Swiss Salary Learn

# Cloud Connector

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More information: learn.swisssalary.ch

Swiss Salary

Microsoft

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# 1 Profile and information

## 1.1 Cloud Connector applications

Cloud Connector applications enable automated exchange between entities in SwissSalary SaaS and:

- Business Central/Navision on-Premises
- Business Central in a Microsoft tenant different from SwissSalary SaaS
- Dynamics 365 applications
- Personio HRM Tool

**Difference between Cloud Connector and SwissSalary Cloud Connector:**

Cloud Connector is a tool for all Business Central tables and fields (not just for SwissSalary) that enables secure data import and export to and from a connected system.

SwissSalary Cloud Connector is a Cloud Connector extension used to start Cloud Connector automatically after pay process posting in support of payroll posting processes. The SwissSalary Cloud Connector contains the entities required for Personio integration.

Cloud Connector and SwissSalary Cloud Connector are available to all SwissSalary customers (Basic, Plus, Budget) at no extra cost.

Both applications must first be installed from the Microsoft AppSource Store.

# 2 Settings - NAV/BC, Dynamics 365 Application

## 2.1 Step 1. Install applications

1. In SwissSalary, navigate to “Extension Management”, then under the “Manage” menu item click “Extension Marketplace”.
2. Search for SwissSalary application “SwissSalary Cloud Connector” and click “Get now”. This will install not only the “SwissSalary Cloud Connector” application, but also the “Cloud Connector” applications. “Cloud Connector” has basic functionalities of the “SwissSalary Cloud Connector” applications, so both applications must be installed.
3. The applications will be installed after a few seconds. You can check it by searching for Cloud Connector in the search field in your SwissSalary instance and going to the Cloud Connector Management page.

## 2.2 Step 2a. Connected system configuration (on-Prem)

This step will probably require support from your IT department.

### I. Create new server instance (optional)

Since you are changing the settings of your Business Central or NAV server instance, you may be required to restart the service several times during this process. It is therefore recommended, but not mandatory, to have a separate server instance. This way, no users who may already be logged in in the local environment will not be affected by this process.

1. Open your “Business Central Server Administration Tool”, right-click on the Business Central node and select “Add Instance”.

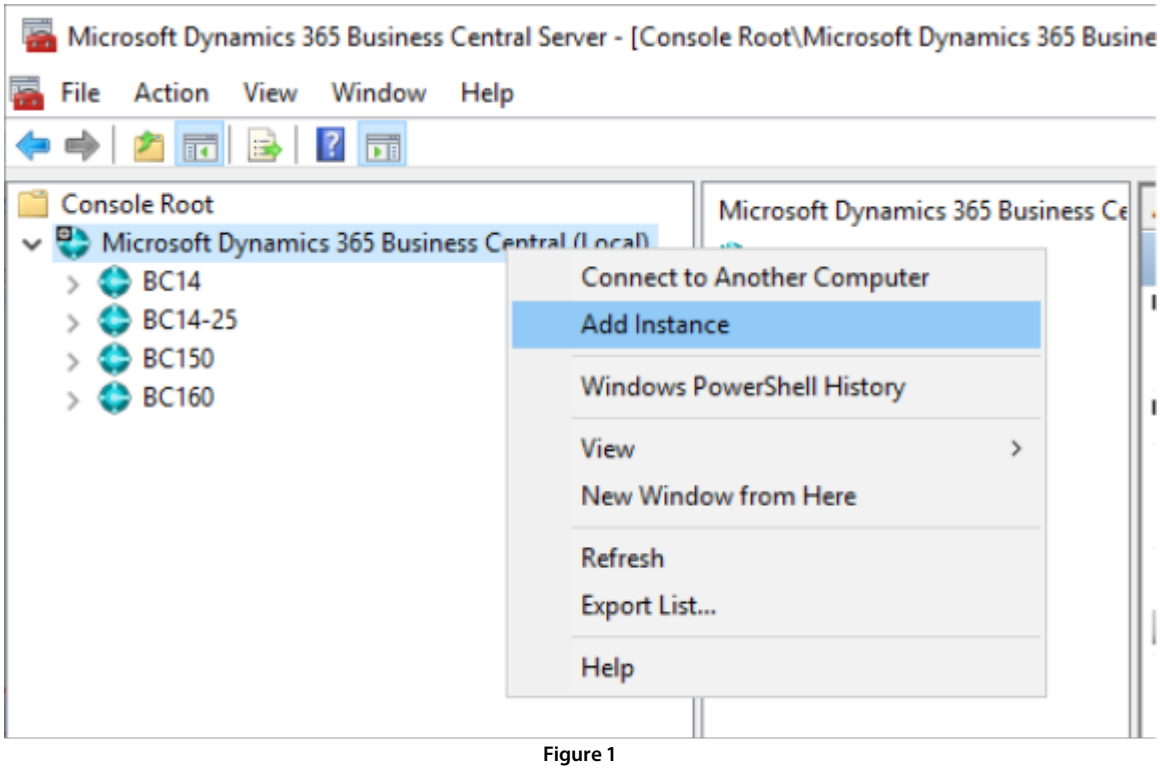


**Figure 1**

2. Fill in the window with the server instance information. Please note that all "Port" fields are required. Note the Odata Services port, and then click "OK".

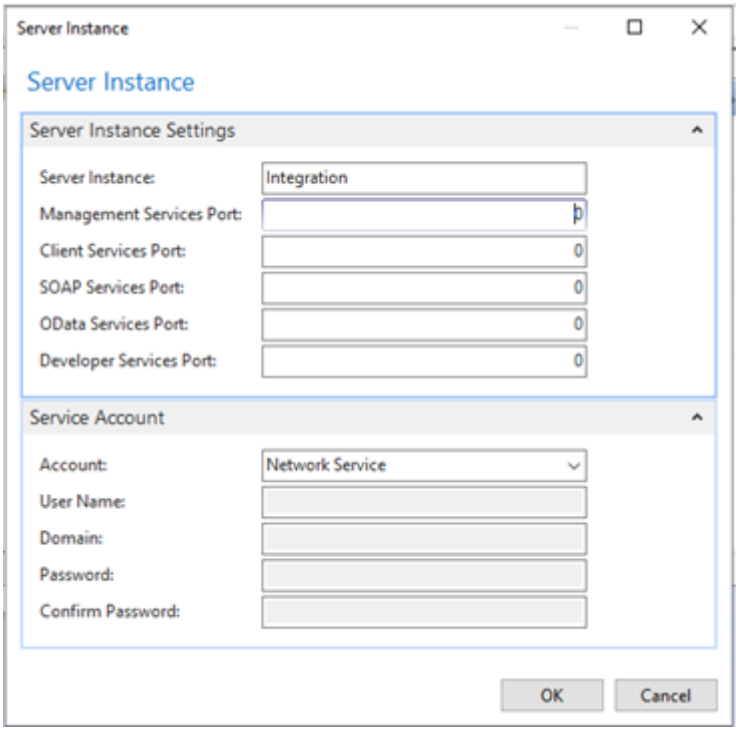


**Figure 2**

## II. Service for SSL configuration

1. Cloud Connector requires secure connections over HTTPS. To do this, a signed SSL certificate must be purchased and installed on the machine hosting the Business Central server instance. Pay special attention to the certificate thumbprint, as it is required to configure the Business Central server instance. The process of acquiring and installing this certificate is beyond the scope of this document. For more information, see this Microsoft article.

2. The certificate thumbprint allows you to return to the Business Central Administration console. In the left bar, select the server instance to be used with Cloud Connector and click "Edit". Under the "General" section, fill in the "Certificate thumbprint" field and click "Save".

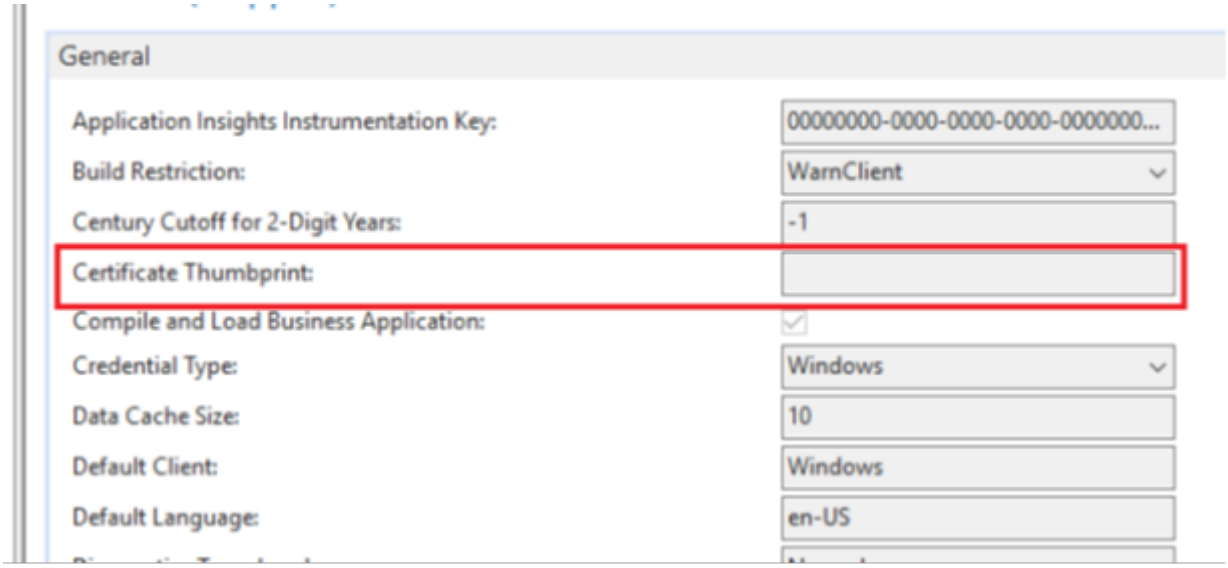


**Figure 3**

## III. Configure Windows authentication

There are two relevant settings in the Business Central Administration console to enable Windows authentication for Cloud Connector. The first is credential type. It should already be set to "Windows". The second required setting is "Use NTLM authentication". Authentication will not work if this setting is not enabled.

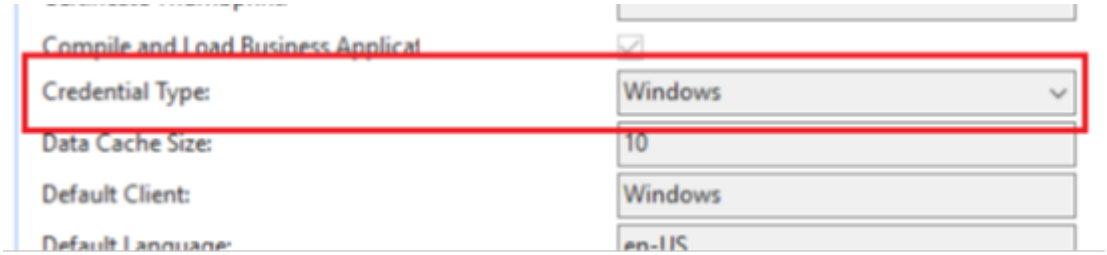


**Figure 4**

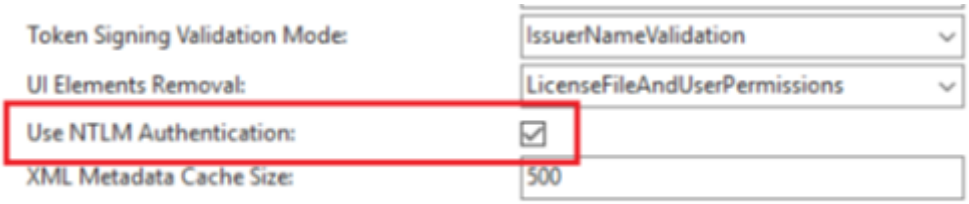


**Figure 5**

## IV. OData – Enable connection

1. You now need to configure OData properties in the Business Central Administration console. After you select the correct Business Central server instance in the left bar, scroll down to the OData Services section in the Properties pane. Make sure that the settings below are enabled:
    - OData – Enable services
    - Enable SSL
    - V4 – Enable endpoint

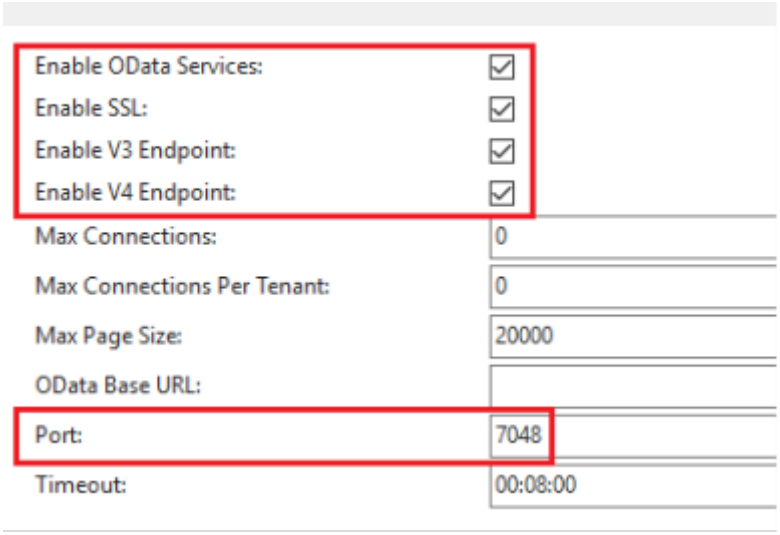


**Figure 6**

2. Note the port number. It is the port that must be enabled for incoming network connections.

## 2.3 Step 2b. Connected system configuration (SaaS)

Configuration for Business Central Online in another tenant, or with Dynamics 365 (for exemple Finance & Operations)

The OAuth authorization protocol is recommended for connection between SwissSalary and Business Central Online or Dynamics 365 applications.

**I. Register an Azure Entra application for authentication for Business Central Online or Dynamics 365 applications**

1. Log in to the Azure portal.
2. Enter "App registrations" in the search field, then click "New registration".
3. Fill in the fields with the values below:

**Name**: Application display name. Example: "Business Central OAuth 2.0"
**Supported account types:** Select the option "Accounts in any organization directory (any Azure Entra directory – multi-tenant)"
**Redirect URI (optional):** Select "Web" in the "Select platform" field and enter the following URL in the field: "businesscentral.dynamics.com/OAuthLanding.htm"

4. Click "Register".

**II. Grant the registered application permissions API.ReadWrite.All for Dynamics 365 Business Central or AX.Full Access and OData.FullAccess for Dynamics 365 applications**

1. Go to the "API permissions" menu item and click "Add permission".
2. **A.** Business Central Online: Click the "Dynamics 365 Business Central" tile and then the "Application permissions" tile.
   **B.** Dynamics 365 applications: Click the "Dynamics ERP" tile and then the "Application permissions" tile.
3. **A.** Business Central Online: Check the "API.ReadWrite.All" option and click "Add permissions".
   **B.** Dynamics 365 applications: Check the "Connector.FullAccess" option and click "Add permissions".

   (Hinweis: Bei den Dynamics 365 Applikationen, können folgende Berechtigungen - je nach UseCase - erteilt werden:

| Authorization | Purpose |
|---|---|
| **Connector.FullAccess** | Mass data operations via the Data Management Framework (DMF). Suitable for imports/exports. |
| **AX.FullAccess** | Full access to Finance & Operations (F&O), including business logic and system functions. Very high authorization. |
| **OData.FullAccess** | Full access to data entities via the OData API, suitable for real-time data access and transactions |

**Step 3. Create a client secret for your application.**

1. Go to the "Certificates & Secrets" menu item and click "New client secret key".
2. Fill in the fields with the values below:

**Description**: "Business Central Client Service".
**Valid until:** Select the "Recommended: 180 days (6 months)" option.

3. Click "Add".
4. Securely copy and save the code from the "Value" column.

**Step 4a. Add the created application to Business Central SaaS.**

1. Open your SwissSalary365 Business Central instance.
2. In the search field, search and switch to "Microsoft Entra applications" and click on "New"
3. Fill in the fields with the following values:

**Client ID**: Enter your "Client-id". (See step x point x)
**Description**: "Business Central OAuth 2.0"
**Status**: Select the "Enabled" option.

4. In the "User authorization sets" tab, add the corresponding authorization sets. The applications need the authorization sets with which the Cloud Connector applications can read, edit or delete the tables to be synchronized.
5. Click on "Give consent" and in the dialog box select the account with the "Global administrator" role and click on 'Accept' and "OK".

**Step 4b. Add the created application to Dynamics 365 Finance & Operations.**

1. Open your Finance and Operations (F&O) instance.
2. Navigate to "System Administration", 'Setup' and then to "Azure Entra Applications".
3. Click on "New" and enter the following details:

- Client ID: Insert the Application (Client) ID from Microsoft Entra ID.
- Name: Enter a descriptive name (e.g. "F&O OAuth Integration").
- User ID: Assign a system user (this is used for authentication).
- Activate the "Enabled" option.

4. Select the application and navigate to "User permissions" and assign the corresponding security role.

## 2.4 Step 3: Enable web services in the connected system (NAV/BC on-Prem, BC SaaS)

Business Central/Navision on-prem, Business Central SaaS: Cloud Connector can only synchronize data that is available in the connected system via web services. This means that there must be a

corresponding page on the web service page for each table you want to synchronize. The table below shows the web services that must be published.

To synchronize financial accounting-relevant tables or data between the connected system and SwissSalary, you must publish these web services in the connected system.

| Object type | Object ID | Object Name | Service Name |
|---|---|---|---|
| Page | 16 | Chart of Accounts | CC_GlAccounts |
| Page | 540 | Default Dimensions | CC_DefaultDimensions |
| Page | 536 | Dimensions | CC_Dimensions |
| Page | 537 | Dimension Values | CC_DimensionValues |
| Page | 312 | Gen. Business Posting Groups | CC_GenBusPostingGroups |
| Page | 251 | General Journal Batches | CC_GenJournalBatches |
| Page | 50204 | Gen. Journal Line Api | CC_GenJournalLines |
| Page | 50205 | Gen. Journal Post Api | CC_GenJournalPost |
| Page | 101 | General Journal Templates | CC_GenJournalTemplates |
| Page | 313 | General Product Posting Groups | CC_GenProdPostingGroups |
| Page | 470 | VAT Business Posting Groups | CC_VatBusPostingGroups |
| Page | 472 | VAT Posting Setup | CC_VatPostingSetup |
| Page | 471 | VAT Product Posting Groups | CC_VatProdPostingGroups |

The standard pages of Navision/Business Central on-prem and Business Central SaaS for the web services pages Gen. Journal Line Api and Gen. Journal Post Api cannot be used with the Cloud Connector. For this reason

- up to the Microsoft Navision 2018 version, our custom objects must be imported;
- from the Business Central 2019 version, our per-tenant extension application must be imported,

and these objects must be published as web services. This allows these entities to be synchronized.

For custom objects and the per-tenant extension application, please contact us at integrations@swisssalary.ch.

## 2.5 Step 4: Basic setup in SwissSalary

1. **IMPORTANT: Cloud Connector applications are supported starting from NAV 2013 R2.**
2. In SwissSalary, search in the search bar and switch to “Cloud Connector Management”, and click “Setup” and then “Basic settings”.
3. On the “Basic settings” page, you can set up connection to one or more connected systems. Click “Management” and then “New” to create a new SETUP. A setup contains credentials or entity settings. You can specify the identifier and a description for the connections in the “Code” and “Description” fields, for example: Code: BC1, descriprion: BC database 1 on-prem

4. The "Copy settings" button allows you to copy the settings already recorded in a setup. This functionality not only enables copying of the settings recorded on the "Basic settings" page, but also the settings recorded on the "Entity setup" page.
5. The fields below must be filled in:
   a) **Base URL:** Specifies the base URL of the connected system's web service. It should resemble the following: https://local.server.com/BC-Instance/ODataV4 depending on the service type used. It is required to specify a URL using https. Warning: insecure HTTP connection is no longer supported.
   b) **Web service type (drop-down)**: Specifies the type of the connected system's web service. ODataV4 is preferred. It may be set automatically, depending on the base URL you enter.
      - **OData V3 (NAV/BC):** OData is an open standard or protocol for providing and updating data over the Internet. V3 is a specific version of this protocol supported by these NAV/BC versions: NAV 2013 R2 and later.
      - **OData V4 (NAV/BC):** This OData version is preferred. OData v4 is available starting from NAV 2018.
      - **Business Central API:** refers to the default interface between SwissSalary and a Business Central Cloud instance.
      - **Finance and Operations:** refers to the default interface between SwissSalary and a Dynamics 365 Finance instance.
      - **Use proxy:** Specifies whether all web service traffic should be routed through a proxy. This can be crucial if the connected service is on a local network (for example, the ERP system is on-premise) and limits the scope of the required IP whitelist.
   c) **Outgoing proxy address:** Specifies the list of possible outgoing IP addresses used by the SwissSalary proxy server. These IP addresses must have permissions to access the specified web service URL (if the connected service or ERP system is on-premise): 172.161.70.105.
   d) **Authentication type (drop-down):** Specifies the authentication type to be used when connecting to the service. You can enter multiple credentials per authentication type. If you are connecting to a service using OAuth 2.0 authorization, you must provide these details on the OAuth Setup page.
      - **Basic authentication:** requires user name and password to access interfaces or web services. It is easy to implement but not particularly secure because credentials are transmitted in an unencrypted form. This authentication method is not supported.
      - **Windows Authentication (NTLM):** uses the credentials of the logged Windows user to access Microsoft Business Central. It provides single sign-on and is more secure than Basic authentication.
      - **OAuth 2.0:** OAuth uses tokens instead of user passwords and allows users to control access. OAuth is intended to be preferred for authentication.

Use the "Copy settings" button to copy the credentials from an authentication type that has already been entered.

**Important:** The set-up service user and the OAuth app must have at least BASIC permission set and read, insert, edit or delete permissions for the tables to be synchronized by the Cloud Connector in the connected system.

The "Enable schedule" and "Scheduled time" fields are explained below.

## 2.6 Step 5: OAuth setup (if OAuth 2.0 was selected as authentication type.)

The values below must be entered here:

1. **Client ID:** This is the value of the application ID or client ID from the Azure Active Directory application.
2. **Client secret key:** This is the value of the application key or client key from the Azure Active Directory application.
3. **Scope:** This is the scope within which an OAuth 2.0 token should be requested. It often looks like https://xyz/.default, where "xyz" is the connected service's base URL.
4. **Client secret key valid through:** This is where you specify the time the client secret key expires. This can be useful as a future reminder of the time the client secret key is about to expire.

**Important!** The values listed here (Client ID, Client secret key, Scope, Client secret key valid through) can be retrieved from the Azure AD Business Central Authentication application (OAuth application setup video).

## 2.7 Step 6a: Setting up entities in SwissSalary

1. On the "Cloud Connector Management" page, click "Setup" and then "Entity setup".
2. The "Table ID", "Source" and "Web service endpoint" table columns must be filled in.
    - **Table IDs:** The name of the SwissSalary/Business Central table is specified here. Click the "Table ID" column, click "Select from full list" and select the corresponding SwissSalary/Business Central table to which you want to transfer data from the connected system or from which you want to write data to the connected system. The same table can be set up multiple times, with different endpoints in the connected system.
    - **Order:** Specifies the order of synchronization of this entity table. Remember the table dependencies; the table relationships are validated during synchronization.
    - **Source**: The direction of synchronization is specified here. If the source is Business Central, data from SwissSalary/Business Central will be synchronized to the connected system. If the source is external, data from the connected system is synchronized in SwissSalary/Business Central. Cloud Connector does not allow bidirectional synchronization of certain tables. Each table must have a single source, either SwissSalary/Business Central or the connected system.
    - **Automatic synchronization:** Specifies whether table changes in SwissSalary should be automatically synchronized with the connected system.
    - **Synchronize deletions:** Specifies whether deletions for this entity should be synchronized. Enabling this setting has a significant impact on overall synchronization performance.
    - **Web service end point:** The name (as you named the web services in the "Service name" field in step 5) of the table in the connected system is specified here. Click the "Web service endpoint" column and enter the table name.
3. You can set up the mapping of the fields to be synchronized by clicking the corresponding table name. The fields below can be filled in the "Entity fields mapping" section as follows:
    - **Field ID:** The ID of the field in the mapped SwissSalary/BusinessCentral table is specified here.
    - **Field name:** The name of the field in the mapped SwissSalary/BusinessCentral table is specified here.
    - **Service field name:** The name of the field in the mapped table of the connected system is specified here.
    - **Enabled:** This is where you specify whether this field should be included when updating records in the source or target instance.
    - **Key:** It is specified here whether this field is part of the key (primary key) for this entity.

- **Validate:** It is specified here whether the table field validation should be performed when data is set for this field. This only applies when data is imported from the connected system into SwissSalary.

4. In the "Value assignment" section, you can define constant or mapping values for the fields to be synchronized. Select the desired field in the "Entity field mapping" section, this is then displayed in the "Service field name" field in the "Value mapping" section.
   **From value**: Here you can specify the value that must be replaced with another value.
   **To value**: Here you can specify the value with which the original value must be replaced.

**Example**: You want to synchronize the "Wage code" field on the personnel card in the connected system and you want to replace the enum values (salary, monthly wage, hourly wage, piecework wage, monthly wage LMV) in this field with other text values. Enter "Salary" in the "From value" field and enter the desired replacement value, for example 'GH', in the "To value" field. In the next line, you can enter "Monthly wage" in the "From value" field and 'ML', for example, in the "To value" field. In the next lines, you can enter the remaining mapping values. You can also specify a constant value by inserting an asterisk (*) in the "From value" field and the constant value in the "To value" field. If you click "Fields"/"Reset fields to default" in the "Entity fields mapping" section and then in the "Entity field constants" section, all fields in the selected tables will be listed.

5. **Important**: Some payroll-related entities are already predefined. In this case, you do not need to set up these entities again, but can go directly to steps 9 and 10. You also have the option of setting up other entities that are not already predefined by SwissSalary Cloud Connector like the employee card.

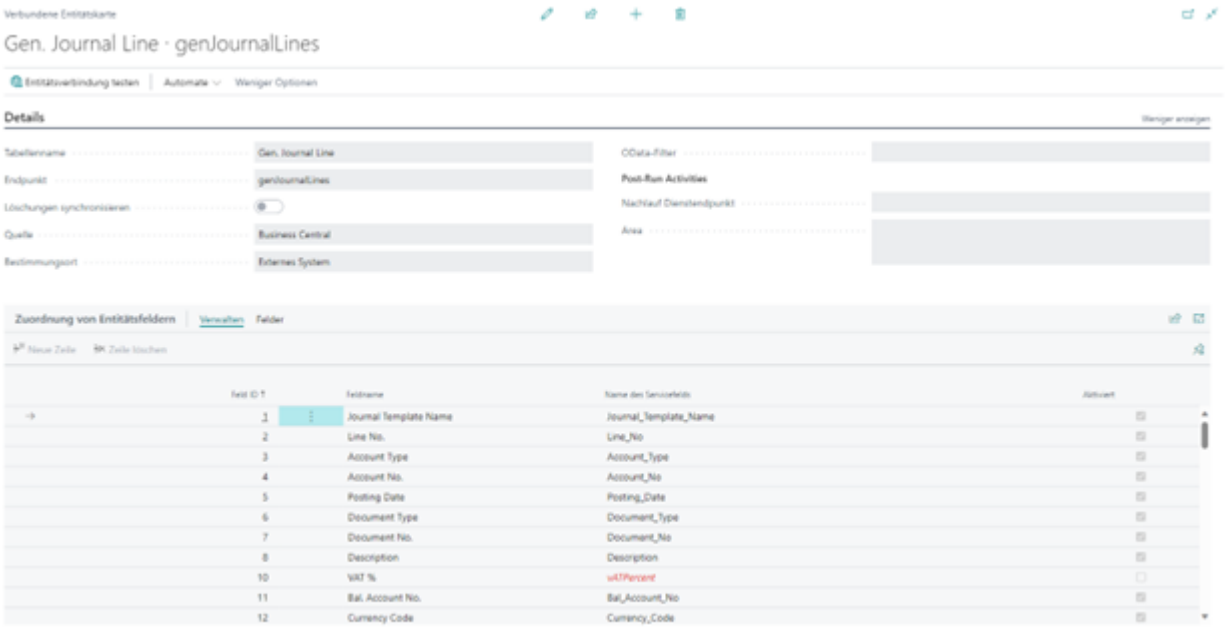


**Figure 7**

6. **Odata filter (optional):** If "Source" has the "External" value, the OData filter can be set. Filter expressions in this field can be used according to these instructions.
7. **Automatic synchronization:** Specifies whether table changes in SwissSalary should be automatically synchronized with the connected system.
8. **Synchronize deletions:** Specifies whether deletions for this entity should be synchronized. Enabling this setting has a significant impact on overall synchronization performance.
9. **Skip data integration checks:** It is specified here whether data integrity checks in SwissSalary that are performed for this entity before synchronization should be ignored.

10. **Follow-up service endpoint (optional):** An endpoint to be retrieved in the connected system after the entity has been successfully synchronized is specified here. This can be used if an action should be performed after the table data has been successfully synchronized. See step X
11. **Follow-up requirement text (optional):** You can specify here a constant value to be sent to the service endpoint specified in the "Follow-up service endpoint" field. Field names or the corresponding values must be specified here as JSON.

### Automatic posting of financial accounting and cost recording journals in Business Central/Navision on-prem and Business Central SaaS.

If financial accounting and cost recording journals transferred to the connected system are to be posted automatically in the connected system after synchronization, the settings below must be adjusted:

1. In the connected system, the object (Gen. Journal Post) must be read in, or our Per-Tenant-Extension application must be installed and the page object Gen. Journal Post object must be published as a web service. You can find more information here
2. On the "Entity setup" page, you must select the appropriate web services for the "Post" function in the "Post-run service endpoint" field for the Gen. Journal Line and Cost Journal Line entities.
3. On the "Entity setup" page, you must enter the json below as the request body for the Gen. Journal Line and Cost Journal Line entities in the "Post-run" request text field:

```
{
"JournalTemplateFilter": GENERAL
"JournalBatchFilter": "$L-*$"
}
```

## 2.8 Step 6b: Synchronization in F&O

It is possible to synchronize the financial accounting entry journal lines from SwissSalary with the payroll accounting of Dynamics 365 Finance & Operations. In addition, the dynamic financial account structure from Finance & Operations can be stored in SwissSalary.

The journals or financial accounting entry journal lines are transferred to the LedgerJournalHeaders and LedgerJournalLines OData entities in Finance & Operations.

The financial accounts, dimensions and VAT codes can initially be maintained manually in both systems. With the following setup steps, the account structures from Finance & Operations can be mapped and the lines from table 81 Gen. Journal Lines can be synchronized:

**Client-specific steps**

1. Open page 251 - Financial accounting - Journal names and enter the journal name used in Finance & Operations for payroll accounting in the "Journal header name" field (e.g. "LO").
2. Go to page 118 - Financial accounting setup and open the "Cloud Connector" section.
3. In the "Account Name Format" field, you can define the account structure using placeholders and a separator (e.g. ACC-ID-COST------). The placeholders are freely selectable.
4. Click on the three dots "..." next to the "Account Name Format" field to make the placeholder assignment.
5. Enter the desired placeholder in the "Placeholder value" column. In the "Field no." column, select the field ID of the corresponding field from table 81 Gen. Journal Lines.

6. Optional: You can also define the account structure individually for each financial account in SwissSalary. To do this, open the "Financial account card" page and define the account structure there in the same way as steps 1-4.
7. If a separate logic is defined for an account, this logic is always used for postings to this account.n. You can do this on the "Financial account card" page for the corresponding account in accordance with the logic described in points 1-4. If you define a logic for an account, the logic defined for the account is used for the bookings for this account.

**Cross-tenant setup:**
On the "Entity setup" page under "Cloud Connector administration", the following entities must be set up in the following order:

| Sequence | Table ID | Table name | Source |
|---|---|---|---|
| 1 | 3069141 | SwS CC Journal Header | Business Central |
| 2 | 3069141 | SwS CC Journal Header | Externes System |
| 3 | 81 | Gen. Journal Line | Business Central |

**Entity: 3069141 SwS CC Journal Header (Source: Business Central)**

| Field ID | Table name | Service field name | Activated | The key |
|---|---|---|---|---|
| 1 | Internal Header No. | Integration Key | True | False |
| 5 | Name | JournalName | True | False |
| 10 | Legal Entity ID | dataAreaId | True | True |

**Entität: 3069141 SwS CC Journal Header (Source: Externes System)**

| Field ID | Table name | Service field name | Activated | The key |
|---|---|---|---|---|
| 1 | Internal Header No. | Integration Key | True | False |
| 2 | External Header No. | JournalBatchNumber | True | False |
| 10 | Legal Entity ID | DataAreaId | True | False |

**Entität: 81 Gen. Journal Line (Source: Business Central)**

| Field ID | Table name | Service field name | Activated | The key |
|---|---|---|---|---|
| 5 | Posting Date | TransDate | True | False |
| 8 | Description | Text | True | False |
| 12 | Currency Code | CurrencyCode | True | False |
| 14 | Debit Amount | DebitAmount | True | False |
| 15 | Credit Amount | CreditAmount | True | False |
| 43 | Quantity | Quantity | True | False |
| 76 | DocumentDate | DocumentDate | True | False |
| 90 | VAT Bus. Posting Group | SalesTaxGroup | True | False |
| 91 | VAT. Prod. Posting Group | ItemSalesTaxGroup | True | False |
| 171 | Payment Reference | PaymentReference | True | False |
| 3069140 | SwS CC Account | AccountDisplayValue | True | False |
| 3069145 | SwS CC External Header No. | JournalBatchNumber | True | True |
| 3069150 | SwS CC Legal Entity ID | dateAreaId | True | True |

**Value assignment**

A constant value must be entered in the Currency code field. You can find out more about value assignment here 13.

## 2.9 Step 7: Tenant setup

1. On the "Cloud Connector Management" page, click "Setup" and then "Entity setup". You can select here which clients should be enabled for synchronization in Cloud Connector and, in particular, how companies should be assigned between the two systems. This can be important if the names of the tenants in SwissSalary/Business Central and in the connected system are different.
2. An entity card opens where you can set up the assignment of the tenants to be synchronized. The fields below can be edited here:
   - **Enabled:** Indicates whether this company should be enabled for Cloud Connector.
   - **Name of the connected company:** The name of the company in the connected system is specified here. Use the "AssistEdit" function (see para. 3) to search for and select a company from the connected system. Prior to enabling this company for Cloud Connector, a value must be specified.
3. **AssistEdit feature:** If you click the three dots in a row in the "Affiliated company name" column, you can view the available values for the "Affiliated company name" field.

## 2.10 Step 8: Test connection

1. After you setting up the entities or tenants, you can test Cloud Connector.
2. Open the entity card of the entity to be tested (click "Setup" / "Set up entities" and then click the table to be tested) and click "Test entity connection".
3. A pop-up window will show whether the test was successful. If an error occurs, an error message will be displayed with the error description.
4. Attention: You must test each setup individually.

## 2.11 Step 9: Automatic execution

1. On the "Basic setup" page, you can set the Boolean field "Enable schedule" to Yes and specify the frequency of automatic execution in the "Scheduled time" field. A Task queue item will be created.
2. Two new fields will be displayed with this setting: "Company task queue" shows the tenant name for which the task queue item was created, the "Task queue user" field shows the user that created it. Although task queue items are cross-tenant, you can only edit the task queue items that have already been created in the tenant in which they were originally created. The "Company task queue" field shows this tenant.
3. On the "Entity setup" page, you can enable the Boolean field "Automatic synchronization" for each entity. This means that the changes in the entity are automatically synchronized with the connected system after the change.

**Important:** we recommend not activating the Boolean field "Automatic synchronization" for the Gen. Journal Lines and Cost journal Lines entities, as it may lead to errors.

# 3 Setup - Personio

## 3.1 Step 1. Install applications

1. In SwissSalary, navigate to "Extension Management" and then click on "AppSource Gallery."
2. Search for the SwissSalary application "SwissSalary Cloud Connector" and click on "Get now." This will install not only the "SwissSalary Cloud Connector" application, but also the "Cloud Connector" application. "Cloud Connector" contains the basic functionalities of the "SwissSalary Cloud Connector" application, which is why both applications must be installed.
3. The applications will be installed after a few seconds. You can check this by searching for Cloud Connector in the search field in your SwissSalary instance and opening the "Cloud Connector Administration" page.

## 3.2 Step 2: Configuring the connected system

Setup in Personio

1. Personio provides a limited list of fields that can be synchronized directly with SwissSalary:

- Address 2
- Place of Origin
- Private Phone No.
- Work Permit
- SIMIC No.
- Permit valid from
- Permit valid to
- County Ref. No.
- Employment Date
- Education
- Employment contract
- Employment relationship
- Position
- Productive Hours type
- Social Security No.
- Language code

These fields are enabled by Personio for employee profiles.

2. The API access data must be generated in Personio. This creates the access data (client ID and client secret) required for authentication in SwissSalary. These must then be stored in SwissSalary. For more detailed setup information, please refer to this link or contact your Personio consultant.

## 3.3 Step 3: Basic setup in SwissSalary

1. In SwissSalary, search for and switch to "Cloud Connector Management" in the search field, click on "Setup," and then "Base Setup."

2. On the “Base Setup” page, you can set up the connection to one or more connected systems. Click on ‘Administration’ and then on “New” to create a new SETUP. A setup contains the login information and entity settings. In the “Code” and “Description” fields, you can specify the label and a description for the connections, for example: Code: Personio, Description: Personio connection. These SETUP configurations allow you to connect SwissSalary to multiple Personio endpoints. It is also possible to create multiple connections to Personio, NAV/BC, and Dynamics 365 applications at the same time.
3. You can use the “Copy setup” button to copy the setups that have already been entered. This function copies not only the setups entered on the “Basic setup” page, but also those entered on the “Entity setup” page.
4. The following fields must be filled in:
    a) **Base URL**: Specifies the base URL of the connected system's web service. For example: https://api.personio.de
    b) **Web service type (dropdown):** For a Personio connection, you must select the “Personio HR System” option here.
    c) **Authentication type (dropdown):** Specifies the authentication type to be used when connecting to the service. For a Personio connection, you must select Oauth 2.0. Oauth 2.0 uses tokens instead of user passwords and allows users to control access. OAuth should be preferred for authentication.

You can use the “Copy settings” button to copy the login information from an authentication type that has already been entered.

The fields “Activate schedule” and “Scheduled time” are explained in step 9.

## 3.4 Step 4 : Configuration OAuth

The following values must be entered here:

1. **Authentication type**: “Oauth” must be selected here.
2. **Grant Type**: The value “Client Credentials” must be selected here.
3. **Token Endpoint**: The value must be "https://api.personio.de/v2/auth/token" be specified.
4. **Client ID**: Enter the client ID from Personio here..
5. **Tenant-ID:** This field must be left blank.
6. **Client secret:** Enter the value of the application or client key from Personio here.
7. **Scope:** This field must be left blank.
8. **Secret client key valid until (optional):** This determines when the secret client key expires. This can be helpful as a future reminder if the secret client key is about to expire.
9. **Resource URL:** This field must be left blank.

You can find more information about setting up OAuth authentication here.

## 3.5 Step 5 Setting up entities in SwissSalary

### General setup

1. On the “Cloud Connector Management” page, select ‘Setup’ and then “Entity Setup.”
2. The columns “Table ID,” “Source,” and “Web Service Endpoint” must be filled in the table.
    - **Table ID**: Enter the name of the SwissSalary/Business Central table here. Click in the “Table ID” column, select “Select from complete list” and select the corresponding SwissSalary/Business Central table to which you want to transfer data from the connected system or from which you

want to write data to the connected system. The same table can be set up multiple times with different endpoints in the connected system.

- **Order:** Specifies the order in which this entity table should be synchronized. Note the table dependencies; the table relationships are validated during synchronization. After this step, click on the value in the "Table Name" column and fill in the following fields in the "Details" section.
- **Endpoint:** This is where you specify Personio's API endpoint. Click on the three dots in the "Endpoint" field and select one of the following Personio endpoints. Data can only be synchronized from Personio to SwissSalary via these endpoints:
  - **v1/company/employees**
  - **v2/cost-centers**
  - **v2/legal-entities**

  You can synchronize documents from SwissSalary with Personio via the endpoint v1/company/documents.
- **Source:** For the endpoints v1/company/employees, v2/cost-centers, and v2/legal-entities, only "External System" can be selected as the source. For the endpoint v1/company/documents, only "Business Central" can be selected.
  This specifies the direction of synchronization. If the source is Business Central, the data from SwissSalary/Business Central is synchronized to Personio. If the source is external, the data from the connected system is synchronized to SwissSalary/Business Central.
- **Aggregation Field:** Specifies the field used to aggregate data during synchronization. This is useful when synchronizing an entity that contains multiple related records for a single parent record, such as multiple cost centers for a single employee.
- **Synchronize Deletions:** Specifies whether deletion operations for this entity should be synchronized. Enabling this setting can have a significant impact on overall synchronization performance.
- Skip data integration checks: Specifies whether data integrity checks in SwissSalary that are performed before synchronization begins for this entity should be ignored.

3. You can set up the mapping of the fields to be synchronized by clicking on the corresponding table name. The following fields can be filled in as follows in the "Entity Field Mapping" section:
   - **Field ID:** Here you must select the field from the selected SwissSalary/Business Central table.
   - **Field name:** The name of the field in the selected SwissSalary/BusinessCentral table is automatically filled in here.
   - **Service field name:** This is where the name of the field on the selected endpoint (for example: v1/company/employees) from Personio is displayed. All fields approved for the Personio endpoint are displayed here. In Personio, you can add or remove fields for the endpoint as desired.
   - **Enabled:** Specifies whether this field should be included when updating records in the source or target instance.
   - **Key:** Specifies whether this field is part of the primary key for this entity.
   - **Validate:** Specifies whether the table field validation should be performed when data is specified for this field. This only applies if data from the connected system is transferred to SwissSalary.
4. In the "Value assignment" section, you can specify constant or mapping values for the fields to be synchronized. Select the desired field in the "Entity field assignment" section; it will then be displayed in the "Service field name" field in the "Value assignment" section.
   - **Value**: Here you can specify the value that needs to be replaced with another value.
   - **To value**: Here you can specify the value with which the original value must be replaced.

   **Example:** You want to synchronize the "Salary Code" field on the Employee card in the connected system and replace the enum values (salary, monthly wage, hourly wage, piecework wage, monthly wage LMV) in this field with other text values. Enter "Salary" in the "From Value" field and enter the desired

replacement value, for example "MW," in the "To Value" field. In the next line, you can enter "Monthly Wage" in the "From Value" field and, for example, 'ML' in the "To Value" field. In the next lines, you can specify the remaining mapping values. You can also set a constant value by entering an asterisk (*) in the "From value" field and the constant value in the "To value" field.
5. If the SwissSalary fields Nationality and Gender are selected, the fields in "Value assignment" are filled in automatically.

Establishment of special entities:

**I. Bank details**
To synchronize employees' IBAN numbers, you must set up the entity as follows:
1. In the "**Table ID**" field, enter 3009087. You can determine the "Order" yourself.
2."**Endpoint**" is v1/company/employees and "**Source**" is External System.
3. In the "Template code" field, create a new entry by clicking on "+ New".
   - In the "Code" field, enter "Bank."
   - In the "Field Name" column, select "Pos."
   - In the "Default value" field, enter the number 1.
   - Click on "Back"

These settings ensure that the IBAN number stored in Personio is always synchronized with SwissSalary as the main bank account.

4. You must set up the entity field mapping as follows:

| Field ID | Field name | Service field name | Activated | The key | Validate |
|---|---|---|---|---|---|
| 1 | Employee No. | id | True | True | Wrong |
| 30 | IBAN | dynamic_16326593* | True | Wrong | True |

*The service field name in Personio may differ from the one displayed..

**II. Cost centers (Dimensions)**
If you set up this entity, you only need to maintain the dimensions in Personio. To synchronize the dimensions from Personio to SwissSalary, you must set up the entity as follows
1. Enter 349 in the "**Table ID**" field; you can determine the "**Order**" yourself.
2. "**Endpoint**" is v2/cost-centers and "**Source**" is External System.
3. In the "Template code" field, create a new entry by clicking on "+ New".
   - In the "Code" field, enter "COSTCENTER."
   - In the "Field Name" column, select "Dimension Code."
   - In the "Default value" field, enter the dimension name in SwissSalary. This may vary for this customer.
   - Click on "Back"
4. With this entity field mapping, the dimension master can be transferred from Personio to SwissSalary.

| Field ID | Field name | Service field name | Activated | The key | Validate |
|---|---|---|---|---|---|
| 2 | Code | id | True | True | Wrong |
| 3 | Name | name | True | Wrong | Wrong |

**III. Documents (Paycheck, Salary certificate, etc.) from SwissSalary**

To synchronize the selected documents from SwissSalary to Personio, the following settings must be made.
1. On the "SwissSalary Document Setup" page, the ID of the corresponding Personio document category must be entered in the "Personio Category ID" field for the SwissSalary document category. All documents from this SwissSalary document category will be transferred to Personio in the specified category.
2. A new entity must be created on the "Entity Setup" page under "Cloud Connector Setup."
3. Enter 3009140 in the "**Table ID**" field. You can determine the "**Order**" yourself. .
4. The **Endpoint** is v1/company/documents and the **Source** is Business Central.
5. With this entity field mapping, the documents are transferred to Personio:

| Field ID | Field name | Service field name | Activated | The key | Validate |
|---|---|---|---|---|---|
| 1 | EmployeeNo. | employee_id | True | True | Wrong |
| 20 | File Name | title | True | Wrong | Wrong |
| 110 | Attachment | file | True | Wrong | Wrong |
| 3069141 | SwS CC Personio Category | categoriy_id | True | Wrong | Wrong |

**IV. Dimension mappings from Personio**

To synchronize the assignment of employees to personnel dimensions, the following settings must be made.
1. In the "**Table ID**" field, enter 3009084. You can determine the "**Order**" yourself.
2. "**Endpoint**" is v1/company/employees and "**Source**" is External System.
3. In the "Template code" field, create a new entry by clicking on "+ New
   - In the "Code" field, enter "EMPCOST".
   - In the "Field Name" column, select "Dimension."
   - In the "Default value" field, enter the dimension name (for example, COST CENTERS) in SwissSalary. This may vary for this customer.
   - Click on "Back"

4. With this entity field mapping, the documents are transferred to Personio:

| Field ID | Field name | Service field name | Activated | The key | Validate |
|---|---|---|---|---|---|
| 1 | EmployeeNo. | employee_id | True | Wrong | Wrong |
| 3 | Line No. | cost_centers.index | True | Wrong | Wrong |
| 10 | Part | cost_centers.percentage | True | Wrong | Wrong |
| 60 | Dimension Value | cost_centers.id | True | Wrong | Wrong |

5. The "Aggregation Field" must have the value "cost_centers".

## 3.6 Step 6: Setting up clients

1. In order to synchronize employee data from Personio, it must be assigned to a company. You can find out more about companies in Personio here.

2. On the "Cloud Connector Management" page, select 'Setup' and then "Set Up Company." Here you can select which clients in SwissSalary and companies in Personio should be activated for synchronization and, in particular, how the companies should be assigned between the two systems. This can be important if the names of the clients and companies in SwissSalary/Business Central and in Personio are different.
3. An entity map opens where you can set up the assignment of the clients to be synchronized. The following fields can be edited here:
   - **Enabled**: Specifies whether this company should be enabled for Cloud Connector.
   - **Name of the connected company:** Enter the company name from Personio here. Use the "AssistEdit" function (see point 3) to search for and select a company from Personio.
4. **AssistEdit function:** If you click on the three dots in a row in the "Name of affiliated company" column, you can view and select the available companies.

## 3.7 Step 7: Testing the connection

1. After you have set up the entities or clients, you can test the Cloud Connector.
2. Open the entity card for the entity you want to test (click on "Setup" / "Set up entities" and then on the table you want to test) and select "Test entity connection."
3. A pop-up window will indicate whether the test was successful. If an error occurs, an error message with a description of the error will be displayed.
4. Please note: You must test each setup individually.

## 3.8 Step 8: Automatic execution

1. On the "Basic Settings" page, you can set the Boolean field "Enable Schedule" to Yes and specify the frequency of automatic execution in the "Scheduled Time" field. This creates a task queue message.
2. This setting displays two new fields: "Task queue company" shows the client name for which the task queue item was created, and the "Task queue user" field shows which user created it. Task queue items are cross-client, but you can only edit task queue items that have already been created in the client where they were originally created. This client is shown in the "Task queue company" field.
3. On the "Setup of entities" page, you can activate the Boolean field "Automatic synchronization" for each entity. This means that changes to the entity are automatically synchronized with the connected system after the change has been made.

**Important:** We recommend not activating the Boolean field "Automatic synchronization" for the entities Gen. Journal Lines and Cost journal Lines, as this can lead to errors.

# 4 Permission sets and other settings

## 4.1 Cloud Connector-related permission sets

**SwS CC Runner:** Has permissions to write the CC Run/Log tables. Only relevant if "Automatic synchronization" is enabled (it is now set up on the entity). If the user changes a table enabled for automatic synchronization, an execution will be triggered automatically. If the user who changed the table is not granted this permission (or SwS CC Admin), then no automatic execution will be started. This user is not allowed to start manual executions.

| Typ | Object type | Object ID | Object Name | Object designation | Read permission | Insert permission | Edit permission | Delete permission | Launch permission |
|---|---|---|---|---|---|---|---|---|---|
| Included | Table data | 3096571 | SwS CC Auth Setup | Setting up authentication | Yes | Yes | Yes | Yes | |
| Included | Table data | 3096561 | SwS CC Company Run | Company run | Yes | Yes | Yes | Yes | |
| Included | Table data | 3096565 | SwS CC Company Setup | Company setup | Yes | | | | |
| Included | Table data | 3096566 | SwS CC Entity Setup | Company setup | Yes | | | | |
| Included | Table data | 3096567 | SwS CC Entity Field Setup | Entity field setup | Yes | | | | |
| Included | Table data | 3096568 | SwS CC Base Setup | Cloud Connector setup | Yes | | | | |
| Included | Table data | 3096569 | SwS CC Entity Log | Entity log | Yes | Yes | Yes | Yes | |
| Included | Table data | 3096572 | SwS CC Entity Log Detail | Entity log details | Yes | Yes | Yes | Yes | |
| Included | Table data | 3096576 | SwS CC Run | Connector run | Yes | Yes | Yes | Yes | |

**SwS CC Admin:** Full access permissions. Can change CC settings and start manual executions.

| Typ | Object type | Object ID | Object Name | Object designation | Read permission | Insert permission | Edit permission | Delete permission | Launch permission |
|---|---|---|---|---|---|---|---|---|---|
| Included | Table data | 472 | Job Queue Entry | Command queuing posts | Indirekt | Indirekt | Indirekt | Indirekt | |
| Included | Table data | 3096561 | SwS CC Company Run | Command queuing posts | Yes | Yes | Yes | Yes | |
| Included | Table data | 3096565 | SwS CC Company Setup | Company setup | Yes | Yes | Yes | Yes | |
| Included | Table data | 3096566 | SwS CC Entity Setup | Entity setup | Yes | Yes | Yes | Yes | |
| Included | Table data | 3096567 | SwS CC Entity Field Setup | Entity field setup | Yes | Yes | Yes | Yes | |
| Included | Table data | 3096568 | SwS CC Base Setup | Cloud Connector setup | Yes | Yes | Yes | Yes | |
| Included | Table data | 3096569 | SwS CC Entity Log | Entity log | Yes | Yes | Yes | Yes | |
| Included | Table data | 3096571 | SwS CC Auth Setup | Authentication setup | Yes | Yes | Yes | Yes | |
| Included | Table data | 3096572 | SwS CC Entity Log Detail | Entity log details | Yes | Yes | Yes | Yes | |
| Included | Table data | 3096576 | SwS CC Run | Connector run | Yes | Yes | Yes | Yes | |
| Included | Codeunit | 3096589 | SwS CC Manual Run Manager | SwS CC Manual Run Manager | | | | | Yes |
| Included | Codeunit | 3096590 | SwS CC Scheduled Run Manager | SwS CC Scheduled Run Manager | | | | | Yes |

**Important:** The user running Cloud Connector manually or by setting up a task queue item must have the appropriate read, insert, edit or delete permissions for the tables in SwissSalary that are to be synchronized by Cloud Connector.

## 4.2 Payroll Setup data settings

1. Navigate to the "Payroll master data" page in SwissSalary.
2. In the "Settings" section, you can select Cloud Connector in the "FIBU posting" or "Cost center posting" fields. If you select this setting, financial accounting or cost journal rows will be automatically posted in SwissSalary after they have been successfully synchronized with the connected system by Cloud Connector.
3. IMPORTANT: This step must be carried out individually for each tenant where you want to use Cloud Connector.

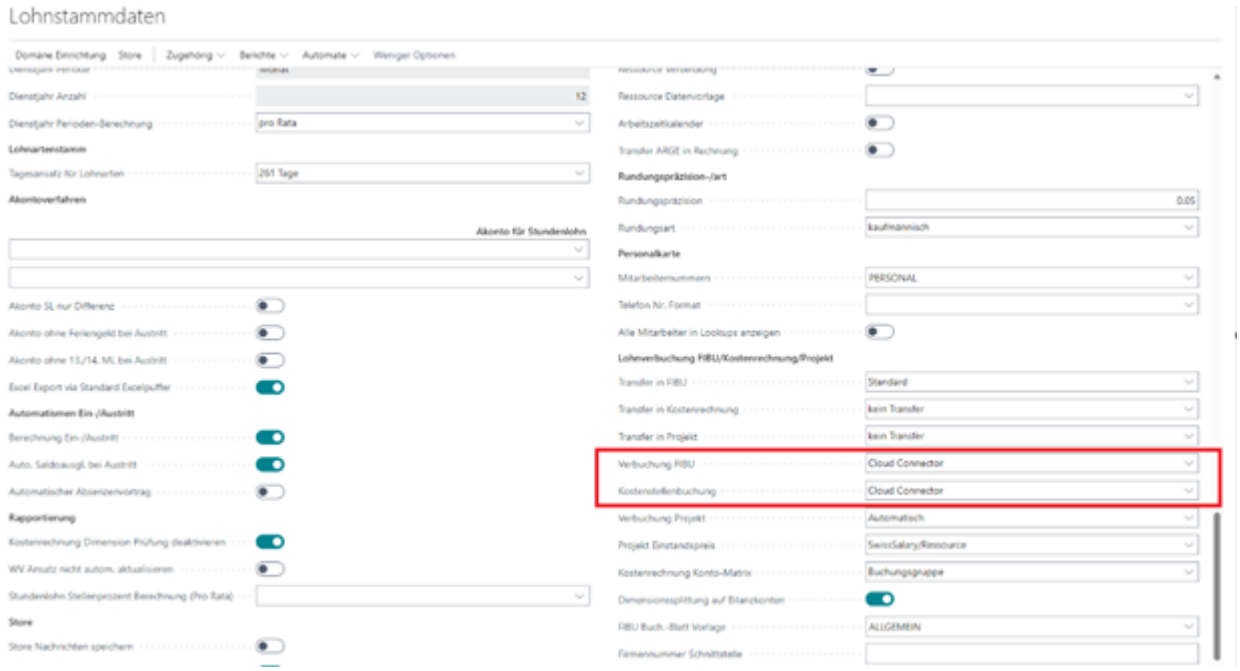


**Figure 8**

# 5 Error messages

## 5.1 Debugging and error messages

After manual or automatic Cloud Connector execution, the entities can have the statuses below:

- **Completed:** the entity was synchronized without errors.
- **Completed with errors:** the entity was only partially synchronized without errors, there were errors in some rows.

The InfoBox area shows the number of entities that were synchronized successfully, with errors or with no updating:

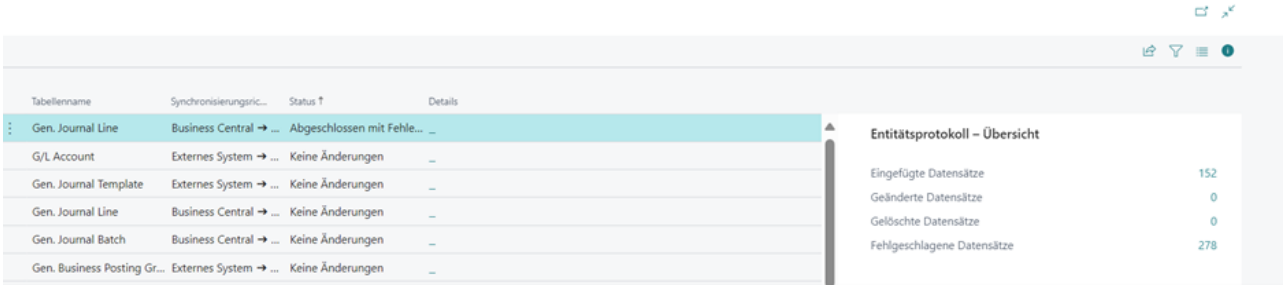


**Figure 9**

After clicking the number on Failed records, the fields below are displayed:

- **Process:** the function is displayed: Insert, Modify or Delete
- **Status:** shows whether the request was successful or failed.
- **Record ID:** shows the primary keys of the affected records.
- **Requirement information:** shows the type of request (POST; PATCH; DELETE) and the request URL as well as the request body
- **Details**: includes the detailed error message.

No changes: there were no changes to be synchronized in the connected system or in SwissSalary.

Failed: due to a fundamental error in SwissSalary, the entities could not be synchronized.

# 6 Support

## 6.1 SwissSalary

If you have any questions about Cloud Connector applications setup, SwissSalary Support will be happy to help:
Support SwissSalary