



Using Power Query Builder

Save Time Connecting to D365/CDS
Data with Power Query Builder

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Agenda

Create a Report Connection in minutes

Deeper Dive

- Why use Power Query Builder

- Getting XRM Toolbox

- Creating connection in XRM Toolbox

- Creating Service URL Queries

- Creating Data Query

- Best Practices

Q&A





Create a PowerBI Report in 10 minutes

Demo



Three Ways to Connect Power BI to D365/CDS

Feature	D365 Online Connector	CDS Connector	FetchXML (Power Query Builder)
2 Option Sets, Options Sets, Multi-Select Option Sets	Only database values shown	Display values for options sets. Only database values for 2 option sets and multi-option sets	Display Values for all types of option sets
Look-Up Fields	GUID with expandable field to show related data	GUID only –no expandable field to bring back related data	GUID and Name stored in record are automatically returned
Querying from Multiple Entities	Expanding into more than one entity will destroy or break performance		Very little hit to performance when merging to multiple entities
Filtering on Multiple Entities	Filtering takes place after data has been queried causing performance issues in large datasets		Filtering without performance issues
Performance test-107K records with multiple entities	1200 seconds	72 seconds	76 seconds
Customer, Owner and Regarding fields	Returns a mix of columns with GUIDS & expansions for each entity	Returns a mix of columns with only GUIDS-no expandable fields	Returns TYPE column to identify the entity, GUID and Name stored in record

Source: <https://crmchartguy.com/2019/07/23/comparing-the-three-main-ways-to-get-dynamics-365-data-into-power-bi/>

4th Connection Method in Preview

- TDS Endpoint for CDS
 - Allows DirectQuery
 - Security Roles in CDS can be respected
 - Relationships automatically fit CDS schema
 - Good Data Availability
 - Look-up Fields – Both ID and name available
 - Customer fields - Both ID and name available
 - Owner Fields - Both ID and name available
 - Regarding Fields -Both ID and name available
 - Option Sets/ Statuses/ Two Option Sets - Both ID and label available

Watch for
Azure
Everyday on
this Soon!



HUGE BENEFITS of Power BI with D365/CDS

Merging Data from more than two levels deep

Power BI as an “Integration” tool-Power BI allows merges to other apps if there is a common key with very limited resource requirements.



XRM

Free Download at <https://www.xrmtoolbox.com/>

Over 100 developer tools for D365/CDS

Some GREAT!! Some not!

Many Require Admin Role

Think Spiderman

Show the developers some love

Great Info at <https://crmchartguy.com/power-query-builder/>

Power Query Builder is in XRM Toolbox





How to get XRM Toolbox
Connections in XRM Toolbox
Service URLs
Data Queries

Demo



Power Query Builder Console

XrmToolBox for Microsoft Dynamics 365 for CE and Power Apps Common Data Service (v1.2020.4.38)

Connect | Windows | Configuration | Help | Open environment

Start page | Tools | Power Query (Sharon Demo ...)

Load Entities | Copy FetchXml | Generate OData | Update FetchXml | Generate OptionSets | Generate Service URLs

Select Table & Columns | OData Query | FetchXml Query | OptionSets | Service URLs

Entities

Search:

Display name	Logical name
Metadata Difference	metadatadifferen...
Microsoft Teams Collabor...	msdyn_teamscol...
Microsoft Teams Graph re...	msdyn_collabgra...
Mobile Offline Profile	mobileofflineprofile
Mobile Offline Profile Item	mobileofflineprofi...
Mobile Offline Profile Item...	mobileofflineprofi...
Model-driven App	appmodule
Monthly Fiscal Calendar	monthlyfiscalcal...
msdyn_msteamssetting	msdyn_msteams...
msdyn_msteamssettingsv2	msdyn_msteams...
msdyn_relationshipinsight	msdyn_relations...
Multi Select Option Val...	multiselecttribu...
MultiEntitySearch	multientitysearch
Navigation Setting	navigationsetting
New P...	newp...
NonRelational Data source	msdyn_norrelat...
Note	annotation
Notes analysis Config	msdyn_notesan...
Notification	notification
OData v4 Data Source	msdyn_odatav4ds
Office Document	officedocument
Office Graph Document	officegraphdocu...
Offline Command Definition	offlinecommand...
Opportunity	opportunity
Opportunity Close	opportunityclose
Opportunity Product	opportunityproduct
Opportunity Relationship	customeropportu...
Opportunity Sales Process	opportunitysales...
OpportunityCompetitors	opportunitycomp...
OptionSet	optionset

All Entities

Select View

View Name

Open Opportunities

Open Opportunities for Report

Public view

User view

All Views

All Fields

Display name	Logical name	Type
<input type="checkbox"/> Display name		
<input type="checkbox"/> Account	parentaccountid	Lookup
<input type="checkbox"/> Actual Close Date	actualclosedate	DateOnly
<input type="checkbox"/> Actual Revenue	actualvalue	Money
<input type="checkbox"/> Actual Revenue (Base)	actualvalue_base	Money
<input type="checkbox"/> Budget	budgetstatus	Picklist
<input type="checkbox"/> Budget Amount	budgetamount	Money
<input type="checkbox"/> Budget Amount (Base)	budgetamount_...	Money
<input type="checkbox"/> Complete Internal Revi...	completeinternal...	Boolean
<input type="checkbox"/> Confirm Interest	confirminterest	Boolean
<input type="checkbox"/> Contact	parentcontactid	Lookup
<input type="checkbox"/> Created By	createdby	Lookup
<input type="checkbox"/> Created By (Delegate)	createdonbehalby	Lookup
<input type="checkbox"/> Created On	createdon	DateAn...
<input type="checkbox"/> Currency	transactioncurre...	Lookup
<input type="checkbox"/> Current Situation	currentsituation	Memo
<input type="checkbox"/> Customer Need	customerneed	Memo
<input type="checkbox"/> Customer Pain Points	customerpainpoi...	Memo
<input type="checkbox"/> Decide Go/No-Go	pursuitdecision	Boolean
<input type="checkbox"/> Decision Maker?	decisionmaker	Boolean
<input type="checkbox"/> Description	description	Memo
<input type="checkbox"/> Develop Proposal	developproposal	Boolean
<input type="checkbox"/> Email Address	emailaddress	String
<input type="checkbox"/> Est. Close Date	estimatedclosed...	DateOnly
<input type="checkbox"/> Est. Revenue	estimatedvalue	Money

All Fields

Selected Fields

Display name	Logical name	D365 Type
<input type="checkbox"/> Display name		
<input type="checkbox"/> Topic	name	String
<input type="checkbox"/> Est. Revenue	estimatedvalue	Money
<input type="checkbox"/> Est. Close Date	estimatedclosed...	DateOnly
<input type="checkbox"/> Potential Customer	customerid	Customer
<input type="checkbox"/> Rating	opportunityrating...	Picklist
<input type="checkbox"/> Contact	parentcontactid	Lookup
<input type="checkbox"/> Account	parentaccountid	Lookup
<input type="checkbox"/> opportunityid	opportunityid	Uniqueidenti...
<input type="checkbox"/> Pipeline Phase	stepname	String
<input type="checkbox"/> Owner	ownerid	Owner

Selected Fields

Service URLs

- Base URL is always the first part of the page URLs in your app.
 - It always looks like

Organization.crm.dynamics.com

- ServiceRootURL provides the API call
 - It always look like

Dyn365CEBaseURL & "/api/data/v9.1"



Best Practices

Start with the end in mind!!

Consider data integrity and make necessary adjustments in D365/CDS.

Start with a view that shows as much of your data as possible in D365/CDS app.

- PQB will pick up all fields and all filters from your view
- Allows quick changes if you are missing necessary fields
- Helps document your start place

Create a Power BI template (.PBIT).

*Remove unnecessary fields early.

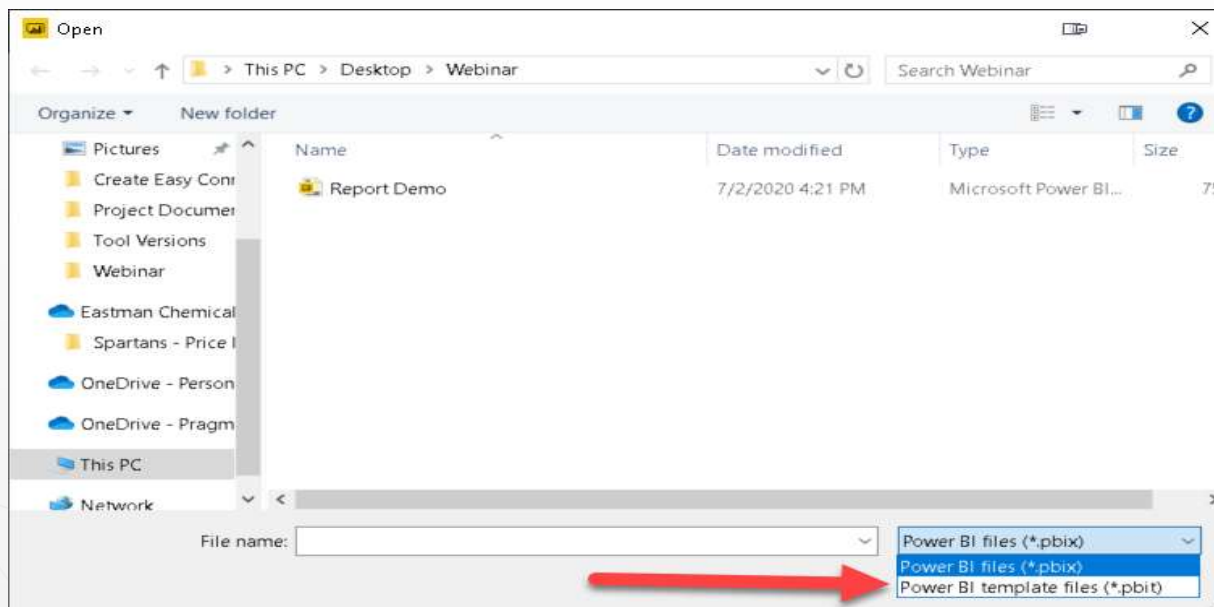
Work on your basic M skills so you can edit in the Advanced Editor.

Creating Templates

- Create Power BI Desktop file that includes
 - Dyn365CEBaseURL
 - ServiceRootURL
 - Blank Data Query
 - Any other assets that are included in all Power BI files like
 - Date Tables
 - Last Refreshed Date query
 - JSON theme
 - Headers/Footers
 - Be sure to change file suffix to *.PBIT in Save As dialog

Using Templates

- In Browse Dialog, you need to change file suffix to *.PBIT
- Creates an untitled *.PBIX with all components in place.



Power Query Editor

Transform Add Column View Tools Help

Enter Data Data source settings Manage Parameters Refresh Preview Properties Advanced Editor Manage Choose Columns Remove Columns Keep Rows Remove Rows Split Column Group By Data Type: Text Use First Row as Headers Replace Values Merge Queries Append Queries Combine Files Text Analytics Vision

`= if List.IsEmpty(ResultsList)`

	Topic	Est. Revenue	Est. Close Date	Potential Customer (custo
1	6 orders of Product SKU JJ202 (sample)	10000	7/17/2020	881f90ae-e7af-ea11-a81f
2	Needs to restock their supply of Product SKU AX305; will purchase at l...	25000	9/15/2020	8a1f90ae-e7af-ea11
3	They sell many of the same items that we do - need to follow up (sam...	0	11/20/2020	8e1f90ae-e7af-
4	Very likely will order 18 Product SKU JJ202 this year (sample)	30000	10/17/2020	901f90ae-e
5	Will be ordering about 110 items of all types (sample)	25000	12/18/2020	941f90

- Uncheck “Include in Report Refresh “ and “Enable Load” on Service URLs.
- Remove all Database values for Option Sets and Look-ups.
- Double-check to ensure that all Data Types are correct.
- If you are using any merges, be sure to test the published version in the Power BI Service.

Power Query Editor Enhancement Steps



Have Any Questions?

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