

days of central
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Power of Queries in Business Central



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- ~ 10 years in Dynamics world.
- Head of Business Applications and Application Consultant.
- Microsoft MVP and MCT for Dynamics 365 Business Central.
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Agenda

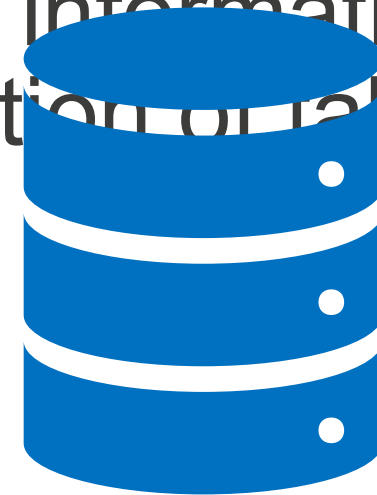
- What is query object and how to build them
- Consume queries in BC client
- Using queries for integrations
- Using queries in reports
- Telemetry
- Q&A

What is a Query?

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“A query is a request for data or information from a data source, such as a database or combination of tables”

Query



AL vs SQL

AL	SQL
dataitem	SELECT * FROM TABLE
filter	WHERE
-	GROUP BY
OrderBy	ORDER BY
Method = Count, Method = Sum, ...	COUNT, SUM, AVG, MIN, MAX, ...

Query object in Business Central

- Used to retrieve data from one or more tables/data sources
- Aggregate functions – SUM, AVG, MAX, MIN, COUNT
- Filtering

Normal	API
Can be used to display data in user interface	Generate web service endpoints and cannot be used for display data in UI

API Queries

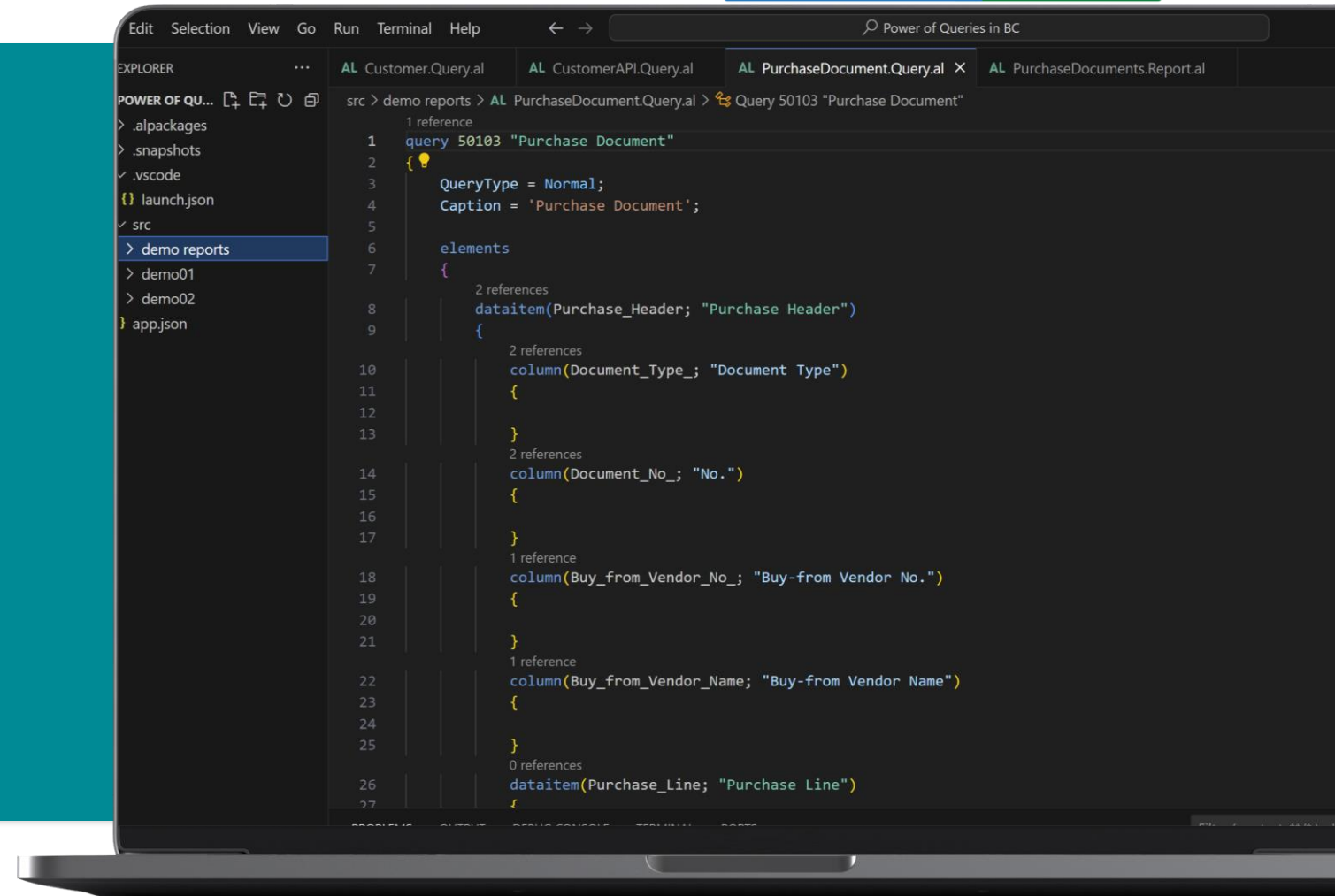
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- Generate **web service** call
- Join data from **multiple** data sources
- Read only



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Demo – Queries demystified



Consume Queries



Normal Queries can be consumed in client, or as a dataset for reports

API queries are used for various integration. In reporting scenarios, integration with external DWH and BI tools.

Can be used in Power BI Dataflows and later on with Power BI and Excel.

Standard and advanced APIs

Analysis mode in Business Central

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Analyse data on pages and queries using data analysis mode.

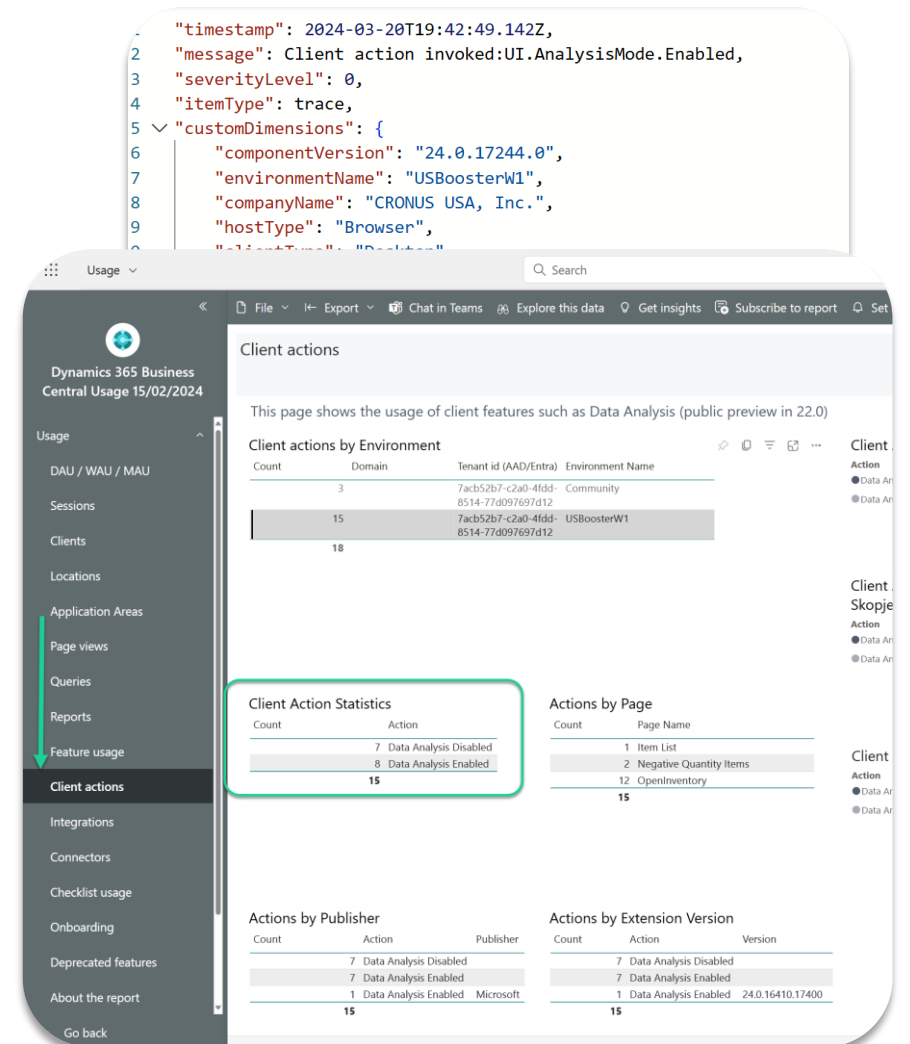
Excel like data analysis in Business Central client available to all users

It can be excluded with permission sets and within code for new pages.

Group data, filter data by dragging fields and setting filters.

Pivot & list view

Track client action in Power BI Telemetry app. (trace with event id CL0003)



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Demo – use queries in client

Dynamics 365 Business Central

S USA, Inc. | Finance | Cash Management | Sales | Purchasing | Shopify | All Reports

Get the sales forecast updated automatically every week. Set Up Scheduled Forecasting | Don't ask again

Print Label

Description	Type	Gen. Prod. Posting Group	Quantity on Hand	Substitut. Exist	Assembly BOM	Base U. Measure	Assembly/Production	Unit Cost	Unit Price	Vendor No.	Default Deferral Template
ATHENS Desk	Inventory	RETAIL	39	No	No	PCS	Inventory			30000	
PARIS Guest Chair, black	Inventory	RETAIL	33	No	No	PCS	Orders			20000	
ATHENS Mobile Pedestal	Inventory	RETAIL	48	No	No	PCS				30000	
LONDON Swivel Chair, blue	Inventory	RETAIL	49	No	No	PCS				30000	
ANTWERP Conference Table	Inventory	RETAIL	48	No	No	PCS				20000	
Conference Bundle 1-6	Inventory	RETAIL	0	No	Yes	PCS				10000	
AMSTERDAM Lamp	Inventory	RETAIL	32	No	No	PCS				20000	
Conference Bundle 1-8	Inventory	RETAIL	0	No	Yes	PCS				20000	
BERLIN Guest Chair, yellow	Inventory	RETAIL	0	No	No	PCS				20000	
Guest Section 1	Inventory	RETAIL	0	No	Yes	PCS				20000	
ROME Guest Chair, green	Inventory	RETAIL	26	No	No	PCS				20000	
TOKYO Guest Chair, blue	Inventory	RETAIL	21	No	No	PCS				20000	
Conference Bundle 2-8	Inventory	RETAIL	0	No	Yes	PCS				30000	
MEXICO Swivel Chair, black	Inventory	RETAIL	10	Yes	No	PCS				30000	
Conference Package 1	Inventory	RETAIL	0	No	Yes	PCS				30000	
MUNICH Swivel Chair, yellow	Inventory	RETAIL	0	No	No	PCS				30000	
MOSCOW Swivel Chair, red	Inventory	RETAIL	0	Yes	No	PCS				30000	
SEOUL Guest Chair, red	Inventory	RETAIL	0	Yes	No	PCS				20000	
ATLANTA Whiteboard, base	Inventory	RETAIL	0	No	No	PCS		1,089.90	1,397.30	30000	
SYDNEY Swivel Chair, green	Inventory	RETAIL	0	No	No	PCS		148.10	190.10	30000	
Remote pump	Inventory	RETAIL	0	No	No	PCS		65.00	100.00		
Paper Coffee Cups	Inventory	RETAIL	0	No	No	PCS		1,800.00	2,400.00		
Precision Grind Home	Inventory	RETAIL	0	No	No	PCS		138.286	199.00		
Smart Grind Home	Inventory	RETAIL	0	No	No	PCS		261.286	299.00		
S-100 Semi-Automatic	Inventory	RETAIL	0	No	No	PCS		1,800.00	2,400.00		
S-210 Semi-Automatic	Inventory	RETAIL	0	No	No	PCS		1,800.00	2,400.00		
Equipment Fee	Service	RETAIL	—	No	No	DAY		0.00	10.00		
Repair	Service	RETAIL	—	No	No	HOUR		0.00	100.00		
Project Fee	Service	SERVICES	—	No	No	HOUR		65.00	100.00		
Housing Airport	Inventory	RAW MAT	50	No	No	PCS		36.26	0.00	10000	

Best Seller Items

Best Seller items filtered

Inventory - List

Item/Vendor Catalog

Phys. Inventory List

Catalog Item Sales

Item Substitutions

Inventory Cost and Price List

Inventory Availability

Item Register

Costing

Inventory Details

Picking List by Item

Inventory Statistics

Finance Reports

Other

Item Details - Invoicing

Item No.

Costing Method

Cost is Adjusted

Cost is Posted to G/L

Standard Cost

Unit Cost

Overhead Rate

Indirect Cost %

Last Direct Cost

Profit %

Unit Price

Item Details - Planning

Item No.

Reordering Policy

Reorder Point

Reorder Quantity

Maximum Inventory

Overflow Level

Time Bucket

Lot Accumulation Period

Rescheduling Period

Safety Lead Time

Safety Stock Quantity

Minimum Order Quantity

Maximum Order Quantity

Order Multiple

Dampener Period

Dampener Quantity

Item Attributes

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Demo – Analysis mode

Contoso Electronics Dynamics 365 Business Central

Open Item Ledger Entries Query

Analysis 1

Item No.	Posting Date	Entry Type	Document...	Location...	Sum(Quantity)	Sum(Remainin...	Sum(Invoiced	Document...	Order No.	Sum(Dime...	Unit of...	Item...	Oper	Sum(Cost
> 1896-S					48.00	39.00	48.00			0				0.00
> 1900-S					44.00	33.00	44.00			0				0.00
> 1906-S					62.00	48.00	62.00			0				0.00
> 1908-S					65.00	49.00	65.00			0				0.00
> 1920-S					57.00	48.00	57.00			0				0.00
> 1928-S					46.00	32.00	46.00			0				0.00
> 1960-S					41.00	26.00	41.00			0				0.00
> 1964-S					28.00	21.00	28.00			0				0.00
> 1968-S					11.00	10.00	11.00			26				0.00
> SP-BOM1101					50.00	50.00	50.00			0				0.00
> SP-BOM1102					50.00	50.00	50.00			0				0.00
> SP-BOM1103					50.00	50.00	50.00			0				0.00
> SP-BOM1104					50.00	50.00	50.00			0				0.00
> SP-BOM1105					50.00	50.00	50.00			0				0.00
> SP-BOM1106					50.00	50.00	50.00			0				0.00
> SP-BOM1107					50.00	50.00	50.00			0				0.00
> SP-BOM1108					50.00	50.00	50.00			0				0.00
> SP-BOM1109					50.00	50.00	50.00			0				0.00
> SP-BOM1301					50.00	50.00	50.00			0				0.00
> SP-BOM1302					50.00	50.00	50.00			0				0.00
> SP-BOM1303					50.00	50.00	50.00			0				0.00
> SP-BOM1304					50.00	50.00	50.00			0				0.00
> SP-BOM1305					1,000.00	1,000.00	1,000.00			0				0.00
> SP-BOM2000					50.00	50.00	50.00			0				0.00
> SP-BOM2001					50.00	50.00	50.00			0				0.00
> SP-BOM2002					50.00	50.00	50.00			0				0.00
> SP-BOM2003					50.00	50.00	50.00			0				0.00
> SP-BOM2004					50.00	50.00	50.00			0				0.00

Demo – Queries with Excel

Table Name: Query1

Summarize with PivotTable

Remove Duplicates

Convert to Range

Insert Slicer

Export

Refresh

Open in Browser

Unlink

Properties

Filter Button

Total Row

Last Column

Banded Rows

Banded Columns

Table Style Options

Table Styles

setid	AREA	CUSTOMERGROUP	DEPARTMENT	SALESPERSON	BUSINESSGROUP	SALESCAMPAIGN
1	America North					
3	America North	Medium Business	Sales			
4	America North	Medium Business	Sales	Jim Olive		
6	America North	Small Business	Sales			
7	America North	Small Business	Sales	Jim Olive		
8	America North				Home	
10	America North	Large Business	Sales		Home	
11	America North	Large Business	Sales	Jim Olive	Home	
15	America North	Medium Business	Sales	Jim Olive	Office	
17	America North				Industrial	Summer
18			Sales			
20		Large Business	Sales			
22		Small Business	Sales			
24		Medium Business	Sales			

Queries & Connections

Query1
14 rows loaded.

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Demo – Queries with Power BI

Microsoft/ReportsFinance/beta*[[Name="accountingperiods",Signature="table"]][Data]

#	displayname	startingDate	endingDate	newFiscalYear	fiscalYearStartDate	fiscalYearEndDate	closed	lastModifiedDataTime	#	ETag
1	201-6045bdc89dad	January	1.1.2022	31.1.2022	TRUE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:51:10 +00:00	null
1	201-6045bdc89dad	February	1.2.2022	28.2.2022	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	March	1.3.2022	31.3.2022	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	April	1.4.2022	30.4.2022	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	May	1.5.2022	31.5.2022	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	June	1.6.2022	30.6.2022	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	July	1.7.2022	31.7.2022	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	August	1.8.2022	31.8.2022	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	September	1.9.2022	30.9.2022	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	October	1.10.2022	31.10.2022	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	November	1.11.2022	30.11.2022	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	December	1.12.2022	31.12.2022	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	January	1.1.2023	31.1.2023	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:51:10 +00:00	null
1	201-6045bdc89dad	February	1.2.2023	28.2.2023	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	March	1.3.2023	31.3.2023	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	April	1.4.2023	30.4.2023	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	May	1.5.2023	31.5.2023	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	June	1.6.2023	30.6.2023	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	July	1.7.2023	31.7.2023	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	August	1.8.2023	31.8.2023	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	September	1.9.2023	30.9.2023	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	October	1.10.2023	31.10.2023	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	November	1.11.2023	30.11.2023	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	December	1.12.2023	31.12.2023	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	January	1.1.2024	31.1.2024	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:51:11 +00:00	null
1	201-6045bdc89dad	February	1.2.2024	29.2.2024	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	March	1.3.2024	31.3.2024	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	April	1.4.2024	30.4.2024	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	May	1.5.2024	31.5.2024	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	June	1.6.2024	30.6.2024	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	July	1.7.2024	31.7.2024	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	August	1.8.2024	31.8.2024	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	September	1.9.2024	30.9.2024	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	October	1.10.2024	31.10.2024	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	November	1.11.2024	30.11.2024	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	December	1.12.2024	31.12.2024	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	January	1.1.2025	31.1.2025	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:51:11 +00:00	null
1	201-6045bdc89dad	February	1.2.2025	28.2.2025	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	March	1.3.2025	31.3.2025	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	April	1.4.2025	30.4.2025	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	May	1.5.2025	31.5.2025	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	June	1.6.2025	30.6.2025	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	July	1.7.2025	31.7.2025	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	August	1.8.2025	31.8.2025	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	September	1.9.2025	30.9.2025	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	October	1.10.2025	31.10.2025	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	November	1.11.2025	30.11.2025	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null
1	201-6045bdc89dad	December	1.12.2025	31.12.2025	FALSE	1.1.2022	31.12.2022	FALSE	20.3.2024, 1:50:37 +00:00	null

Navigation

Specify a resource to navigate to.

- customerLedgeEntries
- customers
- detailedCustomerLedgeEntries
- detailedVendorLedgeEntries
- dimensionSetEntries
- dimensionValues
- entityDefinitions
- externalBusinessEventDefinitions
- externalEventSubscriptions
- generalLedgeAccounts
- generalLedgeBudgetEntries
- generalLedgeBudgets
- generalLedgeEntries
- subscriptions
- vendorLedgeEntries
- vendors
- microsoft/runtime/beta
- ▶ Ronatof@digis/DaysOfKnowledge/v1.0 [10]
- apicategoryroutes
- dukpurchasetlines
- doksalesorderline
- entityDefinitions
- externalBusinessEventDefinitions

OK Cancel

Queries on **reports**

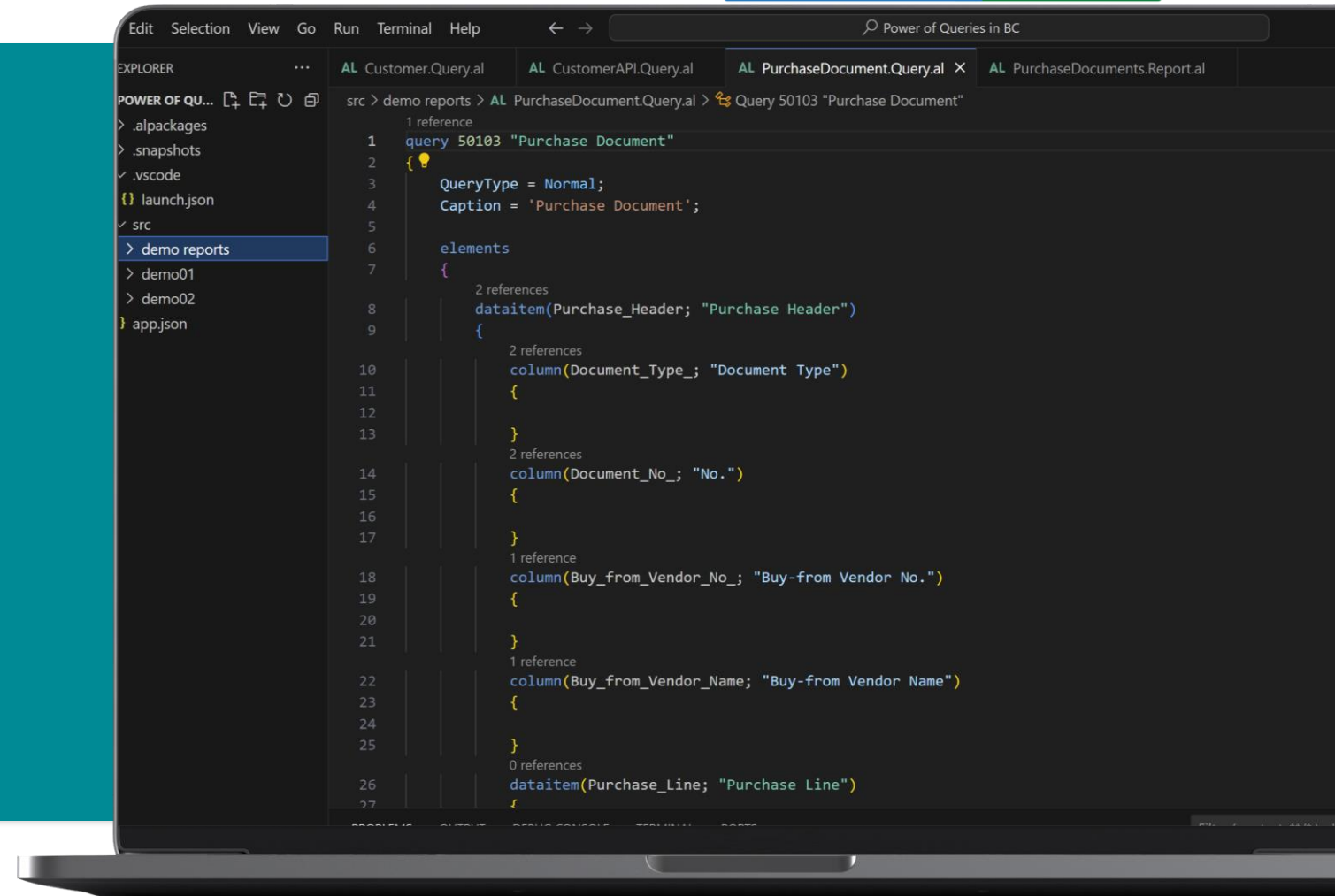
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Why?

How?



Demo – queries on reports



Telemetry

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Monitoring

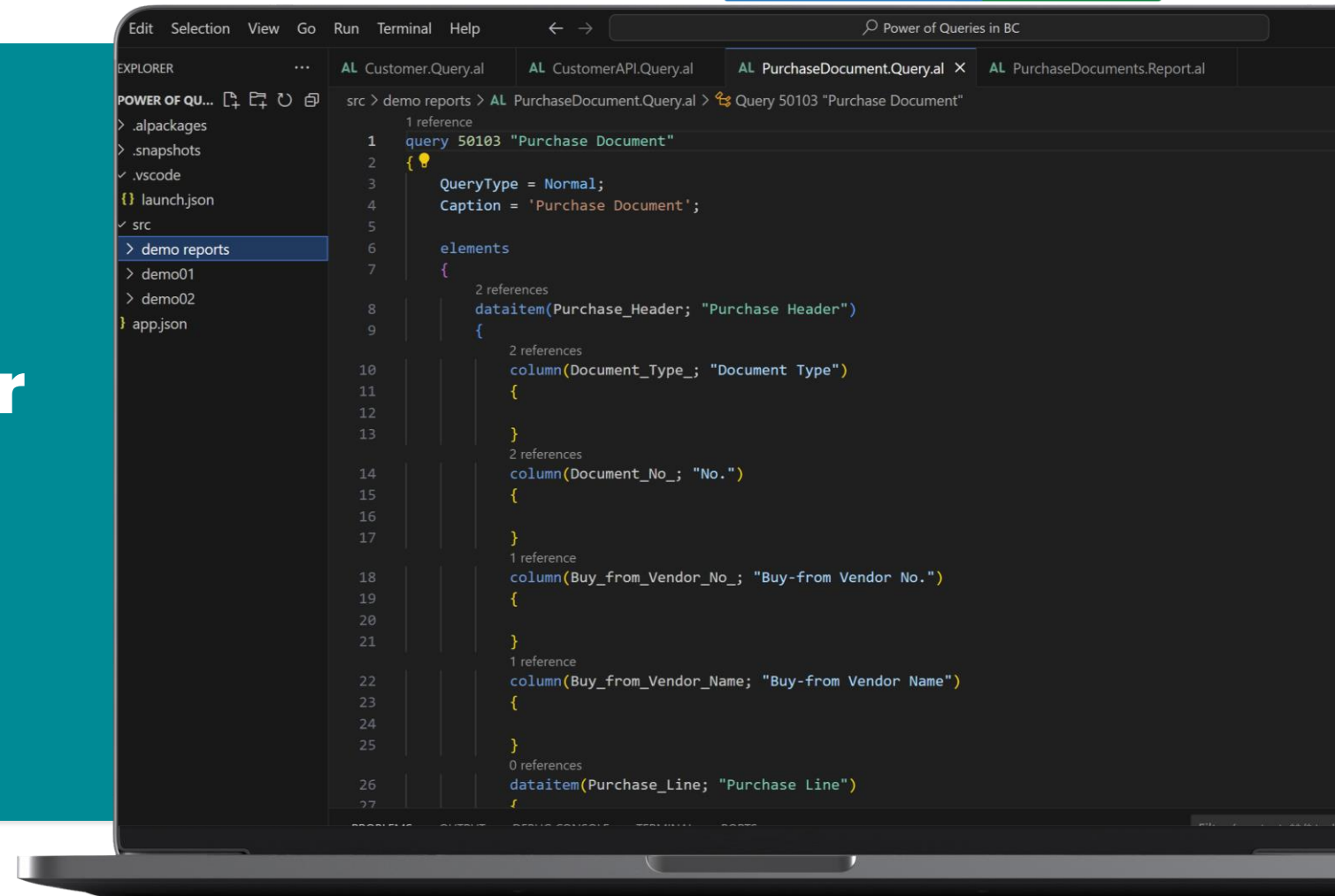
Proactive

Analyzing

No out-of-the-box event
Ids for queries



Demo – telemetry for queries



Key takeaways

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Query Object

Use query to retrieve data from one or many data sources and tailor it for your needs.

Consume Queries

Consume queries in Business Central client or use for integration.

Queries on reports

Build reports with a query as a data source

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Q & A

Give us *Feedback!*

and help us improve!

Please rate my session in the Conference App!

and leave a constructive comment.

Thank you!

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