Reference Guide

BI Endpoints

Simplified API Access for Business Central Data

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rev. 2026-03-13

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1. Introduction

BI Endpoints is an extension for Microsoft Dynamics 365 Business Central that provides a comprehensive set of API endpoints designed specifically for extracting data for business intelligence and analytics. It comes with a fully functional free tier with posted sales invoices and posted G/L entries for basic reporting purposes, and it has a premium tier for advanced reporting on finance, sales, purchasing, inventory, jobs and resources.

Traditional Business Central API access often requires complex queries and deep knowledge of the Business Central data model. BI Endpoints simplifies this by providing pre-built, optimized API pages that expose commonly needed data in a format ready for analytics and reporting.

1.1 Key features

- Pre-built API endpoints
- Optimized for business intelligence workloads
- Compatible with Power BI, Microsoft Fabric and other BI tools
- Install from Microsoft AppSource
- Consistent naming conventions and data structures
- Built-in support for incremental data extraction

1.2 Use cases

- Building Power BI reports directly connected to Business Central
- Loading Business Central data into Microsoft Fabric lake houses
- Creating data warehouses with Business Central as a source system
- Integrating Business Central data with other analytics platforms
- Automating data extraction for reporting purposes

2. Getting Started

First thing is to get the integration up and running after installation from AppSource. To make the BI endpoints accessible for tools outside Business Central, you will need to create an Azure app registration, that can authenticate against your Business Central instance.

This section guides you through the complete setup process.

2.1 Install extension from AppSource

Follow these steps to install the application from Microsoft AppSource:

1. Navigate to Microsoft AppSource
2. Search for "BI Endpoints"
3. Click "Free trial" and sign in with your Microsoft account
4. Select the Business Central environment where you want to install the extension
5. Review and accept the permissions required by the extension
6. Wait for the installation to complete (this may take a few minutes)

Alternatively, you can install directly from within Business Central:

1. Open Business Central and navigate to the Extension Management page
2. Click "Marketplace" in the ribbon
3. Search for "BI Endpoints" and select the extension
4. Click "Install" and follow the prompts

Assign permission set for BC user(s) that should manage the application in BC.

1. Open Users
2. Assign “DTW BI Endpoints Adm” permission set

2.2 Activate subscription

Follow these steps to activate the subscription with Datawareness.

1. In Business Central navigate to “BI Endpoints Setup”.
2. Fill out your subscription admin name and – email.
3. Click “Create Subscription”. Then you have the selection between Free tier or Premium tier. When selecting Premium tier, you will get access to full functionality on a 14 days trial. Afterwards to can subscribe to the premium tier or switch to free tier.

Contact support@datawareness.com to activate premium subscription after your trial period ends or to switch to switch tier.

2.3 Azure app registration setup

To authenticate API calls to Business Central, you need to create an Azure App Registration in Microsoft Entra ID (formerly Azure Active Directory).

Create the App Registration

1. Sign in to the [Azure Portal]
2. Navigate to Microsoft Entra ID > App registrations
3. Click "New registration"
4. Enter a name for your application (e.g., "Business Central API Access")
5. Select "Single tenant only" for supported account types
6. In the “Redirect URI” insert *https://businesscentral.dynamics.com/OAuthLanding.htm*
7. Click "Register"

Configure API Permissions

1. In your new app registration, go to "API permissions"
2. Click "Add a permission"
3. Select "Dynamics 365 Business Central"
4. Choose "Application permissions"
5. Select the following permissions:
    - API.ReadWrite.All
6. Click "Add permissions"
7. Click "Grant admin consent for [Your Organization]"

Create a Client Secret

1. Go to "Certificates & secrets"
2. Click "New client secret"
3. Enter a description and select an expiration period
4. Click "Add"
5. Copy out the secret value immediately (it will not be shown again)

Note IDs

1. Go to “Overview”
2. Copy out Application (client) ID
3. Copy out Directory (tenant) ID
4. From the Microsoft Entra ID overview copy out the Primary domain. This is either your company domain like datawareness.com or alternatively <your domain>.onmicrosoft.com

Note: Store the IDs and secret securely. You will need it for authentication.

2.4 Configure Business Central permissions

After creating the Azure App Registration, you need to register the Azure Entra application in Business Central and assign appropriate permissions.

Register the Entra Application

1. Open Business Central and search for "Microsoft Entra Applications"
2. Click "New" to create a new entry
3. Enter the Client ID from your Azure App Registration
4. Enter a description (e.g., "Business Central API Access")
5. Set the State to "Enabled"

Assign Permission Sets

Grant the application appropriate permissions based on which endpoints you need to access:

- D365 READ - For read access to most Business Central data
- D365 FULL ACCESS - For comprehensive access (use with caution)
- DTW BI ENDPOINTS – For access to the API endpoints included in the app
- Additional custom permission sets as needed for specific modules

> **Note:** Follow the principle of least privilege. Only grant the permissions necessary for your use case.

Grant Consent

Before exiting make sure to "Grant Consent". This will require admin permissions on Business Central.

The app registration is now completed and you can access the BI Endpoints.

2.5 Listing available endpoints

After installing the app, search for “BI Endpoints” in Business Central. This will give you a complete list of BI endpoints available, and it will give you access to knowledge about the Business Central data model – which source tables are referenced, which columns are available and how to join the different datasets.

BI Endpoints: All | BI Endpoints Setup | Custom BI Endpoints

Entity Set Name ↑	Description	Category	Type	Tier	Business Key Fields
causesOfAbsence	Cause of absence definitions.	Resources	Master Data	Premium	code
chartOfAccountCategories	G/L account category definitions.	Finance	Master Data	Premium	entryNo
chartOfAccounts	G/L accounts from the chart of accounts.	Finance	Master Data	Free	no
contactBusinessRelations	Contact to business relations mapping.	Sales	Master Data	Premium	contactNo&&businessRelationCode
contacts	Contact master data.	Sales	Master Data	Premium	no
custom porl		Custom	Master Data	Premium	routingNo&&routingReferenceNo&&operationNo
customerLedgerEntries	Customer ledger entries.	Sales	Transactional Data	Premium	entryNo
customerPostingGroups	Customer posting group definitions.	Sales	Master Data	Premium	code
customerPriceGroups	Customer price group definitions.	Sales	Master Data	Premium	code
customers	Customer master data.	Sales	Master Data	Free	no

Note: Use Category and Type for filtering to narrow down the list.

When clicking a specific entity set name, a list of details for the specific dataset will become available.

BI Endpoint Properties

purchaseInvoiceHeaders

Endpoint

Source Table	Purch. Inv. Header	Business Key Fields	no
Description	Posted purchase invoice headers.	URL	https://api.businesscentra
		Tier	Premium

Properties

Property Name	Property Caption
no	No.
buyFromVendorNo	Buy-from Vendor No.
buyFromContactNo	Buy-from Contact No.
postingDate	Posting Date
currencyCode	Currency Code
orderNo	Order No.
vendorInvoiceNo	Vendor Invoice No.
vendorOrderNo	Vendor Order No.

Source Table: The primary Business Central table for this endpoint.

Description: A brief description of what data this endpoint provides.

Business Key Fields: The business key field(s) that uniquely identifies records.

URL: The full URL for this endpoint in the current environment.

Tier: The subscription tier required to access this endpoint (Free or Premium).

The properties section contains a complete list of available fields in the dataset.

Properties

Property Name	Property Caption
no	No.
buyFromVendorNo	Buy-from Vendor No.
buyFromContactNo	Buy-from Contact No.
postingDate	Posting Date
currencyCode	Currency Code
orderNo	Order No.
vendorInvoiceNo	Vendor Invoice No.
vendorOrderNo	Vendor Order No.
purchaserCode	Purchaser Code
systemModifiedAt	System Modified At

The relationships section contains a list of foreign key fields from the dataset, explaining how to join to the primary key fields.

Relationships

Foreign Key	To Endpoint	Primary Key Field	Condition
buyFromVendorNo	vendors	no	
buyFromContactNo	contacts	no	

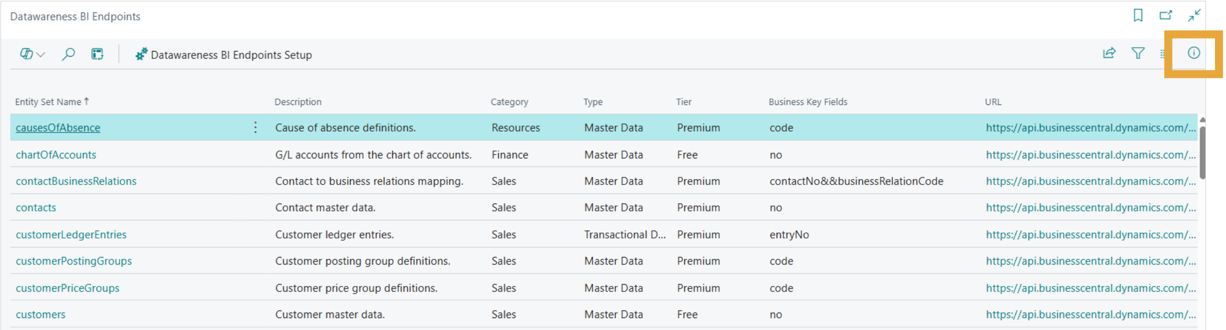
The referenced by section contains a list of datasets referencing this specific dataset.

Referenced By

From Endpoint ↑	Foreign Key	Primary Key Field
purchaseInvoiceLines	documentNo	no

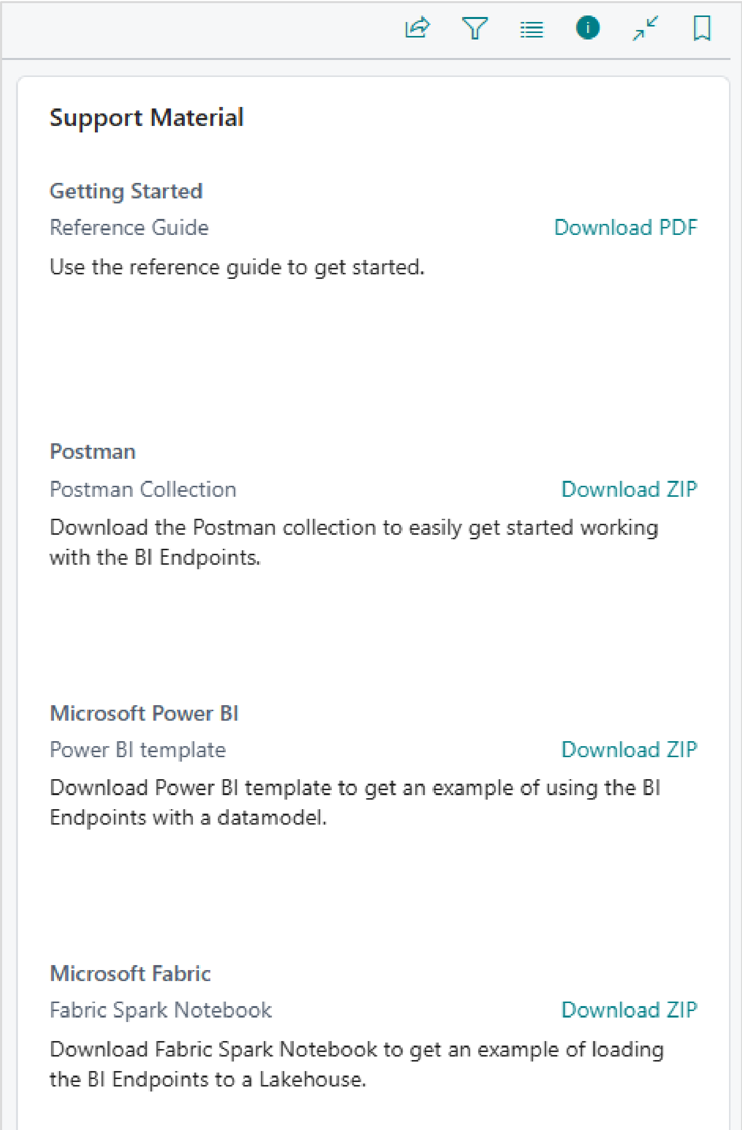
Note: The endpoint metadata displayed on this page is also available as endpoints. Explore the Endpoint reference section of this document or the Postman collection for further details.

On the BI Endpoints page, make sure to expand the factbox pane, to get access to support material for download.


Datawareness BI Endpoints

Datawareness BI Endpoints Setup

Entity Set Name	Description	Category	Type	Tier	Business Key Fields	URL
causesOfAbsence	Cause of absence definitions.	Resources	Master Data	Premium	code	https://api.businesscentral.dynamics.com/...
chartOfAccounts	G/L accounts from the chart of accounts.	Finance	Master Data	Free	no	https://api.businesscentral.dynamics.com/...
contactBusinessRelations	Contact to business relations mapping.	Sales	Master Data	Premium	contactNo&&businessRelationCode	https://api.businesscentral.dynamics.com/...
contacts	Contact master data.	Sales	Master Data	Premium	no	https://api.businesscentral.dynamics.com/...
customerLedgerEntries	Customer ledger entries.	Sales	Transactional D...	Premium	entryNo	https://api.businesscentral.dynamics.com/...
customerPostingGroups	Customer posting group definitions.	Sales	Master Data	Premium	code	https://api.businesscentral.dynamics.com/...
customerPriceGroups	Customer price group definitions.	Sales	Master Data	Premium	code	https://api.businesscentral.dynamics.com/...
customers	Customer master data.	Sales	Master Data	Free	no	https://api.businesscentral.dynamics.com/...



3. Endpoint Reference

This section provides detailed information on how to work with the endpoints available from the BI Endpoints application.

3.1 Authentication

Always include Bearer token when requesting data from a Business Central web service. A Bearer token is only valid for a limit period of time, so always make sure to request a new access token from your Azure App Registration.

See 4.1 Test and preparation with Postman for details.

3.2 Construction of URL

This is a sample endpoint URL – broken down, to describe the individual parts:

https://api.businesscentral.dynamics.com/v2.0/{{tenantId}}/{{environment}}/api/datawareness/endpoints/v1.0/companies({{companyId}})/glEntries?$filter=postingDate%20ge%202026-01-01

https://api.businesscentral.dynamics.com/v2.0/{{tenantId}}/{{environment}}/api/
Dynamics Business Central base URL, where {{tenantId}} should be replaced with the specific GUID of the BC implementation, and {{environment}} should be replaced with the environment to reach fx. Production.

datawareness/endpoints/
The root for this specific application.

v1.0/
The current version of the endpoints.

companies({{companyId}})/
Specification of which BC company to get data from, where {{companyId}} should be replaced with the GUID of the relevant company.

glEntries
The specific entity set name to request data from.

?$filter=postingDate%20ge%202026-01-01
Optional filter parameters.

3.3 Filter expressions

All endpoints can be queried with a **$filter** parameter on most of the fields available in the dataset returned from the endpoint with only a few restrictions caused by technical limitations.

For example query GL Ledger Entries posted since 2026-01-01

```
GET
https://api.businesscentral.dynamics.com/v2.0/{{tenantId}}/{{environment}}/
api/datawareness/endpoints/v1.0/companies({{companyId}})/glEntries?$filter=
postingDate%20ge%202026-01-01
```

Note: Use the Microsoft reference for additional filter expressions.

3.4 Pagination

In case the requested query contains more data than the max 20.000 rows returned, there will be an additional key / value pair called "@odata.nextLink". The value is the next page for this specific query. To accumulate the complete dataset, keep calling the URL specified in @odata.nextLink until that key is no longer returned.

```
"@odata.nextLink":
https://api.businesscentral.dynamics.com/v2.0/{{tenantId}}/{{environment}}/
api/datawareness/endpoints/v1.0/companies({{companyId}})/glEntries?$filter=
postingDate%20ge%202026-01-01&$skiptoken=469268
```

Note: Limiting the number of records returned to fx. 5.000 records can generally be a good idea if you have problems with Business Central time out or error codes returned when loading large datasets.
Use a header called **prefer : odata.maxpagesize=5000**

3.5 System Modified At timestamp

All endpoints include the "systemModifiedAt" timestamp, describing when the record was created or last modified. Use this information for incremental data extraction, to only retrieve changed records since your last extraction.

```
GET
https://api.businesscentral.dynamics.com/v2.0/{{tenantId}}/{{environment}}/
api/datawareness/endpoints/v1.0/companies({{companyId}})/glEntries?$filter=
systemModifiedAt%20ge%202026-01-01T00:00:00.000Z
```

4. Working with the BI endpoints

This section will bring you different examples of how to start working with the BI endpoints. These are all examples – the BI endpoints will work with any software tool or coding language, that can interact with REST APIs.

4.1 Test and preparation with Postman

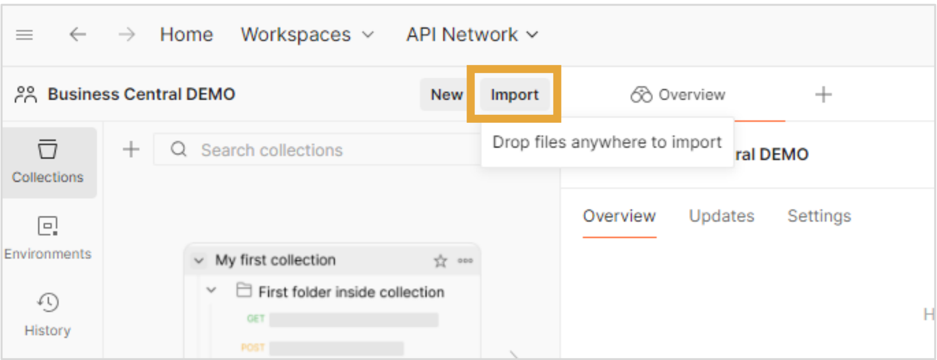
Before integrating with Microsoft Power BI, Microsoft Fabric or any other BI tool, it is recommended to test your endpoints using Postman to verify connectivity and authentication, and to explore the content of the data objects.

> **Note:** Postman is a very common tool for working with APIs.
> You can download and use the software for free:
> https://www.postman.com/downloads/

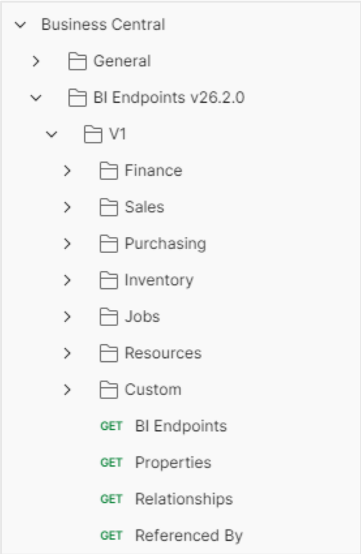
Download Postman collection

1. Make sure to download and install Postman if you don't have it already.
2. Download and unzip the Postman collection from BI Endpoints page in Business central. *Make sure to expand the factbox pane to get access to downloads.*

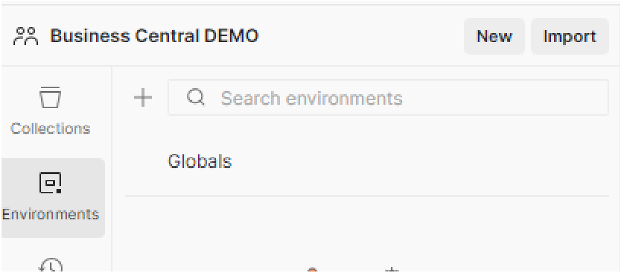
3. Create a new workspace in Postman and import the collection.



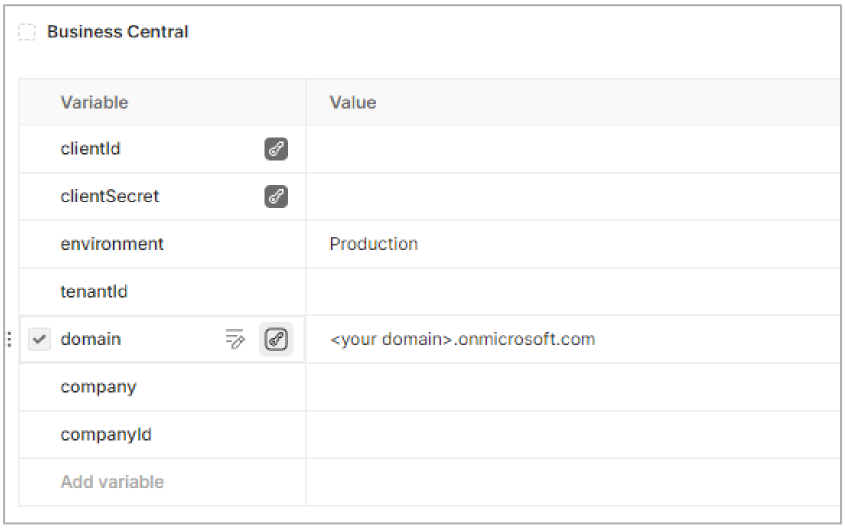
You should now be able to see the complete list of BI endpoints.



4. Import and fill out environment variables.

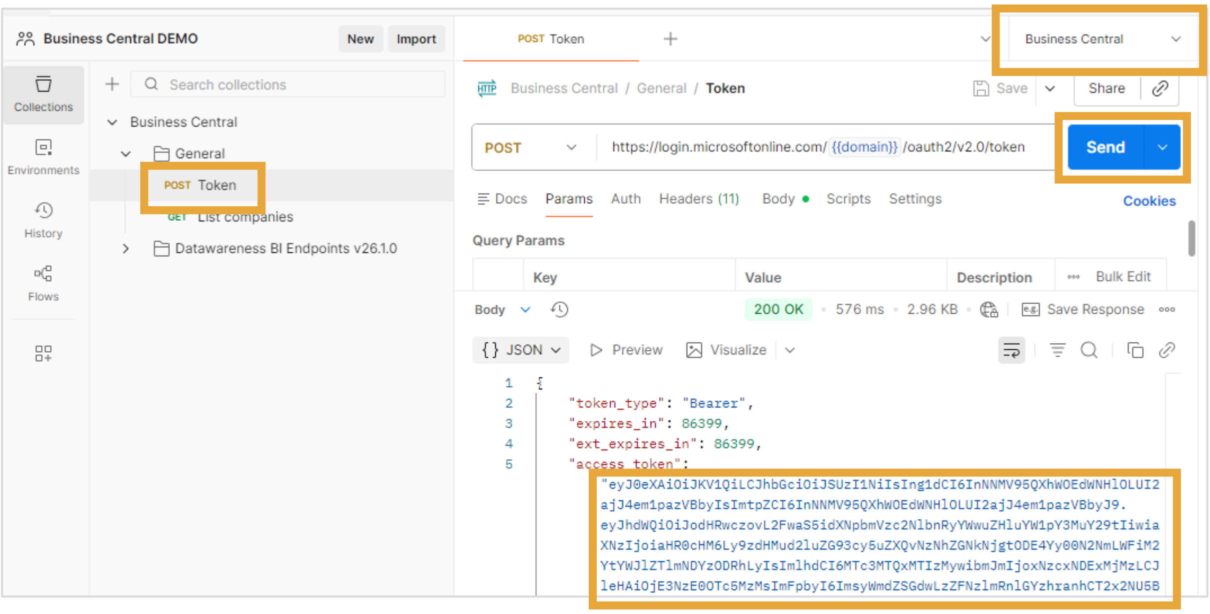


After importing the template make sure to fill out the domain from Azure Microsoft Entra ID along with the clientId, clientSecret and tenantId from your Azure app registration.

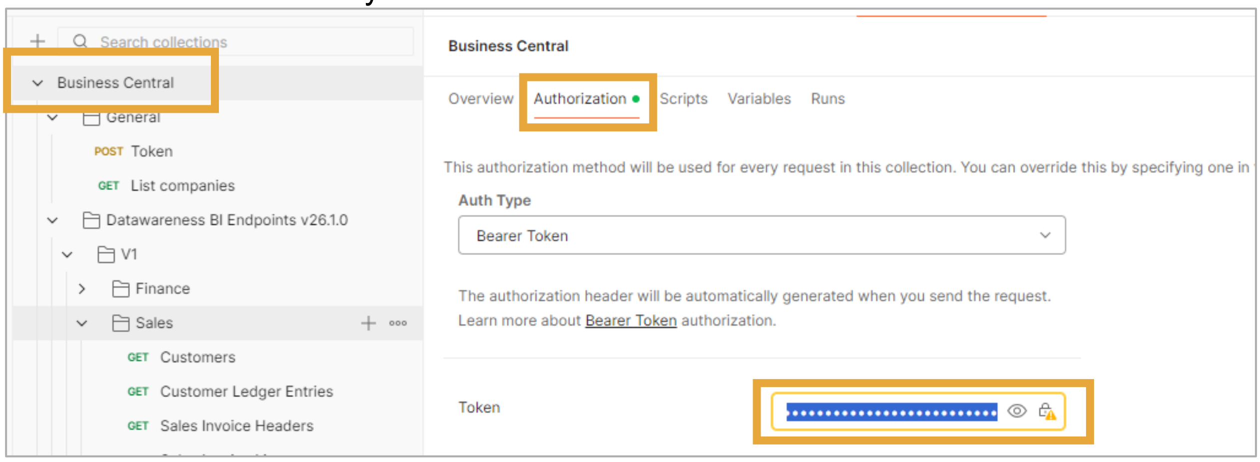


Get token

1. Select the environment in the upper right corner
2. General > POST Token > Send
3. Copy out the value of the access_token
   <u>Do not</u> copy out the initial – and ending double quotes <u>" "</u>:
   eyJ0eX…

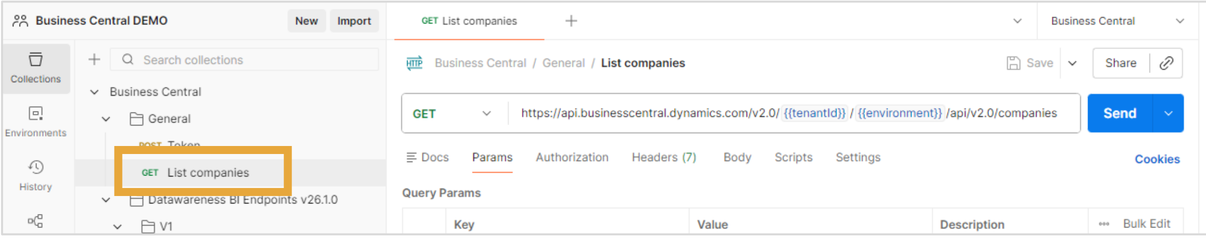


4. Paste the value to your collection Authorization > Token and save.

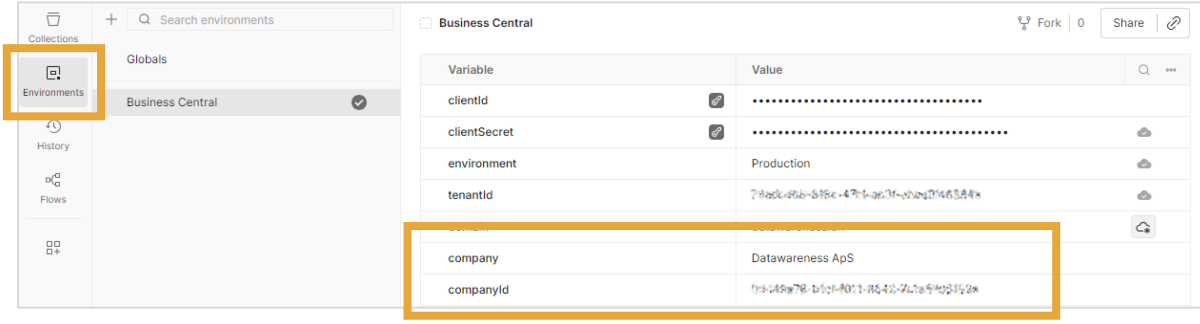


List companies

Get the list om companies available on your Business Central tenant.



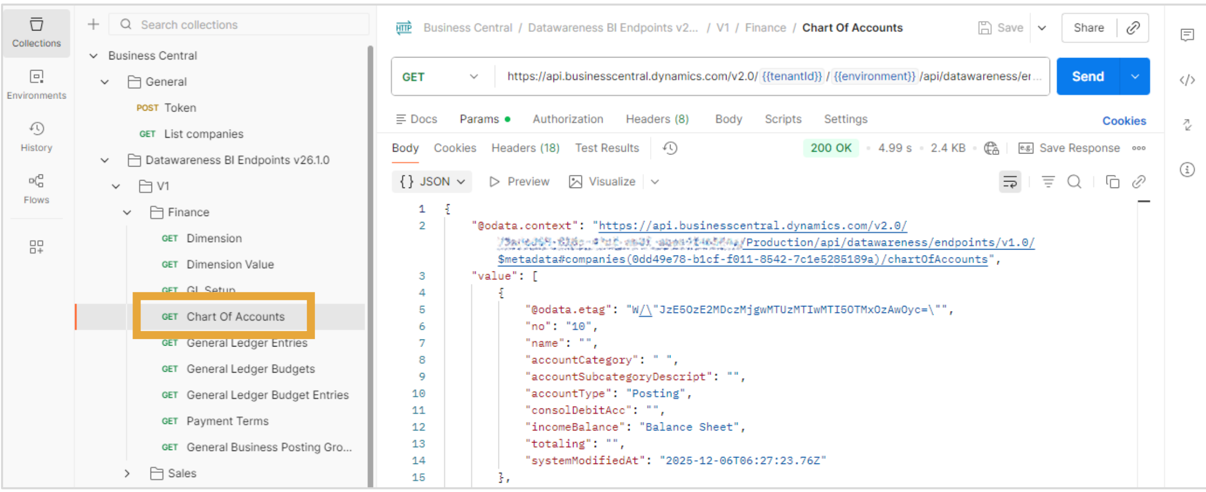
Copy out the id and the name of the company you want to load data from and store the values in the Postman environment.



Test an Endpoint

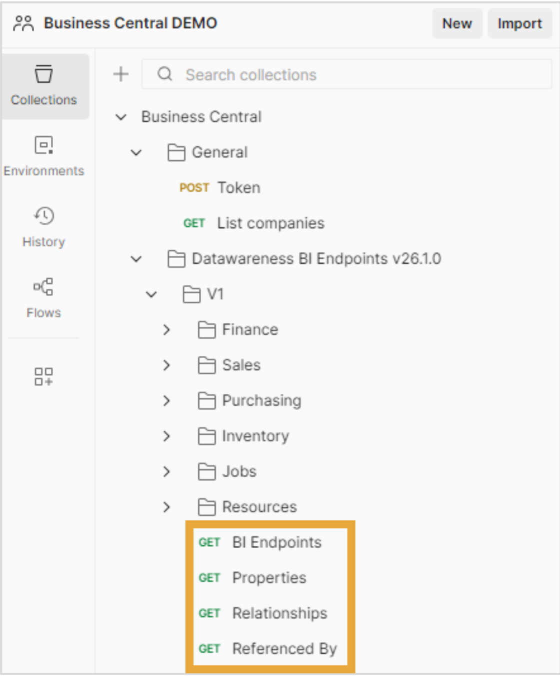
You should now be ready to call a BI endpoint.

Select an endpoint from the list on the left, click Send and you should get the resulting dataset where the actual data is to be found inside the JSON array "value".



List endpoints metadata

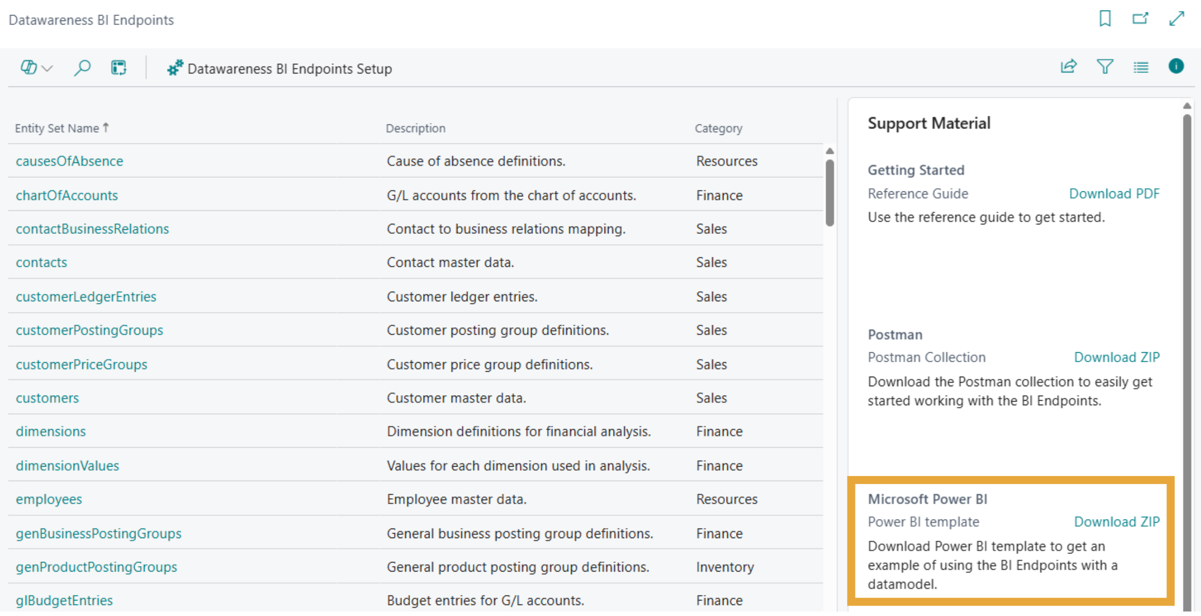
You can list all metadata related to the BI endpoints. Access a list of all BI endpoints, properties, relationships and referenced by.



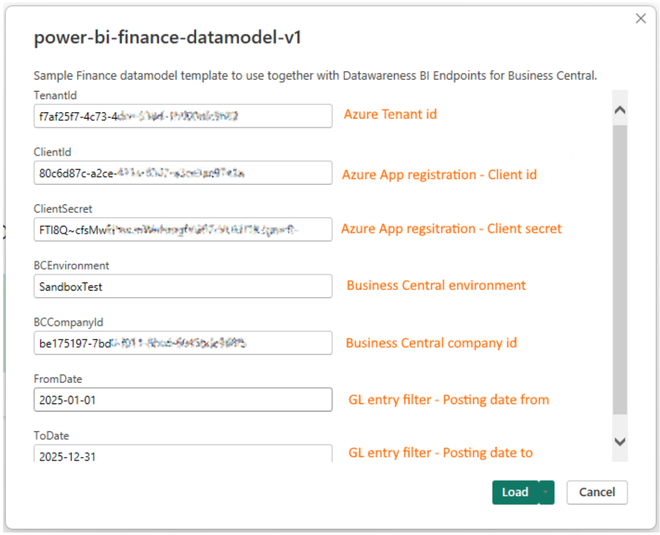
4.2 Microsoft Power BI

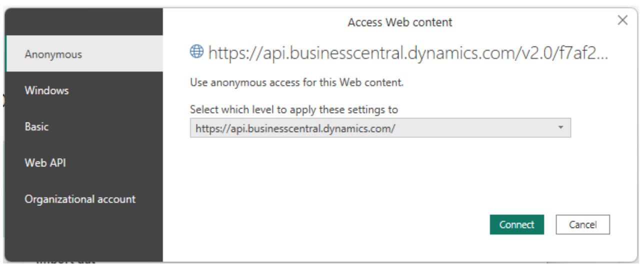
BI Endpoints can be consumed directly in Power BI.

Download the Power BI sample.

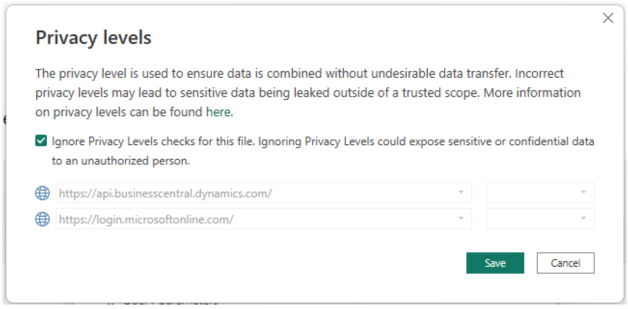


Open the Power BI template file in Power BI desktop (give it a minute to load) and fill out the parameters:



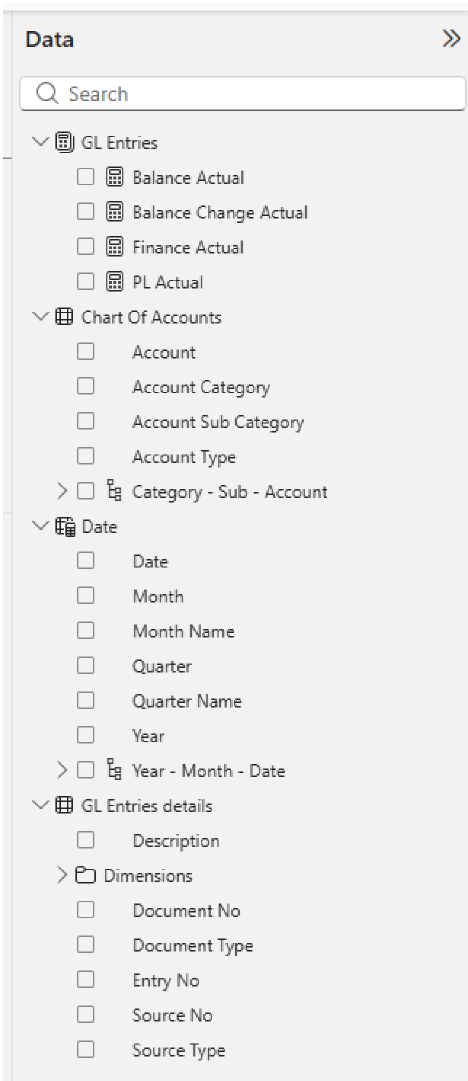


Reply “Anonymous” when asked since the parameters are used to authenticate.



Ignore Privacy levels for testing or set Organizational.

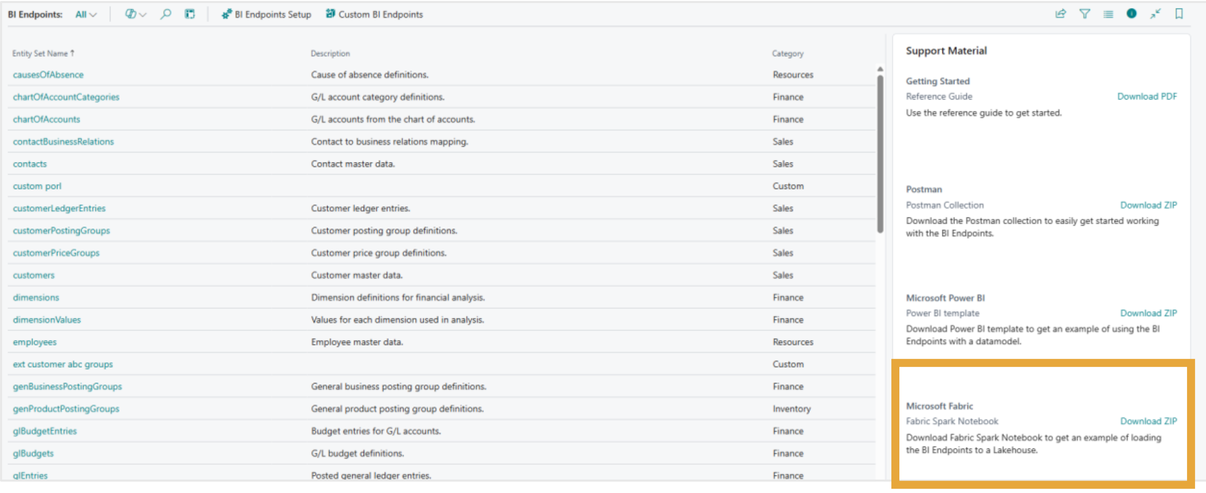
Your data will now be loaded, and you can publish your data model to the Power BI cloud service, or you can apply visuals directly to the report.



4.3 Microsoft Fabric

BI Endpoints data can be loaded into Microsoft Fabric Lakehouses using Spark notebooks for scalable analytics.

Download the Microsoft Fabric sample.



In your Fabric workspace, create a Lakehouse.

Upload the Spark notebook to your Fabric workspace.

Replace the parameters and run the notebook to load your data into the Lakehouse.

```
# ============================================================================
# CONFIGURATION - Update these values
# ============================================================================

tenant_id = "YOUR-TENANT-ID"
client_id = "YOUR-APP-CLIENT-ID"
client_secret = "YOUR-CLIENT-SECRET"  # For production, use Key Vault (see notes below)
bc_environment = "Production"          # Or "Sandbox"
bc_company_id = "YOUR-COMPANY-GUID"    # GUID of the company in BC

# Date range for GL Entries
from_date = "2025-01-01"
to_date = "2025-12-31"
```

Incremental Loading

Use the systemModifiedAt field to implement incremental loading:

- Store the last successful extraction timestamp in a control table
- Filter API requests using $filter=systemModifiedAt ge <last-timestamp>
- Merge changes into delta tables
- This approach minimizes data transfer and processing time

5. Custom BI endpoints

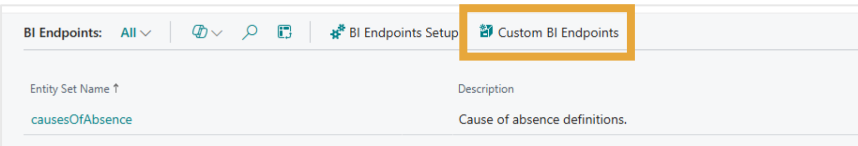
Custom BI Endpoints allows you to expose data from any Business Central table through the BI Endpoints API - without writing AL code or deploying an extension, in case the default endpoints from the application doesn't meet all the requirements.

You can select any table in BC, including tables added by other extensions as well as fields added by extensions to standard Business Central tables.

> **Note:** Custom BI Endpoints require a Premium subscription. Users on the Free tier can create and configure custom endpoints, but data will not be loaded until the subscription is upgraded.

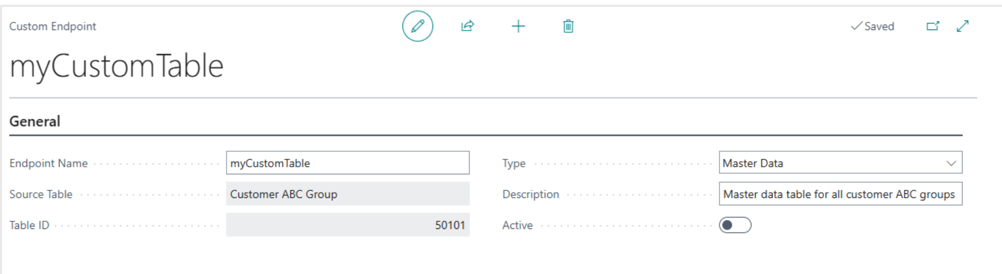
5.1 Setting up custom BI endpoints

1. Open the BI Endpoints page and select the Custom BI Endpoints action from the menu bar.



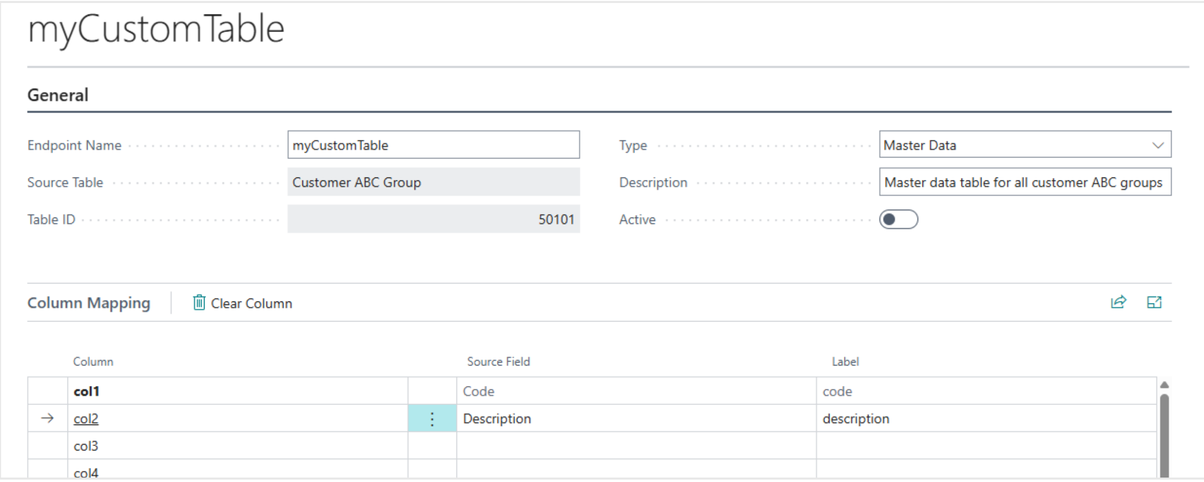
2. On the Custom BI Endpoints list page, create a new record.

3. On the Custom Endpoint card, fill in the following fields:
    a. Endpoint Name — This name is used as the filter value when calling the API. The name must be unique and cannot conflict with any standard BI endpoint name.
    b. Source Table — Use the lookup to select the Business Central table you want to expose. This lists all tables in the environment, including tables added by other extensions. When a table is selected, the column mapping is automatically populated with the table's primary key fields in col1-colx depending on how many columns are part of the primary key of the source table.
    c. Type — Select whether this endpoint exposes Master Data or Transactional Data.
    d. Description — A short description shown in the BI Endpoints metadata.
    e. Active — Toggle on to make the endpoint available through the API.



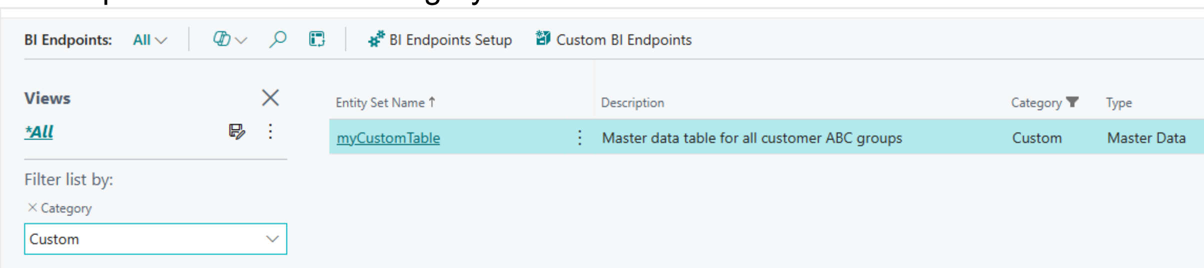
4. In the Column Mapping section, configure which fields to expose:
    a. Each row maps a column slot (col1, col2, ... up to col25) to a table field. Use Source Field lookup to select the fields from the source table. This includes standard fields and any fields added by extensions.

    b. The Source Field and Label are filled in automatically.



Note: The first columns are automatically populated with the primary key column(s) from the source table so you will not have to worry about that.

5. Close the card. The endpoint is now registered and will appear in the BI Endpoints list with the category Custom once it has been marked as “Active”.

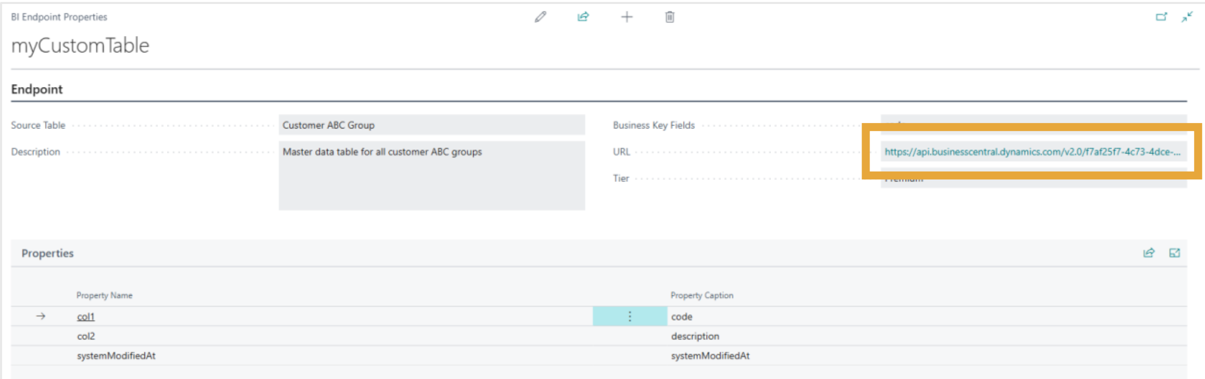


5.2 Calling custom BI endpoints

All custom endpoints are served through a single API page: customData. The custom endpoints are distinguished by an endpointName filter in the query string.

The generated URL for each custom endpoint is shown on the BI Endpoint Properties page and includes:

- A $filter parameter to select the correct endpoint by name
- A $select parameter listing only the column slots that are configured with data and systemModifiedAt.




```
.../api/datawareness/endpoints/v1.0/companies({{companyId}})/customData?$fi
lter=endpointName%20eq%20%27myCustomTable%27&$select=col1,col2,systemModifi
edAt
```

The response returns a list with generic column names (col1, col2, etc.).


```
"value": [
    {
        "@odata.etag": "W/\"JzE5OzUyNzA2NzI1OTkzMDUwMjYxNjgxOzAwOyc=\"",
        "col1": "CATEGORY A",
        "col2": "These are the primary customers",
        "systemModifiedAt": "0001-01-01T00:00:00Z"
    },
    {
        "@odata.etag": "W/\"JzIwOzExMTQwMTM4NTkxMzY2ODEyMTY4MTswMDsn\"",
        "col1": "CATEGORY B",
        "col2": "These are also important",
        "systemModifiedAt": "0001-01-01T00:00:00Z"
    },
    {
        "@odata.etag": "W/\"JzE5OzkyNjAyMzUyNTk0MzE0NzE0NzI4ODMxOzAwOyc=\"",
        "col1": "CATEGORY C",
        "col2": "The rest",
        "systemModifiedAt": "0001-01-01T00:00:00Z"
    }
]
```

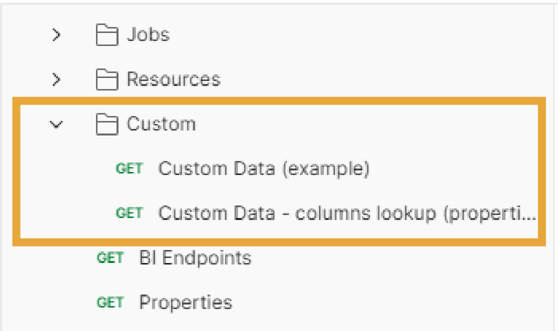
To determine which business field each column maps to, query the BI Endpoint Properties metadata endpoint with a filter on the custom endpoint name.

```
.../api/datawareness/endpoints/v1.0/companies({{companyId}})/properties?$fi
lter=entitySetName%20eq%20%27myCustomTable%27
```

This returns the field caption for each column slot.

```json
"value": [
    {
        "@odata.etag": "W/\"JzIwOzEwMDY0MDAxNjM0MjU2NTUyNTc5MTswMDsn\"",
        "entitySetName": "myCustomTable",
        "sequenceNo": 1,
        "propertyName": "col1",
        "propertyCaption": "code"
    },
    {
        "@odata.etag": "W/\"JzE5OzMwMDc1MTMzMTY2MDE0MDUyMDIxOzAwOyc=\"",
        "entitySetName": "myCustomTable",
        "sequenceNo": 2,
        "propertyName": "col2",
        "propertyCaption": "description"
    },
    {
        "@odata.etag": "W/\"JzE5OzY2NTUxMzUzMDUzNzc2NjEwODExOzAwOyc=\"",
        "entitySetName": "myCustomTable",
        "sequenceNo": 3,
        "propertyName": "systemModifiedAt",
        "propertyCaption": "systemModifiedAt"
    }
]
```

A sample request is included in the Postman collection under
BI Endpoints > V1 > Custom.



Troubleshooting

400 Bad request

- Verify the BI Endpoint application has a subscription activated in Business Central.
  In Business Central search for BI Endpoints Setup.

401 Unauthorized

- Verify the Azure App Registration is enabled in Business Central
- Check that the client secret has not expired
- Ensure admin consent has been granted for the API permissions
- Verify that you have parsed the Bearer token with you request

403 Forbidden

- Verify the appropriate permission sets are assigned in Business Central
- Check that the company ID in the URL is correct

404 Not found

- Verify the extension is installed and enabled
- Check the endpoint name and URL format
- Ensure you are using the correct environment name

429 Too many requests

- Implement retry logic with exponential backoff
- Spread requests over time for large data extractions
- Limit the number of records returned pr. request with a header
  prefer : odata.maxpagesize=500