



Documentation:
Sync

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1 Introduction

Welcome to the official manual of the Dynavision Sync module.

This extension provides functionalities for syncing information between Business Central and another endpoint.

2 Installation

2.1 Extension

The Dynavision Sync module is a separate Business Central extension.

1. Choose the search icon, enter **Extension Management**, and then choose the related link.
2. Choose **Manage** in the Action bar on the page and choose action **Extension Marketplace**.
3. In the search bar, enter **Dynavision Sync** and install this app.

2.1.1 Dependencies (dependencies)

The Dynavision Sync module has dependencies to other modules. Those modules are automatically installed when the Dynavision Sync extension is installed.

3 Configuration

3.1 Synchronization Groups

All configuration for the Synchronization is done in the **Synchronization Group** page.

1. Choose the search icon, enter **Synchronization Groups**, and then choose the related link.
2. On the page that opens the available groups that have been set up can be viewed.
3. Choose the action **New** to create a new Synchronization Group or edit an existing group.
4. Fill in the necessary fields to set up the configuration for the synchronization. Fill in the fields in the **General Tab**.
 - a. **Code**
Specifies the code that is used to identify the Synchronization Group.
 - b. **Description**
The description of the Synchronization Group.
 - c. **Synchronization Type**
Specifies from where, to where the data is synchronized.
The options are:
 - i. **One-way**
The data is synchronized from a master company to other (slave) companies. The data will not be synced from slave companies. The syncing of data from slave companies can be set up by creating job queue entries in the slave companies.
 - ii. **Two-way**
The data is synchronized from and to all companies. This requires job queue entries in all included companies.
 - d. **Enabled**
Indicates if the group is actually in use. A group cannot be enabled if it is not valid.
 - e. **Valid**
Indicates if the group is valid (*no error messages exist*).
 - f. **Error Message**
Shows the first error message in case the group is not valid. Select the value in the field in order to view all the errors.
 - g. **Only Modify in master**
Blocks the user from performing modifications in slave companies. *This only applies to groups with one-way synchronization*.
Remark: Enabling this option might impact performance.
5. Fill in the fields in the **Tables & Fields Tab**.
 - a. **Tables section**
 - i. **Table No.**
Specifies the number of the table that is synchronized. Only tables that are specified in the allowed tables can be selected. (*See section Allowed tables*)

- d. Remark: a group cannot be modified when it's enabled. After enabling a group, all active sessions must be restarted. The system will ask to restart the current session when closing the page.*
- 7. An enabled group can be disabled by choosing the action **Disable**.
- 8. The companies for a synchronization group can be managed by choosing the action **Companies**.
- 9. Choose the action **Full Synchronization** in order to perform a full (initial) table synchronization from a company to one or more other companies.
- 10. The Synchronization entries can be viewed by choosing the action **Entries to Synchronize**.
- 11. An overview of all job queue entries in the current company can be viewed by choosing the action **Job queue entries**.
- 12. On the **Synchronization Groups** List, it is also possible to import Synchronization Groups by choosing the action **Import Synchronization Group**. This action gives the possibility to import an XML file containing one or more Synchronization Groups.
- 13. Choose the action **Export Synchronization Group** in order to export the selected Synchronization Groups to an XML file.
Remark: the companies specified in a group are not exported.
- 14. The overview of the tables that can be selected for synchronization can be viewed by choosing the action **Allowed Tables**.
- 15. The synchronization entries can be viewed by choosing the action **Entries to Synchronize**.

3.2 Job Queue Entries

Each receiving company requires a job queue entry to be configured. This job queue entry will periodically poll the entries to the sync table and process the required records. The Job queue entries are normally automatically created or deleted when a synchronization group is enabled or disabled. Depending on the rights of the user that enables the synchronization group, the job queue entry is created and started or just created and placed on hold.

In case multiple groups for a single company are enabled, only one job queue entry per company are created.

There are two types of job queue entries:

1. **ESCM JQ Periodic Sync**
This entry is used for periodic synchronization. This job queue runs periodically.
2. **ESCM JQ Full Sync**
This entry is used for full synchronization. This job queue entry is deleted after processing.

3.3 Allowed Tables

This page displays an overview of the tables that can be selected for synchronization. This table is pre-filled with standard BC tables and – if installed – other Dynavision app tables. This page can be accessed through the action **Allowed Tables** on the **Synchronization Groups** list page.

1. Choose the search icon, enter **Synchronization Groups**, and then choose the related link.
2. Choose the action **Allowed Tables**.
3. On the page that opens, the overview of allowed tables can be viewed.
4. Choose the action **Generate Default** in order to clear the list of allowed tables and regenerate it.
5. **Table No.**
Displays the Table No. of the allowed table.
6. **Table Caption**
Displays the Table caption of the allowed table.
7. **Process Deletions**
Indicates if deletions should be processed for the table.

4 Entries to sync

1. Choose the search icon, enter **Entries to Synchronize** , and then choose the related link.
2. On the page that opens, an overview of the entries that need to be synchronized can be viewed.
3. Choose the action **Delete** in order to delete entries that have an error state and are not relevant anymore.
4. Choose the action **Show Source** in order to view the source of the created record in the original company. This action will open a new tab. (*opens change log entry for periodic sync, other tables for full sync.*)
5. Choose the action **Job queue entries** to view the job queue entries in the current company.
6. Choose the action **Run Synchronization once** to run the periodic and full synchronization once. *Remark: this is used for testing purposes.*
7. Following information can be viewed on the page for the entries.
 - a. **Entry No.**
Displays the Serial of the entry.
 - b. **Source**
Displays the source from which the synchronization entry originates. In case of a periodic sync entry, this is always the change log entry table.
 - c. **From Company**
Displays the company in which the source record was created/modified/deleted/renamed.
 - d. **To Company**
Displays the company to which the source record change should be synchronized.
 - e. **Synchronization Error**
Indicated if an error has occurred.
 - f. **Synchronization Error Message**
Detailed message of why the error occurred.
 - g. **Processed**
Indicates if the record was successfully processed without errors.

h. Table Caption

Displays the caption of the source table that was changed. This is only applicable in case of a change log entry change – periodic synchronization.

i. Field Caption

Displays the caption of the field of the source table that was changed. This is only applicable in case of a change log entry change – periodic synchronization.

j. Type of Change

Displays the type of change logged by the change log. This is only applicable in case of a change log entry change – periodic synchronization.

k. Created at

Displays the date and time when the entry was created.

5 Synchronization Job Queue Entries

There are two synchronization types, one-way and two-way synchronization. Depending on the type, the job queue requirements are different.

- One-way only requires job queue entries in the slave companies.
- Two-way requires job queue entries in all companies.

There are two types of job queue entries:

1. Periodic Sync Job Queue Entries

- a. Object ID to run: ESCM JQ Periodic Sync.
- b. These job queue entries run periodically to synchronize change log entries.
- c. *Remark: sync job queue entries are shared across synchronization groups if possible.*

2. Full Sync Job Queue Entries

- a. Object ID to run: ESCM JQ Full Sync.
- b. These job queues run once and are deleted after processing. They are used for a full synchronization.

In order to keep track of the job queues across multiple companies, two tiles are implemented in the role center.

- **Job Queue Entries (Active)**
Displays the job queue entries that are active and ready to process synchronization entries.
- **Job Queue Entries (Inactive)**
Displays the job queue entries that are inactive (on hold or in error state).

6 Full Synchronization

In some cases it might be useful to do a full synchronization of one or more tables. Therefore a full synchronization action was implemented on the **Synchronization Group Card**.

1. Choose the search icon, enter **Synchronization Groups**, and then choose the related link.
2. Select an existing group and open the **Synchronization Group Card**.
3. Choose the action **Full Synchronization**.

4. **Select the source company.** This is the company which contains the table data that needs to be synchronized to other companies.

Remark: Only one of the companies included in the current synchronization group can be selected.

5. **Define one or more destination companies.**

One or more companies must be selected. In these companies, the table data from the **From Company** will be processed.

6. **Select the tables to synchronize.** All the records in these selected tables will be synchronized from the source company to the destination companies.

Remarks:

- a. *In most cases only new records will be created in the destination companies. If in some cases a record with an identical primary key already exists, the existing record is modified to match the source record.*
 - b. *Only the tables defined in the current synchronization group can be selected here.*
 - c. *Only the fields specified for the table in the current synchronization group will be synchronized.*
7. Complete the wizard and start the synchronization. This can be done by choosing the **Finish action** at the end of the wizard.
 8. When the wizard is completed, following actions are performed:

- a. Synchronization entries are created for each record in the source table.
Remark: full synchronization entries can be easily recognized because their source is different (In the image below (1) are full synchronization entries, (2) are periodic synchronization entries)

| Entry No. ↓ | Source | From Company | To Company |
|-------------|--------|------------------------|-------------|
| 1 | 1777 | Customer: 10000 | CRONUS BE B |
| | 1776 | Customer: 10000 | CRONUS BE A |
| 2 | 1775 | Change Log Entry: 3668 | B CRONUS BE |
| | 1774 | Change Log Entry: 3668 | B A |

- b. A full sync job queue entry is created (this entry is deleted after it is processed)

7 Synchronization of merged Customers, Contacts and Vendors

In Business Central, it is possible to merge Contacts, Customers and Vendors. When these entities are synced between different companies, using the standard Business Central functionality, following occurs when a merge is executed:

- The original record is deleted in Business Central.
 - There will be no delete trigger to the other companies to delete the existing customer, this would raise issues when processing the merge in the receiving company (*example given: because transactions already exist*). The option **Skip Delete Trigger** is added to the involved entries to synchronize.
- The merge record is renamed. This ensures that the related tables are updated as well.
- The renamed record is deleted to restore the system ID.
 - There will be no delete trigger to the other companies to delete the existing customer, this would raise issues when processing the merge in the receiving company (*example given: because transactions already exist*). The option **Skip Delete Trigger** is added to the involved entries to synchronize.
- The renamed record is inserted with the original system ID.

After the merge, when the entities are synced, the obsolete entities are deleted in the other companies. The General ledger entries that existed on these entities will be merged as well.

Important remark: in order for the merge to work, it is advised that the **Processing Deletions** option is enabled in the **Synchronization Groups** for the Vendor, Customer and Contact tables.