TIBCO EBX® Data Exchange Add-on (New)

Version 6.2.2
August 2025

TIBCO®

Table of contents

Administrator Guide

User Guide

Notices

Release Notes

Administrator Guide

CHAPTER 1

Connecting to external data sources

This chapter contains the following topics:

1.1 Overview

An administrator can create connections that enable data integration with external data sources, such as databases. The add-on can also connect to TIBCO Data Virtualization (TDV) where multiple databases can be combined into views. In addition to the external data source connection, an administrator must configure a connection between the database and data model. This ensures that end users can only integrate data between a given data model and its approved data sources and targets.

To successfully complete these tasks, start with the database connection information configuration [p 8]. This is a prerequisite for connecting a database and data model [p 10].

Supported databases

The add-on supports connections to the following databases:

- MsSQL
- Oracle
- Postgresql
- TDV
- AWS

1.2 Step 1: Configuring a database connection

Configure a database connection using one of the following methods:

- Defining a connection in the UI [p 9]

- Defining a connection in the server configuration file [p 10]

> **Attention**
> Prior to configuring a database connection, the correct JDBC driver must be deployed on your TIBCO EBX® server.

Defining a connection in the UI

This section describes how to create a connection with a database, or TDV to enable data integration.

Create a database or TDV connection:

1. In the **Administration** panel, select TIBCO EBX® Data Exchange Add-on (New).
2. From the **Reference data** group, select the **Databases** table and create a new record.
3. Supply the required information:
   - **Name**: The name used to identify this connection.
   - **URL**: The URL used by the database for incoming connections. When using:
     - The **External system** authentication method, enter the URL for AWS.
     - The **Direct** authentication method, enter the URL specific to your database. For example:
       - MsSQL: `jdbc:sqlserver://<server>:<port>;databaseName=<databaseName>`
       - Oracle: `jdbc:oracle:<drivertype>:@<server>:<port>:<databaseName>`
       - Postgresql: `jdbc:postgresql://<server>:<port>/<databaseName>`
       - TDV: `jdbc:compositesw:dbapi@<server name>:<port>?domain=<domain name>&dataSource=<datasource name>`
       - AWS: `jdbc:aws-secretsmanager-<databaseURL>`
   - **Authentication**: Sets the authentication type for this connection. A direct connection uses a username and password; external system requires an access key.
   - **Username** and **Password**: The login credentials for this database connection. If database access is granted through Windows permissions, enter those credentials here.
   - **Access key**: The access key required to access the external database.
4. Optionally, test the connection.
5. Save and close.

   This connection information is now available to use when connecting a database with a data model [p 10].

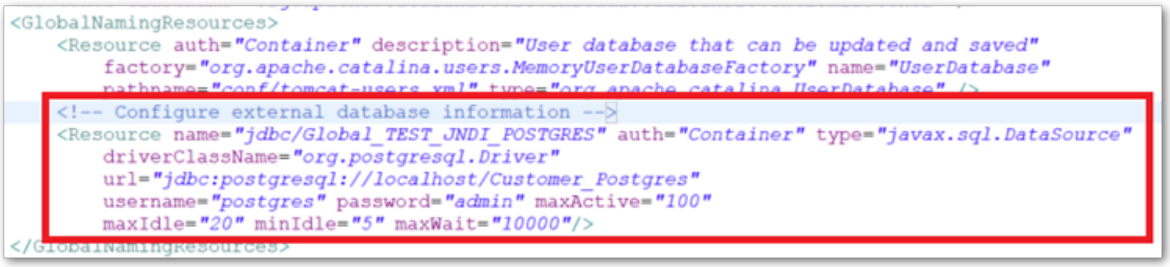
Defining a connection in the server configuration file

This section describes how to create a database connection using a Tomcat server configuration file.

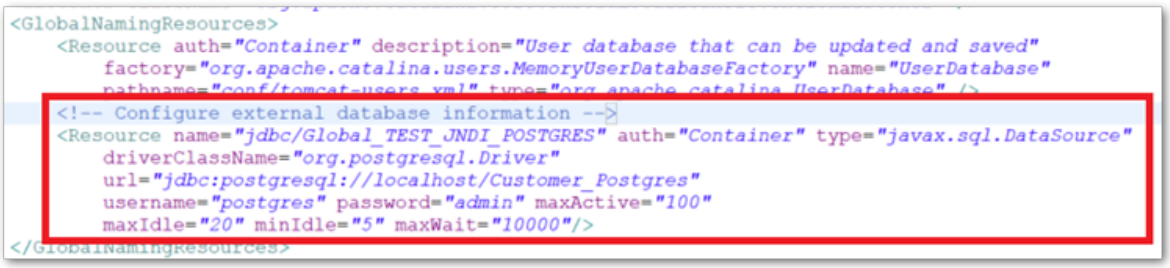
> **Attention**
> When you use this method to configure a connection, the connection does not display in the **Database** table when viewing the add-on's administrative settings. However, it is available to select when linking a database to a data model in: Step 2: Connecting a database and data model [p 10].

Create a database connection in `server.xml`:

1. Ensure EBX® is properly shutdown.
2. In your `<GlobalNamingResources>` element add a `<Resource>` child element and define the database information. A sample configuration is shown below:



3. Link the `<Resource>` element to the `ebx-manager` and `ebx-addon-dint<Context>`s. A sample configuration is shown below:



4. Start your EBX® server.

   This connection information is now available to use when connecting a database with a data model [p 10].

1.3 Step 2: Connecting a database and data model

The option to import or export SQL is not available to end users until an administrator configures a connection between a database and a data model. To connect a database with a data model:

1. In the **Administration** panel, select TIBCO EBX® Data Exchange Add-on (New).
2. From the **Reference data** group, select **Database to data model connections** and create a new record.
3. Supply the following information:

- **Database**: Select the database from the dropdown menu. This list populates with databases that you provided connection information for using the **Databases** table.
- **Data model**: Select the data model to enable import and export between it and the selected database.
- Optionally, provide a **Table name pattern**, **Schema name pattern**, and **Description**.

4. Save and close.

   Users that have access to data in the specified data model can use the **SQL Import** and **SQL Export** services integrate data between the tables in the connected database and EBX®.

CHAPTER 2

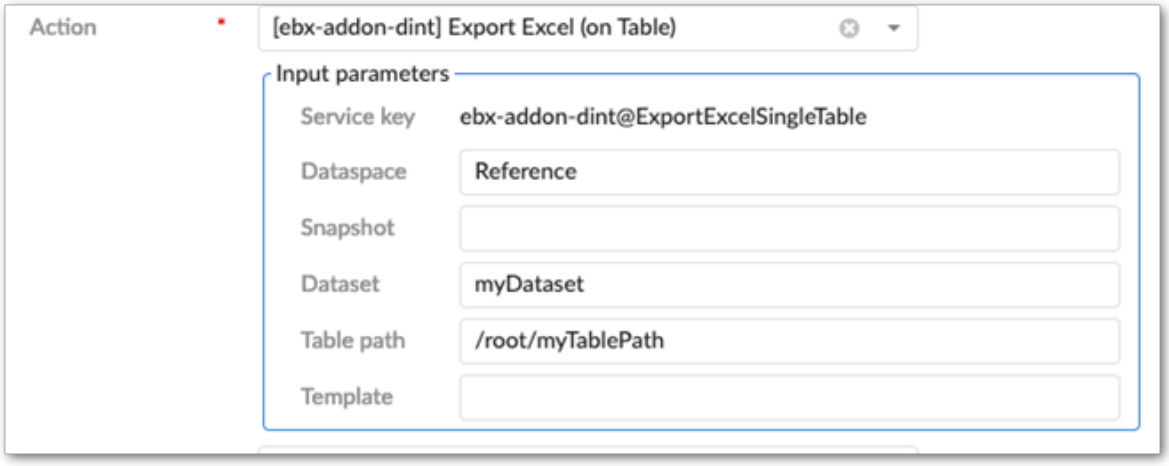
Enabling data integration in workflows and perspectives

Administrators can enable add-on import, export, and transfer functionality in workflows and perspectives. These actions are available as services and actions in workflows and perspectives, respectively. See the EBX® product documentation for more information on working with perspectives and workflows.

To enable data integration in a perspective or workflow:

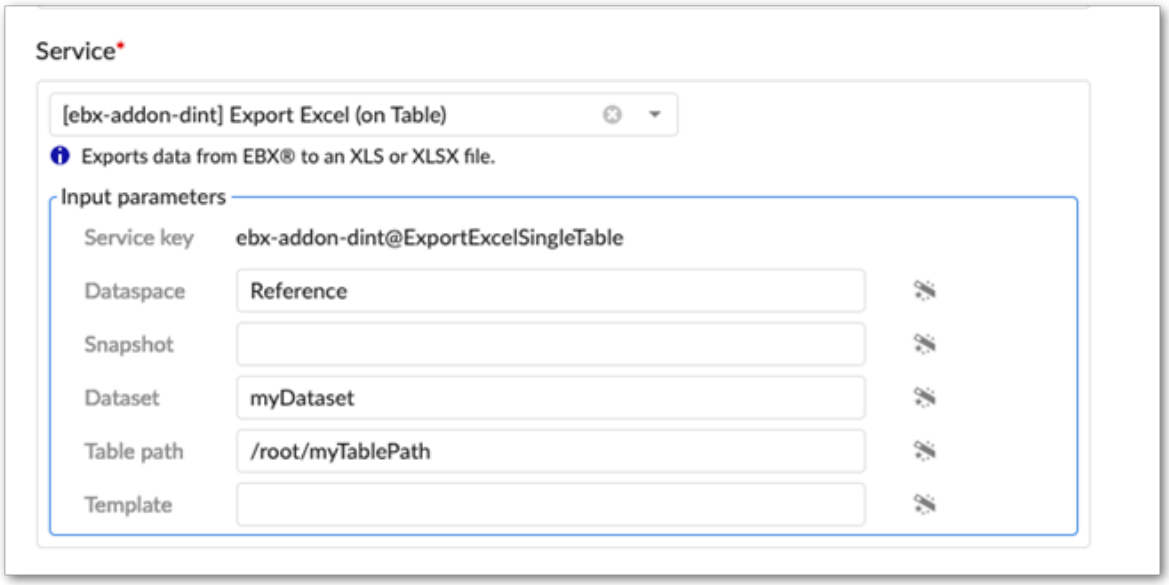
1. When configuring a:
   - Perspective: select the appropriate action from the drop-down menu.

     The add-on specific actions begin with `[ebx-addon-dint]`. There are two options for each import, export and transfer type. This allows you to specify whether the action applies to the selected table, or dataset.



   - Workflow: select the appropriate service from the drop-down menu.

The add-on specific actions begin with `[ebx-addon-dint]`. There are two options for each import, export and transfer type. This allows you to specify whether the action applies to the selected table, or dataset.



2. Use the required **Input parameters** to specify the location where you want to service or action to be active.
3. Optionally, specify a **Template** parameter.

   If you specify a template, users cannot change the template during import, export, or transfer. Additionally, you might want to keep in mind that not all users can access each template.
4. Complete remaining workflow or perspective configuration steps. See the EBX® product documentation for more information on creating workflows and perspectives and how they work.

CHAPTER 3

Creating custom date and date/time patterns

This chapter contains the following topics:

3.1 Overview

In some cases when importing, the date or date/time format in the source is not compatible with the target. The add-on allows administrators to create custom formats for CSV import and export to overcome the compatibility issue.

Creating a custom pattern

To create a custom pattern:

1. Navigate to *Administration > TIBCO EBX® Data Exchange Add-on (New) > Reference data > Date time pattern*.
2. Create a new record.
3. Choose the application type.
4. Enter the pattern.

   See Date pattern reference [p 15] for date pattern definitions and output information. See Time pattern reference [p 16] for time pattern definitions and output information.

   Attention
   The table will not accept duplicates.

5. Select the pattern type.
6. Save and close.

Date pattern reference

A date pattern must adhere to the following:

- It can only include the following characters: G, y, M, w, W, D, d, F, E, u

- It can only include the following special characters surrounded with double quotes: space, /, -, |, :, ;
- Any other characters must be surrounded with single quotes. For example: '#'
- It cannot begin with the space character.

> **Note**
>
> A date/time pattern can utilize the allowed characters for both the date and time patterns.

The following table provides a description of the date pattern parameters:

Symbol	Definition	Pattern/Output
G	Era designator	GG/AD
y	Year	yy/96 yyyy/1996
M	Month in year	MM/07 MMM/Jul MMMM/July
W	Week in year	W/27
D	Day number in year	D/189
d	Day number in month	d/9 dd/09
F	Day of week in month	F/2 (2nd Wednesday in July)
E	Day of week (name)	E, EE, or EEE/Tue EEEE/Tuesday EEEEE/T EEEEEE/Tu
u	Day number in week	1/Monday 2/Tuesday

Time pattern reference

A date pattern must adhere to the following:

- It can only include the following characters: a, H, k, K, h, m, s, S, z, Z, X
- It can only include the following special characters surrounded with double quotes: space, /, -, |, :, ;
- Any other characters must be surrounded with single quotes. For example: '#'

- It cannot begin with the space character.

> **Note**
>
> A date/time pattern can utilize the allowed characters for both the date and time patterns.

The following table provides a description of the time pattern parameters:

Symbol	Definition	Pattern/Output
a	AM/PM designation	a/PM
H	Hour in the day Hour in the day (0-23)	H/0 HH/00
k	Hour in the day (1-24)	k/24 kk/24
K	Hour in am/pm for 12 hour format (0-11)	K/0 KK/00
h	Hour in am/pm for 12 hour format (1-12)	h/7 hh/07
m	Hour in am/pm for 12 hour format (1-12)	m/4 mm/04
s	Second in the minute	s/3 ss/03
S	Second in the minute	S/2 SS/22 SSS/225 SSSS/2250
z	Timezone	z, zz, zzz/PST zzzz/Pacific Standard Time
Z	Timezone offset in hours (RFC pattern)	-0800
X	Timezone offset in ISO format	-08; -0800; -08:00

CHAPTER 4

Setting default options for services

To set the default options for the add-on's import, export, and transfer services:

1. Navigate to *Administration* > *Integration* > *TIBCO EBX® Data Exchange Add-on (New)* > *Additional configuration* > *Default option values* and select either *Import/Export*, or *Transfer*.
2. Open the table's record and use the tabs at the top to select the format to edit.

   > **Note**
   >
   > The options that users can select during import, export, and transfer operations for the **Date format** and **Date/time format** properties are created in the **Date time pattern** table. Use the icon to access this table and edit the default pattern.

3. After setting the new default options, save your changes.

To migrate default options between different environments:

1. Select the desired table in the following location: *Administration* > *Integration* > *TIBCO EBX® Data Exchange Add-on (New)* > *Additional configuration* > *Default option values*.
2. Open the table's **Actions** menu and select **Export XML**.
3. Adjust the export options to meet your requirements and select **Export**.
4. In the target environment, open the table's **Actions** menu and select **Import XML**.
5. After selecting the file to import from, make any needed adjustments to the import options and select **Import**.

   > **Note**
   >
   > Default options are not available to migrate using the TIBCO EBX® staging feature.

CHAPTER 5

Setting permissions

Administrators can apply EBX® permissions to a profile, which is associated with either a user or a role. Each user can have multiple roles, and each role can include multiple users. If more than one set of permissions is associated with the same profile, the **Restrictive policy** setting determines whether the least restrictive or most restrictive policy settings apply. The EBX Data Exchange Add-on (New) allows you to leverage EBX® behavior related to permissions and apply it to the act of exchanging data.

Permissions for users and roles determine:

- access and interaction with import, export, and transfer screens. By default, all users can access the **Options**, **Mapping**, and **Simulation** screens. Administrators can specify that these pages are read-only accessible, or hidden from specific user profiles.
- access to the modes users can choose when importing and transferring data. The modes determine whether an import or transfer operation updates, inserts, or deletes data in the target location.
- control over how the system handles errors caused by import or transfer of invalid records. As long as the **Force import** or **Force transfer** options are not enabled, you can specify whether users have the choice of following data model constraints, skipping only invalid records, and stopping the operation when an invalid record is encountered. However, error handling options do not work when the imported file contains null or empty primary key values. Also, please note that this option does not bypass custom trigger constraint implementations.

To set import and export permissions:

1. Navigate to *Administration > Integration > TIBCO EBX® Data Exchange Add-on (New) > Additional configuration > Global permission* and create a new record.
2. On the **Main** tab you specify which profile these configuration settings will apply to and whether this will be considered a restrictive policy. If the **Restriction policy** option is enabled, the settings in this configuration are applied wherever they are more restrictive than others.
3. Use the remaining tabs to set permissions for each data exchange import, export, and transfer format. Note that if you choose the `Write` permission level for either **Service options** or **Mapping**, you must also set the other to the same `Write` permission level.

CHAPTER 6

Configuring background tasks

This chapter contains the following topics:

6.1 Overview

By default, when users initiate an import, export, or transfer service, they cannot perform other tasks in EBX® until the service completes. This might reduce productivity, especially for lengthy operations. As an administrator, you can configure services to run as background tasks. When a service runs in the background, users can navigate to other areas in EBX® to perform additional tasks.

For background CSV or Excel exports, the files, including those containing invalid data, are saved to a temporary location. By default, this location is `/tmp` on macOS or Linux, and `C:\Users\<YourUserName>\AppData\Local\Temp` on Windows. You can specify a different download location. However, users accessing completed tasks and downloading the files will not see the temporary storage location.

6.2 Managing background tasks

To specify which add-on services run as background tasks and the location for exported files:

1. Navigate to *Administration* > *Integration* > *TIBCO EBX® Data Exchange Add-on (New)* > *Additional configuration* > *Background tasks* and open the *Task configuration* record.
2. Optionally, enter the path where you want to save exported files. If you do not enter a path, these files are saved to a temporary location. Typically, this is `/tmp` on macOS or Linux and `C:\Users\<YourUserName>\AppData\Local\Temp` on Windows.
3. Under the **Task activation** group, set the services you want to run as background tasks to **Yes**.
4. Click **Save and close**.

User Guide

CHAPTER 7

About the add-on

This chapter contains the following topics:

7.1 Overview

The TIBCO EBX® Data Exchange Add-on (New) enables integration and transformation of data from one data store to another. The current version of the add-on can:

- Import and export data between tables in your TIBCO EBX® repository and external files.
- Transfer data between tables within your EBX® repository.
- Import and export data between tables in your EBX® repository and SQL databases.

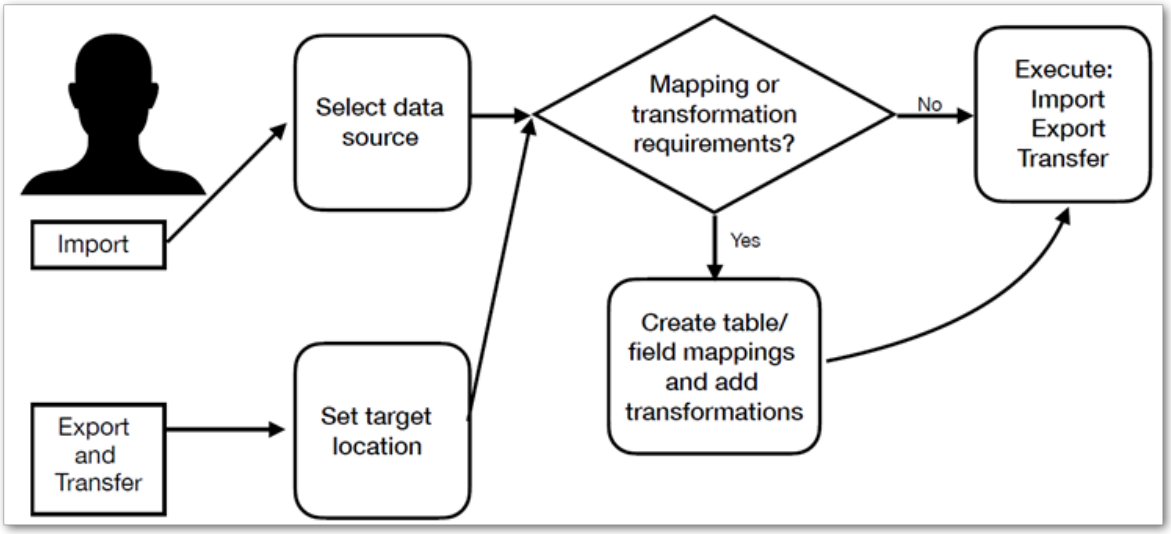
7.2 Data transformation overview

When requirements between your data source and target differ, you can use the add-on's transformation functions to reconcile the differences. These transformations provide the flexibility to change data values and convert data format between sources and targets. For example, a source might use the following codes for states 1, 2, 3, etc. But, the target expects Alabama, Alaska, and Arizona. You can use a transformation to populate the target with the expected value.

7.3 Your role with the add-on

As a business user you interaction with the add-on likely includes the tasks outlined in the following image:

> **Note**
>
> Where you access data integration services determines the source for exports and targets for imports.



7.4 What's next?

The following table outlines the topics covered in the documentation sections:

Importing	For an introduction to the import process, see Import overview [p 30]. For instructions on importing, see Importing to a table [p 31].
Exporting	For an introduction to the export process, see Export overview [p 54]. For instructions on exporting, see Exporting a table [p 55].
Data transfer	For an introduction to the transfer process, see Transfer overview [p 76]. For instructions on transferring data, see Transferring to a table [p 77].
Mapping and transformations	Map and transform overview [p 94] provides a look at how the add-on implements the concepts of mappings and transformations. Mapping interface reference [p 97] highlights the user interface used for mapping and transformation tasks during data integration. Additionally, it provides an example of using a transformation function. You can refer to Transformation function reference [p 105] to see a list and description of the add-on's built-in transformation functions.

Importing data

CHAPTER 8

Import overview

The services provided by the add-on allow you to import data from source locations outside of EBX® to your repository. The location you initiate the import from determines the target for the import. For instance, running the import service from a table's **Actions** menu, sets the table as the target. Running the service from a dataset's **Actions** menu sets its tables as the targets. Overall, steps to complete these procedures are the same, except some details such as mapping differ. As outlined below, the import process includes:

- Selecting the source data. Currently supported source formats include XLS, XLSX, CSV and SQL. Importing from SQL is supported at the table level only and requires administrative configuration [p 8].
- Defining any required mappings or transformations. The add-on automatically maps source fields with those in the target that have the same name. If required, you can use the add-on's drag-n-drop functionality to create or update mappings. If you want to apply transformations to your data, you can use built-in functions to modify data during import. For more information on the topics of mapping and transformations, see Map and transform overview [p 94].
- Optionally, running a simulation to preview the import result. This allows you to update or fix your data before the import to prevent any potential errors.
- Saving settings as a template for later reuse. When import operations require the use of transformations or custom mappings, you can use templates to store these settings. This alleviates you from having to redo the same tasks each time you perform a specific import.

See also

Importing to a table [p 31]

Map and transform overview [p 94]

Mapping interface reference [p 97]

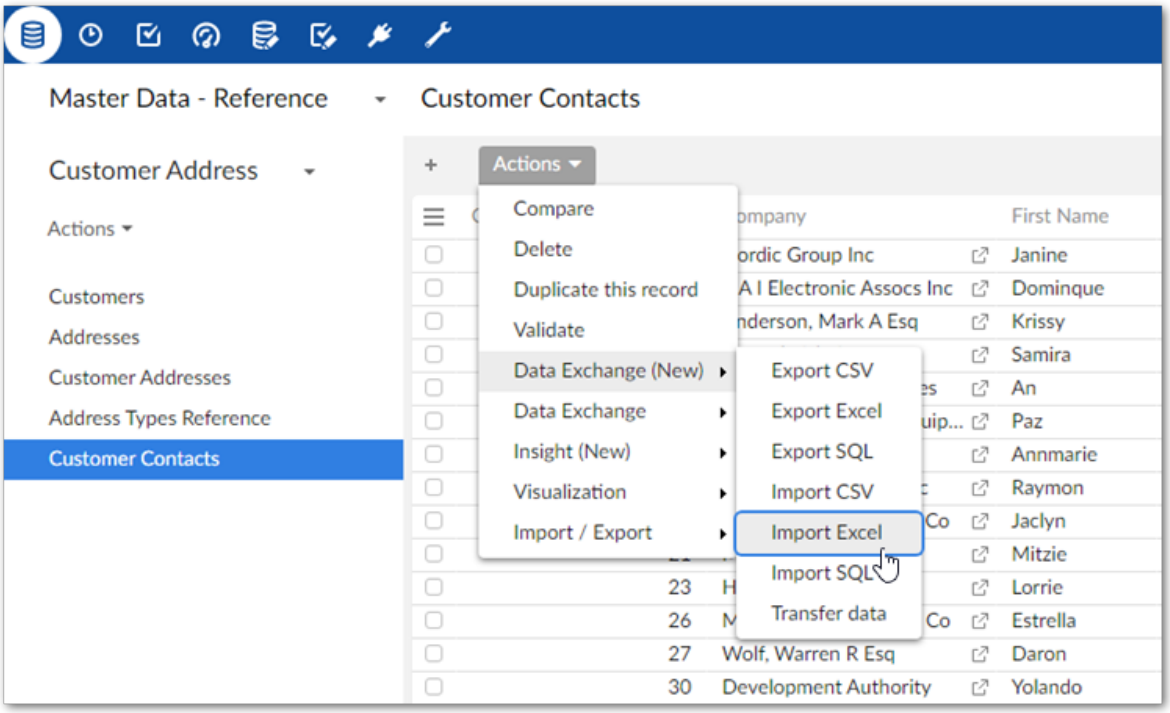
Export overview [p 54]

CHAPTER 9

Importing to a table

To import data from a CSV file, Excel file, or SQL data source to an individual table:

1. Initiate the import process:
    1. Navigate to the table you want to use as the target.
    2. Initiate the import process from the table by selecting *Actions* > *Data Exchange (New)* and one of the following options: **Import CSV**, **Import Excel**, or **Import SQL**. Administrators must configure the available SQL sources [p 8] to enable the SQL import option.

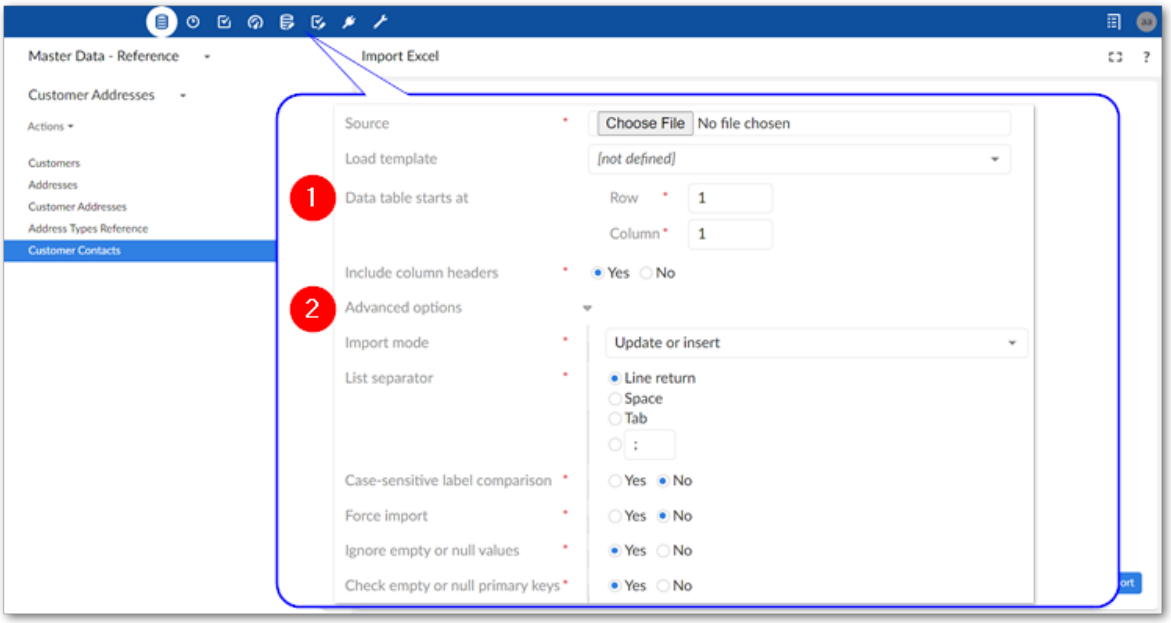


2. Choose the data source:
    - For CSV and Excel: Browse to select the file containing the source data for the import and optionally the template to use.
    - For SQL: Use the **SQL data source** and **SQL table or view** dropdown menus to select the source table or view for the import.
3. Optionally, use the **Load template** option to select any previously saved template to load its configuration and mapping options. After loading, you still have the ability to make changes

to options. Note that changes to certain import options will impact the template's mappings. Depending on the circumstances, the add-on can automatically create default mappings. In other cases you might have to update mappings and transformations manually.

4. Update format-specific options:

1. The following image and list highlight some of the options when importing from Excel:



1) Data table starts at and Includes column headers:	**Data table starts at:** Specifies the location in the spreadsheet where the data table begins. **Includes column headers:** Use this option to indicate whether the data table contains a header row at the position specified by the **Data table starts at** property. The add-on will match the text in the first row of each source column with the field labels in the target location. Automatic mappings are generated when the values in the source and target match. When this option is set to **No**, the add-on maps columns sequentially. It begins by mapping the first column in the source with the first column in the target and so forth until one or both run out of columns.
2) Advanced options:	**Import mode:** Specifies how target data is updated. See the tooltip in the UI for descriptions of each mode. **Note** Depending on your deployment environment's resources, you might have issues using the **Insert only** and **Delete only** modes when importing a large volume of data. If this issue occurs, use any of the other import modes.

Case-sensitive label comparison: Determines whether the add-on pays attention to letter case when matching the labels in the source and target.

Force import: Bypasses any data model validation rules or constraints, and imports data as is. This option is generally used in a data management architecture that includes landing, staging, and master zones. If the same data model is shared across all zones, constraints could prevent data from successfully importing into the landing zone. In this case, use the **Force import** option to import the raw data to the landing zone.

> **Note**
>
> An import cannot be forced if it violates the maximum length specified with table history and replication constrains.

Ignore empty or null values: Determines whether existing records are updated with empty or null values from the imported file.

Check empty and null primary keys: Specifies whether all primary keys are matched and validated between source and target. This option is enabled by default.

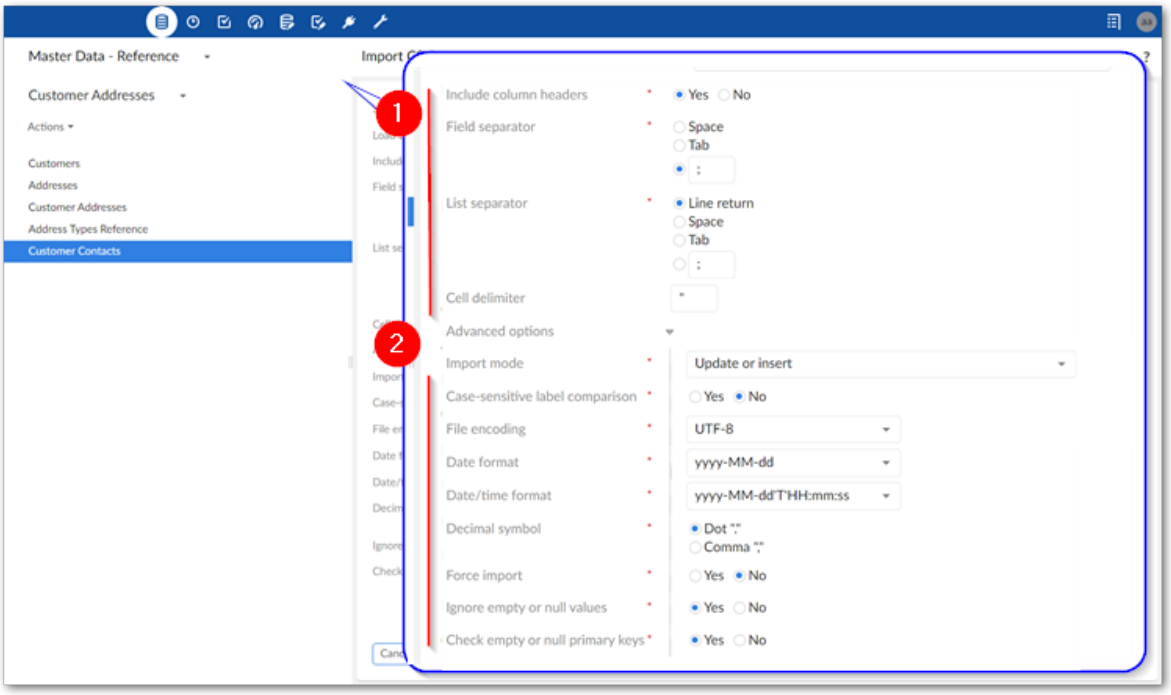
Error handling (not shown): Controls how the system handles errors caused by invalid records during import. You can specify error handling for two categories: **Data model constraints** and **Transformation errors**. The options include enforcing data model constraints, skipping only invalid records, and stopping the operation when an invalid record is encountered. However, error handling options do not work when the imported file contains null or empty primary key values. Also, please note that this option does not bypass custom trigger constraint implementations.

> **Note**
>
> When **Force import** is enabled, then you cannot set error handling for **Data model constraints**.

If enabled by an administrator, a link displays after the import completes to download a file containing invalid records that were not imported. Use the file to quickly locate and fix errors. The file can then

be imported to insert the repaired records. If you are an administrator, see Setting default options for services [p 19] for more information.

2. The following image and list highlight some of the options when importing from CSV:



1)	**Basic options:** The data source for this import operation. **Includes column headers:** Use this option to indicate whether the data table contains a header row at the position specified by the **Data table starts at** property. The add-on will match the text in the first row of each source column with the field labels in the target location. Automatic mappings are generated when the values in the source and target match. When this option is set to **No**, the add-on maps columns sequentially. It begins by mapping the first column in the source with the first column in the target and so forth until one or both run out of columns. **Field separator:** The value used by the source file to denote a field. **List separator:** The value used by the source file to denote a list. **Cell delimiter:** The value used by the source file to denote the beginning and end of a cell in the source file.
2)	**Advanced options:** **Import mode:** Specifies how target data is updated.

Case-sensitive label comparison: Determines whether the add-on pays attention to letter case when matching the labels in the source and target.

Decimal symbol: Specifies how the source file represents the decimal symbol.

Force import: Bypasses any data model validation rules or constraints, and imports data as is. This option is generally used in a data management architecture that includes landing, staging, and master zones. If the same data model is shared across all zones, constraints could prevent data from successfully importing into the landing zone. In this case, use the **Force import** option to import the raw data to the landing zone.

Ignore empty or null values: Specifies whether to import values that are null or empty.

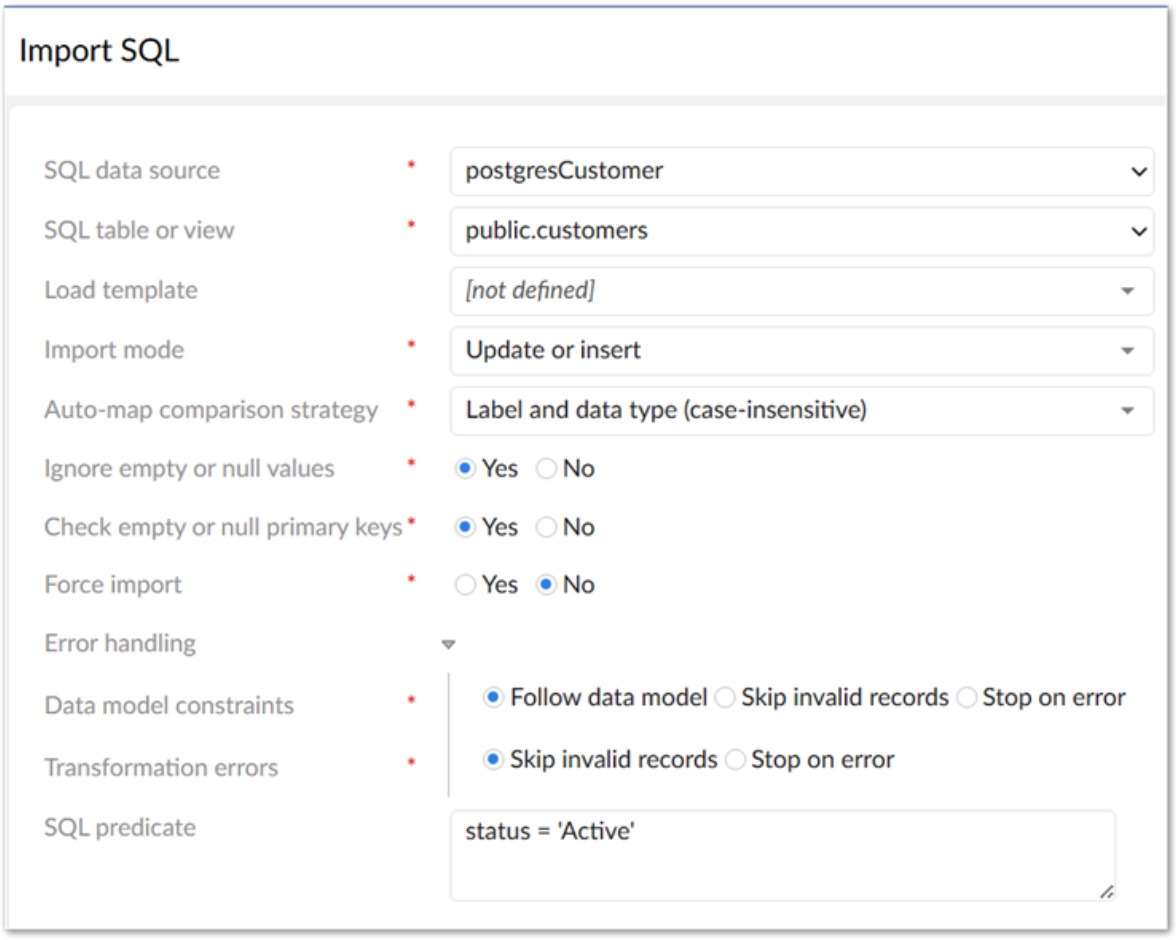
Check empty and null primary keys: Specifies whether all primary keys are matched and validated between source and target. This option is enabled by default.

Error handling (not shown): Controls how the system handles errors caused by invalid records during import. You can specify error handling for two categories: **Data model constraints** and **Transformation errors**. The options include enforcing data model constraints, skipping only invalid records, and stopping the operation when an invalid record is encountered. However, error handling options do not work when the imported file contains null or empty primary key values. Also, please note that this option does not bypass custom trigger constraint implementations.

> **Note**
>
> When **Force import** is enabled, then you cannot set error handling for **Data model constraints**.

If enabled by an administrator, a link displays after the import completes to download a file containing invalid records that were not imported. Use the file to quickly locate and fix errors. The file can then be imported to insert the repaired records. If you are an administrator, see Setting default options for services [p 19] for more information.

3. The following image and list highlight some of the options when importing from SQL:



- **Import mode**: Specifies how target data is updated. Use the property's tooltip for more information about import modes.
- **Auto-map comparison strategy**: Specifies the criteria the add-on compares to determine whether it can automatically map columns between SQL and EBX. You can choose from combinations of case-sensitive and case-insensitive for labels, labels and data types, names, names and data types. When using:
  - labels, the comparison checks the field's **Label and description** defined in the data model against the SQL column name.
  - names, the comparison checks the field's **Name** defined in the data model against the SQL column name.
- **Ignore empty or null values:** Specifies whether to import values that are null or empty.
- **Check empty and null primary keys:** Specifies whether all primary keys are matched and validated between source and target. This option is enabled by default.
- **Force import:** Bypasses any data model validation rules or constraints, and imports data as is. This option is generally used in a data management architecture that includes landing, staging, and master zones. If the same data model is shared across all zones, constraints could prevent data from successfully importing into the landing zone. In this case, use the **Force import** option to import the raw data to the landing zone.

- **Error handling:** Controls how the system handles errors caused by invalid records during import. You can specify error handling for two categories: **Data model constraints** and **Transformation errors**. The options include enforcing data model constraints, skipping only invalid records, and stopping the operation when an invalid record is encountered. However, error handling options do not work when the imported file contains null or empty primary key values. Also, please note that this option does not bypass custom trigger constraint implementations.

  > **Note**
  >
  > When **Force import** is enabled, then you cannot set error handling for **Data model constraints**.

  > **Note**
  >
  > If enabled by an administrator, a link displays after the import completes to download a file containing invalid records that were not imported. Use the file to quickly locate and fix errors. The file can then be imported to insert the repaired records. If you are an administrator, see Setting default options for services [p 19] for more information.

- **SQL predicate:** Allows you to add a predicate to filter the imported data. All standard SQL predicates are accepted. The add-on automatically handles the SQL query SELECT statement, such as `SELECT * FROM <table/view_name> WHERE`. You only need to provide the predicate (the actual condition to evaluate), such as `id > 10` or `name = 'Alice'`. In the image above, the add-on only imports records from the customer table where the value of the status field is Active.

5. Optionally, run an import simulation to preview the import result:
   1. Click **Simulation** at the bottom of the screen. Note, this option is also available from the mapping screen.
   2. Configure the simulation options as desired. Select the '?' icon next to the configuration options and message categories in the report to view their description.
   3. and click **Run simulation** to begin.

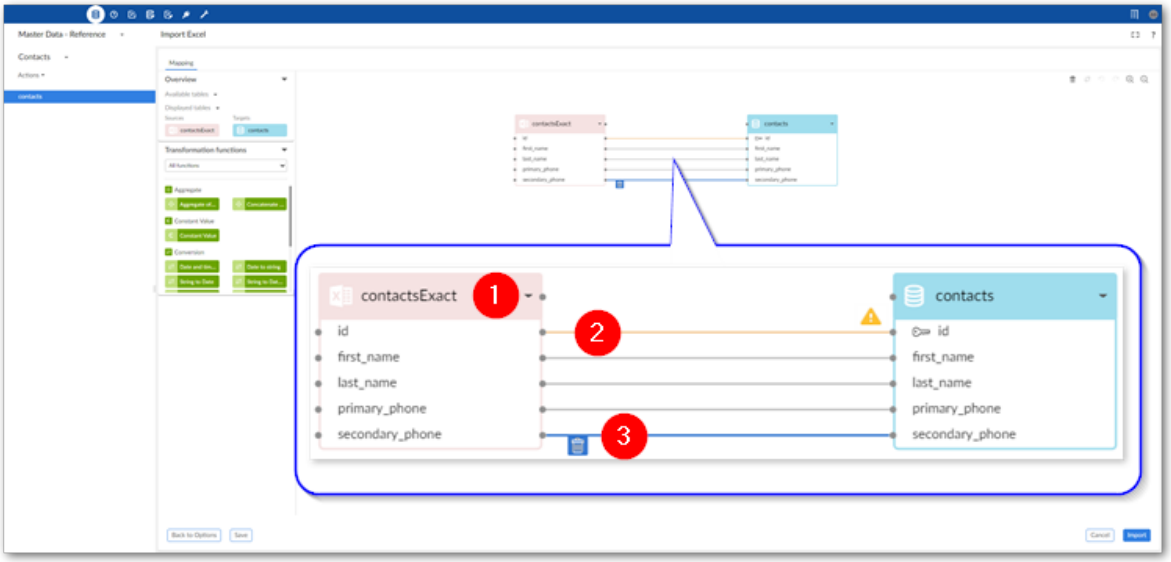
      The report shows messages at the error, warning, and information levels. However, please note that the simulation does not take table triggers into account. If enabled, you can download a file that includes any records flagged with the following during the import simulation: import blocking errors, record blocking errors, non-blocking errors, warnings, or information-level messages. Use this file to find and fix issues before importing.
6. Create mappings, or optionally update existing ones:

   > **Note**
   >
   > The following steps provide only high-level mapping instructions. See Mapping interface reference [p 97] for more detailed information on mapping and transformations.

   1. Select **Mapping** to enter the mapping screen where you can update the default data mappings or add data transformations. For Excel and CSV import, the add-on automatically creates mappings where the source and target have the same labels. For SQL import, mappings are

automatically created when the label and data type match. A mapping identifies which data is extracted from the source and where it is extracted to in the target.

The following image and list describe some features of table and field mapping:

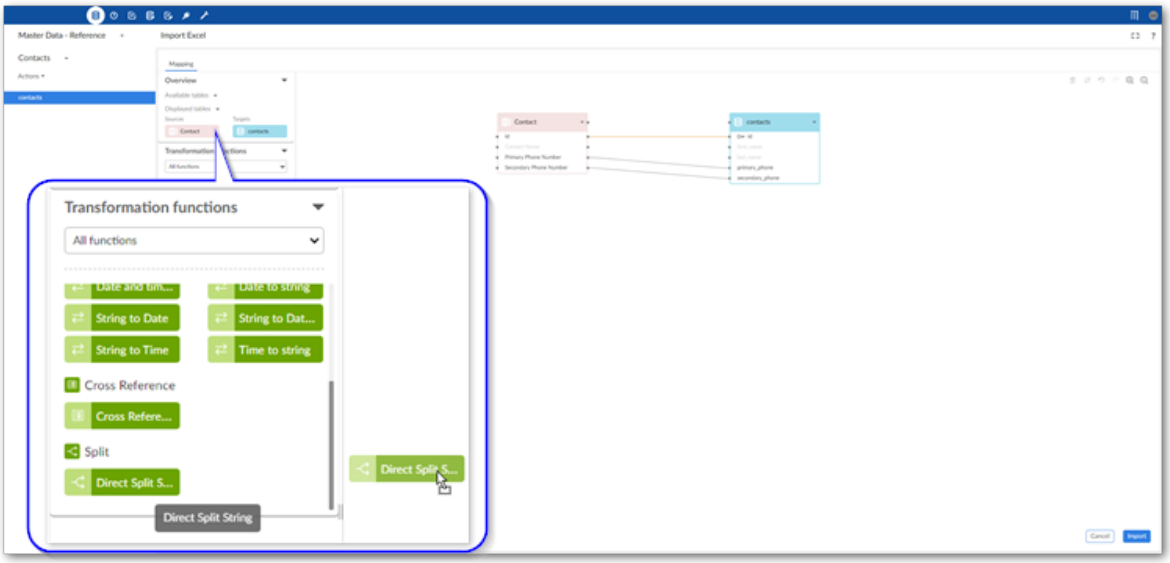


1)	**Source (pink) and target (blue) tables:** By default, the data source displays on the left and the target on the right. Each table header has a label and uses an icon to show its type and selecting the small arrow collapses and expands the table. The headers also have connection points. Drag this top point to automatically generate mappings between tables.
2)	**Mappings:** Each line is a mapping. An orange color and icon indicates there is a warning for a mapping. Select the icon to view the warning. Drag from one field's connection point to another to create a mapping.
3)	**Delete selected:** To delete a mapping, select it and then the garbage icon.

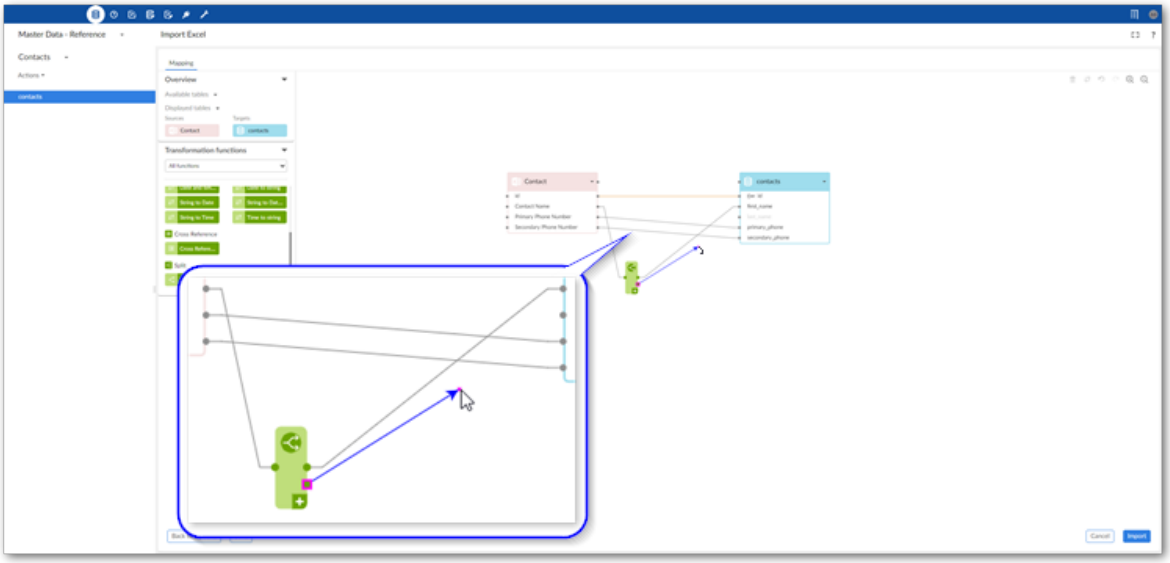
7. Optionally, add transformation functions:

   Transformation functions allow you change the source data to meet technical or business requirements in the target. The add-on ships with several transformation functions that support common business cases. The available API also allows you to implement custom transformation functions. For more details on how to use transformation functions, see Mapping interface reference [p 97]. For information on the available transformations and their descriptions, see Transformation function reference [p 105].

1. To add a transformation, select and drag the desired transformation function to the mapping screen.



2. Select and drag fields from the source to the function's input (left) and connect the function's output (right) to target fields.



3. Double-click the transformation function to edit its parameters. Each function is different, for a complete list, see Transformation function reference [p 105].

8. Optionally, select **Save** to store your settings as a template for re-use. For more information on using templates, see Using templates [p 89].
9. Click **Import** to complete the process.

If errors prevent any of the records from importing correctly, the add-on presents you with the option of downloading an Excel file containing the invalid data. Depending on your circumstances, you can correct the data directly in the file and re-import it.

> **Note**
>
> If an administrator set the import service to run in the background, you can go to and work in other areas of EBX® while the import is in progress. Access the list of in-progress and completed tasks by expanding the sidebar. See Viewing and managing background tasks [p 109] for more information.

See also

Map and transform overview [p 94]

Mapping interface reference [p 97]

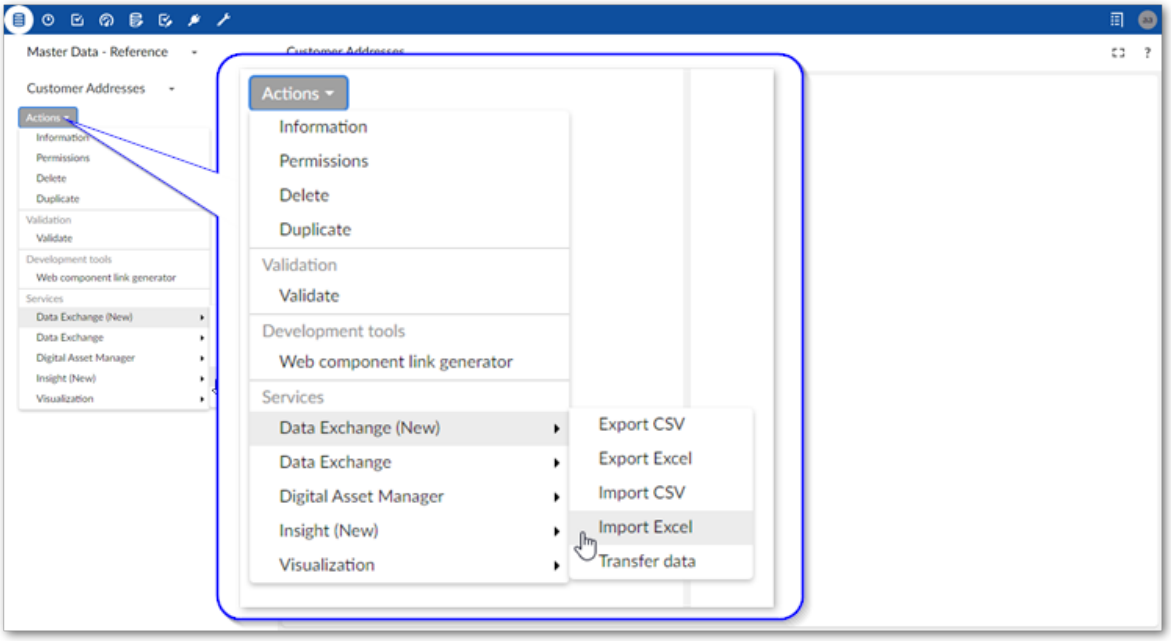
Export overview [p 54]

CHAPTER 10

Importing to multiple tables

To import data from an archive of CSV files or an Excel file to multiple tables in a dataset:

1. Initiate the import process:
    1. Navigate to the dataset that contains the target tables.
    2. Initiate the import process from the dataset by selecting: *Actions* > *Data Exchange (New)* > *Import CSV* or *Import Excel*.

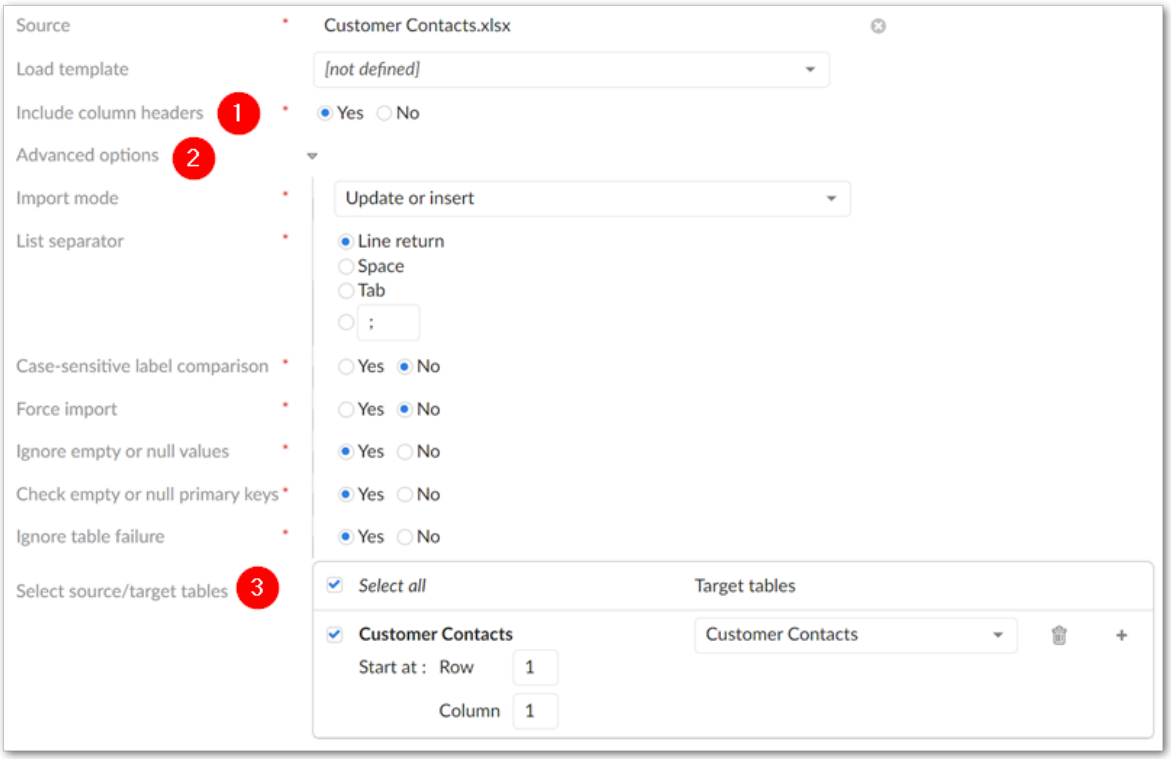


2. Browse to select the file containing the source data for the import.

    After selecting the file, additional options display.

3. Optionally, select any previously saved template to load its configuration and mapping options. After loading, you can still make changes to configuration options. Changes to some import options impact the template's mappings. Depending on the circumstances, the add-on can automatically create default mappings. In other cases you might have to update mappings and transformations manually.
4. Update format-specific options:

1. The following image and list highlight some of the options when importing from Excel:



1) Includes column headers:	Use this option to indicate whether the data tables contain a header row. The starting position of the data is specified below in the **Select source/target tables** option. The add-on will match the text in the first (header) row of each source column with the field labels in the target location. The add-on automatically generates links between tables when the values in the source and target match. When this option is set to **No**, the add-on maps columns sequentially. It begins by mapping the first column in the source with the first column in the target and so forth until one or both run out of columns.
2) Advanced options:	**Import mode:** Specifies how target data is updated. See the tooltip in the UI for descriptions of each mode. **Note** Depending on your deployment environment's resources, you might have issues using the **Insert only** and **Delete only** modes when importing a large volume of data. If this issue

occurs, use any of the other import modes.

List separator: Specifies the character used in the source file to separate lists.

Case-sensitive label comparison: Determines whether the add-on pays attention to letter case when matching the labels in the source and target.

Force import: Bypasses any data model validation rules or constraints, and imports data as is. This option is generally used in a data management architecture that includes landing, staging, and master zones. If the same data model is shared across all zones, constraints could prevent data from successfully importing into the landing zone. In this case, use the **Force import** option to import the raw data to the landing zone.

Ignore empty or null values: By default, existing records are not updated with empty or null values from the imported file. Disable this option to update the target with these values.

Check empty and null primary keys: Specifies whether all primary keys are matched and validated between source and target. This option is enabled by default.

Ignore table failure: Ensures that when one or more tables fails to import, the system still imports valid tables from the dataset. When disabled, the system rolls back all data when it fails to import a single table.

Error handling (not shown): Controls how the system handles errors caused by invalid records during import. You can specify error handling for two categories: **Data model constraints** and **Transformation errors**. The options include enforcing data model constraints, skipping only invalid records, and stopping the operation when an invalid record is encountered.

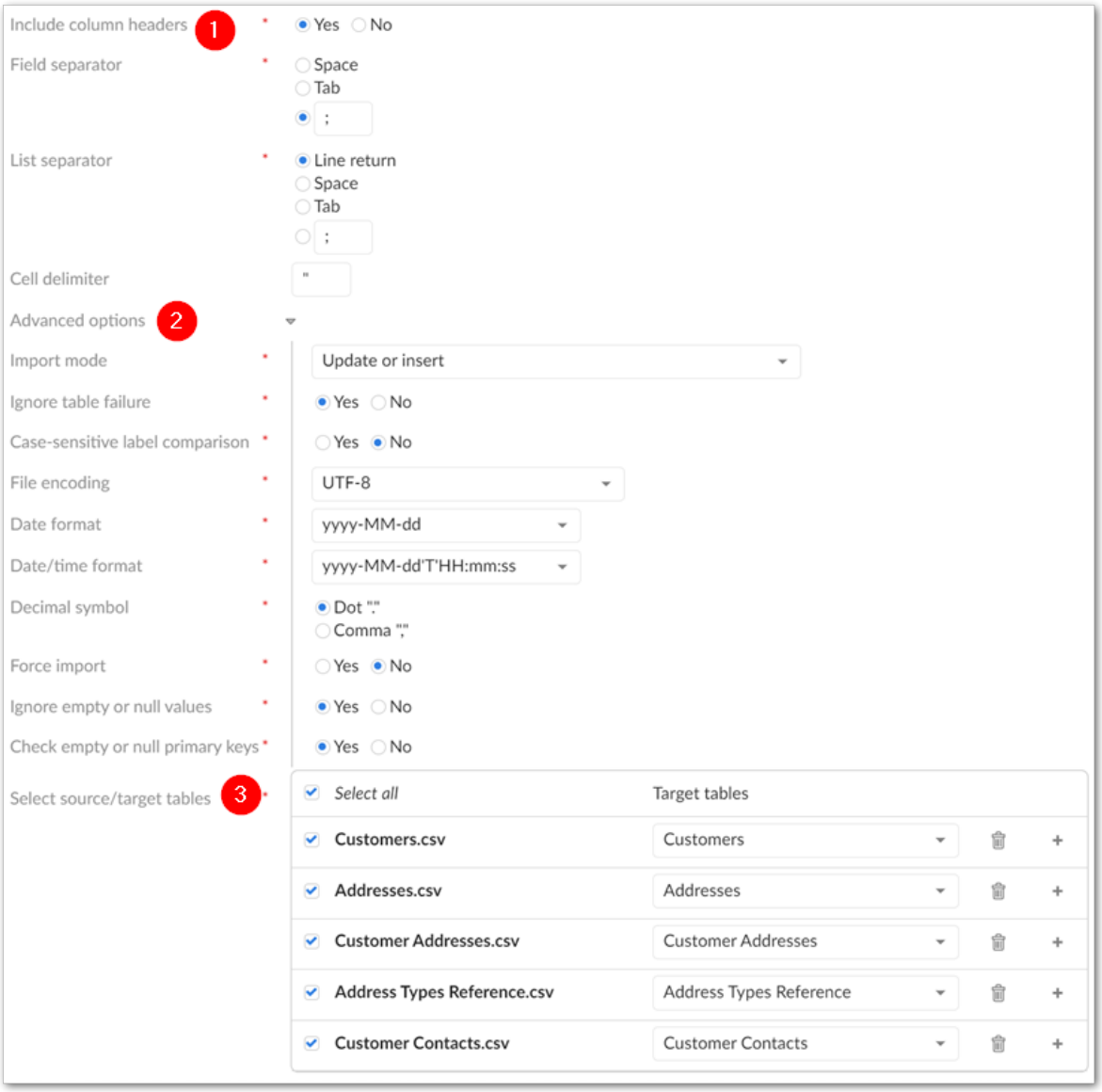
Note

If enabled by an administrator, a link displays after the import completes to download a file containing invalid records that were not imported. Use the file to quickly locate and fix errors. The file can then be imported to insert the repaired records. If you are an administrator, see Setting default

options for services [p 19] for more information.

3) Select source/target tables	Determines the tables to import from the source, specifies the data starting point for each source table, and sets the target tables. Where possible, the add-on automatically pairs source and target tables. Deselect any sources that you want to exclude. If a source table is included, it must have a corresponding target table selection. Add multiple targets to a source to import the same data to multiple tables. **Note** You can add a maximum of 20 target tables.

2. The following image and list highlight some of the options when importing from CSV:



---

1) Basic options:

Includes column headers: Use this option to indicate whether the data table contains a header row at the position specified by the **Data table starts at** property. The add-on will match the text in the first row of each source column with the field labels in the target location. Automatic mappings are generated when the values in the source and target match. When this option is set to **No**, the add-on maps columns sequentially. It begins by mapping the first column in the source with the first column in the target and so forth until one or both run out of columns.

	Field separator: The value used by the source file to denote a field. **List separator:** The value used by the source file to denote a list. **Cell delimiter:** The value used by the source file to denote the beginning and end of a cell in the source file.
2) Advanced options:	**Import mode:** Specifies how target data is updated. **Case-sensitive label comparison:** Determines whether the add-on pays attention to letter case when matching the labels in the source and target. **Force import:** Bypasses any data model validation rules or constraints, and imports data as is. This option is generally used in a data management architecture that includes landing, staging, and master zones. If the same data model is shared across all zones, constraints could prevent data from successfully importing into the landing zone. In this case, use the **Force import** option to import the raw data to the landing zone. **Decimal symbol:** Specifies how the source file represents the decimal symbol. **Ignore empty or null values:** Specifies whether to import values that are null or empty. **Check empty and null primary keys:** Specifies whether all primary keys are matched and validated between source and target. This option is enabled by default.
3) Select source/target tables	Determines the tables to import from the source and sets their targets. Where possible, the add-on automatically pairs source and target tables. Deselect any sources that you want to exclude. If a source table is included, it must have a corresponding target table selection. Add multiple targets to a source to import the same data to multiple tables. **Note** You can add a maximum of 20 target tables. If you do not select all source tables and later decide to include one or more of the remaining tables,

you can accomplish this using the options in the **Mapping** screen. See the next step for more details.

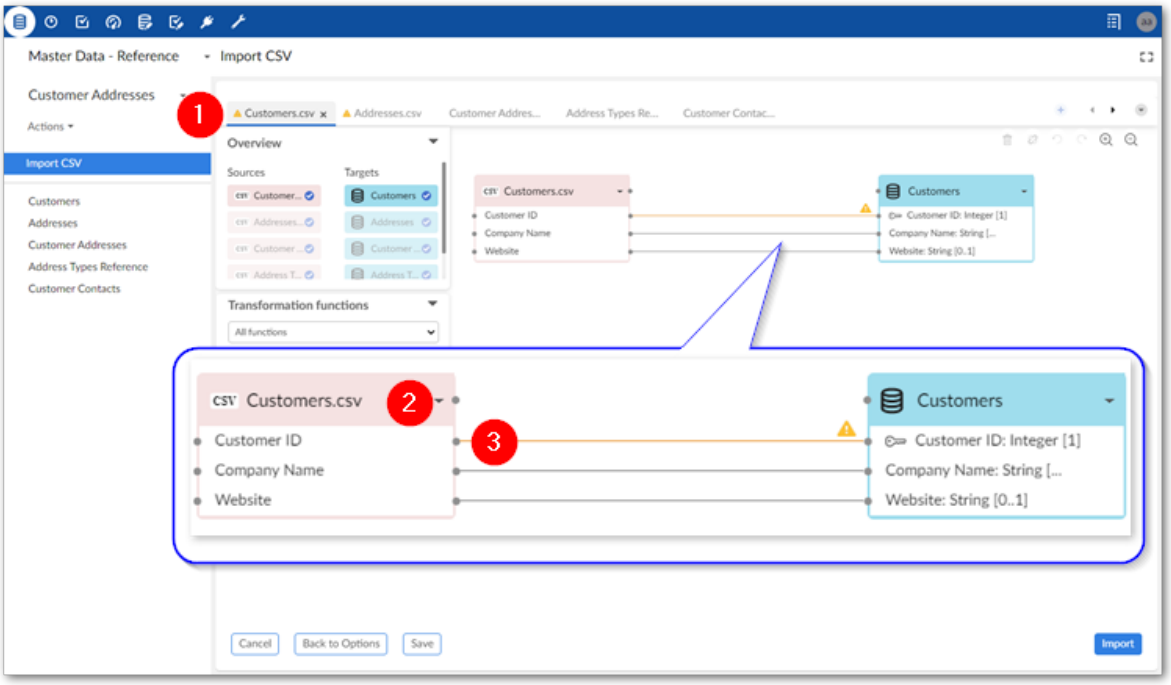
5. Optionally, run an import simulation to preview the import result:
   1. Click **Simulation** at the bottom of the screen. Note, this option is also available from the mapping screen.
   2. Configure the simulation options as desired. Select the '?' icon next to the configuration options and message categories in the report to view their description.
   3. and click **Run simulation** to begin.

      The report shows messages at the error, warning, and information levels. However, please note that the simulation does not take table triggers into account.
6. Optionally, update or create mappings:

   > **Note**
   >
   > The following steps provide only high-level mapping instructions. See Mapping interface reference [p 97] for more detailed information on mapping and transformations.

   1. Select **Mapping** to enter the mapping screen where you can update the default data mappings or add data transformations. The add-on automatically creates mappings where the source and target have the same labels. A mapping identifies which data is extracted from the source and specifies its target destination.

The following image and list describe some features of table and field mapping:



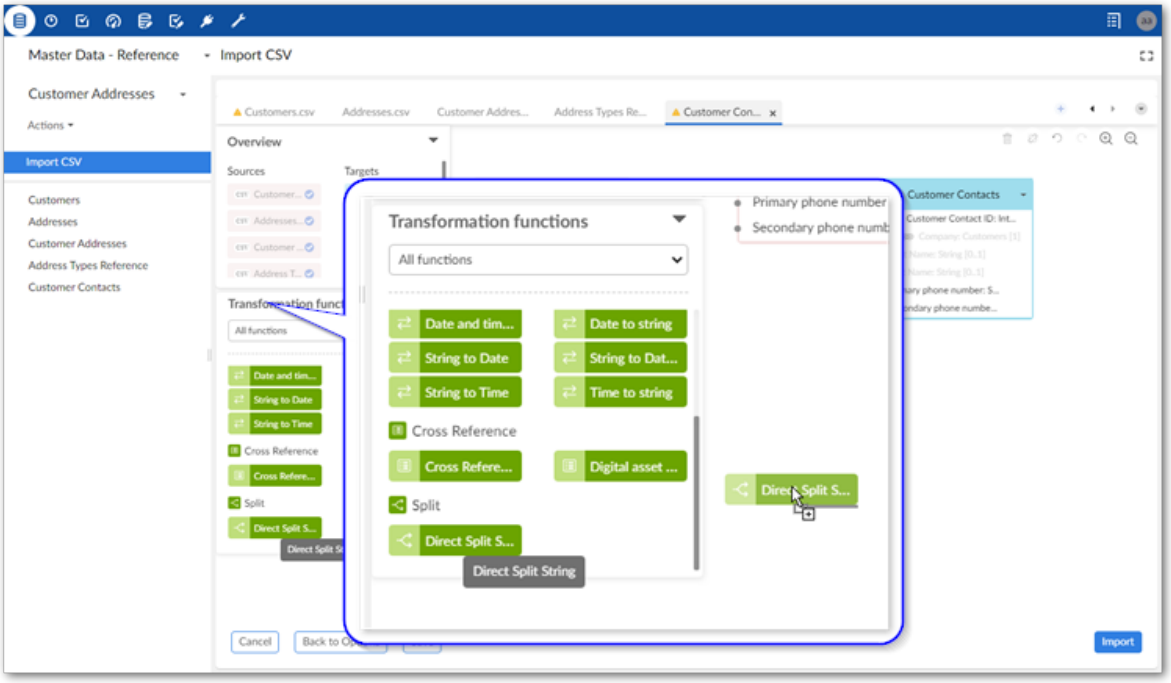
1) Table mapping tabs	Each tab contains the mappings between a different pair of source and target tables. The icons to the right allow you to locate and navigate between tabs. Additionally, you can create new tabs, and add any unmapped source and target tables by dragging them from the **Overview** box to the mapping pane. Note that the '+' icon is disabled when all sources are already included in a mapping tab. Please note that: • You can use the same source or target only once in the mapping screen. In other words, you cannot use a source or target in more than one table mapping tab. • Sources can have multiple targets, but targets can only have one source.
2) Source (pink) and target (blue) tables	By default, the data source displays on the left and the target on the right. Each table header has a label and uses an icon to show its type and selecting the small arrow collapses and expands the table. The headers also have connection points. Drag this top point to automatically generate mappings between tables.

3) Mappings	Each line is a mapping. An orange color and icon indicates there is a warning for a mapping. Select the icon to view the warning. Drag from one field's connection point to another to create a mapping. To delete a mapping, select it and then select the trash icon. To create a mapping, drag from a source field's connection point to a connection point in the target.

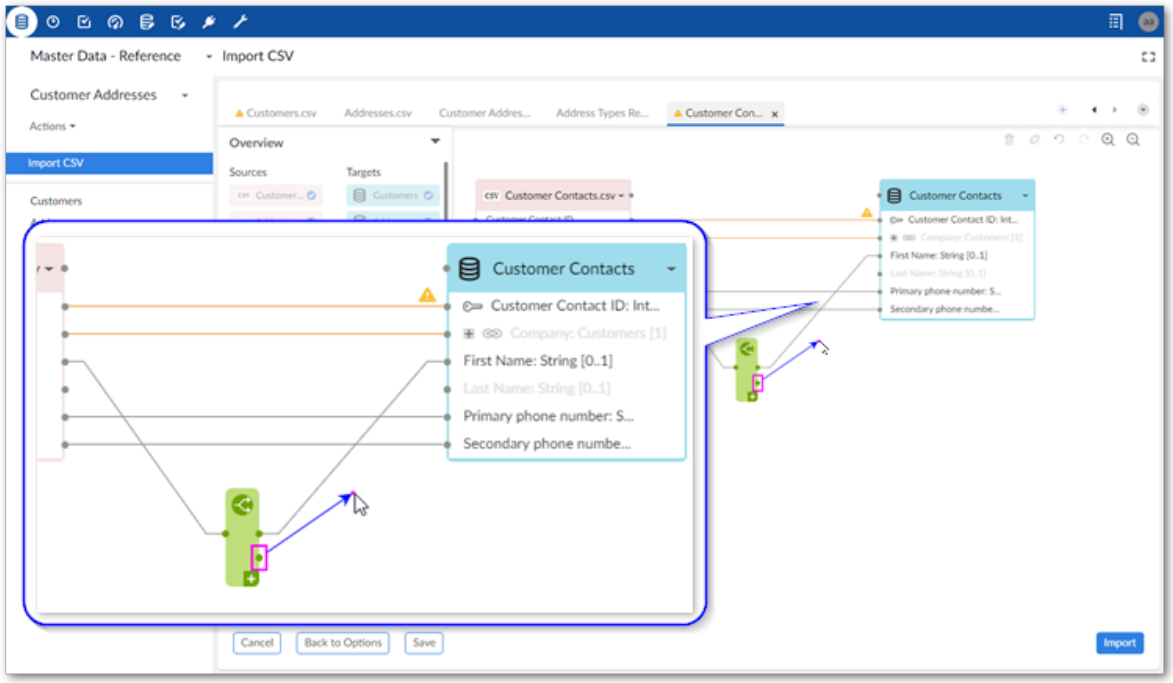
7. Optionally, add transformation functions:

   Transformation functions allow you change the source data to meet technical or business requirements in the target. The add-on ships with several transformation functions that support common business cases. For more details on how to use transformation functions, see Mapping interface reference [p 97]. For information on the available transformations and their descriptions, see Transformation function reference [p 105].

   1. To add a transformation, select and drag the desired transformation function to the mapping screen.



2. Select and drag fields from the source to the function's input (left) and connect the function's output (right) to target fields.



3. Double-click the transformation function to edit its parameters. Each function is different, for a complete list, see Transformation function reference [p 105].

8. Optionally, select **Save** to store your settings as a template for re-use. For more information on using templates, see Using templates [p 89].

9. Click **Import** to complete the process.

   If errors prevent any of the records from importing correctly, the add-on presents you with the option of downloading an Excel file containing the invalid data. If you are importing CSV, the files containing invalid data for each table are combined in a zip file. If you are importing Excel, the invalid data for each table is added to a separate sheet in the downloadable file. Depending on your circumstances, you can correct the data directly in the files and re-import it.

> **Note**
>
> If an administrator set the import service to run in the background, you can go to and work in other areas of EBX® while the import is in progress. Access the list of in-progress and completed tasks by expanding the sidebar. See Viewing and managing background tasks [p 109] for more information.

See also

Map and transform overview [p 94]

Mapping interface reference [p 97]

Export overview [p 54]

Exporting data

CHAPTER 11

Export overview

The services provided by the add-on allow you to export data from your EBX® repository. The source of the export is determined by the location from which you initiate the service. For example, running the export service from a table's **Actions** menu sets that table as the source. Running it from a dataset's **Actions** menu sets all tables within the dataset as sources.

When exporting at the table level, the export respects the view that is active at the time the service is initiated. An EBX® view defines which fields (columns) are visible to the user. Only the fields displayed in the selected view are included in the exported file. This behavior does not apply to dataset-level exports, which include all fields.

Overall, steps to export from a table or dataset are the same, except some details such as mapping differ. As outlined below, the export process includes:

- Specifying the source file name and any format-specific options for CSV and Excel export, or selecting the desired target location when exporting SQL. See Exporting a table [p 55] for instructions. Exporting to SQL is supported at the table level only and requires administrative configuration [p 8].
- Defining any required mappings or transformations. The add-on automatically generates a map of all source fields to target fields. If your circumstances require it, use the add-on's drag-n-drop functionality to update the mappings. If you want to apply transformations to your data, you can use built-in functions to modify data during export. For more information on the topics of mapping and transformations, see Map and transform overview [p 94].
- Saving settings as a template. When export operations require the use of transformations or custom mappings, you can use templates to store these settings. This alleviates you from having to redo the same tasks each time you perform a specific export.

See also

Exporting a table [p 55]

Map and transform overview [p 94]

Mapping interface reference [p 97]

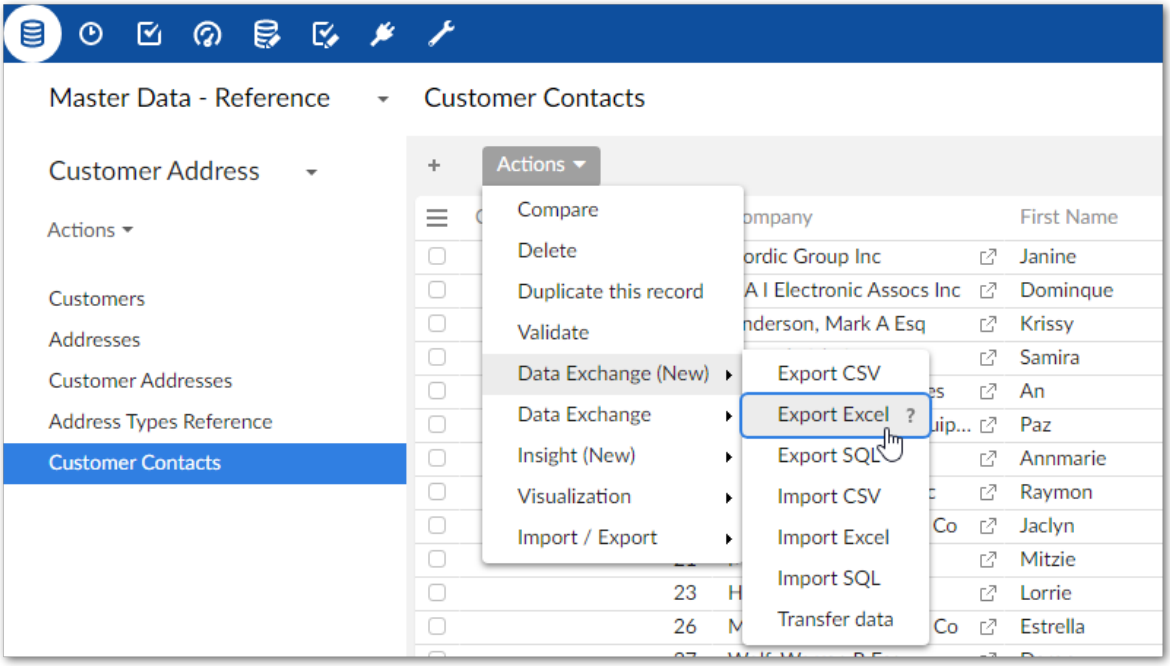
Import overview [p 30]

CHAPTER 12

Exporting a table

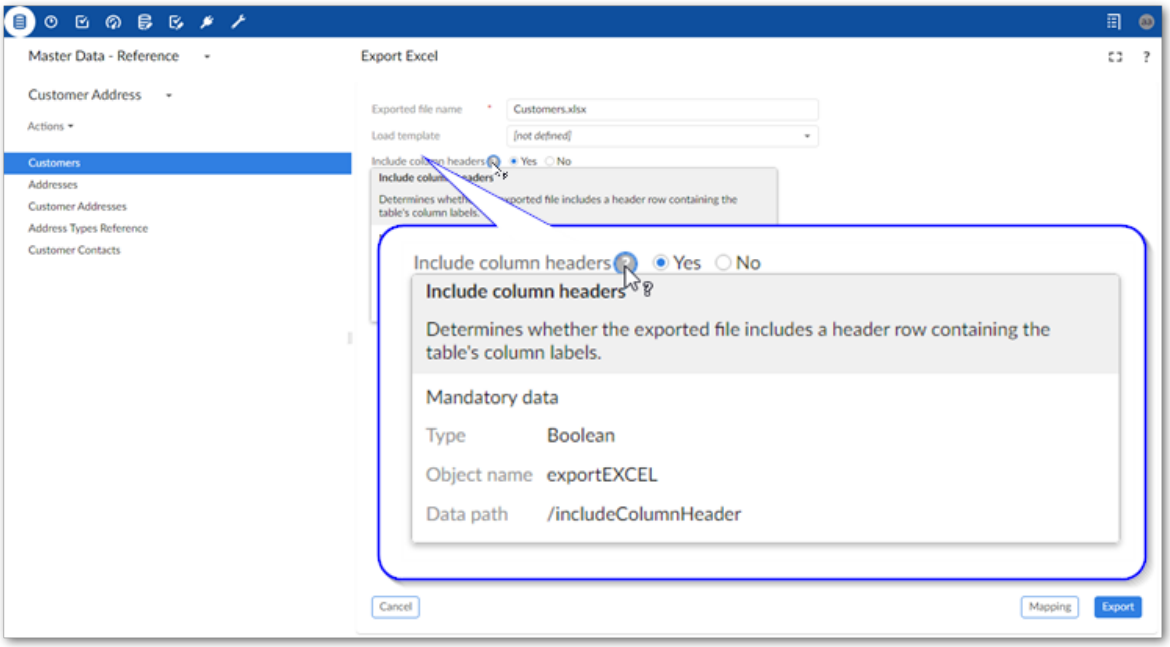
To export data to a CSV file, Excel file, or SQL table:

1. Initiate the export process:
    1. Navigate to the table you want to use as the source.
    2. Initiate the export process from the table by selecting *Actions* > *Data Exchange (New)* and choosing one of the following options: **Export CSV**, **Export Excel**, or **Export SQL**. Administrators must configure the available SQL sources [p 8] to enable the SQL export option.



2. Specify target information:
    - For CSV and Excel: Provide a file name and check the default options.
    - For SQL: Select the SQL data source, SQL target table or view, and check the default options.

If you have questions about the default options, hover your mouse over the label and select the '?' icon to see a description:

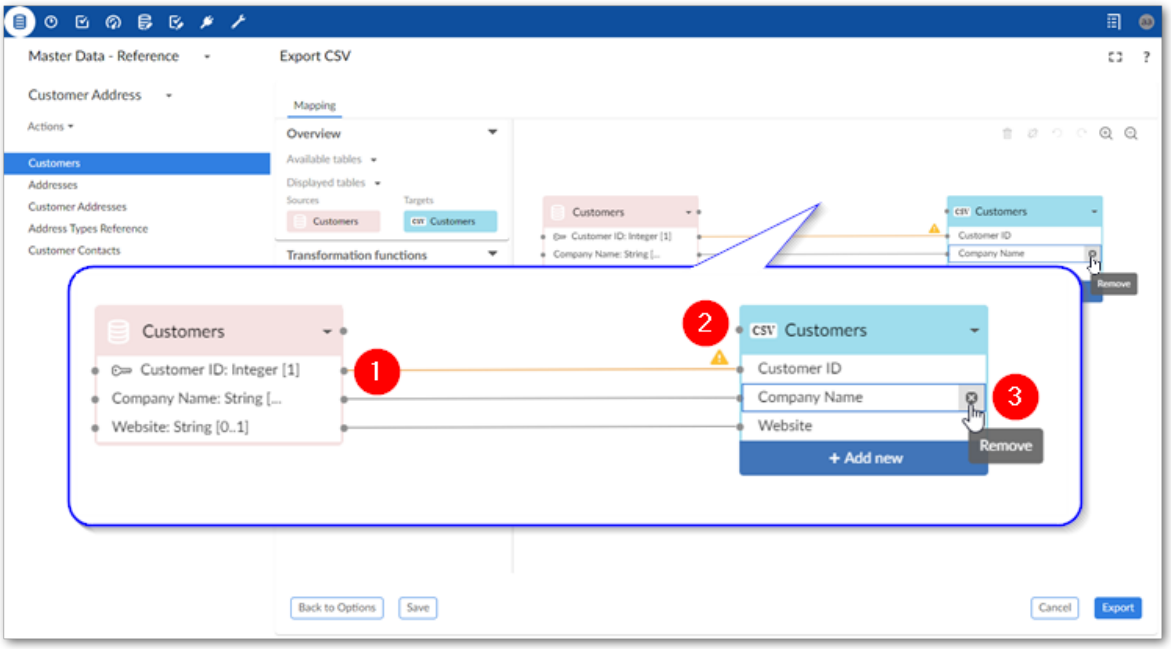


3. Optionally, update or create mappings:

> **Note**
>
> The following steps provide only high-level mapping instructions. See Mapping interface reference [p 97] for more detailed information on mapping and transformations.

1. Select **Mapping** to enter the mapping screen where you can update the default data mappings or add data transformations. For Excel and CSV export, the add-on automatically creates mappings where the source and target have the same labels. For SQL export, mappings are automatically created when the label and data type match. A mapping identifies which data is extracted from the source and where it is extracted to in the target.

The following image and list describe some features of table and field mapping:

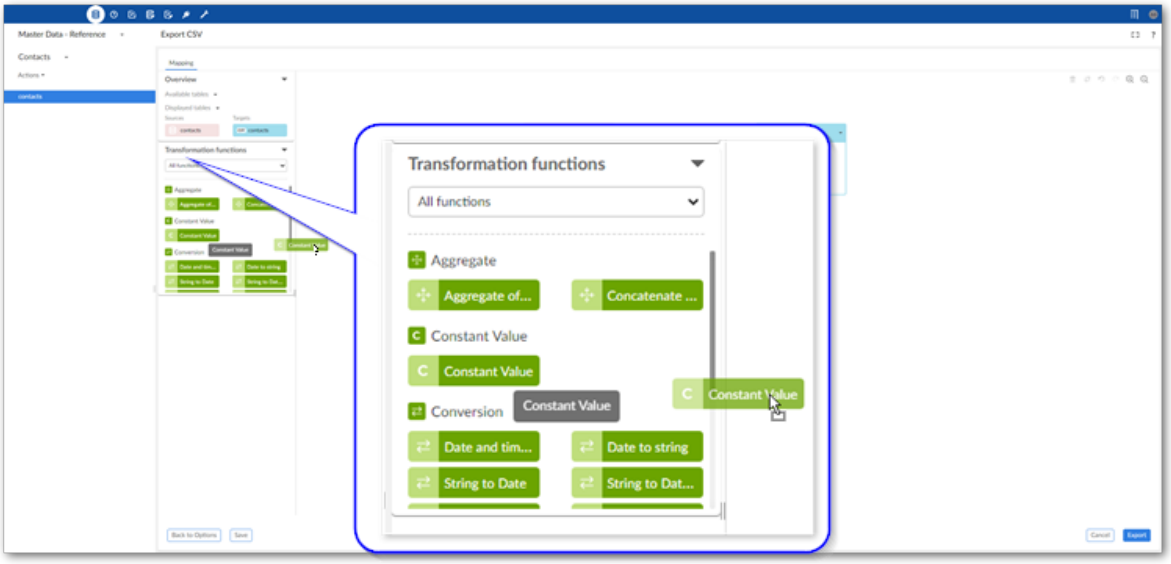


1)	**Mappings:** Each line is a mapping. Drag from one field's connection point to another to create a mapping. An orange color and icon indicates there is a warning for a mapping. Select the icon to view the warning. In these cases, where possible, the add-on will perform a default transformation.
2)	**Source (pink) and target (blue) tables:** By default, the data source displays on the left and includes data type an cardinality for fields. The target table on the right shows the field names that are included in the exported file. Each table header has a label and uses an icon to show its type and selecting the small arrow collapses and expands the table. The headers also have connection points. Drag this top point to automatically generate mappings between tables.
3)	**Adding, editing, and removing fields (not available for SQL export):** You can add additional fields in the target file by selecting **Add new**. For instance you might want to use a transformation function to split a Full Name field into First Name and Last Name in the target. Double-click to edit field names. Hover your mouse over the field and select the 'x' icon to remove them.

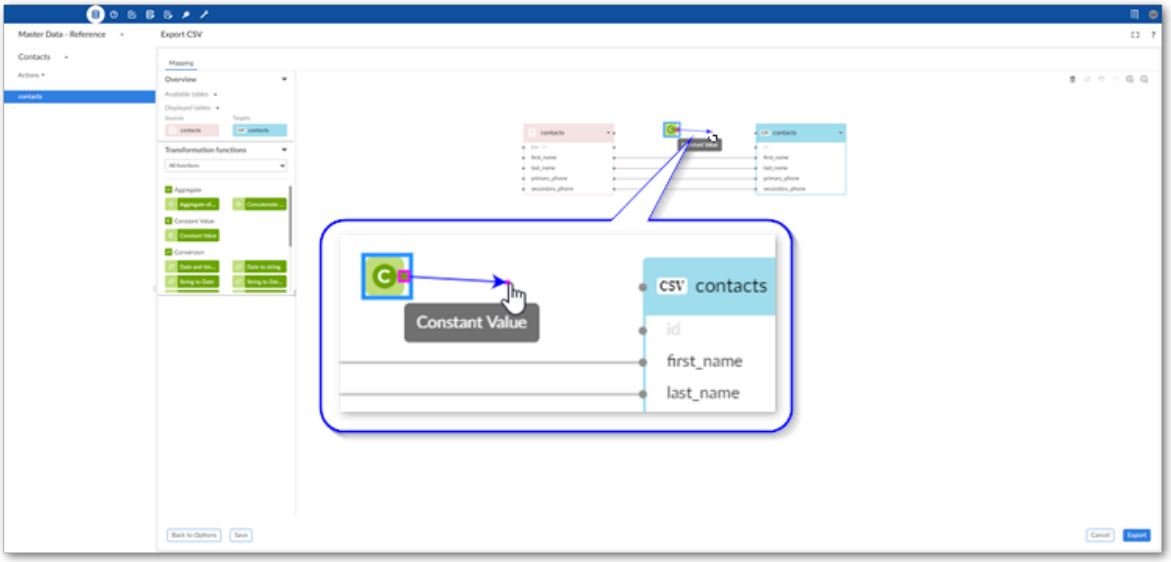
4. Optionally, add transformation functions:

Transformation functions allow you change the source data to meet technical or business requirements in the target. The add-on ships with several transformation functions that support common business cases. For more details on how to use transformation functions, see Mapping interface reference [p 97]. For information on the available transformations and their descriptions, see Transformation function reference [p 105].

1. To add a transformation, select and drag the desired transformation function to the mapping screen.



2. Select and drag fields from the source to the function's input (left) and connect the function's output (right) to target fields. In the example shown below a constant value is output to the target, so only the function's output is mapped.



3. Double-click the transformation function to edit its parameters. Each function is different, for a complete list, see Transformation function reference [p 105].

5. Optionally, select **Save** to store your settings as a template for re-use. For more information on using templates, see Using templates [p 89].

6. Click **Export** to complete the process.

> **Note**
>
> If an administrator set the export service to run in the background, you can go to and work in other areas of EBX® while the export is in progress. Access the list of in-progress and completed tasks by expanding the sidebar. See Viewing and managing background tasks [p 109] for more information.

See also

Map and transform overview [p 94]

Mapping interface reference [p 97]

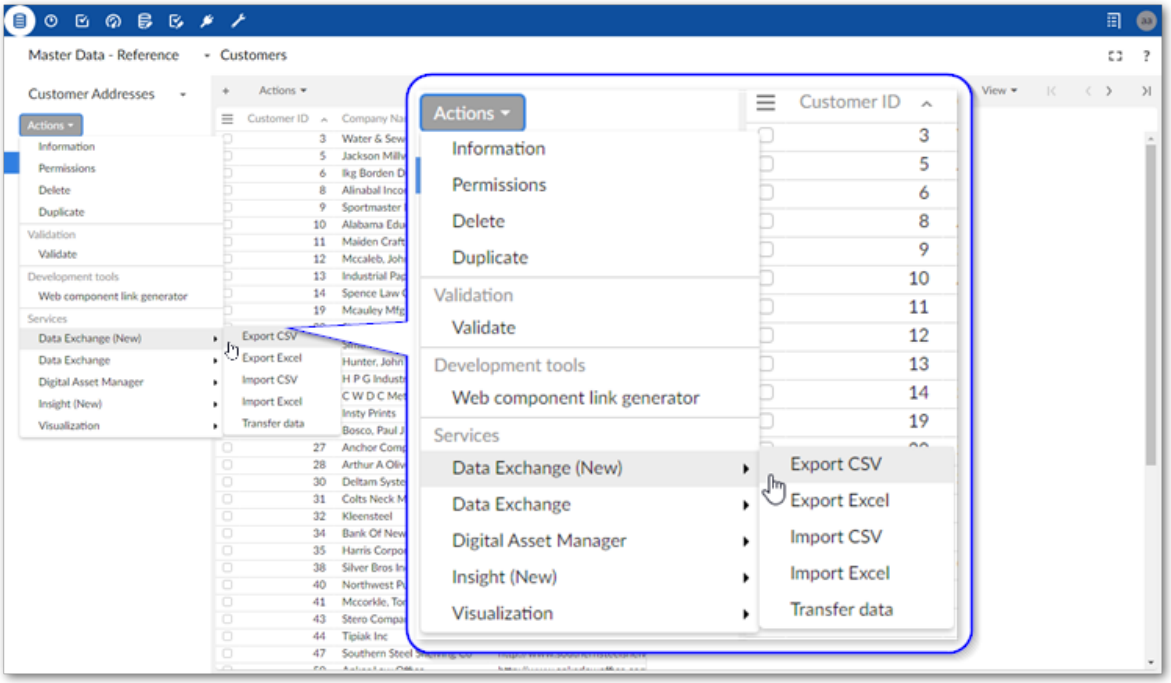
Export overview [p 54]

CHAPTER 13

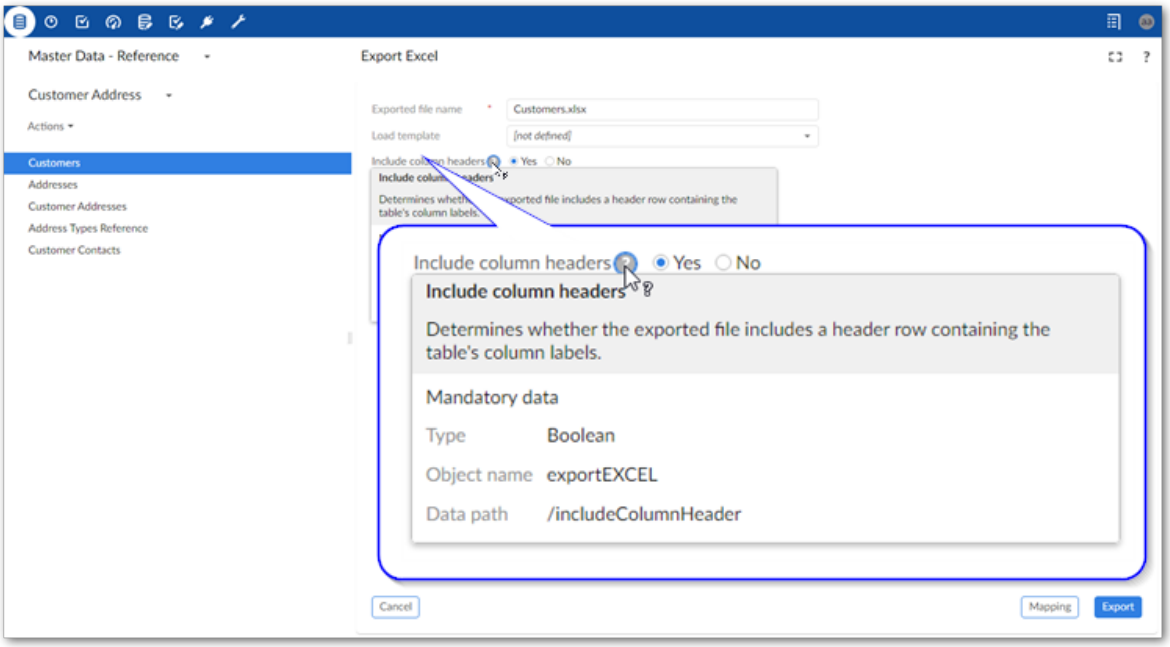
Exporting multiple tables

To export data to an Excel file or an archive (as CSV files):

1. Initiate the export process:
    1. Navigate to the dataset containing the source tables.
    2. Initiate the export process by selecting: *Actions* > *Data Exchange (New)* > *Export CSV* or *Export Excel*.



2. Supply a file name and check default options. If you have questions about individual settings, hover your mouse over the label and select the '?' icon to see a description:



3. Specify the tables you want to export with the **Choose the tables to export** property.

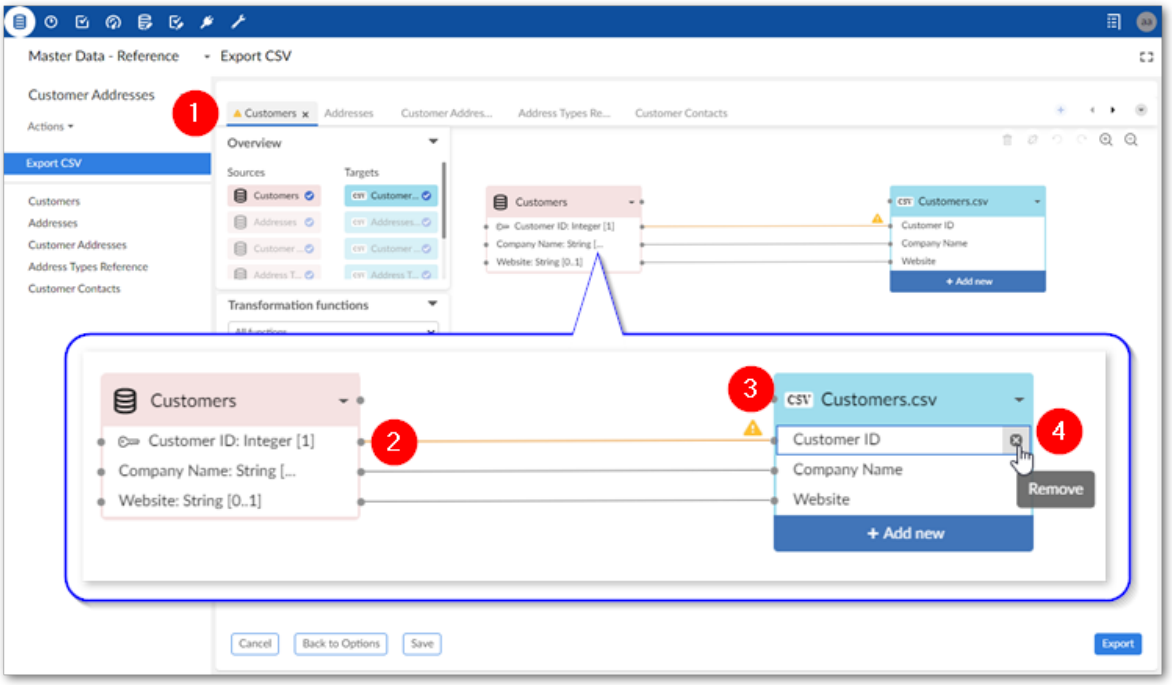
   If you do not select all source tables and later decide to include one or more of the remaining tables, you can accomplish this using the options in the **Mapping** screen. See the next step for more details.

4. Optionally, update or create mappings:

> **Note**
>
> The following steps provide only high-level mapping instructions. See Mapping interface reference [p 97] for more detailed information on mapping and transformations.

   1. Select **Mapping** to enter the mapping screen where you can update the default data mappings or add data transformations. The add-on automatically creates mappings where the source and target have the same labels. A mapping identifies which data is extracted from the source and where it is extracted to in the target.

The following image and list describe some features of table and field mapping:



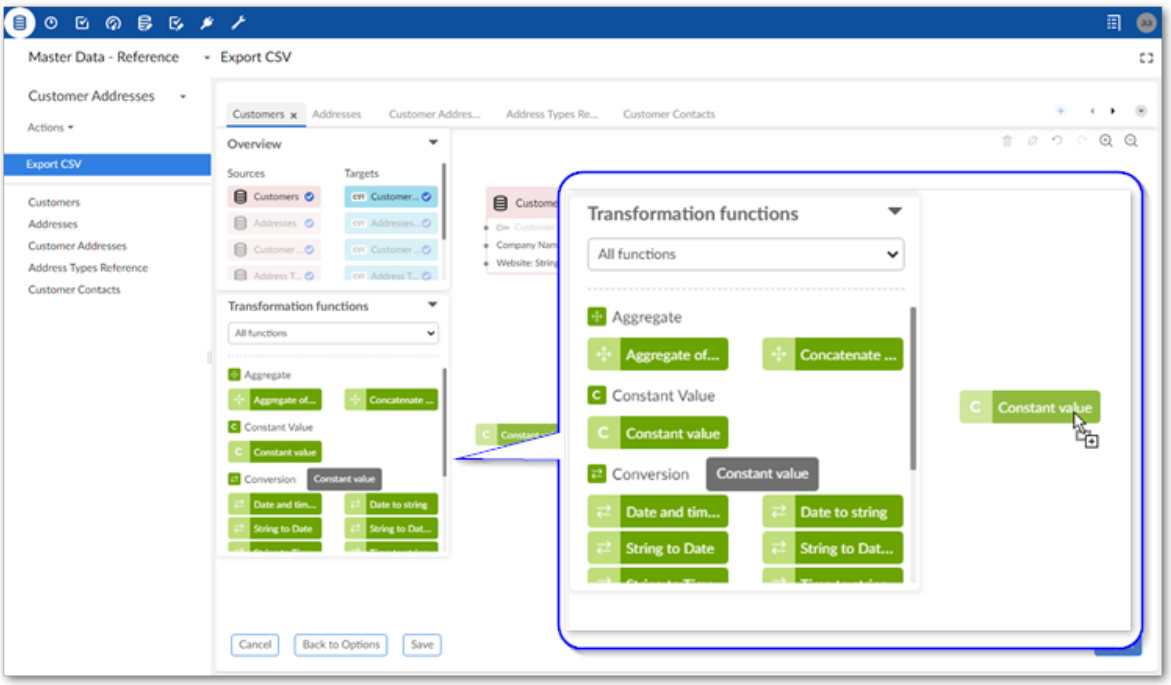
1) Table mapping tabs	Each tab contains the mappings between a different pair of source and target tables. The icons to the right allow you to locate and navigate between tabs. Additionally, you can create new tabs, and add any unmapped source and target tables by dragging them from the **Overview** box to the mapping pane. Note that the '+' icon is disabled when all sources are already included in a mapping tab.
2) Mappings	Each line is a mapping. Drag from one field's connection point to another to create a mapping. An orange color and icon indicates there is a warning for a mapping. Select the icon to view the warning. In these cases, where possible, the add-on will perform a default transformation.
3) Source (pink) and target (blue) tables	By default, the data source displays on the left and includes data type an cardinality for fields. The target table on the right shows the field names that are included in the exported file. Each table header has a label and uses an icon to show its type and selecting the small arrow collapses and expands the table. The headers also have connection points. Drag this top point to automatically generate mappings between tables.

	You can add, and map to additional target tables. See Adding tables to the export [p 66] for more information. Please note that: • You can use the same source or target only once in the mapping screen. In other words, you cannot use a source or target in more than one table mapping tab. • Sources can have multiple targets, but targets can only have one source.
4) Adding, editing, and removing fields	You can add additional fields in the target file by selecting **Add new**. For instance you might want to use a transformation function to split a Full Name field into First Name and Last Name in the target. Double-click to edit field names. Hover your mouse over the field and select the 'x' icon to remove them.

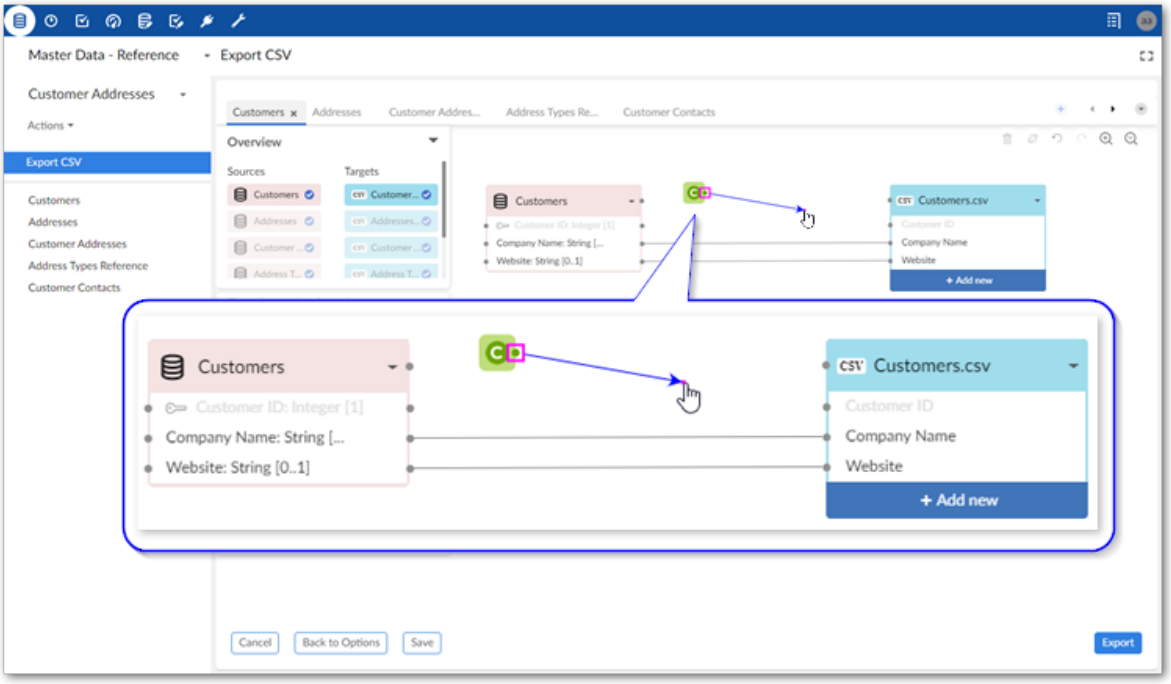
5. Optionally, add transformation functions:

   Transformation functions allow you change the source data to meet technical or business requirements in the target. The add-on ships with several transformation functions that support common business cases. For more details on how to use transformation functions, see Mapping interface reference [p 97]. For information on the available transformations and their descriptions, see Transformation function reference [p 105].

   1. To add a transformation, select and drag the desired transformation function to the mapping screen.



2. Select and drag fields from the source to the function's input (left) and connect the function's output (right) to target fields. In the example shown below a constant value is output to the target, so only the function's output is mapped.



3. Double-click the transformation function to edit its parameters. Each function is different, for a complete list, see Transformation function reference [p 105].

6. Optionally, select **Save** to store your settings as a template for re-use. For more information on using templates, see Using templates [p 89].
7. Click **Export** to complete the process.

> **Note**
>
> If an administrator set the export service to run in the background, you can go to and work in other areas of EBX® while the export is in progress. Access the list of in-progress and completed tasks by expanding the sidebar. See Viewing and managing background tasks [p 109] for more information.

See also

Map and transform overview [p 94]

Mapping interface reference [p 97]

Export overview [p 54]

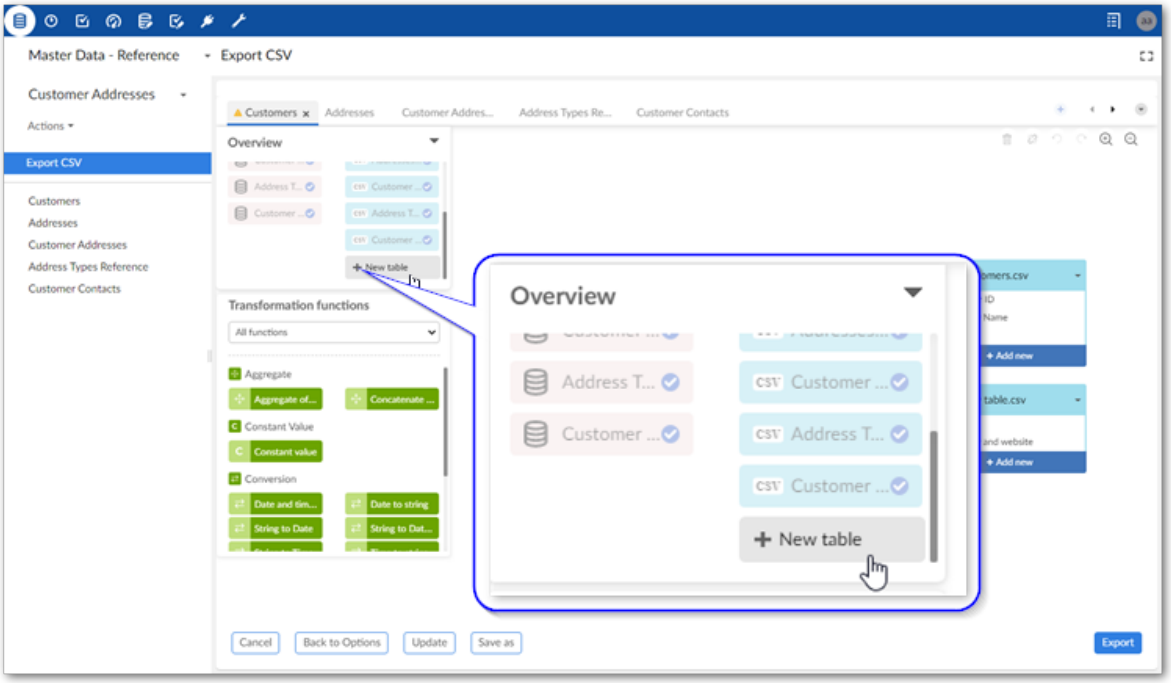
This chapter contains the following topics:

13.1 Adding tables to the export

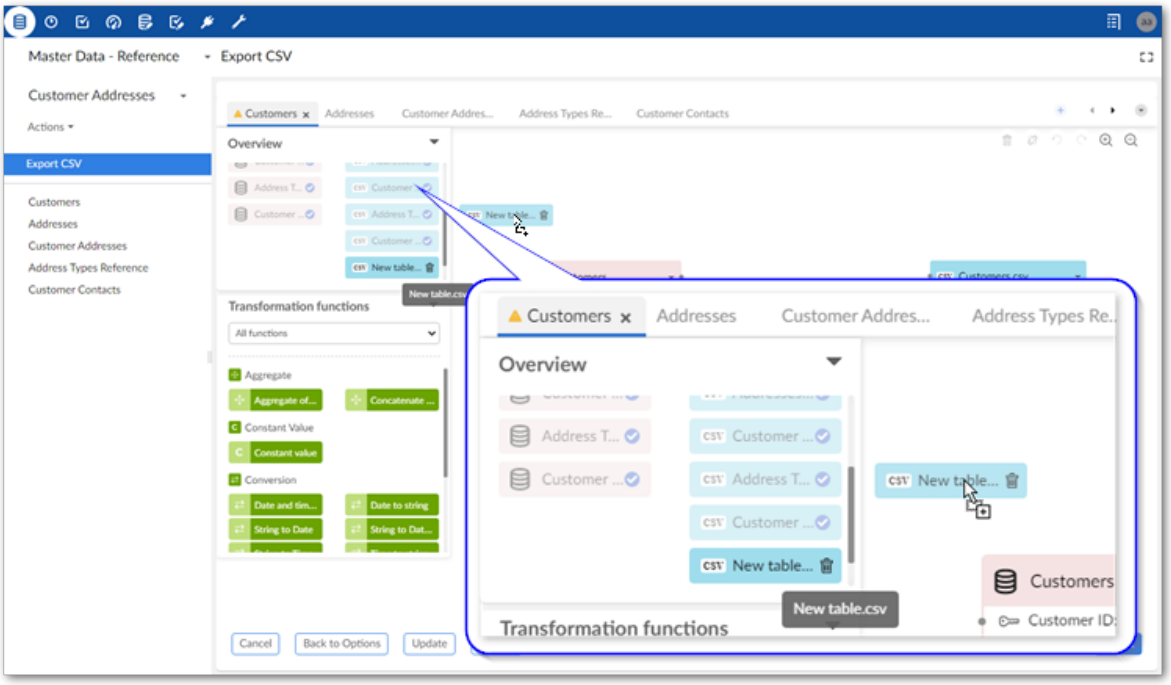
You can include additional target tables in an export from the **Mapping** screen. One source table can map to multiple targets. This allows you to split source data into multiple tables.

The following steps assume you have already initiated the export process and outline how to add target tables to an export:

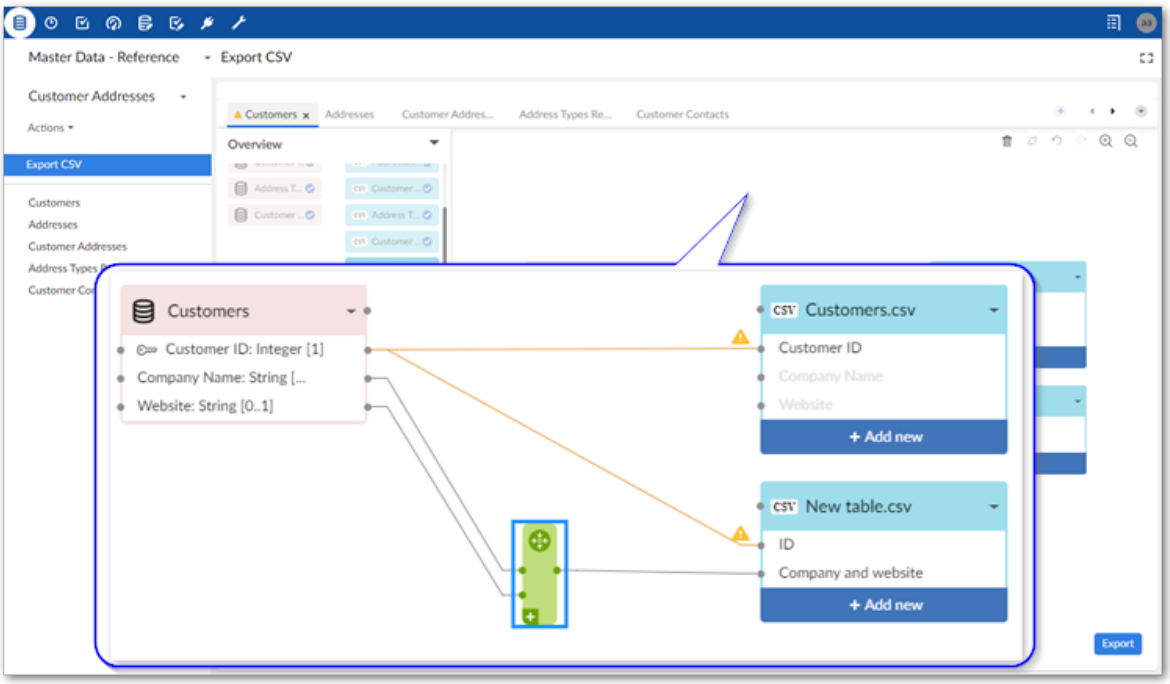
1. Add a new target table:
    1. From the **Overview** box in the **Mapping** screen, select **New table**.



2. Drag the new table to the mapping screen.



2. Add fields to the new table by selecting **Add new**.
   After adding a field, you can double-click to edit its name, or select the 'x' icon to remove it.
3. Drag from fields in the source table to fields in the new target to create mappings.
   As shown below, you can also include a transformation function to manipulate data if required.



4. Repeat the previous steps until you have all required target tables.

CHAPTER 14

Exporting labels and related data

This chapter contains the following topics:

14.1 Overview

Instructional details for some of the add-on's export options and example output are included in the following sections:

- Exporting labels [p 69]
- Exporting related data [p 72]

14.2 Exporting labels

When exported data includes a primary key, foreign key, or enumeration, the resulting file might be difficult to parse. The values contained in these fields are often numbers or other identifiers, and make it challenging to extract meaningful information. To alleviate this, the add-on allows you to export the labels for these fields. Note, that labels for these fields must be defined in the data model and can only be set by someone with administrative access to edit the data model. See Setting labels [p 71] below for high-level information on where to set the labels.

To include labels in an exported file:

1. Initiate the export process.

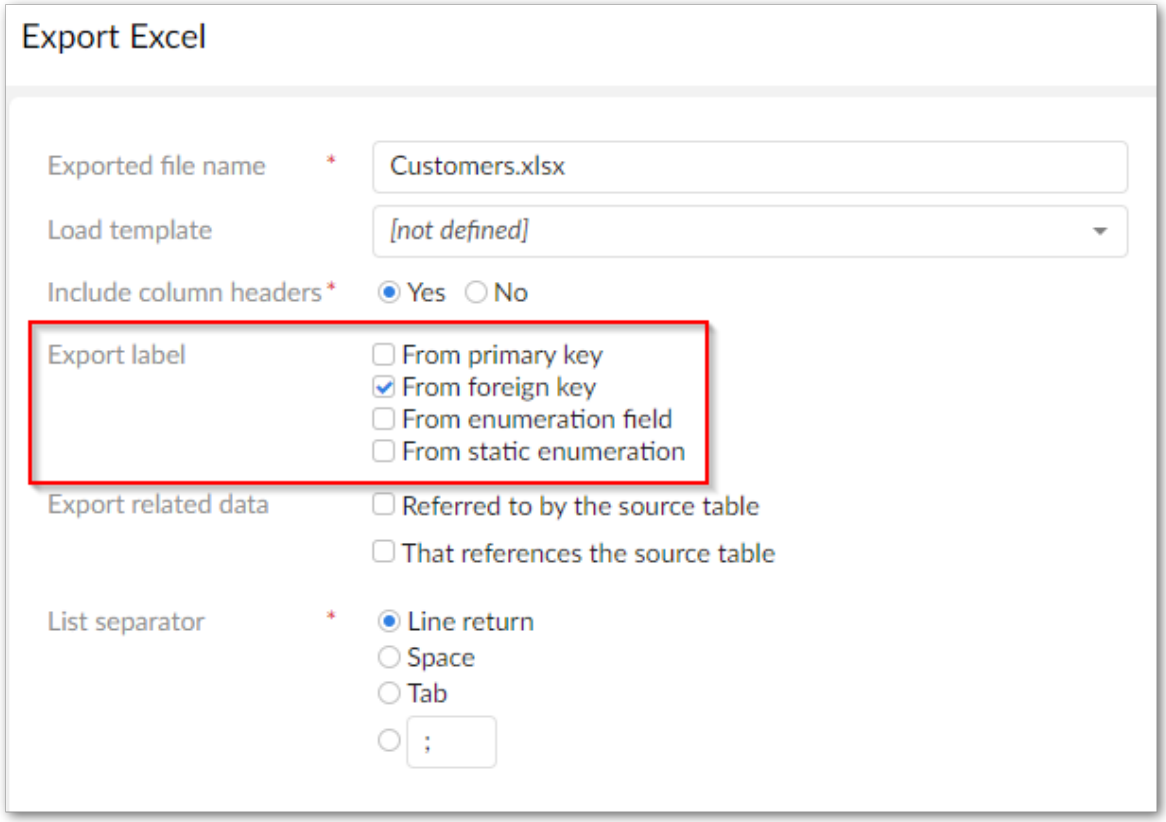
   Label export options are available at the dataset and table levels for CSV and Excel, but only the table level for SQL. This example demonstrates exporting from one table to Excel and including labels from a foreign key. With the exception of the following differences, the process and results are similar for the other export formats and label options:

   - The option to export static enumerations is only available for Excel export.
   - When exporting at the dataset level: each sheet in an Excel file will contain data for one table included in the export.
   - If you do not have permission to view a field it is not included in the export.

   See Exporting a table [p 55] or Exporting multiple tables [p 61] for detailed instructions on exporting.

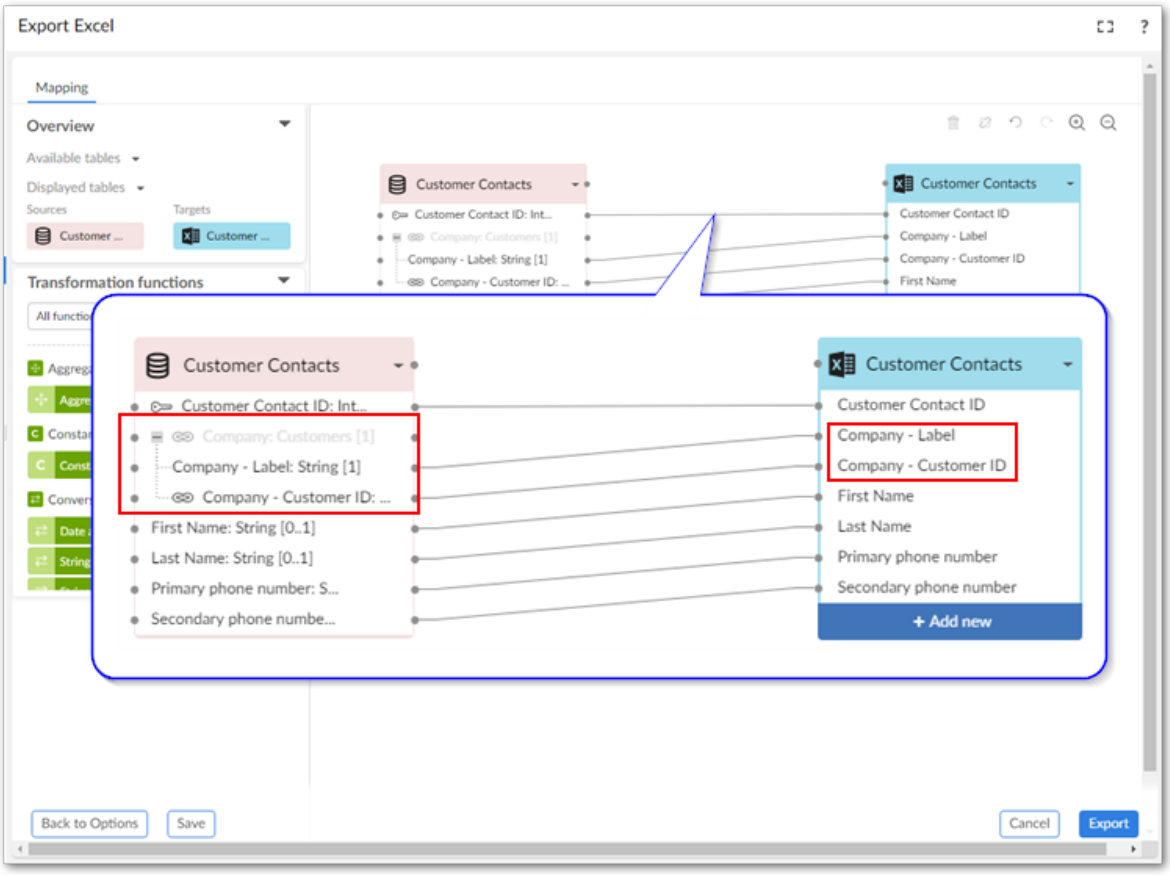
2. Choose the types of labels to export by selecting the corresponding options.

> **Note**
>
> You cannot use a transformation function on a field that is a static enumeration.



3. Optionally, change mappings.

As shown in the example below, you can find the label mappings in an expandable section in the source table.



4. Complete the export process.

   The following image shows the file resulting from the export with the label column (Company - Label) included:

	A	B	C	D	E
1	Customer Contact ID	Company - Label	Company - Customer ID	First Name	Last Name
2	1	Nordic Group Inc	540	Janine	Rhoden
3	2	E A I Electronic Assocs Inc	325	Dominque	Dickerson
4	3	Anderson, Mark A Esq	454	Krissy	Rauser
5	4	Mutual Fish Co	577	Samira	Heintzman

Setting labels

If you have administrative access to edit a data model in the Data Model Assistant (DMA), you can determine the exported labels for each field type by adding a label in the following locations:

- Enumerations: select the field and navigate to *Simple controls* > *Enumeration* > *Items* > *Label*.
- Primary keys: select the table and navigate to *Advanced properties* > *Table* > *Presentation* > *Record labeling*.
- Foreign keys: select the field and navigate to *Advanced controls* > *Foreign key constraint* > *Record labeling*.

14.3 Exporting related data

You can export data from related tables when exporting to Excel or CSV formats. You have the option of including data from related tables up to 5 levels from the main source table (the table where you run the export service). Only data related to records selected for export in the export's source table are exported.

By default, data from dataspace snapshots is not included when exporting related data. This helps to prevent excessively large exports. However, you can enable export of snapshots by selecting the **Export data from snapshots** option.

When exporting to:

- CSV: The add-on exports a ZIP file containing individual CSV files. Each file contains data from one table and one of the files includes metadata about the related tables included in the export.
- Excel: The add-on exports a single Excel file. The first sheet in the file contains the export's source data. Each additional sheet—one for each table—contains the related data. The final sheet in the file contains metadata about the related tables included in the export.

To export related data:

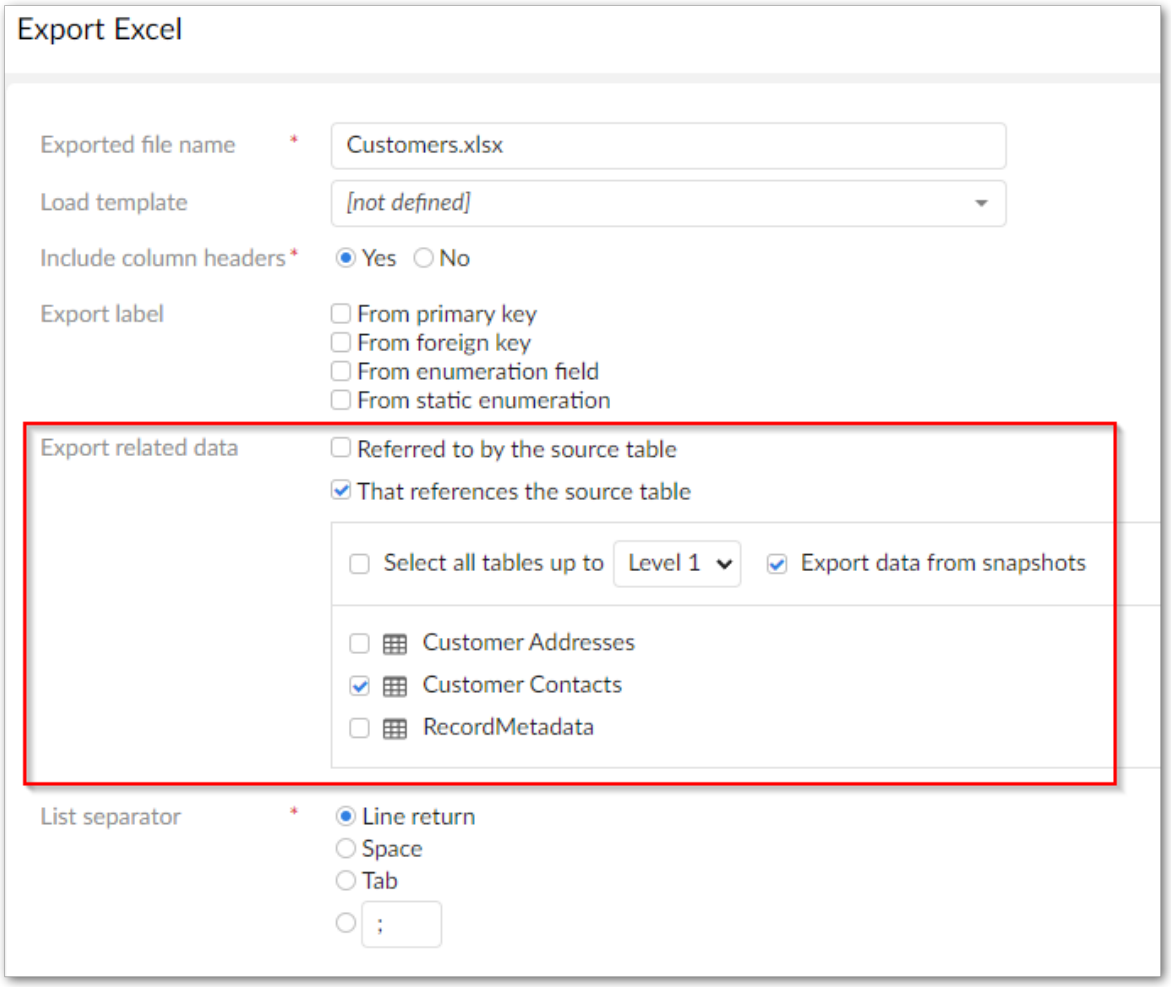
1. Initiate the export process for CSV or Excel.

   See Exporting a table [p 55] for detailed instructions on exporting.

   > **Note**
   >
   > Related data export options are only available at the table level.

2. Include data from related tables:
   1. Select the type related data to export using the following options:
      - Referred to by the source table
      - That references the source table
   2. Set the related data's scope using the following options:
      - Use the **Select all tables up to** and the **Level** menu to determine how much data to include. See Table levels example [p 74] for more details on how level selection impacts exported data.
      - Select the **Export data from snapshots** if you want to include all related data contained in dataspace snapshots.

- If you only want to include data from specific tables, tic their corresponding boxes.



3. Optionally, change or update mappings.
4. Complete the export process.

See also

Exporting a table *[p 55]*

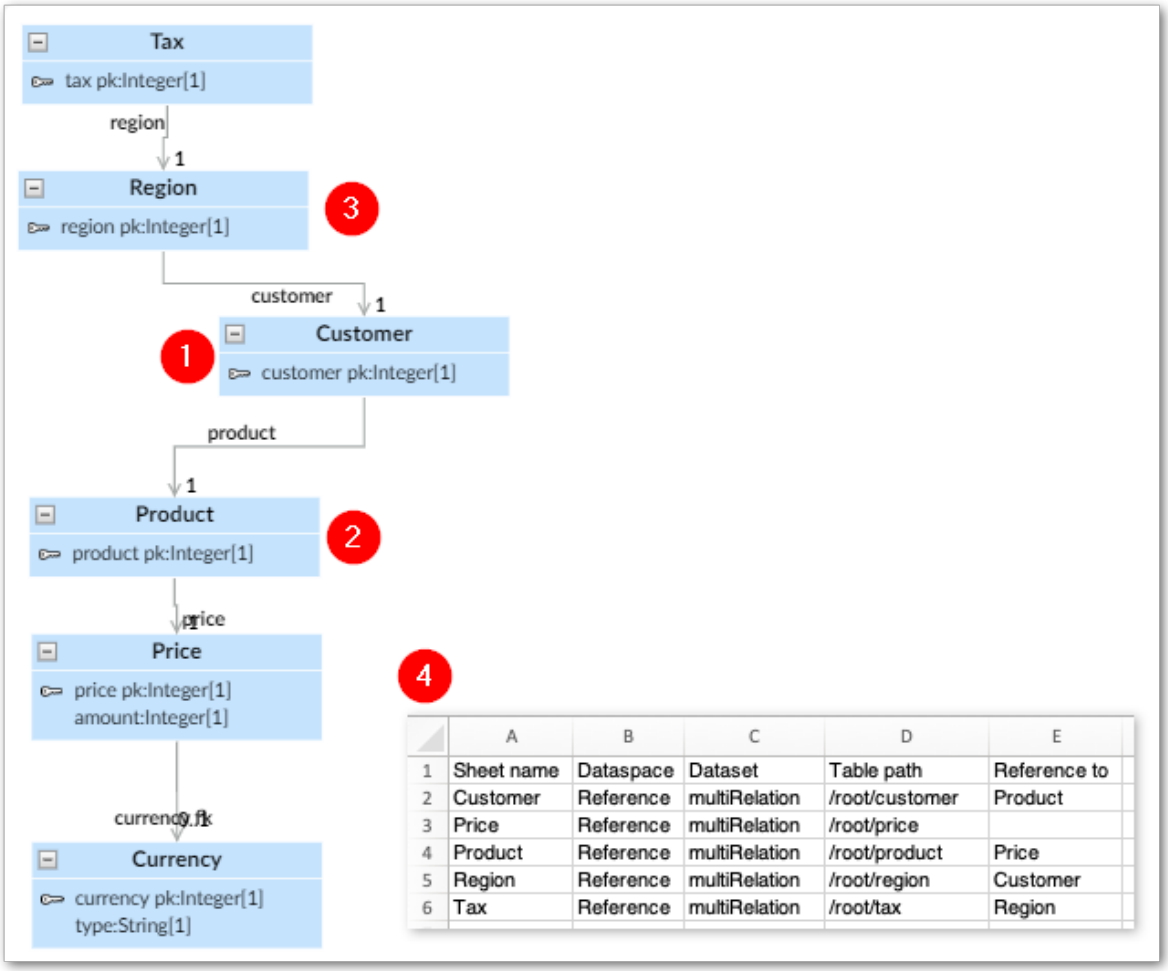
Map and transform overview *[p 94]*

Mapping interface reference *[p 97]*

Import overview *[p 30]*

Table levels example

The following image and list include a data model diagram and export results to highlight the behavior of exporting related data:



	A	B	C	D	E
1	Sheet name	Dataspace	Dataset	Table path	Reference to
2	Customer	Reference	multiRelation	/root/customer	Product
3	Price	Reference	multiRelation	/root/price	
4	Product	Reference	multiRelation	/root/product	Price
5	Region	Reference	multiRelation	/root/region	Customer
6	Tax	Reference	multiRelation	/root/tax	Region

1) Source table	The export service was run from the Customer table.
2) Referenced by the source table	The Customer table holds a FK to the Product table, but not directly to Price, or Currency. The related data from Price was included in the export because it was within the number of levels specified (2), whereas Currency was not.
3) Tables that reference the source table	Data from the Region table, which has a direct FK to Customer, and Tax table was included in the export.
4) Results	The reference sheet includes metadata about all related tables included in the export.

Transferring data

CHAPTER 15

Transfer overview

The **Transfer data** service allows you to move data between tables within your EBX® repository. The table or dataset you initiate the action from sets the data source. You can then choose the targets and specify any required mappings or transformations.

> **Note**
>
> All EBX® permissions apply to data transfer operations. You cannot transfer to target tables and fields unless you have permission to write data in these locations.

As outlined below, the transfer process includes:

- Running the **Transfer data** service from a table or dataset's **Actions** menu.
- Defining any required mappings or transformations. The add-on automatically maps source fields with those in the target that have the same name. If required, you can use the add-on's drag-n-drop functionality to create or update mappings. If you want to apply transformations to your data, you can use built-in functions to modify data during transfer. For more information on the topics of mapping and transformations, see Map and transform overview [p 94].
- Saving settings as a template for later reuse. When import operations require the use of transformations or custom mappings, you can use templates to store these settings. This alleviates you from having to redo the same tasks each time you perform a specific import.

See also

Transferring to a table [p 77]

Map and transform overview [p 94]

Mapping interface reference [p 97]

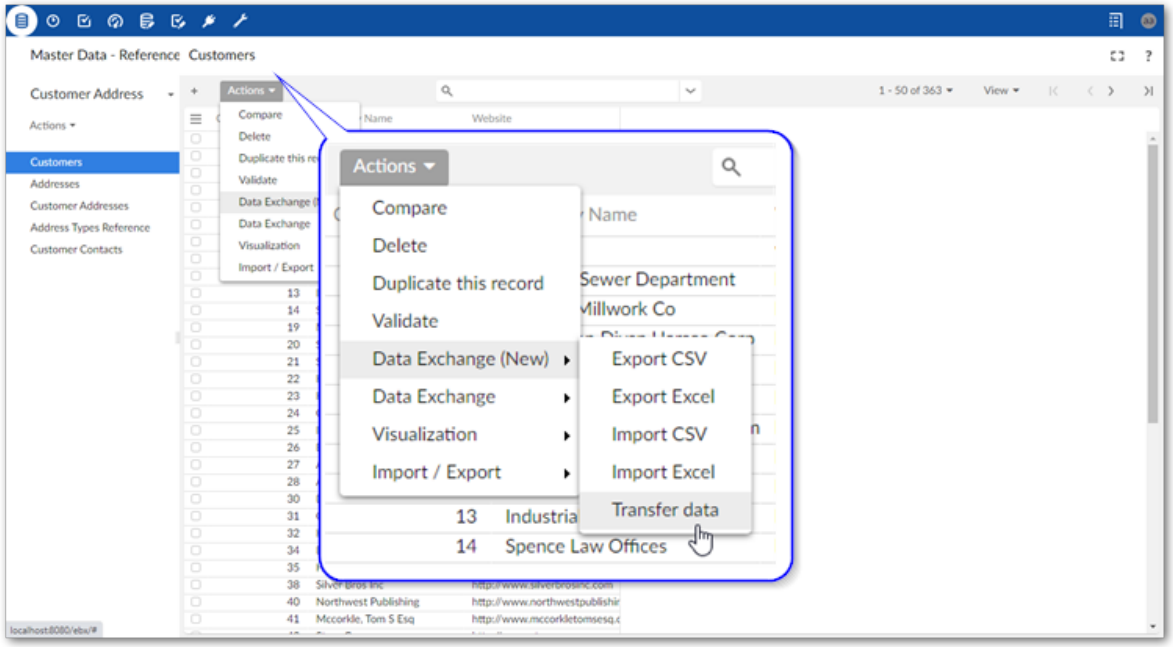
Export overview [p 54]

CHAPTER 16

Transferring to a table

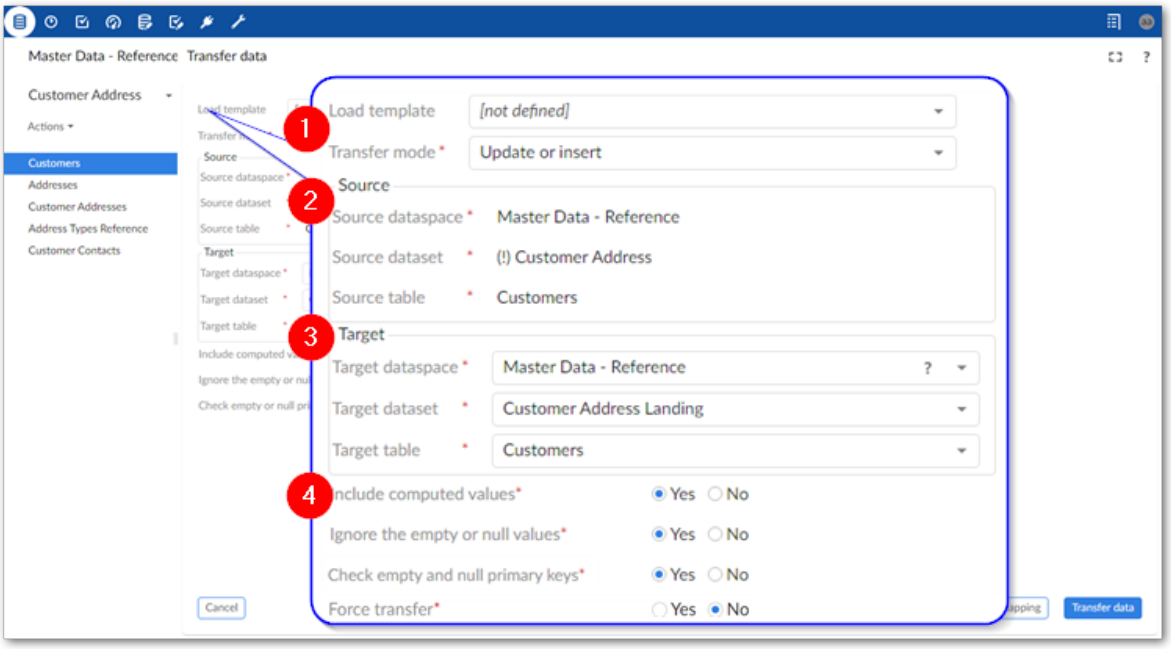
To transfer data between two tables:

1. Initiate the transfer process:
    1. Navigate to the table containing the source data you want to transfer.
    2. Initiate the import process from the table by selecting: *Actions* > *Data Exchange (New)* > *Transfer data*.



2. Set transfer options:

1. The following image and list highlight some of the options when transferring data:



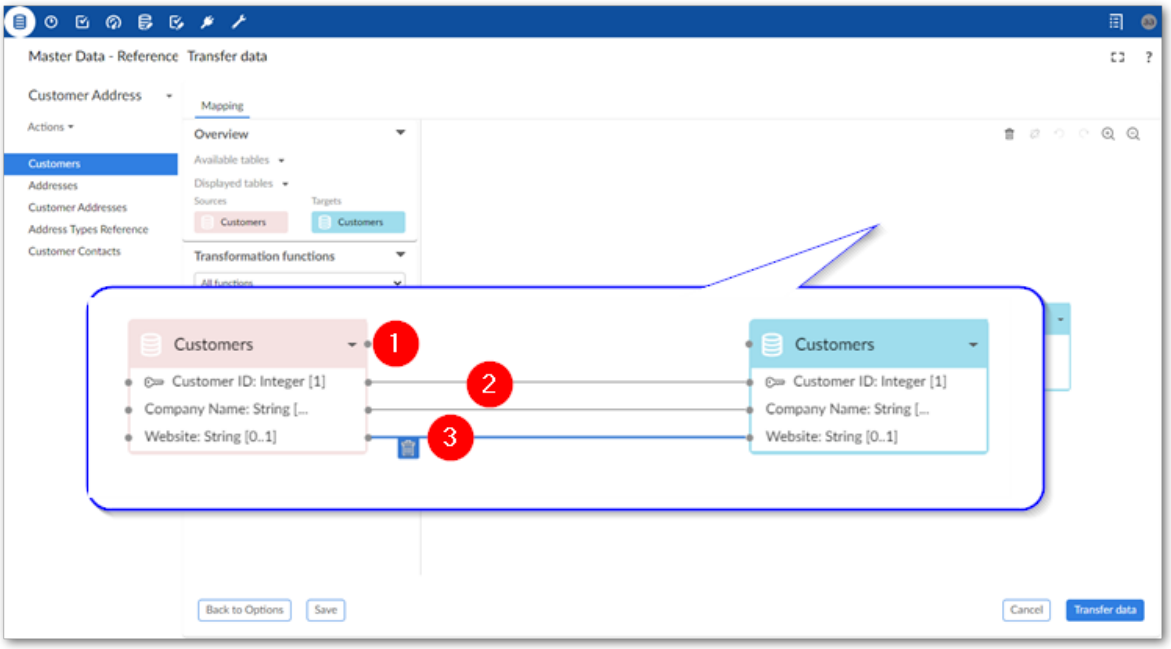
1)	**Load template:** Optionally, select a template to populate all data transfer settings and mappings. **Transfer mode:** Select the desire transfer mode.
2)	**Source:** displays the source table information.
3)	**Target:** Use the menus to select the target table for this transfer.
4)	Specify whether this transfer: includes computed values, ignores null and empty values, and checks empty and null primary keys. Additionally, you can set options for how the system handles errors when invalid records are encountered during transfer. Please note that any selected error handling options will not bypass custom trigger implementations. **Note** When **Force transfer** is enabled, then you cannot set error handling for **Data model constraints**.

3. Optionally, update or create mappings:

> **Note**
>
> The following steps provide only high-level mapping instructions. See Mapping interface reference [p 97] for more detailed information on mapping and transformations.

1. Select **Mapping** to enter the mapping screen where you can update the default data mappings or add data transformations. The add-on automatically creates mappings where the source and target have the same labels. A mapping identifies which data is extracted from the source and where it is extracted to in the target.

The following image and list describe some features of table and field mapping:

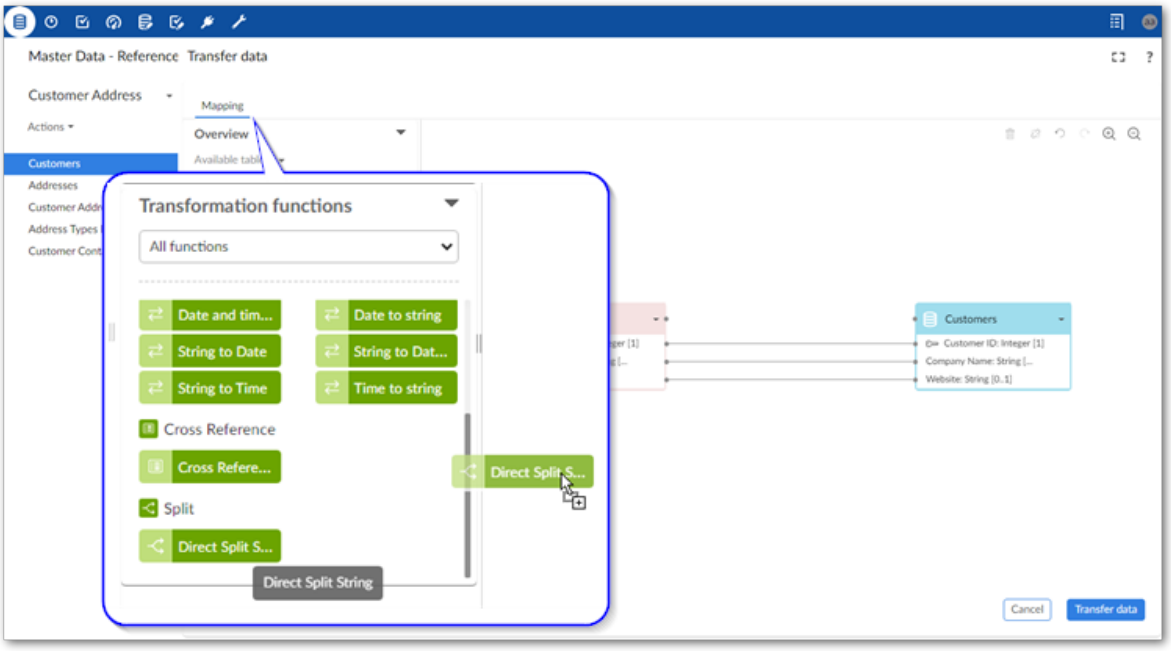


1)	**Source (pink) and target (blue) tables:** By default, the data source displays on the left and the target on the right. Each table header has a label and uses an icon to show its type and selecting the small arrow collapses and expands the table. The headers also have connection points. Drag this top point to automatically generate mappings between tables.
2)	**Mappings:** Each line is a mapping. An orange color and icon indicates there is a warning for a mapping. Select the icon to view the warning. Drag from one field's connection point to another to create a mapping.
3)	**Delete selected:** To delete a mapping, select it and then the garbage icon.

4. Optionally, add transformation functions:

   Transformation functions allow you change the source data to meet technical or business requirements in the target. The add-on ships with several transformation functions that support common business cases. For more details on how to use transformation functions, see Mapping interface reference [p 97]. For information on the available transformations and their descriptions, see Transformation function reference [p 105].

1. To add a transformation, select and drag the desired transformation function to the mapping screen.



2. Select and drag fields from the source to the function's input (left) and connect the function's output (right) to target fields.
3. Double-click the transformation function to edit its parameters. Each function is different, for a complete list, see Transformation function reference [p 105].

5. Optionally, select **Save** to store your settings as a template for re-use. For more information on using templates, see Using templates [p 89].
6. Click **Transfer data** to complete the process.

> **Note**
>
> If an administrator set the transfer service to run in the background, you can go to and work in other areas of EBX® while the transfer is in progress. Access the list of in-progress and completed tasks by expanding the sidebar. See Viewing and managing background tasks [p 109] for more information.

See also

Map and transform overview [p 94]

Mapping interface reference [p 97]

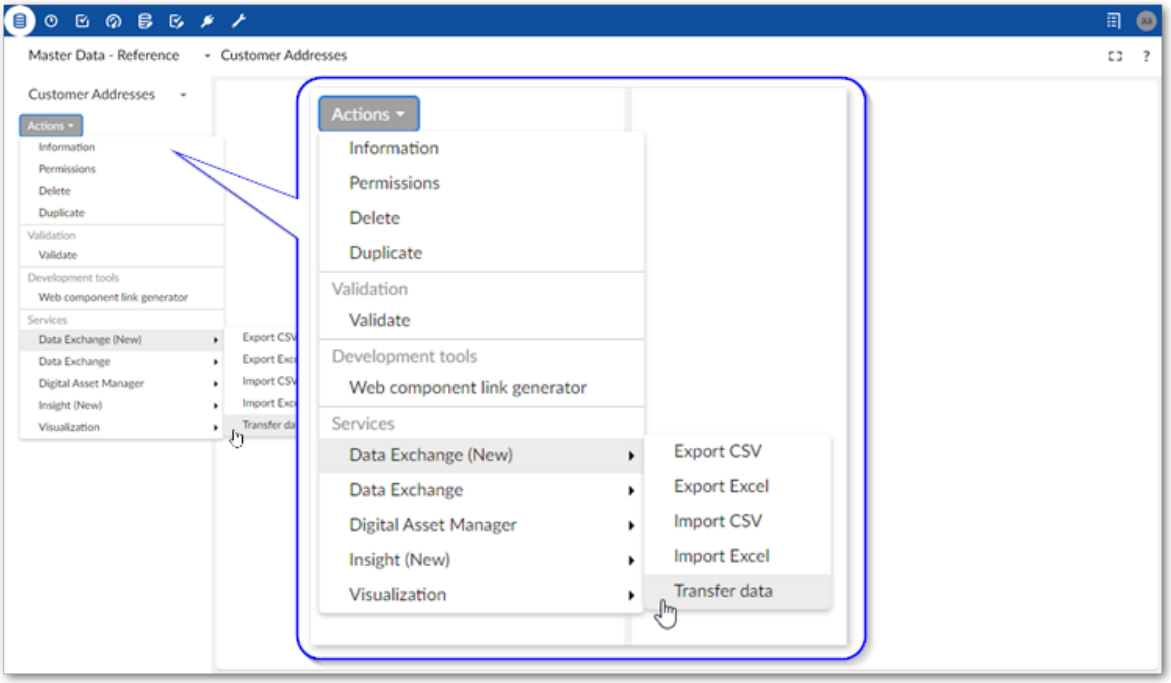
Export overview [p 54]

CHAPTER 17

Transferring to multiple tables

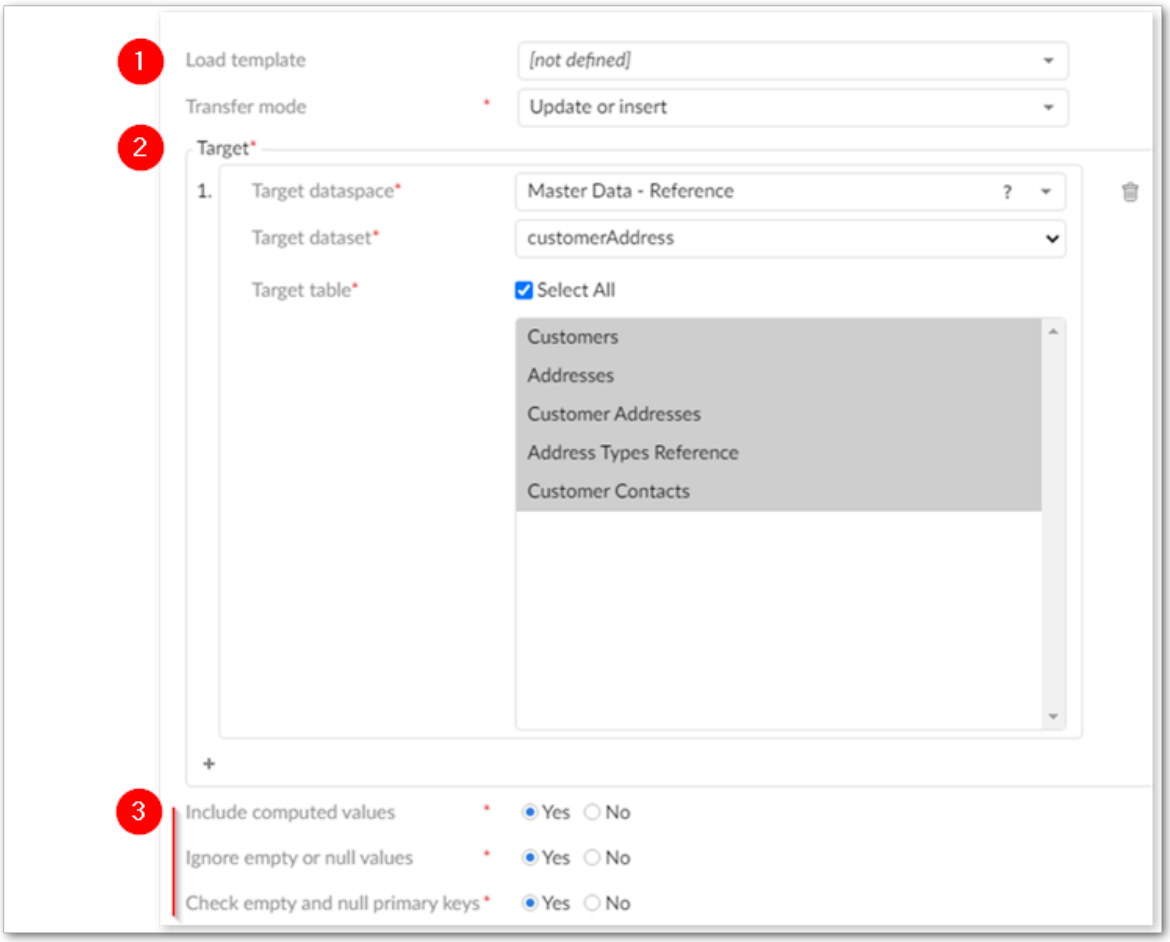
To transfer data between multiple tables:

1. Initiate the transfer process:
    1. Navigate to the dataset containing the source data you want to transfer.
    2. Initiate the import process from the table by selecting: *Actions* > *Data Exchange (New)*> *Transfer data*.



2. Set transfer options:

1. The following image and list highlight some of the options when transferring data:



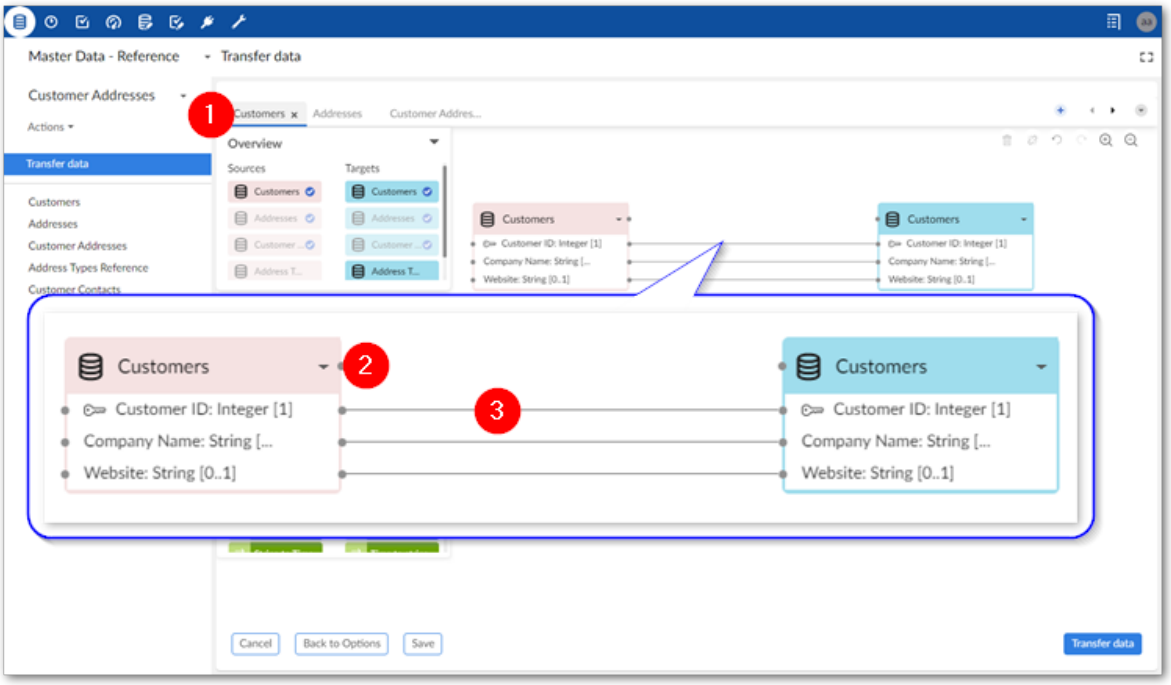
1)	**Load template:** Optionally, select a template to populate all data transfer settings and mappings. **Transfer mode:** Select the desire transfer mode.
2)	**Target:** Use the menus to select the target table for this transfer. You can add additional targets by selecting the '+' icon in the bottom-left corner of the target group. **Note** You can add up to 7 target groups at a time. To add more, you must first select **Save**.
3)	Specify whether this transfer: includes computed values, ignores null and empty values, and checks empty and null primary keys.

3. Optionally, update or create mappings:

> **Note**
>
> The following steps provide only high-level mapping instructions. See Mapping interface reference [p 97] for more detailed information on mapping and transformations.

1. Select **Mapping** to enter the mapping screen where you can update the default data mappings or add data transformations. The add-on automatically creates mappings where the source and target have the same labels. A mapping identifies which data is extracted from the source and where it is extracted to in the target.

The following image and list describe some features of table and field mapping:



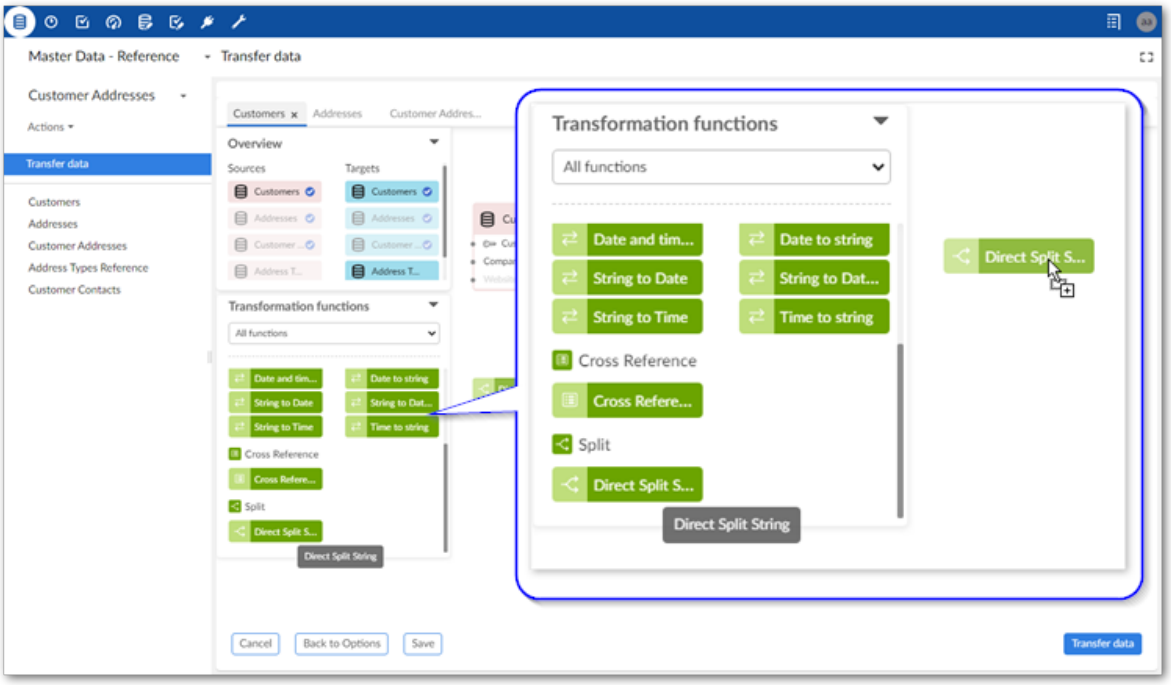
1) Table mapping tabs	Each tab contains the mappings between a different pair of source and target tables. The icons to the right allow you to locate and navigate between tabs. Additionally, you can create new tabs, and add any unmapped source and target tables by dragging them from the **Overview** box to the mapping pane. Note that the '+' icon is disabled when all sources are already included in a mapping tab.
2) Source (pink) and target (blue) tables	By default, the data source displays on the left and the target on the right. Each table header has a label and uses an icon to show its type and selecting the small arrow collapses and expands the table. The headers also have connection points. Drag this top point to automatically generate mappings between tables. Please note that: • You can use the same source or target only once in the mapping screen. In other words, you cannot use a source or target in more than one table mapping tab. • Sources can have multiple targets, but targets can only have one source.

3) Mappings	Each line is a mapping. An orange color and icon indicates there is a warning for a mapping. Select the icon to view the warning. Drag from one field's connection point to another to create a mapping. To delete a mapping, select it and then the trash icon.

4. Optionally, add transformation functions:

   Transformation functions allow you change the source data to meet technical or business requirements in the target. The add-on ships with several transformation functions that support common business cases. For more details on how to use transformation functions, see Mapping interface reference [p 97]. For information on the available transformations and their descriptions, see Transformation function reference [p 105].

   1. To add a transformation, select and drag the desired transformation function to the mapping screen.



   2. Select and drag fields from the source to the function's input (left) and connect the function's output (right) to target fields.
   3. Double-click the transformation function to edit its parameters. Each function is different, for a complete list, see Transformation function reference [p 105].

5. Optionally, select **Save** to store your settings as a template for re-use. For more information on using templates, see Using templates [p 89].

6. Click **Transfer data** to complete the process.

> **Note**
>
> If an administrator set the transfer service to run in the background, you can go to and work in other areas of EBX® while the transfer is in progress. Access the list of in-progress and completed tasks by expanding the sidebar. See Viewing and managing background tasks [p 109] for more information.

See also

Map and transform overview [p 94]

Mapping interface reference [p 97]

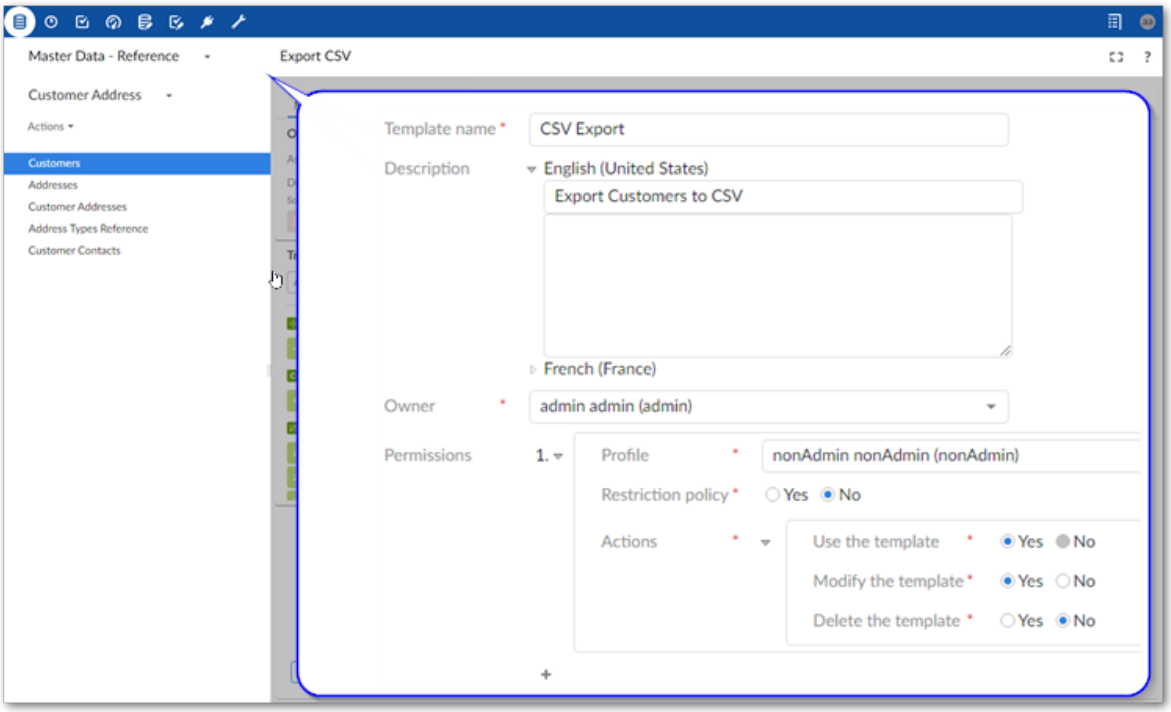
Export overview [p 54]

CHAPTER 18

Using templates

The add-on allows you to store configuration settings in templates. Each template holds an import, export or data transfer operation's option settings and mapping details.

The option to save a template is available after entering the **Mapping** screen. At this point, you already entered source/target information and specified any format specific options to apply. The add-on auto-generated mappings where possible. You can save a template with the current configuration, or update mappings and add transformations before saving. As shown below, to create a template, you specify a unique name, optional description, owner, and template permissions:



This chapter contains the following topics:

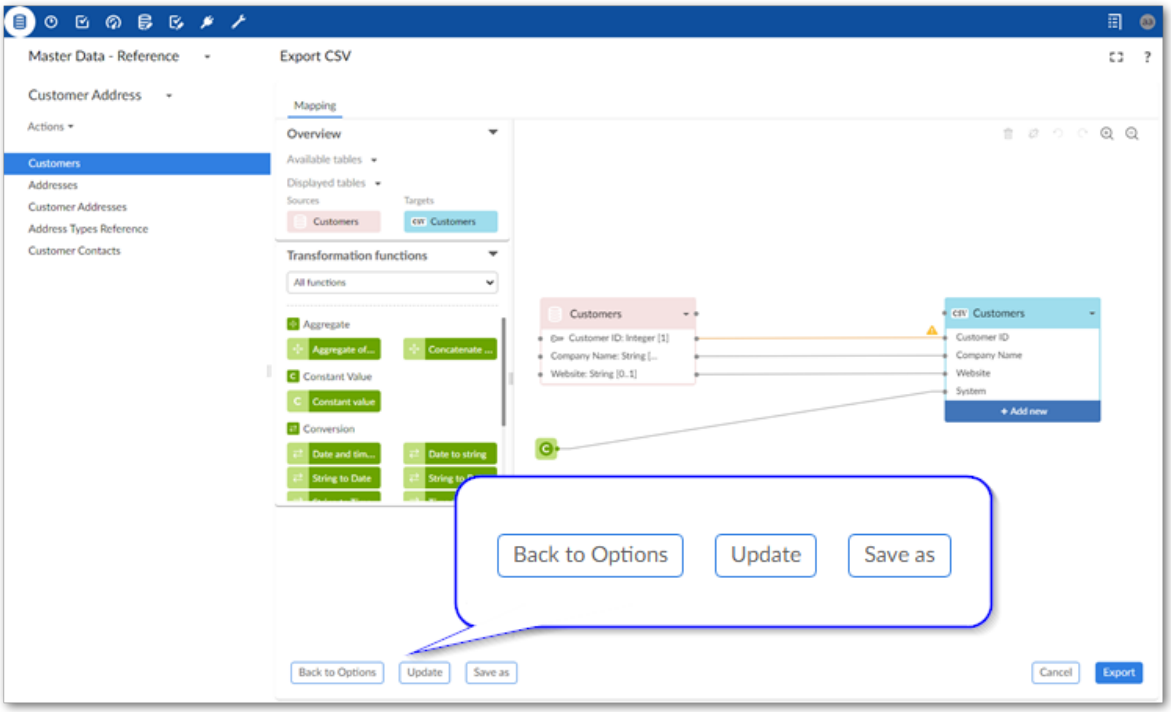
1. Working with existing templates

18.1 Working with existing templates

During an import, export, or data transfer operation you can select an existing template using the **Load template** field on the **Options** page. After choosing a template, the add-on automatically populates the option fields and mappings. You can:

- Change configuration options.
- View and update mappings.
- Initiate the import, export, or transfer operation.

If you have sufficient permission when viewing a template, you can select **Update** to change template settings. Additionally, you can create a copy of the current template by selecting **Save as**. After making changes, you have the option of removing the original template via the **Delete current template** option.



Some changes to configuration settings impact the mappings stored in a template. If you make changes to settings that impact mappings, a warning displays to inform you of the impact. Additionally, if you continue with the data transfer operation, a message prompt allows you to save or discard changes to the template.

CHAPTER 19

Handling special characters

Characters such as quotes, backslashes, and certain symbols, can have special meaning. For example, a **;** used as a separator can denote the end of a field value in a CSV file. In this case, the add-on knows to import the value after the **;** into the next field. When data *values* include special characters, they should be escaped so that they are treated as literal characters rather than having special meaning. During the data integration process, you can specify the separators and delimiters used to ensure that data imports correctly. However, please note that the add-on reserves use of the backslash (\) character in order to support multi-valued fields. Due to this, you should avoid specifying a list separator character that is also used in data values.

The following shows an example of how the \ character is handled by the add-on:

- When data contains the \ character:
  - When exporting a value of 100\000, it becomes 100\ \000.
  - When importing a value of 100\,000, it becomes 100,000.
- When data includes the selected list separator, for example, the space character as shown below:
  - When exporting a value of 100 000, it becomes 100\ 000.
  - When importing a value of 100\ 000, it becomes 100000.

Mapping and transforming data

CHAPTER 20

Map and transform overview

This chapter contains the following topics:

20.1 Mapping overview

Data integration involves the movement of data from one data store to another. The process requires data to be directed between a source and target. A goal, and sometimes requirement, is to make the source data available in the format and structure required by the target. In the context of the add-on, this goal is addressed using the concept of *mapping*.

Mapping refers to:

- The process of specifying the following:
  - Which data is extracted from a data source.
  - The data's destination in the target location.
  - Any required changes, or transformations, to the data along the way.
- The implementation results of the above process. For example, the *mappings* between fields in a source and target table.

See also

Mapping interface reference *[p 97]*

Import overview *[p 30]*

Export overview *[p 54]*

20.2 Transformation overview

Data transformations are added to mappings when types, formatting, or other constraints prevent successful movement of the data. A transformation makes the data compatible with the structure of the target.

Transformation types can include:

- Format changes: converting between technical formats, such as from String to Integer data types.

- Structure changes: changing the data's form. For example, splitting a Full name field into First Name and Last Name fields.
- Semantic conversion: converting the value to meet semantic requirements. For example, a source might use the following codes for states 1, 2, 3, etc. But, the target expects Alabama, Alaska, and Arizona. You can use a transformation to populate the expected value to the target.

See also

Mapping interface reference *[p 97]*

Transformation function reference *[p 105]*

CHAPTER 21

Mapping interface reference

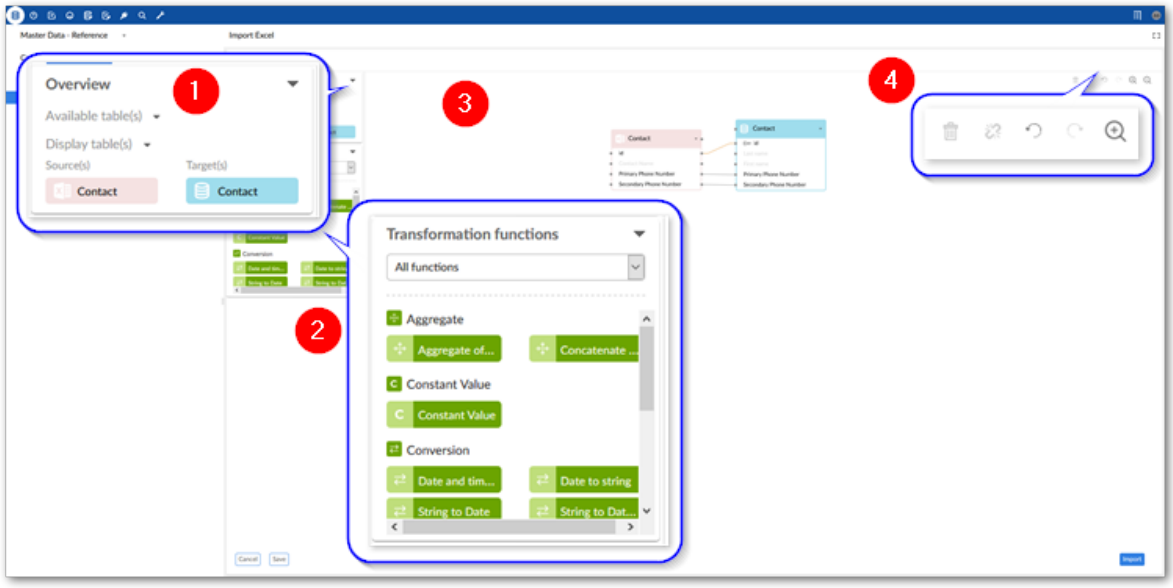
This chapter contains the following topics:

21.1 Overview

When moving data with the add-on, you use the **Mapping** screen to perform all mapping related tasks, including those related to transforming data. The following sections describe the user interfaces for mapping and transformations:

21.2 Mapping screen overview

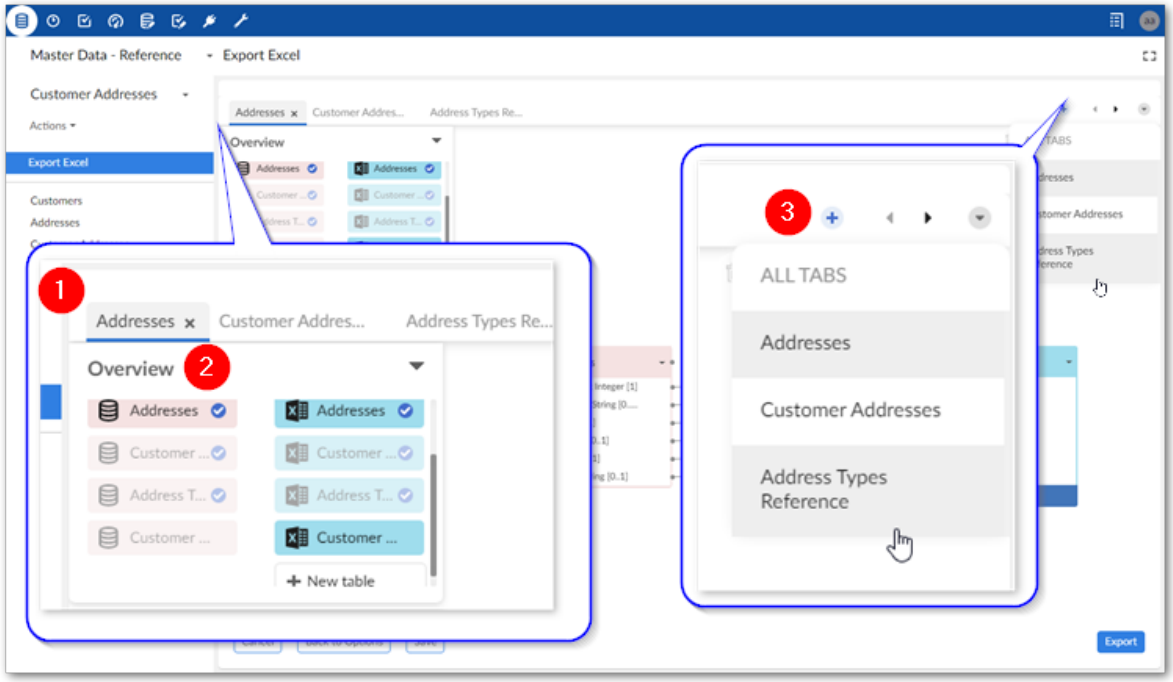
The image below and following list describe elements in the **Mapping** screen:



1) Overview box	This box shows you which tables are available to add to the mapping pane and which are currently in the mapping pane. To add an available table, select and drag it to the mapping pane.
2) Transformation functions palate	This palate contains all available transformation functions. To add a function to the mapping pane, select and drag it over.
3) Mapping pane	The mapping pane shows all tables included in this operation. To create a mapping, select and drag one connection point to another. For a mapping to be successful, it can only be mapped to the same type of component. For example, table to table and field to field.
4) Button bar	These icons allow you to: • Delete selected mappings. • Unlink a selected table's mappings. • Undo and redo actions in the mapping pane. • Zoom in and out.
5) Back to Options, Save as, Save/Update	These buttons allow you to: return to the **Options** screen and save your mapping configuration as a template for later use.

If you make changes to an existing template, select **Update** to save the changes.

The image below and following list describe some of the **Mapping** screen features specific to data integration with multiple tables:

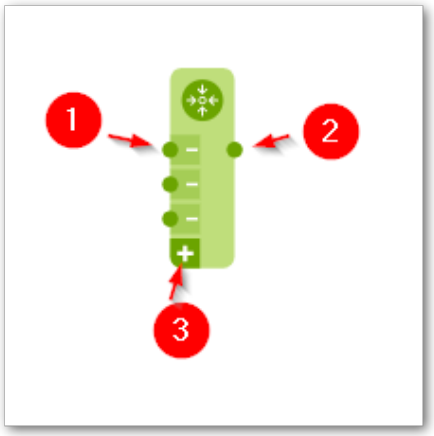


1 & 3) Table mapping tabs and navigation	Each tab contains a table mapping. If many tabs make it difficult to locate the one you want, you can use the icons to the right to page through the tabs. You can use the downwards-facing arrow to open the list of all tabs and select the one you want to view. Use the '+' icon to add a blank tab. You can then drag unmapped source and target tables to the **Mapping** pane to create mappings. Note that if all sources are mapped, this option is disabled.
2) Overview box	The paired tables on the selected mapping tab display normally and the others are slightly obfuscated. Tables that are not obfuscated can be added to a mapping. Blue check marks indicate that a table is included in a mapping. Select **New table** to create a new target table. After you drag it to the mapping pane, you can add fields, mappings, transformations, etc. This option is only available when exporting.

21.3 **Anatomy of a transformation function**

As implied by its name, transformation functions transform data. Their input accepts data from a source, they operate on this data, and they output the changed data to a target location. One exception to this behavior is the constant value function which only has an output. As UI components, they have connection points that allow you to map incoming data *from* the source to the left-hand side and outgoing data *to* the target from the right-hand side.

The image below and following descriptions highlights transformation function options and components:

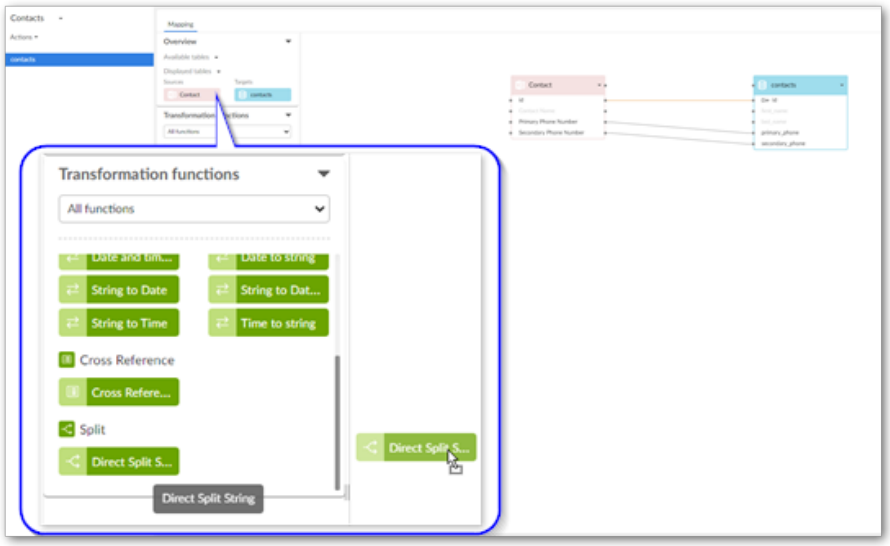
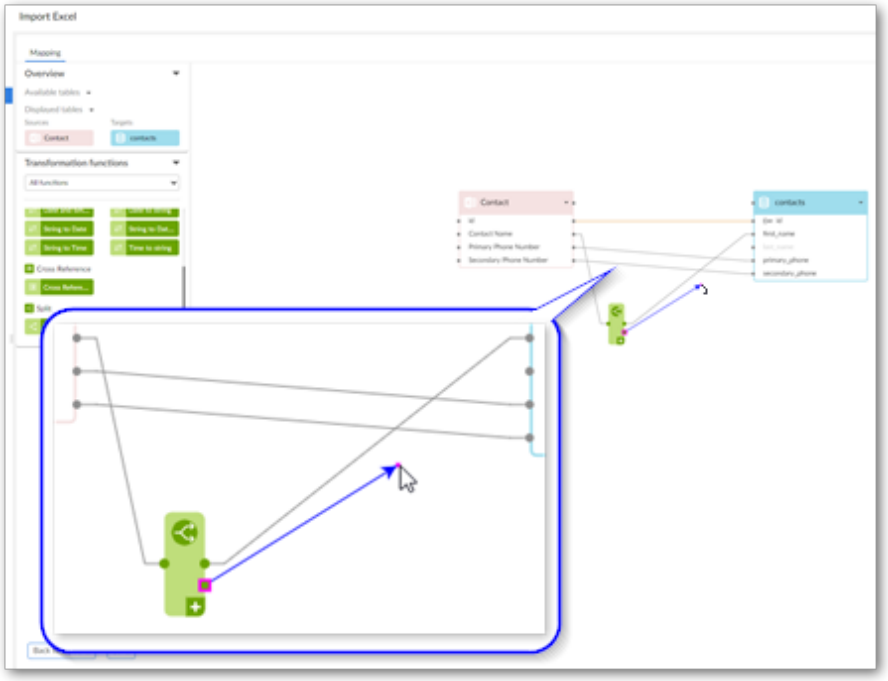


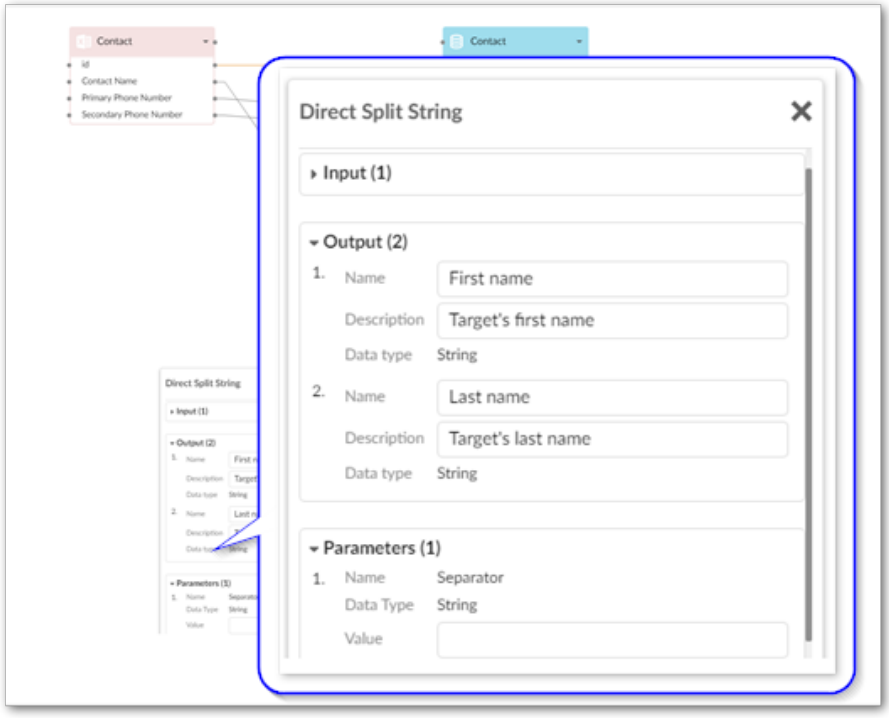
1) Input connection points	Each connection point accepts a mapping from one field in the source. The '-' icon allows you to remove an incoming or outgoing connection when there are more than the default number of connections. **Note** Transformation function inputs are always located on the left-hand side.
2) Output connection points	Each connection point can be mapped to one field in the target. Note in the image shown above there is only one point. However, some transformation functions can have more than one output. **Note** Transformation function outputs are always located on the right-hand side.
3) Add connection point	The '+' icon allows you to add additional connection points. Selecting this icon will add points automatically to the allowable side (input/output).
Available actions:	In addition to the functionality related to adding and removing connection points, you can double-click to edit the transformation function's configuration. The options vary depending on the function. But generally you can assign names and descriptions to the inputs and outputs. Additionally, you can edit parameters that determine certain aspects of the transformation function's behavior.

See Transformation function reference [p 105] for more information.

21.4 **Sample transformation use case**

The following provides an example of adding a transformation function during the import process to split a string in the source into multiple target fields:

Action	Description
Drag the function from the Transformation functions palate to the mapping pane.	
Connect the source to the input and the output to the target.	Drag from connection point to connection point. The order you map the connection points can matter. Transformation functions that split values order the output values from top (first) to bottom (last). So in this example the source Contact Name field contains names in the following order: 'John Smith'. When the system splits this string, the first value will be 'John'. So the topmost connection point is mapped to the First name field in the target. The same order of operations applies to concatenation. 

Action	Description
Edit the transformation function.	Double-click to edit the function. Note that the input/output names and descriptions are optional. Although, it does not display on the screen the important property to note here is the **Parameter**. A space has been entered in the **Value** field. 

See also

Mapping interface reference [p 97]

Import overview [p 30]

Export overview [p 54]

CHAPTER 22

Transformation function reference

This chapter contains the following topics:

22.1 Overview

The add-on provides several built-in transformation functions. These are designed to cover common business use cases: format conversion, structure changing, and semantic conversion.

22.2 Format conversion

The following convert the technical format:

Icon	Description
	The add-on includes the following transformation functions that convert from one technical format to another: • Date and time --> String • Date --> String • String --> Date • String --> Date and time • String --> Time • Time --> String **Parameters:** For each transformation function of this type you can use the parameter to format the function's output to meet business requirements. For example, specify that a date value is output as yyyy-MM-dd or dd-MM-yyyy.

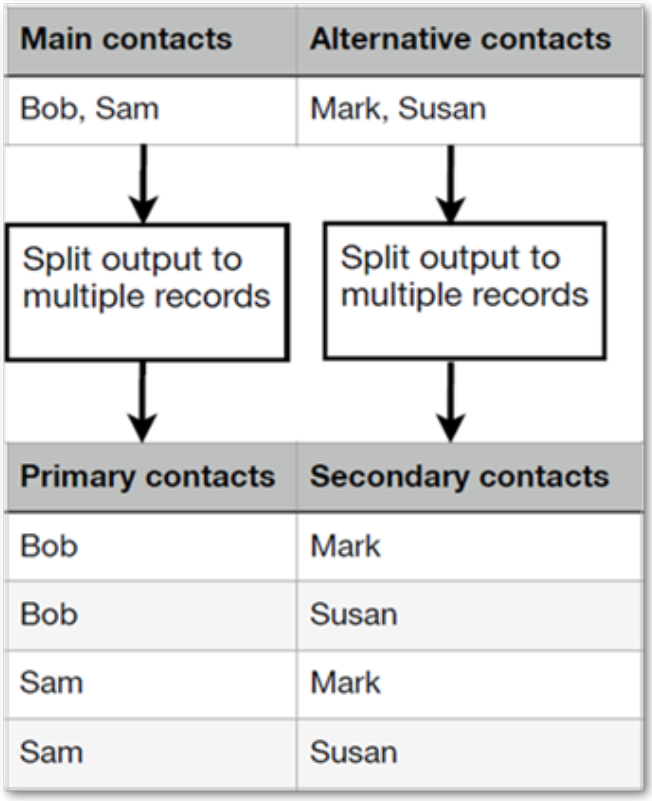
22.3 Structure changing

Structure changing transformation functions can help change your data from denormalized to normalized. This is generally accomplished by either combining or splitting data values.

Icon	Description
	The add-on includes the following: **Aggregate of integer numbers:** takes as integers as input and outputs the sum of those integers. **Parameters:** N/A **Concatenate string:** takes multiple strings as input and outputs them joined together as a single string. The output string is in the same order as the input fields. **Parameters:** the value to separate each input string. **Combine multiple fields:** takes input from single-value fields, multi-valued fields, and multi-valued complex groups. It can output the values combined in a single field, or into separate records. To enable separate record output, double-click the function and under **Options**, enable **Output to multiple target records**.
	**Direct split string:** takes a string contained in a single field and outputs parts of the string to other fields. A delimiter is used to tell the system how to partition the string. For example, a full name field might be split into first and last fields using the space character as a separator. **Parameters:** the separator used to determine where the string is split. To enable separate record output, double-click the function and under **Options**, enable **Output to multiple target records**. After activating this option, the output side of the function displays only a single output. You can drag this output connection point to multiple target locations, such as different tables. **Split single field to multi-valued field** takes a string contained in a single field and splits it into a single multi-valued field. This transformation is useful when your source data contains multiple list separators and you want to specify an alternative separator from the one used in the main options screen. **Parameters:** the separator used to determine where the string is split. To enable separate record output, double-click the function and under **Options**, enable **Output to multiple target records**. After activating this option, the output side of the function displays only a single output. You can drag this

Icon	Description
	output connection point to multiple target locations, such as different tables.

Note, that when any of the above transformation functions are configured to output values to multiple records, and more than one field from the same source table is used, the output includes each combination of values as shown in the following image:



22.4 Semantic conversion

The add-on includes:

Icon	Description
	**Constant value:** you supply a value which this function outputs to the given field. **Parameters:** the data type and value to output.
	**Cross reference:** looks up the value and outputs a value contained in a cross reference table. **Parameters:** the location of the source and target fields. **Digital asset UUID lookup (import only):** takes file names in the import source, looks up their corresponding UUIDs, and attaches the digital assets to the target field. This function allows you to perform a bulk import operation to attach digital assets instead of having to open records individually. Before using this function, ensure that a Drive containing the digital assets is linked to the correct field using a Digital Asset Component. For instructions on completing this task, see the *TIBCO EBX® Digital Asset Manager Add-on* documentation. **Digital asset name lookup (export only):** exports digital asset file names instead of asset UUIDs. The add-on can then use the file names in conjunction with the **Digital asset UUID lookup** transformation function to automatically attach assets to fields during import.

CHAPTER 23

Viewing and managing background tasks

This chapter contains the following topics:

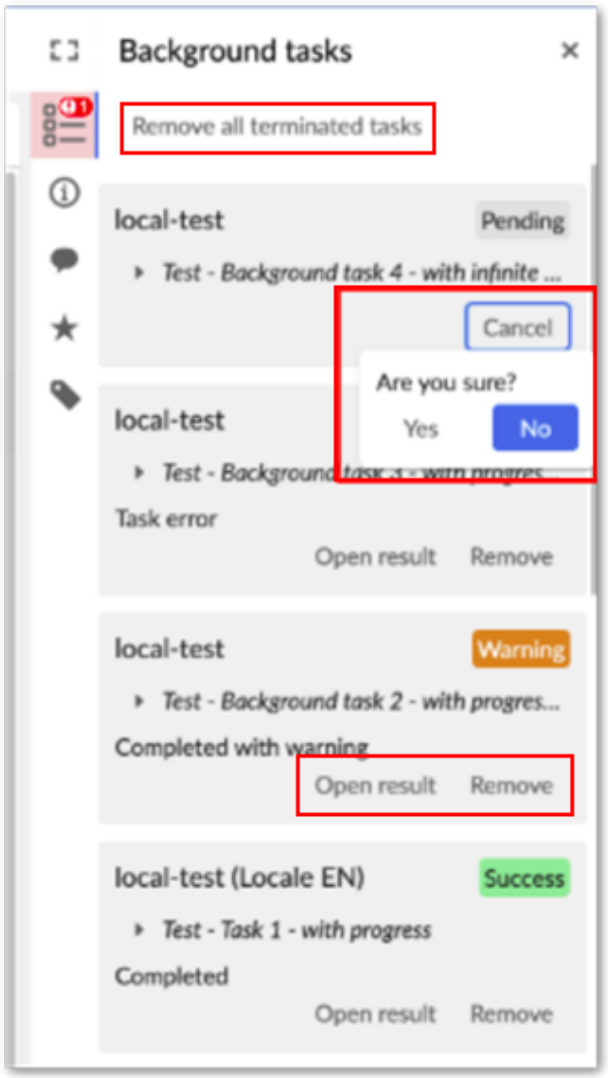
23.1 Overview

If enabled by an administrator, add-on services run as background tasks. This allows you to navigate to other locations in EBX® while a task is running. You can access in-progress, and completed tasks by expanding the sidebar, as shown in the image below. Use the:

- **Cancel** button to stop an in-progress task.
- **Open result** button to show the task results. If it was an export operation, you can download the exported file from the summary page.

- **Remove all terminated tasks** to clear all completed tasks from the view, or clear individual tasks using their **Remove** button.

> **Note**
>
> If a service completes before you navigate away from the page, the service results display as normal. You can also access the task from the sidebar.



Notices

CHAPTER 24

Documentation and Support

For information about this product, you can read the documentation, contact TIBCO Support, and join TIBCO Community.

This chapter contains the following topics:

24.1 How to Access TIBCO Documentation

Documentation for TIBCO products is available on the TIBCO Product Documentation website, mainly in HTML and PDF formats.

The TIBCO Product Documentation website is updated frequently and is more current than any other documentation included with the product.

24.2 Product-Specific Documentation

The documentation for the TIBCO EBX® is available on the TIBCO EBX® Product Documentation page. This page contains the latest version of each document.

The documentation for the TIBCO EBX® Add-ons is available on the TIBCO EBX® Add-ons Product Documentation page. This page contains the latest version of each document.

To view the documents for Add-on Bundles that are compatible with other versions of TIBCO EBX®, use the **Bundle version** menu to select the desired release.

24.3 How to Contact TIBCO Support

Get an overview of TIBCO Support. You can contact TIBCO Support in the following ways:

- For accessing the Support Knowledge Base and getting personalized content about products you are interested in, visit the TIBCO Support website.
- For creating a Support case, you must have a valid maintenance or support contract with TIBCO. You also need a user name and password to log in to TIBCO Support website. If you do not have a user name, you can request one by clicking **Register** on the website.

24.4 How to Join TIBCO Community

TIBCO Community is the official channel for TIBCO customers, partners, and employee subject matter experts to share and access their collective experience. TIBCO Community offers access to Q&A forums, product wikis, and best practices. It also offers access to extensions, adapters, solution accelerators, and tools that extend and enable customers to gain full value from TIBCO products. In addition, users can submit and vote on feature requests from within the TIBCO Ideas Portal. For a free registration, go to TIBCO Community.

CHAPTER 25

Legal and Third-Party

This software may be available on multiple operating systems. However, not all operating system platforms for a specific software version are released at the same time. See the readme file for the availability of this software version on a specific operating system platform.

Release Notes

CHAPTER 26

Version 6.2.2

This chapter contains the following topics:

26.1 New features

This release contains the following new features and enhancements:

- A new **Auto-map comparison strategy** option has been introduced to improve column mapping between SQL and EBX. Users can now configure how the add-on compares EBX fields with SQL columns by selecting from case-sensitive or case-insensitive strategies based on labels, names, or a combination of these with data types. This enhancement allows for more flexible and accurate automatic mapping behavior when importing from, or exporting to an SQL data source.
- The ability to download records that include invalid data and were not imported has been added to the **Import SQL** service. The downloaded records are provided in a CSV or Excel file, depending on the administrator's configuration. This feature helps users quickly locate and correct errors in the failed records. Edits can be made directly in the downloaded file, which can then be re-imported to insert the repaired records. The download link appears only after an import operation if one or more records could not be imported due to validation errors. Administrators can enable this feature in: *Administration > Integration > TIBCO EBX® Data Exchange Add-on (New) > Additional configuration > Default option values > Import/Export* table (SQL). Administrators can also define the file format (CSV or EXCEL) for the download.
- The import simulation feature is now available when using the **Import SQL** service. This allows users to find and fix issues before importing. By default, you can download a file that includes records flagged with the following during the import simulation: import blocking errors, record blocking errors, non-blocking errors, warnings, or information-level messages. Administrators can enable/disable download of the simulation results file in: *Administration > Integration > TIBCO EBX® Data Exchange Add-on (New) > Additional configuration > Default option values > Import/Export* table (SQL).
- The **Combine multiple fields** transformation function now accepts input from multi-valued complex groups during export operations. When used in combination with the option to **Output**

to multiple target records, this functionality allows you take an object like an address group and export values to separate records. This is particularly useful when exporting to an SQL data source that does not support multi-valued fields.

- The option to **Include computed values** has been added to the **Export Excel** service when run from the dataset level. For any existing templates, this option will default to enabled.
- Export operations initiated at the table level now respect the active EBX® view of the table. Only fields visible in the selected view will be included in the exported output. This allows users to control the scope of exported data by configuring views to include only relevant fields. Dataset-level exports remain unchanged and continue to include all fields by default. Metadata fields from EBX®, such as creator, last updater, and Team Up ratings or comments, can now be exported—provided they are included in the selected view.
- When exporting, the **Result** page now includes detailed statistics about the export operation. This ensures a consistent experience whether the operation is run as a background task or in real time.
- The following enhancements have been made to improve clarity and consistency in labels across import-related screens:
  - **Simulation** screen and add-on default options labels: The label **Download error file** has been updated to **Download flagged records** to better reflect the contents of the file. Administrators can configure availability of the download option using the **Download records flagged in simulation** property in the add-on's default options.
  - **Import Result** screen and add-on default option labels: The label **Click to download the file containing invalid data** has been changed to **Download records that failed to import**. Administrators can configure availability of the download option using the **Download invalid records** property in the add-on's default options. Previously, this property was called **Download file of invalid data**.

26.2 Changes in Functionality

This release contains no changes in functionality.

26.3 Changes to third-party libraries

This release contains no changes to third-party libraries.

26.4 Closed Issues

This release contains the following closed issues:

- **[DINT-4916]** A warning should be displayed when importing Excel or CSV at the dataset level when a user does not have permission to delete a record and the **Import mode** is **Replace all content** or **Delete only**.
- **[DINT-5081]** The text in the UI for import, export, and transfer modes does not display correctly
- **[DINT-5161]** The tooltip text for cross reference transformation functions is not correct.
- **[DINT-5165]** An error occurs when exporting to Excel or CSV when related data is missing in an associated table.

- **[DINT-5323]** After loading an older template that contains a transformation function, and navigating to the mapping screen, the mapping screen is blank. Additionally, the **Back to options** and **Simulation** buttons are unresponsive.
- **[DINT-5350]** The mapping screen should be blocked for users when: creating a new record is disabled, and the target table primary key is hidden.
- **[DINT-5351]** During a dataset level import, if table permissions are set to **Read-only**, users cannot access the mapping screen by deselecting the read-only table.
- **[DINT-5361]** An issue occurs when exporting a foreign key label.
- **[DINT-5364]** An issue is preventing the mapping screen from displaying.
- **[DINT-5365]** The dataset label should display when transferring data between datasets.
- **[DINT-5411]** An incorrect error message for invalid records is displayed on the result screen.
- **[DINT-5433]** An incorrect error message is displayed when: **Import mode** is set to **Update or Insert**, **Force import** is enabled, and record permissions are disabled for creating a record.
- **[DINT-5484]** An error occurs on a string concatenation transformation function when it is applied to fields that can contain empty values.

26.5 **Known Issues**

This release contains the following known issues:

- **[DINT-4339]** A JNDI data source cannot be configured when EBX® is deployed on a WebLogic, or JBoss server.
- **[DINT-5113]** When using a cross reference function during import, and the data source's configured lookup field contains missing or empty values, the add-on creates duplicate records.
- Fonts are no longer shipped with the JDK 11. Font rendering in Java 11 JVMs now uses pre-installed operating system fonts. This can cause issues in Linux environments when exporting Excel files. As a workaround, you can install the `fontconfig` package.
- **[DINT-5480]** When exporting a view that includes EBX® metadata fields and **Include computed values** is disabled, the metadata fields do not display in the mapping screen and are not exported.
- **[DINT-5543]** In rare cases, and Excel export that includes multiple transformation functions applied to multi-value complex groups with many levels can cause EBX® to freeze.
- When using the **SQL export** service and exporting to a PostgreSQL database, the option to export to a view is not supported.
- When exporting to SQL with TDV, if any error occurs, the operation is cancelled.
- Due to a limitation in Excel, long fields with the number data type display all numbers past the 16th place as a 0.
- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.
- When creating a custom transformation function, you must use a predefined data type for its input and output fields.

CHAPTER 27

All release notes

This chapter contains the following topics:

27.1 Version 6.2.2

New features

This release contains the following new features and enhancements:

- A new **Auto-map comparison strategy** option has been introduced to improve column mapping between SQL and EBX. Users can now configure how the add-on compares EBX fields with SQL columns by selecting from case-sensitive or case-insensitive strategies based on labels, names, or a combination of these with data types. This enhancement allows for more flexible and accurate automatic mapping behavior when importing from, or exporting to an SQL data source.
- The ability to download records that include invalid data and were not imported has been added to the **Import SQL** service. The downloaded records are provided in a CSV or Excel file, depending on the administrator's configuration. This feature helps users quickly locate and correct errors in the failed records. Edits can be made directly in the downloaded file, which can then be re-imported to insert the repaired records. The download link appears only after an import operation if one or more records could not be imported due to validation errors. Administrators can enable this feature in: *Administration > Integration > TIBCO EBX® Data Exchange Add-on (New) > Additional configuration > Default option values > Import/Export* table (SQL). Administrators can also define the file format (CSV or EXCEL) for the download.
- The import simulation feature is now available when using the **Import SQL** service. This allows users to find and fix issues before importing. By default, you can download a file that includes records flagged with the following during the import simulation: import blocking errors, record blocking errors, non-blocking errors, warnings, or information-level messages. Administrators can enable/disable download of the simulation results file in: *Administration > Integration > TIBCO EBX® Data Exchange Add-on (New) > Additional configuration > Default option values > Import/Export* table (SQL).
- The **Combine multiple fields** transformation function now accepts input from multi-valued complex groups during export operations. When used in combination with the option to **Output to multiple target records**, this functionality allows you take an object like an address group and export values to separate records. This is particularly useful when exporting to an SQL data source that does not support multi-valued fields.
- The option to **Include computed values** has been added to the **Export Excel** service when run from the dataset level. For any existing templates, this option will default to enabled.
- Export operations initiated at the table level now respect the active EBX® view of the table. Only fields visible in the selected view will be included in the exported output. This allows users to control the scope of exported data by configuring views to include only relevant fields. Dataset-level exports remain unchanged and continue to include all fields by default. Metadata fields from EBX®, such as creator, last updater, and Team Up ratings or comments, can now be exported—provided they are included in the selected view.
- When exporting, the **Result** page now includes detailed statistics about the export operation. This ensures a consistent experience whether the operation is run as a background task or in real time.
- The following enhancements have been made to improve clarity and consistency in labels across import-related screens:
  - **Simulation** screen and add-on default options labels: The label **Download error file** has been updated to **Download flagged records** to better reflect the contents of the file. Administrators can configure availability of the download option using the **Download records flagged in simulation** property in the add-on's default options.
  - **Import Result** screen and add-on default option labels: The label **Click to download the file containing invalid data** has been changed to **Download records that failed to import**. Administrators can configure availability of the download option using the **Download**

invalid records property in the add-on's default options. Previously, this property was called **Download file of invalid data**.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains the following closed issues:

- **[DINT-4916]** A warning should be displayed when importing Excel or CSV at the dataset level when a user does not have permission to delete a record and the **Import mode** is **Replace all content** or **Delete only**.
- **[DINT-5081]** The text in the UI for import, export, and transfer modes does not display correctly
- **[DINT-5161]** The tooltip text for cross reference transformation functions is not correct.
- **[DINT-5165]** An error occurs when exporting to Excel or CSV when related data is missing in an associated table.
- **[DINT-5323]** After loading an older template that contains a transformation function, and navigating to the mapping screen, the mapping screen is blank. Additionally, the **Back to options** and **Simulation** buttons are unresponsive.
- **[DINT-5350]** The mapping screen should be blocked for users when: creating a new record is disabled, and the target table primary key is hidden.
- **[DINT-5351]** During a dataset level import, if table permissions are set to **Read-only**, users cannot access the mapping screen by deselecting the read-only table.
- **[DINT-5361]** An issue occurs when exporting a foreign key label.
- **[DINT-5364]** An issue is preventing the mapping screen from displaying.
- **[DINT-5365]** The dataset label should display when transferring data between datasets.
- **[DINT-5411]** An incorrect error message for invalid records is displayed on the result screen.
- **[DINT-5433]** An incorrect error message is displayed when: **Import mode** is set to **Update or Insert**, **Force import** is enabled, and record permissions are disabled for creating a record.
- **[DINT-5484]** An error occurs on a string concatenation transformation function when it is applied to fields that can contain empty values.

Known Issues

This release contains the following known issues:

- **[DINT-4339]** A JNDI data source cannot be configured when EBX® is deployed on a WebLogic, or JBoss server.
- **[DINT-5113]** When using a cross reference function during import, and the data source's configured lookup field contains missing or empty values, the add-on creates duplicate records.

- Fonts are no longer shipped with the JDK 11. Font rendering in Java 11 JVMs now uses pre-installed operating system fonts. This can cause issues in Linux environments when exporting Excel files. As a workaround, you can install the `fontconfig` package.
- **[DINT-5480]** When exporting a view that includes EBX® metadata fields and **Include computed values** is disabled, the metadata fields do not display in the mapping screen and are not exported.
- **[DINT-5543]** In rare cases, and Excel export that includes multiple transformation functions applied to multi-value complex groups with many levels can cause EBX® to freeze.
- When using the **SQL export** service and exporting to a PostgreSQL database, the option to export to a view is not supported.
- When exporting to SQL with TDV, if any error occurs, the operation is cancelled.
- Due to a limitation in Excel, long fields with the number data type display all numbers past the 16th place as a 0.
- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.
- When creating a custom transformation function, you must use a predefined data type for its input and output fields.

27.2 Version 6.2.1

New features

This release contains the following new features and enhancements:

- When importing from SQL, you can now define a filtering condition (predicate). The SQL query automatically includes the initial part of the SELECT statement, such as `SELECT * FROM <table/view_name> WHERE`. Users only need to provide the predicate (the actual condition to evaluate), such as `id > 10` or `name = 'Alice'`. All standard SQL predicates are supported. Additionally, administrators can define a default predicate in the SQL default import options. This default predicate is automatically pre-filled when users run the **Import SQL** service.
- When exporting SQL, you can now export to a view. Previously, you could only export to a table. Please note that due to a limitation, this is not available for PostgreSQL databases. Additionally, you cannot export to a view that includes join tables.
- An administrator can now configure the add-on's import, export, and transfer services to run as background tasks. This allows users to access and work in other areas of EBX® during longer running services that move larger amounts of data.
- The add-on now includes the **Digital asset name lookup** transformation function. You can use this function to export digital asset file names instead of UUIDs. This simplifies the process of using the **Digital asset UUID lookup** function to automatically attach digital assets to records during import.
- The `TransformationDefinition` interface is now available in the public API to use when coding transformation mappings.
- When using the add-on's services in an EBX® workflow, the **Accept** button now only displays after the service finishes.

- New options were added when importing or transferring data that control how the system handles errors caused by invalid records. For constraints defined in the data model, options determine whether constraints are enforced, invalid records are skipped, or the operation stops when an error is encountered. For transformation errors, options determine whether invalid records are skipped, or the operation stops when an error is encountered.

Changes in Functionality

When exporting related data, the display of related tables in the mapping screen is no longer affected by dataspace, or dataset permissions. If the user initiating the export has sufficient permission to view a related table at the data model level, it will display in the UI. However, if the user does not have sufficient permission at the dataspace or dataset level, an empty file/sheet is exported for the related tables.

Changes to third-party libraries

The Apache Commons IO library was updated to version 2.18.0.

Closed Issues

This release contains the following closed issues:

- **[DINT-3860]** An import simulation should not return a Validation category error for null primary keys when **Check empty or null primary key** is disabled.
- **[DINT-3939]** When running an import simulation where there are white spaces in primary keys, the simulation result should only return a Business category error.
- **[DINT-4719]** When importing a CSV file that has an empty first line and the option to specify that the first row contains a header is set to **Yes**, an error occurs in the mapping screen.
- **[DINT-4730]** When transferring data between datasets, and a template is loaded, an error occurs.
- **[DINT-4740]** The mapping screen does not display if it's loaded from a template that contains missing transformations.
- **[DINT-4905]** The statistics contained in the log after a simulation are not correct.
- **[DINT-4975]** The tooltip text for transformations continues to display even after users are no longer mousing over it.
- **[DINT-5042]** When importing CSV at the dataset level, an error can occur when clicking on the **Simulation** button.
- **[DINT-5079]** A mapping is not automatically created between a single-valued source field and multi-valued target field even though both fields have the same label and datatype.
- **[DINT-5092]** When importing CSV or Excel to a table and cancelling the operation, or navigating away from the screen, a confirmation pop-up displays even when no changes are made to the settings.
- **[DINT-5093]** Loading an existing mapping from a template throws a `IndexOutOfBoundsException` when a constant transformation function has no parameters.
- **[DINT-5143]** Unchecking a tab when importing at the dataset level removes any saved mappings.
- **[DINT-5153]** A `ParsingException` occurs for an unexpected character when exporting a table.
- **[DINT-5164]** When running an import simulation, an error occurs when the import source includes empty columns.

- **[DINT-5172]** An issue occurs when cancelling a CSV or Excel export and processing is still in progress.
- **[DINT-5174]** Under certain conditions export to Excel is not working.
- **[DINT-5272]** An error occurs when using the API to convert data using a mapping constant of the Date type.
- **[DINT-5311]** An issue occurs in acquiring a lock when transferring data using a workflow script.

Known Issues

This release contains the following known issues:

- **[DINT-4339]** A JNDI data source cannot be configured when EBX® is deployed on a WebLogic, or JBoss server.
- **[DINT-5113]** When using a cross reference function during import, and the data source's configured lookup field contains missing or empty values, the add-on creates duplicate records.
- Fonts are no longer shipped with the JDK 11. Font rendering in Java 11 JVMs now uses pre-installed operating system fonts. This can cause issues in Linux environments when exporting Excel files. As a workaround, you can install the `fontconfig` package.
- When using the **SQL export** service and exporting to a PostgreSQL database, the option to export to a view is not supported.
- When exporting to SQL with TDV, if any error occurs, the operation is cancelled.
- Due to a limitation in Excel, long fields with the number data type display all numbers past the 16th place as a 0.
- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.
- When creating a custom transformation function, you must use a predefined data type for its input and output fields.

27.3 **Version 6.2.0**

New features

This release contains the following new features and enhancements:

- A new option is available that bypasses any data model validation rules or constraints, and imports, or transfers data as is. This option can be used in a data management architecture that includes landing, staging, and master zones. If the same data model is shared across all zones, constraints could prevent data from successfully importing into the landing zone. Forcing the import or transfer provides a workaround to this issue.
- Load performance was improved for the options screen in instances where many related tables are included.
- Support for templates was added when using the SQL import or export services in workflows and perspectives.
- To improve readability, the data model variant name display format was updated.

Changes in Functionality

Previously, if the **Delimiter** field was left blank, the add-on automatically applied a default double-quote delimiter. This behavior was changed so that if left empty, no delimiter is applied unless data includes a special formatting character, such as a line break, or field separator. In these cases, the default double-quote delimiter is automatically applied.

Changes to third-party libraries

The Apache Commons Compress library was updated to version 1.26.

Closed Issues

This release includes the following closed issues:

[DINT-4970] The current logic to handle inserts and updates can impact customer defined triggers.

[DINT-5124] An error occurs when exporting Excel due to exceeding the browser's storage restrictions.

[DINT-5137] The **Mapping** screen is unresponsive when exporting at the dataset level with a large number of table mappings.

Known Issues

This release contains the following known issues:

- **[DINT-4339]** A JNDI data source cannot be configured when EBX® is deployed on a WebLogic, or JBoss server.
- **[DINT-5113]** When using a cross reference function during import, and the data source's configured lookup field contains missing or empty values, the add-on creates duplicate records.
- Fonts are no longer shipped with the JDK 11. Font rendering in Java 11 JVMs now uses pre-installed operating system fonts. This can cause issues in Linux environments when exporting Excel files. As a workaround, you can install the `fontconfig` package.
- When exporting to SQL with TDV, if any error occurs, the operation is cancelled.
- Due to a limitation in Excel, long fields with the number data type display all numbers past the 16th place as a 0.
- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.
- When creating a custom transformation function, you must use a predefined data type for its input and output fields.

27.4 **Version 6.1.3**

New features

This release contains the following new features:

- Permission settings for add-on import, export, and transfer services are now available to apply in a global context.

- When exporting data from related tables, the formatting and label options are now applied to the related tables.
- A new option was added to the following transformation functions to split the output into separate records:
  - Direct split string
  - Split to a multi-valued field
  - Combine multiple fields (new)
- The new **Combine multiple fields** transformation function was added. This function takes input from single and multi-valued fields and outputs the values combined in a single field, or into separate records.
- Performance was improved for the **Options** screen for instances where there a large number of related tables.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains no closed issues.

Known Issues

This release contains the following known issues:

- **[DINT-4339]** A JNDI data source cannot be configured when EBX® is deployed on a WebLogic, or JBoss server.
- Fonts are no longer shipped with the JDK 11. Font rendering in Java 11 JVMs now uses pre-installed operating system fonts. This can cause issues in Linux environments when exporting Excel files. As a workaround, you can install the `fontconfig` package.
- When exporting to SQL with TDV, if any error occurs, the operation is cancelled.
- Due to a limitation in Excel, long fields with the number data type display all numbers past the 16th place as a 0.
- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.
- When creating a custom transformation function, you must use a predefined data type for its input and output fields.

27.5 Version 6.1.2

New features

This release contains the following new features:

- When creating a custom transformation using the add-on's API, the following information can now be included on inputs and outputs: name, description, and data type. This input can be used to help business users understand the transformation's purpose and its usage.
- It is now possible to choose whether dataspace snapshots are included when exporting related data using the new **Export data from snapshots** option.
- When exporting related data, it is now possible to select the individual related tables to export.

Changes in Functionality

The manner in which the add-on handles permissions was updated. The changes mainly impact behavior related to records that are hidden due to permission settings. The add-on no longer blocks data integration processes when encountering an exception related to permissions. Instead, only invalid records are rejected and valid records are still processed. Additionally, the general behavior was made more consistent between datasets and tables.

Changes to third-party libraries

Version 3.3.1 of the Apache Kafka client library was removed.

Closed Issues

This release contains the following closed issues:

- **[DINT-4251]** Related data from a child dataspace is exported when it should not be.
- **[DINT-4657]** An error displays when importing a CSV file using a template where the default value of Concatenate String transformation is an empty string.
- **[DINT-4716]** The dataspace is locked when transferring data to multiple target tables.

Known Issues

This release contains the following known issues:

- **[DINT-4339]** A JNDI data source cannot be configured when EBX® is deployed on a WebLogic, or JBoss server.
- Fonts are no longer shipped with the JDK 11. Font rendering in Java 11 JVMs now uses pre-installed operating system fonts. This can cause issues in Linux environments when exporting Excel files. As a workaround, you can install the `fontconfig` package.
- When exporting to SQL with TDV, if any error occurs, the operation is cancelled.
- Due to a limitation in Excel, long fields with the number data type display all numbers past the 16th place as a 0.
- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.

- When creating a custom transformation function, you must use a predefined data type for its input and output fields.

27.6 Version 6.1.1

New features

This release contains the following new features:

- You can now import XLSM files.
- An administrator can now define the default values used in import, export, and transfer operations.
- The number of updated and skipped records is now included in the import and transfer service results summaries.
- Statistics are now available when transferring data at the table level.
- A new built-in transformation function is available that allows you to define different list separators for different fields.

Changes in Functionality

Names, descriptions, and data types were added to the add-on's built-in transformation functions. These values are now read-only.

Changes to third-party libraries

This release contains no updated to third-party libraries.

Closed Issues

This release contains the following closed issues:

- **[DINT-4226]** The template cannot be saved after changing and publishing the data model.
- **[DINT-4246]** The cell function instead of the cell value is imported when importing Excel.
- **[DINT-4271]** File names that include Chinese characters do not display correctly in exported CSV and Excel files.
- **[DINT-4307]** A scheduled workflow job fails due to database connection issues.
- **[DINT-4417]** The SQL template cannot be loaded when configuring the JNDI in the `context.xml` file.
- **[DINT-4435]** A large dataset cannot be imported from Excel.

Known Issues

This release contains the following known issues:

- **[DINT-4339]** A JNDI data source cannot be configured when EBX® is deployed on a WebLogic, or JBoss server.
- Fonts are no longer shipped with the JDK 11. Font rendering in Java 11 JVMs now uses pre-installed operating system fonts. This can cause issues in Linux environments when exporting Excel files. As a workaround, you can install the `fontconfig` package.
- When exporting to SQL with TDV, if any error occurs, the operation is cancelled.

- Due to a limitation in Excel, long fields with the number data type display all numbers past the 16th place as a 0.
- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.
- When creating a custom transformation function, you must use a predefined data type for its input and output fields.

27.7 **Version 6.1.0**

Released: March 2023

New features

This release contains the following new features:

- The add-on was updated to ensure compatibility with the new TIBCO EBX® staging feature. This feature allows you to migrate configuration settings between environments. Settings available to migrate from the add-on include database and data model connections and user-defined data integration templates.
- Add-on service memory usage was optimized to improve performance.
- When importing data you can use the new simulation feature to preview import results. This allows you to test the data and correct any potential errors prior to importing.
- The add-on now maintains **Options** and **Mapping** screen states, eliminating the need to reconfigure settings when switching between them.
- The add-on's API was updated to support record filters on EBX® source tables.
- When performing data integration tasks through a database connection, the following additional data types are now supported:
  - BigInt Identity
  - DateTime 2
- When connecting to a database, the add-on now supports the use of Windows credentials.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

This release contains no updated to third-party libraries.

Closed Issues

This release contains the following closed issues:

- **[DINT-3657]** The **Close** button is duplicated in the Excel import result screen when using the service in a perspective.
- **[DINT-4014]** Unexpected errors are not handled in user services.

- **[DINT-4013]** Misleading error logs can be generated when exporting files.
- **[DINT-1715]** The warning message is missing when the **Import mode** is set to **Replace all content**.
- **[DINT-3117]** An Ajax error occurs when loading an SQL data source when its name was changed in configuration settings.

Known Issues

This release contains the following known issues:

- Fonts are no longer shipped with the JDK 11. Font rendering in Java 11 JVMs now uses pre-installed operating system fonts. This can cause issues in Linux environments when exporting Excel files. As a workaround, you can install the `fontconfig` package.
- When exporting to SQL with TDV, if any error occurs, the operation is cancelled.
- Due to a limitation in Excel, long fields with the number data type display all numbers past the 16th place as a 0.
- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.
- When creating a custom transformation function, you must use a predefined data type for its input and output fields.

27.8 **Version 4.5.2**

Released: February 2023

New features

This release was updated to ensure compatibility with TIBCO EBX® Add-ons Bundle version 5.6.1.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains no closed issues.

Known Issues

This release contains the following known issues:

- When exporting to SQL with TDV, if any error occurs, the operation is cancelled.
- Due to a limitation in Excel, long fields with the number data type display all numbers past the 16th place as a 0.

- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.
- When creating a custom transformation function, you must use a predefined data type for its input and output fields.

27.9 **Version 4.5.1**

Released: November 2022

New features

This release contains no new features.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

The Excel-streaming-reader library was upgraded to version 4.0.4.

Closed Issues

This release contains no closed issues.

Known Issues

This release contains the following known issues:

- When exporting to SQL with TDV, if any error occurs, the operation is cancelled.
- Due to a limitation in Excel, long fields with the number data type display all numbers past the 16th place as a 0.
- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.
- When creating a custom transformation function, you must use a predefined data type for its input and output fields.

27.10 **Version 4.5.0**

Released: September 2022

New features

This release contains the following new features:

- API updates include:
  - The creation of custom services for SQL import and export. A custom script task can be created and used in workflows.

    - All triggers and blocking constraints can be turned off when running add-on services.
    - During a data integration operation, valid records are persisted in EBX®, whereas invalid records are skipped and listed in an error file after the operation. In the file, a column is added that shows the relevant error message for each record.
- If there is invalid data found during an import, a new option enables the download of a file containing the invalid data. A column is added that shows the relevant error message for each record.
- A connection with TIBCO Data Virtualization can be created to integrate data between TDV views and a TIBCO EBX® data model.
- Custom date and date/time patterns can now be created and used with CSV import and export services.
- Additional information about data integration services is now included in the add-on's logs.
- Error log performance is improved.
- When using a custom workflow script task:
    - The **Template** parameter now accepts the template's UUID or name as valid input.
    - When using a template with a custom workflow script task, transformation function parameters can be overridden.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains the following closed issues:

- **[DINT-3161]** Excel file cells are incorrectly formatted when exporting numeric fields.
- **[DINT-3397]** The database connection test does not work when the URL contains a special character.
- **[DINT-3405]** The **Transform** table shows all cross reference transformations as having an error.
- **[DINT-3427]** Add-on services do not work if a connection is created with a TIBCO Data Virtualization server view that has no schema.
- **[DINT-3431]** When importing Excel at the dataset level, the execution order is not consistent with the Excel sheet order.
- **[DINT-3441]** A template created from a temporary dataspace cannot be used.

Known Issues

This release contains the following known issues:

- When exporting to SQL with TDV, if any error occurs, the operation is cancelled.
- Due to a limitation in Excel, long fields with the number data type display all numbers past the 16th place as a 0.

- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.
- When creating a custom transformation function, you must use a predefined data type for its input and output fields.

27.11 Version 4.4.1

Released: July 2022

New features

When defining a custom cross reference transformation via the API or script task, the `Ignore lookup failure` parameter can be defined.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

[DINT-3317] It is not possible to call an existing template via the API for workflow script task.

Known Issues

This release contains the following known issues:

- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.
- When creating a custom transformation function, you must use a predefined data type for its input and output fields.

27.12 Version 4.4.0

Released: June 2022

New features

This release contains the following new features:

- You can save templates for SQL import and export operations.
- When importing SQL, you can import from configured database views.
- When exporting to Excel or CSV at the table level, you can include data from related tables.
- You can include Primary Key, Foreign Key and Enumeration labels when exporting to CSV, Excel and SQL. Excel export also allows you to export Static Enumeration labels.

- You can specify the **Date** and **Date/time** formats when importing CSV.
- You can use the API to create custom transformation functions. These transformation functions will be available for business users to add to mappings in the user interface.
- Support is now included for data model variants for the TIBCO EBX® Match and Merge Add-on in the **Export SQL** service.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains the following closed issues:

- **[DINT-3100]** An error occurs when using the **Export CSV** service with the **Export Label from Foreign Key** options selected.
- **[DINT-3186]** An error occurs when exporting data.

Known Issues

This release contains the following known issues:

- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.
- When creating a custom transformation function, you must use a predefined data type for its input and output fields.

27.13 **Version 4.3.2**

Released: April 2022

New features

This release contains the following new features:

- The performance for SQL export was improved.
- You can now use the API to:
  - Configure import, export, and transfer operations on any table or dataset that is based on the same data model.
  - Execute the template API at the dataset level.
  - Configure the template API on any dataset based on the same data model.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains no closed issues.

Known Issues

This release contains the following known issues:

- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.

27.14 Version 4.3.1

Released: March 2022

New features

You can now use import, export, and transfer functionality in workflow services and perspective actions. The add-on specific services and actions begin with `[ebx-addon-dint]`. There are two options for each import, export and transfer type—one to apply to tables and one for datasets.

Changes in Functionality

This release contains the following changes in functionality:

- When saving a template, the position of tables, transformation functions, and links in the **Mapping** screen are now stored. When the template is loaded, the components display according to the state of the most recent save.
- Template names must now be unique.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains no closed issues.

Known Issues

This release contains the following known issues:

- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.

27.15 Version 4.3.0

Released: February 2022

New features

This release contains the following new features:

- You can now import from and export to SQL databases. An administrator must configure the connection to the database and connection between the database and data model. See the *User Guide* for more information.
- The cross-reference transformation function contains the new **Ignore lookup failure** option. When enabled, records are imported and exported even when the cross-reference lookup does not find a corresponding value. If left disabled, records these records are not imported.

Changes in Functionality

This release includes the following changes in functionality:

- Behavior during import at the table level was updated to ensure consistency when importing an empty file.
- Templates are now available for use on tables from the same data model, regardless of their location.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains no closed issues.

Known Issues

This release contains the following known issues:

- Importing and exporting SQL: Read and write is not possible with the Timestamp data type with MS SQL Server.
- Configuring a schema using the JNDI configuration in your web server is not supported.

27.16 Version 4.2.1

Released: December 2021

New features

This release includes no new features.

Changes in Functionality

This release includes no changes in functionality.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains the following closed issue: *[DINT-2853]* Validate table name inputs.

Known Issues

This release contains no known issues.

27.17 Version 4.2.0

Released: November 2021

New features

This release includes:

- Support for multi-table import, export and transfer operations at the dataset level. Additionally, when exporting from a dataset, you can now add target tables. This allows you to export data from one table to multiple locations. See the *User Guide* for more information about this feature.
- When importing or exporting with Excel, the new **List separator** option allows you to define a separator for lists.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

This release contains no changes to third-party libraries.

Closed Issues

This release contains no closed issues.

Known Issues

This release contains no known issues.

27.18 Version 4.1.1

Released: September 2021

New features

This release includes no new features.

Changes in Functionality

This release contains no changes in functionality.

Changes to third-party libraries

The Apache Streaming Excel Reader library was upgraded to version 3.1.1.

Closed Issues

This release contains the following closed issue: *[DINT-2589]* An exception is thrown when multiple cross reference transformations are used in a `TableMapping`.

Known Issues

This release contains no known issues.

27.19 Version 4.1.0

Released: July 2021

New features

This release includes the following new features:

- You can now transfer data between EBX® tables.
- When exporting, you can now add, edit, and remove target fields in the **Mapping** screen.
- When working with templates, you can now:
  - Set user permissions to view, modify and delete templates.
  - Save copies of templates.
- The new **Digital asset UUID lookup** transformation function allows you to perform a bulk import operation to attach digital assets to records. Note that instructions for this process are contained in the *TIBCO EBX® Digital Asset Manager Add-on* documentation.
- A public API has been provided that allows you to import, export and transfer data. See the Java API documentation for more information.
- Tables in the **Mapping** screen now display data type and cardinality next to each field.

Changes in Functionality

This release contains no changes in functionality.

Closed Issues

This release contains no closed issues.

Known Issues

This release contains no known issues.

27.20 Version 4.0.1

Updates

Released: June 2021

This release contains the following updates:

- The **First row contains header** label was changed to **Include column headers** for Excel export and **Includes column headers** for Excel import. When selecting **Yes** for this option during import, you are now prompted to enter the starting location of table data.
- When exporting Excel the two rows at the beginning of the file were removed.
- The following library updates were made:
  - The Apache Commons BeanUtils library was upgraded to version 1.9.4.
  - The Apache CFX and HttpClient libraries were removed.

Bug Fixes

[DINT-2261] A documentation issue was corrected.

27.21 Version 4.0.0

New features

Released: March 2021

The TIBCO EBX® Data Exchange Add-on (New) allows you to integrate data from a source location into a target. Additionally, it can transform the data to meet business and technical requirements of disparate applications and systems.

This release allows you to import and export using CSV and Excel formats at the TIBCO EBX® table level. No configuration is required to initiate an import or export operation. The add-on provides the following graphical elements and features to support import and export:

- Automatic mappings are generated between source and target fields. Data mappings display as lines between source and targets. Where possible, the add-on generates these automatically and adds basic transformations if required. It will also alert you visually to possible errors or warnings.
- Drag and drop functionality to create mappings and transformations when required.
- Pop-up editors to define transformation functions. The add-on includes several built-in transformation functions to cover common use cases.
- Templates that save mappings and other configuration options for reuse.

The following list provides links to additional topics and tasks:

Introduction to the add-on	For a more in-depth overview of the add-on and your potential interaction with it, see About the add-on [p 26]
Importing	For an introduction to the import process, see Import overview [p 30]. For instructions on importing, see Importing to a table [p 31].
Exporting	For an introduction to the export process, see Export overview [p 54]. For instructions on exporting, see Exporting a table [p 55].
Mapping and transformations	Map and transform overview [p 94] provides a look at how the add-on implements the concepts of mappings and transformations. Mapping interface reference [p 97] highlights the user interface used for mapping and transformation tasks during data integration. Additionally, it provides an example of using a transformation function. You can refer to Transformation function reference [p 105] to see a list and description of the add-on's built-in transformation functions.