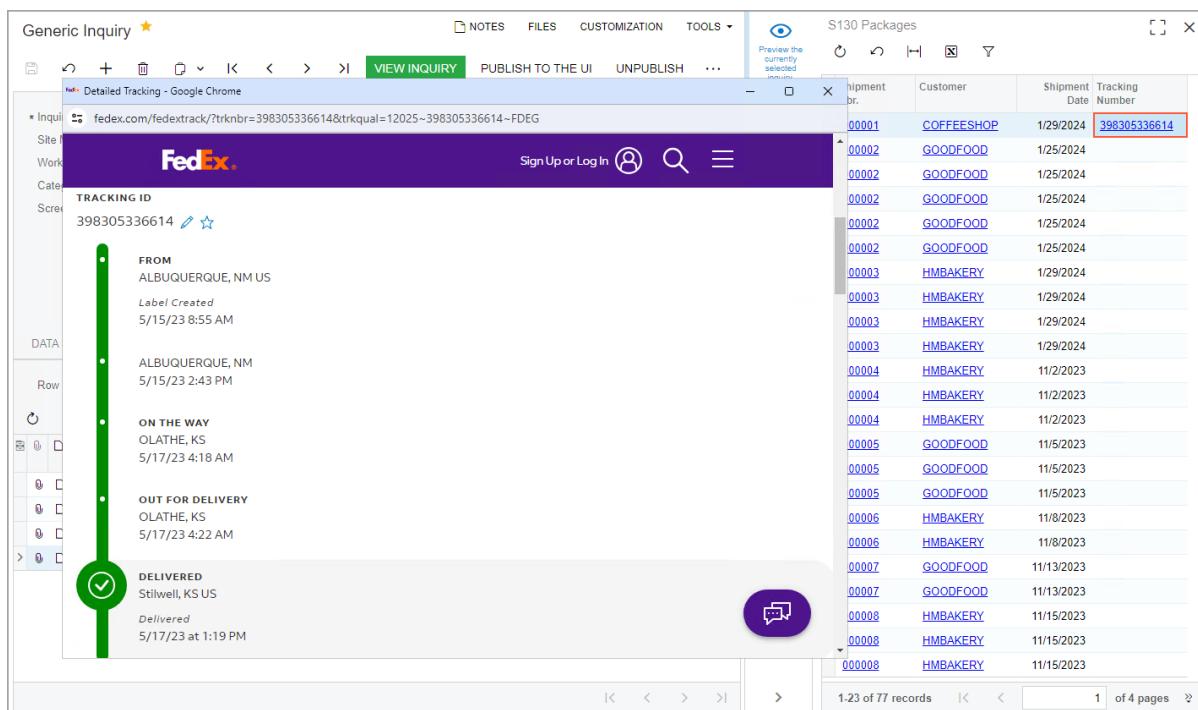


Figure: The resulting generic inquiry form with the page associated with the external URI

## Lesson 1.8: Using a Generic Inquiry as a Substitute Form

In this lesson, you will learn how to create a substitute form for a data entry form. This substitute form will have a list of records created on this data entry form.

### Generic Inquiry as a Substitute Form: General Information

In Acumatica ERP, you can create a generic inquiry that presents a list of records that were entered on a particular data entry form (which is called the *primary form* in this context). Once you have created the generic inquiry form, you can use it as an *entry point* to the primary form. This means that when you click the name of the primary form while searching for or navigating to it, you will instead access the generic inquiry form that contains the list of records. If you click the link of a record identifier in the list, the primary form (that is, the data entry form) opens with that record displayed. The generic inquiry form is called the *substitute form* in this context.

### Learning Objectives

In this lesson, you will learn how to substitute an inquiry form for a data entry form.

### Applicable Scenarios

You are responsible for the customization of Acumatica ERP in your company, including developing and modifying generic inquiries to give users information they need to do their jobs. You need to give users the ability to scan lists of records and find needed records quickly. You will accomplish this task by substituting inquiry forms (lists of records) for the related data entry forms.

## Substitution of an Inquiry Form for a Primary Form

You configure the replacement of a primary form with a substitute form on the **Entry Point** tab of the [Generic Inquiry](#) (SM208000) form. To do this, in the **Entry Screen Settings** section of the form, you specify the primary form in the **Entry Screen** box and then select **Replace Entry Screen With This Inquiry in Menu** check box.



Replacing a primary form with a substitute form in this way does not remove the primary form, which can still be used. This setting affects only which form is *initially* opened when a user clicks the form name in a workspace menu or the search results.

When you replace a primary form with an inquiry form, the system automatically adds the corresponding navigation settings for this inquiry on the **Navigation** tab. It also sets the **Window Mode** for the path to the *Inline* option (as shown in the following screenshot), which is not available for selection by users.

The screenshot shows the 'Generic Inquiry' form with the 'NAVIGATION' tab selected. In the 'NAVIGATION TARGETS' section, there is a row for 'AR301000 - Invoices and Memos' with the 'Active' checkbox checked and 'Link' selected. In the 'NAVIGATION PARAMETERS' section, the 'Window Mode' dropdown is set to 'Inline'. A red box highlights the 'Window Mode' dropdown.

**Figure: The Window Mode setting of *Inline***

When you save an inquiry with the replacement of a data entry form configured for this inquiry, the system adds a row to the [Lists as Entry Points](#) (SM208500) form. This row contains the entry screen identifier and name in the **Entry Screen ID** column, the substitute screen identifier and name in the **Substitute Screen ID** column, and the indicator of whether the replacement is active in the **Active** column.

## Suspension of the Replacement of an Entry Form with a Substitute Form

You can activate or suspend the replacement of any entry form any time you want. You could, for example, do this temporarily, to make an inquiry form invisible to other users while you are making modifications to it. You can suspend the replacement in either of the following ways:

- On the [Lists as Entry Points](#) (SM208500) form, by clearing the check box in the **Active** column in the row for the entry form that was replaced
- On the [Generic Inquiry](#) (SM208000) form, by clearing the **Replace Entry Screen with This Inquiry in Menu** check box on the **Entry Point** tab (**Entry Screen Settings** section) for the generic inquiry that was used as a substitute form

On the [Lists as Entry Points](#) form, if you delete the row containing the entry form and the corresponding substitute form, the following changes occur in the system:

- The replacement is canceled, but the forms are not deleted.
- On the [Generic Inquiry](#) form, the **Replace Entry Screen with This Inquiry in Menu** check box on the **Entry Point** tab is cleared.

## Publication of a Generic Inquiry Form as a Substitute Form

You can use only a published generic inquiry form as a substitute form. When an inquiry has been created, you can publish it. To publish the generic inquiry, on the toolbar of the [Generic Inquiry](#) (SM208000) form, you click the **Publish to the UI** button. In the **Publish to the UI** dialog box, you may change the default settings of the title, workspace, and category. Also, you may change the automatically assigned screen identifier.

In the **Access Rights** section of the dialog box, you select what access rights should be assigned to the substitution form. In this case, the system shows a warning in the **Publish to the UI** dialog box. The warning explains that the inquiry is a substitute form and access rights that you select for this inquiry will be applied to its data entry form. If you do not need to change access rights to the data entry form, you select the *Copy Access Rights from Screen* option and specify the data entry form for this option.

To complete the publication process, you click **Publish** in the dialog box.

## Modification of a Published Substitute Form

If you want to modify an inquiry that is currently used as a substitute form, you can temporarily hide it—that is, make the inquiry not visible to other users.

You can hide a published inquiry form that has been configured as a substitute form in one of the following ways:

- By clearing **Active** on the [Lists as Entry Points](#) (SM208500) form
- By clearing the **Replace Entry Screen with This Inquiry in Menu** check box on the **Entry Point** tab of the [Generic Inquiry](#) (SM208000) form



We strongly recommend that you do not withdraw from publication an inquiry that has been published already. If you withdraw it, the system clears the assignment of screen identifier (value of the **Screen ID** box), which may cause issues with the widgets or pivot tables based on the published inquiry.

## Additional Operations on a Substitute Form

With the settings in the **Operations with Records** section of the **Entry Point** tab of the [Generic Inquiry](#) (SM208000) form, you can specify additional operations that a user can perform on a substitute form. By selecting the appropriate check boxes in this section, you enable the following capabilities for the inquiry form:

- Mass actions on records (the **Enable Mass Actions on Records** check box): When you select this check box, the **Mass Actions** tab appears on the [Generic Inquiry](#) form. In the **Actions** column of this tab, you can select any of the available options from the drop-down list according to your needs. The available options depend on the commands that are available for the entry form for which you have created the inquiry form. For example, the following options might be available for the form: *Validate Address* and *Mark As Validated*.



The ability to perform mass actions for the entry form that the inquiry replaces depends on the business logic of the form. It is possible that you could list some mass actions on the **Mass Actions** tab that cannot actually be performed.

After you have selected the required options and saved your changes to the generic inquiry, the **Included** column is available on the substitute form, and the selected commands appear on the **More** menu (under **Actions**) of the substitute form. A user can select one record or multiple records on the substitute form and then apply any available command on the **More** menu (under **Actions**) to the selected records. Before you make the substitute form available to users, you need to test each of the commands on the **More** menu (under **Actions**) of the substitute form to make sure that the following requirements are met:

- The action can be performed properly.
- The action does not involve redirection to other forms.

- The action does not cause pop-up windows to be displayed.



In Acumatica ERP, mass actions that involve redirection to other forms and display of pop-up windows are not supported because this scenario may cause performance issues.

Based on the testing result, on the **Mass Actions** tab, you must delete the actions that do not meet the mentioned requirements.

- Mass removal of records (the **Enable Mass Record Deletion** check box): If you select this check box, the **Delete** button and the Included column will be available on the substitute form. A user can select one record or multiple records and then delete them.
- Automatic confirmation of record deletion (the **Auto-Confirm Custom Delete Confirmations** check box): If you select this check box, when a user tries to delete one record or multiple records, the system deletes the records without confirmation.
- Mass update of records (the **Enable Mass Record Update** check box): If you select this check box, the **Update** and **Update All** commands will be available on the More menu (under **Actions**) of the substitute form; also, the Included column will be available on the substitute form, so that the user can select a record or multiple records for updating.

If the **Enable Mass Record Update** check box is selected on the **Entry Point** tab, the **Mass Update Fields** tab appears on the [Generic Inquiry](#) form. On this tab, you select the field or fields that should be updated if a user clicks one of the commands on the More menu (under **Actions**). A user can select one record or multiple records on the substitute form and then change the specified fields of the selected records.



During the mass update on the inquiry form, the ability to update a particular field of the entry form that the inquiry replaces depends on the business logic of the field and may vary.

Mass updating of attributes is not supported. For more information on attributes, see [Attributes](#).

- Creation of records (the **Enable New Record Creation** check box): If you select this check box, the **New Record** button will be available on the form toolbar of the substitute form. When a user clicks the button, the entry form opens so that the user can add a new record.

If you enable the creation of new records on the substitute form, you can define default values for the fields that appear when you add a record. The system will automatically enter these values in the corresponding UI elements when a user adds a new record. You define the default values in the **New Record Defaults** table on the **Entry Point** tab.



If you need to use additional operations on a substitute form (that is, if you select any of the check boxes described above), we recommend that you modify the predefined generic inquiry instead of creating a copy of the predefined generic inquiry and modifying the copy.

## Access Rights to Substitute Forms

In Acumatica ERP, every form has its own levels of access rights that you can specify for the user roles in the system by using the [Access Rights by Screen](#) (SM201020) form. You can change the level of access rights to the data entry and generic inquiry forms independently of each other. However, when an inquiry form replaces the corresponding data entry form, it becomes the substitute form and inherits the level of access rights the users of each role have to the data entry form. Thus, to change the access rights users have to the substitute form, you need to change the access rights to the entry form. You can manage access rights to substitute forms in the same ways as you manage access rights to other generic inquiries. For more information about access rights, see [Managing Access Rights To Generic Inquiries](#).

If you suspend an inquiry form's replacement of a data entry form, the level of access to the inquiry form reverts to its initial state (that is, the levels of access rights roles had to the inquiry form before it was defined to replace a data entry form).

## Generic Inquiry as a Substitute Form: To Configure an Inquiry as an Entry Point

In this activity, you will learn how to modify an existing generic inquiry to make it a substitute form for a primary data entry form. Once you have done this, when a user clicks the name of the entry form in a workspace or a list of search results, the system will open the substitute form. If the user clicks a record name in the inquiry results, the entry form will open.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including those involving the creation, modification, and use of generic inquiries. An accountant of your company has asked you to replace the *Invoices and Memos* (AR301000) form with a generic inquiry. You have offered the predefined Invoices and Memos (AR3010PL) generic inquiry form; this form is the substitute form for the *Invoices and Memos* form by default. The accountant said that this inquiry form generally provides the needed functionality, but that the new form should also give users the abilities to view the total tax amount and to create a new document directly on the inquiry form.

### Configuration Overview

You will work with a copy of the predefined Invoices and Memos (AR3010PL) generic inquiry form, which has the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified on the *Generic Inquiry* (SM208000) form.

The copy you will work with has the *DB8-ARInvoicesMemos* inquiry title and the *S130 Invoices and Memos* site map title specified on the *Generic Inquiry* (SM208000) form.

### Process Overview

On the **Entry Point** tab of the *Generic Inquiry* (SM208000) form, you will specify the requested generic inquiry as a substitute form for the *Invoices and Memos* (AR301000) form, and enable the creation of new records and deletion of multiple records.

### Step: Defining the Generic Inquiry as an Entry Point

To modify the generic inquiry to replace the primary form, do the following:

1. Open the *Generic Inquiry* (SM208000) form.
2. In the **Inquiry Title** box of the Summary area, select *DB8-ARInvoicesMemos*.
3. In the **Site Map Title** box, type *Invoices and Memos (Substitution)*.
4. On the **Results Grid** tab, add a row with the following settings:
  - **Object:** *ARInvoice*
  - **Data Field:** *TaxTotal*
  - **Caption:** *Total Tax*



If some columns mentioned in the activity are not available in the table, make them visible by using the **Column Configuration** dialog box of the table.

5. On the form toolbar, click **Save**.
6. On the **Entry Point** tab, in the **Entry Screen Settings** section, do the following:
  - a. Make sure that in the **Entry Screen** box, the *Invoices and Memos* (AR301000) form is selected.

- b. To replace the selected entry form with the substitute form (that is, to direct the system to display the generic inquiry form instead of the entry form when a user clicks the menu item), select the **Replace Entry Screen with This Inquiry in Menu** check box.
  - c. In the dialog box that opens, click **Yes**.
7. In the **Operations With Records** section, ensure the **Enable New Record Creation** check box is selected. This gives a user the ability to add new records from the substitute form. With this check box selected, the **New Record** button appears on the form toolbar of the substitute form (that is, the inquiry form). When the user clicks this button, the system opens the entry form so that the user can add a new record.
8. On the form toolbar, click **Save**.
9. On the **Navigation** tab, review the navigation settings, which have been added automatically, and notice that the **Window Mode** is set to *Inline* and unavailable for editing. This means that the substitute form opens in the same browser tab when a user is adding a new record or viewing the details of an existing record.
10. Click the eye icon on the side panel to preview how your changes have affected the inquiry. The system has added to the form toolbar the action you have enabled (that is, the **New Record** button). If you double-click a row in the table, the system opens the *Invoices and Memos* form with the details of the selected record.
11. Search for the *Invoices and Memos* form by its name, *Invoices and Memos*, and notice that the search results do not contain the name of the form. Then search for the form by its identifier, AR301000, and notice that when you click the resulting form, the system opens the inquiry form that is configured as the substitute form.

## Generic Inquiry as a Substitute Form: To Suspend the Replacement of a Primary Form

---

In this activity, you will learn how to suspend the replacement of a primary form with a substitute form. Once you have done this, when a user clicks the name of the entry form in a workspace or a list of search results, the system will open the entry form instead of the substitute form it currently opens.

### Story

Suppose that you are a technical specialist in your company who is working on customizations. Previously, you configured Acumatica ERP in your company so that the *Invoices and Memos* (AR301000) form is replaced with the predefined Invoices and Memos (AR3010PL) generic inquiry form, which has the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified on the *Generic Inquiry* (SM208000) form. Now an accountant of your company has asked you to make changes to the generic inquiry that is defined as a substitute form. Before you begin making these changes, you need to suspend the replacement of the primary form, so that the generic inquiry form is not opened while you are in the process of making changes to it.

### Process Overview

On the *Lists as Entry Points* (SM208500) form, you will clear the replacement for the *Invoices and Memos* (AR301000) form.

### Step: Suspending the Replacement of an Entry Form

To suspend the replacement of the entry form, do the following:

1. Open the *Lists as Entry Points* (SM208500) form.
2. In the table, locate the row with *AR301000 - Invoices and Memos* in the **Entry Screen ID** column, and clear the check box in the **Active** column for the row.

3. On the form toolbar, click **Save**.
4. Search for the *Invoices and Memos* form by its name, *Invoices and Memos*, and notice that when you click the resulting form, the system opens the primary form instead of the generic inquiry.

## Lesson 1.9: Transferring an Inquiry

---

In this lesson, you will learn about transferring a generic inquiry to another company or application instance.

### Inquiry Transfer: General Information

---

You can transfer a generic inquiry to another company or application instance as an XML file. To do this, you first need to export the inquiry as an XML file and then need to import the file in the target company or instance. In addition, you can export a generic inquiry form as an RPX file.

Also, you can export inquiry results (that is, the data in the results grid of a generic inquiry form) to an XLS file. Later you can transfer these inquiry results to another system that is not Acumatica ERP. In Excel, you can perform calculations for some columns and rows.

### Learning Objectives

In this lesson, you will learn how to export and import a generic inquiry form as an XML file, how to export a generic inquiry form as an RPX file, and how to export inquiry results to an XLS file.

### Applicable Scenarios

You may find the information in this lesson useful when you are responsible for the customization of Acumatica ERP in your company, including developing and modifying generic inquiries to give users information they need to do their jobs. You need to export an existing generic inquiry to transfer it to another company or application instance.

### Export of a Generic Inquiry With Advanced Filters

If you export to an XML file a generic inquiry with advanced filters of any type configured—an advanced personal filter, an advanced shared filter, or an advanced default filter—the generic inquiry is exported with all of the advanced filters. If you then import the XML file to another tenant in which a user with the same username exists, all the filters are available in the generic inquiry results. If a user with another username imports the XML file, only the advanced shared filters are available for the user.

### Export of a Generic Inquiry That a Pivot Table Is Based On

If you export to an XML file a generic inquiry for which a pivot table is saved as a filter tab, the system exports this inquiry with this pivot table. When you import this inquiry, the system also imports the related pivot table as a filter tab.

If you have configured a pivot table by using the *Pivot Tables* (SM208010) form—that is, if you have configured a pivot table as a form—then during export and import operations of the generic inquiry that the pivot table is based on, this pivot table is not transferred. If you want to have the pivot table transferred with the inquiry, you need to export and then import the pivot table separately on the *Pivot Tables* form.

## Export of Inquiry Results to an XLS File

You can export the top records of the results of a generic inquiry to an XLS file. On the [Generic Inquiry](#) (SM208000) form with the inquiry selected, you specify the number of records to export in the **Export Top** box of the Summary area. By default, no value is specified in this box, and inquiry results can include thousands of records. Processing of a large number of records negatively affects server performance and increases the time to perform the inquiry. In this case, you can limit a large number of records by specifying a value in the **Export Top** box.



If you specify a value that can increase the time to process the inquiry and can cause the server performance degradation, the system displays a warning.

## Export of a Generic Inquiry That Is the Source of a Report

An exported generic inquiry can be used as a source for building a report through the Acumatica Report Designer tool. You can export a generic inquiry as an RPX file to be used for creating a report in Acumatica Report Designer. To do this, on the [Generic Inquiry](#) (SM208000) form with the inquiry selected, click **Export as Report** on the form toolbar. The system will export the generic inquiry as an RPX file. The name of the RPX file corresponds to the name in the **Inquiry Title** box but can include only letters and digits. If other symbols are used in the **Inquiry Title** box, they are deleted when the name is assigned to the RPX file.

The resulting exported file contains information about the data access classes (DACs) of the generic inquiry, such as the list of DACs, the relations between the DACs, the sort order, and the grouping.

# Part 2: Creating Generic Inquiries

---

In the lessons of this part, you will learn how to create generic inquiries, retrieve data from multiple source fields, and set up access rights to generic inquiries.

## Lesson 2.1: Creating a Generic Inquiry

---

In this lesson, you will learn how to create and publish a generic inquiry.

### Creation of a Generic Inquiry: General Information

---

A generic inquiry displays data from the Acumatica ERP database based on the settings you specify when you design the inquiry. The system sorts, filters, and displays the inquiry results according to the settings you have specified, so that a user does not have to perform all these steps manually. Because generic inquiries provide so much flexibility, the inquiry design process depends on your organization's specific business needs.

### Learning Objectives

In this lesson, you will learn how to do the following:

- Prepare to create an inquiry
- Create a simple inquiry with one table
- Publish an inquiry

### Applicable Scenarios

You may find the information in this lesson useful when you are responsible for the customization of Acumatica ERP in your company, including developing and modifying generic inquiries to give users information they need to do their jobs. You need to deliver different inquiry forms that your colleagues may need for getting their jobs done.

### Preparation for Creating a Generic Inquiry

To design a generic inquiry in Acumatica ERP, you need to have general knowledge of data access classes (DACs). In Acumatica ERP, the data is stored in a database, but users do not access the database directly; instead, they access it through data access classes. When building inquiries, you retrieve data from the data access classes rather than working with the database tables directly.

Before you begin creating the generic inquiry, you gather the needed information by doing the following:

1. *Identifying the DACs to be used for the inquiry:* The data to be used in a generic inquiry is available through DACs, which represent specific data from the system database. Based on the business needs the inquiry will meet, you need to decide what general type of data you want to collect from the system database in order to list it in the results grid of the inquiry form. Thus, you need to know on which form this data is entered.
2. *Inspecting UI elements to find the DACs and data fields:* Based on the data you will use in the generic inquiry, you have to open the data entry forms where the data is entered and explore the user interface elements of the forms to find out which classes and data fields you can use to access this data.

For example, to discover the data access class that provides access to the sales order numbers, you need to inspect the form elements of the [Sales Orders](#) (SO301000) form.

For more information, see [DAC Discovery: General Information](#).

Alternatively, you can look for the inquiries that already have some needed data and use it as a data source for your inquiry alone or combined with additional inquiries or tables.

## Creation of a Generic Inquiry

To create a generic inquiry, you perform the following general steps:

1. *Creating a generic inquiry:* You create a generic inquiry on the [Generic Inquiry](#) (SM208000) form. For easier navigation between inquiries, we recommend that your organization define and follow naming conventions for the inquiry titles that you will enter in the **Inquiry Title** box. An inquiry title must be unique.
 

 On the [Generic Inquiry](#) form, if you define user-selectable parameters that give users the ability to narrow the inquiry results, you can optionally specify the number of columns in which the inquiry parameters will be arranged on the resulting generic inquiry form. You can also specify the maximum number of records to be displayed in the inquiry results, and the number of records to be displayed on every page of the inquiry results.
2. *Specifying data sources:* On the **Data Sources** tab of this form, you select the DACs (which are referred to as *tables* in most user interface element names) to be used in your generic inquiry. For each table, you specify a value in the **Alias** column. This value will be used in SQL statements to designate the table. You can type the value in the **Alias** column manually or leave it empty; if you do not specify a value, the value from the **Source Name** column will be used instead. Additionally, you can add other generic inquiries to be used as data sources for the inquiry.
3. *Configuring the results grid:* On the **Results Grid** tab of the form, you select the column values from the data sources to display data. On this tab, you can specify how the results of the search in the database tables should be displayed, with each row on this tab corresponding to a column in the results grid of the inquiry form. You can specify formulas in the **Data Field** column to calculate the values of columns in the results grid by using the Formula Editor dialog box. In this dialog box, you can enter the formula directly in the formula editing area or compose it by selecting fields and using operators and functions. For details, see [Modification of Inquiry Results: General Information](#) and [Formulas in Inquiry Results: General Information](#).

## Preview of a Generic Inquiry

After you have completed the basic steps of creating the generic inquiry on the [Generic Inquiry](#) (SM208000) form and saved the settings that you have specified on the form, you can preview the generic inquiry form to make sure it meets your expectations. You can preview an inquiry directly from this form by clicking the eye icon on the side panel of the [Generic Inquiry](#) form; the system displays the resulting generic inquiry form on the panel of the form in the same browser tab. You can also preview an inquiry by clicking the **View Inquiry** button on the form toolbar, which causes the system to display the resulting generic inquiry form in a new browser tab.

 You cannot preview the following functionality on the inquiry form by clicking the eye icon:

- Advanced filters
- Side panels

## Refinement of a Generic Inquiry

The creation of a generic inquiry can involve additional specifications, based on the business needs of the users. In this case, you can use other tabs of the [Generic Inquiry](#) (SM208000) form to achieve the needed results, previewing the refined inquiry form as you make changes.

To further refine the generic inquiry you are designing, you can use the following functionality:

- *Table relations:* You specify relations between data sources on the **Relations** tab, so that the system can generate SQL requests to get the required data from the sources involved. In the **Table Relations** area of this tab, you can specify the relations between **Parent Table** and **Child Table** tables by selecting a **Join**

**Type.** In the **Data Field Links for Active Relation** area of this tab, for each pair of related tables, you can specify the condition that defines the relation between the sources. For more details about relations, see [Data from Multiple Data Sources: General Information](#).

- **Parameters:** On the **Parameters** tab, you select and configure the parameters to be placed in the Selection area of the generic inquiry form. The user can make selections in this area to filter the data displayed in the table. For more details about the parameters and conditions, see [Conditions and Parameters: General Information](#).
- **Conditions:** You can use the **Conditions** tab to specify conditions that filter the data to be displayed. For example, an inquiry displaying a customer's balance, based on the specified conditions, can hide invoices with a balance of zero. For more details about the parameters and conditions, see [Conditions and Parameters: General Information](#).
- **Grouping:** You can group inquiry data by specifying grouping conditions on the **Grouping** tab. For example, you can group sales orders by date and status to get the count of sales orders, and their total and average amounts for each day and each status.



Grouping by user-defined fields is not supported. If your inquiry includes user-defined fields on the **Results Grid** tab of the form, these fields are not available for selection on the **Grouping** tab.

- **Sorting:** You can use the **Sort Order** tab to specify how the inquiry data is sorted—that is, the default order in which the results should be displayed on the inquiry form. For more details about the sorting and grouping, see [Sorting and Grouping: General Information](#).
- **Entry point:** By using the **Entry Point** tab, you can optionally define the generic inquiry to be an entry point (that is, a substitute form) instead of the existing primary Acumatica ERP form. If you do this, when a user clicks the name of the primary form while navigating or searching, the system will open the generic inquiry form containing the list of records, and when you click the name of a record in the list, the primary form will open with that record selected. For more details about making a generic inquiry an entry point, see [Generic Inquiry as a Substitute Form: General Information](#).
- **Navigation:** On the **Navigation** tab, you can optionally configure inquiry columns to contain links to Acumatica ERP forms and webpages. For example, you can configure a generic inquiry so that a user will be able to open the **Invoices and Memos** (AR301000) form with the details of a particular document in a new browser tab or in the side panel by clicking the link in the **Reference Nbr.** column of the inquiry. For details, see [Navigation Configuration: General Information](#).

## Publication of a Generic Inquiry

When an inquiry has been created and all the necessary settings have been specified, you can preview and then publish it, so that it can be used by other users. To publish the generic inquiry form, you click the **Publish to the UI** button on the form toolbar. The system opens the **Publish to the UI** dialog box.

In this dialog box, you specify the following information:

- **Site Map Title:** The name of the form that will be shown on the [Site Map](#) (SM200520) form. By default, the system uses the value specified in the **Inquiry Title** box.
- **Workspace:** The workspace in the user interface from which the form can be accessed. By default, it is *Data Views*.
- **Category:** The name of the category under which the form will be displayed in the selected workspace. By default, it is *Inquiries*.
- **Screen ID:** The identifier to be assigned to the form. By default, the system assigns the inquiry form an automatically generated screen ID, with *G1* as the two-letter module code, followed by a six-digit number that is one greater than the number portion of the most recently assigned screen ID for a generic inquiry.

-  The screen ID, site map title, workspace, and category of an inquiry can be modified later on the [Site Map](#) (SM200520) form.

Also, in the **Access Rights** section of the dialog box, you select one of the following option buttons to indicate which access rights should be specified for the newly added form:

- **Set to Granted for All Roles:** The system will set the access rights for this form to *Granted* for all user roles in the system.
- **Set to Revoked for All Roles:** The system will set the access rights for this form to *Revoked* for all user roles in the system.
- **Copy Access Rights from Screen (default):** The system will copy the set of the access rights from the specified form.

After you specify the needed settings and click **Publish** in the dialog box, the inquiry is published. That is, it is assigned a screen identifier and becomes available in the specified workspace. Also, the system adds the new site map node for this form to the site map and applies the appropriate access rights to this site map node.



If you publish a generic inquiry that is used as a substitute form for some data entry form, the system applies the access rights specified for the generic inquiry to the data entry form as well. For details on the publication of a generic inquiry that is configured as a substitute form, see [Generic Inquiry as a Substitute Form: General Information](#).

## Modification of Screen ID and a Title

You can change the automatically assigned screen identifier of a generic inquiry while publishing it. In the **Publish to the UI** dialog box, you enter the new screen ID for the generic inquiry, and click **Publish** to close the dialog box. The system begins the processing of the screen ID change. If this screen ID is not unique, the system displays an error on the form toolbar indicating that you need to enter another screen ID. If the processing of the change is successful, the system saves the generic inquiry with the new screen ID and changes this screen ID in all the system objects that are related to this generic inquiry.

To change the inquiry title (specified in the **Inquiry Title** box), you can click **Change Inquiry Title** on the More menu (under **Actions**) or on the form toolbar of the [Generic Inquiry](#) form. In the dialog box, which opens, you enter the new title and click **OK**. The system begins the processing of the title change. If this title is not unique, the system displays an error indicating that you need to enter another title. If the processing of the change is successful, the system closes the dialog box and inserts the title in the **Inquiry Title** box. To save the changes, you need to click **Save** on the form toolbar.

## Modification of Access Rights of a Published Generic Inquiry

After you have published the generic inquiry, you can adjust access rights to generic inquiries. On the [Access Rights by Screen](#) (SM201020) form, you select a role and one of the predefined levels of access rights. For more information, see [Access Rights to Generic Inquiries: General Information](#).

Alternatively, you can use the **Publish to the UI** button on the toolbar of the [Generic Inquiry](#) (SM208000) form.

## Modification of a Published Generic Inquiry

Users of a published generic inquiry form or their supervisors may request changes to the form.



In some cases, you will modify the generic inquiry directly. In other situations, you will leave the original inquiry intact, copy it, and make changes to a copy of it.

If you want to modify a generic inquiry form, you can temporarily hide it (that is, make it not visible to other users). To temporarily hide the inquiry, you clear the values of the **Workspace** and **Category** boxes on the [Site Map](#) (SM200520) form or on the [Generic Inquiry](#) (SM208000) form.

Alternatively, you can remove a published generic inquiry from UI, by clicking the **Unpublish** button on the form toolbar of the [Generic Inquiry](#) form. The system removes the respective node from the site map, clears the assignment of screen identifier and deletes all configured access rights from the database.



We strongly recommend that you do not withdraw from publication an inquiry that has been published already. If you withdraw it, the system clears the assignment of screen identifier (value of the **Screen ID** box), which may cause issues with the widgets or pivot tables based on the published inquiry.

## Creation of a Generic Inquiry: To Create an Inquiry Based on One DAC

In this activity, you will learn how to create a simple generic inquiry that collects data from one data access class (DAC). The activity describes the steps of designing a sample generic inquiry for testing purposes, so that you can develop a better understanding of the process.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including the creation and modification of generic inquiry forms. An accountant of your company has requested an inquiry form that collects data about invoices and memos. You have offered the predefined [Invoices and Memos](#) (AR3010PL) generic inquiry form, but the accountant instead wants a simpler inquiry that displays columns with the document type, the reference number, and the balance of the invoice with that number. The accountant has asked you to maintain the default access rights to the inquiry.

### Process Overview

The generic inquiry that you are going to create will have three columns to display the invoice reference number, the balance, and the document type. Thus, you will start by inspecting the [Invoices and Memos](#) (AR301000) form to explore which data access classes (DACs) you can use to access the needed data.

Once you obtain these details, you will create a generic inquiry on the [Generic Inquiry](#) (SM208000) form and configure its results grid.

When the inquiry has been created and all the necessary settings have been specified, you preview and then publish the inquiry.

### Step 1: Discovering DACs and Data Fields

To inspect the applicable user interface elements, do the following:

1. Open the [Invoices and Memos](#) (AR301000) form.
2. Point to the **Reference Nbr.** element, press Ctrl+Alt, and then click. The **Element Properties** dialog box opens. You are interested in two settings, **Data Class** and **Data Field**; these settings correspond to the data access class and data field you need, which are, respectively, *ARInvoice* and *RefNbr*.



As an alternative, you can click **Customization > Inspect Element** on the form title bar and then click the **Reference Nbr.** element.

3. While you are pointing at the **Balance** element, press Ctrl+Alt and click to open the **Element Properties** dialog box. Notice that the **Data Class** box again contains *ARInvoice*, while the **Data Field** box contains *CuryDocBal*.
4. Inspect the **Type** element, and notice that the **Data Field** box contains *DocType* and that the **Data Class** box again contains *ARInvoice*.

You have discovered that the data access class you need is *ARInvoice* and the data fields you need are *DocType*, *RefNbr*, and *CuryDocBal*.

## Step 2: Creating the Generic Inquiry

To begin the process of creating the generic inquiry, do the following:

1. Open the [Generic Inquiry](#) (SM208000) form.
2. In the Summary area, in the **Inquiry Title** box, type the name for the inquiry: DB-SampleGenericInquiry.
3. On the **Data Sources** tab, do the following:
  - a. On the table toolbar, click **Add Row**.
  - b. In the **Source Name** column of the added row, select *PX.Objects.AR.ARInvoice*. (In this example, you need to add a row for only this DAC, because the fields that are going to be used are in this DAC.)



Use the Search box (upper right) to find the DAC.

4. On the form toolbar, click **Save**.

Notice that the system has filled the **Alias** column with the predefined short name of the DAC (that is, *ARInvoice*).

## Step 3: Configuring the Results Grid

To configure the results grid (that is, the columns showing the data in the generic inquiry form), do the following:

1. On the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form with *DB-SampleGenericInquiry* selected, on the table toolbar, click **Add Row** to add a new row, and do the following:



To speed up the selection of items from the list, start typing the names of the values. The system will filter the list based on what you type.

- a. In the **Object** column of the added row, select *ARInvoice*.
- b. In the **Data Field** column, select *DocType*.
2. Again click **Add Row** to add a new row, and do the following:
  - a. In the **Object** column of the added row, select *ARInvoice*.
  - b. In the **Data Field** column, select *RefNbr*.
3. Again click **Add Row** to add a new row, and do the following:
  - a. In the **Object** column of the added row, select *ARInvoice*.
  - b. In the **Data Field** column, select *CuryDocBal*.

Notice that the **Visible** and **Default Navigation** check boxes are selected by default for all rows. That is, the system will display the added columns in the inquiry results and will display the values in these fields as links if the source code supports links for these fields.

4. On the form toolbar, click **Save**.

## Step 4: Previewing the Generic Inquiry Form

To preview the generic inquiry form you have created, click the eye icon on the side panel of the *Generic Inquiry* (SM208000) form while you are viewing the generic inquiry. Once reviewed, close the side panel.

## Step 5: Publishing the New Inquiry

To add the inquiry you have created to the site map, do the following:

1. While you are still working with the *DB-SampleGenericInquiry* generic inquiry on the *Generic Inquiry* (SM208000) form, on the form toolbar, click the **Publish to the UI** button.
2. In the **Publish to the UI** dialog box, which opens, review the default settings.
3. In the **Access Rights** section, select **Copy Access Rights from Screen**, and then select *Invoices and Memos* with the *AR.30.10.00* screen ID in the box next to the option button.  
With these settings, users that have access to the *Invoices and Memos* (AR3010PL) list of records will also have access to the created generic inquiry.
4. Click **Publish** to complete publication and close the dialog box.
5. On the main menu, select the **Data Views** menu item, and under the **Inquiries** category, make sure the created inquiry is listed.

## Lesson 2.2: Getting Data from Multiple DACs

In this lesson, you will learn how to configure data retrieval from multiple related data access classes in a generic inquiry.

### Data from Multiple Data Sources: General Information

In most cases, you want generic inquiry forms to give users the ability to review the data of some entity along with the data from other related entities. For example, suppose that you are creating a generic inquiry that lists open sales orders by customer. To build such an inquiry, you need to combine data from two data access classes (DACs): one that holds information about sales orders, and another that holds information about customers. For details on data access classes, which are referred to as *tables* on the user interface of the *Generic Inquiry* (SM208000) form, see [DAC Discovery: General Information](#).



We recommend that before you work with table relations, you have basic knowledge of SQL (which is used for storing, manipulating, and retrieving data in databases), so that you can understand how inquiries retrieve data.

You can use other generic inquiries as data sources, or have both DACs and inquiries as data sources for an inquiry, and combine them into query by setting relations between the sources. For details on using generic inquiries as data sources, see [Data from Multiple Data Sources: Use of Generic Inquiry as Data Source](#).

### Learning Objectives

In this lesson, you will learn how to construct a data request to retrieve data from multiple data access classes.

## Applicable Scenarios

You may find the information in this lesson useful when you are responsible for the customization of Acumatica ERP in your company, including developing and modifying generic inquiries to give users information they need to do their jobs. You need to deliver different inquiries that your colleagues may need to perform their jobs effectively. Many of these inquiries require the retrieval of data from multiple related data access classes.

## Construction of a Data Request from Multiple Tables

You start from inspecting the related forms (that is, the data entry forms of the data you will use) to determine the list of data access classes and fields you need to have in the results grid and use in formulas.

After the list of the tables is prepared, you determine how the tables will relate to each other (parent-child pairs) and what join type the system should use. Thus, you define how the system returns combined records in case either a parent or a child table is missing a record to combine.

Then for each pair you map a field from the parent table to the corresponding field from the child table. Thus, you define how the system will combine the records of the paired tables—that is, join conditions in SQL terms.

We recommend using the **Related Tables** dialog box to simplify configuration of relations between the tables. If the system offers you multiple suggestions on how a pair of tables can be linked, you can read detailed information about the tables and their fields in the DAC Schema Browser.

You can construct a data request manually (or you can change automatically configured settings) by using the instructions for the manual procedure. For more information, see [Data from Multiple Data Sources: Discovery of Key Fields](#).

## Definition of Relations Between Data Sources

After you have determined all the data sources you need for your inquiry, you need to decide how you will pair the sources and in what order you will list the pairs.

For each pair you determine which source is considered the parent table and which is the child one. Usually, the parent table is the one that provides the primary data and the child table provides additional information. For example, for an inquiry that lists sales orders by customers, you specify `SOOrder` as the parent table, because the primary data that the inquiry is displaying is provided by the `SOOrder` class. The `Customer` class provides additional information, so you select it as the child table.

The order in which you add the pairs to the system determines the sequence in which the system will retrieve the data. First, the system retrieves and combines data for the first pair of the sources to the single table. Then, the system adds up to this constructed table the data retrieved and combined from the next pair of the sources until there are no more pairs.

## Selection of a Join Type

After you have decided which data source is considered the parent table and which is the child one, you decide on a type of join for these sources. In Acumatica ERP you can use one of the following join types:



The join types that you can select in Acumatica ERP work in exactly the same way as the corresponding SQL JOIN statements do.

- *Inner:* An *Inner* join creates a result by combining the records of the parent and child tables when there is at least one match in both tables (see the figure below). For example, suppose that for an inquiry that lists open sales orders by customers, you join `SOOrder` and `Customer` with an *Inner* join. The system will return only those open sales orders (from `SOOrder`) for which there are customer records in the `Customer` table. The system will not display customers who do not have open sales orders.

- *Left:* A *Left* join returns all the records from the parent table combined with any matching records of the child table (see the figure below). For example, suppose that for an inquiry that lists open sales orders by customers, you join `SOOrder` (the parent table) and `Customer` (the child table) with the *Left* join. The system returns all open sales orders. For an open sales order for which the customer record was not found, the system returns an empty value in the column with customer information.
- *Right:* A *Right* join returns all the records from the child table combined with any matching records from the parent table (see the figure below). For example, suppose that for an inquiry that lists open sales orders by customers, you join `SOOrder` (parent table) and `Customer` (child table) with the *Right* join. The system will return all customers. For a customer for which a sales order record was not found, the system returns an empty value in the column with sales order information.
- *Full:* A *Full* join returns all the records from both the parent table and the child table when there is a match in a parent or child table record (see the figure below). For example, suppose that for an inquiry that lists open sales orders by customers, you join `SOOrder` and `Customer` with a *Full* join. The system will return all open sales orders (from `SOOrder`) and all customers (from the `Customer` table). A *Full* join can return a huge number of records.
- *Cross:* A *Cross* join returns each record from the parent table combined with each record from the child table. Thus, the number of records in the result set is the number of records in the parent table multiplied by the number of records in the child table (see the figure below). Unlike the *Inner*, *Left*, *Right*, and *Full* join, the *Cross* join does not require a joining condition.





The inquiry results may be empty because of your access rights to Acumatica ERP forms, or because some data has been deleted in the database. For example, with the *Inner* join, the system will not display the open sales orders of the customers to whose accounts your access is restricted or whose accounts were deleted for some reason.

## Definition of Join Conditions

After you have specified how the system should return combined records, you need to specify what data needs to be combined. To link the parent and child tables, you should specify the fields and conditions to link.



You can use any fields to join the tables. We recommend using the key fields because it allows the system to retrieve the data more quickly.

For example, suppose that for an inquiry that lists open sales orders by customers, you joined `SOOrder` as the parent table and `Customer` as the child table (the type of join does not matter for linking fields). This means that the system should combine the records of these two tables by adding data from the child table to the parent one. The child table provides customer details, so you should indicate to the system that the data of the particular customer needs to be joined with the data of particular open sales order of this customer. To do this, you add the link that indicates to the system that the `customerID` field from the `SOOrder` table equals the `BAccountID` field from the `Customer` table. The `BAccountID` field is a key field in the `Customer` table. The system finds an open sales order, identifies the value of the `customerID` field, and searches for the same value in the `BAccountID` column of the `Customer` table. When the customer record is found, the system combines these two records into one and proceeds to the next open sales order. The following screenshot shows the `SOOrder` and `Customer` tables and the result of their combination.

SOOrder DAC						Customer DAC					
OrderType	OrderNbr	CustomerID	OrderQty	OrderTotal	Status	BAccountID	AcctCD	AcctName	Status	CustomerClassID	CreditLimit
SO	000029	20		20.00	56.45 Open	19	COFFEESHOP	FourStar	Active	DEFAULT	0
IN	000063	19		1.00	4,100.00 Open	17	GOODFOOD	GoodFood One	Active	DEFAULT	0
IN	000061	17		2.00	6,700.00 Invoiced	16	HMBAKERY	HM's Bakery & C	Active	DEFAULT	0
IN	000059	16		1.00	2,600.00 Open	18	LAKECAFE	Lake Cafe	Active	INTLCA	0
IN	000057	21		1.00	4,100.00 Open	48	MORNINGCAF	Morning Cafe	Active	DEFAULT	0
SO	000028	16		135.00	327.01 Invoiced	20	RETSALE	Individual Client	Active	DEFAULT	0
SO	000027	17			92.00 210.66 Completed	21	TOMYUM	Thai Food	Active	DEFAULT	0
SO	000026	16		57.00	151.76 Completed						
SO	000025	17		157.00	382.23 Open						
SO	000024	16		129.00	316.25 Invoiced						

Combined Data From Both Tables											
OrderType	OrderNbr	CustomerID	OrderQty	OrderTotal	Status	BAccountID	AcctCD	AcctName	Status	CustomerClassID	CreditLimit
SO	000029	20		20.00	56.45 Open	20	RETSALE	Individual Client	Active	DEFAULT	0
IN	000063	19		1.00	4,100.00 Open	19	COFFEESHOP	FourStar	Active	DEFAULT	0
IN	000061	17		2.00	6,700.00 Invoiced	17	GOODFOOD	GoodFood One	Active	DEFAULT	0
IN	000059	16		1.00	2,600.00 Open	16	HMBAKERY	HM's Bakery & C	Active	DEFAULT	0
IN	000057	21		1.00	4,100.00 Open	21	TOMYUM	Thai Food	Active	DEFAULT	0
SO	000028	16		135.00	327.01 Invoiced	16	HMBAKERY	HM's Bakery & C	Active	DEFAULT	0
SO	000027	17		92.00	210.66 Completed	17	GOODFOOD	GoodFood One	Active	DEFAULT	0
SO	000026	16		57.00	151.76 Completed	16	HMBAKERY	HM's Bakery & C	Active	DEFAULT	0
SO	000025	17		157.00	382.23 Open	17	GOODFOOD	GoodFood One	Active	DEFAULT	0
SO	000024	16		129.00	316.25 Invoiced	16	HMBAKERY	HM's Bakery & C	Active	DEFAULT	0

**Figure: Data combined from two tables**

You can link the same two tables by using different join conditions. The join conditions you specify should be determined by the result that you need to receive. For example, you establish a relation between the `Users` (parent) and `CRActivity` (child) tables. You can use the `PKID` field for the `Users` table and one of the `CreatedByID` and `LastModifiedByID` fields in the `CRActivity` table.

If you are designing a generic inquiry to get data about users who created records in the `CRActivity` table, you link the `PKID` field with the *Equal* condition to the `CreatedByID` field.

If you are designing a generic inquiry to get data about users who modified records in the `CRActivity` table, you link the `PKID` field with the *Equal* condition to the `LastModifiedByID` field.

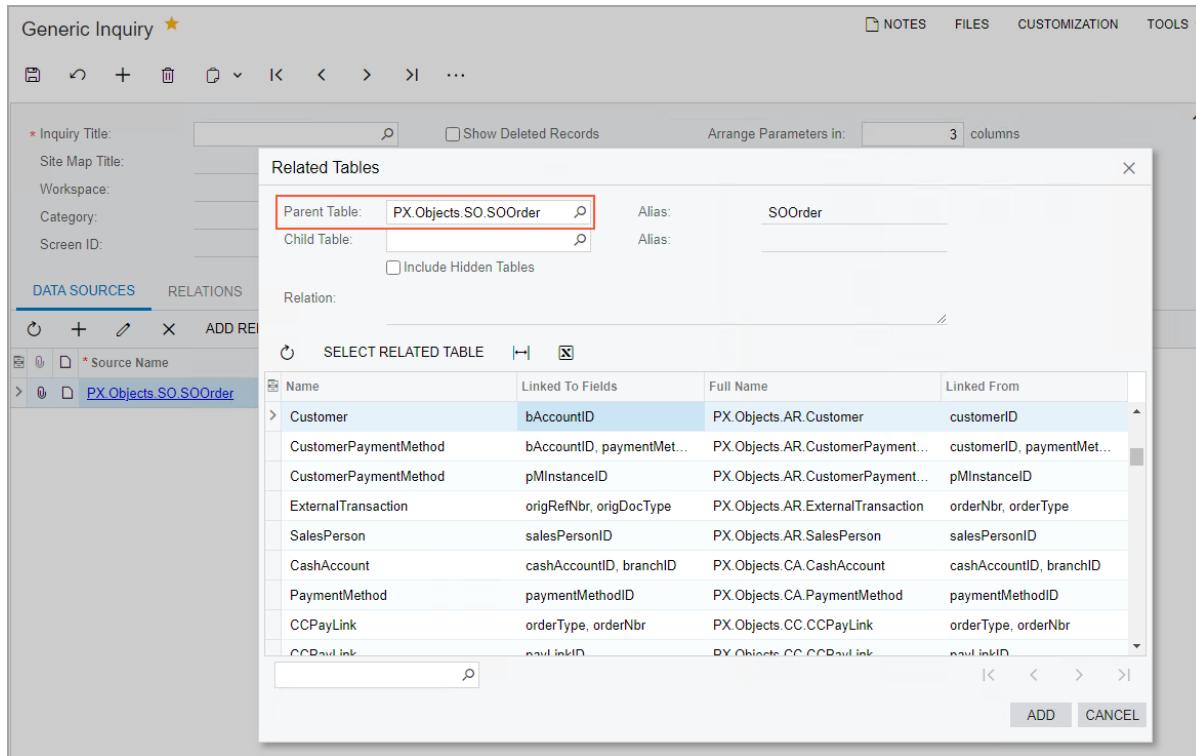
## Data from Multiple Data Sources: Use of Related Tables Dialog Box

After you collected the list of the tables and decided how you need to pair the tables and in which order, you specify this information on the [Generic Inquiry](#) (SM208000) form. You first add a table (or multiple tables) on the **Data Sources** tab and then use the **Related Tables** dialog box to add related tables and specify the relation settings. The system will guide you through the process and suggest possible options of linking records of paired tables.

### Selection of a Parent Table

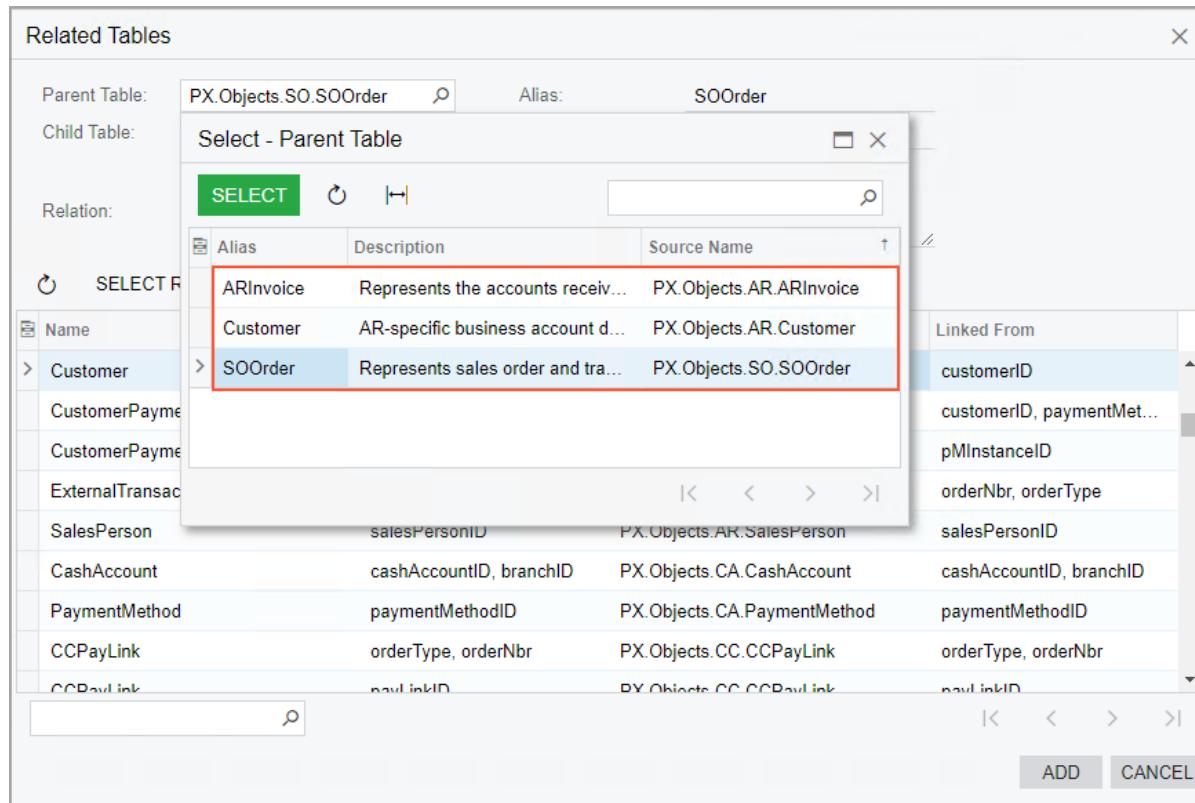
You add a parent table on the **Data Sources** tab by clicking **Add Row** on the table toolbar and selecting the needed table in the **Source Name** column of the added row.

With the row with the added table selected, you then open the **Related Tables** dialog box by clicking **Add Related Table** on the table toolbar. In the **Parent Table** box of the dialog box, the system displays the selected table (see the following screenshot).



*Figure: The parent table (specified automatically)*

If multiple tables are listed on the **Data Sources** tab, you can then select any of them as a parent table in the **Parent Table** box (see the following screenshot).



**Figure: Selection of a parent table**



The **Add Related Table** button is unavailable until you add a table to the **Data Source** tab. It is also unavailable if a generic inquiry is selected as a source.

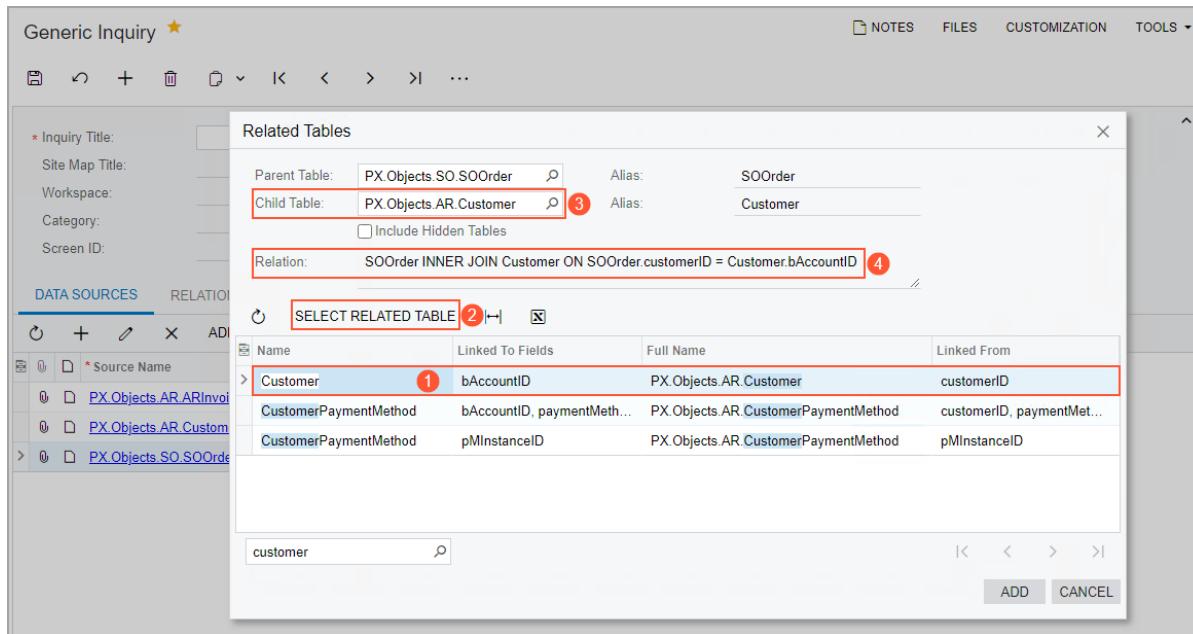
## Selection of a Child Table

After you selected a parent table, you can select a child table. You select a child table in the list of tables (which includes only the tables that can be linked to the selected parent table). The row with a child table provides information about fields that can be used for linking the parent and child tables (see Item 1 in the screenshot below). For example, the information in the row for the **Customer** table shown in the screenshot below you can read as follows: The table with the **Customer** alias (**Name**) can be combined with the parent table by linking the **customerID** field from the parent table (**Linked From**) to the **bAccountID** field (**Linked To Fields**).



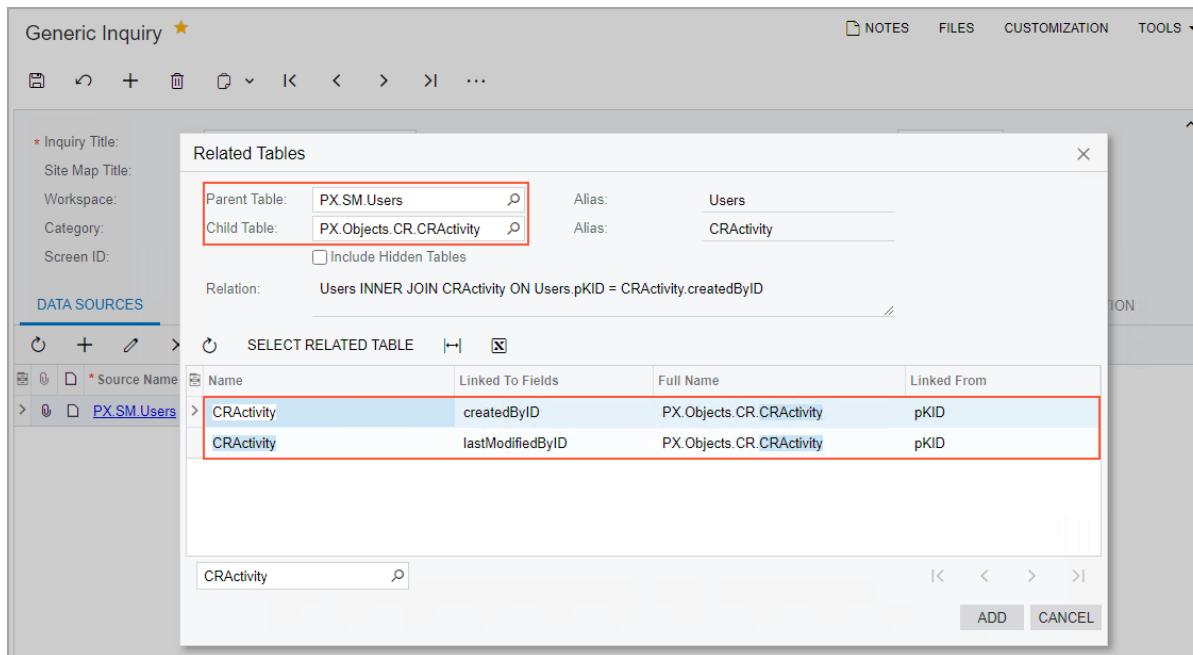
To find the necessary table in the list, you can use the search box below the list.

To select the child table, you click **Select Related Table** on the table toolbar (Item 2). The system displays the selected table in the **Child Table** box (Item 3) and the relation between the parent and child tables in the **Relation** box (Item 4). The relation is described as a part of the SQL statement and includes a type of join and data field links. By default, the *Inner* join type is used.



**Figure: Selection of a child table**

If a child table can be joined using different join conditions (set of fields), the system offers available options for the selection in the list of child tables, as the following screenshot demonstrates for the `Users` (parent) and `CRActivity` (child) tables. You select the needed option and click **Select Related Table**.



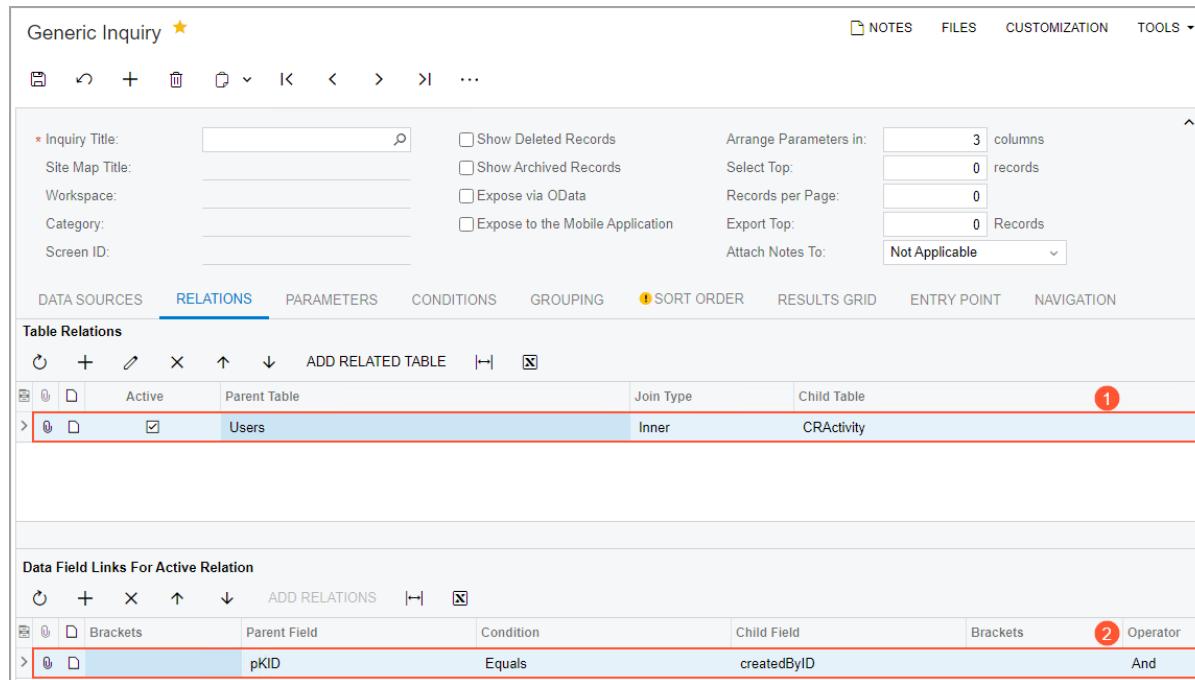
**Figure: Selection of a child table that have multiple join options**

## Confirmation of the Configuration

To confirm the specified configuration and close the **Related Tables** dialog box, you click **Add** in the dialog box. The system closes the dialog box and does the following on the [Generic Inquiry](#) (SM208000) form:

- Adds the tables you selected to the list on the **Data Sources** tab of the form.

- Adds the relation record to the **Table Relations** table on the **Relations** tab (see Item 1 in the following screenshot).
- Adds join conditions for the relation record to the **Data Field Links For Active Relation** table on the **Relations** tab (Item 2).



**Figure: Table relation added with the Related Tables dialog box**

After the relation between the pair of tables has been configured, you can change the following settings, which have been inserted by the system based on your selections in the **Related Tables** dialog box:

- Join type: On the **Relations** tab, in the **Join Type** column of the **Table Relations** table
- Data field links: On the **Relations** tab, in the **Data Field Links for Active Relation** table

At any time after the relation between the parent and child tables has been configured, you can view the relation by clicking **Add Relations** on the table toolbar of the **Data Field Links for Active Relation** table on the **Relations** tab. In this case, the system displays the **Related Tables** dialog box with the boxes filled in with values. Even though the boxes in the **Related Tables** dialog box are filled with values, you can configure the relation between a new pair of tables.

## Data from Multiple Data Sources: Use of Generic Inquiry as Data Source

You can specify generic inquiries as data sources for a generic inquiry. That is, you can create multiple simple generic inquiries and reuse them as data sources for a generic inquiry. You build a complex request by combining the simple inquiries into one.

### Adding a Generic Inquiry as a Data Source

When you use generic inquiries as data sources for other inquiries, the system does not limit the number of levels of nesting. It ensures only that an inquiry is not a parent to another inquiry that uses it as data source.



The term *parent* refers to a generic inquiry that uses another generic inquiry as its data source.

To add a generic inquiry as a data source, you click **Add Row** on the table toolbar of the **Data Sources** tab. In the new row, you open the lookup table for **Source Name**. On the **Generic Inquiries** tab of the lookup table, you selects the needed inquiry. The system adds the inquiry to the table and switches focus to the **Alias** column. You can type an alias for the inquiry or skip this step. The system inserts the value from **Source Name** if no alias has been specified.



On the **Generic Inquiries** tab of the lookup table, the system displays (that is, makes available for selection) only inquiries that are not using the current inquiry as a source.

If the added generic inquiry is a parent to an inquiry that in turn is a parent to an inquiry (and so on in a chain of relations), each contained inquiry is considered a data source for the selected inquiry. However, the system does not add all the nested inquiries to the table of the **Data Sources** tab, only the selected one.

For each added data source, you specify the relations between pairs of data sources (tables or inquiries) on the **Relations** tab. For each pair of related data sources added to the **Table Relations** table, you specify the links between these two data sources in the **Data Field Links for Active Relation** table. If a field from the source inquiry is not stored in the database, it cannot be used to define a relation.



The **Related Tables** dialog box, which can be used to add relations between tables, is not available for adding relations between inquiries. When you select a row with an inquiry in the table on the **Data Sources** tab or in the **Table Relations** table on the **Relations** tab, the **Add Related Table** button becomes unavailable.

## Adding Fields from a Source Inquiry to the Results Grid

When you add a generic inquiry as a data source on the [Generic Inquiry](#) (SM208000) form, the system does not add its fields to the **Results Grid** tab of the form. You should manually add the needed fields.

When you add a field from the source inquiry on the **Results Grid** tab, the system copies the following settings from the source:

- **Use in Quick Search**
- **Quick Filter**
- **Caption**
- **Width (px)**
- **Schema Field**
- **Style**

For the rest of the settings the system inserts default values. The system modifies the copied settings to include the source inquiry name in the field names used in these settings. For example, if a field from source inquiry A is used in a style formula, the system will modify the field name to `A.field_name`.

The system does not copy the navigation settings for the fields from the source inquiry. However, if such a field has customized navigation settings (that is, different from the default behavior), the system will use these settings. These settings will apply for all parent inquiries where this field is added to the **Results Grid** tab. You can modify the navigation settings for the current inquiry to achieve the needed behavior.

## Using Parameters from a Source Inquiry

The system does not add parameters from source inquiries automatically to the **Parameters** tab of the [Generic Inquiry](#) (SM208000) form. You can add any needed parameters manually. As with the field names, the system will display parameter names with the alias of the source inquiry preceding the parameter name.

When you add a row on the **Parameters** tab and select a parameter from a source inquiry in the drop-down list in the **Name** column, the system adds the parameter and copies its settings. If you type some name in the **Name**

column and then open the drop-down list in this cell and select a parameter from a source inquiry, the system adds the parameter with the typed name and the settings from the selected parameter.

When parameters in the parent and source inquiry share the same names, the system creates a link between these parameters. You can adjust the parameter settings. However, these modifications must align with the settings in the source inquiry. For instance, if a parameter is defined as an integer type in the source inquiry, it should not be redefined as a string.

Modifications made in the parent inquiry do not affect the linked source. However, if you modify a parameter in the source inquiry, the system will show a warning indicating that the changes will affect the parent inquiry.

If you change the name of the parameter with the linked source, the system removes the link between these parameters. If you reverse the name change, the system restores the link.

## Application of Access Rights

A user with access rights to view a generic inquiry will see all the data that this inquiry returns, regardless of the user's access rights to the source inquiries that are included in the query.

If data from the source inquiry is restricted through the use of restriction group settings, the system may limit the display of data based on these settings.

## Modifying an Inquiry Used as a Data Source

After a generic inquiry has been added to the table on the **Data Sources** tab of [Generic Inquiry](#) (SM208000) form, its name is displayed as a link. If you click the link, the [Generic Inquiry](#) form opens in a new browser tab with the inquiry selected. The system will display a warning indicating that the inquiry is used as a data source for another inquiry. If you modify the inquiry used as a data source, the system opens the **Copy Generic Inquiry** dialog box. The dialog box asks you if you want to create a copy to save modifications (which leaves the original inquiry intact) rather than overwriting it.

If you click **Copy**, the system saves a copy of the original inquiry with the modifications; it adds after the original value in **Inquiry Title** a hyphen and a number. The system increments the number each time a copy of that inquiry is saved.

## Deleting an Inquiry Used as a Data Source

You may want to delete an inquiry that is used as a data source by opening this inquiry on the [Generic Inquiry](#) (SM208000) form and clicking **Delete** on the form toolbar. The system displays a warning that lists the inquiries that use this inquiry as a data source.

If you choose to delete this inquiry, the system will mark its fields with a warning when you open a parent inquiry on the [Generic Inquiry](#) form. Suppose that a field from the deleted source inquiry was earlier added on the **Results Grid** tab of the parent inquiry. When you open the parent inquiry (after deleting the source inquiry), the system will display a warning in the row with the field from the deleted source inquiry on the **Results Grid** tab.

Similarly, if you delete a field on the **Results Grid** tab of a source inquiry that is somehow used in its parent inquiry, the system will display a warning for the deleted fields when you open a parent inquiry on the [Generic Inquiry](#) form.

## Exporting and Importing Inquiries

When you export a generic inquiry that has other inquiries as data sources, the system includes all the inquiries from the chain of sources in the export file.

Also, when you import a file with generic inquiries and inquiries in the system have the same identifiers, the system displays a warning with the list of the inquiries. You can cancel the import, or you can confirm the import of the inquiries, causing the system to overwrite the inquiries.

## Data from Multiple Data Sources: DAC Schema Browser

---

During manual configuration of relations between tables when you are designing a generic inquiry or report, you can use the Acumatica ERP DAC Schema Browser to find information about any data access class (DAC). You can use this information to understand which DACs should be used in generic inquiries and reports, and how to join these DACs.

### Ways to Access the Information

You can open DAC Schema Browser by clicking one of the following:

- A link with a table name in the **Source Name** column on the **Data Sources** tab of the *Generic Inquiry* (SM208000) form
- A link with a data access class in the **Element Properties** dialog box, which opens when you inspect UI elements on a data entry form
- **Tools > DAC Schema Browser** on the right side of the form title bar of any form

The system opens the DAC Schema Browser in a separate browser tab.

### Parts of the DAC Schema Browser

The following screenshot demonstrates the DAC Schema Browser and its parts.

**DAC Schema Browser**

**ARInvoice DAC Customized**

**Definition Fields Incoming References Outgoing References**

**Base DAC:** ARRegister  
**Display Name:** AR Invoice/Memo  
**Namespace:** PX.Objects.AR  
**Primary Screens:** Invoices and Memos (AR301000), Payments and Applications (AR302000), Cash Sales (AR304000), Invoices (SO303000)  
**Customization:** ARInvoiceExt (PX.Objects.dll)

**Summary**  
 Represents the Accounts Receivable invoices, credit and debit memos, overdue charges and credit write-offs as well as the invoices created in the Sales Orders module (see SOInvoice). The records of this type are created and edited through the Invoices and Memos (AR.30.10.00) screen (corresponds to the ARInvoiceEntry graph). The SO Invoices are created and edited through the Invoices (SO.30.30.00) screen (corresponds to the SOInvoiceEntry graph).

**Fields**

Name	Type	Display Name	Foreign Reference
DocType	char(3)	Type	
RefNbr	Default Navigation	nvarchar(15)	Reference Nbr.
AdjCntr	int		
ApplicationBalance	Nonexistent in DB	decimal	
ApplyOverdueCharge	bit	Apply Overdue Charges	
ApplyPaymentWhenTaxAvailable	Nonexistent in DB	bit	

**Incoming References**

Parent Key Fields	Child DAC	Child Key Fields
NoteID	APInvoice	IntercompanyInvoiceNoteID
RefNbr	ARAjust	PPDCrMemoRefNbr
DocType, RefNbr	ARAjust	AdjdDocType, AdjdRefNbr
NoteID	ARAjust	MemoID
DocType, RefNbr	ARDunningLetter	FeeDocType, FeeRefNbr

**Outgoing References**

Child Key Fields	Parent DAC	Parent Key Fields
ARAccountID	Account	AccountID
RetainageAcctID	Account	AccountID
BillAddressID	ARAddress	AddressID
ShipAddressID	ARAddress	AddressID

Figure: DAC Schema Browser

1. Search box (see Item 1 in the screenshot): By using this box, you can search for a DAC by its name or display name. When you search for a DAC by its name, you may notice that the search results contain more than one DAC. These DACs have the same names but different namespaces.



To be sure that you are viewing the needed DAC, we recommend that you open the DAC Schema Browser in the **Element Properties** dialog box, which you invoke on a data entry form. In this case, the DAC Schema Browser opens with the information about selected data access class.

2. DAC navigation menu (Item 2): This menu has a tree structure in which DACs are listed below their namespaces. In this menu, you can select a DAC to view its information.
3. Page title bar (Item 3): In this part, you can obtain information about the DAC name and the type of the DAC –for example, *Obsolete*, *Hidden*, *Nonexistent in DB*, and *Projection*. Also, using the links on the title bar, you can go to the needed sections of the current page. On the far right of the title bar, there are the following links:
  - **Source Code:** Opens the source code for the selected DAC.
  - **DAC Query:** Opens an SQL query that the selected DAC executes.
  - **Source Data:** Opens the source data of the selected DAC.

4. Main information area (Item 4): In this part, you can obtain additional information about the selected DAC, such as the following: a link to the base DAC (that is, the DAC through which the system receives data); a link to a DAC that is used in a projection query or in a nested DAC; the list of forms whose primary view is based on the selected DAC (applicable only for primary DACs); and a link to the parent DAC (if applicable) of the selected DAC.
5. Summary and Remarks area (Item 5): This area contains a general description of the selected DAC, which can be useful when you are selecting DACs for your generic inquiry or report.
6. List of DAC fields (Item 6): In this part, you can get information not only about the names of the selected DACs but also about key fields and references to other DACs. Key fields are marked with icons to indicate that the field is a primary key (yellow key), a foreign key (black key), or both types of keys. If a particular field is a foreign key, the link to the foreign DAC is displayed in the **Foreign Reference** column.



A foreign key is a set of attributes in a table that refer to the primary key of another table. The foreign key links these two tables. A primary key is a specific choice of a minimal set of attributes (columns) that uniquely specify a row in a table.

7. Incoming references (Item 7): Incoming references are the DACs that reference the selected DAC. These DACs are listed in the **Child DAC** column. In the **Parent Key Fields** column, the system lists the key fields of the selected DAC and in the **Child Key Fields** column, the system shows the corresponding key fields that you should use to join the DACs.
8. Outgoing references (Item 8): Outgoing references are the DACs that the selected DAC references. These DACs are listed in the **Parent DAC** column. In the **Child Key Fields** column, the system lists the key fields of the selected DAC and in the **Parent Key Fields** column, the system shows the corresponding key fields that you should use to join the DACs.

For detailed information about the DAC Schema Browser, see [DAC Schema Browser](#).

## Data from Multiple Data Sources: Discovery of Key Fields

On the [Generic Inquiry](#) (SM208000) form, you can manually configure the relation between each pair of tables that you are going to use in your inquiry form. In this case, you should perform the following actions: to decide what type of join to use, to discover the key fields of the tables, and to define how to link the discovered fields to get the desired output.

If you are using the **Add Relation** wizard on the [Generic Inquiry](#) form, you need to specify only a parent table and the system will suggest child tables with the possible linking options.

In this topic, you will read about the ways to discover key fields of a table that you can use for linking the tables.



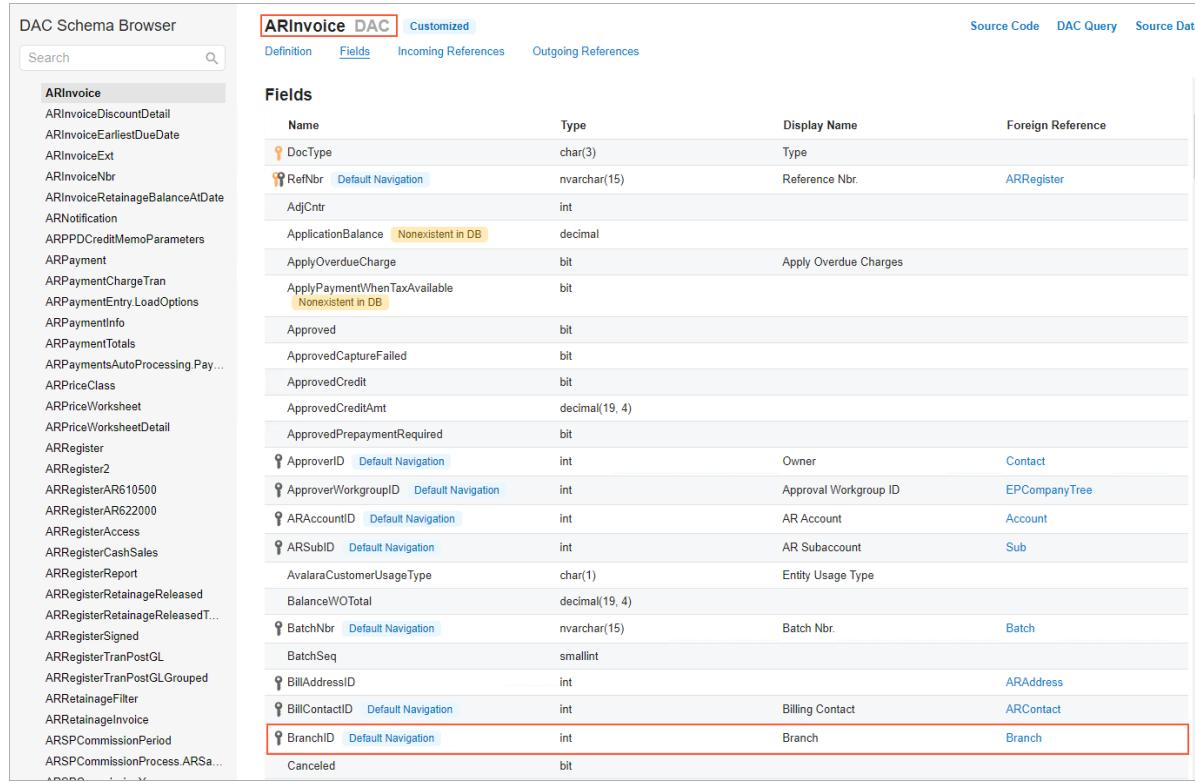
You can use any fields to join the tables. We recommend using the key and foreign key fields because it allows the system to retrieve the data more quickly.

### Discovery of Key Fields by Using the DAC Schema Browser

Suppose that you need to create an inquiry that shows a list of AR invoices with detailed information about customers and the branch related to each AR invoice. You need to select the correct DACs for this inquiry and to specify the correct fields to link these DACs.

Your primary goal is to show the list of AR invoices. You open the [Invoices and Memos](#) (AR301000) form and invoke the **Element Properties** dialog box for the **Reference Nbr.** box (which holds a unique identifier of a document) in the Summary area of the form. In the dialog box, you click the **ARInvoice** link in the **Data Class** box. The system opens the DAC Schema Browser in a separate browser tab with the detailed information about the **ARInvoice** DAC.

In the DAC Schema Browser, in the **Name** column of the **Fields** table, you look for the fields that hold information about the branch and customer of an AR invoice. These fields are *BranchID* and *CustomerID*, which are foreign keys, which means that there are DACs that reference these fields (listed in the **Foreign Reference** column, as shown in the following screenshot).



Fields			
Name	Type	Display Name	Foreign Reference
DocType	char(3)	Type	
RefNbr	Default Navigation	Reference Nbr.	ARRegister
AdjCntr	int		
ApplicationBalance	Nonexistent in DB	decimal	
ApplyOverdueCharge	bit	Apply Overdue Charges	
ApplyPaymentWhenTaxAvailable	Nonexistent in DB	bit	
Approved	bit		
ApprovedCaptureFailed	bit		
ApprovedCredit	bit		
ApprovedCreditAmt	decimal(19, 4)		
ApprovedPrepaymentRequired	bit		
ApproverID	Default Navigation	Owner	Contact
ApproverWorkgroupID	Default Navigation	Approval Workgroup ID	EPCompanyTree
ARAccountID	Default Navigation	AR Account	Account
ARSubID	Default Navigation	AR Subaccount	Sub
AvalaraCustomerUsageType	char(1)	Entity Usage Type	
BalanceWOTotal	decimal(19, 4)		
BatchNbr	Default Navigation	Batch Nbr.	Batch
BatchSeq	smallint		
BillAddressID	int		ARAddress
BillContactID	Default Navigation	Billing Contact	ARContact
BranchID	Default Navigation	Branch	Branch
Canceled	bit		

Figure: Details of the *BranchID* field

For the *BranchID* field, the *Branch* DAC is listed as a foreign reference. You can view the details of this DAC by clicking its link. You may want to make sure that this is the class that holds information about branches and it has all the fields you need for your inquiry. If you are satisfied with the DAC, you should look for it either in the **Incoming References** or **Outgoing References** section to find its key field that you should use for linking. (See the following screenshot.)



The first column in the **Incoming References** and **Outgoing References** sections lists the fields of the selected DAC.

Outgoing References		
Child Key Fields	Parent DAC	Parent Key Fields
ARAccountID	Account	AccountID
RetainageAcctID	Account	AccountID
BillAddressID	ARAddress	AddressID
ShipAddressID	ARAddress	AddressID
BillContactID	ARContact	ContactID
ShipContactID	ARContact	ContactID
DocType, RefNbr	ARRegister	DocType, RefNbr
CustomerID	BAccount	BAccountID
BatchNbr	Batch	BatchNbr
BranchID	Branch	BranchID
CashAccountID	CashAccount	CashAccountID
BranchID, CashAccountID	CashAccount	CashAccountID, BranchID
ApproverID	Contact	ContactID
OwnerID	Contact	ContactID
CuryID	Currency	CuryID
CuryInfoID	CurrencyInfo	CuryInfoID

Figure: The information about the Branch DAC and its key field

For the *CustomerID* field, the *BAccount* and *Customer* DACs are listed. While reading about the *BAccount* DAC, you find out that it is the base class for the *Customer* DAC. That is, the *Customer* DAC takes information from the *BAccount* DAC and has additional fields. So, if the information about the customers that you need is available in the *BAccount* class, you should use this class for the performance reasons. Otherwise, you should use the *Customer* class. Suppose that you need to show only customer's identifier, name, and default address. All this information is present in the *BAccount* class. You search for the *BAccount* class either in the **Incoming References** or **Outgoing References** section to find its key field that you should use for linking (see the following screenshot).

Outgoing References		
Child Key Fields	Parent DAC	Parent Key Fields
ARAccountID	Account	AccountID
RetainageAcctID	Account	AccountID
BillAddressID	ARAddress	AddressID
ShipAddressID	ARAddress	AddressID
BillContactID	ARContact	ContactID
ShipContactID	ARContact	ContactID
DocType, RefNbr	ARRegister	DocType, RefNbr
CustomerID	BAccount	BAccountID
BatchNbr	Batch	BatchNbr
BranchID	Branch	BranchID
CashAccountID	CashAccount	CashAccountID
BranchID, CashAccountID	CashAccount	CashAccountID, BranchID

Figure: The information about BAccount DAC and its key field

Thus, you determine that the following relations should be used for the selected DACs:

- *ARInvoice* and *Branch*: *ARInvoice.BranchID* = *Branch.BranchID*
- *ARInvoice* and *BAccount*: *ARInvoice.CustomerID* = *BAccount.BAccountID*

With this information, you add the DACs to the **Data Tables** tab and specify the relations on the **Relations** tab of the [Generic Inquiry](#) form.

For details on DAC Schema Browser, see [Data from Multiple Data Sources: DAC Schema Browser](#).

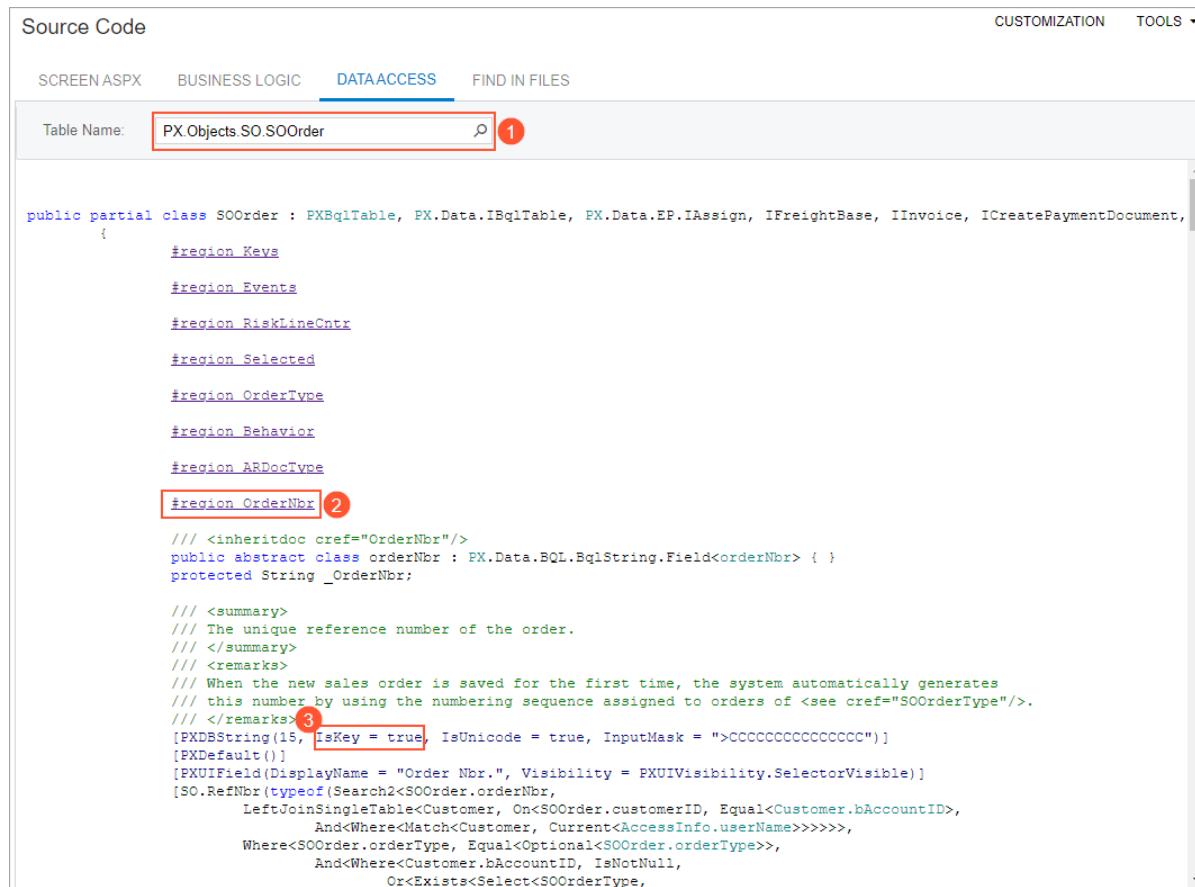
## Discovery of Key Fields on the Source Code Form

The information about each key field—the field in the applicable record that holds unique data identifying that record from all the other records in the database—of the data access class you need is stored in the source code.

You can get more information about the data access class you need on the [Source Code](#) (SM204570) form, which you can access in the following ways:

- From the **Element Properties** dialog box, as you are using it to explore a UI element on a particular form, by clicking **Actions > View Data Class Source**. The form opens in a pop-up window. The specified data access class is shown on the **Data Access** tab (see Item 1 in the screenshot below).
- By directly navigating to the [Source Code](#) form. Then in the **Table Name** box on the **Data Access** tab, you select the data access class you need.

All fields of a data access class are listed on the **Data Access** tab, as shown in the following screenshot. You can explore any field further as you look for the key field; you generally focus on fields whose names seem to allude to numbers or identifiers. In the example shown in the screenshot, you would click #region OrderNbr to expand its attributes (Item 2 in the screenshot). Here you can find the string `IsKey = true`, which means that `OrderNbr` is included in the key of this class (Item 3).



```

Source Code
CUSTOMIZATION TOOLS ▾

SCREEN ASPX BUSINESS LOGIC DATAACCESS FIND IN FILES
Table Name: PX.Objects.SO.SOOrder ①

public partial class SOOrder : PXBqlTable, PX.Data.IBqlTable, PX.Data.EP.IAssign, IFreightBase, IIInvoice, ICreatePaymentDocument,
{
    #region Keys
    #region Events
    #region RiskLineCntr
    #region Selected
    #region OrderType
    #region Behavior
    #region ARDocType
    #region OrderNbr ②
        /// <inheritdoc cref="OrderNbr"/>
        public abstract class orderNbr : PX.Data.BQL.BqlString.Field<orderNbr> { }
        protected String _OrderNbr;

        /// <summary>
        /// The unique reference number of the order.
        /// </summary>
        /// <remarks>
        /// When the new sales order is saved for the first time, the system automatically generates
        /// this number by using the numbering sequence assigned to orders of <see cref="SOOrderType"/>.
        /// </remarks> ③
        [PXDBString(15, IsKey = true, IsUnicode = true, InputMask = ">CCCCCCCCCC")]
        [PXDefault()]
        [PXUIField(DisplayName = "Order Nbr.", Visibility = PXUIVisibility.SelectorVisible)]
        [SO.RefNbr(typeof(SOOrder.orderNbr,
            LeftJoinSingleTable<Customer, On<SOOrder.customerID, Equal<Customer.bAccountID>>>,
            And<Where<Match<Customer, Current<AccessInfo.userName>>>>,
            Where<SOOrder.orderType, Equal<Optional<SOOrder.orderType>>>,
            And<Where<Customer.bAccountID, IsNotNull,
            Or<Exists<Select<SOOrderType,
        
```

**Figure: Exploration of a data access class on the Source Code form**

Particular types of key fields are distinguished as follows:

- On the application level, key fields are the fields that are marked with `IsKey = true`.
- On the database level, key fields are the fields that are marked with the `PXDBIdentity` attribute and with `IsKey = true`. Key fields of this type are used to join data access classes. The key field with the `PXDBIdentity` attribute is a part of the database index, so the queries with the fields with the `PXDBIdentity` attribute execute faster than the queries with fields with only the `IsKey` attribute do.

Acumatica ERP master classes (which are categorized as **Profiles** in the UI in workspaces and search results), such as `Customer` and `InventoryItem`, usually have two key fields—that is, one with the `IsKey` attribute, and another with the `PXDBIdentity` attribute. The key fields of the `InventoryItem` class are `InventoryID`, which is marked with the `PXDBIdentity` attribute, and `InventoryCD`, which is marked with the `IsKey` attribute. For these

classes, you use the field with the `PXDBIdentity` attribute to join classes in queries and the field with the `IsKey` attribute in other cases, such as for inquiry or report parameters.

Acumatica ERP document and transaction classes (which are mentioned as **Transactions** in the UI in workspaces and search results)—such as `SOOrder`, `ARInvoice`, and `ARPayment`—usually have two or more key fields, which are marked with the `IsKey` attribute. For example, the key fields of the `ARInvoice` class are `RefNbr` and `DocType`. You can use both of these fields to join data access classes in queries.

You can perform similar actions to explore any element you need for your inquiry. For the key fields of the data access class, you have to observe the data access class and the database table. To reveal the relationships between the data access classes, you inspect the fields of the main data access class and the related data access classes and review the structure of the corresponding database tables.

## Data from Multiple Data Sources: To Create an Inquiry with Two Tables

---

In this activity, you will learn how to create a generic inquiry that collects and displays data from two data access classes (DACs), which are referred to as *tables* on the user interface of the [Generic Inquiry](#) (SM208000) form. The activity walks you through the steps of designing a sample generic inquiry for testing purposes, so that you can develop a better understanding of the process.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including the creation and modification of generic inquiry forms. A salesperson of your company has requested an inquiry that collects data about sales orders by customer. The salesperson would like to see the sales orders of those customers whose accounts are still in the system (that is, they have not been deleted). Also, the security policy of your company restricts access to the customer accounts and you should make sure that each salesperson will see only the allowed customer accounts.

The inquiry form should have a Selection area with the following elements, which should be empty by default:

- **Date From**
- **Date To**
- **Customer**
- **Order Status**

The results grid of the inquiry form will consist of columns that display the following information about each sales order: sales order number, type, status, date, and customer name.

### Process Overview

The generic inquiry that you are going to create in this activity will collect data about sales orders and the corresponding customers. You will inspect the needed elements on the [Sales Orders](#) (SO301000) and [Customers](#) (AR303000) forms to explore which classes you can use to access the needed data.

With the knowledge you have obtained, you will create a generic inquiry on the [Generic Inquiry](#) (SM208000) form and configure the results grid, the requested parameters (that is, the elements in the Selection area), and the conditions that correspond to the parameters.

To comply with the security policy and fulfill the salesperson's requirement, you will use the *Inner* join type while configuring table relations. An *Inner* join creates a result by combining the rows of the parent and child tables when there is at least one match in both tables. That is, if for a sales order, the system finds a customer account that was deleted or the salesperson has no access, the system will not return the sales order.

When an inquiry has been created and all the necessary settings have been specified, you will preview and then publish the inquiry.

## Step 1: Discovering the DACs and Data Fields

To inspect the needed user interface elements to find the needed DACs and data fields, do the following:

1. Open the [Sales Orders](#) (SO301000) form.
2. Point to the **Order Type** box, press Ctrl+Alt, and then click. The **Element Properties** dialog box opens.
3. Make a note of the values in the **Data Class** and **Data Field** boxes (*SOOrder* and *OrderType*, respectively), which are the data access class and data field you need. Close the dialog box.



Although in this activity, the tasks of element inspection and generic inquiry development are kept separate for simplicity, in production development, you will generally be inspecting elements on the UI and creating the generic inquiry at the same time. In this case, you may find it convenient to have the form or forms containing the UI elements open in a separate tab, so that you can quickly switch between the [Generic Inquiry](#) (SM208000) form and the form you are using to inspect the elements.

4. Repeat Instructions 2–3 for the following UI elements on the [Sales Orders](#) form:

- **Order Nbr.**
- **Status**
- **Date**
- **Customer**

The **Customer** element on the [Sales Orders](#) form contains an identifier of a customer but not a customer name that should be displayed in the resulting inquiry form. To obtain information about specific customer specified in each sales order, you should use the [Customers](#) (AR303000) form.

In exploring these elements, you have discovered that the data access class you need is *SOOrder* and the data fields are *OrderType*, *OrderNbr*, *Status*, *OrderDate*, and *CustomerID*.

5. Open the [Customers](#) form.
6. Point to the **Customer ID** box, press Ctrl+Alt, and then click. The **Element Properties** dialog box opens.
7. Make a note of the values of the **Data Class** and **Data Field** elements (*Customer* and *AcctCD*, respectively), which are the data access class and data field you need.

## Step 2: Creating the New Inquiry

To begin the process of creating the generic inquiry, you do the following:

1. Open the [Generic Inquiry](#) (SM208000) form.
2. In the Summary area, in the **Inquiry Title** box, type the name you will use for the inquiry: DB-*SOOpenByCustomer*.
3. On the table toolbar of the **Data Sources** tab, click **Add Row**, and in the **Source Name** column, select *PX.Objects.SO.SOOrder*.
4. On the table toolbar, click **Add Related Table** to add the child table for your generic inquiry.
5. In the **Related Tables** dialog box, which opens, notice that the system has inserted the name of the selected table (*PX.Objects.SO.SOOrder*) in the **Parent Table** box.

Also notice that in the **Alias** box to the right of the **Parent Table** box, the *SOOrder* value has been inserted.

6. In the list of tables, click the row with the *PX.Objects.AR.Customer* full name, and on the table toolbar, click **Select Related Table**.



You can use the search box below the list of tables to find the necessary table by its name.

The system inserts the name of the selected table in the **Child Table** box. Notice that in the **Alias** box to the right of the **Child Table** box, the *Customer* value is displayed.

In the **Relation** box, the relation between the pair of tables has been inserted.

7. In the bottom of the dialog box, click the **Add** button.

The system closes the **Related Tables** dialog box and adds the tables to the list on the **Data Sources** tab. It also adds the relation between the tables on the **Relations** tab, where you can see that the *Inner* join type is used for the relation.

8. On the form toolbar, click **Save**.

### Step 3: Configuring the Output Columns

To configure the columns in the generic inquiry form, on the **Results Grid** tab of the *Generic Inquiry* (SM208000) form with the *DB-SOOpenByCustomer* inquiry selected, do the following:

1. Click **Add Row** on the table toolbar, and do the following:



The lists of values available for selection can be quite long. To speed up the process of selecting the needed values, start typing the needed value in the column; the system will filter the list based on the text you have typed.

- a. In the **Object** column, select *SOOrder*.
  - b. In the **Data Field** column, select *OrderNbr*.
2. By using the actions you performed in the previous instruction, add rows with the following settings:

<b>Object</b>	<b>Data Field</b>
<i>SOOrder</i>	<i>OrderType</i>
<i>SOOrder</i>	<i>Status</i>
<i>SOOrder</i>	<i>OrderDate</i>
<i>Customer</i>	<i>AcctName</i>

Notice that the **Visible** and **Default Navigation** check boxes are selected by default for all rows. With these settings, the system will display the added columns in the inquiry results, and for data fields that have a default data entry form specified in the source code, the system will display the values in the corresponding columns of the generic inquiry form as links. When a user clicks a link in this column on the generic inquiry form, the system opens the specified form in a pop-up window with the record selected.

3. On the form toolbar, click **Save**.
4. On the side panel of the *Generic Inquiry* form, click the eye icon to preview the generic inquiry form you have created.

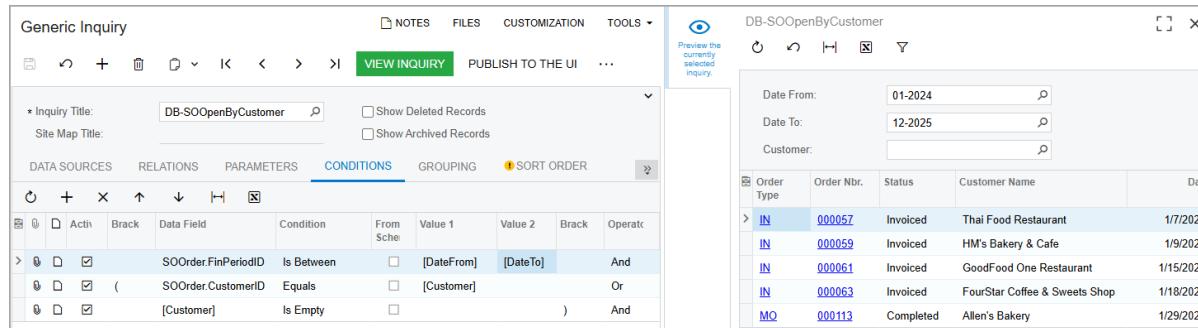
### Step 4: Configuring the Selection Area (Self-Test)

You have learned how to add parameters to the Selection area while completing the following activities:

- *Conditions and Parameters: To Add Period-Range Parameters to the Selection Area*

- *Conditions and Parameters: To Add a Field Parameter to the Selection Area*

A salesperson has requested that you add parameters to the *DB-SOOpenByCustomer* generic inquiry, which you have developed in this activity, so that the results can be narrowed to meet each salesperson's current needs for information. Use the knowledge and experience you have gained to add the requested parameters to the generic inquiry. After you have added the needed parameters, the Selection area of the inquiry form should have the elements shown in the following screenshot.



**Figure: Selection area with the parameters requested by the salesperson**

For details on parameters and conditions, see [Conditions and Parameters: General Information](#).

## Step 5: Publishing the Generic Inquiry Form

To add the generic inquiry form you have created to the site map, on the [Generic Inquiry](#) (SM208000) form, do the following:

1. Open the *DB-SOOpenByCustomer* generic inquiry.
  2. Click the **Publish to the UI** button on the form toolbar.
  3. In the **Publish to the UI** dialog box, which opens, in the **Site Map Title** box, type *Sales Orders of the Selected Customer*.
  4. In the **Access Rights** section, select **Copy Access Rights from Screen**, and then select *Sales Orders* with the SO.30.10.00 screen ID in the box next to the option button.
- With these settings, users that have access to the [Sales Orders](#) (SO301000) list of records will also have access to the created generic inquiry.
5. Click **Publish** to complete publication and close the dialog box.
  6. In the main menu, select the **Data Views** workspace, and under the **Inquiries** category, make sure the inquiry you have created is listed.

## Lesson 2.3: Managing Access Rights to Generic Inquiries

In this lesson, you will learn about access rights to generic inquiries and how to set them up.

### Access Rights to Generic Inquiries: General Information

In Acumatica ERP, you create user accounts to manage user access to system resources. Based on users' job responsibilities, you can control their access to forms, entities created through these forms, and operations on these entities. Rather than assigning each individual user access rights to each object that the user must access, you define roles, which are sets of access rights that fit the job responsibilities in your company; you then assign

these roles to individual users. Roles help you easily manage access rights for groups of users in the system. Changing one role alters the access rights for all users to whom this role is assigned.

Users are assigned one role or multiple roles, and based on these assignments, the users are then granted the appropriate levels of access to system objects. To be able to create, delete, or modify generic inquiries, you need a role that provides sufficient access rights (the *Delete* level) to the [Generic Inquiry](#) (SM208000) form. By default, the built-in *Administrator* role provides the needed access rights for working with generic inquiries by using this form.

## Learning Objectives

In this lesson, you will learn how to set up access rights to generic inquiries.

## Applicable Scenarios

You may find the information in this lesson useful when you are responsible for administering user access to Acumatica ERP in your company. You need to manage access rights to different generic inquiries that your colleagues may need to do their jobs as efficiently as possible.

## Access Rights to Inquiry Forms

You set up access rights to a generic inquiry during the publication process. You click the **Publish to the UI** command on the toolbar of the [Generic Inquiry](#) (SM208000) form—the system opens the **Publish to the UI** dialog box.

In the **Access Rights** section of the dialog box, you select one of the following option buttons to indicate which access rights should be specified for the inquiry:

- **Set to Granted for All Roles:** The system will set the access rights for this form to *Granted* for all user roles in the system.
- **Set to Revoked for All Roles:** The system will set the access rights for this form to *Revoked* for all user roles in the system.
- **Copy Access Rights from Screen** (default): The system will copy the set of the access rights from the specified form.

After the inquiry is published, for each user role, you can modify the defined levels of access rights. You specify the levels of access to any form in the [Access Rights by Screen](#) (SM201020) form.

## Access Rights to Inquiries as Substitute Forms

A generic inquiry can be configured as a substitute form to a data-entry form. That is, on the **Entry Point** tab of the [Generic Inquiry](#) (SM208000) form, the **Entry Screen** box is filled in and the **Replace Entry Screen with This Inquiry in Menu** check box is selected for the inquiry.

If a particular generic inquiry form replaces an entry form (that is, if it functions as a *substitute form*), access rights to the generic inquiry are inherited from this entry form. Thus, to change the level of access that users have to the published substitute form, you change the level of access to the entry form, using the [Access Rights by Screen](#) (SM201020) form.

Also, you can define access rights to the data entry form when you publish its substitute inquiry. In this case, the system shows a warning in the **Publish to the UI** dialog box. The warning explains that the inquiry is a substitute form and access rights that you select for this inquiry will be applied to its data entry form. If you do not need to change access rights to the data entry form, you select the *Copy Access Rights from Screen* option and specify the data entry form for this option.

If a generic inquiry defined as a substitute form is no longer defined as one—that is, if on the **Entry Point** tab of the [Generic Inquiry](#) form, the **Replace Entry Screen with This Inquiry in Menu** check box is cleared—the access rights to the inquiry form revert to the initial state (that is, the access rights the inquiry had before you used it to replace a data entry form).

## Access Rights to Generic Inquiries: To Define Access Rights to a Generic Inquiry

---

In this activity, you will learn how to specify access rights to a generic inquiry that has been created on the [Access Rights by Screen](#) (SM201020) form.

### Story

Suppose that you are a system administrator who manages user access to Acumatica ERP in your company. A financial supervisor of your company has requested that you allow users who are working with the *SweetLife Store* branch to view information on the Expected Receipts (GI000081) inquiry form, which is the predefined generic inquiry form with the *DB-AExpectedReceipts* inquiry title and the *Expected Receipts* site map title specified on the [Generic Inquiry](#) (SM208000) form.

For the *DB-AExpectedReceipts* generic inquiry, you have reviewed the inquiry settings on the **Entry Point** tab of the [Generic Inquiry](#) form and made sure that the inquiry is not configured as a substitute form for an entry form. This means that you need to specify the level of access rights directly for the form because the inquiry form does not inherit access rights from an entry form.

You have reviewed the roles that are assigned to the employees of the branch and determined that to give these employees the ability to view information on the form, you need to assign the *View Only* level of access rights to the *Branch Retail* role.

### Process Overview

You will use the [Access Rights by Screen](#) (SM201020) form to select the *DB-AExpectedReceipts* inquiry form and then assign the *View Only* level of access rights to for the *Branch Retail* role. Then you will sign in to Acumatica ERP with credentials of a user with the *Branch Retail* role (the username is *rains*), open the Expected Receipts (GI000081) inquiry form, and make sure that you can view information on the form, to verify the level of access rights.

### Step 1: Defining Access Rights

To set up the *View Only* level of access rights to the *Expected Receipts* inquiry form, do the following:

1. Open the [Access Rights by Screen](#) (SM201020) form.
2. In the left pane, open the **Data Views** node, and click *Expected Receipts* to specify access rights to this form.
3. In the right pane, in the row with the *Branch Retail* role, select *View Only* in the **Access Rights** column.
4. Save your changes.

### Step 2: Verifying Access to the Form for a User Assigned to the Role

To verify that a user with the *Branch Retail* role has the *View Only* level of access rights to the Expected Receipts (GI000081) inquiry form, do the following:

1. In the right corner of the top pane on the Acumatica ERP screen, click the User menu button, and in the menu that opens, select **Sign Out**.
2. Sign in to Acumatica ERP with the following credentials:
  - **Username:** *rains*
  - **Password:** *123*
3. On the main menu, click the **Data Views** menu item. In the corresponding workspace, which opens, click *Expected Receipts* in the **Inquiries** category. Make sure the form is displayed.

4. Make sure that in the top right of the form title bar, the **Customization** menu is not displayed, which means that the user cannot modify the inquiry.
5. In the right corner of the top pane on the Acumatica ERP screen, click the User menu button, and in the menu that opens, select **Sign Out**.

# Part 3: Exposing an Inquiry Results by Using OData

---

In the lessons of this part, you will learn how to expose the results of generic inquiries and access these results by using third-party applications through generic inquiry-based OData interface.

## Lesson 3.1: Exposing an Inquiry Results by Using OData

---

In this lesson, you will learn how to expose a generic inquiry through generic inquiry-based OData interface so that the generic inquiry results can be used by third-party applications.

### Generic Inquiries and OData: General Information

---

Acumatica ERP supports the generic inquiry-based OData interface, through which a generic inquiry's results are used as the data source for third-party applications that track and analyze the data.

Acumatica ERP supports [OData Version 4.0](#) with some exceptions related to query options and query functions. For details about exceptions, see [Generic Inquiries and OData: Preparation of an Inquiry for Exposure](#).

### Learning Objectives

In this lesson, you will learn how to expose a generic inquiry's results by using the generic inquiry-based OData interface.

### Applicable Scenarios

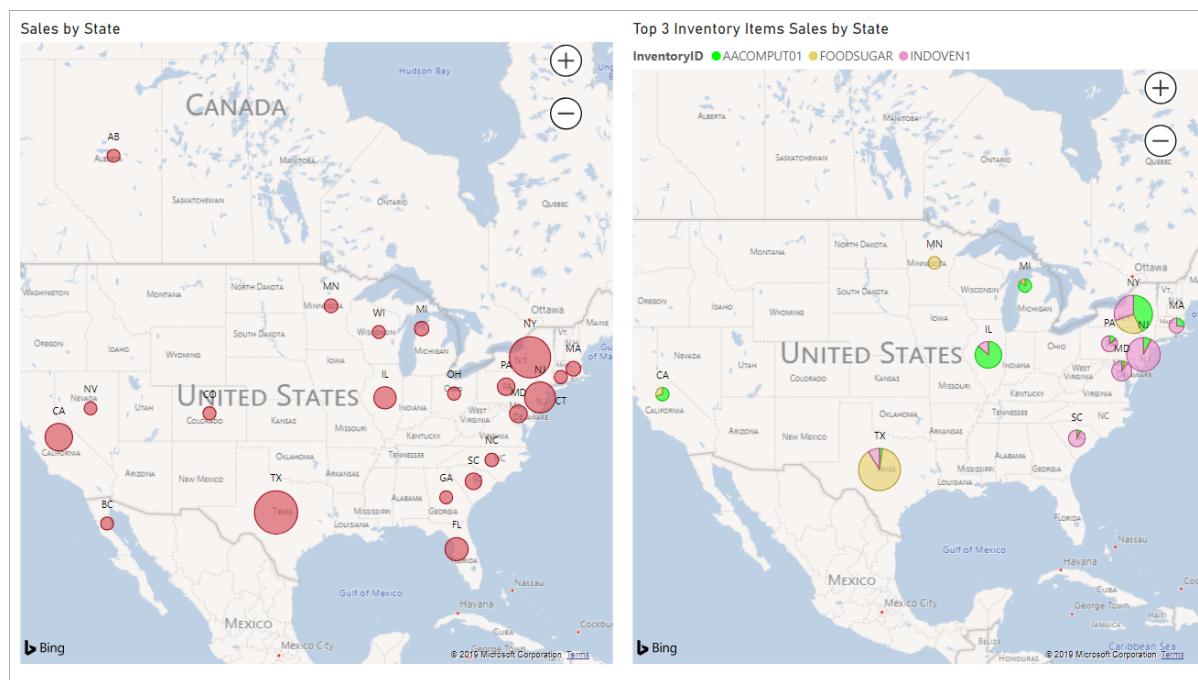
You may find the information in this lesson useful when you are a technical specialist with your company, you manage reports and inquiries, and your company has decided to use a third-party reporting tool that supports the OData protocol (in addition to using Acumatica ERP reporting). You need to expose the requested generic inquiries and verify access to the exposed data by using an external application, such as Microsoft Excel.

You may also find this information useful if you are a developer who is creating an integration application that needs to retrieve data from Acumatica ERP.

### Benefits from Exposing Data Through OData

Multiple applications can use data exposed through the OData protocol, including Microsoft Power BI and Microsoft Excel. Also, some Acumatica ERP technology partners have built reporting solutions by using the ability of Acumatica ERP to expose data through the generic inquiry-based OData interface.

Microsoft Power BI offers advanced capabilities for creating charts. You can expose a generic inquiry's results through OData and access the data from Power BI. By using Power BI, you can create advanced charts based on data imported from Acumatica ERP. An advanced Power BI chart can then be imported back to Acumatica ERP and added to a dashboard as a widget. For example, you can create a visual display of your sales across the United States (as shown in the following screenshot). Due to the exposure of the inquiry results through OData, the Power BI chart displays real-time data when you view it either in Power BI or on your dashboard in Acumatica ERP.



**Figure: Example of an advanced chart built with Power BI**

Microsoft Excel offers the following capabilities to process data:

- To make basic calculations, such as summing, multiplying, and finding the average, as well as advanced calculations, such as regression analysis and conversions
- To create professional reports and dashboards with charts and visualizations

## Generic Inquiries and OData: Preparation of an Inquiry for Exposure

To expose the results of a generic inquiry through OData, you should perform the necessary steps to prepare the inquiry and ensure that it complies with the pertinent requirements.

### Preparing a Generic Inquiry for Exposure

Before exposing a generic inquiry's results through OData, you need to make sure that the generic inquiry complies with the requirements for this exposure. As a first requirement, you can expose the results of only published inquiries—that is, those that have been assigned a screen ID.

The second requirement is assigning the appropriate access rights to the user accounts that will access the exposed inquiry results through an OData client. These user accounts need to have the *View Only* level of access rights to the inquiry forms. For more information about access rights to generic inquiries, see [Managing Access Rights To Generic Inquiries](#).

### Supporting the OData Specification

Acumatica ERP generates the names of the fields for OData entities based on the display names of the Acumatica ERP fields in an English locale. To adhere to the OData specification, Acumatica ERP uses the following rules in generating these names:

- If the display name contains no invalid symbols, the name is left unchanged.
- If the display name starts with a digit, an underscore is added before the name. For example, *2Update* is converted to *\_2Update*.

- If the display name contains invalid symbols, such as spaces, these symbols are removed from the name. For example, *Account Name* is converted to *AccountName*.

The generic inquiry-based OData protocol provided by Acumatica ERP does not support the following items in the OData specification:

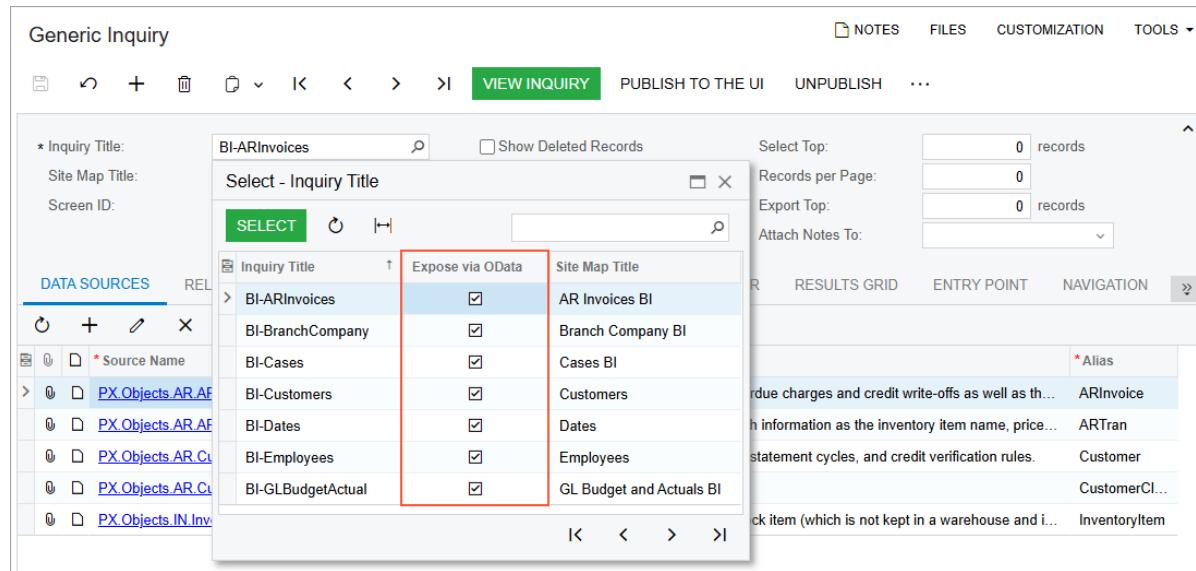
- The *\$expand* and *\$count* query options
- The *IsOf()* query function

The system applies the *\$filter* query option as a part of the WHERE clause of the SQL request—that is, in the same way as it applies conditions on the **Conditions** tab of the *Generic Inquiry* (SM208000) form. You cannot sort and filter by the fields that the system calculates by using a formula in the source generic inquiry.

## Exposing Generic Inquiry Results

You can expose generic inquiry results at any time, whether you are creating a new generic inquiry or modifying an existing one. To do this, you select the **Expose via OData** check box for the generic inquiry in the Summary area of the *Generic Inquiry* (SM208000) form.

You can view the list of generic inquiries whose results are exposed through OData by opening the lookup table for the **Inquiry Title** box on the *Generic Inquiry* form and then filtering the generic inquiries by the selection of the check box in the **Expose via OData** column, as the following screenshot shows.



*Figure: Generic inquiries that are exposed via OData*

Acumatica ERP includes multiple predefined generic inquiries whose results can be exposed through OData; the titles of these inquiries start with *BI*. Additionally, the *BI* role is available in Acumatica ERP; a user with the role assigned can access the data of these predefined generic inquiries.



To give users with the *BI* role access to other generic inquiries, you should grant access to these inquiries. For details about granting access rights, see [Managing Access Rights To Generic Inquiries](#).

## Generic Inquiries and OData: To Expose Inquiry Results Through OData

In this activity, you will learn how to modify an existing generic inquiry to expose its results through OData.

## Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including the creation and modification of generic inquiry forms. An accountant of your company has asked you to provide access to the predefined Invoices and Memos (AR3010PL) inquiry form through Microsoft Excel. The accountant uses Excel for building reports based on the data of this inquiry and would like for the data to always be up to date. Further suppose that the access role of the accountant is *Accountant*.



The Invoices and Memos inquiry form, which is a list of records, has the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified on the [Generic Inquiry](#) (SM208000) form.

## Process Overview

On the [Generic Inquiry](#) (SM208000) form, you will verify that the *AR-Invoices and Memos* generic inquiry complies with the requirements for a generic inquiry to be exposed through OData—that is, it has been published. You will select the **Expose via OData** check box for the generic inquiry and save your changes.

After the results of the generic inquiry are exposed, you will make sure that the accountant (whose user account is assigned the *Accountant* role) has sufficient access rights for the inquiry form by using the [Access Rights by Screen](#) (SM201020) form.

## System Preparation

Launch the Acumatica ERP website, and sign in to a tenant with the *U100* dataset preloaded as system administrator Kimberly Gibbs. You should sign in by using the *gibbs* username and the *123* password.



The *gibbs* user is assigned the *Administrator* role, which has sufficient access rights to manage the system configuration and to modify generic inquiries, advanced filters, pivot tables, and dashboards.

## Step 1: Exposing the Inquiry

To expose the needed generic inquiry results by using OData, do the following:

1. Open the [Generic Inquiry](#) (SM208000) form.
2. In the **Inquiry Title** box of the Summary area, select *AR-Invoices and Memos*.
3. Verify that a screen identifier has been assigned in the **Screen ID** box.



An inquiry form is considered published as long as the **Screen ID** box is filled in on the [Generic Inquiry](#) form.

4. Select the **Expose via OData** check box.
5. On the form toolbar, click **Save**.

## Step 2: Specifying the Access Rights to the Exposed Inquiry

To specify the access rights of the *Accountant* role to the exposed inquiry, do the following:

1. Open the [Access Rights by Screen](#) (SM201020) form. Because no workspace is specified for the *AR-Invoices and Memos* generic inquiry on the [Generic Inquiry](#) (SM208000) form, you need to search for this generic inquiry in the **Hidden** node of the left pane.

2. In the **Hidden** node of the left pane, click **Invoices and Memos** with the AR3010PL screen ID (see Item 1 in the following screenshot).



The system displays a tooltip with the screen identifier when you point to a node; this can help you find the needed form when multiple forms have the same name.

3. In the right pane, in the **Access Rights** column of the row with the *Accountant* role, select the *View Only* level (Item 2).

The screenshot shows the 'Access Rights by Screen' window. On the left is a tree view of screens: 'Inventory Turnover for Past Year' (selected), 'Invoices' (selected), 'Invoices and Memos' (selected), 'Invoices for Sales Orders', 'Invoices for Sales Orders (Obsolete)', 'Items to Put Away This Quarter', 'Labor Rates', 'Last 15 Days', 'Layout', 'Lead Notifications', 'Leads Generated by Campaigns', and 'Legacy Business Accounts'. A red circle labeled '1' is around 'Invoices and Memos'. On the right is a grid of roles. The 'Accountant' role is selected, and its 'Access Rights' dropdown menu is open, showing 'View Only' as the selected option. A red circle labeled '2' is around this dropdown. Other roles listed include AcumaticaSupport, Administrator, Anonymous, AP Admin, AP Clerk, AP Viewer, AR Admin, AR Clerk, and AR Viewer. The 'Applied to Nested' checkbox is checked for the Accountant role.

Access Rights by Screen					CUSTOMIZATION	TOOLS
	Role	Guest Role	Description	Access Rights	Applied to Nested	
	Accountant		Role for accountants and managers who access...	View Only	<input checked="" type="checkbox"/>	
	AcumaticaSupport		Role for Acumatica Support. Access similar to...	Revoked	<input checked="" type="checkbox"/>	
	Administrator		System Administrator	View Only	<input checked="" type="checkbox"/>	
	Anonymous		Anonymous	Edit	<input checked="" type="checkbox"/>	
	AP Admin		Access to AP functions and settings	Insert	<input checked="" type="checkbox"/>	
	AP Clerk		Access to AP functions	Delete	<input checked="" type="checkbox"/>	
	AP Viewer		Read-only access to AP functions	Revoked	<input checked="" type="checkbox"/>	
	AR Admin		Access to AR functions and settings	Revoked	<input checked="" type="checkbox"/>	
	AR Clerk		Access to AR functions	Revoked	<input checked="" type="checkbox"/>	
	AR Viewer		Read-only access to AR functions	Revoked	<input checked="" type="checkbox"/>	

Figure: The level of access rights of the Accountant role for the exposed inquiry

4. On the form toolbar, click **Save**.

## Lesson 3.2: Accessing the Exposed Inquiry Through OData

In this lesson, you will learn how to obtain the results of an exposed generic inquiry by using the generic inquiry-based OData interface.

### Generic Inquiry Access Through OData: General Information

You can view the results of the generic inquiries exposed through the generic inquiry-based OData interface in your browser or in another application that works with OData.



We strongly recommend that you deploy each Acumatica ERP instance by using HTTPS so that you can pass the user credentials safely.

### Learning Objectives

In this lesson, you will learn how to do the following:

- Access data that is exposed through the generic inquiry-based OData interface
- Configure Cross-Origin Resource Sharing (CORS) to access a generic inquiry through client-side web applications

### Applicable Scenarios

You may find the information in this lesson useful when you are a technical specialist whose responsibilities include the management of different reports and inquiries. An accountant or other employee may have requested

access to an Acumatica ERP generic inquiry through a third-party OData client, such as Microsoft Excel, Microsoft Power BI, or a Java-based application.

You may also find this information useful if you are a developer who is creating an integration application that needs to retrieve data from Acumatica ERP.

## Access to an Exposed Generic Inquiry Through an OData Client

You use the OData interface to expose data from Acumatica ERP through the OData interface—in this case, data from a generic inquiry created on the [Generic Inquiry](#) (SM208000) form. By doing this, you can give users the ability to view your company's data and perform detailed financial analysis by using third-party OData clients, such as Microsoft Excel and Microsoft Power BI.

The generic inquiry-based OData interface uses the basic authentication in Acumatica ERP. That is, you need to sign in to Acumatica ERP before you request the data through the OData protocol. To connect to your data, you specify the URL of the generic inquiry-based OData interface of your Acumatica ERP instance to the OData client and authenticate yourself by entering your Acumatica ERP credentials. The OData client then connects to your Acumatica ERP instance and obtains the data for you.

To view the data in the browser, you enter the URL of the generic inquiry-based OData interface of your Acumatica ERP instance in the address bar. When the system asks you to authenticate yourself, you provide your Acumatica ERP username and password. When your identity has been confirmed, the system displays the requested data.



When the system calculates the number of signed-in users, it treats the basic authentication used for OData as a sign-in of a conventional user (not an API user). The license restriction for conventional users is shown in the **Concurrent Users** box on the [License](#) tab of the [License Monitoring Console](#) (SM604000) form.

In an OData client, you can use the OAuth 2.0 authorization mechanism instead of direct authentication with a username and password. For details about OAuth 2.0 authorization, see [Authorizing Client Applications to Work with Acumatica ERP](#).

## The URL of the Inquiry-Based OData Interface

The URL for the generic inquiry-based OData interface is <Acumatica ERP instance URL>/t/<TenantName>/api/odata/gi. In this URL, <TenantName> is the login name of the tenant in the Acumatica ERP instance. (For more information on single-tenant and multitenant configuration, see [Tenants: General Information](#).) A request to this URL returns the list of all generic inquiries whose data is exposed.



Even though you can view the list of all generic inquiries whose data is exposed, you can obtain only the data to which your user account has sufficient access rights.

For example, you would specify the [https://sweetlife.com/erp/t/Calipso LLC/api/odata/gi](https://sweetlife.com/erp/t/Calipso%20LLC/api/odata/gi) URL if the following are true:

- The URL of the Acumatica ERP instance is <https://sweetlife.com/erp>.
- The instance contains the *Calipso LLC* tenant.
- You want to obtain the list of generic inquiries whose results are exposed through OData.

If you type this sample URL into a browser, you will notice that the browser automatically replaces the space with %20.



You can find the login names of tenants on the [Tenant List](#) (SM203530) form, as shown in the following screenshot.

Current	Tenant ID	Tenant Name	* Login Name	Status
> <input checked="" type="checkbox"/>	8	sweetlife	SweetLife Fruits & Jams	Active
	9	calipso	Calipso LLC	Active
	10	athena	Athena LLC	Active

**Figure: The login names of tenants**

Also, you can view the login name of the tenant to which you are currently signed in by viewing the User menu (as shown in the following screenshot), which you access by clicking the User menu button on the top pane of the Acumatica ERP screen.

**Figure: The User menu with the tenant login name**

The following code fragment shows a list of the exposed inquiries; the list has been retrieved through the OData interface.

```
{
  "@odata.context": "<Acumatica ERP instance URL>/t/<TenantName>/api/odata/gi/$metadata",
  "value": [
    {
      "name": "BI-LeadConversion",
      "kind": "EntitySet",
      "url": "BI-LeadConversion"
    },
    {
      "name": "BI-Cases",
      "kind": "EntitySet",
      "url": "BI-Cases"
    },
    {
      "name": "DB-StorageDetails",
      "kind": "EntitySet",
      "url": "DB-StorageDetails"
    },
    ...
  ]
}
```

```
}
```

## Use of OData to View a Generic Inquiry's Fields and Parameters

To view the list of fields and parameters in exposed generic inquiries, you append `/$metadata` to the URL of the generic inquiry-based OData interface.

The returned data contains the `EntityContainer` XML tag, which provides the list of all exposed generic inquiries. In this list, you can find the following tags:

- `EntityType`, which specifies the name of an exposed generic inquiry that you use in an OData request and the `EntityType` element that corresponds to this generic inquiry.
- `FunctionImport`, which specifies the name of an exposed generic inquiry that is used in an OData request that specifies parameters of the inquiry. The name of the generic inquiry with parameters has the `_WithParameters` postfix. The `FunctionImport` element also specifies the `EntityType` and `Function` elements that correspond to this generic inquiry.

For each exposed generic inquiry, the returned data contains an `EntityType` element, which includes the following:

- The list of fields of the generic inquiry in the `Property` elements.
- The list of the key fields of the tables used in the generic inquiry in the `PropertyRef` elements, even if these key fields have not been added to the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form for the generic inquiry.

For each exposed generic inquiry with parameters, the response includes a `Function` element, which specifies the list of parameters of the generic inquiry.

The system changes the field names and parameter names in the lists to conform to the OData specifications; for more information, see [Generic Inquiries and OData: Preparation of an Inquiry for Exposure](#).

You use the fields and parameters of exposed generic inquiries to retrieve the results of the generic inquiries, as described in [Generic Inquiry Access Through OData: Data Retrieval](#).

## Configuration of CORS

Acumatica ERP supports Cross-Origin Resource Sharing (CORS), meaning that requests for resources can come from a different domain than that of the resource making the request. With CORS enabled, you can allow access to the OData endpoints of your Acumatica ERP instance for client-side web applications, including Java-based applications. For more information about CORS, see [Cross-Origin Resource Sharing](#) on the World Wide Web Consortium portal.

The CORS settings of the web server of your instance are defined by the `<cors>` section of the `Web.config` file; see the following example of the default configuration for this section.

```
<cors enabled="true" origins="*" methods="*" headers="*"
exposedHeaders="DataServiceVersion,MaxDataServiceVersion,OData-Version,
OData-MaxVersion" />
```

By default, CORS is enabled, all origins are allowed access to the server, and all supported headers are exposed and available for use. The web server of the application supports simple headers as well as the following headers: `DataServiceVersion`, `MaxDataServiceVersion`, `OData-Version`, and `OData-MaxVersion`. You need to use these four headers to access OData endpoints.

You can enforce limitations on cross-origin requests by changing the settings in the `Web.config` file. You can add your own headers as well. For details, see [Generic Inquiry Access Through OData: To Configure CORS](#).

## Generic Inquiry Access Through OData: Data Retrieval

---

To retrieve data by using the generic inquiry-based OData interface, you append the generic inquiry name and various parameters to the base URL of the generic inquiry-based OData interface, as described in the sections below. For details about the base URL, see [The URL of the Inquiry-Based OData Interface](#).

### Retrieving the Results of a Generic Inquiry

To view the results of an exposed generic inquiry, you append /<GI\_Name> to the URL of the generic inquiry-based OData interface. In the URL, you use the name of the generic inquiry that is specified in the respective EntitySet element.

For example, you would specify the `https://sweetlife.com/erp/t/U100/api/odata/gi/BI-Customer` URL if the following are true:

- The URL of the Acumatica ERP instance is `https://sweetlife.com/erp`.
- The instance contains the `U100` tenant.
- You want to obtain the results of the `BI-Customer` generic inquiry.

### Retrieving the Results of a Generic Inquiry with Parameters

To specify the values for the parameters of a generic inquiry and obtain the results of the generic inquiry, you do the following:

- You append /<GI\_Name\_WithParameters> to the URL of the generic inquiry-based OData interface. In the URL, you use the name of the generic inquiry that is specified in the respective FunctionImport element.
- You specify the values of the parameters of the generic inquiry in parentheses.

For example, you would specify the `https://sweetlife.com/erp/t/U100/api/odata/gi/DBStorageDetailsByItemWarehouseLocation_WithParameters(Warehouse='WHOLESALE')` URL if the following are true:

- The URL of the Acumatica ERP instance is `https://sweetlife.com/erp`.
- The instance contains the `U100` tenant.
- You want to obtain the results of the `DB-StorageDetailsByItemWarehouseLocation` generic inquiry for the `WHOLESALE` warehouse.

You can also use parameter aliases. You may find them useful if the parameter value includes symbols that cannot be used in the URL. In this case, you can move the parameter value to the query part. The example above can be rewritten with a parameter alias as follows: `https://sweetlife.com/erp/t/U100/api/odata/gi/DBStorageDetailsByItemWarehouseLocation_WithParameters(Warehouse=@1)?@1='WHOLESALE'`

### Filtering and Ordering the Results of a Generic Inquiry

You can filter and order the data of an exposed generic inquiry. In the URL, you use a question mark to start the list of parameters, such as `$filter` and `$orderby`. To specify multiple URL parameters, you use the `&` character between the parameters.

For example, you use the `https://sweetlife.com/erp/t/U100/api/odata/gi/SO-BI-SalesOrdersForYear?$filter=Customer eq 'GOODFOOD' and OrderTotal ge 1000&$orderby=OrderTotal asc` URL if the following are true:

- The URL of the Acumatica ERP instance is `https://sweetlife.com/erp`.
- The instance contains the `U100` tenant.

- You want to obtain the results of the *SO-BI-SalesOrdersForYear* generic inquiry.
- You need to retrieve the results only for the *GOODFOOD* customer and with a sales order total that is greater than or equal to \$1000.
- You want to order the results by the order total ascending.

For more information on OData parameters, see <https://www.odata.org/documentation/>. For the list of items that are not supported by OData in Acumatica ERP, see [Generic Inquiries and OData: Preparation of an Inquiry for Exposure](#).

## Retrieving Custom and User-Defined Fields

In a customization project, you can add custom fields to Acumatica ERP forms. You can also add user-defined fields to Acumatica ERP forms. (For details about user-defined fields, see [User-Defined Fields](#).)

To retrieve custom and user-defined fields through the generic inquiry-based OData interface, you need to add these fields to the results of a generic inquiry exposed via OData. For details about how to add user-defined fields to generic inquiry results, see [Attributes and User-Defined Fields in Inquiry Results](#).

## Retrieving Records with Multiple Kinds of Detail Lines

To retrieve records with multiple kinds of detail lines from Acumatica ERP by using generic inquiry-based OData, you need to configure multiple generic inquiries on the [Generic Inquiry](#) (SM208000) form that export all necessary data (one generic inquiry for each kind of detail lines that you need to export), expose these generic inquiries via OData (by clicking the **Expose via OData** check box on the form), and execute the OData requests. For the best performance of data retrieval, we recommend that you create a separate generic inquiry for each kind of detail lines.

## Retrieving Records in Batches

To retrieve records in batches from Acumatica ERP by using generic inquiry-based OData, you need to use the `$top` and `$skip` parameters of the request along with the `$orderby` parameter.

## Generic Inquiry Access Through OData: To Access an Exposed Inquiry in Microsoft Excel

---

In this activity, you will learn how to access a generic inquiry that was exposed through OData in Microsoft Excel.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including those involving the creation, modification, and use of generic inquiries. An accountant of your company has asked to have access in Excel to the predefined Invoices and Memos (AR3010PL) generic inquiry form. This form, which is a list of records, has the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified on the [Generic Inquiry](#) (SM208000) form. The accountant uses Excel for building reports based on the data of this generic inquiry and wants the data to always be up to date.

You have exposed the requested generic inquiry, and now you need to verify that it can be accessed through Excel.

### Process Overview

On [Access Rights by User](#) (SM201055) form, you will verify that your user account has sufficient access rights (the Delete level) to the predefined Invoices and Memos (AR3010PL) generic inquiry.

You will then open Microsoft Excel and import data from the exposed inquiry to a spreadsheet.

## Step 1: Verifying the Access Rights

To verify that your user account has the appropriate level of access rights to the exposed inquiry, do the following:

1. Open the [Access Rights by User](#) (SM201055) form.
2. In the **Login** box, select your username, which is *gibbs*.
3. In the **Hidden** node of the left pane, and click **Invoices and Memos** with the *AR3010PL* screen ID.
4. In the right pane, verify that the **Access Rights** column has the *Delete* level of access rights.



If a user account has multiple roles assigned to it, the user account's level of access rights to a particular form is the most permissive level of the active roles.

## Step 2: Viewing a Generic Inquiry in Excel

To access the exposed inquiry through Microsoft Excel, do the following:



The instructions below apply to Microsoft Excel 2019; the details may differ for other versions. The version you use must be higher Microsoft Excel 2007, which does not support connection to OData endpoints.

1. Open an Excel workbook.
2. In the **Data** ribbon tab, click **Get Data > From Other Sources > From OData Feed**.
3. In the **OData Feed** wizard, do the following:
  - a. Click the **Basic** option button.
  - b. Enter the URL to the OData endpoint.
  - c. Click **OK**.
  - d. On the next step of the wizard, go to the **Basic** tab, and enter your sign-in credentials, which are your Acumatica ERP username and password.



Do not add the tenant name after your username.

- e. Click **Connect**.

Excel connects to the Acumatica ERP instance and obtains the list of exposed generic inquiries that are available for your Acumatica ERP user account.

4. In the left pane of the **Navigator** dialog box, which opens, select the *AR-Invoices and Memos* generic inquiry. You can preview the data in the right pane of the dialog box.



In this dialog box, for a generic inquiry with parameters, you can specify the values of the parameters.

5. Click **Load**.

The system connects to the server, downloads the data from your Acumatica ERP instance, and presents the data in the way you selected.



The sorting order in the resulting Excel file may differ from the sorting order in Acumatica ERP because Excel applies sorting after the data is downloaded.

6. To update the data, click **Refresh All** in the **Data** ribbon tab.

# Part 4: Configuring Pivot Tables

---

In the lessons of this part, you will learn how to create pivot tables of different types.

## Pivot Tables: General Information

---

In Acumatica ERP, you can use pivot tables to reorganize and summarize data from generic inquiries.

### Learning Objectives

In this lesson, you will learn how to do the following:

- Configure a pivot table as a separate form and make it available to other users
- Modify the generic inquiry that is used as the basis for a pivot table while you are configuring the table
- Configure a pivot table as a filter tab on an inquiry form and share it with other users

### Applicable Scenarios

You may find the information in this lesson useful when you are responsible for the customization of Acumatica ERP in your company, including developing and modifying generic inquiries and pivot tables to give users information they need to do their jobs, and you need to deliver inquiries and reports that your colleagues can use to perform their jobs effectively.

### Pivot Table Basis

You use the data from a particular generic inquiry to compose a pivot table—that is, a generic inquiry is used as the basis of a pivot table. You can use only one generic inquiry to build each pivot table. If you need to compose a pivot table with information obtained from multiple generic inquiries, you must first create a single generic inquiry that includes all the necessary data and then use this inquiry as a basis for the pivot table.

## Pivot Tables: Data Presentation

---

Because pivot tables can contain a lot of data, users who analyze their data need the data to be presented in a meaningful way. On the [Pivot Tables](#) (SM208010) form of Acumatica ERP, you can flexibly configure the format of the fields to be displayed in a pivot table.

### Format of Field Values in Pivot Tables

If you want to change the format of the fields to be displayed in a pivot table, you can specify the required format in the **Format** box of the **Properties** pane on the [Pivot Tables](#) (SM208010) form. (This pane contains the display properties for any field that is selected in the **Filters**, **Columns**, **Rows**, or **Values** pane.) In this box, you can type one of the standard formats defined for the [format function in .Net](#). In the following table, you can find examples of format definitions for numbers and the corresponding output.

*Table: User-Defined Format for Numbers*

Format Definition	Output Example
0	8972

Format Definition	Output Example
0.0	8972.2
0.00	8972.23
,##0.00	8,972.23
\$#,##0.00	\$8,972.23

## Number or Percentage of the Total

On the [Pivot Tables](#) (SM208010) form, you can specify how the system should display numeric values by using the options in the **Show Value As** drop-down box of the **Properties** pane. The following options are available:

- *Number*
- *% of Grand Total*
- *% of Column Total*
- *% of Row Total*
- *% of Total by Column Group*
- *% of Total by Row Group*

The **Values** pane of this form contains a list of fields from the selected generic inquiry whose values are displayed in cells of the pivot table. You can add the same field to this pane multiple times and specify different display options for each entry.

For example, suppose that you want to analyze activities that your employees have with customers—that is, review the number of phone calls, sent emails, and completed work items for each customer. Also, you would like to know this activity type's percentage of the grand total of all activities that employees have with customers. For each activity type shown in a column, you add two values: a value that is the count of the activities of the type, displayed as a number; and the same value displayed as a percentage of the grand total of all activities for all customers.

## Format Options for Date Fields

For date fields, on the **Properties** pane of the [Pivot Tables](#) (SM208010) form, you can use extended format settings to do the following:

- *Round data with the specified accuracy*: You can select the accuracy of calculating data gathered by date. For example, suppose that for each sales manager, you want to analyze sales amounts aggregated by quarter years. Suppose that sales amounts are collected daily, which means that the date field in the generic inquiry with the required data contains the day, the month, and the year (such as 04/11/2025). To aggregate the sales amounts by quarter in the pivot table, in the **Round To** box of the [Pivot Tables](#) form, you select *Quarters*, and the date will contain only the year and the quarter (such as 2025 Q4) in the pivot table.
- *Aggregate data by a particular date part*: You can select the part of a date field by which you want to aggregate data in a pivot table. For example, suppose that you want to analyze the seasonal demand of T-shirts for the past five years. To do this, you can build a pivot table that displays sales amounts aggregated by month. Suppose that the date field in the generic inquiry with sales amounts for T-shirts contains the month and the year (such as July 2025). To make the system aggregate data by month and display only months in the pivot table, in the **Date Part** box, you select *Month*.
- *Display hierarchical column or row headers*: If you want to configure the dates in columns or rows for a pivot table to meet your needs, you can set up a hierarchical structure of the parts of the dates. For example, suppose that you want to analyze the number of shipped laptops by month for the past three years. Suppose that the date in the generic inquiry contains the day, the month, and the year (such as 04/11/2025). In the pivot table, you can display a one-level column that will contain the following date values: *Jan 2025, Feb 2025*, and so on through *Dec 2025*. Alternatively, you can configure the system so that it displays

two levels of column headers: In the first level, the system displays the years, and under each year, the system displays the months. To configure the system in this way, you add two copies of the date field to the **Columns** pane of the [Pivot Tables](#) form. For the first copy, in the **Round To** box, you select **Years**; for the second copy, in the **Date Part** box, you select **Month**.



The value in the **Format** field on the **Properties** pane is case sensitive. Use lowercase letters for the day and year and uppercase letters for the month: *dd/MM/yyyy*.

## Format Options for Fields with Segmented Keys

For fields for which segmented keys have been configured to have multiple segments, on the **Properties** pane of the [Pivot Tables](#) (SM208010) form, you can use format settings to do the following:

- *Aggregate data by the particular segment:* You can select the segment by which the system will aggregate data in a pivot table. For example, suppose that your company sells fruit and vegetables to restaurants. Suppose that the item class values consist of the following segments: the item category (*FR* or *VEG*), the item type (*APL*, *ORG*, *CBR*, or *PTO*), and the country of origin (such as *ES*, *CN*, or *MA*). If you want to use a pivot table to analyze the numbers of items of each type shipped to each customer, in the **Segment** box, for the *Class ID* field, you select the segment that corresponds to the item type. With these settings, the system will aggregate sales data by the item type (such as apples, designated by *APL*).
- *Display hierarchical column or row headers:* If you want to analyze data by using a combination of two segments of a field value, you can set up a hierarchical structure of the segments. Suppose that in the example described in the previous list item, you also want to add to the pivot table the country of origin for each item type. To do this, you add to the **Columns** pane two copies of the *Class ID* field. For the first copy, in the **Segment** box, you select the segment used for the item category; for the second copy, in the **Segment** box, you select the segment used for the country of origin.

## Lesson 4.1: Creating a Pivot Table as a Form

In this lesson, you will learn how to create a pivot table as a standalone form.

## Pivot Tables: Creation of a Pivot Table as a Separate Form

You can create pivot tables and share them with other users as forms. You can place any pivot table in a workspace by adding it to the site map and then specifying the needed levels of access rights to the pivot table for the user roles available in the system.

### Access Rights for Modifying Pivot Tables

Acumatica ERP uses roles to restrict access to the system. Administrators assign users one role or multiple roles, and based on these roles, the users are then granted the appropriate levels of access to system objects. For details, see [Managing User Access](#).

To be able to create, delete, or modify standalone pivot tables, you need a role that provides sufficient access rights (the *Delete* level) to the [Pivot Tables](#) (SM208010) form. By default, the built-in **Administrator** role provides the access rights for working with pivot tables created as forms.

### Creation of a Pivot Table

You perform the following general steps to compose a pivot table:

1. Preparation: You determine which generic inquiry will be used as a data source for the pivot table.

2. Creation: You create a pivot table on the [Pivot Tables](#) (SM208010) form, specify the generic inquiry to be used as the data source in the **Screen ID** box of the Summary area, and configure the table layout. While configuring the table, you can preview it at any time.
3. Publication: After you have previewed the finished pivot table and made any needed changes, you publish the table, which makes it available for other users.

## Configuration of the Table Layout

The configuration of the layout of a pivot table in Acumatica ERP is similar to this process in Microsoft Excel. You use multiple panes to configure a pivot table.

The **Fields** pane of the [Pivot Tables](#) (SM208010) form lists all the fields that have been added to the related inquiry on the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form, regardless of their visibility settings. You move fields between the panes by dragging them. When you click a field in the **Filters**, **Rows**, **Columns**, or **Values** pane (see Item 1 in the following screenshot), the system displays its properties in the **Properties** pane (Item 2). By using the settings in the **Properties** pane, you define how the data of the field is to be presented in the table.

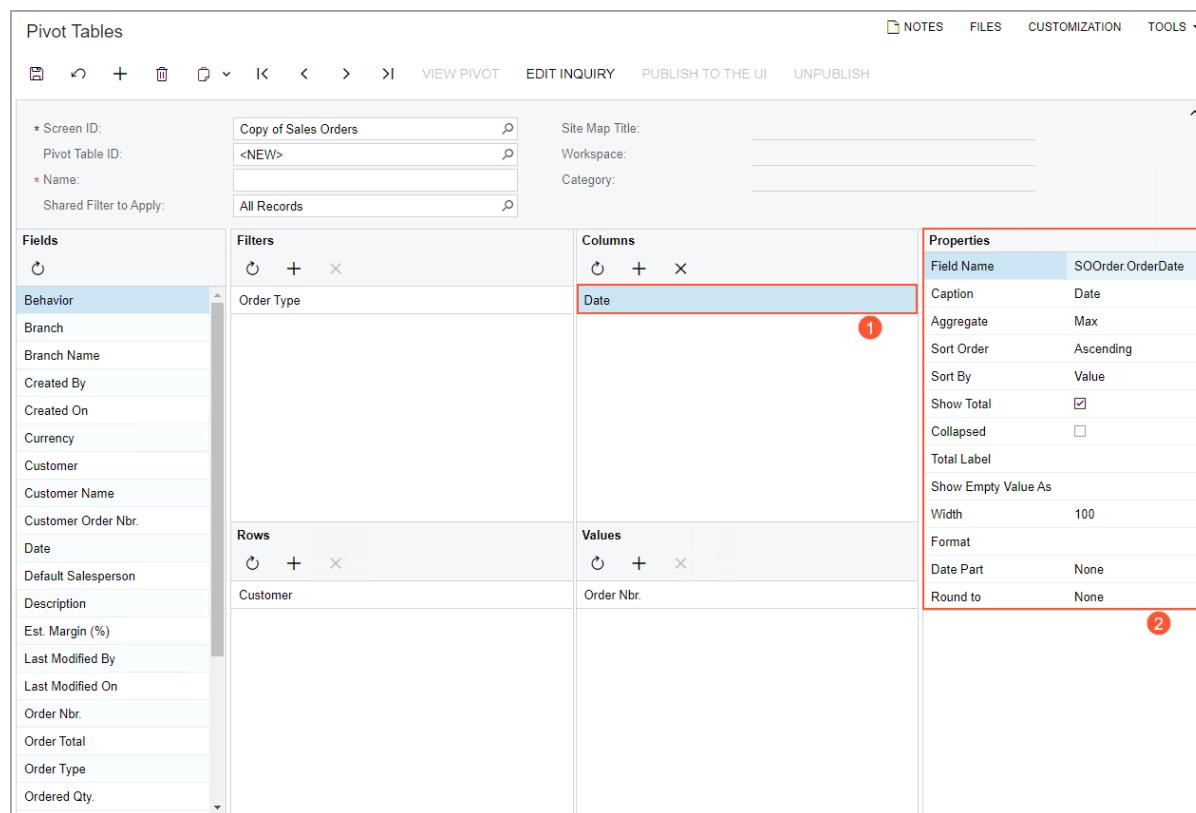


Figure: Configuration of the layout of a pivot table

## Application of Shared Filters

The generic inquiry that you select as a data source for your pivot table may have advanced shared filters, which are displayed as tabs on the inquiry form and contain filtered data that meets particular specifications. To reduce the amount of data in the pivot table for easier analysis, you can apply any advanced shared filter created for the generic inquiry. To do this, while configuring the pivot table, you select the filter in the **Shared Filter to Apply** box on the [Pivot Tables](#) (SM208010) form.

When the pivot table is displayed, the filter is applied to the generic inquiry, and then the pivot table uses the filtered data.

## Data Filtering in Pivot Tables

As described in the previous section, when you are defining a pivot table on the [Pivot Tables](#) (SM208010) form, you can specify an advanced shared filter to be applied to the generic inquiry; the pivot table then uses the filtered data. In addition, you can filter the data in a pivot table in any of the following ways:

- By the values of the fields added to the **Filters** pane: When you want to filter the data in a pivot table by fields that are not used in the table, you add these fields to the **Filters** pane during the design of the pivot table. The system displays these fields in the pivot table as quick filters, and the users can filter the data in the table to meet their current needs.



When a field is added to the **Rows** pane and the resulting pivot table column has more than 100 unique records to display, for reasons related to system performance, the quick filter pop-up window does not display items for multiple selection.

- By the values of fields added to the **Columns or Rows** pane: For fields that you add to the **Columns or Rows** pane, the system automatically adds simple filters to the pivot table.

## Pivot Tables: To Create a Pivot Table as a Form

In this activity, you will learn how to create a pivot table and make it available as a standalone form in Acumatica ERP.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including the creation and modification of generic inquiry forms and pivot tables. An accountant of your company has asked you to create a pivot table that aggregates invoice totals by quarter for each customer and displays this customer's percentage of the grand total of all sales to customers in the quarter.

### Process Overview

In this activity, on the [Pivot Tables](#) (SM208010) form, you will create the requested pivot table.

While creating the pivot table, you will notice that the inquiry does not include the field that holds the line total of the document. You will add the missing field to the inquiry, refresh the data in the **Fields** pane, and continue configuring the table.

When the table has been created and all the necessary settings have been specified, you will preview the pivot table and then add it to the site map.

### Step 1: Creating a Pivot Table

To create the pivot table, do the following:

1. Open the [Pivot Tables](#) (SM208010) form.
2. In the **Screen ID** box, select *Invoices and Memos* with the AR3010PL screen identifier.



You can look for the generic inquiry by typing its name (*Invoices and Memos*) or screen identifier (AR3010PL) in the search box in the lookup table. The lookup table shows the **Title** column (with the site map title) and the **Screen ID** column (with the screen ID). When you double-click a row to select it, the system inserts the title rather than the screen ID into the **Screen ID** box.

3. In the **Name** box, type *Invoice Totals by Customer*, which describes the type of data that is shown with this pivot table. The value will be used as the default value for the pivot table title in the site map.
4. On the form toolbar, click **Save**. The system saves the pivot table and copies the specified name to the **Pivot Table ID** box.

## Step 2: Adding a Missing Field to the Inquiry

Suppose that you have realized that you need the *Line Total* field to calculate the percentage. To add the missing field to the inquiry for the pivot table, do the following:

1. On the form toolbar of the [Pivot Tables](#) (SM208010) form with the *Invoices and Memos* pivot table selected in the **Screen ID** box (and with the *Invoice Totals by Customer* in the **Name** box), click **Edit Inquiry**.  
The system opens the [Generic Inquiry](#) (SM208000) form in a separate tab. (Do not close the other browser tab, with the [Pivot Tables](#) form opened with the *Invoices and Memos* pivot table selected; you will return to it in the next step.)
2. On the **Results Grid** tab of the [Generic Inquiry](#) form, add a row with the following settings:
  - **Object:** ARInvoice
  - **Data Field:** LineTotal
  - **Visible:** Cleared
  - **Default Navigation:** Cleared
  - **Caption:** Line Total



If some columns mentioned in the activity are not available in the table, make them visible by using the **Column Configuration** dialog box of the table.

3. On the form toolbar, click **Save**.

## Step 3: Configuring the Pivot Table

To configure the pivot table, do the following:

1. Switch to the browser tab with the [Pivot Tables](#) (SM208010) form with the *Invoices and Memos* pivot table selected.
2. On the toolbar of the **Fields** pane, click **Refresh** to update the list of available fields. Make sure that the *Line Total* is listed.
3. To configure the rows of the pivot table, do the following:
  - a. Drag *Customer* from the **Fields** pane to the **Rows** pane. The names of customers will be displayed as row headers in the pivot table.
  - b. While *Customer* is selected in the **Rows** pane, in the **Properties** pane, make sure that the **Show Total** check box is selected. With this setting, the system will add the **Total** row, which will display a total for all customers in each column.
4. To configure the columns of the pivot table, do the following:
  - a. Drag *Date* from the **Fields** pane to the **Columns** pane.

- b. While **Date** is selected in the **Columns** pane, in the **Properties** pane, make sure that the **Show Total** check box is selected. With this setting, the system will add the **Total** column, where a total for all dates in each row will be displayed.
- c. In the **Round To** box, select *Quarters* to aggregate invoice totals by quarter. Notice that in the **Format** box, the format of the date is displayed automatically.
- 5. To configure the values of the pivot table, do the following:
  - a. Drag *Line Total* from the **Fields** pane to the **Values** pane. The pivot table will display invoice amounts, aggregated by quarter, for each customer.
  - b. While *Line Total* is selected in the **Values** pane, in the **Properties** pane, type **\$#,##0.00** in the **Format** box.
  - c. Drag *Line Total* from the **Fields** pane to the **Values** pane one more time.
  - d. While *Line Total* is selected in the **Values** pane, in the **Properties** pane, type **% of Grand Total** in the **Caption** box.
  - e. Select **% of Grand Total** in the **Show Value As** box.
- 6. On the form toolbar, click **Save**.

## Step 4: Previewing the Pivot Table

To preview the pivot table you have created, with the *Invoices and Memos* pivot table selected on the *Pivot Tables* (SM208010) form, click **View Pivot** on the form toolbar. The system opens the table in a separate browser tab. The pivot table that you have created is shown in the following screenshot.

Company												SAVE AS	SAVE	CUSTOMIZE	TOOLS
INVOICE TOTALS BY CUSTOMER															
Inactive Fields															
Date															
Customer	Line Total	% of Grand Tc	Line Total	% of Grand Tc	Line Total	% of Grand Tc	Line Total	% of Grand Tc	Line Total	% of Grand Tc	Line Total	Total	Line Total	% of Grand Tc	
EQUGRP	\$117,400.00	0.17%	\$119,800.00	0.17%	\$127,400.00	0.18%			\$70,119,881.40	98.86%	\$70,119,881.40	98.86%	\$480,700.00	0.68%	
VANILLO	\$51,000.00	0.07%	\$45,000.00	0.06%	\$42,500.00	0.06%							\$185,500.00	0.26%	
JAMBREE					\$30.00	0.00%	\$10,770.55	0.02%					\$30,727.41	0.04%	
COFFEESHOP							\$664.50	0.00%					\$25,243.20	0.04%	
BAKERY													\$18,188.12	0.03%	
GOODFOOD					\$1,866.10	0.00%	\$8,449.95	0.01%					\$15,080.05	0.02%	
HMBAKERY							\$1,887.30	0.00%	\$13,192.75	0.02%			\$14,018.00	0.02%	
MORNINGCAF									\$5,298.00	0.01%			\$12,728.00	0.02%	
CAKEADO									\$312.00	0.00%			\$11,300.00	0.02%	
TOMYUM									\$11,300.00	0.02%			\$9,048.62	0.01%	
CITRUS													\$3,449.00	0.00%	
FOODCLVR									\$1,349.00	0.00%			\$2,651.20	0.00%	
RETSALE					\$1,350.80	0.00%	\$1,300.40	0.00%					\$648.00	0.00%	
BLUECAFE									\$648.00	0.00%			\$155.00	0.00%	
CANDYY									\$155.00	0.00%					
Total	\$168,400.00	0.24%	\$164,800.00	0.23%	\$175,034.20	0.25%	\$53,440.15	0.08%	\$70,119,881.40	98.86%	\$70,929,318.00	100.00%			

Figure: The *Invoice Totals by Customer* pivot table

## Step 5: Making the New Table Visible to Other Users

To add the pivot table you have created to the site map, do the following while viewing the *Invoices and Memos* pivot table on the *Pivot Tables* (SM208010) form:

1. On the form toolbar, click **Publish to the UI**. In the dialog box that opens, do the following:
  - a. In the **Site Map Title** box, modify the table title, if needed. Other boxes are populated automatically, based on the values you specified. The **Workspace** and **Category** boxes are populated with the default values for the pivot tables which are *Data Views* and *Pivot Tables* respectively. For details see, [Categories and Workspaces for Entities of Specific Forms](#).
  - b. In the **Screen ID**, leave the automatically assigned identifier.
  - c. In the **Access Rights** section, select the **Set to Granted for All Roles** option button.

- d. Click **Publish** to publish the pivot table and close the dialog box.
2. On the main menu, click **Data Views**, and in the workspace, under the **Pivot Tables** category, make sure the pivot table you created is listed.

## Pivot Tables: To Delete a Pivot Table as a Form

---

In this activity, you will learn how to delete a pivot table that is created as a form.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including the creation and modification of generic inquiry forms and pivot tables. An accountant of your company has asked you to delete the *Invoice Totals by Customer* pivot table, which you created while performing the [Pivot Tables: To Create a Pivot Table as a Form](#) activity.

### Process Overview

In this activity, on the [Pivot Tables](#) (SM208010) form, you will delete the *Invoice Totals by Customer* pivot table.

#### Step: Deleting the Pivot Table

To delete the needed pivot table, do the following:

1. Open the [Pivot Tables](#) form (SM208010).
2. In the **Screen ID** box of the Summary area, select *Invoices and Memos* (AR3010PL), which is the generic inquiry that is used as a data source for the pivot table.
3. In the **Pivot Table ID** box, select *Invoice Totals by Customer*, which is the pivot table that should be deleted.
4. On the form toolbar, click **Delete**.
5. In the dialog box that opens, confirm your action by clicking **OK**.

The system deletes the pivot table.



The generic inquiry on which the pivot table is based is not deleted.

## Lesson 4.2: Creating a Pivot Table as a Filter Tab

---

In this lesson, you will learn how to create a pivot table as a filter tab of an existing inquiry form.

### Pivot Tables: Creation of a Pivot Table on a Filter Tab

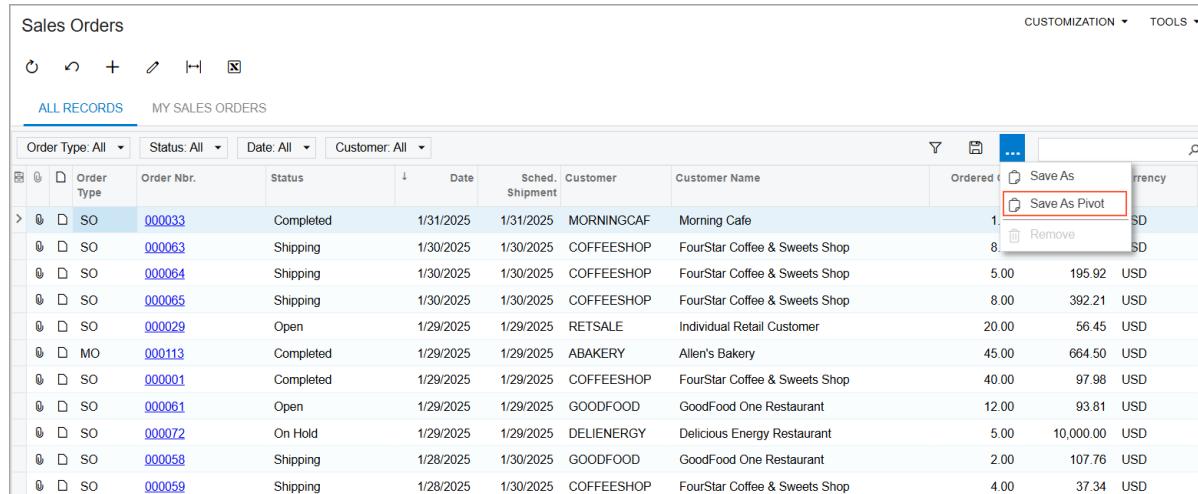
---

Once a generic inquiry form has been created, you can create multiple pivot tables saved as filter tabs for the inquiry form. Once you have created a pivot table, you can modify its configuration. You can also delete a pivot table as a filter tab if you do not need the tab anymore.

## Creation of the Pivot Table

If you save a pivot table as a filter tab of a generic inquiry form, this pivot table is not in the list on the [Pivot Tables](#) (SM208010) form. That is, you cannot view, modify, or delete this pivot table by navigating to this form and selecting it. You can work with this pivot table only by navigating to the inquiry form and opening the filter tab.

When you click **More > Save as Pivot** in the filtering area of an inquiry form (shown in the following screenshot), the system opens the **Filter Settings** dialog box, where you specify the name to be used for the filter tab, select or clear the **Shared Configuration** check box, and click **OK**. Then the system opens the newly created tab in edit mode for the pivot table; this mode is similar in appearance and functionality to the [Pivot Tables](#) form, with various panes that you can use to construct the table based on the generic inquiry.



The screenshot shows the Sales Orders inquiry form. At the top, there are buttons for search, sort, and filters. Below that is a toolbar with 'ALL RECORDS' and 'MY SALES ORDERS'. The main area is a grid of sales order data. In the top right corner of the grid, there is a context menu with options: 'Save As' and 'Save As Pivot'. The 'Save As Pivot' option is highlighted with a red box. The grid columns include Order Type, Order Nbr., Status, Date, Sched. Shipment, Customer, Customer Name, Ordered, and Currency.

*Figure: The Save as Pivot action on an inquiry form*

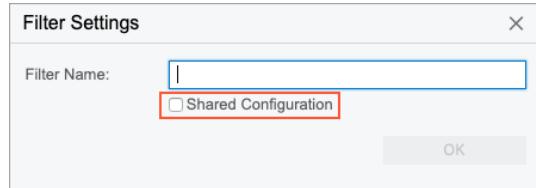
## Access Rights to Pivot Tables on Filter Tabs

By default, the ability to save pivot tables on filter tabs is available to all users. For all user roles, the *Delete* access level is specified for the Pivot Tables (SM208020) form. The form has a similar layout to the [Pivot Tables](#) (SM208010) form, but it is used specifically for configuring pivot tables as filter tabs.

You can use the [Access Rights by Screen](#) (SM201020) form to verify the levels of access the user roles in the system have to the form. On this form, you look for the **Pivot Tables** link, which is located in the **Hidden** node of the tree in the left pane. Then in the right pane, you make sure that for all roles in the system, the *Delete* access level is set.

## Personal and Shared Filter Tabs with Pivot Tables

By default, when you save a filter as a pivot table, the **Shared Configuration** check box in the **Filter Settings** dialog box is cleared (see the following screenshot), and the system treats the filter tab as an advanced filter that is not available to other system users. If you select the **Shared Configuration** check box while saving a pivot table as a tab, this tab will instead be available to all users who have access to the inquiry form.



*Figure: The Shared Configuration check box in the Filter Settings dialog box*

If you would like to share your pivot tables with other users, you need to have sufficient access rights to the [Filters](#) (CS209010) form; without the access, the **Shared Configuration** check box will be cleared and unavailable for you. By default, users with the built-in *Administrator* role (such as system administrators or technical specialists that perform simple customizations) have access to the form and can share pivot tables as filter tabs.

## Edit Mode of the Pivot Table Tab

When you initially add a pivot table as a filter tab, the tab is opened in edit mode, so that you can configure the pivot table. Once you have configured the pivot table, you can switch between edit mode and view mode by clicking the **Edit Pivot Table** button (see Item 1 in the screenshot below).

The editing layout is similar to the one you may be accustomed to seeing when you are configuring a pivot table in Microsoft Excel. You use multiple panes to configure a pivot table.

The **Fields** pane lists all the fields that have been added to the generic inquiry on the **Results Grid** tab of the [Generic Inquiry](#) (SM208000) form, regardless of their visibility settings. You move fields between the panes by dragging them. When you set focus on a field in the **Rows**, **Columns**, or **Values** pane (Item 2), the system displays its properties in the **Properties** pane (Item 3). By using the settings in the **Properties** pane, you define how the data of the field is to be presented in the table.

If you need to add quick filters to the table, you drag the needed fields to the filtering area (Item 4). If some quick filters were added to an inquiry tab that you saved as a pivot table, the system copies all these filters to the filtering area by default. You can remove them if they are not needed. You remove quick filters by selecting **Remove Quick Filter** from the drop-down list that opens when you click this quick filter.

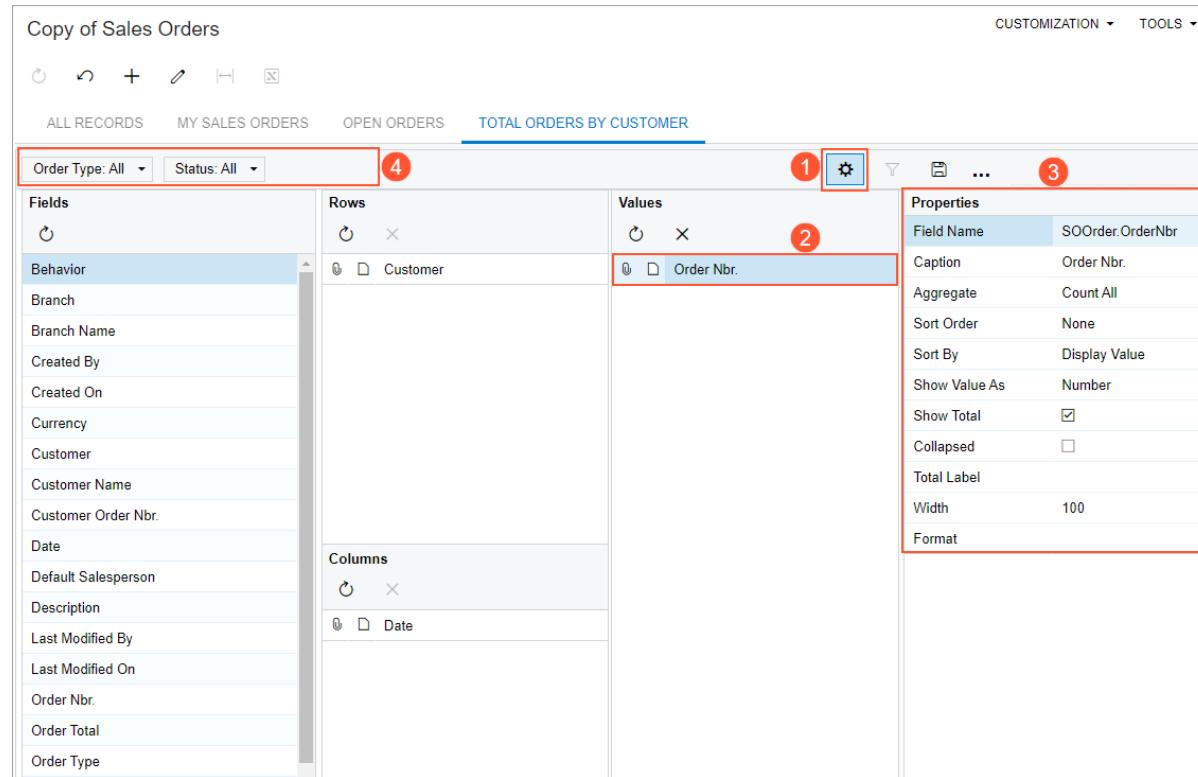


Figure: Edit mode of a pivot table as a filter tab

## Pivot Tables: To Create a Pivot Table on a Filter Tab

In this activity, you will learn how to create a pivot table as a filter tab and share it with other users.

## Story

Suppose that you are a technical specialist in your company who is working on simple customizations, including the creation and modification of generic inquiry forms and pivot tables. A warehouse manager of your company has asked you to create a pivot table that groups stock keeping units (SKUs) by item class and shows the total number of all units and the number of units in each class. Also, the pivot table should be viewed as a tab of the predefined Stock Items (IN2025PL) inquiry form, which has the *IN-StockItem* inquiry title and the *Stock Items* site map title specified on the [Generic Inquiry](#) (SM208000) form.

## Configuration Overview

In the *U100* dataset, the following tasks have been performed to support this activity:

- The *Inventory and Order Management* feature has been enabled on the [Enable/Disable Features](#) (CS100000) form to provide support for the stock item functionality.
- On the [Item Classes](#) (IN201000) form, multiple item classes have been defined.
- On the [Stock Items](#) (IN202500) form, multiple stock items have been defined.
- The Stock Items (IN2025PL) inquiry form, which displays the list of the stock items that have been created on the [Stock Items](#) (IN202500) form, has been set up as the substitute form that is opened when you click the *Stock Items* link in a workspace or a list of search results.

## Process Overview

In the activity, on the Stock Items (IN2025PL) generic inquiry form, you will create the requested pivot table and save it as a shared filter tab of this inquiry form.

### Step 1: Creating the Pivot Table on a Filter Tab

To create the pivot table as a filter tab, do the following:

1. Open the Stock Items (IN2025PL) generic inquiry form.
2. In the filtering area of the form, click the More button and then click **Save as Pivot**.
3. In the **Filter Settings** dialog box, which opens, do the following:
  - a. In the **Filter Name** box, type *Items by Item Class*.
  - b. Select the **Shared Configuration** check box.
  - c. Click **OK** to add the shared filter tab.

The system opens the newly created tab in edit mode for the pivot table.

### Step 2: Configuring the Pivot Table

To configure the pivot table, do the following:

1. While you are still viewing the **Items by Item Class** filter tab of the Stock Items (IN2025PL) inquiry form in edit mode, to configure the rows of the pivot table, add fields to the pivot table as follows:
  - a. Drag *Item Class* from the **Fields** pane to the **Rows** pane. The identifiers of the item classes will be displayed as row headers in the pivot table.
  - b. Drag *Inventory ID* from the **Fields** pane to the **Rows** pane as a second row after *Item Class*. This will group stock items that belong to the same item class.
2. In the **Rows** pane, click *Item Class* to display its properties in the **Properties** pane, and do the following in this pane:

- a. Make sure that the **Show Total** check box is selected. With this setting, the system will add the **Total** row at the bottom of the table, which will display the total number of items in stock for all item classes.
  - b. Type **Total SKUs** in the **Total Label** box. With this setting, the system will change the caption for the **Total** row at the bottom of the table.
  - c. Select the **Collapsed** check box. With this setting, the system will collapse item class groups by default.
3. In the **Rows** pane, click *Inventory ID* to display its properties in the **Properties** pane. In this pane, clear the **Show Total** check box. The total number of stock items in a class will be displayed with the collapsed groups of item classes.
4. To configure the values of the pivot table, add fields to the pivot table as follows:
- a. Drag *Inventory ID* from the **Fields** pane to the **Values** pane. The pivot table will display the number of SKUs aggregated by item class.
  - b. While *Inventory ID* is selected in the **Values** pane, in the **Properties** pane, clear the **Show Total** check box.
5. In the filtering area, click **Edit Pivot Table** to switch to view mode.

The system will display the pivot table, which aggregates SKUs by item class. Item class groups are collapsed by default, and the total number of SKUs in the group is displayed in the **Total** column. The **Total SKUs** row is added at the bottom of the table and shows the total number of stock keeping units available. A user can expand a particular group by clicking the plus sign next to a group name or click the **Expand All** button at the bottom of the form (shown in the following screenshot) to expand all groups at once. The button next to **Expand All** is the **Collapse All** button.

Item Class	Total
ALLOOTHER	3
BLADE	2
COMPUTERS	3
CONTAINER	2
COVER	1
FOOD	9
JAM	18
JRCFGPRT	17
JUICER	3
JUICERCFG	2
JUICERLOW	2
JUICERMED	2
MJUICE	9
OTHERPARTS	3
PACKAGE	6
PRESSET	4
SPICES	2
TEASSET	3
Total SKUs	91

Figure: A pivot table with the groups collapsed

# Part 5: Using Advanced Filters

---

In the lesson of this part, you will learn how to create, modify, and remove advanced filters.

## Lesson 5.1: Using Advanced Filters

---

In this lesson, you will learn about advanced filter clauses and how to use them in the system.

### Advanced Filters: General Information

---

In Acumatica ERP, you can use simple and quick filters to quickly filter the data in the tables of forms based on the values of columns. In addition, you can create advanced filters for any mass processing, inquiry, or generic inquiry form to filter the data in the table shown on the form. (For more information about types of forms, see [Record Entry: General Information](#).)

Advanced filters are shown as tabs on the form. Once you create an advanced filter for a particular form and save the filter, you can reuse it at any time you open that form in the future. You can create advanced filters for your personal use or share them with other users.

### Learning Objectives

In this lesson, you will learn how to do the following:

- Create advanced filters
- Share advanced filters
- Modify advanced filters
- Delete advanced filters
- Create personal filters based on shared filters

### Applicable Scenarios

You may find the information in this lesson useful when you are responsible for the customization of Acumatica ERP in your company, including defining advanced filters. You may need to create different advanced filters to filter specific types of data in forms and make them available to all users of the system. With these filters, every user of the form will have a consistent basis for analysis without needing to spend time on configuring personal filters.

### Personal and Shared Filters

When you work with a form, you can create advanced filters, which save time spent on filtering data. When you save an advanced filter, the system adds a tab with the filtered data to the form. You can create as many filters as you need for a particular form. All the filters that you create are your personal filters; they are not available to other users in the system. You can modify the conditions of these filters or delete the filters if you do not need them anymore.

If you would like to share your advanced filters with other users, you need to have sufficient access rights to the [Filters](#) (CS209010) form. If you do, you can modify filter clauses or delete shared advanced filters, either by selecting the filter on this form or directly on the related form. If you need to change the name of an advanced filter, you can do this only on the [Filters](#) form.

By default, users with the built-in *Administrator* role have access to this form. These users, generally system administrators or technical specialists that perform customizations, can create advanced filters and share them

with other users. If an advanced filter is shared, it cannot be modified or deleted by users that do not have sufficient access rights to the [Filters](#) form.



By default, a new filter created on the [Filters](#) form is shared.

If you do not have access rights to modify advanced shared filters but would like to use an advanced shared filter as a basis for your filtering conditions, you can copy this filter and modify its copy as your advanced personal filter.

## Creation of Advanced Filters

If you have sufficient access rights to the [Filters](#) (CS209010) form, you can use this form to create advanced shared filters for processing, inquiry, and generic inquiry forms.

We recommend, however, that you instead create an advanced filter directly on the form by using the **Filter Settings** dialog box (for details, see [Filter Settings Dialog Box](#)), in which you can view the results immediately after applying the filter and modify the filter conditions, if needed. If you have access rights to the [Filters](#) form, you can also share the filter by using the **Filter Settings** dialog box.



Users with any level of access rights can create both quick and advanced filters.

To access the dialog box, you click **Filter Settings** on the table toolbar, as shown in the following screenshot.

The screenshot shows a table titled "Invoices and Memos". At the top, there are buttons for sorting and filtering. Below the header, there are dropdown menus for "Type: All", "Status: All", and "Date: All". The main area contains two rows of data. The first row is selected and shows "Credit Memo" with ID "000068", status "Open", customer "COFFEESHOP", and description "Credit memo for on-site lectures". The second row shows "Credit Memo" with ID "000071", status "Open", customer "HMBAKERY", and description "Returned 2 damaged jars". A blue arrow points to the "Filter Settings" button located in the toolbar above the table.

Type	Reference Nbr.	Status	Customer	Customer Name	Description
Credit Memo	000068	Open	COFFEESHOP	FourStar Coffee & Sweets Shop	Credit memo for on-site lectures
Credit Memo	000071	Open	HMBAKERY	HM's Bakery & Cafe	Returned 2 damaged jars

**Figure: Button to access the Filter Settings dialog box**

By using the dialog box, you can manage your advanced personal filters created for this form, and if you have sufficient access rights, you can also manage advanced shared filters that have been created for this form by other users.

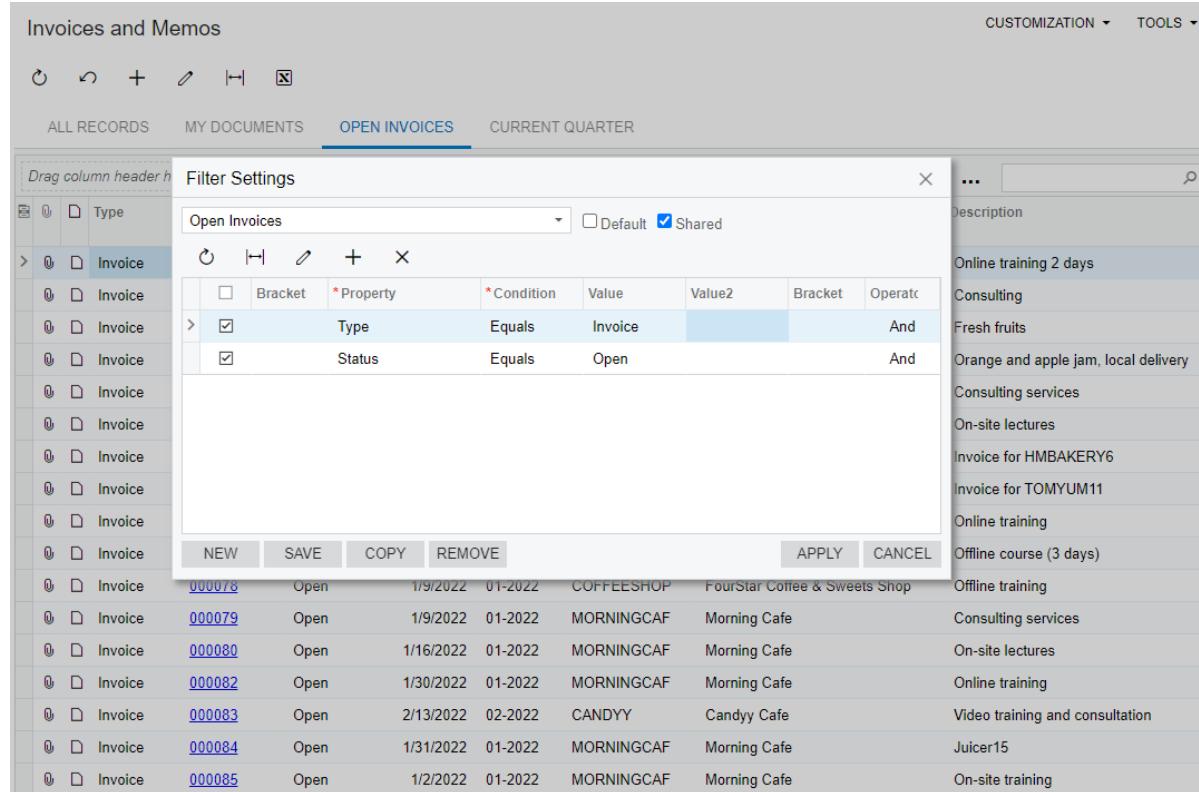
## Filter Clauses

A filter clause is a part of a filter represented by a table row in the table in the **Filter Settings** dialog box. Any advanced filter consists of either one filter clause or multiple filter clauses. For each clause, you specify the following settings in the table row:

- **Property:** The data field of the form that the filter will be applied to. You select a property from the list of available data fields, including those that are hidden in the table on the form.
  - **Condition:** The logical operation that applies to the value of the selected property. You select a condition from the list of available conditions.
  - **Value:** A value for the logical condition used to filter the data. Depending on the selected property and condition, you enter a value (and sometimes a second value as well, depending on the condition). Each value must conform with the data type of the selected property. Generally, there are a series of fixed values for the property—for example, the *Completed* value for the *Status* property. For date-relative clauses, you can specify parameters, such as *@WeekStart* and *@Today*, as values. The filtering process is not case-sensitive; that is, the system does not differentiate between uppercase and lowercase letters in values.
- A value is not used for the *IsEmpty* and *IsNotEmpty* conditions.

To define a clause, you specify the property, the condition, and the applicable values in the table row. You can use *And* and *Or* operators and parentheses to group clauses into logical expressions. Parentheses can be used in logical statements to define the order of operations. The *And* and *Or* operators work on a unit in parentheses as if the unit was a single clause.

For example, on the Invoices and Memos (AR3010PL) list of records, you can search for invoices with the open status by specifying a filter that has two conditions combined with the *And* operator. The first condition has *Type* specified as the property, *Equals* specified as the condition, and *Invoice* specified as the value. The second condition has *Status* specified as the property, *Equals* specified as the condition, and *Open* specified as the value (as shown in the following screenshot).



**Figure: The clauses of the Open Invoices filter**

## Wildcards in Filter Clauses

When you filter data by using the **Filter Settings** dialog box or on the **Filters** (CS209010) form, you can use a pattern for the string value in the *Value* column. In the pattern, you can substitute any symbols with wildcard characters. You can use the following wildcard characters:

- Underscore (\_): You can use this character if you want to filter the data according to a pattern in which only one symbol is substituted. For example, if you try to filter the data by a customer name that contains the *Customer\_Name* string, the system will return all the customers whose name contains any of the following strings: *Customer\_Name*, *Customer-Name*, and *Customer Name*.
- Percentage (%): You can use this character if you want to filter the data according a pattern in which multiple symbols are substituted. For example, if you try to filter the data by a customer name that contains the *Da%n* string, the system will return all the customers whose name starts with *Da* and ends with *n*, such as *Dalton* and *Damian*.

Note that you should use the *Contains* condition if you are using wildcards (see the following screenshot).

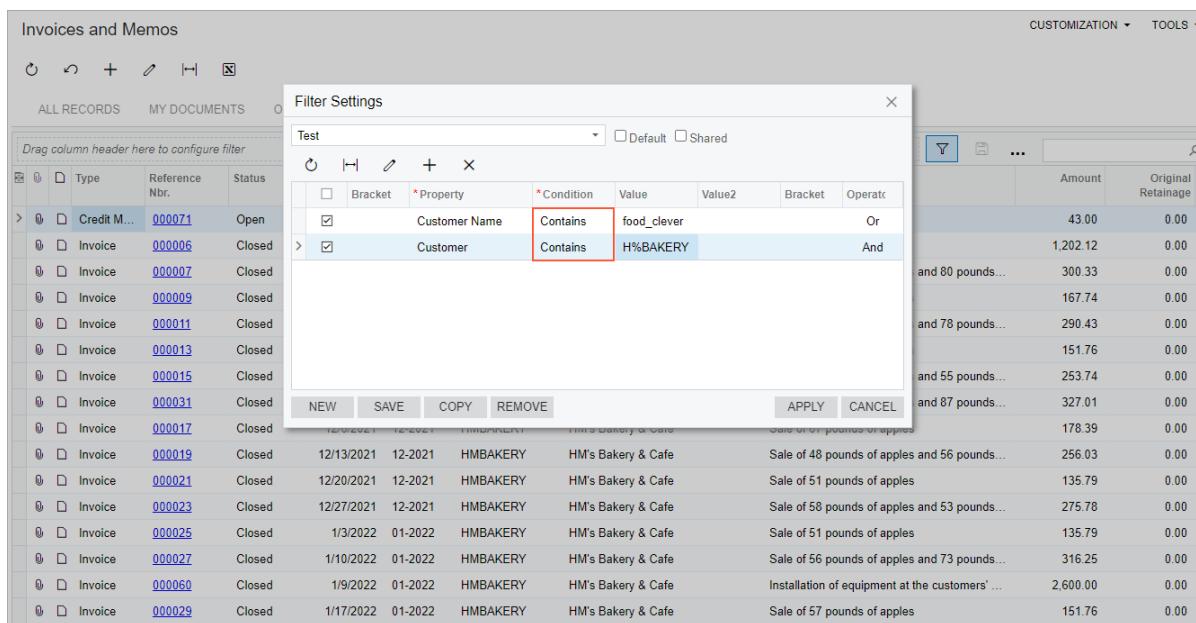


Figure: The use of wildcards in filter clauses

## User-Relative Filter Clauses

To simplify the process of filtering data by owner or by workgroup in the **Filter Settings** dialog box or on the **Filters** (CS209010) form, you can use three predefined user-relative parameters in the **Value** column. By using these parameters, you can configure *user-relative clauses*. When you use these parameters, you do not need to create multiple rows with specific values—for example, to specify each workgroup in which you are a member for the *Workgroup* property. Instead, you can use only one parameter, such as **@MyGroups**, to filter all the records of the workgroups you are a member of.

The following predefined user-relative parameters are available:

- **@Me**: The current user. This parameter can be used only for the user-related properties (such as *Owner* or *Custodian*) that have *Equal* and *Does Not Equal* conditions. These user-related properties include the following: a user ID of the *Guid?* type (in the database, it relates to the *PKID* field of the *uniqueidentifier* type), a contact ID of the integer type, and a username (or an owner name) of the string type.
- If features related to customer and vendor visibility or company groups are enabled, the system filters the records according to the access rights of the current user.
- **@MyGroups**: The workgroups in which the current user is a member, excluding the workgroups that are the subordinates of these workgroups. You can use this parameter for the *Workgroup* property, which has the *Is In* and *Is Not In* conditions.
- **@MyWorktree**: The workgroups in which the current user is a member, including the groups that are subordinates of these groups according to the company tree structure. You can use this parameter for the *Workgroup* property, which has the *Is In* and *Is Not In* conditions.

## Date-Relative Filter Clauses

To make date clauses in advanced filters more flexible, you can use date-relative parameters—parameters that are relative to the business date—in the **Filter Settings** dialog box or on the **Filters** (CS209010) form.



For the date-relative parameters, as the current date, the system uses the date (in coordinated universal time, or *UTC*) of the server used to run the Acumatica ERP instance. Changing the business date (in the upper-right corner of the screen) does not affect the filter results.

You can use the following date-relative parameters in the **Value** and **Value2** boxes of the **Filter Settings** dialog box:

- @Today: The business date. You can modify this parameter by adding or subtracting days.



If the data field contains a value that consists of a date and time, only records for which both the date is equal to the business date and the time is *00:00:00* match this parameter.

- @WeekStart: The start of the current week. You can modify this parameter by adding or subtracting weeks.



The start and end of the week are determined based on the default system locale or the locale that you selected when you signed in to Acumatica ERP. The system locales are specified and configured on the [System Locales](#) (SM200550) form.

- @WeekEnd: The end of the current week. You can modify this parameter by adding or subtracting weeks.



The start and end of the week are determined based on the default system locale or the locale that you selected when you signed in to Acumatica ERP. The system locales are specified and configured on the [System Locales](#) (SM200550) form.

- @MonthStart: The start of the current month.
- @MonthEnd: The end of the current month.
- @QuarterStart: The start of the current quarter.
- @QuarterEnd: The end of the current quarter.
- @PeriodStart: The start of the current financial period.
- @PeriodEnd: The end of the current financial period; the financial periods in your system are defined on the [Financial Year](#) (GL101000) form.
- @YearStart: The start of the current calendar year.
- @YearEnd: The end of the current calendar year.

To add a filter clause with a date-relative parameter, you select the parameter from the list. (See the following screenshot.)

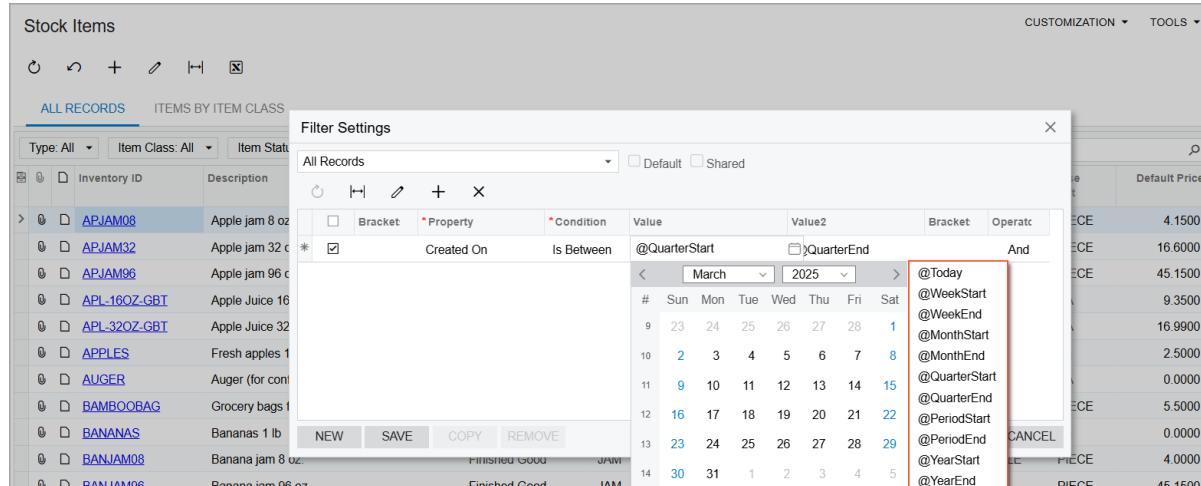


Figure: The selection of a date-relative parameter

You can modify the parameters by adding or subtracting integers. The date is calculated according to the unit of measure of the parameter. For example, to view all tasks that are due next week, on the Tasks (EP4040PL) form, you add a filter clause as follows: You specify *Due Date* as the property, *Is Between* as the condition, *@WeekStart + 1* as the first value, and *WeekEnd + 1* as the second value. The integer (1) in these values represents a week because it is the unit of measure of the parameter.



If the modified date is out of range, the system will not be able to find any records and will return an error.

## Advanced Filters: To Create Advanced Shared Filters

In this activity, you will learn how to create advanced filters and make these filters available to other users.

### Story

Suppose that you are a technical specialist in your company who is working on simple customizations. An accountant of your company has asked you to add multiple filters (that is, filter tabs) for the Invoices and Memos (AR3010PL) generic inquiry form, which is the predefined generic inquiry with the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified on the [Generic Inquiry](#) (SM208000) form. These filters should be available to all users that have access to the inquiry. The following filter tabs need to be added with the noted content:

- **My Documents:** The documents owned by the user who is currently signed in to the system. When a user accesses the inquiry form, the system should open this tab by default instead of the **All Records** tab.
- **Open Invoices:** Only invoices that have the *Open* status.
- **Current Quarter:** Documents for the current quarter.
- **Previous Quarter:** Documents for the previous quarter.

### Configuration Overview

You will create the requested advanced filters using the predefined Invoices and Memos (AR3010PL) inquiry form, which has the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified on the [Generic Inquiry](#) (SM208000) form.

### Process Overview

On the Invoices and Memos (AR3010PL) generic inquiry form, you will create the requested filters by using the **Filter Settings** dialog box.

### System Preparation

On the [Generic Inquiry](#) (SM208000) form, open the inquiry with the *AR-Invoices and Memos* inquiry title and the *Invoices and Memos* site map title specified. On the **Entry Point** tab, select the **Replace Entry Screen with This Inquiry in Menu** check box and save the inquiry.

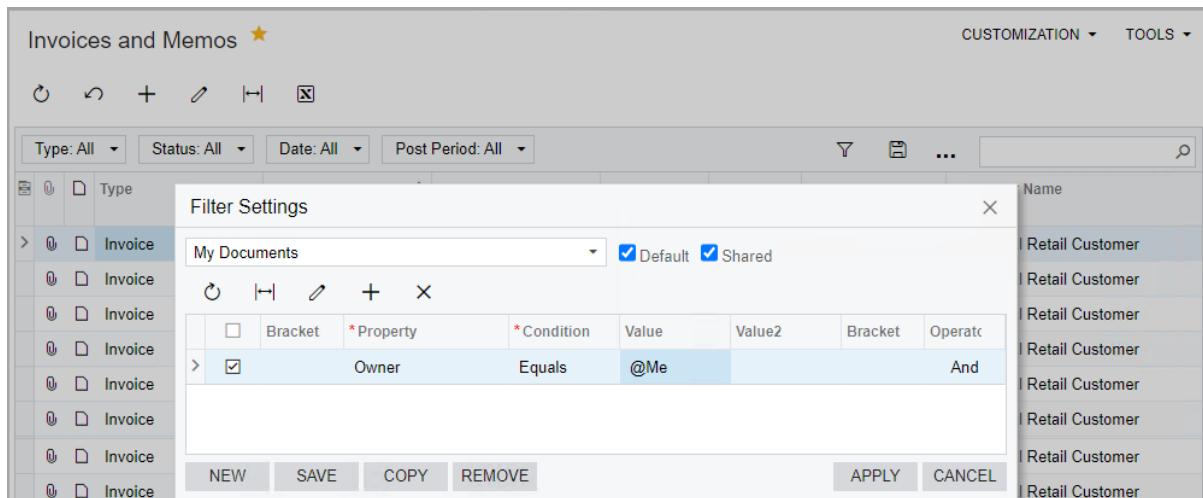
### Step 1: Creating an Advanced Filter with a User-Relative Clause

To create an advanced filter with a user-relative clause, do the following:

1. Open the Invoices and Memos (AR3010PL) inquiry form.
2. On the table toolbar, click **Filter Settings**.

3. In the bottom left of the **Filter Settings** dialog box, which opens, click **New**.
4. Add a row to the table with the following settings:
  - **Property:** Owner
  - **Condition:** Equals
  - **Value:** @Me
5. In the bottom left of the dialog box, click **Save**. In the dialog box that opens, type My Documents, and click **OK**.
6. In the upper part of the **Filter Settings** dialog box, select the **Default** and **Shared** check boxes.

The following screenshot shows the settings of the *My Documents* filter.



*Figure: The settings of the My Documents filter*

7. In the bottom left of the dialog box, click **Save**.
  8. Close the **Filter Settings** dialog box by clicking **Apply**.
- On the inquiry form, notice that the **My Documents** tab has been added.

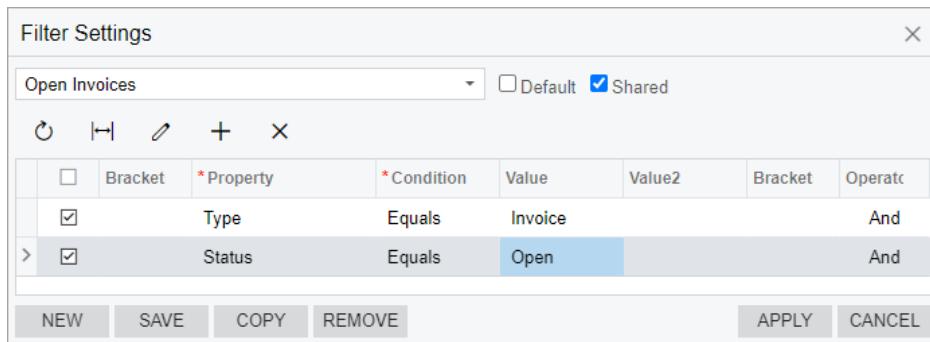
## Step 2: Creating an Advanced Filter with Multiple Filter Clauses

To create an advanced filter with multiple filter clauses, do the following:

1. While you are still on the Invoices and Memos (AR3010PL) inquiry form, on the table toolbar, click **Filter Settings**.
2. In the bottom left of the **Filter Settings** dialog box, which opens, click **New**.
3. Add a row to the table with the following settings:
  - **Property:** Type
  - **Condition:** Equals
  - **Value:** Invoice
  - **Operator:** And
4. Add another row to the table with the following settings:
  - **Property:** Status
  - **Condition:** Equals
  - **Value:** Open

5. In the bottom left of the dialog box, click **Save**. In the dialog box that opens, type **Open Invoices**, and click **OK**.
6. In the upper part of the dialog box, select the **Shared** check box.

The following screenshot shows the settings of the *Open Invoices* filter.



*Figure: The settings of the Open Invoices filter*

7. At the bottom of the dialog box, click **Save**.
8. Close the **Filter Settings** dialog box by clicking **Apply**.

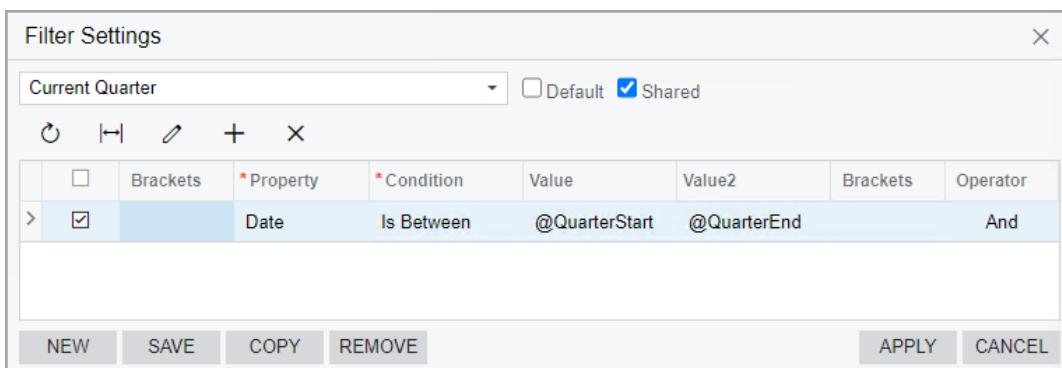
On the inquiry form, notice that the **Open Invoices** tab has been added.

### Step 3: Creating Advanced Shared Filters with a Date-Relative Clause

To create advanced filters with a date-relative clause, do the following:

1. While you are still on the Invoices and Memos (AR3010PL) inquiry form, on the table toolbar, click **Filter Settings**.
2. In the bottom left of the **Filter Settings** dialog box, which opens, click **New**.
3. Add a row to the table with the following settings:
  - **Property:** Date
  - **Condition:** Is Between
  - **Value:** @QuarterStart
  - **Value2:** @QuarterEnd
4. In the bottom left of the dialog box, click **Save**. In the dialog box that opens, type **Current Quarter**, and click **OK**.
5. In the upper part of the dialog box, select the **Shared** check box.
6. In the bottom left of the dialog box, click **Save**.

The following screenshot shows the settings of the *Current Quarter* filter.



**Figure:** The settings of the Current Quarter filter

7. Click **Copy** in the bottom left of the dialog box.
8. In the dialog box that opens, type **Previous Quarter**, and click **OK**.
9. In the only row, change the values in the columns to the following:
  - **Value:** @QuarterStart-1
  - **Value2:** @QuarterEnd-1
10. Click **Save**.
11. In the upper part of the dialog box, select the **Shared** check box.
12. In the bottom left of the dialog box, click **Save**.
13. Close the **Filter Settings** dialog box by clicking **Apply**.

On the form, notice that the **Current Quarter** and **Previous Quarter** tabs have been added along with the other filter tabs that you have added in the activity, as shown in the following screenshot.

The screenshot shows the 'Invoices and Memos' form. The ribbon at the top has tabs for ALL RECORDS, MY DOCUMENTS, OPEN INVOICES, CURRENT QUARTER (which is highlighted in blue), and PREVIOUS QUARTER. Below the ribbon is a table listing invoices. The columns are: Type, Reference Nbr., Status, Date Post Period, Customer, Customer Name, Description, and Custom. There are 12 rows of invoice data, each with a small icon and a number in the first column.

**Figure:** The tabs with added shared filters

## Advanced Filters: To Remove an Advanced Filter

In this activity, you will learn how to remove an advanced filter.

## Story

Suppose that you are a technical specialist in your company who is working on simple customizations. One year ago, you configured a set of shared filters for the Invoices and Memos (AR3010PL) generic inquiry form. Further suppose that the accounting department has worked with the set of shared filters for some time and realized that the **Previous Quarter** tab is not needed, so you have been asked to remove the filter tab.

## Process Overview

For the Invoices and Memos (AR3010PL) inquiry form, you will remove the **Previous Quarter** filter tab by using the **Filter Settings** dialog box.

Alternatively, you could stop sharing the filter by clearing the **Shared** check box for the filter in the **Filter Settings** dialog box. In this case, the filter would still exist, so that if the accounting department again requested the filter, you would not need to configure it once again. You have decided against this alternate approach; the filter conditions are simple and you can configure the filter quickly, so you do not want to clutter the list of available filters.

## Step: Removing an Advanced Filter

To remove an advanced filter, do the following:

1. Open the Invoices and Memos (AR3010PL) inquiry form.
2. On the table toolbar, click **Filter Settings** to open the **Filter Settings** dialog box.
3. In the drop-down box in the upper-left corner of the dialog box, select *Previous Quarter*.
4. At the bottom of the dialog box, click **Remove**.
5. In the dialog box that opens, confirm your action by clicking **OK**.  
The system deletes the filter.
6. Close the **Filter Settings** dialog box by clicking **Apply**.
7. On the form, notice that the **Previous Quarter** tab is no longer available.

## Advanced Filters: To Modify an Advanced Shared Filter

---

In this activity, you will learn how to modify an advanced shared filter.

## Story

Suppose that you are a technical specialist in your company who is working on simple customizations. A year ago, you configured a set of shared filters for the Invoices and Memos (AR3010PL) generic inquiry form. The accounting department has worked with the set of filters for some time and decided that the **Open Invoices** tab needs to list all open documents, regardless of their type; accordingly, its name should be **Open Documents**. Also, the **My Documents** tab is no longer needed.

## Process Overview

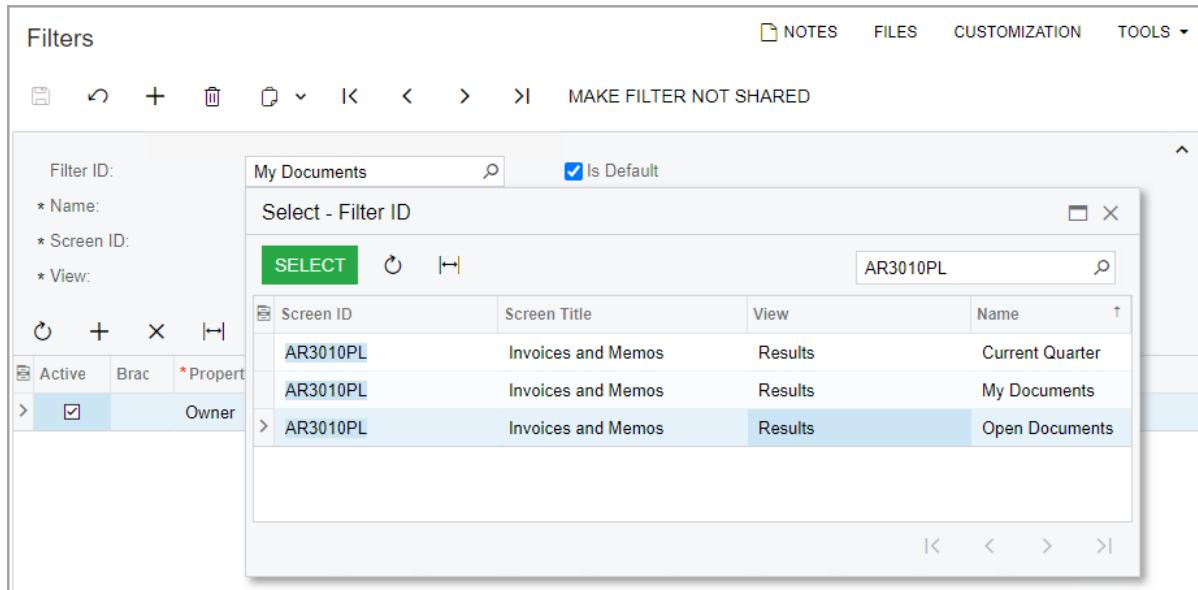
In this activity, on the [Filters](#) (CS209010) form, you will modify the **Open Invoices** filter as requested and define the **My Documents** filter to not be shared.

## Step 1: Modifying the Advanced Shared Filter

To modify the advanced shared filter, do the following:

1. Open the [Filters](#) (CS209010) form.
2. In the **Filter ID** box, select *Open Invoices*.

To locate the filter, click the selector button; in the search box of the lookup table, type its name or the screen identifier of the form the filter is applied to, which is *AR3010PL* (as shown in the following screenshot).



*Figure: Searching for an existing shared filter*

3. In the **Name** box, change the name of the filter to *Open Documents*.
4. In the table, delete the row with the condition that filters documents by the type.



Instead of deleting the row, you can deactivate the condition by clearing the check box in the **Active** column for the row.

5. On the form toolbar, click **Save**.

Notice that the value in the **Filter ID** box has been changed and now is the same as the filter name.

## Step 2: Defining an Advanced Filter as Not Shared

To change the *My Documents* advanced filter so that it is no longer shared, do the following:

1. In the **Filter ID** box of the [Filters](#) (CS209010) form, select *My Documents*.
2. On the form toolbar, click **Make Filter Not Shared**. In the warning dialog box that appears, click **Yes**.

The filter is no longer shared; also, it is no longer shown on the [Filters](#) form, because you can manage only shared filters on this form.

3. Open the Invoices and Memos (AR3010PL) form.
4. On the table toolbar, click **Filter Settings** to open the **Filter Settings** dialog box.
5. In the drop-down box in the upper-left corner of the dialog box, select *My Documents*.

6. Verify that the **Shared** check box is cleared for the filter.

## Advanced Filters: To Create a Personal Filter Based on a Shared Filter

---

In this activity, you will learn how to create a personal advance filter based on a shared advanced filter.

### Story

Suppose that you are an accountant in your company. Some time ago, a set of shared filters was configured for the Invoices and Memos (AR3010PL) generic inquiry form.

Further suppose that you are responsible for tracking the open credit memos for the current year. The generic inquiry has no filter you can use to quickly view these documents, so you have decided to create a personal filter and define it as your default tab, to streamline your work.

### Process Overview

On the Invoices and Memos (AR3010PL) generic inquiry form, you will copy the **Current Quarter** filter and modify it to suit your needs by using the **Filter Settings** dialog box.

### Step: Creating a Personal Filter by Copying a Shared Filter

To create an advanced personal filter, do the following:

1. Open the Invoices and Memos (AR3010PL) form.

Notice that the **My Documents** tab is opened by default. This happened because for this filter, the **Default** check box was selected in the **Filter Settings** dialog box.

2. On the table toolbar, click **Filter Settings** to open the **Filter Settings** dialog box.
3. In the drop-down box in the upper-left corner of the dialog box, select *Current Quarter*.
4. In the bottom left of the dialog box, click **Copy**.
5. In the dialog box that opens, type *Open Memos for Current Year*, and click **OK**.
6. In the only row, change the values in the columns to the following:
  - **Value:** @YearStart
  - **Value 2:** @YearEnd
7. Add one more row with the following settings:
  - **Property:** *Type*
  - **Condition:** *Equals*
  - **Value:** *Credit Memo*
8. Add one more row with the following settings:
  - **Property:** *Status*
  - **Condition:** *Equals*
  - **Value:** *Open*
9. In the bottom left of the dialog box, click **Save**.
10. In the upper part of the dialog box, select the **Default** check box and click **Save**.

The settings of the *Open Memos for Current Year* filter are shown in the following screenshot.

Filter Settings

Open Memos for Current Year  Default  Shared

	Bracket	* Property	* Condition	Value	Value2	Bracket	Operatc
<input checked="" type="checkbox"/>		Date	Is Between	@YearStart	@YearEnd		And
<input checked="" type="checkbox"/>		Type	Equals	Credit Memo			And
> <input checked="" type="checkbox"/>		Status	Equals	Open			And

**Buttons:** NEW, SAVE, COPY, REMOVE, APPLY, CANCEL

*Figure: Reviewing the settings of the Open Memos for Current Year filter*

11. Close the **Filter Settings** dialog box by clicking **Apply**.

Notice that the **Open Memos for Current Year** filter tab has been added to the form.

12. Navigate to any other form, and then open the Invoices and Memos (AR3010PL) generic inquiry form again.

Notice that the system has opened the **Open Memos for Current Year** tab for you by default.