3.4.2. Importing data

Database connection uses SQL-queries to import your data into Streamline from a database. Each of them is specially designed to import a particular piece of data. In this article, we explain:

- data types which each query can import;
- how to configure the Database connection to import the data using your queries; and
- how to set up Streamline to automatically synchronize the project using your queries as you click the Update data button.

Importing queries

Database connection dialog has several tabs, such as Transactions, Item info, and so on (see figure below). Each tab is designed to import particular data by executing the query entered into the main field of the tab.

Strictly speaking, to start using Streamline, you can import your data (via deprecated fields) using the query for the Transactions tab only. However, we strongly recommend you to go with a typical workflow when at least four queries are used. These are:

- Transactions query;
- Item info query;
- Orders-to-receive query; and
- Orders-to-ship query.

The other tabs (queries) are optional and are used in special cases which we describe in the table below. This table matches SQL-queries with the data types which they should be used to import.

<table>
<thead>
<tr>
<th>Query(tab)</th>
<th>Demand Planning</th>
<th>Inventory Planning</th>
</tr>
</thead>
</table>
| **Transactions** | Transactional data:  
- Date  
- Item code  
- Quantity sold  
- Location  
- Channel  
- Sales price/unit or Transaction revenue  
- Transaction profit | Transactional data:  
- On hand (remaining) or On hand change  
*Deprecated data*: item description; item category; location category; qty to receive; delivery date; lead time; lead time variance; order cycle; order rounding; min lot; max lot; supplier code; supplier's currency; shelf life, periods; item purchase price; inventory value/unit, item’s info field.
<table>
<thead>
<tr>
<th>Query(tab)</th>
<th>Demand Planning</th>
<th>Inventory Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Item code</td>
<td>• Last on hand</td>
<td></td>
</tr>
<tr>
<td>• Location</td>
<td>• Order cycle</td>
<td></td>
</tr>
<tr>
<td>• Item categories</td>
<td>• Lead time</td>
<td></td>
</tr>
<tr>
<td>• Location categories</td>
<td>• DC name</td>
<td></td>
</tr>
<tr>
<td>• Item description</td>
<td>• Lead time variance</td>
<td></td>
</tr>
<tr>
<td>• Location description</td>
<td>• # of safety stock periods</td>
<td></td>
</tr>
<tr>
<td>• Info field</td>
<td>• Min lot, Max lot, Order rounding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Supplier min. qty/weight/volume/cost</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Weight/unit, Volume/unit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Inventory value/unit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Item purchase price</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Supplier code, Supplier's currency, Supplier's item code</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Shelf life, periods, Shelf life, days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Display qty</td>
<td></td>
</tr>
</tbody>
</table>

*Deprecated data:* qty to receive, delivery date, qty to ship.

<table>
<thead>
<tr>
<th>Orders to receive</th>
<th>Orders-to-receive information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orders to ship</td>
<td>Orders-to-ship information</td>
</tr>
<tr>
<td>Bill of materials</td>
<td>Bill of materials data</td>
</tr>
<tr>
<td>Promotions</td>
<td>Promotions data</td>
</tr>
<tr>
<td>Substitutions</td>
<td>Data about kits</td>
</tr>
</tbody>
</table>

To plan inventory in Streamline, you should provide data from both columns (Demand Planning and Inventory Planning) of the table above.

The table indicates deprecated data that should not be imported normally by those queries. It is strongly recommended to import those data using queries which are specially designed for them.

Last on hand can be imported using the Transactions query too. This can be done only in the case when you are providing On hand change data in the Transactional data. In this situation, the last on hand is imported via the On hand column. Despite this capability, we strongly recommend that you import last on hand using the Item info query.

If your Orders-to-receive information has only one transaction per item (or item-location), you can optionally use columns Qty to receive and Delivery date of the Transactions or Items info queries, to import it into Streamline. However, this situation is fairly specific and these columns are left for compatibility and are highly deprecated. Generally, we strongly encourage you to use the Orders-to-receive query to import your Orders-to-receive information.
Special cases

This section describes the capabilities of the connector to import data in very specific situations which happen rarely. We strongly recommend that you import the data according to the table above.

**Item info query is absent**

If the Item info query is absent, you can import all necessary information (see Deprecated data) using the Transactions query.

**Transactions query includes the location information while the Item info query doesn’t**

In this special case, you can import all the fields except for the columns that represent location state (Last on hand, To ship qty, Qty to receive, Delivery date) using the Item Info query. The location state information should be returned via other queries, for example: Last on hand and Qty to ship from the Transactions query and Qty to receive, Delivery date using the Orders-to-receive query.

In these special cases, Streamline does not know the stock-list. Consequently, if a project is updated using the Update data button, Streamline leaves the stock-list as it was before the update, no planning items are removed. Streamline removes planning items that did not appear in the updated data from the project in all the other data connections (and cases for the database connection) except for the Transactional spreadsheet connection.

Import options

The importer can automatically aggregate your timestamps in periods (days, weeks, months) using the Group by option. So if you want to see the forecasts, procurement plan, and other reports in months, group the data by months.

The Starting from option depends on the Group by parameter and is available only if you group the data by month or week. If you group timestamps by month, the Starting from parameter defines the ordinal number of the day in the month you want to start the import from. If the Group by option is switched to ’week’, this allows starting the import from the specified day of a week.

Importing your data

This section describes how to import your data using the Database connection dialog. To import the data, follow these steps:

1. Go to the menu File > New > Database connection.
2. Establish the connection to your ODBC data source.
3. Go to the specific query tab. For example, the Transactions tab.
4. Enter your SQL-query in the main field of the tab.
5. Click the Preview button, to execute the query.
6. Set the meaning of the columns returned by the query.
The preview table at the bottom of the dialog has a special row with a drop-down list in each column for the returned data. The list displays the data types that Streamline understands and can import in the corresponding query tab. Thus, to import your data correctly, match the meaning of your data column to the most appropriate option in the drop-down list.

7. Repeat steps 3-6 for all your queries.
8. Set the import options and click OK.

In the next sections, we will describe the specifics of each query.

**Transactions**

This query is used to import the Transactional data. The list of the transactions must be in descending order.
If you are going to plan material requirements, Transactions query should also return transactions affecting items **On hand** due to assembly builds.

**Item info**

The purpose of this query is to import current on-hand for each planning item. It is also used to import additional information about planning items such as item and location categories, item info fields, constraints, inventory KPIs and **others**.
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This query is used as a filter for imported planning items, i.e. only those planning items that are returned by this query will be imported, regardless of the fact that any other planning items may appear in the returned values of the other queries.

Records returned by this query must be unique by the planning item identifier. If locations are used, the identifier is represented by (Item code, Location) pair, otherwise, it is Item code.

Importing categories

As soon as the Item category is selected from the drop-down list for a specific column, the option changes to Item category 2 for subsequent columns, then to Item category 3 and so on. This sequence forms a hierarchy of categories in Streamline. In other words, the Item category 2 is a subcategory of Item category, the Item category 3 is a subcategory of Item category 2, and so on. This behavior applies to importing location categories too.

Orders to Receive

This query is used to retrieve the information about items to be received.
Orders to Ship

This query is used to pull the data about items that are on open sales orders or backorders.

```sql
SELECT
  1.No AS [Item Code],
  1.[Expected Receipt Date] AS [Arrival Date],
  1.Quantity
FROM dbo.[CRONUS International Ltd $Purchase Line] l
INNER JOIN dbo.[CRONUS International Ltd $Purchase Header] h
ON h.[No_] = l.[Document No_]
INNER JOIN dbo.[CRONUS International Ltd $Item] 1
ON 1.No_ = l.No_
WHERE l.Quantity > 0
  AND 1.[Quantity Received] = 0
  AND 1.Type = 2
  AND h.[Document Type] = 1
```
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Substitutions

Streamline allows making substitutions when imports the data. That can be used when you need to disassemble kitted items and have the forecasts and procurement plans for the components only. To understand a kit’s content, Streamline implements substitution rules. The rule syntax looks like:

<Kitted item code><Qty in kit><Component code>.

Your SQL-query should return a set of such rules. As you can see, the columns should be ordered according to the rule syntax.
Bill of Materials

This query is used to import bill of materials data.
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Promotions

This query is used to import information enabling Streamline to automatically adjust the forecasting models to the given promotional discounts. The figure below shows an example of the query and the result it returns from a database.
As you see from the figure, besides future promotions, you must provide the promotions' history for the corresponding products.

**Updating data (importing only last changes)**

At first, you import all the sales orders data. It’s not necessary to import all the data again in future imports. It’s reasonable to import only the last changes. To make Streamline do this automatically the :startdate parameter should be used in the **Transactions** query.

An example of the query is shown below:

```sql
SELECT [Posting DATE] AS [DATE],
    IIF (e.[Entry TYPE] = 1, -e.Quantity, 0) AS [Quantity],
    i.[No_] AS [Item code]
FROM dbo.[CRONUS International Ltd_$Item Ledger Entry] AS e
```

![Discounts history](discounts_history.png)

![Future discounts](future_discounts.png)
INNER JOIN dbo.[CRONUS International Ltd_$Item] AS i
ON i.[No_] = e.[Item No_]
WHERE i.[No_] IN
(
SELECT i.[No_]
FROM dbo.[CRONUS International Ltd_$Item] AS i
WHERE Blocked = 0
) AND [Posting DATE] >= ':startdate';

To import all the sales history using this query, you should specify the **Import from date** parameter to cover the history. Now, when you click the **Update data** button of the program toolbar, Streamline calculates the **start date** so that only the last changes of the sales history are imported. It substitutes the **:startdate** parameter of the query by the calculated **date** and executes the query.

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Next: Exporting Data

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