Integration

I100 Integration Scenarios

Training Guide

Acumatica
The Cloud ERP

Contents

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Introduction

This course introduces integration scenarios available in Acumatica ERP. The integration scenarios in Acumatica ERP helps you to import data during initial system implementation and to support the seamless integration of Acumatica ERP with third-party applications and other enterprise information resources.

The course is intended for advanced Acumatica ERP users familiar with user interface and main principles of the system's work. The course can be useful for Acumatica ERP consultants, system administrators, and programmers who intend to use Acumatica screen-based web services API.

The course is based on a set of examples that demonstrate the processes of creation of import and export scenarios and processing data using created scenarios. This course consists of lessons that guide you step-by-step through specifics of integration scenarios.

After you complete the course you will have an understanding of how to import data to Acumatica ERP and export data from Acumatica ERP by using integration scenarios.

How to Use This Course

You will start learning how to use Acumatica ERP integration scenarios with very simple examples of integration scenarios and then move to more advanced scenarios as you go through this course.

To complete the course, complete the lessons from each part of the course in the order they are presented and pass the assessment tests:

1. Complete the Course Prerequisites part.

2. Complete the Integration Scenarios Overview topic and the lessons of Part 1, which is dedicated to data providers.

3. In Acumatica University, take *Certification Test 1: Data Providers*.

4. Start Part 2, complete Lessons 2.1-2.3, which are dedicated to the basics in creating import scenarios.

5. In Acumatica University, take *Certification Test 2: Import Scenarios (Lessons 2.1-2.3)*.

6. From Part 2, complete Lessons 2.4-2.6, which are dedicated to advanced techniques in creating import scenarios, and lessons of Part 3, which is dedicated to simplified import.

7. In Acumatica University, take *Certification Test 3: Import Scenarios (Lessons 2.4-2.6) and Simplified Import Scenarios*.

8. Complete the lessons of Parts 4-6 dedicated to export scenarios, performance optimization, and scheduling of import and export procedures.

9. In Acumatica University, take *Test 4: Export Scenarios, Performance Optimization, and File Synchronization*.

After you pass all four assessment tests, you will get the Acumatica University certificate of the course completion.

What Is in a Part?

Each of the first four parts of the course is dedicated to a particular Acumatica ERP object used in integration process and related procedure. Parts 5 and 6 are dedicated to additional techniques, which can be useful when you work with integration scenarios. Each part of the course consists of lessons you should complete.

What Is in a Lesson?

The lessons consist of examples that outline the procedures you're completing and describe the related concepts you are learning. At the end of each example, under the *Related Links* section, you can find links to detailed information about the concepts used in the example.

What Are the Documentation Resources?

All the links listed in the Related Links sections refer to the documentation available on the *https://docref.amatica.com/* website to which you can log in with the Partner Portal account. The same documentation is included in the Acumatica ERP instance, which you can find under the **Help** menu.

Course Prerequisites

For this course, you should be familiar with the Finance, Distribution, and Organization modules of Acumatica ERP and main principles of the system's work.

Deploying an Acumatica ERP Instance for the Training Course

You need to deploy an instance of Acumatica ERP with a company that contains specific data to use for the training. Do the following:

1. Open the Acumatica ERP Configuration Wizard, and deploy a new application instance. On the **Company Setup** page of the Acumatica ERP Configuration Wizard, specify one tenant with the *I100* data inserted by setting the following parameters:

    -   **Login Company Name**: `MyCompany`

    -   **New**: Selected

    -   **Insert Data**: *I100*

    -   **Parent Company ID**: 1

    -   **Visible**: Selected

    The system creates a new Acumatica ERP instance, adds a new company and loads the selected data.

2. Log in to the new company by using the following credentials:

    -   Login: `admin`

    -   Password: `setup`

    Change the password when the system prompts you to do so.

Integration Scenarios Overview

Acumatica ERP provides integration with external data sources and third-party systems through integration services. These integration services include the import and export of data by means of integration scenarios and interaction with external systems through the web services API and the mobile REST API. See the diagram below.

This course focuses on integration scenarios, which are the part of Acumatica ERP integration services that is primarily intended for one-time or periodic import or export of data between systems.
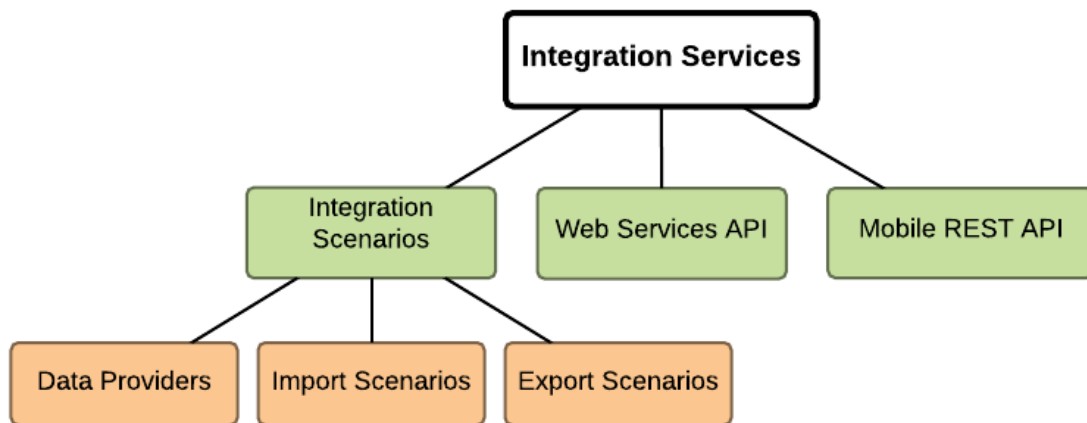
Figure: Acumatica ERP integration services

Defining Integration Scenarios and Data Providers

To upload data to and from Acumatica ERP, you can use *import scenarios* and *export scenarios*, which define data import and data export instructions for the system. An import or export scenario is a sequence of actions to be executed for a data record as if the record is being manipulated by user through an Acumatica ERP form. When you enter data into the system manually, you perform a sequence of actions. You open the needed data entry form and start entering data. To add a new record, you use the UI elements one by one—that is, you type text, select values from combo boxes, clear or select check boxes, and click buttons. In the corresponding scenario, you compose exactly the same sequence of actions—you specify a command for each user action on the form. Because you cannot perform multiple actions simultaneously on the form, the scenario executes commands successively. To construct the scenario, you reflect the actions you make on the form in the sequence of commands for the scenario.

Because in these scenarios you either save data to an external system or file, or upload data from an external system or file to Acumatica ERP, you must define the format of the external system or file to the Acumatica ERP system. For this purpose, you set up a *data provider* in the system. A data provider is an entity that defines the structure of the external data source; Acumatica ERP then uses the data provider to transfer data from and to the external system or file.

Therefore, to use an integration scenario, you have to define the data provider and the needed import or export scenario, as illustrated in the diagram below. An integration scenario works as if the data being manually processed on an Acumatica ERP form.
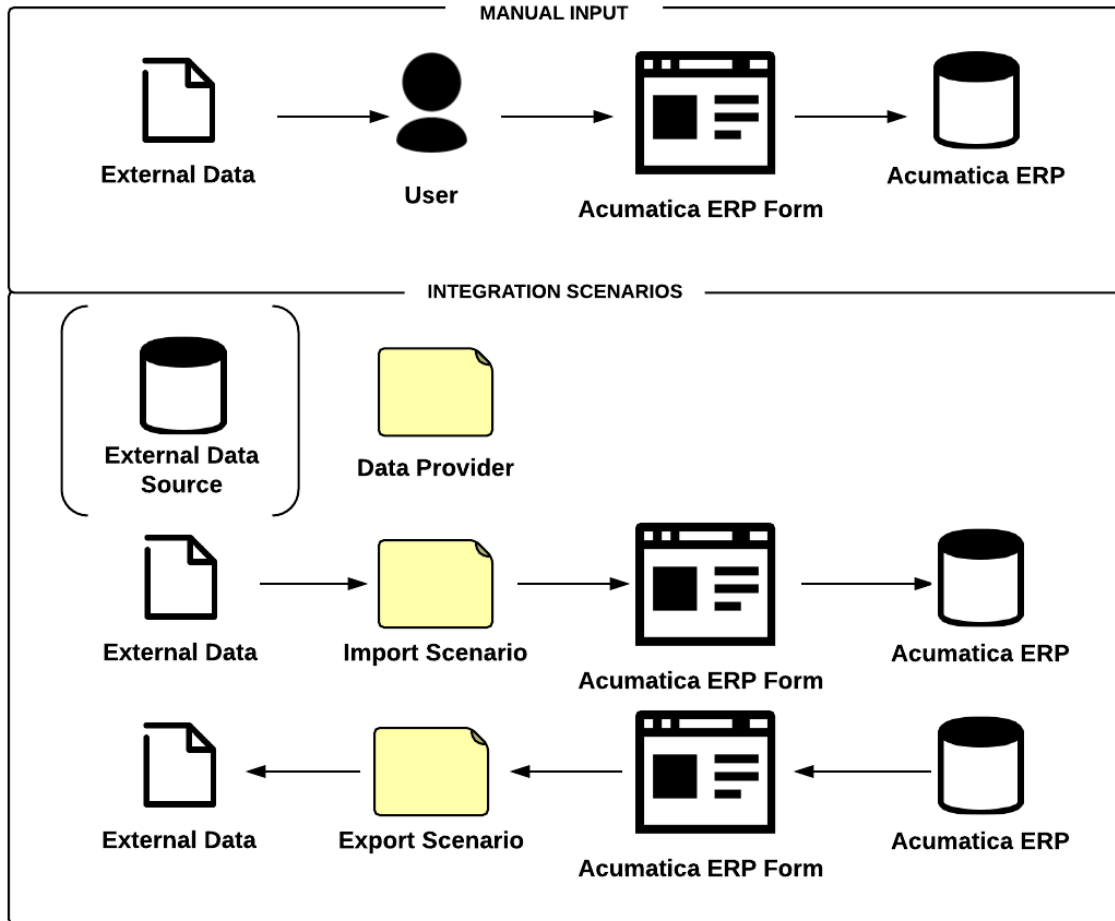
Figure: Manual input and integration scenarios input

When you're creating an integration scenario, you first create the needed data provider, which defines the type and schema of the data source. For example, the type can be an Excel file, and the schema of an Excel data source consists of the names of spreadsheets that should be used for data import or export and the list of columns on the spreadsheets. If the external data source has changed (for example, if a new column has been added to an Excel spreadsheet), you have to update the data provider in Acumatica ERP to be able to use the new column in scenarios for which the data provider is specified.

After you have prepared the data provider, the second step is to define the scenario, including the scenario mapping. You can construct a scenario for any data entry form. In the scenario, you use internal fields, which are the fields of Acumatica ERP, and external fields, which are defined in the specified data provider. In the scenario, you map internal fields to external fields and specify commands. Integration scenarios are specific to the Acumatica ERP form and the external data schema.

After the scenario is ready, you can run the import or export for the scenario to get the result. You can also schedule scenarios to be run, so that you can import and export data on a regular basis.

Importing Data to Acumatica ERP with Import Scenarios
You can import data from a third-party application or an external file of a specific type to Acumatica ERP, or you can perform periodic data synchronization—that is, update or delete data in the existing records—with data of a third-party application.

An import scenario represents the instructions that should be executed to import one record in a series of similar records, along with restrictions on the data to be imported. The scenario is used by the system to import each record of the data.

The importing of data proceeds as follows. When you import data from an external file or system, the specified data provider identifies objects in the prepared external data and finds the fields defined in the data schema of the provider. For example, for an Excel source file, objects correspond to sheets, and fields correspond to columns. Then the data provider executes the import operation according to the selected scenario. It copies the data from the external fields to the specified fields of the Acumatica ERP object. As a result of the import operation, external data is available in Acumatica ERP. See the illustration of the process in the diagram below.
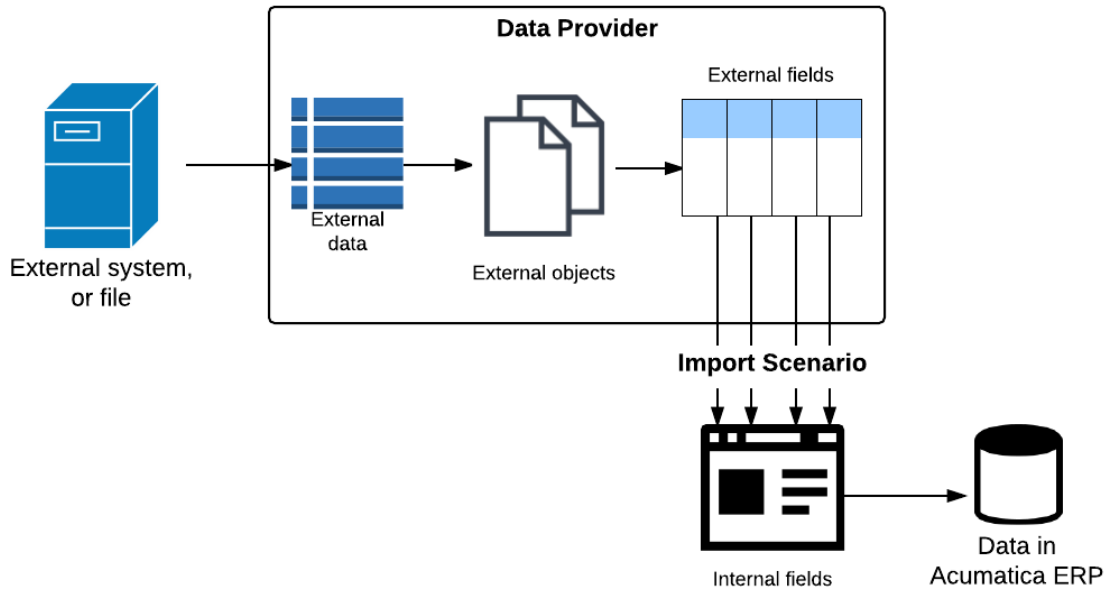
Figure: Data import process

Exporting Data from Acumatica ERP with Export Scenarios
You can use export scenarios to save data from Acumatica ERP to an external application or file, or as a part of data synchronization with data from a third-party application.

An export scenario includes the steps that should be executed to export one record in a series of similar records, along with any restrictions on the data to be exported. The scenario is used by the system to export each record of the data.

When you export data from Acumatica ERP to an external file or system, the specified data provider matches Acumatica ERP objects and fields to the corresponding objects and fields defined in the data schema of the provider—for an Excel file, the objects and fields correspond to spreadsheets and columns. Then the data provider executes the export operation according to the selected export scenario. It copies the data from the specified fields of Acumatica ERP to the external fields. As the result of the export operation, data from Acumatica ERP is saved to an external system or file. The process of data export is illustrated in the diagram below.

Internal fields

Data in
Acumatica ERP

Export Scenario

Data Provider

External fields

External objects

External
data

External system,
or file
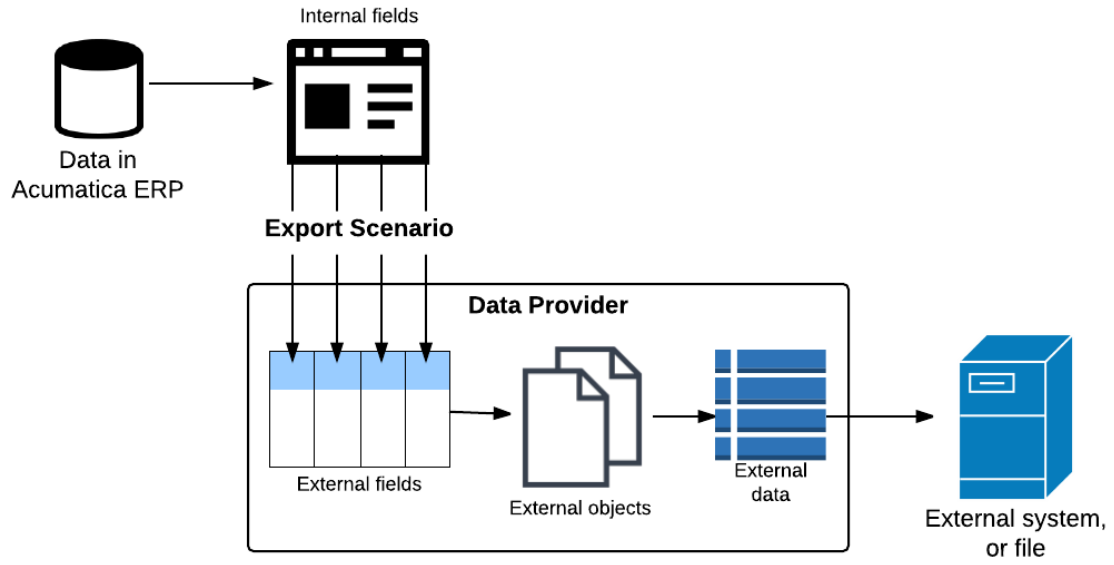
Figure: Data export process

Part 1: Data Providers

In this part of the course, you will learn how to create a data provider of a predefined type, specify provider-specific parameters, and define external data schema.

As the result of the lessons of this part, you will configure CSV, Excel, and MS SQL data providers that will be used in the next parts of the course for importing and exporting data.

CSV Data Providers

In this section, you will find information that is specific for CSV data providers:

- *Parameters and Schema of a CSV Provider*
- *Requirements for a Source Excel File*

Parameters and Schema of a CSV Provider

On the Data Providers form (SM206015; System > Integration > Manage), you specify four parameters for a CSV predefined provider type:

- The *FileName* parameter, which is standard for file providers, specifies the name of the file that should be used for data import.

- The *Encoding* parameter specifies the encoding of the source file. You can select the proper encoding value from the drop-down list in the **Value** column of the table on the **Parameters** tab. By default, the value of the parameter is set to *US-ASCII*.

- The *Delimiter* parameter specifies the delimiter that is used in the CSV file. You can use as a delimiter any printable character. By default, a comma (,) is used as the delimiter.

- The *QuoteAll* parameter makes the provider enclose all values from the source file in double quotes. By default, the system does not enclose source values in double quotes.

To make the system read the file correctly, you should specify the appropriate values for the *Encoding* and *Delimiter* parameters.

Once you specified the provider parameters, you can fill in source data schema on the **Schema** tab of the Data Providers form (SM206015). The CSV provider type uses only one source object that corresponds to the source file. Source fields correspond to CSV columns. CSV provider uses the values from the first line of a source file as the names and descriptions of the fields.

Also on the **Schema** tab of the Data Providers form (SM206015), you should mark the objects and fields as active (by selecting the **Active** check boxes for them) to be able to use their data for import or export. The **Command** setting of the source object and the **Key**, **Data Type**, **Data Length**, and **Command** settings of the source fields are not used for CSV data providers.

Related Links

Data Providers

Requirements for a Source CSV File

You should create a CSV file with the source data, taking into account the following requirements:

- The first row in the file must contain column headers, and the first row is not imported.

- Make sure the field delimiter in the file is not used within values. For example, if you use a comma as the delimiter, you cannot import values that contain commas, because they will not be recognized properly.

- You can use letters, numbers, spaces, and underscore (_) symbols within the names of source fields. Do not use periods in the names of source fields because the period is a reserved symbol for formulas in import and export scenarios. Thus, *Invoice Reference Number* is a valid name of a source field, but *Invoice Ref. Number* is invalid.

- The order of the columns in the source file is not important. It affects only the order of the fields in the **Source Fields** pane on the **Schema** tab of the Data Providers form (SM206015; System > Integration > Manage).

Excel Data Providers

In this section, you will find information that is specific for Excel data providers:

- *Parameters and Schema of an Excel Provider*
- *Requirements for a Source Excel File*

Parameters and Schema of an Excel Provider

The Excel provider has only one parameter, *FileName*, which specifies the name of the file that is used for data provider creation. This parameter is specified on the **Parameters** tab of the Data Providers form (SM206015; System > Integration > Manage).

After you have uploaded the file to the provider, you can fill in the data schema on the **Schema** tab of the Data Providers form (SM206015). An Excel file may have a number of source objects that correspond to spreadsheets. Source fields correspond to Excel columns. The Excel provider uses the values from the first row of the Excel file as the source field names and descriptions.

On the **Schema** tab of the Data Providers form (SM206015), you should mark the objects and fields as **Active** to be able to use their data for import or export. The **Command** property of the source objects and the **Key**, **Data Type**, **Data Length**, and **Command** properties of the source fields are not used for Excel data providers.

Related Links

Data Providers

Requirements for a Source Excel File

The source Excel file should meed the following requirements:

- The file must be in XLSX format. XLS files are not supported.

- You should specify column headers in the first row of the file.

- You can use letters, numbers, spaces, and underscore (_) symbols in the names of source fields. Do not use periods in these names because a period is a reserved symbol for formulas in import and export scenarios. Thus, *Invoice Reference Number* is a valid name of a source field, but *Invoice Ref. Number* is invalid.

- The order of the columns in the source file is not important. It affects only the order of the fields in the **Source Fields** pane on the **Schema** tab of the Data Providers form (SM206015; System > Integration > Manage).

Also, Acumatica ERP does not import values from calculated fields, such as `=C2+D2`. To import calculated fields, you can use formulas when you create import scenarios. Another way to import calculated fields is to add a column with values copied from a calculated column next to the column with the formula.

Microsoft SQL Data Providers

In this section, you will find information that is specific for Micorsoft SQL data providers:

- *Parameters and Schema of a Microsoft SQL Provider*

Parameters and Schema of a Microsoft SQL Provider

For a MS SQL data provider, the following parameters must be specified on the Data Providers form (SM206015; System > Integration > Manage):

- *Server*: Specifies the location of the Microsoft SQL Server instance. This is a required parameter. You set the parameter to the server name for a default instance of Microsoft SQL Server (for example, `MyServer`), and to the server name and instance name for a named instance of Microsoft SQL Server (for example, `MyServer\MyInstance`). If a default instance of Microsoft SQL Server is installed on the same computer where Acumatica ERP is installed, you can set the value of the parameter to `(local)`.

- *Database*: Specifies the name of the database on the server. This is a required parameter.

- *Login*: Specifies the login for accessing the Microsoft SQL Server database. This is a required parameter.

- *Password*: Specifies the password for accessing the Microsoft SQL Server database. This is a required parameter

- *Authentication*: Defines the authentication type to be used to connect to the database server. There are two options:

    - *SQL*: If you select this authentication type, Acumatica ERP connects through SQL Server authentication. The account you specify should have sufficient rights for making changes to the database. This authentication type is used by default.

    - *Windows*: If you select this authentication type, Acumatica ERP connects through a Windows user account with the login and password you provide. Windows authentication works only for a local Microsoft SQL Server or when both application and database servers are members of the same Windows domain.

The *LastModifiedDateColumn* and *CreatedDateColumn* parameters are optional. For details on these parameters, see the description of the *Data Providers* form (SM206015) in the documentation.

Once you have specified the parameters, you can populate the source objects and fields from the server on the **Schema** tab of the Data Providers form (SM206015). The MS SQL provider creates an object for each table or view of a database. You should select the **Active** check box on the **Source Objects** pane for the objects that should be used for import or export.

You may need to import only particular columns or records from database tables or views. In this case, you can configure a special view in the database and import columns of the created view, or you can specify a command in the **Command** column of the **Source Objects** pane for a schema object that defines the fields or records that should be available in the object. The necessary columns will be imported directly from the source tables or views. For example, you can apply SQL commands to source objects to apply restrictions on the imported records, select particular records from the source database table, or join data from several tables into one object in the data provider.

Source fields correspond to columns of a table or view. The MS SQL provider derives the field names and descriptions from the names of the columns. On the **Source Fields** pane of the **Schema** tab of the Data Providers form (SM206015), the values of the **Data Type** and **Data Length** columns are filled automatically from the corresponding properties of the columns. You should select the **Active** check box to make each field available for integration scenarios. The **Key** column is not used in MS SQL data providers.

You can use SQL functions in the **Command** column of the **Source Fields** pane for schema fields to configure imported field values. For example, you can replace the value of a field with some calculated value, or change the value of a field depending on some condition.

Related Links

Data Providers

Lesson 1.1: Creating a File Provider

In this lesson, you will create two file data providers: the data provider that works with a CSV file, and the data provider that works with an Excel file. For each of these providers, you will go through the whole process of creation, paying attention to the aspects specific to each provider type. You will also modify the newly created Excel provider and create a third provider that uses the file that has already been uploaded to Acumatica ERP.

Once you complete the lesson, you will have three fully configured file providers that you can use to work with external data of the specified format. In further lessons, you will use these providers to create import and export scenarios for transferring customer records, Account Receivable invoices, and leads to and from Acumatica ERP.

Lesson Objectives

In this lesson, you will learn how to:

- Create and configure a CSV provider.
- Create and configure an Excel provider.
- Modify a file provider.
- Link a file provider to an existing file.

Example 1.1.1: Creating a CSV Provider (Customers)

In this example, you will create a data provider that works with the customer records in a CSV file. You will go through the whole process of creating a file provider, while paying attention to the specifics of a CSV provider.

Create the CSV provider for the master file for customer records as follows:

1. Review the data in the `CustomersMasterFile.csv` file for which you are creating the data provider. Open the file in a text editor and notice that the `CustomersMasterFile.csv` file uses *;* as a delimiter and has UTF-8 encoding.

2. On the Data Providers form (SM206015; System > Integration > Manage), create a provider and specify the following settings:

   - **Name**: `Import/Export Customers`

   - **Data Type**: *CSV Provider* (`PX.DataSync.CSVSYProvider`)

3. On the form toolbar, click **Save**. The system requires you to save the provider before you upload the file.

4. Drag and drop the `CustomersMasterFile.csv` file to the form, and refresh the form in your browser. The file is uploaded to the form. The *FileName* parameter is filled in automatically.

   > As an alternative to this step, to upload the source file to the form, on the title bar, click **Files**. In the **Files** dialog box that opens, click **Browse** to locate the source file. Select the `CustomersMasterFile.csv` file, and click **Open**. In the dialog box, click **Upload** to upload the file to the website; then close the dialog box.

5. On the **Parameters** tab, set the parameters of the data provider as follows (see the following screenshot):

   - Check that the value of the *FileName* parameter is correct: `Data Providers (Import/Export Customers)\CustomersMasterFile.csv`.

   - As the value of the *Encoding* parameter, select *Unicode (UTF-8)*.

   - As the value of the *Delimiter* parameter, type *;* .

Figure: CSV provider parameters

6. Open the **Schema** tab. In the **Source Objects** pane, select the **Active** check box for the *CustomersMasterFile.csv* object to make it available in integration scenarios.

   > If you don't see the *CustomersMasterFile.csv* object, click **Fill Schema Objects** on the toolbar in the **Source Objects** pane.

7. On the toolbar of the **Source Fields** pane, click **Fill Schema Fields**. The system displays the field names available in the file in this pane. Make sure the **Active** check box is selected for all the fields of the file for which data will be imported.

8. Click **Save**. See the resulting schema of the data provider in the following screenshot:

Figure: Schema of the Import/Export Customers data provider

Now you have the CSV data provider that you can use to extract the customer ID, customer name, customer class, and customer contact details from the CSV file, or to save this information to the file. You will use this provider to import customer data from a CSV file and export customer records to a CSV file in further lessons.

Related Links

Data Providers

Example 1.1.2: Creating an Excel Provider (AR Invoices)

In this example, you will add a new Excel file provider for accessing Account Receivable (AR) invoices. The process is very similar to the process of creating the CSV file provider.

Create the Excel provider by doing the following:

1. Review the data file that should be imported. In this part of the lesson, you work with the `OpenARInvoices_12-2013.xlsx` file, which contains the data of the AR documents to be imported. Open the file and review the available columns. Make sure that you understand how the names of the columns match the contents. Note that there are two *Doc Description* columns in the file: *DOC DESCRIPTION (formula)* and *DOC DESCRIPTION*. One of them has the value calculated from a formula, and the other has the same value in plain text. The same is for *LINE NBR (formula)* and *LINE NBR*, and *LINE DESCRIPTION (formula)* and *LINE DESCRIPTION*.

2. On the Data Providers form (SM206015; System > Integration > Manage), create a provider with the following settings:

   - **Name**: `Import/Export AR Invoices`

   - **Data Type**: *Excel Provider* (`PX.DataSync.ExcelSYProvider`)

   The list of provider parameters becomes available on the **Parameters** tab, which contains one parameter: *FileName*.

3. On the form toolbar, click **Save**. The system requires that you save the provider before you upload a file.

4. Upload the `OpenARInvoices_12-2013.xlsx` file. The *FileName* parameter is set to the name of the file that you have uploaded: `Data Providers (Import/Export AR Invoices)\OpenARInvoices_12-2013.xlsx`.

   > To upload the file to the form, either drag and drop it to the form and refresh the form, or use the **Files** menu on the title bar.

5. On the toolbar in the **Source Objects** pane of the **Schema** tab, select the **Active** check box for the *AR Invoices* object (see the following screenshot) to make the object available in integration scenarios.

6. On the toolbar of the **Source Fields** pane, click **Fill Schema Fields**. The system displays the fields available in the source file in this pane. Clear the **Active** check box for the *LINE NBR (formula)*, *DOC DESCRIPTION (formula)*, and *LINE DESCRIPTION (formula)* fields (also shown in the following screenshot). These fields contain formulas, and Acumatica ERP does not import values from fields containing formulas. Therefore, these fields are not necessary in integration scenarios.
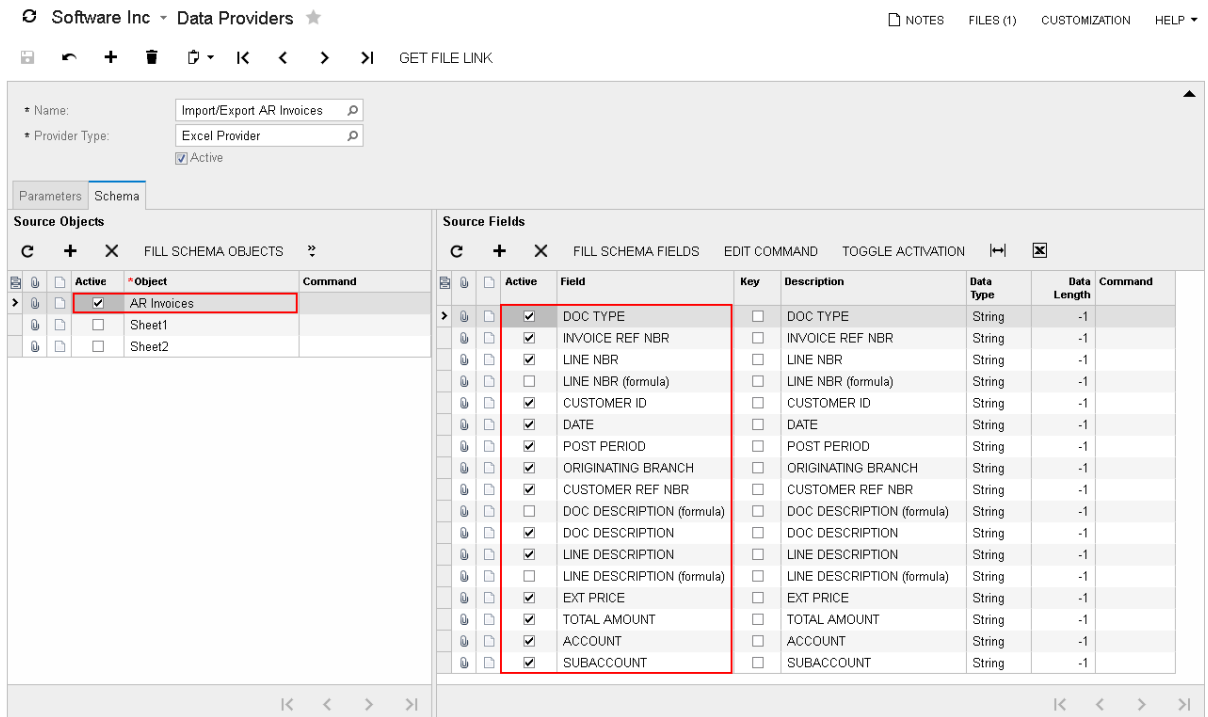
Figure: Schema of the Import/Export AR Invoices data provider

7. Click **Save** to save the data provider.

As a result, you have the Excel data provider, which works with AR invoices. This provider will be used for the creation of import and export scenarios in further lessons of this course.

Related Links

Data Providers

Example 1.1.3: Modifying a Data Provider (AR Invoices)

If the data source has changed—for example, you have added one more column to the Excel file—you have to update the data provider. To update the data provider, you have to replace the file attached to the provider on the Data Providers form (SM206015; System > Integration > Manage) and update the provider schema.

In this example, you will upload a new version of the file attached to the *Import/Export AR Invoices* provider created in *Example 1.1.2: Creating an Excel Provider (AR Invoices)*. Do the following:

1. On the Data Providers form (SM206015), select the *Import/Export AR Invoices* provider, and on the form title bar, click **Files**.

2. In the **Files** dialog box, click **Edit** to the right of the file name.

   Clicking **Edit** opens the File Maintenance form (SM202510), which displays the details of the file attachment.

3. On the form toolbar of the File Maintenance form (SM202510), click **Check Out** and in the dialog box, which opens, click **OK** to make the file unavailable to other users for editing while you are updating it. You may skip this step if no other users can work with this file simultaneously.

4. Click **Get Latest Version** on the form toolbar, and download the file.

   > You do not necessarily have to download the file first; you can just upload a new version and skip this step.

5. Open the file and add the *DESTINATION BRANCH* column. Set the value of the field for each record to `SOFT`. Save the edited version to your computer.

   > You can find the `OpenARInvoices_12-2013_withDestinationBranch.xlsx` file attached to this course. This is the `OpenARInvoices_12-2013.xlsx` file with the added *DESTINATION BRANCH* column.

6. On the form toolbar of the File Maintenance form (SM202510), click **Upload New Version** to open the **File Upload** dialog box, and upload the edited version of the file into the system. If you checked the file out, make sure the **Check In** check box is selected to make the file available for editing to other users.

   On the **Versions** tab, notice the list of available file versions (see the screenshot below).

   > If necessary, you could download or restore the needed file version. To download a file version, select the needed version and click **View Selected Version** on the table toolbar. Then you can upload the file as a new version. To delete a file version, click **Delete Row** on the table toolbar.

Figure: Versions of the file attached to the provider

7. Close the File Maintenance form (SM202510) and the **Files** dialog box.

8. On the **Schema** tab, on the toolbar of the **Source Fields** pane, click **Fill Schema Fields**. The system updates the list of available fields. Make sure the *DESTINATION BRANCH* column has been added to the list and the **Active** check box is selected for all columns except *LINE NBR (formula)*, *DOC DESCRIPTION (formula)*, and *LINE DESCRIPTION (formula)* (see the following screenshot).

Figure: Schema of the Import/Export AR Invoices data provider

9. Click **Save** on the form toolbar.

You have modified the Excel data provider that you created earlier. Now it provides access to one more field for AR invoices.

Example 1.1.4: Linking a File Provider to an Existing File (Leads)

The file that should be used for data provider creation may be already uploaded to Acumatica ERP. For example, the file could be previously used for creating a data provider. In this case, you can skip attachment of the file to the provider in the process of creating the data provider, and instead specify the link to the file in the *FileName* parameter as it is described in this example.

In this example, you will search for an XLSX file attached to another data provider, and use this file for the creation of a new Excel provider. You will create a data provider for importing leads that are used in the Customer Management module. Do the following:

1. On the Search in Files form (SM202520; Configuration > Document Management > Explore), in the **File Name Contains** box, type the name of the file: `Leads.xlsx` and press Enter. The lower right area contains the list of files matching the specified criteria.

2. For the Leads.xlsx file that appeared in the search results, click **Get File Link**, and copy the internal link to the file from the **File Link** dialog box.

3. On the Data Providers form (SM206015; System > Integration > Manage), create an Excel provider with the following settings:

    -   **Name**: `Import Leads`

    -   **Data Type**: *Excel Provider* (`PX.DataSync.ExcelSYProvider`)

4. On the **Parameters** tab, set the *FileName* parameter value to the copied link: `[{up}Data Providers (Export Leads)\Leads.xlsx]`.

5. On the **Schema** tab (in the **Source Objects** pane), click **Fill Schema Objects**. The *Leads* object appears on the tab. Select the **Active** check box for the *Leads* object. In the **Source Fields** pane, click **Fill Schema Fields**. The fields have been retrieved from the file and appear on the tab. Make sure all fields are active.
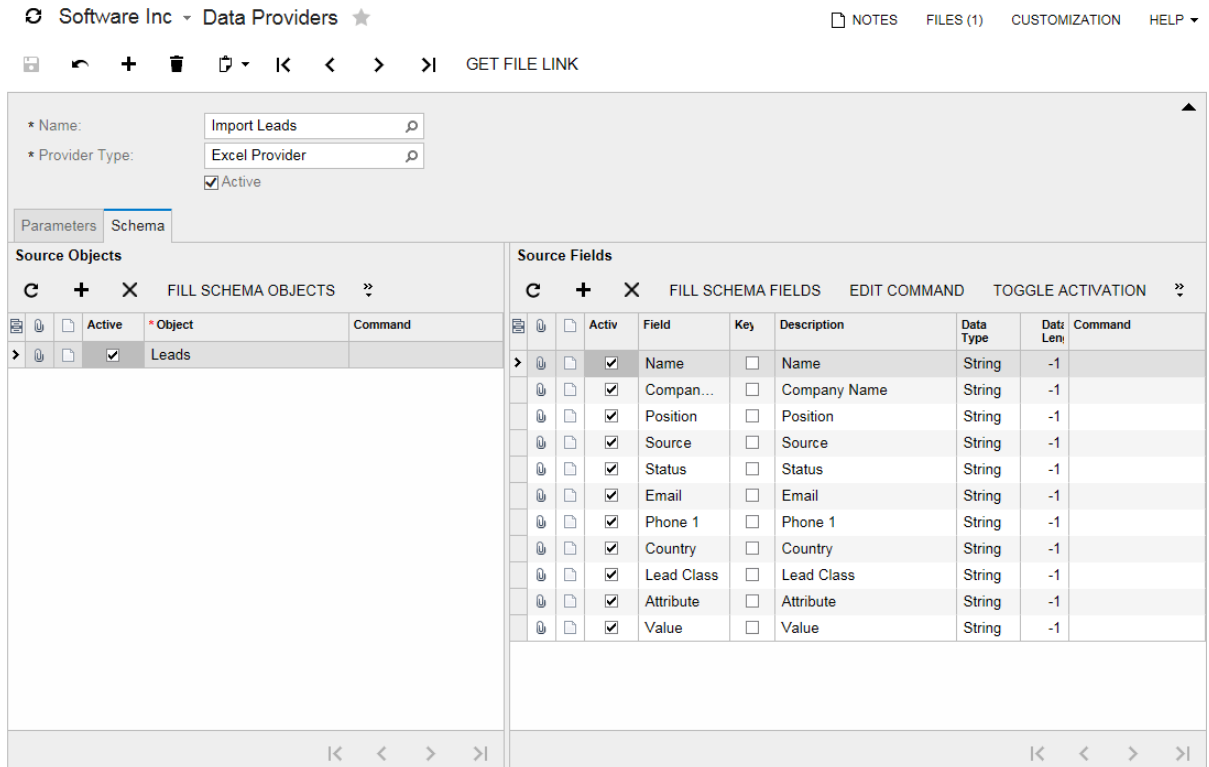

Figure: Import Stock Items provider schema

6. Save the provider.

You have created the Excel provider and linked it to a file that was uploaded to the system earlier.

Lesson Summary

In this lesson, you have learned how to create file providers. The procedure is similar for all file data providers, as you learned by creating the CSV and Excel providers. Below is the summary of the main steps you have completed to create each file provider:

1. Review the source file to determine the needed provider type, to check that the file meets the requirements, and to see the schema that should be uploaded to the data provider.

2. Create a data provider in the system and specify its type.

3. Attach the source file to the newly created provider and correct the parameters of the data provider, if necessary.

4. Specify the objects and fields of the provider.

Now the data providers are ready for use in integration scenarios.

Lesson 1.2: Creating a Microsoft SQL Provider

In this lesson, you will create a Microsoft SQL provider for importing purchase orders to Acumatica ERP. You will learn how to connect to the Microsoft SQL Server instance, populate objects and fields from the remote server, and override objects with SQL SELECT statements and SQL functions.

At the end of the lesson, you will have a completely configured MS SQL data provider that can be used for importing purchase orders in a future lesson.

Lesson Objectives

In this lesson, you will learn how to:

- Create a MS SQL provider and set connection parameters for it.
- Use SQL SELECT statements and SQL functions to override schema objects.

Example 1.2.1: Creating a Microsoft SQL Provider (Purchase Orders)

In this example, you will learn how to create a Microsoft SQL provider for transferring data to and from Acumatica ERP and a SQL table.

You will create a provider that will be used for importing purchase orders from the tables of a Microsoft SQL Server database to Acumatica ERP. You will set the parameters of connection with Microsoft SQL Server and populate the schema objects and fields from the remote server. The SQL query that creates the tables for this example is provided in *Appendix: SQL Query for SQL Tables Creation*.

Create the MS SQL provider by doing the following:

1. Create a new database called *Test* by running the provided script *SQLQuery_PurchaseOrdes.sql*. This will be an external database in this example, from which you will import data to Acumatica ERP.

2. Review the columns of the *POExt* and *POLineExt* database tables provided with this training course. The *POExt* table contains the summary information of each purchase order, which includes the type of the purchase order, the vendor ID, the date of the order, and the reference to a vendor document. The *POLineExt* table contains the detail lines of each purchase order; each line contains a reference to the document to which the line belongs, warehouse and vendor's inventory ID of the purchased item, and the quantity of purchased items.

3. On the Data Providers form (SM206015; System > Integration > Manage), create a provider and specify the following settings for it:

    a. **Name**: Import Purchase Orders

    b. **Data Type**: *MS SQL Provider* (PX.DataSync.MSSqlSYProvider)

4. On the **Parameters** tab, do the following:

    a. As the value of the *Server* parameter, specify either the name of the computer where the Microsoft SQL Server instance is installed if you use the default instance of Microsoft SQL Server (for example, MyServer), or the name of the computer and the name of the Microsoft SQL Server instance if you use a named instance (for example, MyServer \MyInstance). If a default instance of Microsoft SQL Server is installed on the same computer where Acumatica ERP is installed, set the value of the parameter to (local).

    b. Specify the Test database name as the value of the *Database* parameter.

    c. Specify the login and password for accessing the SQL Server instance and the type of authentication that is used by the SQL Server instance (either *SQL* or *Windows*).

5. On the toolbar in the **Source Objects** pane of the **Schema** tab, click **Fill Schema Objects**. The system connects to the database, pulls the list of tables and views from it, and populates the **Source Objects** tab with the schema objects that correspond to tables and views. The *POExt* and *POLineExt* objects appear on this pane.

    > If you don't see **Fill Schema Objects** on the toolbar, click ⏵⏵, which displays any buttons that do not fit on the toolbar.

6. Select the **Active** check box for the *POExt* object. On the toolbar of the **Source Fields** pane, click **Fill Schema Fields**. The system displays the column headers available in the source database table: *Type*, *VendorID*, *Date*, and *DocumentReference*. Make sure the **Active** check box is selected for all the fields, as shown on the following screenshot.
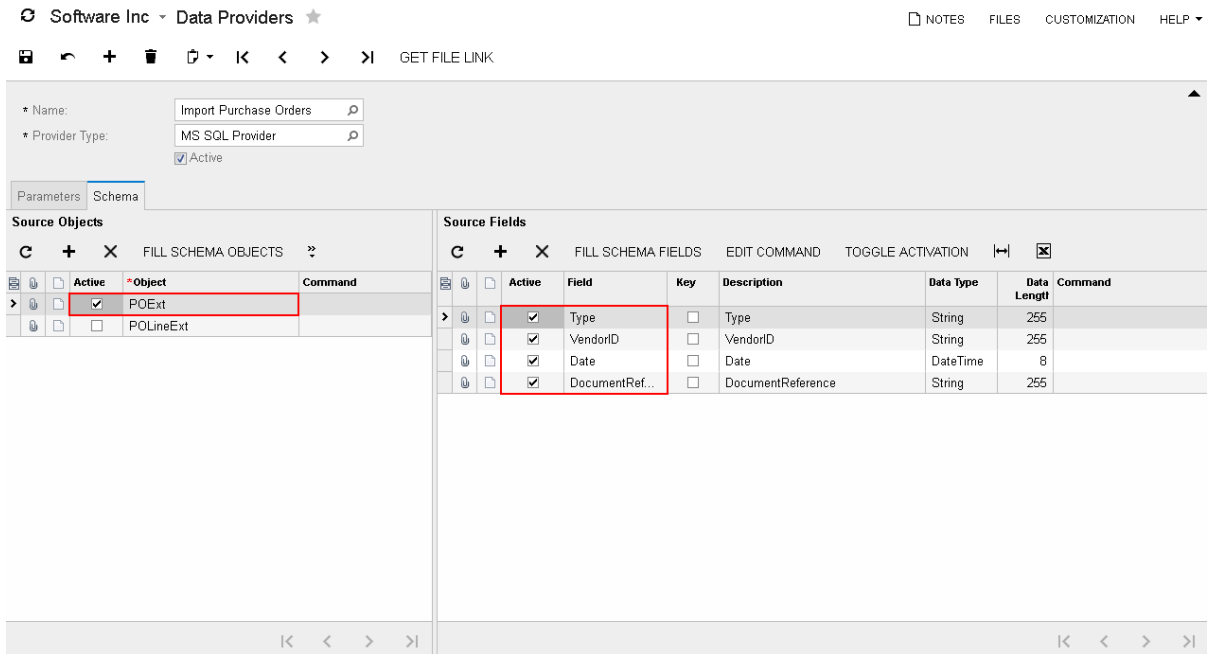
Figure: Active fields of the POExt object

7. Make the *POLineExt* object active by selecting the **Active** check box for it. On the toolbar of the **Source Fields** pane, click **Fill Schema Fields**. The *DocumentReference*, *Warehouse*, *VendorInventoryID*, *Quantity* fields appear in the pane. Make sure the **Active** check box is selected for all the fields. See the following screenshot.
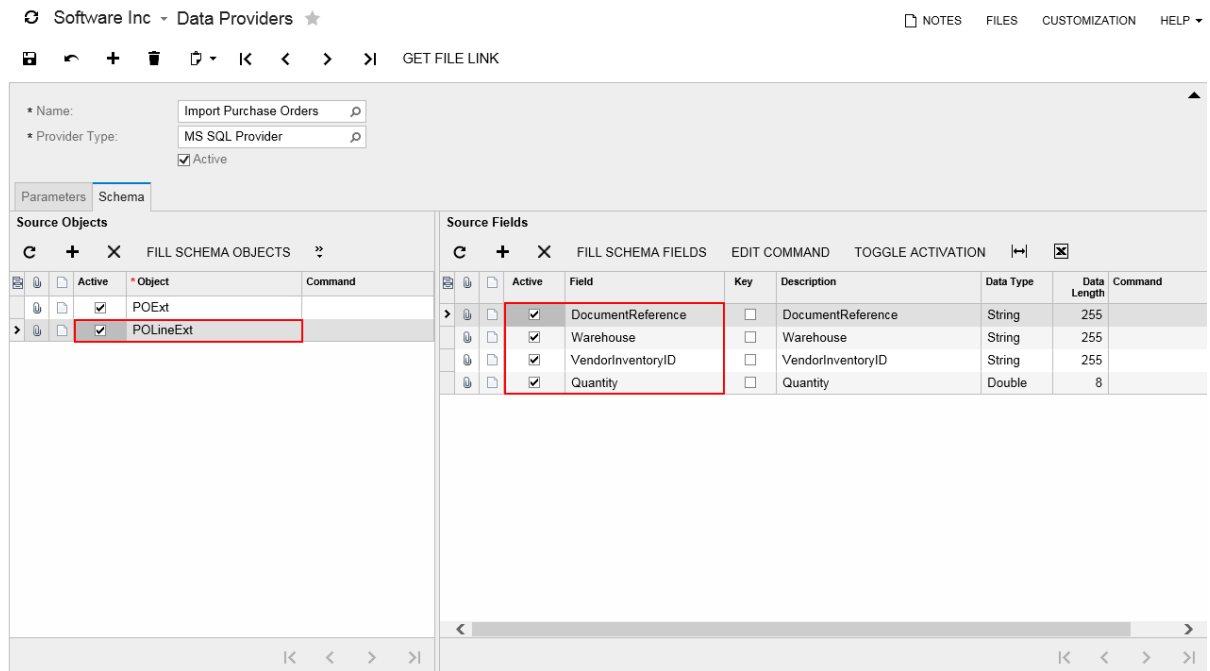

Figure: Active fields of the POLineExt object

8. Click **Save**.

Now you have a MS SQL data provider that can be used for importing data from two database tables: *POExt* and *POLineExt*. In the next example, you will configure the data provider to join these tables during import.

Related Links

Data Providers

Example 1.2.2: Configuring the Schema of the MS SQL Provider (Purchase Orders)

In this example, you will configure the schema used in the MS SQL data provider to select the needed data for import from the external database. You will join the *POExt* and *POLineExt* tables by the document reference number, so that you can import the purchase order lines by using the provider. Do the following:

1. On the Data Providers form (SM206015; System > Integration > Manage), select the *Import Purchase Orders* provider.

2. On the **Source Objects** pane of the **Schema** tab, select the *POExt* object, and on the toolbar, click **Edit Command**. (See the following screenshot.)
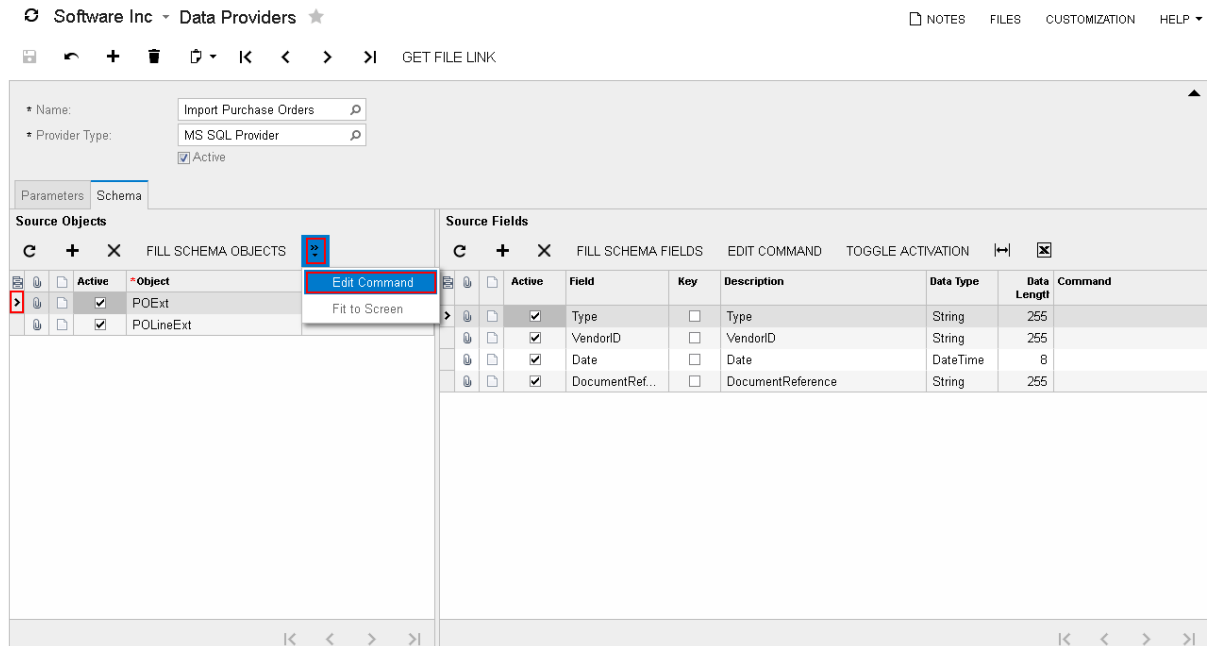
Figure: The Edit Command button

3. In the **Object Command Editor** dialog box that appears, enter the command shown below.

```
SELECT POExt.Type, POExt.VendorID, POExt.Date, POExt.DocumentReference,
POLineExt.Warehouse, POLineExt.VendorInventoryID, POLineExt.Quantity
FROM POExt
LEFT JOIN POLineExt
ON POExt.DocumentReference = POLineExt.DocumentReference
```

This command joins the *POExt* and *POLineExt* tables by document reference, so that the resulting table includes both the purchase order summary with a left join of the purchase order details.
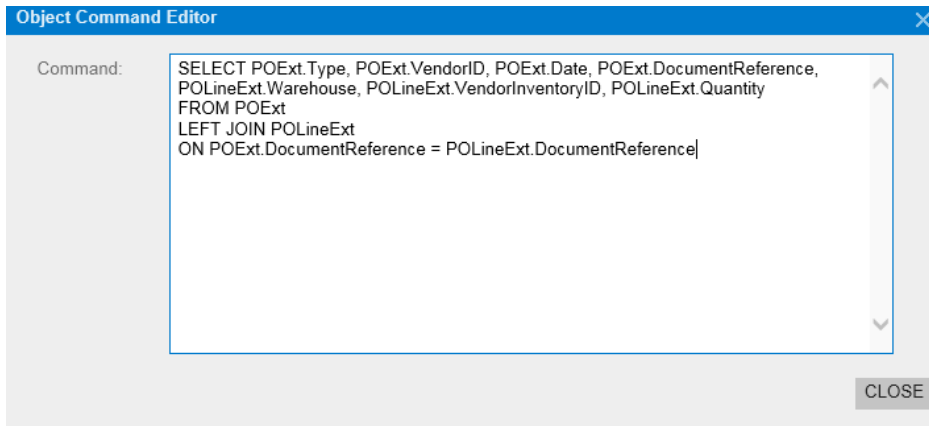
Figure: Object Command Editor dialog box

4. On the toolbar of the **Source Fields** pane, click **Fill Schema Fields**. You can see that the list of fields now includes the columns from both the *POExt* table and the *POLineExt* table.

5. On the form toolbar, click **Save**. The resulting data provider schema is shown in the following screenshot.
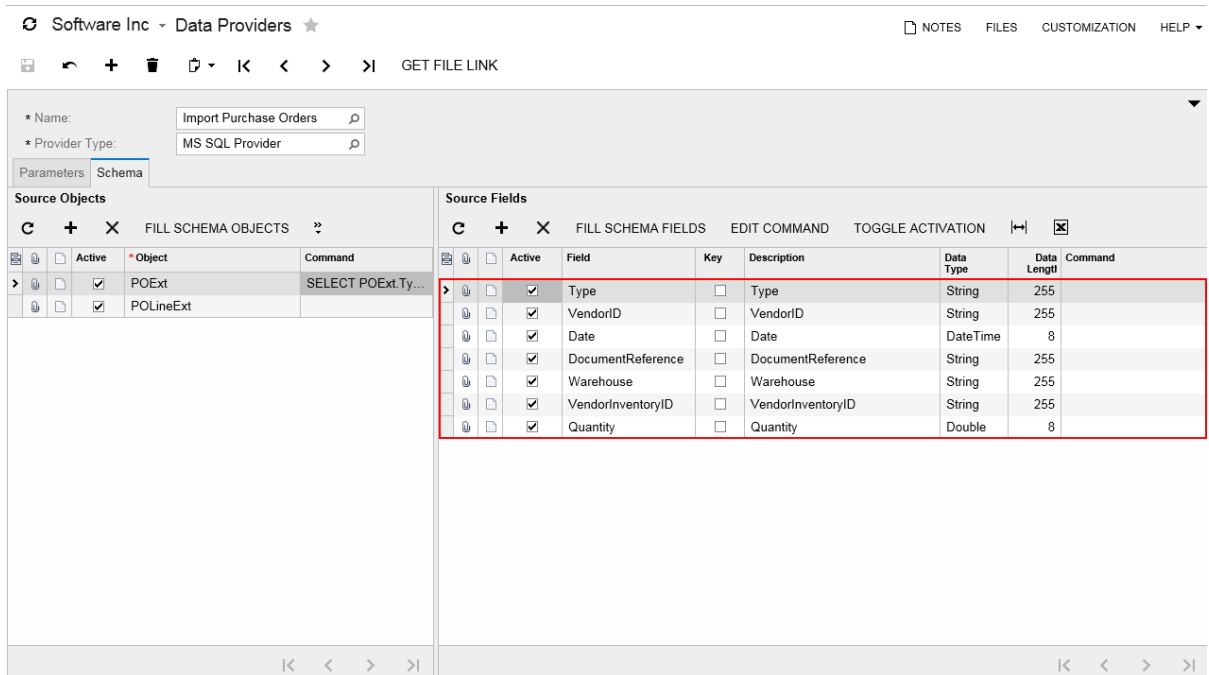

Figure: Import Purchase Orders provider schema

Now the provider is ready for importing purchase order data. You can use this provider in *Example 2.5.5: Importing Master-Detail Records with Automatic Numbering (Purchase Orders)*.

Lesson Summary

In this lesson, you have learned how to create a Microsoft SQL provider. To create a MS SQL provider you should specify the location of the Microsoft SQL Server instance and connection parameters, and populate schema objects and fields from the server. You can override the objects by using SQL commands and functions.

Part 2: Import Scenarios

In this part of the course you will learn how to create import scenarios for data import, update, and removal. You will learn how to specify scenario parameters, configure scenario mapping, and apply restrictions on the records being imported or on the results of the import. You will also learn how to import, update, and delete data by using import scenarios.

As the result of the lessons of this part, you will configure a set of scenarios for importing customer accounts, Accounts Receivable invoices, purchase orders, and leads into the system. By using these scenarios, you will import new records into the system, update them, delete incorrectly imported records, and apply other actions to the records.

Recommendations for Data Verification

To verify the data that has been imported into the system, you can use the following methods:

- Check that the number of imported records in the system is equal to the number of records in the source file.

  For example, for customer accounts, you can review the summary of the imported customer accounts by using the Customer Summary report (AR650500; Finance > Accounts Receivable > Reports > Audit).

- Randomly choose imported records, and verify the information imported by using the forms to which the records were imported. For best results, verify the first record, the last record, and approximately 10% of the records, which you randomly selected.

  For example, if you have imported 90 customers, you might verify 9 customers: the first one, the last one, and 7 that you choose at random. For customer accounts, you can use the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage) and the Customer Details report (AR651000; Finance > Accounts Receivable > Reports > Audit).

- For master-detail documents, check that the number of imported documents in the system is equal to the number of documents in the source file.

  For example, to review the Accounts Receivable documents, you can use the AR Edit report (AR611000; Finance > Accounts Receivable > Reports > Audit) to see documents that are not yet released, and the AR Register report (AR621500; Finance > Accounts Receivable > Reports > Audit) to see already released documents. To review the Accounts Payable documents, you can use the AP Edit report (AP610700; Finance > Accounts Payable > Reports > Audit) to see documents that are not yet released, and the AP Register report (AP621500; Finance > Accounts Payable > Reports > Audit) to see already released documents.

- Make a random verification of the amounts of the imported Account Receivable and Account Payable documents. To review the document amounts, use the reports listed earlier in this topic.

We recommend that you mark out the imported transactions and documents in the system to clearly distinguish them from native ones for easier auditing and troubleshooting of references between documents and transactions. For example, you can append `IMPORTED` to the descriptions of document and transaction lines.

Lesson 2.1: Importing New Master Records

In this lesson, you will create a scenario for importing new master records. You will then use this scenario to import customer records from a CSV file. In the system, you will identify customers by their IDs, which will be imported from the source file. To import new records, you need a data provider for accessing the source file as well as the import scenario you will configure. You will use the *Import/ Export Customers* data provider that was created in the previous part of this course.

Lesson Objectives

In this lesson, you will learn how to:

- Create a scenario for importing new records.

- Import records by using the created scenario.

Example 2.1.1: Reviewing the Sequence of Actions During Manual Entry (Customers)

Before you start creating an import scenario, you should review the form you will use for data import and understand the sequence of actions that occur when a user manually enters data on the form. To review this process, you can enter one record manually and pay attention to the sequence of actions.

In this example, you will enter one record from the `CustomersMasterFile.csv` file on the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage).

Notice the following settings, which are required on the form:

- **Customer ID** (in the Summary area)
- **Customer Name** (in the Summary area)
- **Customer Class** (in the **Financial Settings** group of the **General Info** tab)

The default customer class is specified on the Accounts Receivable Preferences form (AR101000; Finance > Accounts Receivable > Configuration > Setup). The following required fields may have default values inserted from the customer class settings:

- **Statement Cycle ID** (in the **Financial Settings** group of the **General Info** tab)
- **Country** (in the **Main Address** group of the **General Info** tab)
- **AR Account**, **AR Sub.**, **Sales Account**, **Sales Sub.**, **Cash Discount Account**, **Cash Discount Sub.** (on the **GL Accounts** tab)

The *DEFAULT* customer class has been preconfigured for this training course. In this example of the course, you will use the statement cycle ID and general ledger (GL) accounts based on the customer class, which is *DEFAULT* for all the customer records in the source file. You will override the country of the *DEFAULT* customer class with the imported values.

On the Customers form (AR303000), enter a new record as follows:

1. In the Customer Summary area of the form, enter the following values (see the screenshot below):

    - **Customer ID**: `CUSTOMER11`
    - **Customer Name**: `Elite Answering`

    You are entering the data of the second customer in the CSV file. In the import scenario, values will be entered from the CUSTOMER ID and CUSTOMER NAME columns of the source file. In this example, you are going to import customers with their IDs from the CSV file. The system is currently configured so that users have to manually enter the ID for each new customer; no auto-numbering is used.

2. On the **General Info** tab, in the **Financial Settings** section, enter the customer class: `DEFAULT`. When you import records, the value of the customer class is imported from the CUSTOMER CLASS column of the source file. You should select the customer class before you specify other financial settings and main address settings because setting the customer class could overwrite these settings if they were specified first.

3. In the **Main Address** section, enter the following data (which is also shown in the screenshot below):

    - **Address Line 1**: `111 Penn Plz`
    - **City**: `New York`
    - **Country**: `US`
    - **State**: `NY`

    When you import data, values will be entered from the ADDRESS LINE 1, CITY, COUNTRY, and STATE columns of the source file.

4. In the **Main Contact** section, enter these settings:

    - **Attention**: `Leslie Graff`

- **Email**: help@elite-answer.con

- **Phone 1**: +1 (777) 423-6750

When you import data, the ATTENTION, EMAIL, and PHONE 1 columns will provide the values for these fields.

The following screenshot shows the fields you have specified during manual entering of a customer record.

Figure: Customers form

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

Therefore, you have entered fields and performed actions as follows on the Customers form (AR303000).

The List of Entered Fields and Performed Actions

Form Object	Field/Action
Customer Summary	**Customer ID**
Customer Summary	**Customer Name**
General Info > **Financial Settings**	**Customer Class**
General Info > **Main Address**	**Address Line 1**
General Info > **Main Address**	**City**
General Info > **Main Address**	**Country**
General Info > **Main Address**	**State**
General Info > **Main Contact**	**Attention**
General Info > **Main Contact**	**Email**

Form Object	Field/Action
General Info > **Main Contact**	**Phone 1**
Customer Summary	Click **Save**

The columns in the source file from which you took the values for the fields have the same names as the corresponding fields.

Related Links

Import Scenario Creation

Example 2.1.2: Creating the Import Scenario (Customers)

In this example, you will create the import scenario for importing new customer records from a CSV file, with customer IDs defined in the source. The mapping in the import scenario will reflect the sequence of actions performed during manual entry of a customer record.

The import scenario will use the CSV data provider that you created in *Example 1.1.1: Creating a CSV Provider (Customers)*.

To create the import scenario, do the following:

1. On the Import Scenarios form (SM206025; System > Integration > Manage), type the name of the scenario in the **Name** box: `Import New Customers`.

2. In the **Screen Name** box, select *Customers* from the tree: **Company** > **Finance** > **Accounts Receivable** > **Work Area** > **Manage**.

3. Select *Import/Export Customers* as the **Provider** and *CustomersMasterFile.csv* as the **Provider Object**. Now you have specified all the required parameters of a scenario.

4. On the **Mapping** tab, click **Add Row** and select the following values for the columns:

    - **Target Object**: *Customer Summary*

    - **Field / Action Name**: *Customer ID*

    - **Source Field / Value**: *CUSTOMER ID*

    You specify this field first because it is a key field. After you have mapped the key field, the system automatically adds the service commands to the mapping that invoke searching for the record by the key field and select the **Commit** check box for the key field automatically.

5. Add a row for each of the rest of the fields you entered on the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage) during manual data entry. The object names and field names that appear on the **Mapping** tab are the names of the UI elements that you see on the form. See the table below for the list of rows you will add in the appropriate order.

Rows to be Added on the Mapping Tab

Target Object	Field / Action Name	Source Field / Value
Customer Summary	Customer Name	CUSTOMER NAME
General Info -> Financial Settings	Customer Class	CUSTOMER CLASS
General Info -> Main Address	Address Line 1	ADDRESS LINE 1
General Info -> Main Address	City	CITY
General Info -> Main Address	Country	COUNTRY
General Info -> Main Address	State	STATE
General Info -> Main Contact	Attention	ATTENTION
General Info -> Main Contact	Email	EMAIL
General Info -> Main Contact	Phone 1	PHONE 1

You can click **View Screen** on the form toolbar to review the target form of the import scenario.

Notice the **Commit** check box selected for multiple fields automatically. These are the fields on which other fields depend. When the values of these fields are entered on the form or through an integration scenario, the system sends data to the server and updates the form.

6. Add a row for the final action, saving the changes made to the form, with the following settings:

- **Target Object**: *Customer Summary*

- **Field / Action Name**: *<Action: Save>*

7. On the form toolbar, click **Save**. See the screenshot of the created scenario below.

You can save the mapping of a scenario by clicking **Export to Excel** on the toolbar of the **Mapping** tab. To load the mapping in the Excel file, click **Load Records from File** on the tab toolbar. You can find the mapping of the *Import New Customers* scenario in the *ImportScenario_ImportNewCustomers.xlsx* file provided with the course for reference.

Figure: Import New Customers scenario

Now the scenario is ready for importing data. In the next example, you will import customer records by using this scenario.

Related Links

Import Scenario Parameters
Target Objects and Fields in Import Scenarios
Source Fields in Import Scenarios
Types of Target Fields in Import Scenarios
Fields with Commits in Import and Export Scenarios
Service Commands in Import and Export Scenarios
Actions in Import Scenarios

Example 2.1.3: Importing Records Using Created Scenario (Customers)

After you have configured the parameters and mapping of the import scenario, you can import data by using this scenario. Before import, the system contains 57 customer records with customer IDs ranging from *C000000001* to *C000000091*. (Some customer IDs in this range are missing.) Proceed as follows:

1. On the Import by Scenario form (SM206036; System > Integration > Process), in the **Name** box, select *Import New Customers*.

2. On the form toolbar, click **Prepare**. The list of records from the source file becomes available on the **Prepared Data** tab. Review the prepared data. There are 34 prepared records listed on this tab.

Figure: Prepared records on the Import by Scenario form

3. Click **Import** on the form toolbar to import customer records from the CSV file to Acumatica ERP. Not all records were imported, and the status of the import is *Partially Processed*.

> There is no need to exclude the record that you have entered manually in *Example 2.1.1: Reviewing the Sequence of Actions During Manual Entry (Customers)* from processing, because you are importing customer records with known customer IDs. The system will find the record by the ID and insert the same data to the existing record; the record will not be duplicated.

4. To review the errors, filter the records in the table by a *False* value in the **Processed** column. Correct the errors in the data to be imported, which were intentionally added to the file for demonstration purposes, and retry the import as follows:

   - To correct the error involving an address line that is too long (the line length cannot exceed 50 symbols), type `119 Guy R Brewer Blvd` in the applicable cell and save the changes.

     > When you correct a value in a cell, always click **Save** before retrying the import of the corrected record.

   - To correct the error with the incorrect email address, type `joao@estate-institute.con` in the cell causing the error and click **Save**.

- To correct the wrong country code, type US in the cell that now contains *WW* and click **Save**.

5. After all customer accounts are successfully processed, review the imported records by using the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage). For instructions on how you can verify that the data was imported correctly, see *Recommendations for Data Verification*.

You have imported 34 customer accounts. Of these accounts, 32 have customer IDs starting with *CUSTOMER*, and two accounts have the customer IDs *CUST000001* and *CUST000002*. Now there are 91 customer records in the system.

Related Links
   Data Import

Lesson Summary

In this lesson, you have learned how to import new records into Acumatica ERP by using integration scenarios. To import new records, you have done the following:

1. Created a data provider for the source data.

2. Understood the sequence of actions to be performed on the applicable Acumatica ERP form if you were entering the record manually.

3. Created an import scenario that uses the data provider created in Part 1 of the course and reproduces the sequence of actions performed on the form in the scenario mapping.

4. Imported data records by using the created scenario.

After the records were imported, you verified the results by using one of the methods described in *Recommendations for Data Verification*.

When you created the mapping for the import scenario, you did the following:

- You mapped the key field first.

- You specified the mapping instructions in the order in which corresponding fields and actions were manually entered to the form.

- You added the `<Action: Save>` instruction to the mapping to save the changes that you were making through the scenario.

Lesson 2.2: Updating Records by Using IDs

In this lesson, you will update existing records in Acumatica ERP by using import scenarios. You will create an import scenario for data update. When you update specific fields on some forms, the system displays pop-up dialog boxes where you need to click a button to specify an answer to a question in order to proceed. You will use the dialog answer command to handle this situation in the mapping of the created scenario. In the system, you will identify customers by their IDs, which are imported from the source file. Then you will use this scenario to specify new customer classes for the customer records that were imported in the previous lesson.

You will also see how the data synchronization type affects the import process.

Lesson Objectives

In this lesson, you will learn how to:

- Create an import scenario for data update.
- Handle dialog answers in import scenarios.
- Update records by using an import scenario.
- Select the data synchronization type.

Example 2.2.1: Reviewing the Sequence of Actions During Manual Update (Customers)

In this example, you will update the customer class of one record on the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage) to understand the sequence of actions during manual update of a record. You will use the `CustomersMasterFile_Update1.csv` file for update. Currently, the customer records that you are going to update have the *DEFAULT* customer class in the system. In the `CustomersMasterFile_Update1.csv` file, some of these records (those that have a COUNTRY setting other than *US*) have the customer class changed to *INTL*.

Before you start creating the import scenario for updating records, you should review the form you will use for data import and understand the sequence of actions that occur when a user changes the customer class of an existing customer. To update the customer class of one customer on the Customers form (AR303000), perform the following steps:

1. In the Customer Summary area, enter the **Customer ID** value: `CUSTOMER15`.

2. On the **General Info** tab (in the **Financial Settings** section), enter the customer class in the **Customer Class** box: `INTL`. The system displays the **Warning** dialog box before changing the value of the customer class. Click **Yes** for the dialog answer. The system updates the customer class and the parameters that depend on the customer class.

3. Click **Save**.

Therefore, you have entered fields and performed actions on the form as follows:

The List of Entered Fields and Performed Actions

Form Component	Field/Action
Customer Summary	**Customer ID**
Pop-up dialog box	Answer **Yes**
General Info > **Financial Settings**	**Customer Class**
Customer Summary	Click **Save**

Related Links

Import Scenario Creation

Example 2.2.2: Creating an Import Scenario for Updating Records (Customers)

In this example, you will create an import scenario to update data. Specifically, this scenario will update the customer classes of the customer records that you imported in *Lesson 2.1: Importing New Master Records*. The import scenario will use the same CSV data provider that was used to import customer records. (You created the data provider in *Example 1.1.1: Creating a CSV Provider (Customers)*.) Do the following:

1. On the Import Scenarios form (SM206025; System > Integration > Manage), create an import scenario with the following parameters:

   a. **Name**: `Update Customers`

   b. **Screen Name**: *Customers*

   c. **Provider**: *Import/Export Customers*

   d. **Provider Object**: *CustomersMasterFile.csv*

2. On the **Mapping** tab add a row with the following settings that maps the key **Customer ID** field:

   • **Target Object**: *Customer Summary*

   • **Field / Action Name**: *Customer ID*

   • **Source Field / Value**: *CUSTOMER ID*

   Because you have the same customer ID in the CSV file as the ID of the record in the system, you can identify the records by this ID and you map the **Customer ID** key field in the system to the CUSTOMER ID column in the CSV file.

3. Add the following rows, which make the system update the customer class:

   a. Row 1:

   • **Target Object**: *Customer Summary*

   • **Field / Action Name**: *<Dialog Answer>*

   • **Source Field / Value**: *='Yes'*

   You have entered the answer to the question that appears in the dialog box. Notice that it goes directly before the mapping for the customer class field.

   b. Row 2:

   • **Target Object**: *General Info -> Financial Settings*

   • **Field / Action Name**: *Customer Class*

   • **Source Field / Value**: *CUSTOMER CLASS*

   Notice that the **Commit** check box is selected for both the `<Dialog Answer>` command and the **Customer Class** field because the system needs to update data on the form when the system executes these commands.

4. Add a row for the save action to the end of the mapping:

   • **Target Object**: *Customer Summary*

   • **Field / Action Name**: *<Action: Save>*

5. On the form toolbar, click **Save**. The resulting mapping of the scenario is as shown in the following screenshot.

You can find the mapping in the `ImportScenario_UpdateCustomers.xlsx` file provided with the course. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

You have created an import scenario that updates previously imported customer records. You will use this scenario in the next example.

Related Links

Pop-Up Dialog Boxes in Import Scenarios

Example 2.2.3: Updating Records by Using an Import Scenario (Customers)

After you have created the import scenario to update data, you can use it for updating data records. The customer records that should be updated are provided in the `CustomersMasterFile_Update1.csv` file, which contains 34 customer records previously imported to Acumatica ERP. These records currently have the *DEFAULT* customer class in the system. The records that have a setting other than *US* in the COUNTRY field now have the *INTL* customer class in the source file. Do the following:

1. Open the Import by Scenario form (SM206036; System > Integration > Process), and select *Update Customers* in the **Name** box.

2. Click **Upload File Version** on the form toolbar. In the **Upload File Version** dialog box, browse for the `CustomersMasterFile_Update1.csv` file and click **Upload**. The file is uploaded to the form and will be used for data import.

3. Click **Prepare**. Notice that the records from the source file have appeared in the **Prepared Data** tab.

4. Click **Import** to update customer records. Because of this update, 34 customer records have been processed and 6 customer accounts now have the *INTL* customer class. To verify this change for one such record, on the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage), you can check that the customer account with the *CUSTOMER18* customer ID now has the *INTL* customer class (see the screenshot below).

Figure: The CUSTOMER18 customer account with the INTL customer class

You have updated the customer classes of the customer records with customer IDs.

Related Links
Data Import

Example 2.2.4: Selecting the Type of Data Synchronization (Customers)

The *Update Customers* import scenario uses the *Full* data synchronization type, which means that all data available in the source is imported. In this example, you will change the type of data synchronization used in the *Update Customers* scenario and will learn about the differences in import scenario processing. Do the following:

1. On the Import by Scenario form (SM206036; System > Integration > Process), select the *Update Customers* scenario. Do not upload any new revision of the source file.

   Currently the *CUSTOMERXX* and *CUST00000X* customer records in the system contain values imported from the *CustomersMasterFile_Update1.csv* file, which was used for the latest update.

2. Click **Prepare**. Note that operation completed successfully (see the screenshot below). The system prepared the records from the *CustomersMasterFile_Update1.csv* file again.

Figure: Successful completion of preparation process

3. Click **Import**. The system performs the full import of records. However, because you are importing data from the file that was previously used for import, no record has been changed during this import. To prevent the system from performing unnecessary preparation and import operations, you can configure the scenario to perform data import only if the source data has been changed, as the next steps describe.

4. Open the Import Scenarios form (SM206025; System > Integration > Manage) and select the *Update Customers* scenario.

5. Change the **Sync Type** value to *Incremental - New Only*, as shown in the screenshot below, and click **Save** on the form toolbar.

   > You can set the value to *Incremental - All Records*, which is equivalent to *Incremental - New Only* for file data sources.
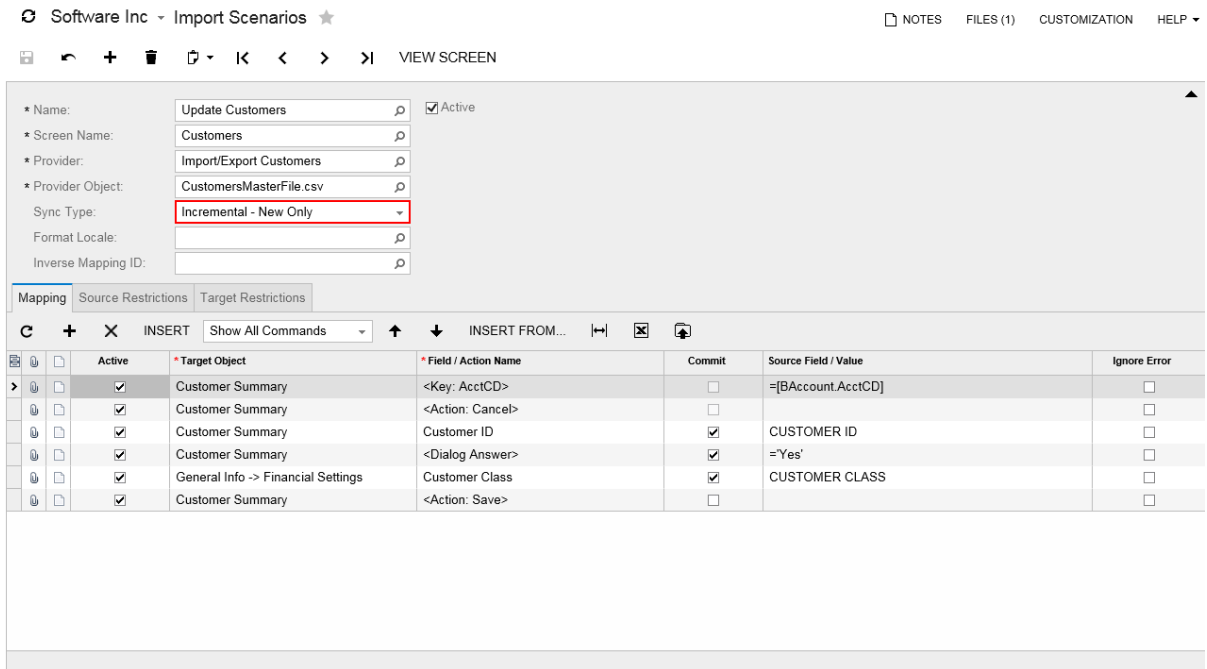
Figure: Changed Sync Type in Update Customers scenario

6. Open the Import by Scenario form (SM206036) and select the *Update Customers* scenario. Do not upload any new revision of the source file. The *CustomersMasterFile_Update1.csv* file is used as a source, and this is the file that was most recently used for import.

7. Click **Prepare**. Note that operation has failed with an error (see the screenshot below) indicating that all versions of the file have been processed. This is because the file was already imported in the previous import procedure. The *Incremental - New Only* synchronization type does not perform data preparation if the current version of the source file has already been imported.
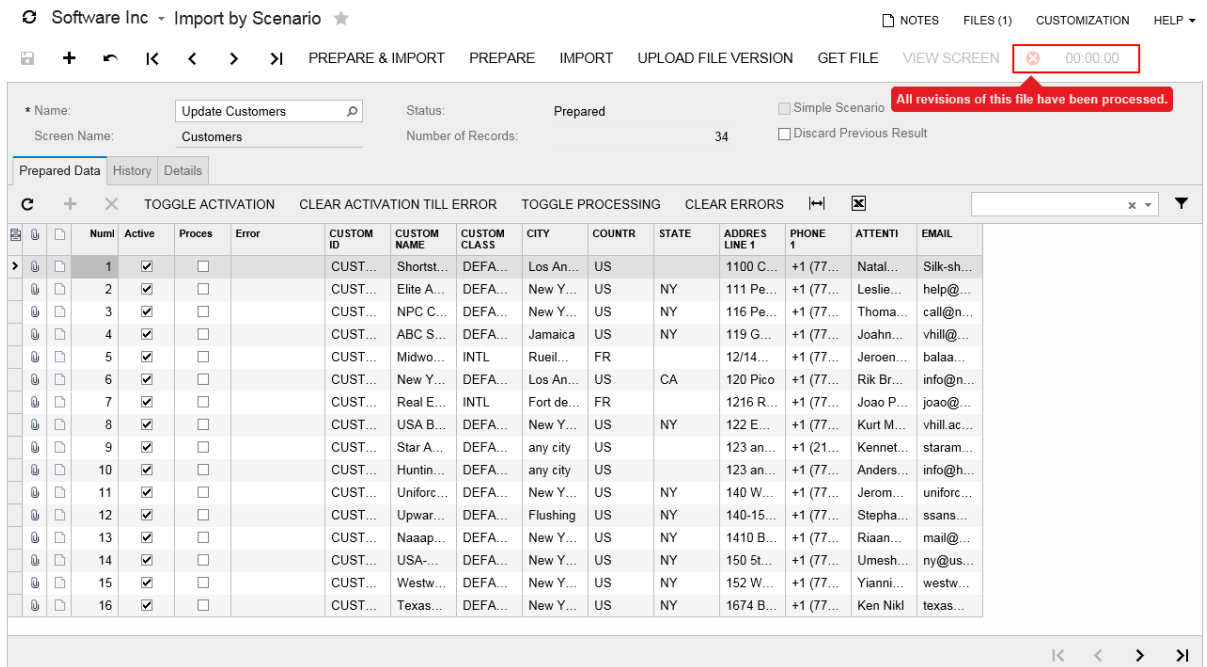

Figure: Failed preparation process

8. Click **Upload File Version** and upload the *CustomersMasterFile_Update2.csv* file to provide the new version of the source file. In this file, multiple customer records have a new customer class assigned: INTLEU or INTLCA. If you upload the same file that was used during the previous import, the file version is not updated.

9. Click **Prepare**. In this case, the data from the file is prepared and uploaded to the **Prepare Data** tab.

10. Click **Import** to process prepared records. All records have been imported successfully. On the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage), you can check the *CUSTOMER15*, *CUSTOMER18*, and *CUST000002* customer accounts to ensure that they now have the *INTLEU* customer class; you can also view the *CUSTOMER72* customer account and note that it has the *INTLCA* customer class.

If you use the *Full* sync type, the system uploads data from the file every time you click **Prepare** on the Import by Scenario form (SM206036). If you use the *Incremental - New Only* or *Incremental - All Records* sync type, for file sources, the system will pull the data to the **Prepare Data** tab only if you have uploaded a newer version of the file. If you or another user has already attempted to import the data from the uploaded file, you will see an error during the preparation process.

Related Links

Import Scenario Parameters

Lesson Summary

In this lesson, you have learned how to create an import scenario for data update and how to use this scenario to update previously imported records.

When a user updates some fields on some forms, a pop-up dialog box might be displayed with confirmation requests. In a scenario for such a form, you have to use the `<Dialog Answer>` command in the scenario mapping to answer the question in the pop-up dialog box. In the mapping, the command should be inserted before the field that causes the dialog box to appear, as was shown in this lesson.

You have also learned how to use data synchronization options when importing data from file data sources. You can set the **Sync Type** parameter of the import scenario to *Incremental - New Only* or *Incremental - All Records* to make the system execute the import scenario only if a new version of the file is uploaded; if no new file is provided, the import will not run.

Lesson 2.3: Deleting Incorrectly Imported Records

You may encounter situations when you need to delete records you have imported—if, for example, values from the source were imported to an incorrect target, or you composed the value of a field by concatenating multiple values but used an incorrect order for the values.

In this lesson, you will delete some previously imported records that were imported incorrectly. In the system, you will identify customers by their IDs, which were imported from the source file. When you create an import scenario for data removal, you will also apply restrictions on the source and target fields.

Lesson Objectives

In this lesson, you will learn how to:

- Delete records by using an import scenario.

- Apply restrictions on the source and target fields in the import scenario.

Example 2.3.1: Reviewing the Sequence of Actions When Deleting Records (Customers)

In this example, you will delete one previously imported customer record that was imported with an incorrect customer ID to understand the sequence of actions that you need to perform when you remove a record. Do the following:

1. On the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage), in the **Customer ID** field of the Customer Summary area, type or select `CUSTOMER10` to view the customer with this ID.

2. Click **Delete** on the form toolbar, and click **OK** in the pop-up dialog box the system displays to confirm that you want to delete the record. You can delete a customer record if there are no documents for this customer in the system.

Therefore, the sequence of actions is very simple: You select the customer record and delete the record.

Example 2.3.2: Creating Import Scenarios for Data Removal (Customers)

In this example, you will create two import scenarios for removing data. One of the scenarios will be configured to delete customer records that conform to the target restrictions. The other scenario will use source restrictions to select the records to be deleted. Both scenarios will use the CSV data provider that you created in *Example 1.1.1: Creating a CSV Provider (Customers)*.

You will perform the following tasks, which are described in detail below:

1. *Creating an import scenario for removing data by using target restrictions*

2. *Creating an import scenario for removing data by using source restrictions*

1. Creating an Import Scenario for Removing Data by Using Target Restrictions

To configure a scenario to delete the previously imported customer records that have the *Inactive* status, proceed as follows:

1. On the Import Scenarios form (SM206025; System > Integration > Manage), create an import scenario with the following parameters:

   a. **Name**: `Delete Customers (Target Restrictions)`

   b. **Screen Name**: *Customers*

   c. **Provider**: *Import/Export Customers*

   d. **Provider Object**: *CustomersMasterFile.csv*

2. On the **Mapping** tab, add the following two rows (as shown in the screenshot below):

   a. Row 1:

   - **Target Object**: *Customer Summary*

   - **Field / Action Name**: *Customer ID*

   - **Source Field / Value**: *CUSTOMER ID*

   The customer ID of a record in the source file is the same as the ID of the record in the system. Therefore, you can identify the records by this ID, so you map the **Customer ID** key field in the system to the CUSTOMER ID column in the source file. The system adds service commands and selects the **Commit** check box for the key field automatically.

   b. Row 2:

   - **Target Object**: *Customer Summary*

   - **Field / Action Name**: *<Action: Delete>*

Note that you are adding one action to invoke deletion and confirm it. For the delete action, you do not need to specify the dialog answer before the action.
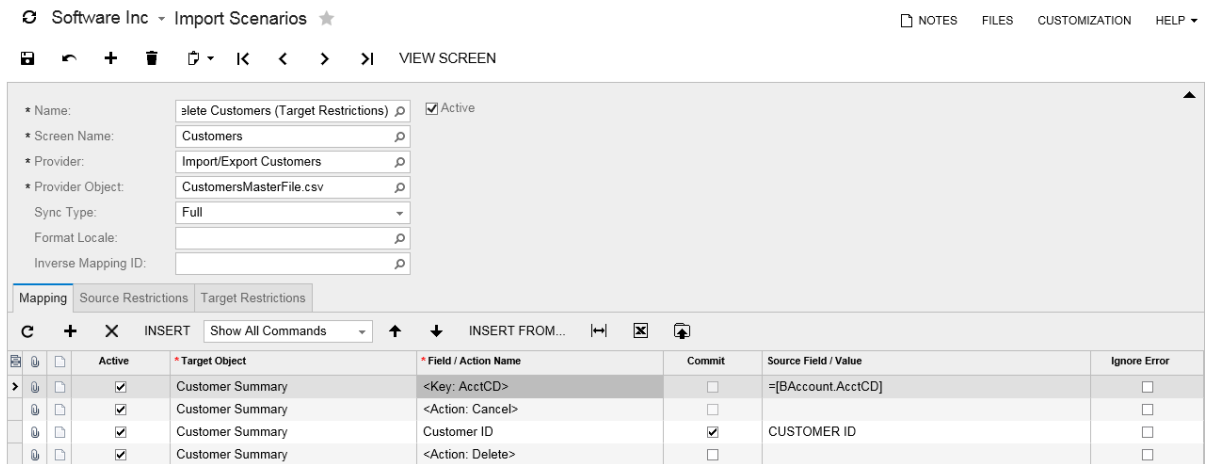
Figure: Delete Customers (Target Restrictions) scenario

> You can find the mapping in the `ImportScenario_DeleteCustomers.xlsx` file provided with the course for reference. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

3. On the **Target Restrictions** tab, click **Add Row** and set the following values in the row (as shown in the screenshot below):

   - **Active**: Selected
   - **Field Name**: *Status*
   - **Condition**: *Equals*
   - **Value**: *Inactive*
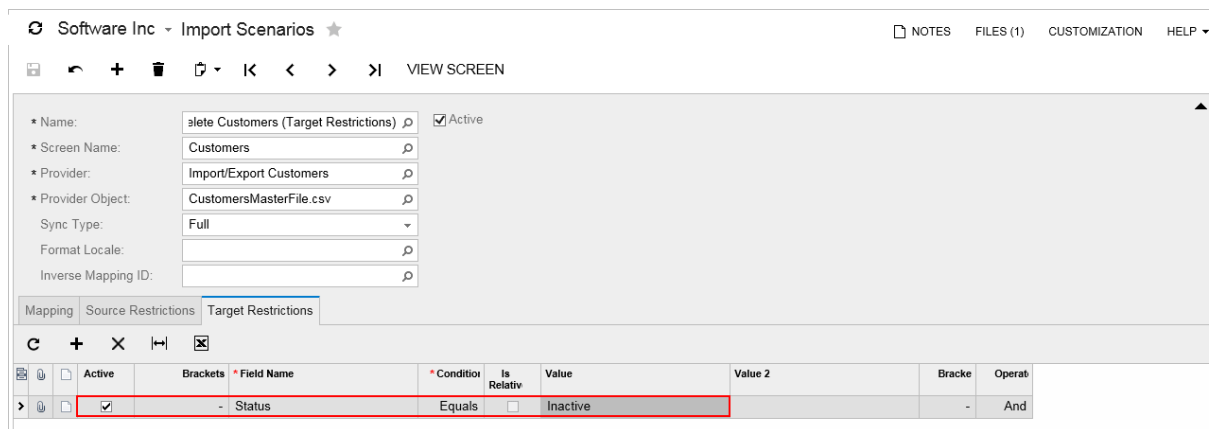
Figure: Target restrictions

This target restriction specifies that a customer record will be affected by the scenario only if the customer record has the *Inactive* status in the system.

Notice that in the **Field Name** column you can select only the fields of the `Customer Summary` target object. The fields of a summary object are the only fields that you can use to determine target restrictions. For more information on the objects on Acumatica ERP forms, see *Target Objects and Fields in Import Scenarios*.

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

2. Creating an Import Scenario for Removing Data by Using Source Restrictions

You will configure a scenario to delete the customer records that were imported with the incorrect customer IDs. In this example, the incorrect customer IDs have the *CUSTOMER* prefix. You will specify restrictions on the source data to delete only customer records that have the *CUSTOMER* prefix. Proceed as follows:

1. On the Import Scenarios form (SM206025), create an import scenario with the following parameters:

   a. **Name**: `Delete Customers (Source Restrictions)`

   b. **Screen Name**: *Customers*

   c. **Provider**: *Import/Export Customers*

   d. **Provider Object**: *CustomersMasterFile.csv*

2. On the **Mapping** tab, click **Insert From** and select the *Delete Customers (Target Restrictions)* scenario to copy mapping from it. The mapping of the selected scenario is added to the **Mapping** tab.

3. On the **Source Restrictions** tab, click **Add Row** and set the following values in the row (as shown in the screenshot below):

   - **Active**: Selected

   - **Field Name**: *CUSTOMER ID*

   - **Condition**: *Starts With*

   - **Value**: `CUSTOMER`

Figure: Source restrictions

The source restriction specifies that a customer record retrieved from the source will be processed by the import scenario only if the record has the *CUSTOMER* prefix in the CUSTOMER ID source field.

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

Now you have two import scenarios that you can use to delete customer records depending on source or target restrictions. In the next example, you will use these scenarios to delete customer records.

Related Links

   Actions in Import Scenarios
   Target Restrictions in Import Scenarios
   Source Restrictions in Import Scenarios

Example 2.3.3: Deleting Records by Using Import Scenarios (Customers)

In this example, you will delete previously imported customer records. You will use the import scenario for data removal with target restrictions to delete customer records that have the *Inactive* status. Then you will delete the customer records that have the *CUSTOMER* prefix by using the import scenario with source restrictions. You will use the *CustomersMasterFile_Update2.csv* file as the source file for the list of customer records to process by using the import scenario.

The customer records that you have imported to the system in *Lesson 2.1: Importing New Master Records* have customer IDs with *CUSTOMER* and *CUST* prefixes. All these customer accounts have the *Active* status in the system. Before you proceed, set the *Inactive* status for the customer records with the *CUST000001* and *CUST000002* customer IDs as follows:

1. Open the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage), and select the customer record with the *CUST000001* customer ID.

2. Select *Inactive* in the **Status** box and save your changes.

3. Repeat Steps 1 and 2 for the customer record with the *CUST000002* customer ID.

You will perform the following tasks, which are described below:

1. *Deleting records by using the import scenario with target restrictions*

2. *Deleting records by using the import scenario with source restrictions*

1. Deleting Records by Using the Import Scenario with Target Restrictions

You will delete only those customer records available in the list of customers to process that have *Inactive* status. Proceed as follows:

1. On the Import by Scenario form (SM206036; System > Integration > Process), select the *Delete Customers (Target Restrictions)* scenario.

2. Click **Prepare**. All records from the *CustomersMasterFile_Update2.csv* file that has been earlier attached to the form have appeared in the **Prepared Data** tab.

3. Clear the **Active** check box for the record with the *CUSTOMER10* customer ID, because you have already deleted this record manually in *Example 2.3.1: Reviewing the Sequence of Actions When Deleting Records (Customers)*.

4. On the **Details** tab, clear the **Break on Incorrect Target** check box. Click **Save** on the form toolbar.

   Clearing the check box makes the system skip errors in the records that do not meet the target restrictions; in this case, the system continues to process next records after an error has occurred in a record. If the check box is selected (the default setting), the system stops processing records at the first error that occurs for a record that violates the target restrictions.

5. Click **Import** to run the import scenario and delete customer records. The scenario is marked as successfully processed (see item 1 in the screenshot below). The system displays an error for the record that does not meet the target restriction and has not been processed (2). The records that meet the target restriction have been processed; notice that the **Processed** check box is selected for them (3).

Figure: The processed records

For the next run of the import procedure, the system selects the **Break on Incorrect Target** check box back.

6. On the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage), make sure that there are no records with the *CUST000001* and *CUST000002* customer IDs.

2. Deleting Records by Using the Import Scenario with Source Restrictions

You will delete the previously imported customer records that have CUSTOMER prefix in the customer ID. Do the following:

1. On the Import by Scenario form (SM206036), select the *Delete Customers (Source Restrictions)* scenario.

2. Click **Prepare**. The system prepares the records from the source file and applies the source restrictions to the records. You can see that 32 of the 34 records from the source file have appeared in the **Prepared Data** tab. These are records that have the *CUSTOMER* prefix in the CUSTOMER ID field.

3. Deactivate the first record because you have previously deleted it manually in *Example 2.3.1: Reviewing the Sequence of Actions When Deleting Records (Customers)*. Click **Save** on the form toolbar. See the screenshot that shows the prepared data below.

Figure: The records prepared for import

4. Click **Import** to run the import scenario and delete customer records.

5. On the Customers form (AR303000), make sure that there are no records with the *CUSTOMER* prefix in the customer ID.

You have deleted customer records by using source and target restrictions in the import scenario. As a result, all customer records that you have imported in previous lessons have been deleted.

Currently the system contains only the customer accounts that were initially available in the system. These are 57 customer accounts with customer IDs from *C000000001* to *C000000091* (some IDs in the sequence from *C000000001* to *C000000091* are missing).

Related Links

Data Import
Target Restrictions in Import Scenarios
Source Restrictions in Import Scenarios

Lesson Summary

In this lesson, you have learned how to delete records with IDs that you have in the source file by using import scenarios. To delete records, you have used `<Action: Delete>` at the end of the scenario mapping.

You have also learned how to specify restrictions for the source and target records in import scenarios on the **Source Restrictions** and **Target Restrictions** tabs of the Import Scenarios form (SM206025; System > Integration > Manage). You have used source restrictions to select certain records from the source to be imported. You have used target restrictions to execute the import scenario for only records in the system that satisfy the target restriction conditions of the import scenario.

Lesson 2.4: Working with Auto-Numbered Imported Records

In this lesson, you will create an import scenario that uses automatic numbering of imported customer records and import new customer records by using this scenario.

Then you will update these records. The customer records that you import will have automatically generated customer IDs. Therefore, you do not know the IDs of the customer records and cannot search for them directly. To find a record in the system, you will search by the fields of a summary object and the columns available for search in the Selector dialog box of the key field. You will locate a customer record by the customer description and then by the email address.

Lesson Objectives

In this lesson you will learn how to:

- Set automatic numbering of records in an import scenario.

- Search for the imported records by a custom key and by a selector column.

Example 2.4.1: Importing Records with Automatic Numbering (Customers)

In this example, you will turn on auto-numbering of customer records in the training system, configure the scenario for importing auto numbered customer records, and then import customer records with automatically generated IDs. You will insert the external customer ID, which is available in the source file, into the **Account Ref.#** box on the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage).

The import scenario will use the CSV data provider that you created in *Example 1.1.1: Creating a CSV Provider (Customers)*.

On the Customers form (AR303000), you can see that there are already some customers in the system. Customer accounts in the system have IDs that range from *C000000001* to *C000000091*. As you import the new customer records to the system, the system will assign them IDs that continue using the numbering sequence.

You will perform the following tasks, which are described in detail below:

1. *Configuring auto-numbering of records in the system*

2. *Reviewing the sequence of actions* during manual entry

3. *Creating a scenario for importing auto-numbered records*

4. *Importing auto-numbered records*

1. Configuring Auto-Numbering of Customer Records

To configure auto-numbering of customer records, do the following:

1. On the Numbering Sequences form (CS201010; Configuration > Common Settings > Common Settings), make sure you have the following settings specified for the *CUSTOMER* numbering sequence:

   - **Manual Numbering**: Cleared

   - **Last Number**: *C000000091*

   - **Numbering Step**: *1*

2. On the Segmented Keys form (CS202000; Configuration > Common Settings > Segmented Keys), make sure the *CUSTOMER* segmented key uses the *CUSTOMER* numbering ID, and select the **Auto-Number** check box, as shown in the following screenshot. Save your changes on the form.

Figure: *CUSTOMER* segmented key

2. Reviewing the Sequence of Actions

To enter a record, you should perform the sequence of actions that is described in *Example 2.1.1: Reviewing the Sequence of Actions During Manual Entry (Customers)*. The only difference is that you need to enter the value from the *CUSTOMER ID* column of the source file in the **Account Ref.#** box on the **General Info** tab of the Customers form (AR303000) before you save your changes on the form.

3. Creating a Scenario for Importing Auto-Numbered Records

Create the scenario for importing customer records from the `CustomersMasterFile_Checked.csv` file as follows:

1. Open the Import Scenarios form (SM206025; System > Integration > Manage) and create an import scenario with the following parameters:

    a. **Name**: `Import New Customers with Auto-Numbering`

    b. **Screen Name**: *Customers*

    c. **Provider**: *Import/Export Customers*

    d. **Provider Object**: *CustomersMasterFile.csv*

2. On the table toolbar of the **Mapping** tab, click **Insert From**. In the **Choose Scenario to Insert Steps From** dialog box, select the *Import New Customers* scenario and click **OK**. (You created this scenario in *Example 2.1.2: Creating the Import Scenario (Customers)*.) The mapping of the selected scenario is added to this tab.

3. In the mapping, insert a row with the following settings before the row with the *<Action: Save>* action:

    • **Target Object**: *General Info*

    • **Field / Action Name**: *Account Ref.#*

    • **Source Field / Value**: *CUSTOMER ID*

4. On the form toolbar, click **Save**. See the resulting mapping in the following screenshot.

    > You can find the mapping in the `ImportScenario_ImportNewCustomersWithAutoNumbering.xlsx` file provided with the course for reference. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: Mapping of the scenario

In the mapping of the scenario, the *CUSTOMER ID* column of the source file is mapped to the **Customer ID** field of the *Customer Summary* target object. This makes the system try to find an existing customer that has the same ID as the one specified for the record in the *CUSTOMER ID* column in the source file. If the customer record already exists, the system tries to update the existing customer record. If a customer record with this number does not exist, the system creates a new customer record. Because you use auto-numbering of customer records in the system, the system creates the customer record and assigns the number to the record according to the numbering sequence that is configured for auto-numbering of customer records in the system.

Now the scenario is ready for importing data. Next, you will import customer records by using this scenario.

4. Importing Auto-Numbered Records

Import the records from the `CustomersMasterFile_Checked.csv` file as described below:

1. On the Import by Scenario form (SM206036; System > Integration > Process), select the *Import New Customers with Auto-Numbering* scenario.

2. Click **Upload File Version** on the form toolbar. In the **Upload File Version** dialog box, browse for the `CustomersMasterFile_Checked.csv` file, select the file, and click **Upload**. The file is uploaded to the form and will be used for data import.

3. Click **Prepare**. On the **Prepared Data** tab, notice that 34 records from the source file have appeared.

4. Click **Import** to import these customer records. The customer records have been imported, and the system has assigned them IDs ranging from *C000000092* to *C000000125*.

5. By using the Customers form (AR303000), review the imported records. You can see that the last customer account now has the *C000000125* customer ID.

Related Links
Key Fields and Search in Import Scenarios

Example 2.4.2: Importing Records with Automatic Numbering by Using a Formula (Customers)

> This example is provided for reference only (that is, you are not expected to perform it as part of completing the course).

This example shows how to create an import scenario that uses a formula in the scenario mapping to assign automatically generated IDs to the customer records. To import records by using this scenario, you should turn off auto-numbering of customer records in the system.

The import scenario uses the CSV data provider that you created in *Example 1.1.1: Creating a CSV Provider (Customers)*.

You can create the scenario for importing customer records from the `CustomersMasterFile_Checked.csv` file as follows:

1. Open the Import Scenarios form (SM206025; System > Integration > Manage) and create an import scenario with the following parameters:

    a. **Name**: `Import New Customers with Formula`

    b. **Screen Name**: *Customers*

    c. **Provider**: *Import/Export Customers*

    d. **Provider Object**: *CustomersMasterFile.csv*

2. On the table toolbar of the **Mapping** tab, click **Insert From**. In the **Choose Scenario to Insert Steps From** dialog box, select the *Import New Customers* scenario and click **OK**. The mapping of the selected scenario is added to this tab.

3. In the row where **Customer ID** is mapped, select the **Source Field / Value** field and click the Edit button (see the screenshot below).

Figure: The Edit button

4. In the dialog box, type `='C' + PadLeft( CStr(125+LineNbr()), 9, '0' )`. Click **Validate**. The system displays a message showing the results of validation (*Validation passed* in the screenshot below). Click **OK** to save the value and close the dialog box.
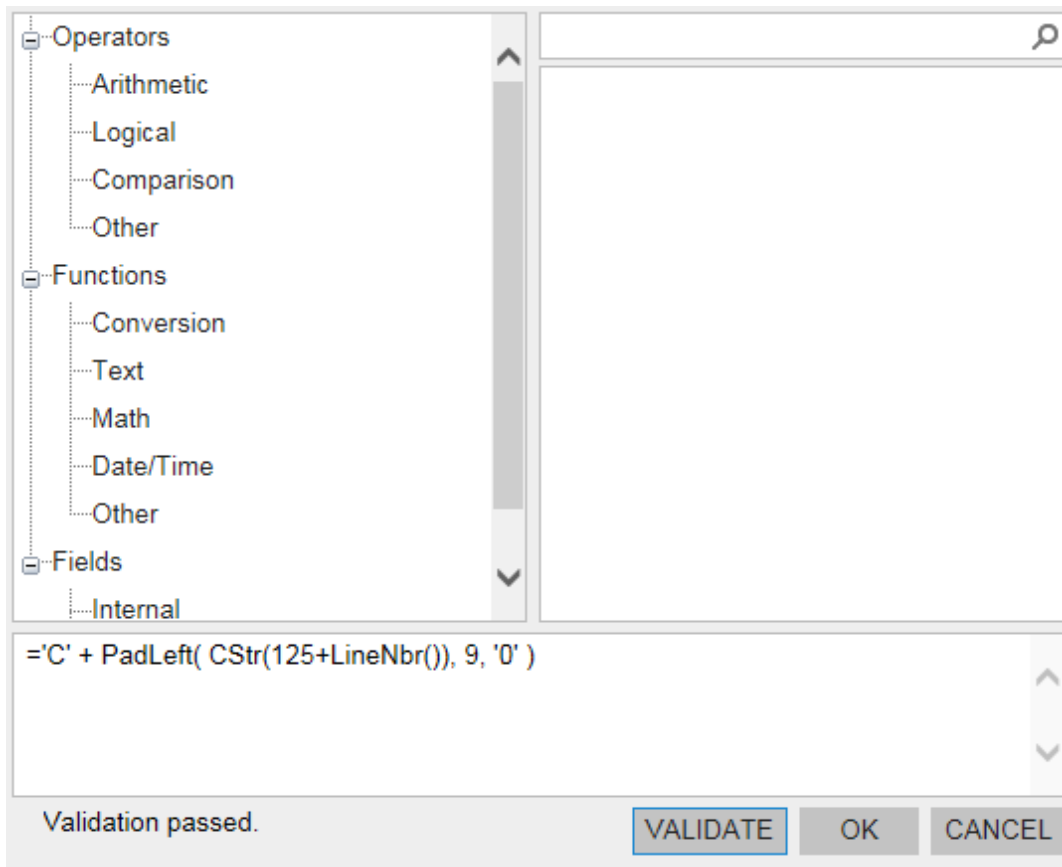
Figure: The function for a source field

The formula uses the `PadLeft()`, `CStr()`, and `LineNbr()` functions. The `LineNbr()` function returns the order number of an imported record of the `System.Int` type. You add the number of the last customer account in the system (125) to the line number and convert the value to the `String` type by using the `CStr()` function. The `PadLeft()` function right-aligns the characters of the string returned from the `CStr()` function, padding the string on the left with the 0 character to the width of 9 characters. You insert the letter *C* at the beginning of the string. You can see descriptions of the functions used in this example in *Functions* in the documentation.

> Do not provide a constant as the value of the Customer ID field. This would cause the system to create only one record with the specified constant as the customer ID, and this record would be overwritten multiple times during the import of records.

5. On the form toolbar, click **Save**. See the resulting mapping in the following screenshot.

> You can find the mapping in the `ImportScenario_ImportNewCustomersWithFormula.xlsx` file provided with the course. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: Mapping of the scenario

Now the scenario is ready for importing data.

Related Links

Key Fields and Search in Import Scenarios
Formulas in the Mapping
Functions

Example 2.4.3: Updating Auto-Numbered Records by Custom Key (Customers)

Suppose that you have updated information about your customers in a source file. To update this information in the system, you can compose an import scenario that will mass-update the needed records. In the import scenario, you have to identify the customer records that you want to update in the system. You might not have customer IDs in the file that contains the updated customer data. In this situation, in the import scenario, you can identify customer records by unique information that you have, such as by the name or email address of the customer.

In this example, you will update the customer classes of the customer records that were imported in *Example 2.4.1: Importing Records with Automatic Numbering (Customers)*. You have no customer IDs in the source file from which you have imported the customer records because the system IDs were generated during the import. You will create an import scenario that identifies the records in the system by customer name. You will use the `CustomersMasterFile_Update1.csv` file, which contains 34 customer records for which you are going to update the customer class in the system. The records, which have a COUNTRY field value other than *US*, will then have the new *INTL* customer class.

The import scenario will use the CSV data provider that you created in *Example 1.1.1: Creating a CSV Provider (Customers)*.

You will perform the following tasks, which are described in detail below:

1. *Reviewing the sequence of actions* during manual update of customer class of a customer record with an automatically generated ID

2. *Creating the import scenario for updating auto-numbered records by using a custom key* (Customer Name)

3. *Updating records* by using the created scenario

1. Reviewing the Sequence of Actions

To update a customer with an unknown ID, you should search for it by using the fields available in the summary area of the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage) and then update the necessary customer fields. You can use the **Customer ID**, **Customer Name**, and **Status** fields to search for the record. In this example, you will update the customer class of the customer record, and you will search for the needed record by the customer name. Do the following:

1. Open the Customers form (AR303000), and click the search button of the **Customer ID** field. The **Select - Customer ID** dialog box opens.

2. In the search box (in the upper right of the dialog box), enter the customer name: `Midwood Ambulance`. The customer record that satisfies the search condition appears.

3. Select the customer, and update the customer class, as described in *Example 2.2.1: Reviewing the Sequence of Actions During Manual Update (Customers)*.

Therefore, the sequence of commands for updating the accounts of customers with unknown IDs differs from the sequence of commands with known IDs in the way the customer record is selected.

2. Creating the Import Scenario for Updating Auto-Numbered Records by Using a Custom Key

Create the import scenario that searches for a customer record by customer name as described below:

1. On the Import Scenarios form (SM206025; System > Integration > Manage), create an import scenario with the following settings:

   a. **Name**: `Update Customers by Name`

   b. **Screen Name**: *Customers*

    c.   **Provider**: *Import/Export Customers*

    d.   **Provider Object**: *CustomersMasterFile.csv*

2.   On the table toolbar of the **Mapping** tab, click **Insert From**. In the **Choose Scenario to Insert Steps From** dialog box, select the *Update Customers* scenario and click **OK**. The mapping of the selected scenario is added to the **Mapping** tab.

3.   Delete the row that maps **Customer ID**. You will not use this key field to identify the customer record in this scenario. Instead, you will define the custom key by using the **Customer Name** field.

     To define the custom key, you need to know the internal name of the field that you will use as a key. You can see the internal names of the fields in the **Native Field / Action Name** column of the mapping table.

4.   To add the **Native Field/Action Name** column to the mapping table, proceed as follows:

    a.   Click the header icon of the first column in the mapping table (item 1 on the screenshot below) to open the **Columns Configuration** dialog box. The dialog box displays the list of available columns that can be added to the form and the list of selected columns.

    b.   Select the **Native Field / Action Name** column (2), and click the arrow between the lists to add it to the list of selected columns (3).

    c.   Move the **Native Field / Action Name** column by using the arrows (4) so that is located below the **Field / Action Name** column.

    d.   Click **OK** (5). The added column contains the field and action names as they are used in the application code.
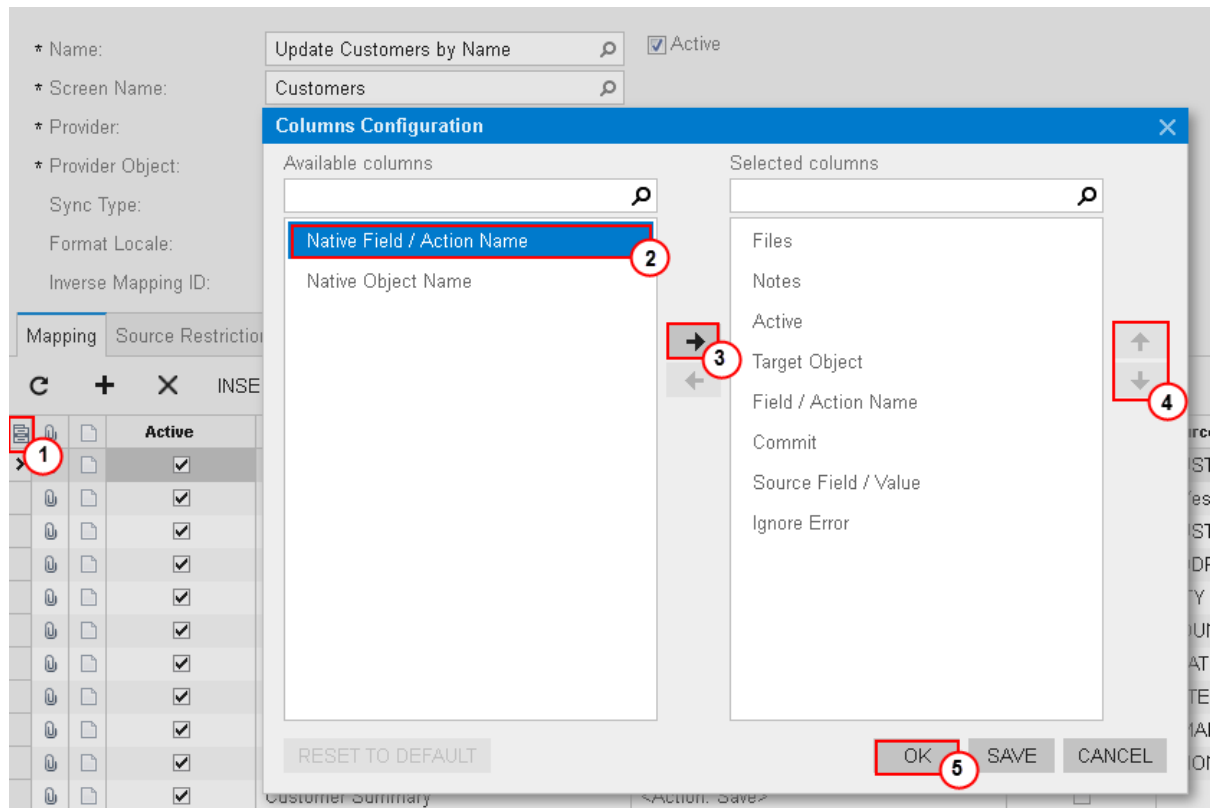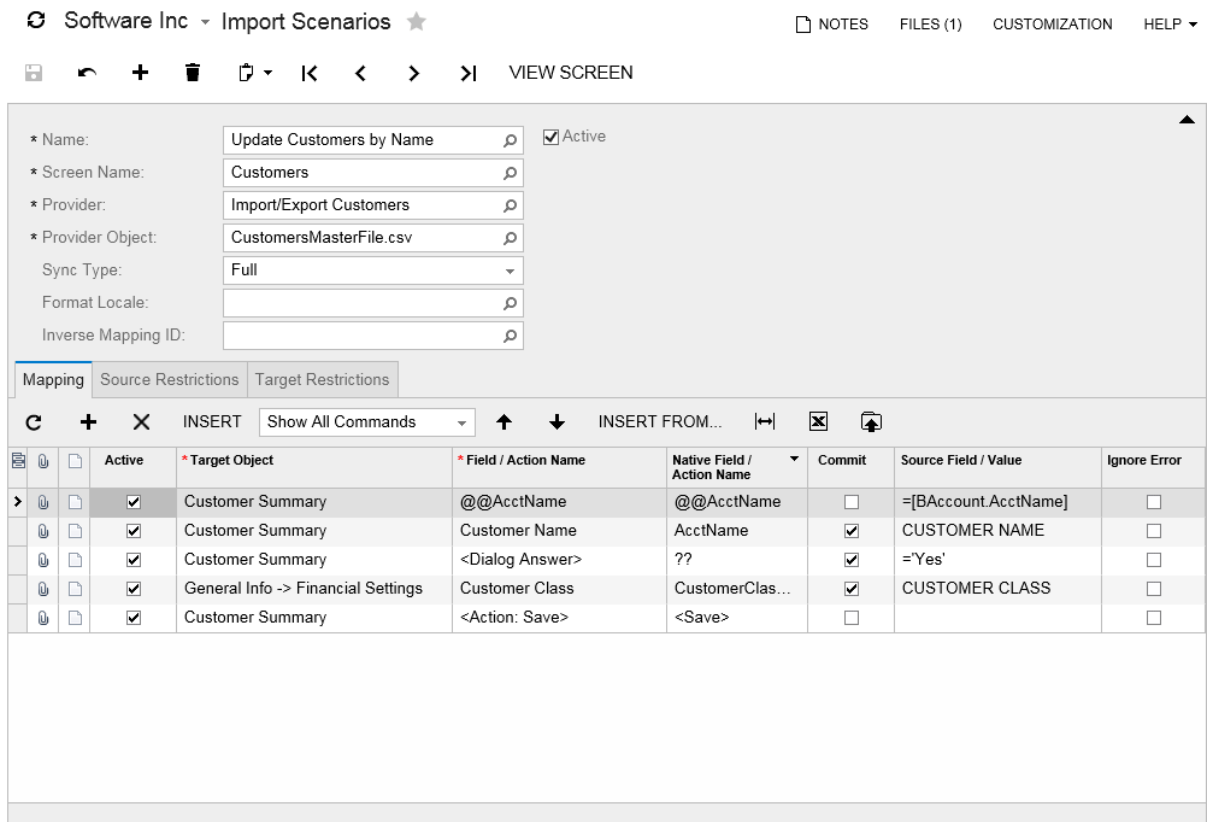
Figure: Columns Configuration dialog box

5. To use **Customer Name** as the custom key for searching for records to update, add two instructions at the beginning of the mapping as follows:

a. Insert the row that maps the **Customer Name** field and specify the following settings:

- **Target Object**: *Customer Summary*

- **Field / Action Name**: *Customer Name*

- **Source Field / Value**: *CUSTOMER NAME*

The **Commit** check box must be selected when you set the value of a custom key. In this case, it is selected automatically for this field.

b. Insert a new row before the row that maps the **Customer Name** field (that is, the row you mapped in the previous step) and specify its settings as follows:

- Set the value in the **Target Object** column to *Customer Summary*.

- In the **Field Action Name** column, type @@ followed by the name of the **Customer Name** field as it is displayed in the **Native Field/Action Name** column—that is, @@AcctName.

- Click the Edit button for the **Source Field / Value** column. In the dialog box navigate to **Fields** > **Internal** and double click the [BAccount.AcctName] field. Click **OK**. The value in the **Source Field / Value** column is =[BAccount.AcctName].

6. On the form toolbar, click **Save**. See the resulting mapping in the following screenshot.

You can find the mapping in the ImportScenario_UpdateCustomersByName.xlsx file provided with the course for reference. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

			Active	*Target Object	*Field / Action Name	Native Field / Action Name	Commit	Source Field / Value	Ignore Error
>			✔	Customer Summary	@@AcctName	@@AcctName	☐	=[BAccount.AcctName]	☐
			✔	Customer Summary	Customer Name	AcctName	✔	CUSTOMER NAME	☐
			✔	Customer Summary	<Dialog Answer>	??	✔	='Yes'	☐
			✔	General Info -> Financial Settings	Customer Class	CustomerClas...	✔	CUSTOMER CLASS	☐
			✔	Customer Summary	<Action: Save>	<Save>	☐		☐

Figure: Final scenario mapping

You have specified the custom key `@@AcctName`, which refers to the **Customer Name** field of the summary object `Customer Summary`, to identify records in the system. The instruction with the `@@` notation that declares the key must go directly before the instruction that sets the value to the custom key. You can use only the fields of summary object as custom keys to search for a record in the system.

> To search for a customer by a customer name, you can also use the way described in *Example 2.4.4: Updating Auto-Numbered Records by a Selector Column (Customers)* for searching by email address.

Now the scenario is ready for processing data. In the next task, you will update customer records by using this scenario.

3. Updating Records

Before you update the records, run the Customer Summary report (AR650500; Finance > Accounts Receivable > Reports > Audit) to view the list of all accounts and notice that all customer records in the system have the *DEFAULT* customer class. Update customer records by using the created scenario as follows:

1. Open the Import by Scenario form (SM206036; System > Integration > Process), and select the *Update Customers by Name* scenario.

2. Upload the `CustomersMasterFile_Update1.csv` source file to the form.

3. Click **Prepare and Import** to prepare and import records in one click. As a result of the import, 34 customer records are updated.

4. To verify that six customer records have the *INTL* customer class, on the Customers form (AR303000), filter the **Customer Class** column in the **Select - Customer ID** dialog box by the values that contain *INTL* string (see the following screenshot).

Figure: Customer records with the INTL customer class after update

You have updated the customer records and have identified the records in the system by the customer name.

Related Links

Key Fields and Search in Import Scenarios

Example 2.4.4: Updating Auto-Numbered Records by a Selector Column (Customers)

In this example, you will update the customer classes of previously imported customer records that have automatically generated IDs. (The customer records were imported in *Example 2.4.1: Importing Records with Automatic Numbering (Customers)*. To find the necessary records for update, you will use the **Email** selector column. You will use the `CustomersMasterFile_Update2.csv` file, which contains the records for which you are going to update the customer class in the system.

The import scenario will use the CSV data provider that you created in *Example 1.1.1: Creating a CSV Provider (Customers)*.

You will perform the following tasks, which are described in detail below:

1. *Reviewing the sequence of actions* during manual update of a record

2. *Creating the import scenario for updating auto-numbered records by a selector column*

3. *Updating records* by using the created scenario

1. Reviewing the Sequence of Actions

To update a customer when you don't know its ID, you can search for it by using the fields available in the selector dialog box for **Customer ID** and then update the necessary customer fields. Do the following:

1. Open the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage), and click the search button of the **Customer ID** field. The **Select - Customer ID** dialog box opens.

2. Filter the **Email** column by the email address `balaa@midwood.con`. The customer record that satisfies the filter condition appears.

3. Select the customer and update the customer class to *INTLEU* in the similar way as described in *Example 2.2.1: Reviewing the Sequence of Actions During Manual Update (Customers)*.

You selected the needed customer by email address and then performed the update as you did for a customer whose ID you knew.

2. Creating the Import Scenario for Updating Auto-Numbered Records by a Selector Column

Create an import scenario that searches for customer records by email address as described below:

1. On the Import Scenarios form (SM206025; System > Integration > Manage), add a new import scenario with the following parameters:

    a. **Name**: `Update Customers by Email`

    b. **Screen Name**: *Customers*

    c. **Provider**: *Import/Export Customers*

    d. **Provider Object**: *CustomersMasterFile.csv*

2. Copy the scenario mapping from the *Update Customers* scenario.

3. Delete the row that maps **Customer ID**.

    ⊟ You can remove the **Native Field/Action Name** column, which you have added in *Example 2.4.3: Updating Auto-Numbered Records by Custom Key (Customers)*, from the table on the **Mapping** tab by using the **Columns Configuration** dialog box, which opens when you click the header icon of the first column in the mapping table.

4. Insert a new row with the following parameters before the `<Dialog Answer>` action:

- **Target Object**: *Customer Summary*

- **Field / Action Name**: *Customer ID -> Email*

- **Source Field / Value**: *EMAIL*

You have inserted an action that searches for a customer record by the customer's email address.

> You cannot use the **Email** field of the **Main Contact** group for searching for a customer in the way that is described in *Example 2.4.3: Updating Auto-Numbered Records by Custom Key (Customers)* for searching by customer name. Only selector columns of the key field and fields of a summary object can be used for a record search.

5. Make sure the order of the commands is as shown in the screenshot below, and save the scenario.

> You can find the mapping in the `ImportScenario_UpdateCustomersByEmail.xlsx` file provided with the course for reference. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: Final scenario mapping

You have created the import scenario that will update customer records by email address.

3. Updating Auto-Numbered Records

Before the update, five customer records in the system have the *INTL* class and one customer record has the *INTLEU* class. (To confirm it, on the Customers form (AR303000), filter the **Customer Class** column in the **Select - Customer ID** dialog box by the values that contain *INTL* string). Update customer records by using the scenario you just created as follows:

1. On the Import by Scenario form (SM206036; System > Integration > Process), select the *Update Customers by Email* scenario.

2. Upload the `CustomersMasterFile_Update2.csv` file to the form.

3. Click **Prepare and Import** to prepare and import records at the same time.

This action updates 34 customer records. After the update, three customer records in the system have the *INTLEU* customer class, one customer has the *INTLCA* class, and two customers have the *INTL* class. On the Customers form (AR303000), you can filter the **Customer Class** column in the **Select - Customer ID** dialog box by the values that contain the *INTL* string (see the following screenshot).

Figure: Customer records with the changed classes after update

You have updated customer records identified in the system by email address.

Related Links

Key Fields and Search in Import Scenarios

Lesson Summary

In this lesson, you have learned how to import customer records with IDs automatically assigned to the records in the system. You have also learned how to mass-update records in the system identified by a value other than the ID. If you do not have the IDs of the records in the source, in the import scenario, you can identify the records by unique information that you have, such as the name or email address of the customer. To search for a record, you have to declare the custom key or use the selector column of the predefined key field.

You have learned that to create a custom key, you have to do the following:

1. Set the value of the custom key field, and select the **Commit** check box for it.

2. Directly before the instruction that sets the value of the custom key field, insert the instruction with the `@@` notation that defines the field as the key.

To search for a record, you used as custom keys the fields of the summary object. (You cannot use as custom keys the fields of other objects.)

To use the selector column for a search, you mapped the selector column command to the matching external field.

Lesson 2.5: Working with Master-Detail Records

In this lesson, you will create scenarios for importing master-detail records to Acumatica ERP, and import records by using these scenarios. For example, you will import Accounts Receivable (AR) invoices to the Invoices and Memos form (AR301000; Finance > Accounts Receivable > Work Area > Enter), which has the document summary information and the document lines.

You will also create import scenarios for updating the detail lines of the imported records. You will configure the scenarios to find the necessary detail lines by the line number and the specified value. After that, you will release the imported documents by using an import scenario.

You will also create an import scenario that selects items for document lines from a pop-up panel, and you will import documents by using this scenario.

Lesson Objectives

In this lesson, you will learn how to:

- Import master-detail records with IDs and automatic numbering.

- Update detail lines of the imported records by using import scenarios.

- Apply actions to imported records.

- Configure an import scenario to import country-specific data correctly.

- Select items for document lines from a pop-up panel in import scenarios.

Example 2.5.1: Importing Master-Detail Records with IDs (AR Invoices)

In this example, you will create a scenario for importing AR invoices. For the scenario, you will specify scenario parameters, including the **Format Locale** parameter, and then configure scenario mapping. You will learn how to map detail line fields to Acumatica ERP fields, and you will explore a situation when you can use the **Ignore Error** flag in the mapping. Then you will import AR invoices from the `OpenARInvoices_12-2013_withDestinationBranch.xlsx` file to the system.

Currently, auto-numbering of AR invoices is turned on in the system. In this example, you will import AR invoices with reference numbers defined in the source file, so they should not be automatically numbered.

For this scenario, you will use the *Import/Export AR Invoices* data provider that you created in *Example 1.1.2: Creating an Excel Provider (AR Invoices)* and *Example 1.1.3: Modifying a Data Provider (AR Invoices)*.

You will perform the following tasks, which are described in detail below:

1. *Turning off the auto-numbering of invoices*

2. *Reviewing the sequence of actions* when you enter master-detail records

3. *Creating a scenario for importing master-detail records*

4. *Importing master-detail records*

5. *Turning on the auto-numbering of invoices*

1. Turning off the Auto-Numbering of Invoices

Do the following to turn off the auto-numbering of invoices before importing the documents:

1. On the Numbering Sequences form (CS201010; Configuration > Common Settings > Common Settings), select the *ARINVOICE* numbering sequence. The *ARINVOICE* numbering sequence is specified for the auto-numbering of invoices on the Accounts Receivable Preferences form (AR101000; Finance > Accounts Receivable > Configuration > Setup). You want to import AR invoices with their reference numbers and then continue numbering new invoices starting with the reference number of the last imported invoice incremented by 1.

2. For *ARINVOICE*, select the **Manual Numbering** check box and save your changes.

The auto-numbering of invoices is turned off. You can proceed with reviewing the sequence of action during manual entry.

2. Reviewing the Sequence of Actions

Enter one record from the `OpenARInvoices_12-2013_withDestinationBranch.xlsx` file manually:

1. Open the Invoices and Memos form (AR301000; Finance > Accounts Receivable > Work Area > Enter), and in the document summary area, specify the following values for the key fields:

   a. **Type**: *Invoice* (value in the DOC TYPE column in the source file for the first record)

   b. **Reference Nbr.**: `INV000045` (INVOICE REF NBR column)

2. Clear the **Hold** check box to change the status of the document to *Balanced*.

3. In the document summary area, specify the following parameters:

   - **Customer**: `C000000005` (CUSTOMER ID column)

   - **Date**: `12/15/2013` (DATE column)

The system is set to the United States format and you enter the date in this format, MM/DD/YYYY. For training purposes, the source file contains dates in the Russian format, DD/MM/YYYY. Later in this example, you will compose an import scenario that converts the data from the source format into the format that is used in the system.

- **Post Period**: `12-2013` (POST PERIOD column)

- **Customer Order**: `19058` (CUSTOMER REF NBR column)

- **Description**: `Inv. INV000045 cust. C000000005 cust. ref. 19058` (DOC DESCRIPTION column)

- **Amount**: `380` (TOTAL AMOUNT column)

Amount is the control box where the user is supposed to confirm the document total during manual data entry. Note that the system shows the error icon for the **Amount** field, indicating that the document is out of balance. The amount value is not equal to the sum of the detail line amounts.

4. In the **Link to GL** section of the **Financial Details** tab, set the value of the **Branch** field to `SOFT`. (You use the value from the ORIGINATION BRANCH column of the source file.)

5. Double-click the table area of the **Document Details** tab; a new row with default parameters is added. Specify the following parameters in the row:

   a. **Branch**: `SOFT` (value in the DESTINATION BRANCH column in the source file)

   b. **Transaction Descr.**: `AR Invoice INV000045 line 0` (LINE DESCRIPTION column)

   c. **Ext. Price**: `300` (EXT PRICE column)

   d. **Account**: `999999` (ACCOUNT column)

   e. **Subaccount**: `000-00-00` (SUBACCOUNT column)

6. Click **Save** on the form toolbar. The error is displayed. You cannot save the document until the error in the **Amount** field is fixed.

7. Add the second detail line to the invoice, using the data from the second line of the source file.

   After you have added the second line, the detail total of $380 becomes equal to the amount specified in the **Amount** box, so the invoice is balanced. You can save the invoice now that it is balanced.

   To import documents, you can make the **Amount** box unavailable on the form, prepare the lines with running totals for import, or use a mapping instruction that bypasses the error. In this example, we will demonstrate the third method, which demonstrates a feature that is available in integration scenarios. However, in general we recommend that you either make the **Amount** box unavailable on the form, or prepare the lines with running totals for import.

8. Save the invoice.

You have entered one invoice document manually. First, you entered the fields of the summary area starting with key fields, and then you entered the fields of the detail lines and the fields on other tabs. Now you will compose the import scenario that simulates the manual entry of each invoice into the system.

3. Creating a Scenario for Importing Master-Detail Records

Create the scenario for importing AR invoices from the `OpenARInvoices_12-2013_withDestinationBranch.xlsx` file as follows:

1. Open the Import Scenarios form (SM206025; System > Integration > Manage), and add a new scenario with the following parameters:

a. **Name**: `Import AR Invoices`

b. **Screen Name**: *Invoices and Memos* (**Company** > **Finance** > **Accounts Receivable** > **Work Area** > **Enter**)

c. **Provider**: *Import/Export AR Invoices*

d. **Provider Object**: *AR Invoices*

e. **Format Locale**: *Russian (Russia)*

> The date values in the source file are in Russian format. If no format locale is set, the system presumes that the dates in the external source have an invariant locale, which is based on the *English (United States)* locale. If you do not set the format and the locale-dependent data in the external source has a format other than *English (United States)*, the system may read the data incorrectly. Therefore, in this example, you should set the format locale so that the dates in Russian format are read correctly.

2. On the **Mapping** tab, add the following rows:

   a. Row 1:

      - **Target Object**: *Invoice Summary*
      - **Field / Action Name**: *Type*
      - **Source Field / Value**: *DOC TYPE*

   b. Row 2:

      - **Target Object**: *Invoice Summary*
      - **Field / Action Name**: *Reference Nbr.*
      - **Source Field / Value**: *INVOICE REF NBR*

   You have mapped the key fields of the form. You can see the service commands added to the scenario and the **Commit** check box selected automatically for the key fields.

3. On the **Mapping** tab add the rows for the actions you performed in the invoice summary area on the Invoices and Memos form (AR301000) during manual entry, adding the mapping instructions in the order in which you filled in the data manually on the form. See the list of rows to add in the table below.

   Commands for the Invoice Summary Object

Target Object	Field / Action Name	Source Field / Value
Invoice Summary	*Hold*	`=False`
Invoice Summary	*Customer*	*CUSTOMER ID*
Invoice Summary	*Date*	*DATE*
Invoice Summary	*Post Period*	*POST PERIOD*
Invoice Summary	*Customer Order*	*CUSTOMER REF NBR*
Invoice Summary	*Description*	*DOC DESCRIPTION*
Invoice Summary	*Amount*	*TOTAL AMOUNT*

4. Select the **Ignore Error** check box in the row for the **Amount** field. The **Amount** value should be equal to the sum of all detail amounts. Because the same total amount is imported with every detail line, the amount will not match the sum of detail amounts until all detail lines of an invoice

are imported. To make the system ignore the validation error that occurs on the **Amount** box, you select the **Ignore Error** check box.

> For initial data migration, you can disable the control box and not map the **Amount** field. To disable the requirement to enter the control total, clear the **Validate Document Totals on Entry** check box on the Accounts Receivable Preferences form (AR101000) before importing records.

5. Add the row that maps the **Branch** field of the **Link to GL** section of the **Financial Details** tab with the following settings:

   - **Target Object**: *Financial Details -> Link to GL*

   - **Field / Action Name**: *Branch*

   - **Source Field / Value**: *ORIGINATING BRANCH*

> If you use multi-branch configuration, you have to specify the originating and destination branches of each imported document. For more information about branches, see the F200 Financials: Intermediate course.

6. Add the rows that correspond to the actions you performed on the **Document Details** tab on the Invoices and Memos form (AR301000) during manual entry. See the list of the rows in the table below.

   Commands for the Document Details Object

Target Object	Field / Action Name	Source Field / Value
Document Details	Branch	DESTINATION BRANCH
Document Details	Transaction Descr	LINE DESCRIPTION
Document Details	Ext. Price	EXT PRICE
Document Details	Account	ACCOUNT
Document Details	Subaccount	SUBACCOUNT

   Note that you do not need to add a command that inserts a new row on the **Document Details** tab. This is done automatically. You can see the `<Line Number>` service command inserted before the first row with the *Document Details* target object. The command is mapped to the `=-1` value, which means that a new row is inserted for each imported line.

7. Add a row with `<Action: Save>` at the end of the mapping.

8. Click **Save** on the form toolbar. See the screenshot of the scenario mapping below.

> You can find the mapping in the `ImportScenario_ImportARInvoices.xlsx` file provided with the course for reference. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.
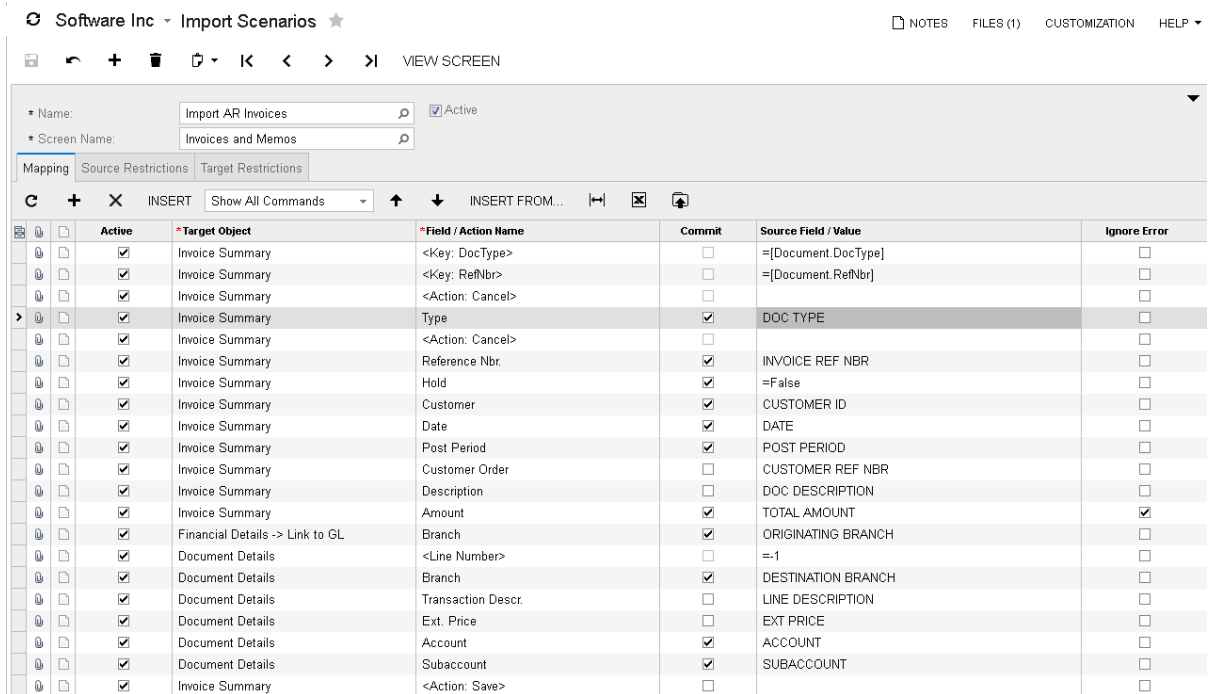
Figure: The final scenario mapping

You have created the scenario for importing AR invoices. In the next step, you will use this scenario for importing records.

4. Importing Master-Detail Records

Import AR invoices from the `OpenARInvoices_12-2013_withDestinationBranch.xlsx` file as described below:

1. On the Import by Scenario form (SM206036; System > Integration > Process), select the *Import AR Invoices* scenario.

2. Click **Prepare**. Notice on the **Prepared Data** tab that 57 records from the source file have appeared. Check that dates in the **Date** column are displayed in the format of the source file. The dates should be displayed in the *Russian (Russia)* format—for example, 15.12.2013.

3. Clear the **Active** check box for the first two records with the *INV000045* reference number. These records are the two document lines of the *INV000045* invoice, which you have already entered manually.

4. Click **Save** on the form toolbar.

5. Click **Import**, and 55 records are imported. These are the document lines of 43 invoices; some invoices contain more than one document line; for example, the *INV000049* invoice contains 4 lines. On the Invoices and Memos form (AR301000), verify that the invoice has 4 lines in the system, the document total is $25,081.65, and the document has the *Balanced* status.

You have imported AR invoices with detail lines. The imported invoices have reference numbers that range from *INV000045* to *INV000088*.

5. Turning on Auto-Numbering of Invoices

Proceed as follows to enable the auto-numbering of new invoices starting from *INV000089*:

1. On the Numbering Sequences form (CS201010), select the *ARINVOICE* numbering sequence.

2. In the table, change the value in the **Last Number** of the sequence to `INV000088`.

3. Clear the **Manual Numbering** check box to enable auto-numbering, and save your changes.

Related Links

Service Commands in Import and Export Scenarios

Example 2.5.2: Updating Detail Lines by Line Number (AR Invoices)

In this example, you will create a scenario for updating the detail lines of previously imported AR invoices. To update the detail lines, you will search for the needed lines by the line number. Then you will use this scenario to upload updated records.

For this scenario, you will use the *Import/Export AR Invoices* data provider that you created in *Example 1.1.2: Creating an Excel Provider (AR Invoices)* and *Example 1.1.3: Modifying a Data Provider (AR Invoices)*.

This example presumes that you have previously imported AR invoices to the system, as described in *Example 2.5.1: Importing Master-Detail Records with IDs (AR Invoices)*. There should be AR invoices with reference numbers ranging from INV000045 to INV000088 in the system.

You will use the `OpenARInvoices_12-2013_Update1.xlsx` file for update. The file contains the lines of invoices with reference numbers that range from INV000045 to INV000088. In the file, all invoice lines have the EXT PRICE and TOTAL AMOUNT fields increased by 10% compared to the previously imported values.

You will perform the following tasks, which are described in detail below:

1. *Reviewing the sequence of actions* when updating master-detail records

2. *Creating an import scenario for updating master-detail records by using a search by line number*

3. *Updating master-detail records* by using the created scenario

1. Reviewing the Sequence of Actions

To update a detail line of an AR invoice manually, you select the invoice and, in the needed row on the details tab, update the data. Do the following:

1. On the Invoices and Memos form (AR301000; Finance > Accounts Receivable > Work Area > Enter), select *Invoice* in the **Type** field and enter `INV000045` in the **Reference Nbr** field. The previously imported invoice with the *INV000045* reference number is opened.

2. In the **Amount** field, type `418`.

3. On the **Document Details** tab, in the first row, change the value of the **Ext. Price** field to `330`. In the second row, change the value of the **Ext. Price** field to `88`.

4. Click **Save** on the form toolbar.

Therefore, the sequence of commands for updating AR invoices is similar to that for importing AR invoices. The only difference is that you do not need to add a new detail line, instead you modify the value of an existing detail line.

2. Creating an Import Scenario for Updating Master-Detail Records Using Search by Line Number

The `OpenARInvoices_12-2013_Update1.xlsx` file contains the LINE NBR (formula) and the LINE NBR columns. The LINE NBR (formula) column calculates the detail line number of an AR invoice. Line numbering starts with 0. The LINE NBR column contains the values copied from the LINE NBR (formula) column because Acumatica ERP does not import values from the cells containing formulas. You will use the values from the LINE NBR column to search for the detail lines of AR invoices.

Create a scenario for updating previously imported AR invoices as described below:

1. On the Import Scenarios form (SM206025; System > Integration > Manage), add a new scenario with the following parameters:

   a. **Name**: `Update AR Invoices by Line Number`

b.   **Screen Name**: *Invoices and Memos* (**Company** > **Finance** > **Accounts Receivable** > **Work Area** > **Enter**)

c.   **Provider**: *Import/Export AR Invoices*

d.   **Provider Object**: *AR Invoices*

2.   On the **Mapping** tab, add the following rows:

Commands

Target Object	Field / Action Name	Source Field / Value	Ignore Error
Invoice Summary	*Type*	*DOC TYPE*	
Invoice Summary	*Reference Nbr*	*INVOICE REF NBR*	
Invoice Summary	*Amount*	*TOTAL AMOUNT*	Selected
Document Details	*Ext. Price*	*EXT PRICE*	
Invoice Summary	*<Action: Save>*		

3.   Change the value in the **Source Field / Value** column of the `<Line Number>` command, which is automatically added by the system, to *LINE NBR*. You have mapped the `<Line Number>` command to the external field that specifies the number of detail line in an AR invoice.

> If you try to update an AR invoice by using the *Import AR Invoices* scenario (which was created in *Example 2.5.1: Importing Master-Detail Records with IDs (AR Invoices)*) that has the `<Line Number>` service command mapped to `=-1`, you will have duplicated detail lines in the resulting AR invoices. This is because the `<Line Number>=-1` command makes the system create a new row for each detail line.

4.   Click **Save** on the form toolbar. See the screenshot of the scenario mapping below.

> You can find the mapping in the `ImportScenario_UpdateARInvoicesByLineNumber.xlsx` file provided with the course for reference. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: The final scenario mapping

Now the scenario is ready to be used to update data. Later in this example, you will update AR invoices by using this scenario.

3. Updating Master-Detail Records by Using Created Scenarios

You will update the AR invoice records with the values from the `OpenARInvoices_12-2013_Update1.xlsx` file. The file contains 57 invoice lines that were previously imported to Acumatica ERP. The invoice lines in this file have the EXT PRICE and TOTAL AMOUNT fields increased by 10%.

Before import, notice the values of the **Amount** field and in the **Ext. Price** column for each detail line of an invoice on the Invoices and Memos form (AR301000). For example, the invoice with the reference number *INV000053* has the following field values:

- **Amount**: 82,172.68

- AR Invoice INV000053 line 0, **Ext. Price**: 12,974.63

- AR Invoice INV000053 line 1, **Ext. Price**: 24,219.32

- AR Invoice INV000053 line 2, **Ext. Price**: 44,978.73

Proceed as follows:

1. On the Import by Scenario form (SM206036; System > Integration > Process), select the *Update AR Invoices by Line Numbers* scenario.

2. Click **Upload File Version** on the form toolbar. In the **Upload File Version** dialog box, browse for the *OpenARInvoices_12-2013_Update1.xlsx* file and click **Upload**. The file is uploaded to the form and will be used for data import.

3. Prepare and import records; 57 records are updated.

4. After all invoices have been successfully processed, review the documents by using the Invoices and Memos form (AR301000). Check several AR invoices to be sure that they have the correct number of lines. For instance, review the *INV000053* invoice. Now it should have the following values of the **Amount** and **Ext. Price** fields:

   - **Amount**: 90,389.94

   - AR Invoice INV000053 line 0, **Ext. Price**: 14,272.09

   - AR Invoice INV000053 line 1, **Ext. Price**: 26,641.25

   - AR Invoice INV000053 line 2, **Ext. Price**: 49,476.60

You have updated the detail lines of AR invoices.

Related Links

Service Commands in Import and Export Scenarios
Key Fields and Search in Import Scenarios

Example 2.5.3: Updating Detail Lines by Custom Key (AR Invoices)

In this example, you will create another scenario for updating AR invoices, and you will search for particular detail lines by the description field of a detail line. Then you will upload updated records using the scenario.

You will use the `OpenARInvoices_12-2013_Update2.xlsx` file for update. The file contains lines of invoices with reference numbers ranging from *INV000045* to *INV000088*. All invoice lines have the EXT PRICE and TOTAL AMOUNT fields reduced by 5% compared to the previously imported values.

For this scenario, you will use the *Import/Export AR Invoices* data provider that you created in *Example 1.1.2: Creating an Excel Provider (AR Invoices)* and *Example 1.1.3: Modifying a Data Provider (AR Invoices)*.

You will perform the following tasks, which are described in detail below:

1. *Reviewing the sequence of actions* during manual update of detail lines of AR invoices

2. *Creating an import scenario for updating master-detail records by a custom key* (Transaction Descr)

3. *Updating master-detail records* by using a created scenario

1. Reviewing the Sequence of Actions

The sequence of commands for updating the detail lines of AR invoices differs from that for importing AR invoices in the way you select the current detail line. To select the detail line by line description, you click the **Transaction Descr** column header and apply a filter on the column on the **Document Details** tab of the Invoices and Memos (AR301000; Finance > Accounts Receivable > Work Area > Enter).

2. Creating an Import Scenario for Updating Master-Detail Records by Custom Key

You can search for detail lines by any unique field of the detail table. In this example, the AR invoice detail lines have unique transaction descriptions. You will search for the detail lines to update by using the **Transaction Descr** column value.

Create the scenario as described below:

1. Open the Import Scenarios form (SM206025; System > Integration > Manage), and create a scenario with the following parameters:

    a. **Name**: `Update AR Invoices by Line Description`

    b. **Screen Name**: *Invoices and Memos* (**Company** > **Finance** > **Accounts Receivable** > **Work Area** > **Enter**)

    c. **Provider**: *Import/Export AR Invoices*

    d. **Provider Object**: *AR Invoices*

2. On the **Mapping** tab, add the following rows:

    The Rows to Add

Target Object	Field / Action Name	Source Field / Value	Ignore Error
Invoice Summary	*Type*	*DOC TYPE*	
Invoice Summary	*Reference Nbr*	*INVOICE REF NBR*	
Invoice Summary	*Amount*	*TOTAL AMOUNT*	Selected
Document Details	*Transaction Descr*	*LINE DESCRIPTION*	

Target Object	Field / Action Name	Source Field / Value	Ignore Error
Document Details	*Ext. Price*	*EXT PRICE*	
Invoice Summary	*<Action: Save>*		

3. Deactivate the <Line Number> service command.

   The <Line Number>=-1 command makes the system insert a new row for each imported detail record. You need to update existing detail records and do not need to insert new rows for them. In the next steps of this example, you will define how the system should search for the needed detail records, instead of inserting a new row for each record.

4. Click the header icon of the first column in the mapping table to open the **Columns Configuration** dialog box. The dialog box displays the list of available columns that can be added to the form and the list of selected columns. Add the **Native Field/Action Name** column to the list of selected columns. The column, which contains the field or action name as it is used in the application code, appears on the **Mapping** tab.

5. Create a custom key that searches for the needed line in the document by the custom key:

   a. Select the **Commit** check box for the **Transaction Descr.** field of the *Document Details* object.

   b. Insert a new row with the following parameters directly before the row that maps the **Transaction Descr** field of the *Document Details* object:

      • **Target Object**: *Document Details*

      • **Field Action Name**: @@TranDesc

      • **Source Field / Value**: =[Transactions.TranDesc]

   These instructions (which are highlighted in the screenshot below) define the custom key and value for the custom key by which the system will search for document lines for update. Notice that the **Commit** check box must be selected for the field that specifies the value of the custom key (in this example, for the **Transaction Descr.** field).

6. Click **Save** on the form toolbar. See the screenshot of the scenario mapping below.

   You can find the mapping in the ImportScenario_UpdateARInvoicesByCustomKey.xlsx file provided with the course for reference. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: The final scenario mapping

You have created the scenario for updating AR invoices that searches for detail line records by line descriptions. You will use this scenario for data update in the next step.

3. Updating Records

You will update the AR invoices records with the values from the OpenARInvoices_12-2013_Update2.xlsx file. The file contains 57 invoice records that were previously imported to Acumatica ERP. The invoice lines in this file have the EXT PRICE and TOTAL AMOUNT fields updated.

Before import, on the Invoices and Memos form (AR301000), notice the values of the **Amount** field and in the **Ext. Price** column for each detail line of the invoice INV000053, for example. This invoice has the following field values:

- **Amount**: 90,389.94

- AR Invoice INV000053 line 0, **Ext. Price**: 14,272.09

- AR Invoice INV000053 line 1, **Ext. Price**: 26,641.25

- AR Invoice INV000053 line 2, **Ext. Price**: 49,476.60

Proceed as follows:

1. Open the Import by Scenario form (SM206036; System > Integration > Process), and select the *Update AR Invoices by Line Descriptions* scenario.

2. Upload the OpenARInvoices_12-2013_Update2.xlsx source file to the form.

3. Prepare and import records.

4. Review the *INV000053* invoice. Now it should have the following values of the **Amount** and **Ext. Price** fields:

    - **Amount**: 85,870.45

    - AR Invoice INV000053 line 0, **Ext. Price**: 13,558.49

    - AR Invoice INV000053 line 1, **Ext. Price**: 25,309.19

    - AR Invoice INV000053 line 2, **Ext. Price**: 47,002.77

You have updated the detail lines of AR invoices.

Related Links

Key Fields and Search in Import Scenarios
Service Commands in Import and Export Scenarios

Example 2.5.4: Applying an Action to Imported Records (AR Invoices)

In this example, you will use an import scenario to release Accounts Receivable invoices with reference numbers ranging from *INV000045* to *INV000088*, which were imported to Acumatica ERP in *Example 2.5.1: Importing Master-Detail Records with IDs (AR Invoices)*. Currently these invoices have the *Balanced* status and can be released.

For this scenario, you will use the *Import/Export AR Invoices* data provider that you created in *Example 1.1.2: Creating an Excel Provider (AR Invoices)* and *Example 1.1.3: Modifying a Data Provider (AR Invoices)*.

You will perform the following tasks, which are described in detail below:

1. *Reviewing the sequence of actions* when applying an action to master-detail records

2. *Creating an import scenario that applies an action to master-detail records*

3. *Applying an action to master-detail records*

1. Reviewing the Sequence of Actions

Release any of the previously imported AR invoices manually:

1. On the Invoices and Memos form (AR301000; Finance > Accounts Receivable > Work Area > Enter), select *Invoice* in the **Type** field, and enter `INV000045` in the **Reference Nbr** field. The previously imported invoice with the *INV000045* reference number is opened. The document has the *Balanced* status and can be released.

2. Type `RELEASED` at the end of the **Description** field value. This step is optional for manual release, but in the scenario, you will need to use a step that changes the AR invoice. (The system requires that an import scenario changes the record in some way. If the record is not changed, the system does not save the result of the import.)

3. Click the **Release** button on the form toolbar. Notice that the invoice has *Open* status now.

You have released an AR invoice manually. The sequence of actions you followed is simple: You selected the necessary invoice by specifying key fields, changed the values of some fields, and clicked the button to release the document.

2. Creating an Import Scenario that Applies an Action to Master-Detail Records

You will create an import scenario that releases previously imported AR invoices. You will use the recently uploaded `OpenARInvoices_12-2013_Update2.xlsx` file for the scenario. The file includes multiple detail lines for some of the invoices. You need to release each invoice only once, no matter how many detail lines it has. Therefore, you will create source restrictions that make the system select only one record per invoice from the source file.

Create an import scenario as described below:

1. On the Import Scenarios form (SM206025; System > Integration > Manage), add a new scenario with the following parameters:

   a. **Name**: `Release AR Invoices`

   b. **Screen Name**: *Invoices and Memos* (**Company** > **Finance** > **Accounts Receivable** > **Work Area** > **Enter**)

   c. **Provider**: *Import/Export AR Invoices*

   d. **Provider Object**: *AR Invoices*

2. On the **Mapping** tab, add the following rows:

The Rows to Add

Target Object	Field / Action Name	Source Field / Value
Invoice Summary	*Type*	*DOC TYPE*
Invoice Summary	*Reference Nbr*	*INVOICE REF NBR*
Invoice Summary	*Description*	`=[DOC DESCRIPTION]+' RELEASED'`
Invoice Summary	*<Action: Release>*	

You need to change the value of some field to make the system persist the results of import scenario execution. In this example, you are changing the value of the **Description** field, but you can change the values of any other fields. If no field value is changed, the system displays an error when releasing the documents.

If you do not want to change documents during release, you can configure an export scenario with source restrictions instead of an import scenario. For an example of an action being used in an export scenario, see *Example 4.2.2: Applying an Action to Exported Records (AR Invoices)*.

The scenario mapping is shown in the screenshot below.

You can find the mapping in the `ImportScenario_ReleaseARInvoices.xlsx` file provided with the course for reference. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: The final scenario mapping

3. On the **Source Restrictions** tab, click **Add Row**, and set the following values for the columns in the row (as shown in the screenshot below):

- **Active**: Selected

- **Field Name**: *LINE NBR*

- **Condition**: *Equals*

- **Value**: *0*

Figure: Source restrictions

You have added the condition that makes the scenario prepare for importing only records that contain the first line of each invoice.

4. Save the created scenario.

You have created the scenario for releasing balanced AR invoices. In the next step, you will release the invoices.

3. Applying an Action to Master-Detail Records

You will release the AR invoices that you just imported. Proceed as follows:

1. On the Import by Scenario form (SM206036; System > Integration > Process), select the *Release AR Invoices* scenario.

2. Click **Prepare**. Notice that according to the source restrictions, only 44 lines with the 0 line number have been prepared of the 57 lines that are listed in the source file. Clear the **Active** check box for the first record in the list, because you have already released it manually, and click **Save** on the form toolbar.

3. Click **Import** to release the AR invoices. The scenario is marked as successfully processed. On the Invoices and Memos (AR301000) form, check a few of the invoices to make sure that they have the *Open* status.

You have released AR invoices by using the import scenario. Currently all invoices with the reference numbers from *INV000045* to *INV00088* have the *Open* status.

Related Links

[Actions in Import Scenarios](#)
[Source Restrictions in Import Scenarios](#)

Example 2.5.5: Importing Master-Detail Records with Automatic Numbering (Purchase Orders)

In this example, you will import purchase orders from the `PurchaseOrders.xlsx` file, which is provided with this course, to the Purchase Orders form (PO301000; Distribution > Purchase Orders > Work Area > Enter).

In this file, purchase orders have numbers that have been specified by vendors (see the *DocumentReference* column). You will import purchase orders to Acumatica ERP and save the vendor's number for the order to the **Vendor Ref.** box of the Purchase Orders form (PO301000). Each purchase order will also have a unique order number that is automatically generated by Acumatica ERP. Auto-numbering of purchase orders is turned on in the system, based on the settings of the *POORDER* numbering sequence on the Numbering Sequences form (CS201010; Configuration > Common Settings > Common Settings). Currently, there are two purchase orders in the system; the latest purchase order has the *000002* order number. The automatically generated order numbers of the purchase orders you import will start from *000003*.

In the source file, inventory items also have identifiers that have been specified by vendors (see the *VendorInventoryID* column). In Acumatica ERP, inventory items have other inventory IDs. In the training system, each inventory item that will be added to purchase orders during import has the vendor part number specified in the **Alternate ID** column on the **Cross-Reference** tab of the Stock Items form (IN202500; Distribution > Inventory > Work Area > Manage), as shown in the following screenshot. If a user specifies the vendor part number in the **Inventory ID** column of the **Document Details** tab of the Purchase Orders form (PO301000), the system replaces the vendor part number (taking into account the **Vendor** setting on the Purchase Orders form (PO301000)) with the inventory ID in Acumatica ERP.

> The format of vendor part number must comply with the structure that is defined by the INVENTORY segmented key (which specified the structure for internal inventory IDs in the system). That is, in this example, the vendor part number cannot exceed the length of 10 symbols.

Figure: Vendor part number

You will perform the following tasks, which are described in detail further in this example:

1. *Creating a data provider* for data import

2. *Reviewing the sequence of actions* during manual entry of a purchase order record

3. *Creating a scenario for importing master-detail records*

4. *Importing the records* by using the created scenario

1. Creating a Data Provider

On the Data Providers form (SM206015; System > Integration > Manage), create an Excel data provider for the `PurchaseOrders.xlsx` file with the name *Import Purchase Orders from Excel*, as shown in the following screenshot.
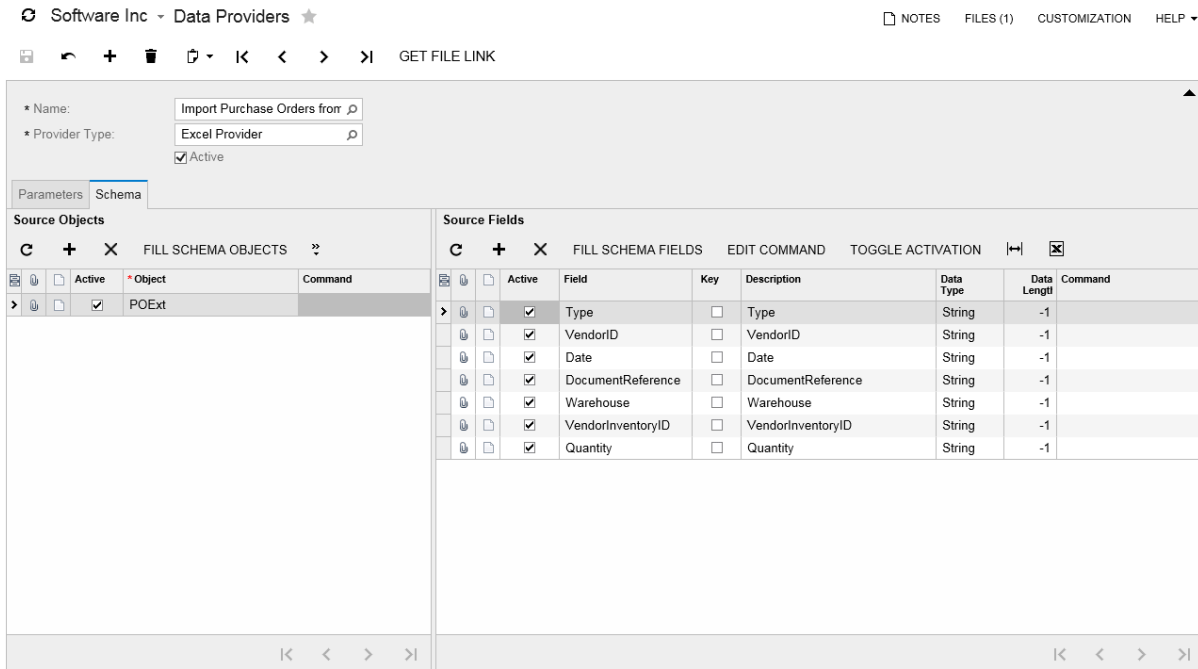
In the example in this topic, you can instead use the *Import Purchase Orders* MS SQL data provider created in *Example 1.2.1: Creating a Microsoft SQL Provider (Purchase Orders)* and *Example 1.2.2: Configuring the Schema of the MS SQL Provider (Purchase Orders)* to import purchase orders from the *POExt* and *POLineExt* tables of a Microsoft SQL Server database. These tables are provided with this course.

2. Reviewing the Sequence of Actions

To create a purchase order on the Purchase Orders form (PO301000), perform the following steps:

1. On the Purchase Orders form (PO301000), enter the following values from the first row of the `PurchaseOrders.xlsx` file:

   > You will enter one row from the file manually and omit this row during data import from the file.

   a. **Type**: *Normal* (the value from the *Type* column)

   b. **Vendor**: `V000000008` (*VendorID* column)

   c. **Date**: 12/15/2013 (*Date* column)

   d. **Vendor Ref**: `19057` (*DocumentReference* column)

   You do not specify the value of the **Order Nbr** element during manual entry because auto-numbering of purchase orders is turned on in the system. In the scenario mapping, you should map the **Order Nbr** element to the column of the source file that identifies a document in the source, which is the *DocumentReference* column.

2. On the **Document Details** tab, specify the following settings for the new line, which is added automatically when you double-click the tab:

   a. **Inventory ID**: `012345` (*VendorInventoryID* column)

   Press Enter after you have specified the value and notice that the system replaces the specified value with the corresponding inventory ID in Acumatica ERP, which is *AACOMPUT01*.

   b. **Warehouse**: *MAIN* (*Warehouse* column)

       c.   **Order Qty**: `100` (*Quantity* column)

  3. Save the purchase order. The order number is generated automatically.

You have entered a purchase order to the Purchase Orders form (PO301000) manually and reviewed the sequence of actions you needed to perform. In the next step, you will reflect this sequence of actions in the scenario mapping.

3. Creating a Scenario for Importing Master-Detail Records

Create the scenario as follows:

  1. On the Import Scenarios form (SM206025; System > Integration > Manage), create a scenario with the following parameters:

       a.   **Name**: `Import Purchase Orders`

       b.   **Screen Name**: *Purchase Orders* (**Distribution** > **Purchase Orders** > **Work Area** > **Enter**)

       c.   **Provider**: *Import Purchase Orders from Excel*

              You can instead select the *Import Purchase Orders* data provider to access the Microsoft SQL Server data. All subsequent instructions are valid for this data provider.

       d.   **Provider Object**: *POExt*

  2. On the **Mapping** tab, specify the mapping as shown in the following screenshot.

              You can find the mapping in the `ImportScenario_ImportPurchaseOrders.xlsx` file provided with the course. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: Import Purchase Orders scenario

  3. Save the import scenario.

In the mapping of the scenario, the *DocumentReference* column of the source file is mapped to the **Order Nbr** field of the *Document Summary* target object, which represents the purchase order in the

system. This makes the system try to find an existing purchase order that has the same order number as the one specified for the order in the *DocumentReference* column in the source file. If the purchase order already exists, the system tries to add the purchase line to the existing purchase order. If a purchase order with this number does not exist, the system creates a new purchase order and adds to the order the lines that have the same order number in the source. Because you use auto-numbering of purchase orders in the system, the system creates the purchase order and assigns the number to the order according to the numbering sequence that is configured for auto-numbering of purchase orders in the system.

You have created the scenario for importing purchase orders. You will use this scenario in the next task to import purchase orders to the system.

4. Importing Master-Detail Records

To import values from the `PurchaseOrders.xlsx` file, do the following:

1. On the Import by Scenario form (SM206036; System > Integration > Process), select the *Import Purchase Orders* scenario.

2. Click **Prepare**. The records from the source file appear in the **Prepared Data** tab.

3. Clear the **Active** check box for the first record and click **Save** on the form toolbar. You entered this record manually earlier in this example.

4. Click **Import**. Seven records are imported: the records of four purchase orders.

5. Review the imported documents by using the Purchase Orders form (PO301000).

   You should have imported two normal purchase orders and two standard purchase orders. To see the standard purchase orders, select *Standard* in the **Type** box first, and then find the purchase order. The documents have been automatically assigned reference numbers in the system based on the settings of the numbering sequence that applies to purchase orders, *POORDER*.

Related Links
   Key Fields and Search in Import Scenarios

Example 2.5.6: Updating Auto-Numbered Master-Detail Records (Purchase Orders)

In this example, you will update the order quantities of the purchase orders on the Purchase Orders form (PO301000; Distribution > Purchase Orders > Work Area > Enter) by using the data from the `PurchaseOrders_Update.xlsx` file.

You will search for the needed record by the vendor number by using the **Vendor Ref.** selector column in the **Select - Order Nbr.** dialog box, which opens if you click the magnifier button to the right of the **Order Nbr.** key field on the Purchase Orders form (PO301000). You will select the line of the purchase order to be updated by using the vendor part number, which you will specify in the **Inventory ID** column of the **Document Details** tab.

For data import, you will use the *Import Purchase Orders from Excel* data provider, which was created in *Example 2.5.5: Importing Master-Detail Records with Automatic Numbering (Purchase Orders)*.

You will perform the following tasks, which are described in detail further in this example:

1. *Reviewing the sequence of actions* during manual update of a purchase order record

2. *Creating a scenario for updating detail lines* of a purchase order

3. *Updating the records* by using the created scenario

1. Reviewing the Sequence of Actions

On the Purchase Orders form (PO301000), update a purchase order by using the values from the first row of the `PurchaseOrders_Update.xlsx` file as follows:

1. Select the value in the **Type** box: *Normal* (the value from the Type column).

2. In the **Select - Order Nbr.** dialog box, which appears when you click Magnifier button of the **Order Nbr.** box, select the purchase order with reference number `19057` (*DocumentReference* column).

3. On the **Document Details** tab, select the row for the inventory item with vendor part number *012345*, which has an inventory ID of *AACOMPUT01*, and type `110` in the **Order Qty.** column.

4. Click **Save** on the form toolbar.

You have updated a purchase order on the Purchase Orders form (PO301000) and reviewed the sequence of actions you need to perform to edit a record on the form manually. In the next step, you will reflect this sequence of actions in the scenario mapping.

2. Creating a Scenario for Updating Detail Lines
Create the scenario for updating detail lines as follows:

1. On the Import Scenarios form (SM206025; System > Integration > Manage), create a scenario with the following parameters:

    a. **Name**: `Update Purchase Orders`

    b. **Screen Name**: *Purchase Orders* (**Distribution** > **Purchase Orders** > **Work Area** > **Enter**)

    c. **Provider**: *Import Purchase Orders from Excel*

    d. **Provider Object**: *POExt*

2. On the **Mapping** tab, specify the mapping, as shown in the following screenshot.

    You can find the mapping in the `ImportScenario_UpdatePurchaseOrders.xlsx` file provided with the course. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.
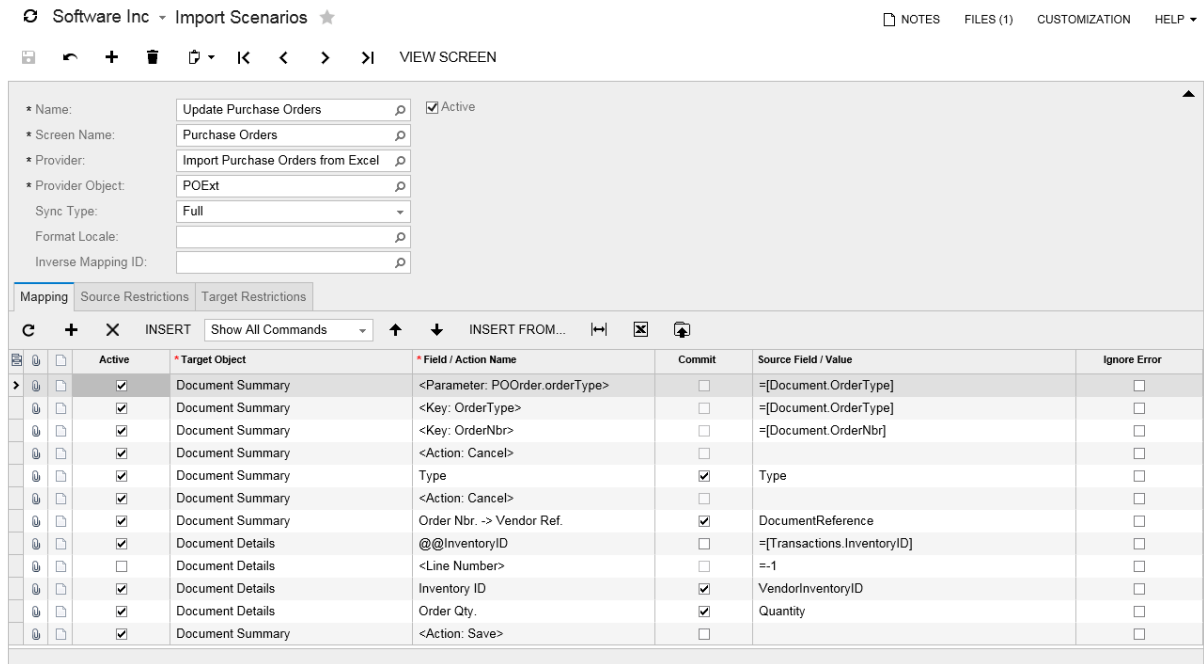
Figure: Update Purchase Orders scenario

3. Save the import scenario.

In the mapping of the scenario, you have used the selector column `Order Nbr -> Vendor Ref.` to search for a record by the document number specified by the vendor, and the custom key `@@InventoryID` to search for a detail line by the value of the vendor part number.

You have created the scenario for importing purchase orders. You will use this scenario in the next step to import purchase orders to the system.

3. Updating Master-Detail Records

You will use the `PurchaseOrders_Update.xlsx` file for updating purchase orders. Do the following:

1. On the Import by Scenario form (SM206036; System > Integration > Process), select the *Update Purchase Orders* scenario.

2. Click **Upload File Version** on the form toolbar and upload the `PurchaseOrders_Update.xlsx` file to the form.

3. Click **Prepare & Import**. Notice that eight records have been processed.

4. Review the imported documents by using the Purchase Orders form (PO301000).

You have updated the quantity of inventory items in five purchase orders with order numbers from *000003* to *000007*.

Related Links
Key Fields and Search in Import Scenarios

Example 2.5.7: Importing Master-Detail Records Without Duplicates (AR Invoices)

This example is provided for reference only (that is, you are not expected to perform it as part of completing the course).

This example shows how to create a scenario for importing master-detail records without duplicates. When you are importing records from a source file, which can contain both records that exist in Acumatica ERP and new records, you can use the same techniques that you use when updating records that exist in Acumatica ERP.

In this example, invoices are identified by the customer reference number, which you are supposed to have in the source file. This number could be a document ID from an external system. To avoid insertion of a duplicate invoice, the scenario uses search for the invoice in the system by the customer reference number. If an invoice with such number is found and it has the *Balanced* status, the system updates lines in the found invoice. (Open invoices are skipped according to the target restrictions.) If the invoice with such customer reference number doesn't exist in the system, a new invoice is created and assigned the internal reference number according to auto-numbering settings in the system, if auto-numbering is turned on in the system.

The import scenario uses the Excel data provider that you created in *Example 1.1.2: Creating an Excel Provider (AR Invoices)* and *Example 1.1.3: Modifying a Data Provider (AR Invoices)*.

You can see the mapping of the scenario in the following screenshot.

You can find the mapping in the `ImportScenario_ImportARInvoicesWithoutDuplicates.xlsx` file provided with the course. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: Import AR Invoices Without Duplicates

The following target restrictions exclude from processing the invoices that cannot be edited.

Figure: Target restrictions

You can test the scenario by importing the `OpenARInvoices_12-2013_Extended.xlsx` file provided with this course. (This is the `OpenARInvoices_12-2013.xlsx` file with one new record added.) To make the system skip errors in the records that do not meet the target restrictions during data import, on the **Details** tab of the Import by Scenario form (SM206036; System > Integration > Process), clear the **Break on Incorrect Target** check box.

Example 2.5.8: Importing Detail Lines Selected from a Pop-up Panel (Shipments)

In this example, you will import shipment records from the `Shipments.xlsx` file to the Shipments form (SO302000; Distribution > Sales Orders > Work Area > Enter).

Shipment records in the source file include items from multiple sales orders. To add items to the shipment, in the scenario mapping, you will imitate the opening of the **Add Sales Order** pop-up panel. On this panel, you will select for shipment the stock items that are specified in the source file.

Shipments are auto-numbered in the system; the *SOSHIPMENT* numbering sequence is specified on the Sales Orders Preferences form (SO101000; Distribution > Sales Orders > Configuration > Setup) for the auto-numbering of shipments. During the data import, the system will create shipments with the *On Hold* status and assign shipment numbers to them automatically.

You will perform the following tasks, which are described in detail further in this example:

1. *Creating an Excel data provider* for data import

2. *Reviewing the sequence of actions* during manual entry of a record by using a pop-up panel

3. *Creating a scenario for importing records with detail lines selected from a pop-up panel*

4. *Importing the records by using the created scenario*

1. Creating a Data Provider

On the Data Providers form (SM206015; System > Integration > Manage), create an Excel data provider for the `Shipments.xlsx` file with the name *Import Shipments*, with the settings shown in the following screenshot.

Figure: Import Shipments data provider

2. Reviewing the Sequence of Actions

To create a shipment on the Shipments form (SO302000), do the following:

1. Open the Shipments form (SO302000), and enter the following values from the first row of the `Shipments.xlsx` file:

    a. **Type**: *Shipment* (the value from the *Type* column)

    b. **Customer**: *C000000008* (*CustomerID* column)

    c. **Warehouse ID**: *MAIN* (*Warehouse* column)

You do not specify the value of the **Shipment Nbr** element during manual entry because auto-numbering of shipments is turned on in the system. In the scenario mapping, you should map the **Shipment Nbr** element to the column of the source file that identifies a shipment in the source, which is the *ShipmentNbr* column.

2. Add items to the shipment as follows:

    a. On the toolbar of the **Document Details** tab, click **Add Order**.

    b. In the **Add Sales Order** dialog box, which opens, select *SO* in the **Order Type** box and *000002* in the **Order Nbr** box. The order items appear in the table below.

    c. Select the check box in the row for the *AALEGO500* inventory item.

    d. Click **Add & Close**. The order item is added to the shipment.

3. Click **Save** on the form toolbar. The shipment number is generated automatically.

You have created a shipment on the Shipments form (SO302000) manually. In the next step, you will reflect the sequence of actions for manual input in the scenario mapping.

3. Creating a Scenario for Importing Records with Detail Lines Selected from a Pop-Up Panel

Create the import scenario as described below:

1. On the Import Scenarios form (SM206025; System > Integration > Manage), create a scenario with the following parameters:

    a. **Name**: `Import Shipments`

    b. **Screen Name**: *Shipments* (**Distribution** > **Sales Orders** > **Work Area** > **Enter**)

    c. **Provider**: *Import Shipments*

    d. **Provider Object**: *Sheet1*

2. On the **Mapping** tab, specify the mapping as shown in the following screenshot.

> You can find the mapping in the `ImportScenario_ImportShipments.xlsx` file provided with the course. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: Import Shipments scenario mapping

3. Save the import scenario.

In the mapping of the scenario, the **Shipment Nbr** field of the *Shipment Summary* object is mapped to the *ShipmentNbr* value of the source file, which identifies a document in the source file. Because you are using auto-numbering of shipments in the system, the system creates the shipment and assigns the number to the shipment according to the numbering sequence that is configured for auto-numbering of shipments in the system.

To reflect the opening of a pop-up panel in the scenario mapping, you inserted the dialog answer command before the action that opens the panel. The **Commit** check box is selected automatically for both of these commands. Notice that the system selects the **Commit** check box for all elements specified on the pop-up panel. To search for the needed order item on the pop-up panel, you created the custom key and deactivated the `<Line Number>` service command.

You have created the scenario for importing shipments. You will use this scenario in the next task to import shipments to the system.

4. Importing the Records

Import shipments from the `Shipments.xlsx` file as follows:

1. On the Import by Scenario form (SM206036; System > Integration > Process), select the *Import Shipments* scenario.

2. Click **Prepare**. The records from the source file appear in the **Prepared Data** tab.

3. Clear the **Active** check box for the first record, and click **Save** on the form toolbar. You have entered this record manually.

4. Click **Import**. Three records are imported: the records of one shipment.

5. Review the imported document by using the Shipments form (SO302000). The shipment has been automatically assigned a shipment number in the system based on the settings of the numbering sequence that applies to shipments, *SOSHIPMENT*. Make sure that the shipment has three detail lines.

Related Links

Types of Target Fields in Import Scenarios

Lesson Summary

In this lesson, you have learned how to import, update, and apply actions to master-detail records, such as documents, by using import scenarios. You have learned that when you create a scenario that works with master-detail records by using the Import Scenarios form (SM206025; System > Integration > Manage), you should pay attention to the following considerations:

- You have to map the key fields first.

- You should map the key fields to external fields or formulas so that the system can distinguish detail records that belong to different documents.

- You should specify the commands in the order they are performed during manual entry.

- You can modify service commands in order to change the default behavior of the system.

- To update detail lines correctly, you should specify the line number of the detail or search for the needed detail by using a unique value of a detail table column.

- To apply an action to imported records, you should use the corresponding command instead of the `<Action: Save>` command at the end of the scenario.

- To select a detail line from a pop-up panel, you should:

    1. Insert the dialog answer command before the action that opens the panel on the **Mapping** tab of the Import Scenarios form (SM206025). (The **Commit** check box is selected automatically).

    2. Open the panel by using the corresponding action command. (The **Commit** check box is selected automatically).

    3. Select the necessary detail line and close the panel by using the corresponding action command. (The **Commit** check box is selected automatically for all fields of the panel and the action that closes the panel).

You have also learned how to import dates and other country-specific data correctly by using the **Format Locale** parameter of the import scenario, which is specified in the Summary area of the Import Scenarios form (SM206025).

Lesson 2.6: Importing Records with Attributes

In this lesson, you will create a scenario for importing records with attributes to Acumatica ERP. An attribute is a special property of an object in the system that specifies additional information that is not defined by standard properties of the object. For the example in this lesson, a set of attributes has been preconfigured for use in the Customer Management module to classify leads by the industry to which the company of the potential customer belongs, and by the company size. You will create the scenario to import records with these attributes, and then you will import new leads by using the created scenario.

Lesson Objectives

In this lesson, you will learn how to import records with attributes.

Example 2.6.1: Importing Records with Attributes (Leads)

In this example, you will import new leads from the `Leads.xlsx` file, which is provided with this course, to Acumatica ERP. Some of the leads in the file have the *LEAD* class specified; this class is preconfigured in the system. You can view the properties of the *LEAD* class on the Contact & Lead Classes form (CR207000; Organization > Customer Management > Configuration). The *LEAD* class has two attributes: *Industry* (required) and *Number of Employees* (optional).

To import leads to the system, you will perform the following tasks, which are described in detail later in this example:

1. *Creating a data provider* for importing leads

2. *Reviewing the sequence of actions* when you manually enter a record with attributes

3. *Creating a scenario for importing records with attributes*

4. *Importing the records*

1. Creating a Data Provider

On the Data Providers form (SM206015; System > Integration > Manage), create an Excel data provider for the `Leads.xlsx` file with the name *Import Leads with Attributes*, with the settings shown in the following screenshot.

Figure: Import Leads with Attributes data provider

2. Reviewing the Sequence of Actions

In this step, you will manually enter one record from the `Leads.xlsx` file, which will be used for import. Proceed as follows:

1. On the Leads form (CR3010PL; Organization > Customer Management > Work Area > Enter), click **Add New Record** on the form toolbar. **Lead ID**, the key of the lead record in the system, is generated automatically as soon as you specify the required fields of the lead record and save

the lead to the system. Notice that the **Select - Lead ID** dialog box, which opens if you click the magnifier icon in the **Lead ID** box, contains the **Email** column. In the scenario mapping, you will map this column to the *Email* column of the source file, which value is unique for each lead.

2. Select *New* in the **Status** box. (This is the value in the Status column of the source file.)

3. In the **Summary** section of the **Details** tab, enter the following settings, which you can find in the appropriate columns of the source file for the first row:

   - Title: *Mrs.*

   - **First Name**: `Eva`

   - **Last Name**: `Johnson`

   - **Position**: `Accountant`

   - **Company Name**: `Marenco Insurance Sales Center`

   You enter the values from the Name, Position, and Company Name columns of the source file. The Name column contains the title, first name, and last name.

4. In the **Contact** section of the **Details** tab, specify the following settings:

   - **Email**: `ejohnson@marenco.con`

   - **Phone 1**: `(914) 235-3144`

   The values from the Email and Phone 1 columns of the source file are used for these fields.

5. In the **CRM** section of the **Details** tab, enter the following values:

   - **Lead Class**: `LEAD`

   - **Source**: *Web*

   You enter the values from the Lead Class and Source columns of the source file.

6. In the **Address** section of the **Details** tab, set the value of the **Country** field to `US`. You use the value from the Country column of the source file.

7. Open the **Attributes** tab. You can see two attributes available for the *LEAD* class selected for the lead. Specify the values of the attributes, which you can find in the Industry and Number of Employees columns of the source file:

   - Industry: `Insurance`

   - Number of Employees: `500`

8. Save the lead.

Lead records have internal IDs in the system, which are not visible and are generated when you save a new lead record. *Johnson Eva, Mrs.* is the user-friendly representation of the internal ID of the lead record, which is composed from the first name, last name, and title of the lead.

You have entered one record from the source file to the Lead form (CR3010PL). Now you know the sequence of actions you need to perform to enter a record to the form and the way the columns of the source file match the fields on the form.

3. Creating a Scenario for Importing Records with Attributes

In this step, you will create a scenario that reproduces the sequence of actions you performed during manual entry of a lead record. Do the following:

1. Open the Import Scenarios form (SM206025; System > Integration > Manage), and add a new scenario with the following setting:

   a. **Name**: `Import Leads with Attributes`

    b. **Screen Name**: *Leads* (**Organization** > **Customer Management** > **Work Area** > **Enter**)

    c. **Provider**: *Import Leads with Attributes*

    d. **Provider Object**: *Leads*

2. On the **Mapping** tab, add a row with the following settings:

   - **Target Object**: *Lead Summary*

   - **Field / Action Name**: *Lead ID # Email*

   - **Source Field / Value**: *Email*

   In this example, to avoid insertion of a duplicate lead, the scenario uses search for the lead in the system by email. If a lead with such email is found, the system updates lines in the found lead. If the lead with such email doesn't exist in the system, a new lead is created.

3. Add a row for each of the actions you performed in the **Lead Summary** area and on the **Details** tab during manual entry of the lead record. See the list of rows to add in the following table.

The Rows to Add

Target Object	Field / Action Name	Source Field / Value
Lead Summary	Status	Status
Details -> Summary	Title	`=Substring( [Name], InStrRev( [Name], ', ')+2, Len( [Name])-InStrRev( [Name], ', ')-2)`
Details -> Summary	First Name	`=Substring( [Name], InStr( [Name], ', ')+2, InStrRev( [Name], ', ')-InStr( [Name], ', ')-2)`
Details -> Summary	Last Name	`=Substring( [Name], 0, InStr( [Name], ', '))`
Details -> Summary	Position	Position
Details -> Summary	Company Name	Company Name
Details -> Contact	Email	Email
Details -> Contact	Phone 1	Phone 1
Details -> CRM	Lead Class	Lead Class
Details -> CRM	Source	Source
Details -> Address	Country	Country

The **Title**, **First Name**, and **Last Name** fields are mapped to formulas. These formulas use the `Substring()`, `InStr()`, `InStrRev()`, and `Len()` functions to divide the string in the source Name field into the parts containing the title, first name, and last name of a potential customer. You can see the description of these functions in *Functions* in the documentation.

4. Add the rows that map the attribute and its value, which have the settings shown in the following table.

The Rows to Add

Target Object	Field / Action Name	Source Field / Value
Attributes	*Attribute*	*Attribute*
Attributes	*Value*	*Value*

You can see that the system adds the `<Key: AttributeID>` service command before the attribute. This indicates that the system searches for a record in the Attributes table by the attribute field. The system selects the **Commit** check box for the rows that map the *Value* fields automatically. This is necessary to commit the value of an attribute to the server. If the **Commit** check box is not selected, the system does not save attribute values.

5. Insert the save action at the end of the scenario. See the resulting scenario mapping in the following screenshot.

> You can find the mapping in the `ImportScenario_ImportLeadsWithAttributes.xlsx` file provided with the course. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: The final scenario mapping

You have created a scenario for importing new leads with attributes to the system. In the next step, you will use this scenario to import records.

4. Importing Records with Attributes

Import new leads from the `Leads.xlsx` file attached to the *Import Leads with Attributes* scenario as described below:

1. On the Import by Scenario form (SM206036; System > Integration > Process), select the *Import Leads with Attributes* scenario.

2. Click **Prepare**. Notice that 22 records from the source file have appeared in the **Prepared Data** tab.

3. Click **Import**, and 22 records are imported. These are the records of 19 leads; some leads has more than two attributes specified and therefore two lines are imported from the source file for such leads.

4. After all leads are successfully processed, review the documents by using the Leads form (CR3010PL). Select the **All Records** filter tab, and check that the attributes are imported correctly. Select *Woodrow Harrison, Prof.* and view the **Attributes** tab for the lead. It has the *Number of Employees* and the *Industry* attributes specified as shown in the following screenshot.
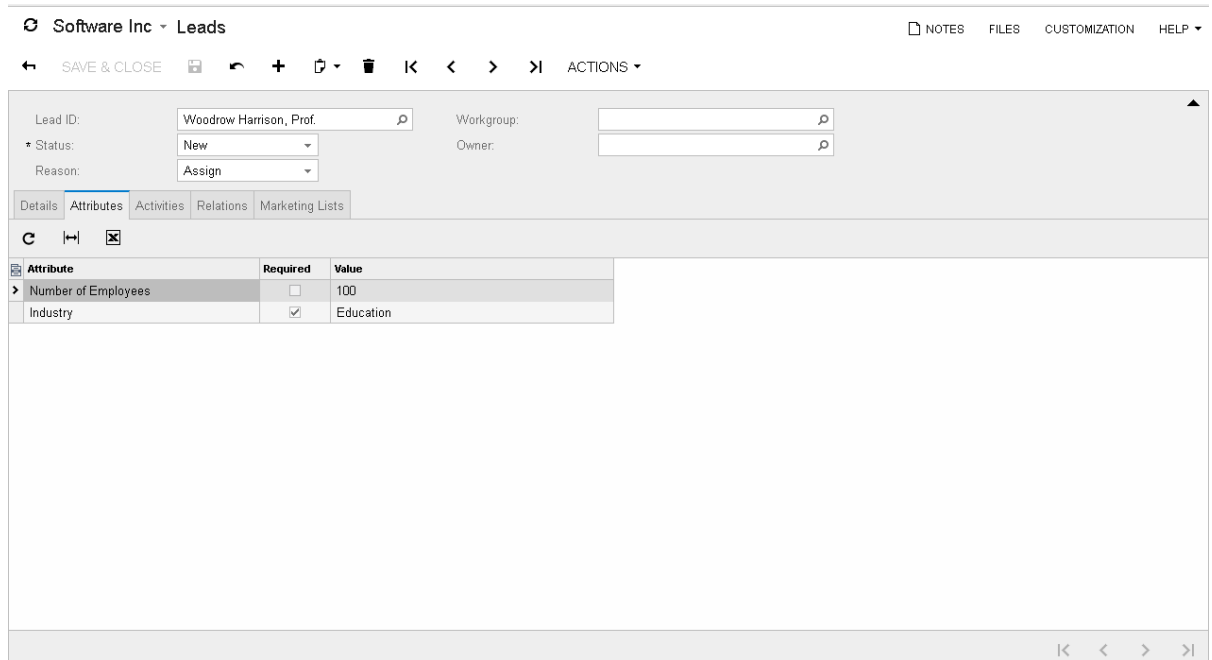
Figure: The Attributes tab

You have imported new leads with attributes from the Excel file to Acumatica ERP.

Related Links

Types of Target Fields in Import Scenarios
Key Fields and Search in Import Scenarios

Lesson Summary

In this lesson, you have learned how to import records with attributes by using import scenarios. To import attributes, you performed the following actions on the Import Scenarios form (SM206025; System > Integration > Manage):

1. Mapped the *Attribute* field of the *Attributes* object to the name of the attribute. (You do not need to specify the key command before the *Attribute* field. The system inserts the necessary key commands automatically.)

2. Mapped the *Value* field of the *Attributes* object to the attribute value. The **Commit** check box is selected automatically for the field.

Part 3: Simplified Import Scenarios

In this part of the course, you will learn how to create a simplified import scenario—that is, an import scenario that you create in one step, without creating a data provider. You will also learn in which cases you can use simplified scenarios for import instead of the regular procedure of data import described in the previous parts of the course.

By completing the lesson of this part, you will configure a simplified import scenario for importing stock items and use this scenario for data processing.

Lesson 3.1: Importing Records in the Simplified Way

In this lesson, you will import records without manually creating a data provider and an import scenario. You will simply upload an Excel file with the stock item records to the Import by Scenario form (SM206036; System > Integration > Process), specify mapping between the columns of the file and the fields of the Stock Items form (IN202500; Distribution > Inventory > Work Area > Manage), and import the records.

Lesson Objectives

In this lesson you will learn how to:

- Create a simplified import scenario.

- Import data by using the simplified import scenario.

Example 3.1.1: Importing Records in the Simplified Way (Stock Items)

In this example, you will import stock item records from the `StockItems.xlsx` file to Acumatica ERP by using only one form: the Import by Scenario form (SM206036; System > Integration > Process). You will not create a data provider and an import scenario before importing records.

You will import inventory items with their IDs from the source file. Auto-numbering of inventory items is not used in the system at this time.

To import records, proceed as follows:

1. Open the `StockItems.xlsx` file and review the data in it. Notice that the `StockItems.xlsx` file contains the data to be imported on the first sheet. By using the simplified way of import, you can import only the data from the first sheet of an Excel file.

2. On the Import by Scenario form (SM206036), click **Add New Record** on the form toolbar. The **Select File for Import** dialog box opens.

3. In the dialog box, click **Browse**, select the `StockItems.xlsx` file, and click **Upload**. The **Provide New Scenario Properties** dialog box opens. The **Provider Type** field is set to *Excel Provider*. (The system fills in the type of data provider depending on the extension of the uploaded file.)

4. In the **Provide New Scenario Properties** dialog box, in the **Screen Name** field, select *Stock Items* (**Company** > **Distribution** > **Inventory** > **Work Area** > **Manage**). The **Scenario Name** field is set to the name suggested by the system: *Import Stock Items*, as shown in the following screenshot.

Figure: Provide New Scenario Properties dialog box

5. Click **OK** to close the dialog box. Click **Save** on the form toolbar to save your changes on the form.

   The **Name** field of the Import by Scenario form (SM206036) is set to *Import Stock Items* (see item 1 in the following screenshot). The scenario has the **Simplified Scenario** check box selected (2). The `StockItems.xlsx` file is attached to the form; notice the **(1)** by **Files** on the title bar that denotes that one file is attached (3). Also, the **Mapping** tab is added to the form with the list of columns available in the source file (4).
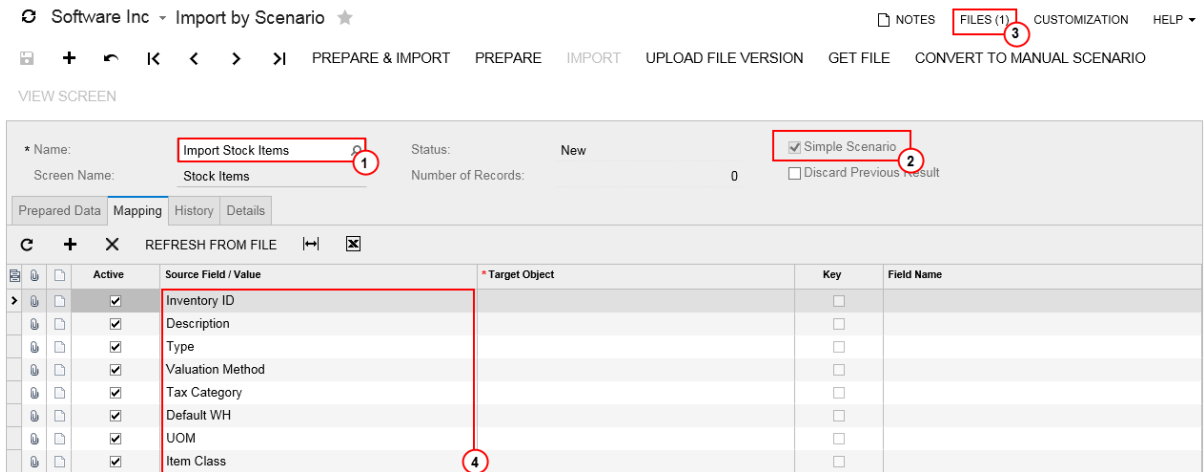
Figure: Import by Scenario form with the new simplified scenario saved

6. On the **Mapping** tab, select the following target objects and fields for the source fields.

    Mapping of the Scenario

Source Field / Value	Target Object	Field Name
Inventory ID	*Stock Item Summary*	*Inventory ID*
Description	*Stock Item Summary*	*Description*
Type	*General Settings -> Item Defaults*	*Type*
Valuation Method	*General Settings -> Item Defaults*	*Valuation Method*
Tax Category	*General Settings -> Item Defaults*	*Tax Category*
Default WH	*General Settings -> Warehouse Defaults*	*Default Warehouse*
UOM	*General Settings -> Unit of Measure -> Base Unit*	*Base Unit*
Item Class	*General Settings -> Item Defaults*	*Item Class*

    Make sure, the **Key** check box is selected for the *Inventory ID* source field, which marks the key field.

7. Click **Save** on the form toolbar. The system corrects the order of the fields on the **Mapping** tab. You can see the resulting mapping in the following screenshot.

    Now the simplified import scenario is ready for use. In the next steps, you will import data by using this scenario.

Figure: The final scenario mapping

8. Click **Prepare** on the form toolbar. You can see the list of prepared records on the **Prepared Data** tab.

9. Click **Import** on the form toolbar to import records to the system; 35 stock item records are imported.

You have imported stock item records to Acumatica ERP by using a simplified import procedure. Simplified scenarios are appropriate for one-time import, such as during data migration. For data migration, you can prepare all data in the source file in the format needed for import and use a straightforward mapping of the source fields to the target fields. If you need to compose a complex scenario—which might involve using custom keys, searching for records, and modifying service commands—you have to use regular import scenarios that you compose by creating the data provider and then defining the mapping on the Import Scenarios form (SM206025; System > Integration > Manage).

If something goes wrong, you can convert the simplified import scenario to a regular import scenario to be able to edit it on the Import Scenarios form (SM206025; System > Integration > Manage). To convert the simplified scenario, click **Convert to Manual Scenario** on the toolbar of the Import by Scenario form (SM206036).

Related Links

Simplified Scenarios for Data Import

Lesson Summary

In this lesson, you have learned how to import records from a file by using a simplified import procedure. You have used a simplified scenario in a case when the data was ready in the source file for import into the system by a straightforward mapping of source fields to target fields. For more complex scenarios, we recommend that you use regular import scenarios that you create based on the data provider on the Import Scenarios form (SM206025; System > Integration > Manage).

You performed a simplified import on the Import by Scenario form (SM206036; System > Integration > Process). To import records by using a simplified import scenario, you performed the following actions:

1. Uploading a file that should be used for data import to the form.

2. Specifying the parameters of the simplified scenario.

3. Mapping the fields of the external file to the Acumatica ERP fields.

4. Importing the data.

Part 4: Export Scenarios

In this part of the course, you will learn how to create export scenarios for saving data from Acumatica ERP to external systems or files. The principles of export scenario creation are very similar to those of the import scenario creation. You will learn which specific commands you can use when configuring the mapping of an export scenario and which restrictions you can apply to the exported data. You will also learn how to export data by using created scenarios, and the situations where you can use export scenarios to update data in the system.

By completing the lessons of this part, you will configure a set of export scenarios and export customer records and AR invoices from Acumatica ERP to external files. You will also update customer records and AR invoices by using export scenarios.

Lesson 4.1: Exporting Records

In this lesson, you will create four scenarios: for exporting master records, for exporting master-detail records, for exporting records with attributes, and for exporting records from a generic inquiry. You will use the created scenarios to export customer records from Acumatica ERP to a CSV file, to export AR invoices from Acumatica ERP to an Excel file, to export leads with attributes from Acumatica ERP to an Excel file, and to export stock item availability data to an Excel file.

Lesson Objectives
In this lesson, you will learn how to:

- Create a scenario for exporting master records.

- Create a scenario for exporting master-detail records.

- Create a scenario for exporting records with attributes.

- Create a scenario for exporting records from a generic inquiry.

- Export records by using the created scenarios.

Example 4.1.1: Exporting Master Records (Customers)

In this example, you will create a scenario for exporting customer records. For the scenario, you will set the scenario parameters and configure scenario mapping. Then you will export customer records from Acumatica ERP to a CSV file.

The scenario will use the *Import/Export Customers* data provider that you created in *Example 1.1.1: Creating a CSV Provider (Customers)*.

You will perform the following tasks, which are described in detail below:

1. *Reviewing the sequence of actions* that you would perform to select necessary data on the form manually

2. *Creating a scenario for exporting master records*

3. *Exporting the records*

1. Reviewing the Sequence of Actions

Before you start creating an export scenario, you should review the form from which you are going to export data and understand the location of the fields and the format of the field values you need to export. Do the following:

1. On the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage), select the customer with the *C000000001* customer ID. The data of the customer with the specified ID is displayed. This form has one key field, **Customer ID**, that you need to specify to identify a customer record.

2. Find the following fields on the form and review the values of the fields.

Fields to Be Exported

Form Object	Field
Customer Summary	**Customer ID**
Customer Summary	**Customer Name**
General Info > **Financial Settings**	**Customer Class**
General Info > **Main Address**	**Address Line 1**
General Info > **Main Address**	**City**
General Info > **Main Address**	**Country**
General Info > **Main Address**	**State**
General Info > **Main Contact**	**Attention**
General Info > **Main Contact**	**Email**
General Info > **Main Contact**	**Phone 1**

In this example, you will export the values of these fields by using an export scenario.

You have reviewed the fields on the form that you need to export. (Note that you do not need to click the **Save** button on the form toolbar because you have not changed any of the settings of the customer record.)

2. Creating a Scenario for Exporting Master Records

You will create the scenario for exporting all customer records from Acumatica ERP to a CSV file. Do the following:

1. On the Export Scenarios form (SM207025; System > Integration > Manage), create a scenario with the following parameters:

    a. **Name**: Export Customers

    b. **Screen Name**: *Customers* (**Company** > **Finance** > **Accounts Receivable** > **Work Area** > **Manage**)

    c. **Provider**: *Import/Export Customers*

    d. **Provider Object**: *CustomersMasterFile.csv*

2. On the **Mapping** tab, add rows with the following settings:

    a. Row 1:

        - **Source Object**: *Customer Summary*

        - **Field / Action Name**: *Customer ID*

        - **Target Field / Value**: *=Every*

        You have set the value of the key **Customer ID** field to =Every, which makes the scenario export all records available in Acumatica ERP. The **Commit** check box is selected automatically.

    b. Row 2:

        - **Source Object**: *Customer Summary*

        - **Field / Action Name**: *Customer ID*

        - **Target Field / Value**: *CUSTOMER ID*

        Because you need the value of the **Customer ID** field in the output file, you have mapped the **Customer ID** field to the external CUSTOMER ID field.

3. Add rows for the rest of the fields you need to export for a customer record from the **Customers** form. See the settings of the rows to be added in the table below.

    Settings of Additional Rows to be Added

Source Object	Field / Action Name	Target Field / Value
Customer Summary	*Customer Name*	*CUSTOMER NAME*
General Info -> Financial Settings	*Customer Class*	*CUSTOMER CLASS*
General Info -> Main Address	*Address Line 1*	*ADDRESS LINE 1*
General Info -> Main Address	*City*	*CITY*
General Info -> Main Address	*Country*	*COUNTRY*
General Info -> Main Address	*State*	*STATE*
General Info -> Main Contact	*Attention*	*ATTENTION*
General Info -> Main Contact	*Email*	*EMAIL*
General Info -> Main Contact	*Phone 1*	*PHONE 1*

    > You can click the **View Screen** button on the form toolbar to review the source form of the export scenario.

4. On the form toolbar, click **Save**. See the screenshot of the created scenario below.

You can find the mapping of the *Export Customers* scenario in the `ExportScenario_ExportCustomers.xlsx` file provided with the course for reference. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: Export Customers scenario

Now the scenario is ready for exporting data, and you will export customer records by using this scenario.

3. Exporting Master Records

Do the following to perform data export by using this scenario:

1. On the Export by Scenario form (SM207036; System > Integration > Process), select *Export Customers* in the **Name** box.

2. On the form toolbar, click **Prepare**. The system has processed every customer record. The processed records have appeared on the **Prepared Data** tab, and now they are ready for export to the external data source. Review the prepared data. If you have completed the instructions from this course, you should have 91 customer records prepared for export. (Otherwise, you might have a different number of prepared records.) To verify the prepared data, check that the list of prepared records matches the list of customers that exist in the system. To get the list of customers, you can use the Customer Summary report (AR650500; Finance > Accounts Receivable > Reports > Audit).

3. Click **Export** on the form toolbar to export the customer records to a CSV file.

4. After all customer accounts have been successfully exported, download the result of export by clicking **Get Latest Version** on the form toolbar. The resulting CSV file contains 91 customer records.

You have exported customer accounts from Acumatica ERP to a CSV file.

Related Links

Export Scenario Creation
Export Scenario Parameters
Export of All Records: Use of Every
Data Export

Example 4.1.2: Exporting Master-Detail Records (AR Invoices)

In this example, you will create a scenario for exporting open AR invoices, including the master information for the invoice as a whole and the detail lines of the invoice, and adding a text note to them during the export process. Suppose that you want to export AR invoices that have *Open* status and automatically attach the note `Exported` to each of the exported documents.

The scenario will use the *Import/Export AR Invoices* data provider that you created in *Example 1.1.2: Creating an Excel Provider (AR Invoices)* and *Example 1.1.3: Modifying a Data Provider (AR Invoices)*.

You will perform the following tasks, which are described in detail below:

1. *Reviewing the sequence of actions* that you should perform to select necessary data on the form
2. *Creating a scenario for exporting master-detail records*
3. *Exporting master-detail records* by using the created scenario

Reviewing the Sequence of Actions

In this step, you will find the key fields on the Invoices and Memos form (AR301000; Finance > Accounts Receivable > Work Area > Enter), understand the location of the fields you are going to export, and review how you can add or modify a text note attached to the invoice. Proceed as follows:

1. On the Invoices and Memos form (AR301000), select the invoice with the *INV000001* reference number. The data of the AR invoice with the specified reference number appears on the form. The Invoices and Memos form (AR301000) has two key fields that you need to specify to identify a record: **Type** and **Reference Nbr**.
2. Find the following fields on the form and review their values.

    Fields to Be Exported

Form Object	Field
Invoice Summary	**Type**
Invoice Summary	**Reference Nbr**
Invoice Summary	**Customer**
Invoice Summary	**Date**
Invoice Summary	**Post Period**
Invoice Summary	**Customer Order**
Invoice Summary	**Description**
Invoice Summary	**Balance**
Document Details	**Branch**
Document Details	**Transaction Descr**
Document Details	**Ext. Price**
Document Details	**Account**
Document Details	**Subaccount**
Financial Details > **Link to GL**	**Branch**

3. To add a note to the invoice, click **Notes** on the title bar. In the **Enter Record Note** dialog box that opens, type the following text: `Exported`. Click **OK**. The invoice with the *INV000001* reference number now has a note specified.

4. Click **Save** on the form toolbar.

You have reviewed the fields on the form that you need to export and have added a note to one AR invoice record. Notice that you need to click the **Save** button on the form toolbar to save the addition of the note to the record.

Creating a Scenario for Exporting Master-Detail Records

You will create a scenario for exporting all AR invoice records from Acumatica ERP to an Excel file. Do the following:

1. On the Export Scenarios form (SM207025; System > Integration > Manage), add a new scenario with the following parameters:

   a. **Name**: Export AR Invoices

   b. **Screen Name**: *Invoices and Memos* (**Company** > **Finance** > **Accounts Receivable** > **Work Area** > **Enter**)

   c. **Provider**: *Import/Export AR Invoices*

   d. **Provider Object**: *AR Invoices*

2. On the **Mapping** tab, add the following rows to specify the values of the key fields for records to be exported:

   a. Row 1:

      - **Source Object**: *Invoice Summary*
      - **Field / Action Name**: *Type*
      - **Target Field / Value**: *='Invoice'*
      - **Commit**: Selected

   b. Row 2:

      - **Source Object**: *Invoice Summary*
      - **Field / Action Name**: *Reference Nbr.*
      - **Target Field / Value**: *=Every*

      The **Commit** check box is selected automatically.

   You have configured the system to export all documents of the *Invoice* type available in Acumatica ERP.

3. Add a row for each of the fields on the Invoices and Memos form (AR301000) you need to export for an AR invoice. See the settings of the rows to be added in the table below.

   Settings of Additional Rows to Be Added

Source Object	Field / Action Name	Target Field / Value
Invoice Summary	*Type*	*DOC TYPE*
Invoice Summary	*Reference Nbr*	*INVOICE REF NBR*
Invoice Summary	*Customer*	*CUSTOMER ID*
Invoice Summary	*Date*	*DATE*
Invoice Summary	*Post Period*	*POST PERIOD*
Invoice Summary	*Customer Order*	*CUSTOMER REF NBR*

Source Object	Field / Action Name	Target Field / Value
Invoice Summary	*Description*	*DOC DESCRIPTION*
Invoice Summary	*Balance*	*TOTAL AMOUNT*
Document Details	*Branch*	*DESTINATION BRANCH*
Document Details	*Transaction Descr*	*LINE DESCRIPTION*
Document Details	*Ext. Price*	*EXT PRICE*
Document Details	*Account*	*ACCOUNT*
Document Details	*Subaccount*	*SUBACCOUNT*
Financial Details -> Link to GL	*Branch*	*ORIGINATING BRANCH*

4. Add the following row to add a note during export:

   - **Source Object**: *Invoice Summary*
   - **Field / Action Name**: *Note Text*
   - **Target Field / Value**: ='Exported'
   - **Commit**: Selected

   You have added the row that adds the note that contains the *Exported* text to each prepared document during the preparation process. Note that you have selected the **Commit** check box because you need to update the note text in the system.

5. Add the action to save changes to the record at the end of the scenario:

   - **Source Object**: *Invoice Summary*
   - **Field / Action Name**: *<Action: Save>*

See the screenshot of the mapping of the created scenario below.

> You can find the mapping in the ExportScenario_ExportARInvoices.xlsx file provided with the course for reference. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

			Active	* Source Object	* Field / Action Name	Commit	Target Field / Value	Ignore Error
	🔗	📄	☑	Invoice Summary	<Key: DocType>	☐	=[Document.DocType]	☐
	🔗	📄	☑	Invoice Summary	<Key: RefNbr>	☐	=[Document.RefNbr]	☐
	🔗	📄	☑	Invoice Summary	<Action: Cancel>	☐		☐
>	🔗	📄	☑	Invoice Summary	Type	☑	='Invoice'	☐
	🔗	📄	☑	Invoice Summary	<Action: Cancel>	☐		☐
	🔗	📄	☑	Invoice Summary	Reference Nbr.	☑	=Every	☐
	🔗	📄	☑	Invoice Summary	Type	☐	DOC TYPE	☐
	🔗	📄	☑	Invoice Summary	Reference Nbr.	☐	INVOICE REF NBR	☐
	🔗	📄	☑	Invoice Summary	Customer	☐	CUSTOMER ID	☐
	🔗	📄	☑	Invoice Summary	Date	☐	DATE	☐
	🔗	📄	☑	Invoice Summary	Post Period	☐	POST PERIOD	☐
	🔗	📄	☑	Invoice Summary	Customer Order	☐	CUSTOMER REF NBR	☐
	🔗	📄	☑	Invoice Summary	Description	☐	DOC DESCRIPTION	☐
	🔗	📄	☑	Invoice Summary	Balance	☐	TOTAL AMOUNT	☐
	🔗	📄	☑	Document Details	<Line Number>	☐		☐
	🔗	📄	☑	Document Details	Branch	☐	DESTINATION BRANCH	☐
	🔗	📄	☑	Document Details	Transaction Descr.	☐	LINE DESCRIPTION	☐
	🔗	📄	☑	Document Details	Ext. Price	☐	EXT PRICE	☐
	🔗	📄	☑	Document Details	Account	☐	ACCOUNT	☐
	🔗	📄	☑	Document Details	Subaccount	☐	SUBACCOUNT	☐

Figure: The final scenario mapping: page 1
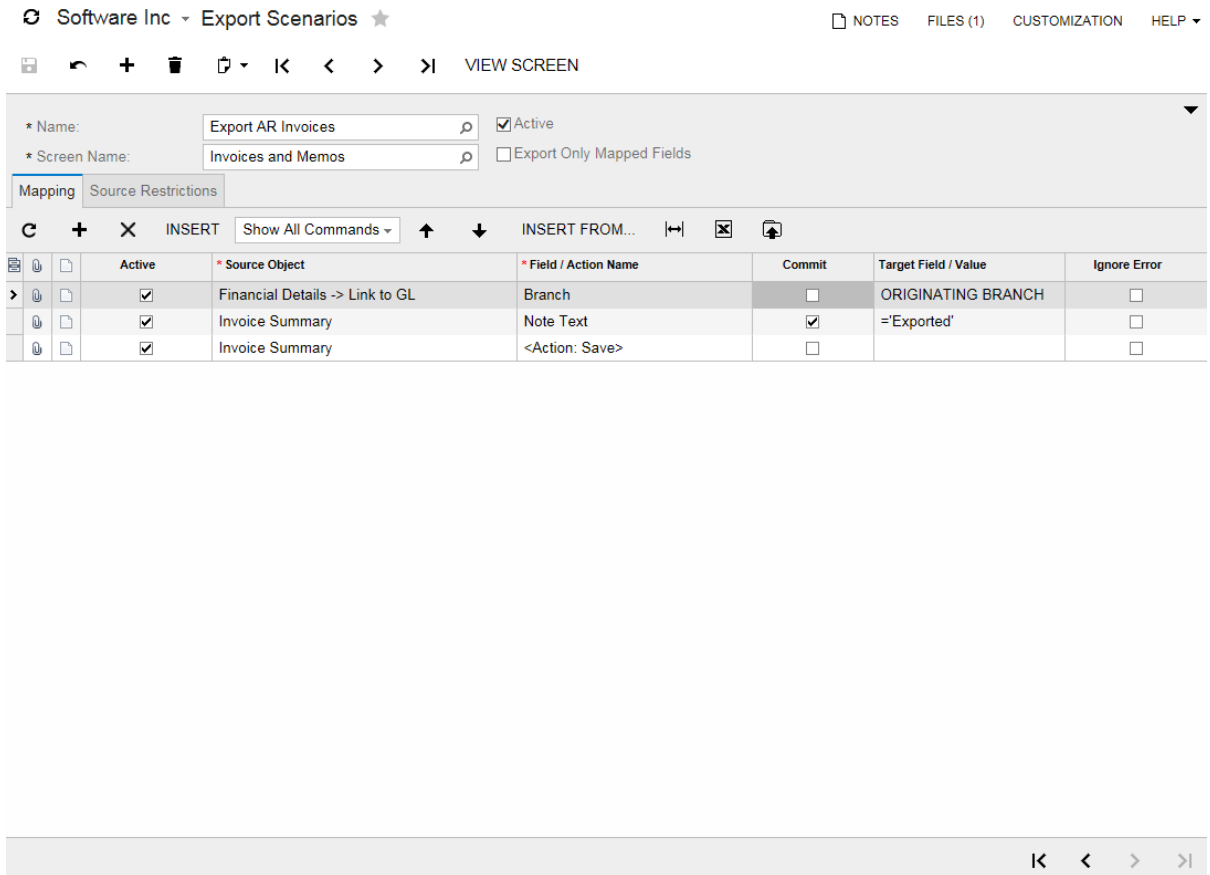
Figure: The final scenario mapping: page 2

6. On the **Source Restrictions** tab, specify the following restriction, as shown on the screenshot below:

    - **Source Object**: *Invoice Summary*

    - **Field Name**: *Status*

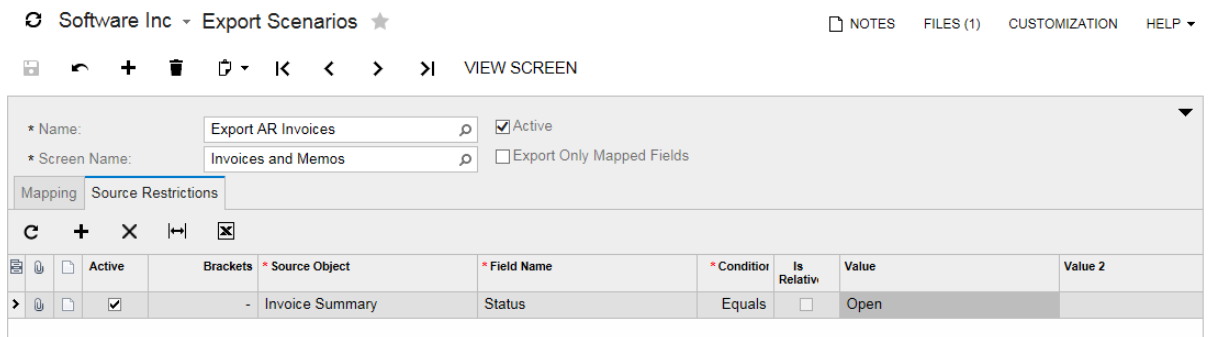   - **Condition**: *Equals*

    - **Value**: *Open*

Figure: Source restrictions

You have configured the scenario to export only the invoices that have the *Open* status. You have used the field of the summary object to filter records. In source restrictions, you can use

only the fields of the summary object or detail objects of the form from which you are exporting data.

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

You have created a scenario for exporting AR invoices. Now you can export the documents by using the scenario.

Exporting Master-Detail Records

Currently, there are only invoices with the *Open* status in the system (if you have completed the instructions of this course). To test source restrictions of the created export scenario, on the Invoices and Memos form (AR301000), create an invoice with the *On Hold* status before exporting records. (It will have automatically assigned *INV000089* reference number.)

Use the created scenario to export AR invoices to an Excel file as follows:

1. On the Export by Scenario form (SM206036; System > Integration > Process), in the **Name** box, select *Export AR Invoices*.

2. On the form toolbar, click **Prepare**. The open AR invoices are processed by the scenario and appear on the **Prepared Data** tab. Review the prepared data. If you have completed the instructions of this course, you should have 114 records prepared for export. (Otherwise, you might have a different number of prepared records.) The number of prepared records equals the number of detail lines in the open AR invoices available in the system. The list of prepared records includes detail lines of AR invoices with reference numbers from *INV000001* to *INV000088*. The invoice with the *INV000089* reference number has the *On Hold* status in the system, so according to the configured source restriction, it is not exported.

3. Click **Export** on the form toolbar to export the prepared records to an Excel file.

4. After all records are successfully processed, download the result of export by clicking the **Get Latest Version** button on the form toolbar. The resulting Excel file contains 114 lines that correspond to detail lines of open AR invoices.

You have exported AR invoices from Acumatica ERP to an Excel file. Note that you marked the processed invoices with the note that says *Exported*. All invoices will be exported every time when you run the scenario. However, you can use the existence of this note to exclude the invoices from future export once they have already been exported. To do this, you can add the source restriction to the export scenario to skip documents that have the *Exported* note. After that, once the invoice has been exported, the invoice will not be exported again when the export scenario is run. Another way to exclude previously exported records from processing during further export is to use the **Sync Type** = *Incremental - New Only* option of the export scenario settings on the Export Scenarios form (SM207025).

Related Links

Data Modification During Export: Use of Commit and Actions
Source Restrictions in Export Scenarios

Example 4.1.3: Exporting Records with Attributes (Leads)

In this example, you will create a scenario for exporting leads with attributes, and then export leads from Acumatica ERP to an Excel file by using this scenario.
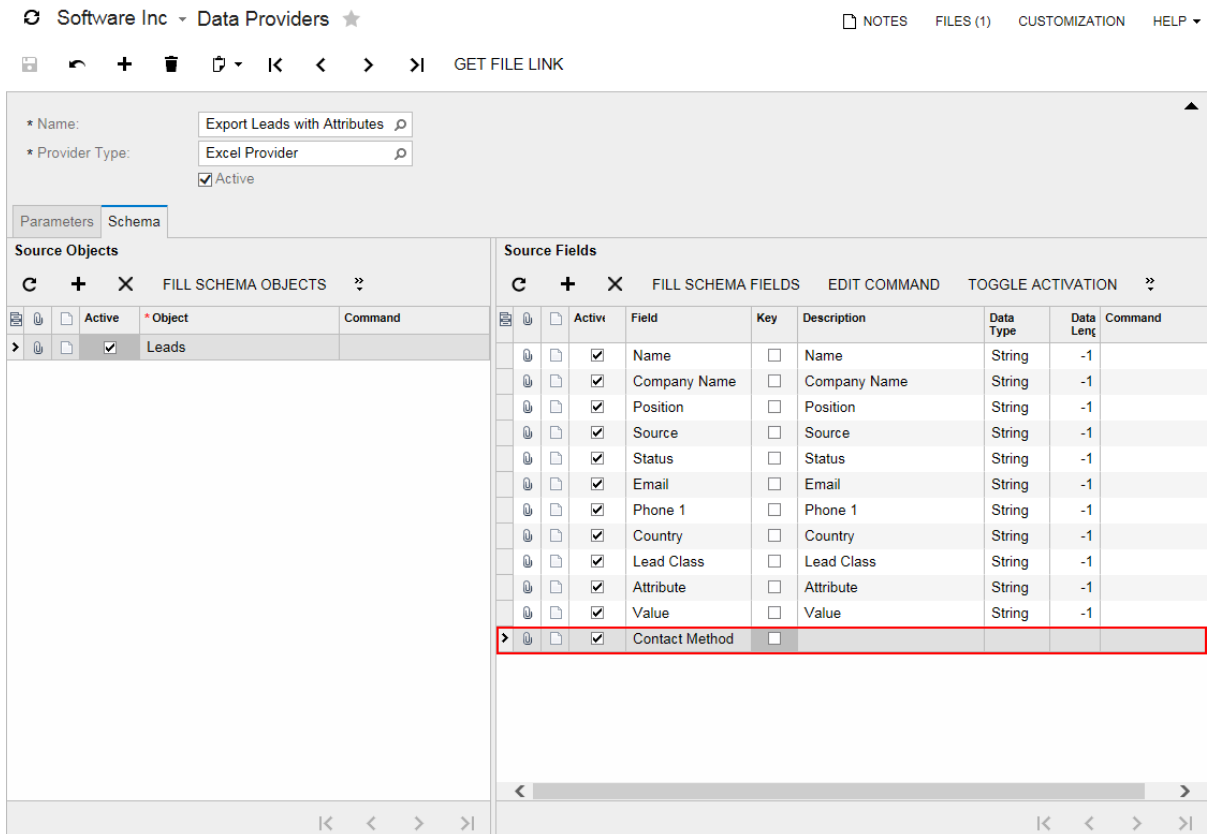
You will export data for the leads from the Leads form (CR3010PL; Organization > Customer Management > Work Area > Enter), including the values of attributes from the **Attributes** tab of the form.

To successfully execute the example, you must have previously imported leads with attributes to the system, as described in *Example 2.6.1: Importing Records with Attributes (Leads)*.

To create the scenario and export the leads, do the following:

1. On the Data Providers form (SM206015; System > Integration > Manage), create an Excel data provider for the `Leads.xlsx` file with the name *Export Leads with Attributes*.

2. On the **Source Fields** pane of the **Schema** tab, add the *Contact Method* field, as shown in the following screenshot, and save your changes.

   You can add fields to a data provider manually by clicking **Add Row** on the pane toolbar and typing the name of the field in the **Field** column of the added row.

Figure: Export Leads with Attributes data provider

3. On the Export Scenarios form (SM207025; System > Integration > Manage), create a scenario with the following parameters:

   a. **Name**: `Export Leads with Attributes`

   b. **Screen Name**: *Leads* (**Organization** > **Customer Management** > **Work Area** > **Enter**)

   c. **Provider**: *Export Leads with Attributes*

       d.   **Provider Object**: *Leads*

4. On the **Mapping** tab, configure the mapping of the scenario as shown in the following screenshot, and save the scenario.

> You can find the mapping in the `ExportScenario_ExportLeadsWithAttributes.xlsx` file provided with the course. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: Export Leads with Attributes scenario

In the mapping, you have used the formula that exports the values of the Title, **First Name**, and **Last Name** fields of the **Details** tab of the Leads form (CR301000) to the *Name* target field.

5. On the Export by Scenario form (SM206036; System > Integration > Process), prepare and export the leads by using the *Export Leads with Attributes* scenario. The result of the export contains a line with the name of the attribute and its value for each attribute of a lead.

You have exported leads with attributes from Acumatica ERP.

Example 4.1.4: Exporting Records from a Generic Inquiry

In this example, you will export records from the Item Availability Data generic inquiry (INGI0002), which has been preconfigured for this training course. This generic inquiry displays a list of stock items with item quantities.

In Acumatica ERP, you can view the item availability data on the Inventory Summary form (IN401000; Distribution > Inventory > Work Area > Explore). To use this form to view the on-hand and available quantities of stock items, you should select each item one by one. In an export scenario, you can imitate this way of exporting data by using the `=Every` instruction. However, this way of data export has a drawback: It performs many requests to the Acumatica ERP database; therefore, it may impact the system performance.

In this example, you will use another way of exporting data from Acumatica ERP. You will create a scenario that exports data from the Item Availability Data generic inquiry (INGI0002). This generic inquiry is based on the `PX.Objects.IN.INSiteStatus` database table and has one parameter, which you can use to filter the list of stock items by inventory ID. You can view this generic inquiry on the Generic Inquiry form (SM208000; System > Customization > Manage) by selecting the inquiry with the title *Item Availability Data* and clicking **View Inquiry**. The Item Availability Data generic inquiry (INGI0002) is shown in the following screenshot.

Creating a generic inquiry is outside of the scope of this course. You can find information on how to create a generic inquiry in the S130 Inquiries, Reports, and Dashboards training course, which is available in Acumatica University.

Figure: Item Availability Data generic inquiry

To export data from the Item Availability Data generic inquiry (INGI0002), do the following:

1. On the Data Providers form (SM206015; System > Integration > Manage), create an Excel data provider titled *Export Item Availability Data* from the `ItemAvailabilityData.xlsx` file that is provided with this course. The schema of the created data provider is shown in the following screenshot.

Figure: Schema of the created provider

2. On the Export Scenarios form (SM207025; System > Integration > Manage), create a scenario with the following parameters:

   a. **Name**: `Export Item Availability Data`

   b. **Screen Name**: *Item Availability Data* (**Hidden**)

   c. **Provider**: *Export Item Availability Data*

   d. **Provider Object**: *ItemQuantities*

3. On the **Mapping** tab, configure the mapping of the scenario as shown in the following screenshot.

   > You can find the mapping in the `ExportScenario_ExportItemAvailabilityData.xlsx` file provided with the course. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: Export Item Availability Data scenario

In the mapping of the scenario, you have used the *Filter* source object to filter records by using the **Inventory ID** parameter of the generic inquiry. Notice that the **Commit** check box is selected for this row automatically. To obtain the records from the generic inquiry, you have used the fields of the *Result* source object.

> If you do not need to filter records by the parameter of a generic inquiry, you can omit the row with the *Filter* source object, which is highlighted in the screenshot above.

4. On the Export by Scenario form (SM207036; System > Integration > Process), prepare and export the item availability data by using the *Export Item Availability Data* scenario. The result of the export contains one line, which contains the availability information for the *AALEGO500* inventory item.

You have exported item availability data from a generic inquiry.

Lesson Summary

In this lesson, you have learned how to export master records and master-detail records from Acumatica ERP. You have done the following:

1. Created a data provider for the target data source if one doesn't already exist.

2. Understood the sequence of actions to be performed on an Acumatica ERP form to select a record for export.

3. Created an export scenario that uses the created data provider and reproduces the sequence of actions on the form in the scenario mapping.

4. Exported data records by using the created scenario.

When creating the mapping for export scenarios on the **Mapping** tab of the Export Scenarios form (SM207025; System > Integration > Manage), you have learned to implement the following guidelines:

- The key fields must be mapped first.

- For key fields, you can use the =Every command to select all records available in the system for export.

- If you change the values of the exported record, you have to select the **Commit** check box for each field for which you change the value.

- You should finish a scenario for data export with *<Action: Save>* if you change the values of some fields during export.

Lesson 4.2: Modifying Records Using Export Scenarios

In this lesson, you will find instructions for creating export scenarios to modify data in the system. You can use export scenarios to mass-update records when you do not have the exact list of records to modify and you want to modify records that are selected by some condition. For example, you might want to modify all AR invoices in the system that have *On Hold* status.

Lesson Objectives

In this lesson you will learn how to:

- Update existing records by using export scenarios.

- Apply actions to exported records.

- Delete records by using export scenarios.

Example 4.2.1: Updating Existing Records (Customers)

You can use export scenarios to update records that already exist in the database. In this example, you will reassign customers to another statement cycle.

For example, suppose that you have imported customer records, and you realize that you have to change the statement cycle to which certain customers are assigned. You can make these changes in the following ways:

- Manually bring up each applicable customer and change the statement cycle, but this way would be time-consuming.

- If you have a list of customer IDs for which you want to modify the statement cycle, compose an import scenario to update the customer records by the list of customer IDs.

- If you have no list of customer IDs, compose an export scenario and select the customer records by specifying source restrictions.

In the import or export scenario, you can change the statement cycle to which the customers are assigned in one of the following ways:

- Update the statement cycle in the customer records.

- Create a new customer class in which the needed statement cycle is specified. Update the customer class in the customer records.

This example describes how to update the statement cycle in the customer records. If you instead wanted to update the statement cycle through the customer class, you can compose the mapping similar to that described in *Example 2.2.2: Creating an Import Scenario for Updating Records (Customers)*.

For this scenario, you will use the *Import/Export Customers* data provider that you created in *Example 1.1.1: Creating a CSV Provider (Customers)*.

To update the statement cycle in the customer records, reproduce the scenario described below and test it in Acumatica ERP:

1. On the Export Scenarios form (SM207025; System > Integration > Manage), create the export scenario as shown in the screenshot below.

   > You can find the mapping in the `ExportScenario_UpdateStatementCycle.xlsx` file provided with the course. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.
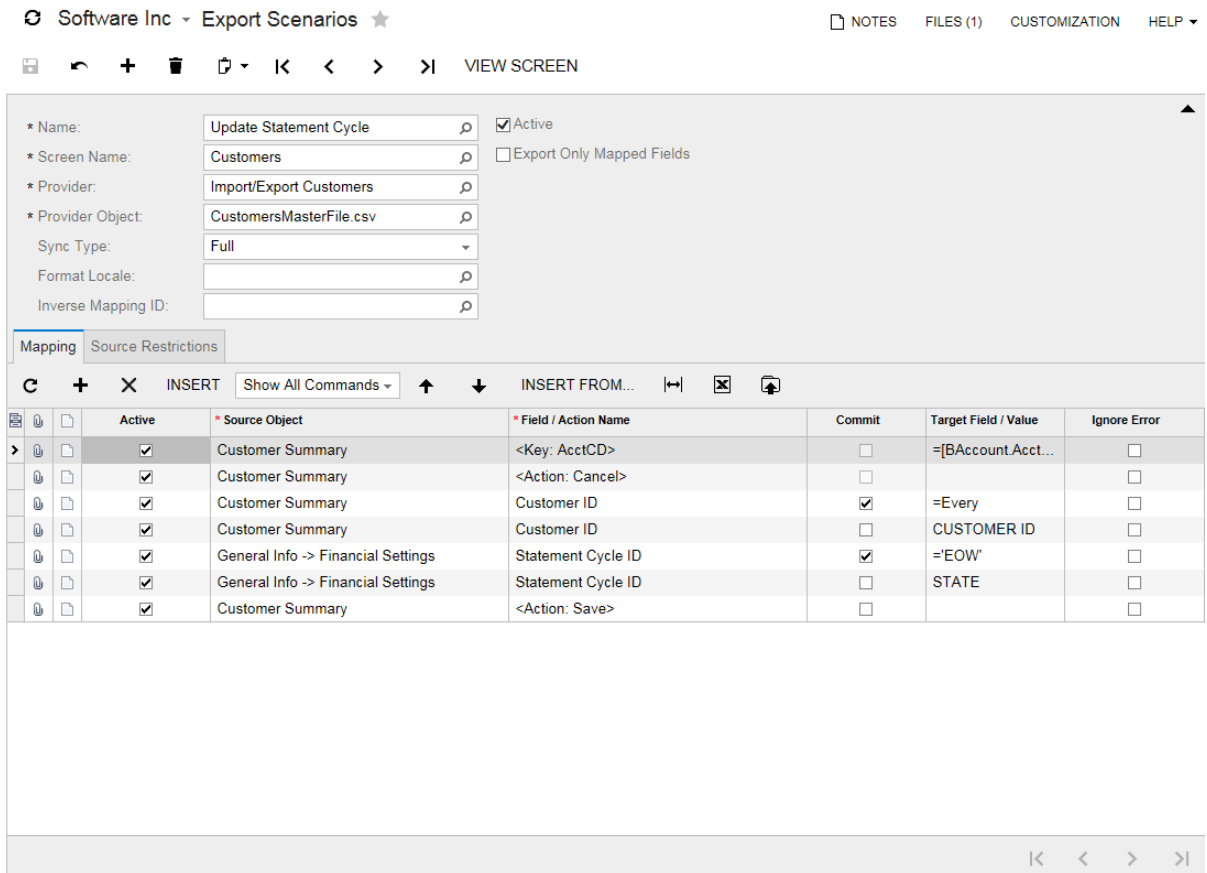
Figure: Update Statement Cycle export scenario

2. Configure source restrictions of the created scenario so that the customer records are selected by the specified range of IDs (as shown in the screenshot below).

> For source restrictions, you can use the fields of the summary object only (in this example, the fields of the Customer Summary object).
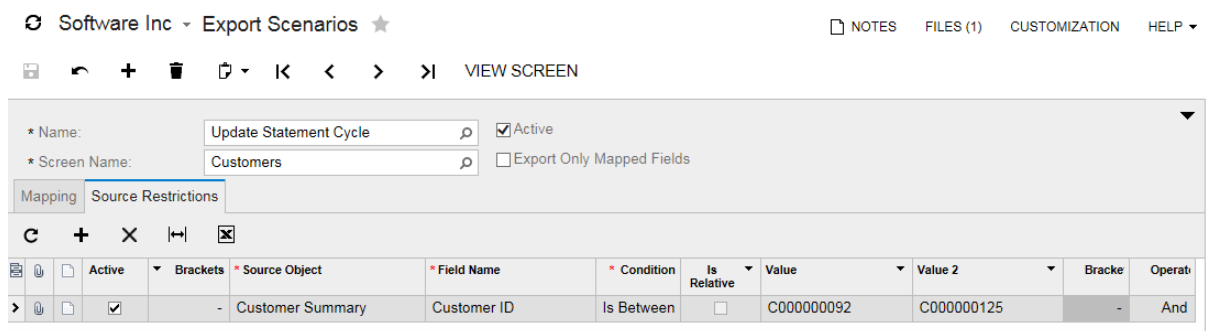

Figure: Source restrictions

3. Test the scenario on the Export by Scenario form (SM207036; System > Integration > Process). After you prepared the data, the *EOW* statement cycle is assigned to the customer records with customer IDs in range from C000000092 to C000000125.

> The system performs all modifications defined by the export scenario during the data preparation. If you need to only update data records, you do not need to click **Export** on the Export by Scenario form (SM206036).

You have updated the statement cycle in customer records that were selected by the specified range of IDs.

Related Links

Data Modification During Export: Use of Commit and Actions

Example 4.2.2: Applying an Action to Exported Records (AR Invoices)

You can use an export scenario to apply an action to the records that already exist in the database. In this example, you will recalculate the prices in AR invoices. For this example, suppose that you have changed the price list for customers that have multiple AR invoices being edited, and now you have to recalculate the invoices by using the new prices.

For this scenario, you will use the *Import/Export AR Invoices* data provider that you created in *Example 1.1.2: Creating an Excel Provider (AR Invoices)* and *Example 1.1.3: Modifying a Data Provider (AR Invoices)*.

Before you proceed with this example, do the following:

1. On the Invoices and Memos form (AR301000), create two invoices. For each created invoice, fill in required settings in the Summary area, and add a detail line for the *ADVERT* item and set the **Unit Price** of the item to $100 and the **Quantity** to 2.00. The extended price and the detail total will be $200. Save the invoices with the *On Hold* status. (If you have completed the instructions of these course, you have *INV000090* and *INV000091* created).

2. On the Sales Prices form (AR202000; Finance > Accounts Receivable > Work Area > Manage), define a base price (for example, $150) for the *ADVERT* item that becomes effective at the invoice date.

You have created two AR invoices and then changed the price list for the item that is included in these invoices. Now you need to recalculate prices in these invoices.

You will perform the following tasks, which are described in detail below:

1. *Reviewing the sequence of actions* when applying an action manually

2. *Creating an export scenario that applies an action*

3. *Testing the scenario*

1. Reviewing the Sequence of Actions

To recalculate the prices for a single invoice manually, do the following:

1. On the Invoices and Memos form (AR301000; Finance > Accounts Receivable > Work Area > Enter), select the invoice whose prices you have to recalculate, for example, *INV000090*. (You can recalculate any invoice that has the *On Hold* or *Balanced* status.)

2. Select **Actions** > **Recalculate Prices** on the form toolbar.

3. In the **Recalculated Prices** dialog box, leave the default parameters to update the unit price by the price list for each line of the document. If you want to recalculate the invoice by using the new price list even if the prices in the invoice have been manually corrected, select the **Override Manual Prices** check box.

4. Click **OK**.

    The system sets the current unit price for the each line of the invoice and recalculates the document totals.

5. Click **Save** on the toolbar to save changes to the invoice.

You have recalculated the price of a single invoice manually.

2. Creating an Export Scenario That Applies an Action

To recalculate invoices in bulk, automate this procedure by using an export scenario:

1. On the Export Scenarios form (SM207025; System > Integration > Manage), create the export scenario whose settings are shown in the screenshot below. The scenario recalculates prices in

AR invoices (even if those prices have been manually specified) simulating the user actions that are described above.

You can find the mapping in the `ExportScenario_RecalculatePricesInARInvoices.xlsx` file provided with the course. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: Recalculate Prices in AR Invoices export scenario mapping

If you do not want to reset prices that were manually specified in invoices, remove from the mapping the instruction that selects the **Override Manual Prices** check box. (The instruction is highlighted with red in the screenshot above.)

In the export scenario, the data provider specifies the column names to which the processed data can be output on the Export by Scenario form (SM207036; System > Integration > Process). Generally, you can use any provider just to be able to select some columns in the **Target Field / Value** in the mapping. You can create an Excel data provider that specifies the list of needed column names. You do not have to link this provider to any file if you want to use the provider only in export scenarios without exporting the scenario processing result to any files.

2. Configure source restrictions of the created scenario so that the scenario selects invoices with the *On Hold* status in the system (as shown in the screenshot below).
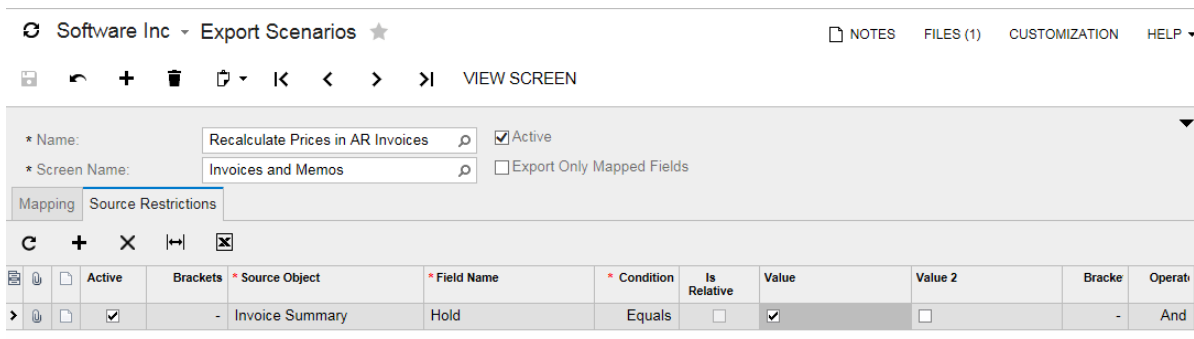
Figure: Source restrictions

You have created the export scenario that selects invoices with the *On Hold* status in the system and recalculates prices in them (even if those prices have been manually specified).

3. Testing the Scenario

To test the scenario, on the Export by Scenario form (SM207036), select the *Recalculate Prices in AR Invoices* scenario, and click **Prepare**.

The system executes the scenario for each invoice that matches the filter specified on the **Source Restrictions** tab of the Export Scenarios form (SM207025; System > Integration > Manage). That is, the system executes the scenario for each invoice that is on hold.

After the process is complete, the list of updated invoices appear in the table. Notice that the detail totals (the **Total Amount** column) of the *INV000090* and *INV000091* invoices now equal $300 ($150 * 2). You can review the updated invoices on the Invoices and Memos form (AR301000).

Related Links

Data Modification During Export: Use of Commit and Actions

Example 4.2.3: Deleting Existing Records (AR Invoices)

You can use export scenarios to delete records and documents from Acumatica ERP. In this example, you will delete AR invoices that have been created on a certain date and have the *On Hold* status in the system. For example, suppose that you want to delete such invoices, and you do not have a list of the reference numbers of the invoices you want to delete.

For this scenario, you will use the *Import/Export AR Invoices* data provider that you created in *Example 1.1.2: Creating an Excel Provider (AR Invoices)* and *Example 1.1.3: Modifying a Data Provider (AR Invoices)*.

To delete AR invoices, reproduce the scenario described below and test it in Acumatica ERP:

1. On the Export Scenarios form (SM207025; System > Integration > Manage), create the export scenario as shown in the screenshot below. The export scenario deletes the selected invoices from the database.

> You can find the mapping in the `ExportScenario_DeleteOnHoldInvoices.xlsx` file provided with the course. You can load the mapping in the Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: Delete On Hold Invoices export scenario mapping

2. Configure source restrictions of the created scenario as shown in the screenshot below. The export scenario selects invoices with the *On Hold* status and the specified date.

Figure: Source restrictions

3. Test the scenario on the Export by Scenario form (SM206036; System > Integration > Process). After the data preparation, the reference numbers of the deleted invoices are output to the table on the **Prepared Data** tab of the Export by Scenario form (SM206036).

You have deleted AR invoices that have been created on a certain date and have the *On Hold* status in the system.

If you have a list of the exact reference numbers of invoices to delete, it is easier to compose an import scenario than to compose an export scenario. In the import scenario, you can delete invoices by their reference numbers; you do not have to compose any filtering condition to select the invoices to be deleted among all invoices that might exist in the system, as you would do for the export scenario. For example, you might have a list of reference numbers if you want to delete invoices that have been incorrectly imported into the system. After you delete the invoices in bulk, you can import the documents again.

Related Links

Data Modification During Export: Use of Commit and Actions

Lesson Summary

In this lesson, you have learned how to modify the data in the system by using export scenarios. You can use export scenarios for data modification if you need to mass-update records that satisfy some condition and you do not have the list of IDs of these records. You can use export scenarios to update the fields of the records, apply an action to the records, or delete unnecessary records.

Part 5: Performance Optimization

In this part of the course, you will learn how to optimize performance of an integration scenario. You will improve speed of processing for an import scenario.

As a result of completing the lessons of this part, you will optimize performance of the scenario that imports purchase orders to Acumatica ERP.

Performance Troubleshooting in Integration Scenarios

When you are importing or exporting a large number of records by using an import scenario, data processing can take rather long time, and you may want to speed data processing.

Performance Troubleshooting in Import Scenarios

When the system imports records to Acumatica ERP, it performs a commit of the fields with the **Commit** check box selected on the **Mapping** tab of the Import Scenarios form (SM206025; System > Integration > Manage) to the server; these commits take excessive server time. When you create the mapping of an import scenario, the system selects the **Commit** check box automatically for the key fields and the fields other fields depend on.

To optimize the performance of an import scenario, you can clear the **Commit** check box for some of the fields. You can use the following procedure when optimizing the performance of an import scenario:

1. Create an import scenario with the **Commit** check box selected for the fields by default. Test the scenario and make sure it works correctly. Note the processing time. If you need to decrease it, proceed with the next step.

2. Try to clear the **Commit** check box one by one for each appropriate field of the scenario, testing the scenario after each change to the scenario and reviewing the processing time. However, you should not clear the **Commit** check box for the following fields:

   - Key fields: For example, **Type** and **Reference Nbr.** fields are key fields on the Invoices and Memos form (AR301000; Finance > Accounts Receivable > Work Area > Enter).

   - The last field of a detail line: For example, suppose you import the values of the **Transaction Descr.**, **Ext. Price**, **Account**, and **Subaccount** columns on the **Document Details** tab of the Invoices and Memos form (AR301000). You should not clear the **Commit** check box for the **Subaccount** field, which is the last field in the row that you specify.

   - The **Value** field of an attribute.

   - The fields whose values must be entered to make some elements available: For example, on the Purchase Orders form (PO301000; Distribution > Purchase Orders > Work Area > Enter), you have to specify the value of the **Vendor** element to make the **Add Row** button on the toolbar of the **Document Details** tab available.

   If you clear the **Commit** check box for the fields that cause other fields on the form to be updated, the system will try to perform an update of these fields when it saves the imported record.

You can find an example of the performance optimization of an import scenario in *Example 5.1.1: Optimizing the Performance of Data Import (Purchase Orders)*.

Performance Troubleshooting in Export Scenarios

To speed data export, you can do any of the following steps, which are listed in the order in which we recommend you try the steps:

1. On the **Mapping** tab of the Export Scenarios form (SM207025; System > Integration > Manage) for the export scenario, make sure the **Commit** check box is selected for the minimum number of fields.

   The **Commit** check box must be selected for the key fields that specify the records that should be exported (for example, the key fields that are mapped to the `=Every` instruction) and for the fields that you modify during export. In some other situations, the system selects the **Commit** check box automatically (for example, for the `<Dialog Answer>` command); leave these

check boxes selected. For fields whose values you only need to export, you do not need to select the **Commit** check box.

2. Try to remove the `=Every` instruction from the mapping of the export scenario if this scenario satisfies all of the following requirements:

   - You are exporting summary data and data from the related objects, and are not exporting data from detail objects.

   - You are not modifying the values of any fields during data export.

   - You are not applying actions to the records during data export.

   If you remove the `=Every` instruction from the scenario, during data export, the system generates a generic inquiry internally that gets the data being exported from the system in one request instead of getting information for each record one by one, which significantly increases the speed of data export.

3. Configure a generic inquiry that retrieves the data that you need to export, create a scenario that exports data from this generic inquiry, and export data by using this scenario. You can see an example that shows how to export data from a generic inquiry in *Example 4.1.4: Exporting Records from a Generic Inquiry*.

   Creating a generic inquiry is outside of the scope of this course. You can find information on how to create a generic inquiry in the S130 Inquiries, Reports, and Dashboards training course, which is available in Acumatica University.

Lesson 5.1: Optimizing the Performance of Data Import

In this lesson, you will optimize the performance of the scenario that imports purchase orders from a large Excel file to Acumatica ERP.

Lesson Objectives

You will learn how to optimize performance of import scenarios.

Example 5.1.1: Optimizing the Performance of Data Import (Purchase Orders)

In this example, you will improve the performance of the scenario that imports purchase orders, which you created in *Example 2.5.5: Importing Master-Detail Records with Automatic Numbering (Purchase Orders)*. You will import more than 300 detail lines of purchase orders by using the optimized scenario and see how the time of processing changes. Do the following:

1. On the Import by Scenario form (SM206036; System > Integration > Process), select the *Import Purchase Orders* scenario, upload the `PurchaseOrders_Large.xlsx` file (which is provided with the course) to the form, and prepare and import records. The system imports 328 records. Notice the time it takes, as shown in the following screenshot.

   > The speed of data import on your computer depends in part on the characteristics of your computer and can differ from the time that is shown in the screenshot.

Figure: Import Purchase Orders scenario processing time

2. On the Import Scenarios form (SM206025; System > Integration > Manage), select the *Import Purchase Orders* scenario, and on the **Mapping** tab, clear the **Commit** check box for the following fields and save your changes:

   - Document Summary: **Date**
   - Document Summary: **Vendor Ref**
   - **Document Details**: **Inventory ID**
   - **Document Details**: **Warehouse**

   See the final mapping in the following screenshot.

   > You can find the mapping in the `ImportScenario_ImportPurchaseOrdersOptimized.xlsx` file provided with the course for reference. You can load the mapping saved to Excel file by clicking **Load Records from File** on the toolbar of the **Mapping** tab.

Figure: The final mapping

You cannot clear the **Commit** check box for the following fields without causing the scenario to not work:

- The key fields **Type** and **Order Nbr**.

- The last field of a detail line, which is **Order Qty** in this scenario.

- The **Vendor** field of the Document Summary object, because selection of the value of this field makes it possible to add rows on the **Document Details** tab. (On the Purchase Orders form (PO301000; Distribution > Purchase Orders > Work Area > Enter), during manual entry of a purchase order, you can notice that the **Add Row** button on the toolbar of the **Document Details** tab becomes available only after you specify the value of the **Vendor** element in the Document Summary area.) Therefore, you have to commit this field before adding detail lines to a purchase order.

3. On the Import by Scenario form (SM206036), select the *Import Purchase Orders* scenario, and prepare and import data. Notice in the screenshot that the time of processing decreased by 10 seconds, which is more than 10 percent.

Figure: Optimized scenario processing time

The *Import Purchase Orders* scenario is configured so that the system does not update the records that you imported in Step 1 of this example, but treats the records from the source file as new records each time you import them.

You have sped up the process of importing purchase orders by clearing the **Commit** check box for multiple fields in the mapping of the import scenario on the Import Scenarios form (SM206025).

Lesson Summary

In this lesson, you have learned how to increase performance of an import scenario. To optimize performance of the scenario that imports large amount of purchase orders, you have cleared the **Commit** check box for certain fields in the mapping of the scenario on the Import Scenarios form (SM206025; System > Integration > Manage).

Part 6: File Synchronization

In this part of the course, you will learn how to configure scheduled synchronization. You will create schedules for data import and data export operations.

As a result of completing the lessons of this part, you will schedule the update of customer records in Acumatica ERP by importing records from a CSV file and the export of AR invoices from Acumatica ERP to an Excel file.

Lesson 6.1: Scheduling Data Import and Export

In this lesson, you will configure regular update of the customer records available in Acumatica ERP with the records provided in an external file on a local computer. You will also configure regular export of AR invoices from Acumatica ERP to a folder on a local computer.

Lesson Objectives

You will learn how to schedule data import and export.

Example 6.1.1: Scheduling Data Import (Customers)

In this example, you will configure the periodic importing of the customer records from an external CSV file to Acumatica ERP by using a schedule.

This example presumes that you have previously created the *Update Customers by Email* import scenario, as described in *Example 2.4.4: Updating Auto-Numbered Records by a Selector Column (Customers)*.

To configure the scheduling of data import, you need to perform the following tasks, which are described in detail later in this example:

1. *Scheduling the execution of the import scenario*

2. *Configuring file synchronization*

3. *Scheduling file synchronization*

4. *Testing the scheduled file synchronization and import*

1. Scheduling the Execution of the Import Scenario

In this task, you will configure a schedule for the *Update Customers by Email* scenario, which was created earlier in this course. Proceed as follows:

1. On the Import Scenarios form (SM206035; System > Integration > Schedule), make sure the following settings are selected on the form (see item 1 in the following screenshot):

   - **Operation**: *Prepare & Import*

   - **Break on Error**: Selected

   - **Break on Incorrect Target**: Selected

2. The details table of the form displays the list of active import scenarios. Select the *Update Customers by Email* scenario in the details table (2).

   > You can schedule both regular and simplified import scenarios.

3. On the form toolbar, click **Schedules** (3) and select **Add** from the button menu. This opens the Automation Schedules form (SM205020) in a pop-up panel.
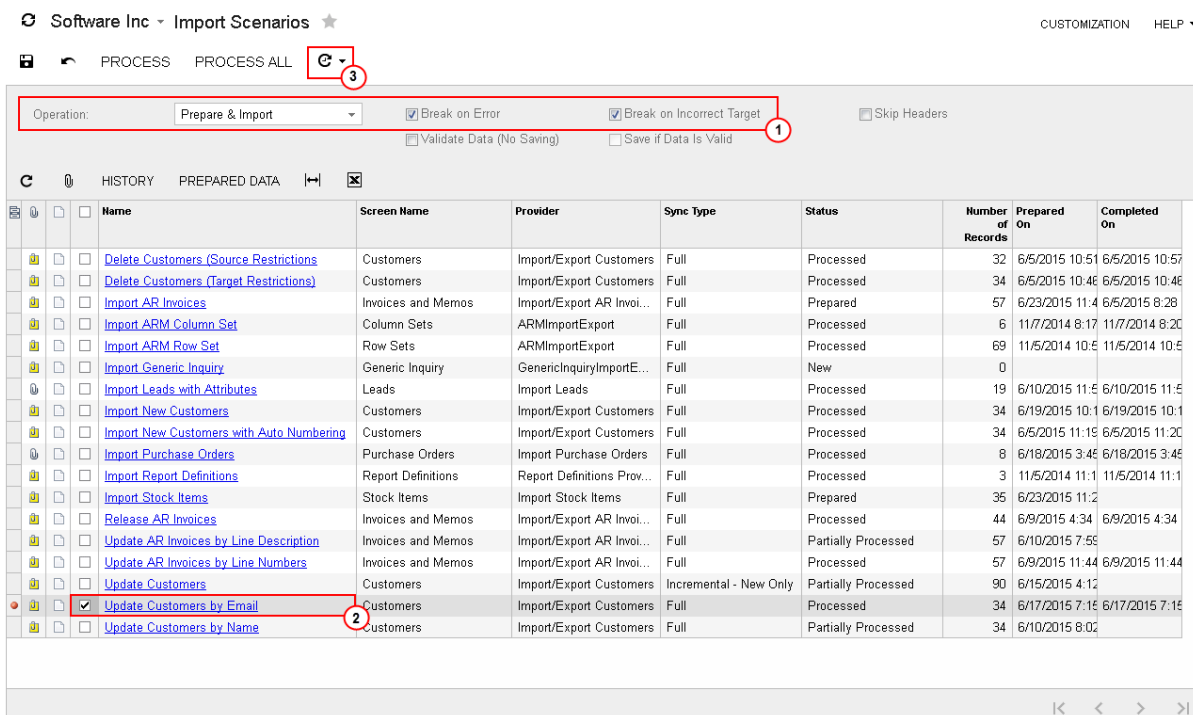
Figure: The list of import scenarios with the scenario selected for scheduling

4. In the Summary area of the Automation Schedules form (SM205020), specify the following parameters:

   - **Description**: `Update Customers Schedule`

   - **No Execution Limit**: Selected

   - **Starts On**: Current date

   - **No Expiration Date**: Selected

   You have specified the description of the schedule and the date to execute the schedule for the first time, and you have configured the schedule to be executed for any number of times with no expiration date.

5. On the **Dates** tab, select *Daily* as the **Schedule Type**. In the **Daily** section of the tab, type `10` in the **Every x Day(s)** box to execute the importing of customer records every 10 days. See the configured schedule in the following screenshot.

Figure: Dates tab

6. On the **Hours** tab, in the **Starts On** box, select the time to start the execution of the import process: *1:30 AM*.

Figure: Hours tab

7. Click **Save & Close** on the form toolbar.

You have configured the schedule to update customer records.

2. Configuring File Synchronization
In this task, you will configure the synchronization of the file attached to the *Update Customers by Email* scenario with a file located on a local computer. Proceed as follows:

1. Create a folder on your computer, share the folder with an account on your network, and provide write permissions. For example, you can create the `C:/Sync` folder on your computer (which for this example we assume has the *MyWorkstation* name) and share this folder with write access within the local network. Copy the `CustomersMasterFile_Checked.csv` file to the created folder.

2. On the Import Scenarios form (SM206025; System > Integration > Manage), select the *Update Customers by Email* scenario. On the form title bar, click **Files**. The **Files** dialog box opens.

3. In the dialog box, click **Edit** to the right of the file name. This opens the File Maintenance form (SM202510), which displays the properties of the file attached to the scenario.

4. On the **Synchronization** tab of the File Maintenance form (SM202510), select the **Synchronize** check box.

5. In the **Synchronization Type** box, select the synchronization type: *Shared Folder*.

6. In the **Path** box, specify the network path to the file in shared folder. In this example, it is \ `\MyWorkstation\Sync\CustomersMasterFile_Checked.csv`.

7. In the **Login** box, specify the network login to the computer, and in the **Password** box, the password to allow the system access to the shared folder on the specified local network computer. If the file is located in a local folder on the computer where Acumatica ERP is installed, you can specify your credentials as you sign in on the computer. For the *Shared Folder* mode, even if the file is located on the local machine, you always have to specify the network path to the file and the login and password to access the file with write access.

8. Click **Save** on the form toolbar. See an example of the resulting settings in the following screenshot.

   On the File Maintenance form (SM202510), test the import by selecting **Synchronization** > **Import File**. If you have specified the connection settings properly, the file is successfully uploaded to the system.

Figure: Synchronization tab

You have configured synchronization of the file attached to the *Update Customers by Email* scenario with the file in the shared folder. For more information about file synchronization, see *To Set Up Automatic File Synchronization* in the documentation.

3. Scheduling File Synchronization

Now you will schedule the synchronization of the file. You will configure the schedule so that the new file is uploaded 30 minutes before the start of the scheduled import process. When you schedule a sequence of processes in the system, make sure you provide enough time for each process to complete before the start of the process that depends on it. Do the following:

1. On the File Synchronization from (SM202530; Configuration > Document Management > Schedule), select the *Import File* operation in the **Operation** box.

2. In the details table, select the **Selected** check box for *Data Providers (Import/Export Customers)\CustomersMasterFile.csv*.

3. Click **Schedules** on the form toolbar, and select **Add** from the button menu. The Automation Schedules form (SM205020) is opened in a pop-up panel.

4. In the summary area of the Automation Schedules form (SM205020), specify the following parameters:

   - **Description**: `Update Customer Master File Schedule`

   - **No Execution Limit**: Selected

   - **Starts On**: Current date

   - **No Expiration Date**: Selected

5. On the **Dates** tab, select *Daily* as the **Schedule Type**. In the **Daily** section of the tab, type `10` in the **Every x Day(s)** box to execute the file synchronization every 10 days. You have specified the same schedule type as the import scenario schedule has.

6. On the **Hours** tab, in the **Starts On** box, select the time to start the execution of the import process: *1:00 AM*. The update of the file is performed 30 minutes earlier than the import process is.

7. Click **Save & Close** on the form toolbar.

   Now you have fully automated the process of updating customer records in Acumatica ERP from an external CSV file. The file is updated automatically to the system, and then the system imports the data from this file according to that schedule.

   You can see all configured schedules on the Automation Schedules form (SM205030; System > Automation > Explore). The form shows the status and the last execution result of each schedule, and active schedules have the Active check box selected. You can select a schedule in the table and click **View Screen** on the table toolbar to open the form from which the schedule can be run manually.

			Status	*Screen ID	*Description	Active	*Starts On	Expires On	Last Executed On	Last Execution Result	Next Execution Date
	🔗	📄	✅	SM.20.25.30	Update Customer Master File Schedule	☑	6/24/2015		6/25/2015 6:42 AM	Operation has been ...	6/26/2015 1:00 AM
>	🔗	📄	✅	SM.20.60.35	Update Customers Schedule	☑	6/24/2015		6/25/2015 6:42 AM	Operation has been ...	6/26/2015 1:30 AM
	🔗	📄		SM.50.70.10	Send/Receive Emails	☐	3/19/2013				1/7/2014 9:55 AM

Figure: The list of active schedules

4. Testing the Scheduled File Synchronization and Import

You can force the schedules to run to make sure that they work properly as follows:

1. On the Customers form (AR303000; Finance > Accounts Receivable > Work Area > Manage), find the customer with the email address `Silk-shop@mail.con`; make sure the customer class is DEFAULT.

2. In the `CustomersMasterFile_Checked.csv` file in the folder that you configured for synchronization, replace the file content with the following content.

   CUSTOMER ID;CUSTOMER NAME;CUSTOMER CLASS;CITY;COUNTRY;STATE;ADDRESS LINE 1;PHONE 1;ATTENTION;EMAIL

   ;;INTL;;;;;;;Silk-shop@mail.con

   Thus, the file contains one row that changes to *INTL* the customer class of the customer with the main contact email address `Silk-shop@mail.con`.

3. Save the file.

4. Run the schedules manually as follows:

a. On the Automation Schedules form (SM205020), select *Update Customer Master File Schedule* and click **View Screen**.

b. On the File Synchronization form (SM202530), which the system brings up, select *CustomersMasterFile_Checked.csv* and click **Process File**.

The file is uploaded to the system from the specified source.

c. Return to the Automation Schedules form (SM205030) (you can click **Back** in the browser to go back to this form), and select *Update Customers Schedule* and click **View Screen**.

d. On the Import Scenarios form (SM205020), select *Update Customers by Email* and click **Process**.

The system executes the scenario for the uploaded file.

5. On the Import by Scenario form (SM206036), review the results of the last run of the import procedure. You can see that one record has been prepared and then processed (see the following screenshot).

Figure: Processed record on the History tab

6. On the Customers form (AR303000), find the customer by the email address, `Silk-shop@mail.con,` and make sure it has been assigned the *INTL* customer class during the last update by the import scenario.

Example 6.1.2: Scheduling Data Export (AR Invoices)

In this example, you will configure the periodic exporting of AR invoices from Acumatica ERP to an Excel file by using a schedule.

This example presumes that you have previously created the *Export AR Invoices* scenario, as described in *Example 4.1.2: Exporting Master-Detail Records (AR Invoices)*.

To configure the scheduling of data export, you should perform the following tasks, which are described in detail later in this example:

1. *Scheduling the execution of the export scenario*

2. *Configuring file synchronization*

3. *Scheduling file synchronization*

1. Scheduling the Execution of the Export Scenario

In this task, you will add a schedule for the *Export AR Invoices* scenario, which was created earlier in this course. Do the following:

1. Open the Export Scenarios (SM207035; System > Integration > Schedule) form. In the **Operation** box, select *Prepare & Export*.

2. In the details table of the form (which displays the list of active export scenarios), select the *Export AR Invoices* scenario, as the following screenshot shows.

3. On the form toolbar, click **Schedules** and select **Add** from the button menu, as shown on the following screenshot. This opens the Automation Schedules form (SM205020) as a pop-up.
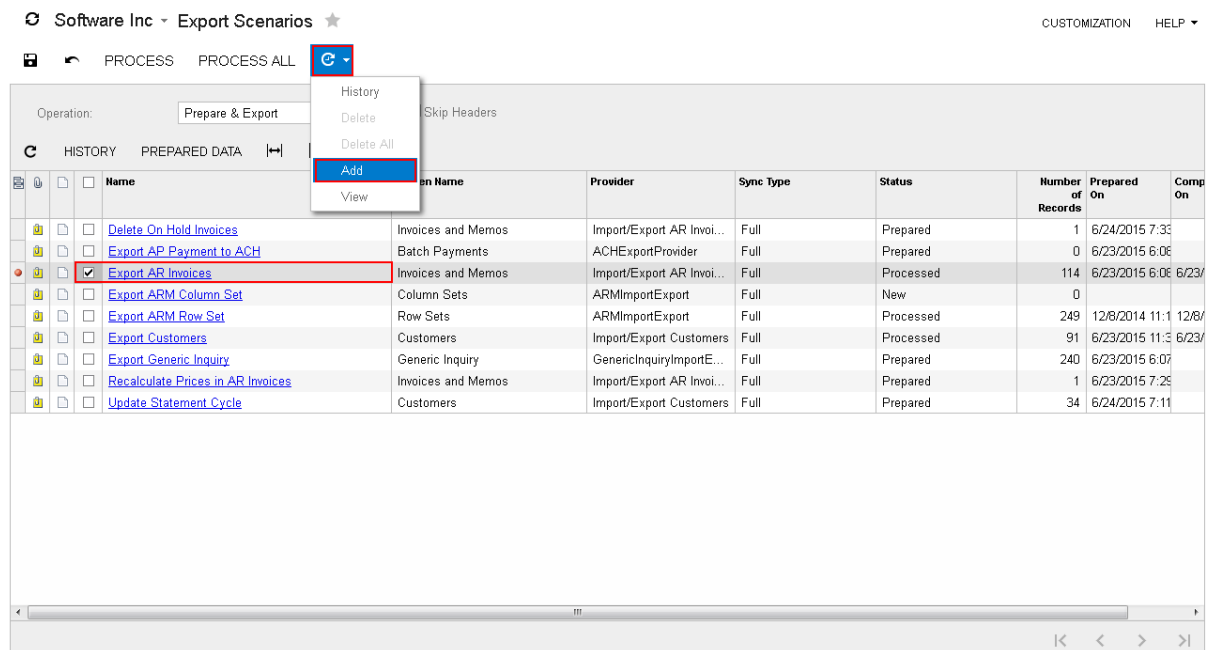
Figure: The list of scenarios with the selected scenario to schedule

4. In the summary area of the Automation Schedules form (SM205020), specify the following parameters:

   - **Description**: `Export AR Invoices Schedule`

   - **No Execution Limit**: Selected

   - **Starts On**: Current date

- **No Expiration Date**: Selected

5. On the **Dates** tab, select *Weekly* as the **Schedule Type**. In the **Weekly** section of the tab, make the schedule run every week on Friday. See the configured schedule in the following screenshot.

Figure: Dates tab

6. On the **Hours** tab, in the **Starts On** box, select the time to start the execution of the export process: *2:30 AM*.

7. Click **Save & Close** on the form toolbar.

You have configured the schedule to update AR invoice records.

2. Configuring File Synchronization

In this step, you will configure the synchronization of the file attached to the *Export AR Invoices* scenario with a folder located in a local network. If you synchronize a file with a folder, a new file with the appropriate date and time stamp is created in the specified folder each time synchronization is performed. Proceed as follows:

1. Create a folder on your computer, share the folder with an account on your network, and provide write permissions. For example, you can create the `C:/Sync` folder on your computer (which for the sake of this example we assume has the *MyWorkstation* computer name) and share this folder with write access within the local network.

2. On the Export Scenarios form (SM207025; System > Integration > Manage), select the *Export AR Invoices* scenario. On the form title bar, click **Files**. The **Files** dialog box opens.

3. In the dialog box, click **Edit** to the right of the file name to open the File Maintenance form (SM202510).

4. On the **Synchronization** tab of the File Maintenance form (SM202510) select the **Synchronize** check box.

5. In the **Synchronization Type** box, select the synchronization type: *Shared Folder*.

6. In the **Path** box, specify the path to the shared folder. In our example, it is `\\MyWorkstation \Sync\`.

7. Specify the login and password to access the folder.

8. Select the **Synchronize Folder Content** check box to perform synchronization with a folder.

9. In the **Export File Naming Format** box, select *Date*. This makes the system append the date and timestamp to the name of the exported file.

10. Click **Save** on the form toolbar to save your changes.

You have configured synchronization of the files used for export. You can test the connection settings and synchronize the files immediately by selecting **Synchronization** > **Export File** on the File Maintenance form (SM202510). After the synchronization is complete, the system exports all versions of the file to the specified shared folder; make sure the files have appeared in that folder.

Next, you will create a schedule to perform synchronization automatically by using a schedule.

3. Scheduling File Synchronization

In this task, you will create a schedule that makes the system upload the file resulting from the export of AR invoices to the shared folder an hour after the start of the scheduled export process. When you schedule a sequence of processes in the system, make sure you provide enough time for each process to complete before the start of the process that depends on it. Do the following:

1. Open the File Synchronization form (SM202530; Configuration > Document Management > Schedule), and select the *Export File* operation in the **Operation** box.

2. In the details table, select the **Selected** check box for *Data Providers (Import/Export AR Invoices)\OpenARInvoices_12-2013.xlsx*.

3. On the form toolbar, click **Schedules** and select **Add** from the button menu. In the summary area of the Automation Schedule form (SM205020), which opens, specify the following parameters:

   - **Description**: `Export AR Invoices File Schedule`

   - **No Execution Limit**: Selected

   - **Starts On**: Current date

   - **No Expiration Date**: Selected

4. On the **Dates** tab, select *Weekly* as the **Schedule Type**. In the **Weekly** section of the tab, define the schedule to run once a week, on Friday.

5. On the **Hours** tab, in the **Starts On** box, select the time to start the execution of the import process: *3:30 AM*. The update of the file is performed one hour after the beginning of the export process.

6. Click **Save & Close** on the form toolbar.

   You have configured the scheduled export of AR invoice records from Acumatica ERP to an Excel file.

   To test the scheduled synchronization and export, you can perform actions similar to ones described in *Example 6.1.1: Scheduling Data Import (Customers)*. You can make changes to an invoice in the system, run the export scenario schedule and the file synchronization schedule manually, and then review the latest version of the exported file that should appear in the shared folder. The up-to-date invoice must be listed in the most recently exported file.

Lesson Summary

In this lesson, you have learned how to schedule file synchronization between the system and the external source, and how to schedule the import and export scenarios to be run. To configure the scheduled synchronization, you have done the following:

1. Created the import scenario that loads data from the needed file, and the export scenario that saves data into a file.

2. Assigned the created scenario to an automation schedule.

3. Configured synchronization between a file in Acumatica ERP and a file from the network resource.

4. Scheduled the synchronization of files. For the scheduled import, you have learned to run the file synchronization and then import the scenario. For the scheduled export, you have learned to first run the export scenario and then run the synchronization of files.

Appendix: Alphabetical Index

In this topic, you can find the links to the documentation topics and topics of this guide, which describe the following main concepts and integration scenarios commands used in this course:

- Actions:

  - *Actions in Import Scenarios*

  - *Data Modification During Export: Use of Commit and Actions*

- Auto-numbering of records: *Key Fields and Search in Import Scenarios*

- CSV data provider:

  - *Parameters and Schema of a CSV Provider*

  - *Requirements for a Source CSV File*

- **Commit** check box:

  - *Fields with Commit in Import and Export Scenarios*

  - *Data Modification During Export: Use of Commit and Actions*

- Custom key (`@@KeyName`): *Key Fields and Search in Import Scenarios*

- Data export: *Data Export*

- Data import: *Data Import*

- Data provider: *Data Providers*

- Data verification: *Recommendations for Data Verification*

- `<Dialog Answer>` command: *Pop-Up Dialog Boxes in Import Scenarios*

- `Every` instruction: *Export of All Records: Use of Every*

- Excel data provider:

  - *Parameters and Schema of an Excel Provider*

  - *Requirements for a Source Excel File*

- Export scenario:

  - *Export Scenario Creation*

  - *Export Scenario Parameters*

- Import scenario:

  - *Import Scenario Creation*

  - *Import Scenario Parameters*

- `<Line Number>` service command: *Service Commands in Import and Export Scenarios*

- Key field: *Key Fields and Search in Import Scenarios*

- Mapping: *Configuring Scenario Mapping*

- Microsoft SQL data provider: *Parameters and Schema of a Microsoft SQL Provider*

- Search for a record: *Key Fields and Search in Import Scenarios*

- Selector column (`KeyName -> SelectorColumnName`): *Key Fields and Search in Import Scenarios*

- Service commands: *Service Commands in Import and Export Scenarios*

- Simplified data import: *Simplified Scenarios for Data Import*

- Source fields: *Source Fields in Import Scenarios*
- Source restrictions:
    - *Source Restrictions in Export Scenarios*
    - *Source Restrictions in Import Scenarios*
- Speed of processing:
    - *Performance Troubleshooting in Integration Scenarios*
- Target objects and fields: *Target Objects and Fields in Import Scenarios*
- Target restrictions: *Target Restrictions in Import Scenarios*

Appendix: SQL Query for SQL Tables Creation

You can create the Microsoft SQL database that is used in *Lesson 1.2: Creating a Microsoft SQL Provider* and *Example 2.5.5: Importing Master-Detail Records with Automatic Numbering (Purchase Orders)* by using the following SQL query. This script is compatible with Microsoft SQL Server 2012 or later.

```
Create database Test
GO
Use Test
GO
/****** Object: Table [dbo].[POExt] ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[POExt](
[Type] [nvarchar](255) NULL,
[VendorID] [nvarchar](255) NULL,
[Date] [datetime] NULL,
[DocumentReference] [nvarchar](255) NULL
) ON [PRIMARY]
GO
/****** Object: Table [dbo].[POLineExt] ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[POLineExt](
[DocumentReference] [nvarchar](255) NULL,
[Warehouse] [nvarchar](255) NULL,
[VendorInventoryID] [nvarchar](255) NULL,
[Quantity] [float] NULL
) ON [PRIMARY]
GO
/****** Insert data POExt ******/
INSERT [dbo].[POExt] ([Type], [VendorID], [Date], [DocumentReference]) VALUES
 (N'Normal', N'V000000016', CAST(0x0000A29800000000 AS DateTime), N'10018-3701')
GO
INSERT [dbo].[POExt] ([Type], [VendorID], [Date], [DocumentReference]) VALUES
 (N'Standard', N'V000000014', CAST(0x0000A29A00000000 AS DateTime), N'10020')
GO
INSERT [dbo].[POExt] ([Type], [VendorID], [Date], [DocumentReference]) VALUES
 (N'Standard', N'V000000008', CAST(0x0000A29900000000 AS DateTime), N'10011')
GO
INSERT [dbo].[POExt] ([Type], [VendorID], [Date], [DocumentReference]) VALUES
 (N'Normal', N'V000000027', CAST(0x0000A29F00000000 AS DateTime), N'95818-1117')
GO
/****** Insert data POLineExt ******/
INSERT [dbo].[POLineExt] ([DocumentReference], [Warehouse], [VendorInventoryID],
[Quantity]) VALUES (N'10018-3701', N'MAIN', N'AAM0001', 250)
GO
INSERT [dbo].[POLineExt] ([DocumentReference], [Warehouse], [VendorInventoryID],
[Quantity]) VALUES (N'10018-3701', N'MAIN', N'CG0258', 150)
GO
INSERT [dbo].[POLineExt] ([DocumentReference], [Warehouse], [VendorInventoryID],
[Quantity]) VALUES (N'10020', N'MAIN', N'LEGO500PS', 340)
GO
INSERT [dbo].[POLineExt] ([DocumentReference], [Warehouse], [VendorInventoryID],
[Quantity]) VALUES (N'10011', N'MAIN', N'256489', 170)
GO
INSERT [dbo].[POLineExt] ([DocumentReference], [Warehouse], [VendorInventoryID],
[Quantity]) VALUES (N'10011', N'MAIN', N'123123', 80)
GO
INSERT [dbo].[POLineExt] ([DocumentReference], [Warehouse], [VendorInventoryID],
[Quantity]) VALUES (N'10011', N'MAIN', N'012345', 100)
GO
```

```
INSERT [dbo].[POLineExt] ([DocumentReference], [Warehouse], [VendorInventoryID],
[Quantity]) VALUES (N'95818-1117', N'MAIN', N'123456789', 500)
GO
```

Appendix: Troubleshooting

I get the error *File is not found* when I try to prepare records on the Import by Scenario form (SM206036; System > Integration > Process). What should I do?

This error can appear if there is no file attached to the Import By Scenario form (SM206036) or an incorrect path to the file is specified in the data provider.

To fix the issue, on the title bar of the Import by Scenario form (SM206036), click **Files**, and proceed as follows:

- If no file is displayed in the **Files** dialog box, which opens, browse for the file to be imported and upload the file.

- If a file is displayed in the **Files** dialog box, click **Edit**; then on the form toolbar of the File Maintenance form (SM202510), which opens, upload the new version of the file by clicking **Upload New Version**.

I get the error *You have insufficient rights to access the file* on the Import by Scenario form (SM206036). What should I do?

The probable reason is that the file is missing in the data provider. Try to upload the file to the Import by Scenario form (SM206036) by clicking **Files** on the title bar.

I get the error *The Save button is disabled* when I try to import documents by using an import scenario. What should I do?

The probable reason is that you are trying to modify a read-only document. For example, an AR invoice has the *Open* status and therefore cannot be modified. (That is, the **Save** button on the form toolbar is disabled for this document.) Try to manually enter the document that produces the error on the corresponding Acumatica ERP form by reproducing the steps of the scenario, and make sure the same error does not appear during manual entry.