

2020

# Whitepaper: How to build portal on Dynamics 365 Business Central



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Everything showed in this practice is related with the following versions of system:

- The last version of Power Platform (Wave 1 2020)
- The last version of Dataflex Pro – formerly known as Common Data Service (Wave 1 2020)
- Dynamics 365 Business Central (Wave 1 2020)

Probably, everything will work with other versions of system, but I can confirm it will work for sure on those I ordered.

This text represents just one part of how you can build portal based on Power Portal with Business Central, not the full solution. But based on this idea, you can easily finish whole solution if you need it.

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## Introduction

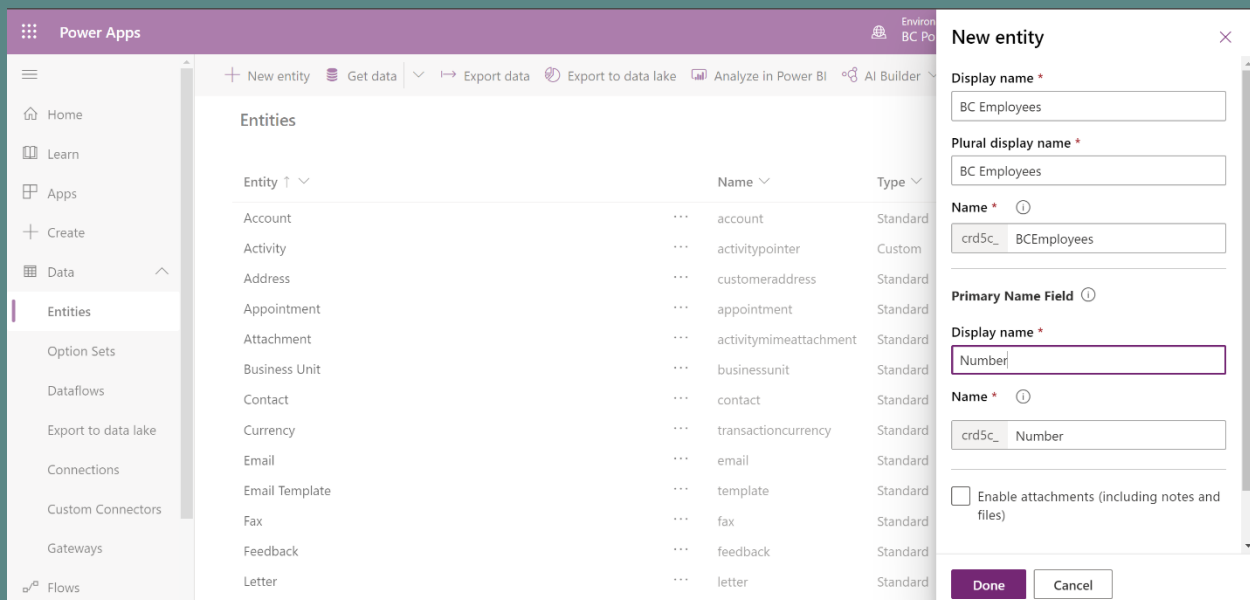
When I think about new Dynamics 365 Business Central (in the future, I'll use only 'Business Central' or just 'BC') features, the first things in my mind are openness and integrations. Then one of the most common limits in Business Central (and in Dynamics NAV before) was lack of portal connected with the database. Of course, you could develop portal from the scratch or use one of existing solutions and develop integration... But what is common in both of these cases? You need to pay in the first case for development (not so cheap) and in the other case for IP or license (again not so cheap).

But with Power Platform we got something more. Now we have Power Portal and as you have Power Platform included in your user's subscriptions, you don't need to pay something more (minimum, not such a big amount of money). Only what you need to pay is using portal, but this is really not so costly<sup>1</sup>. And yes... we have an issue here... Power Portal is based on Dataflex Pro (formerly known as Common Data Service). But this is an opportunity, not a limitation. And this is the topic of this whitepaper.

## Start with building entities in Power Platform

First as I already mentioned, this is necessary to build solution in Dataflex Pro and that means you need to create entity(ies) you want to connect with Business Central. That means you need to run Power Apps: <https://powerapps.microsoft.com/>. After that, I'll continue with task. In this example, I'll use *Employee* entity as we already have *Employee* table in BC.

To do this, you need to start from Entities (Data > Entities in the left navigation pane) or you can start with Solutions and create new entity from there. In the new entity, enter *Display name* and enter primary name.



<sup>1</sup> 100USD per month for 100,000 page views for unauthenticated users or 200USD per month for 100 daily login sessions for authenticated users. More details here: <https://powerapps.microsoft.com/en-us/pricing/>

Click *Done* when you enter that. After that, you need to add new fields using *Add fields* command. When you finish with all fields, click *Save Entity* to save all changes.

Display name	Name	Data type	Type	Custom...	Required	Searchable
Surname	crd5c_surname	Text	Custom	✓	Optional	✓
Address	crd5c_address	Text	Custom	✓	Optional	✓
Name	crd5c_name	Text	Custom	✓	Optional	✓
City	crd5c_city	Text	Custom	✓	Optional	✓
Number <small>Primary Name Field</small>	crd5c_number	Text	Custom	✓	Required	✓
Created By	createdby	Lookup	Standard	✓	Optional	✓
Status Reason	statuscode	Option ...	Standard	✓	Optional	✓
Status	statecode	Option ...	Standard	✓	Required	✓
Owning Team	owningteam	Lookup	Standard	✓	Optional	

When you finish with all details in creation of entity you can start with building connection with Business Central. But keep in the mind that you need to make something more here and we will come back later. Right now, only one thing you can add is *Key* just to avoid having duplicates and my recommendation is to copy keys from BC table.

## Connecting Business Central with portal

OK, connection with the Business Central can be done on a few different ways and I'll try to explain all of them here.

### Business Central customizing an integration with Common Data Service

From the Wave 1 2020, Business Central supports an integration by default with a set of entities in the Dataflex Pro default database, but you can make customization through extension and add more. For developing extensions that integrate Business Central with Dataflex Pro, system uses extensibility capabilities where proxies to Dataflex Pro tables can be created in Business Central, and these will be made extensible. This allows for custom attributes to be synchronized and for additional tables to be added to the default synchronization process.

When you create this extension, only what you need to do is mapping tables with entities as well as mapping fields in Business Central and Dataflex Pro.

I don't want to write in details how you can do it as Microsoft already published completely documentation how to build this kind of extension and how to configure it. For more details, open this page: <https://docs.microsoft.com/en-us/dynamics365/business-central/dev-itpro/administration/administration-custom-cds-integration>.

When you finish with developing an extension, you can find here how to map tables and fields: <https://docs.microsoft.com/en-us/dynamics365/business-central/admin-how-to-modify-table-mappings-for-synchronization>.

When you connect entities in Dataflex Pro and Business Central, you can continue with building Power Portal.

### Integration using webservices and Power Automate

Previous way of integration is native, but it requires some development knowledge. But what if you are not developer and still want to build portal based on Business Central? Do you think it is possible? Yes... this is an answer.

From the *Entity* page in Power Apps, just click *Get Data* and in the Power Query window choose *OData* tile. Go next and then you need to stop yourself there. You should move to the Business Central. Open *Web services* page and add page you want to use in synchronization. In our case, this is page 5200... just click *New*, as *Object type* choose *Page* and add this page number; enter *Service name* you want to use and click on *Publish* field. Copy *OData V4 URL* value.

WEB SERVICES | WORK DATE: 4/6/2020

Search + New Edit List Delete Reload Open in Excel More options

Object Type	Service Name	All Ten...	Pub...	OData V4 URL	OData URL
Query	Power BI Sales List	<input type="checkbox"/>	<input checked="" type="checkbox"/>	https://api.businesscentral.dyn...	https://api.businesscent
Query	Power BI Top Cust. Overview	<input type="checkbox"/>	<input checked="" type="checkbox"/>	https://api.businesscentral.dyn...	https://api.businesscent
Query	Power BI Vend. Item Ldg. Ent.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	https://api.businesscentral.dyn...	https://api.businesscent
Query	Power BI Vendor Ledger Entries	<input type="checkbox"/>	<input checked="" type="checkbox"/>	https://api.businesscentral.dyn...	https://api.businesscent
Query	Power BI Vendor List	<input type="checkbox"/>	<input checked="" type="checkbox"/>	https://api.businesscentral.dyn...	https://api.businesscent
Query	Res.LedgerEntries	<input type="checkbox"/>	<input checked="" type="checkbox"/>	https://api...	
Query	SalesDashboard	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	https://api...	
Query	SalesOpportunities	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	https://api...	
Query	SalesOrdersBySalesPerson	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	https://api...	
Query	SegmentLines	<input type="checkbox"/>	<input checked="" type="checkbox"/>	https://api...	
Query	TopCustomerOverview	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	https://api...	
Query	ValueEntries	<input type="checkbox"/>	<input checked="" type="checkbox"/>	https://api...	
→ Page	Employees	<input type="checkbox"/>	<input checked="" type="checkbox"/>	https://api.businesscentral.dyn...	https://api.businesscent
Query	VendorLedgerEntries	<input type="checkbox"/>	<input checked="" type="checkbox"/>	https://api.businesscentral.dyn...	https://api.businesscent

Context menu options: Open link in new tab, Open link in new window, Open link in InPrivate window, Save link as, Copy link, Inspect (Ctrl+Shift+I)

Move back to the Power Apps and in the *Connection setting* paste this value to the *URL* field. Choose *Organizational account* as an *Authentication kind*. Confirm your credentials and go to the next page. Click *Next* until you open the following page.

Now you need to choose *Load to existing entity* option and in the *Destination entity* choose entity you created (in my example BCEmployees).

**Power Query - Map entities**

**Queries**

Query

**Load settings**

☐ Load to new entity  
☒ Load to existing entity  
☐ Do not load

Destination entity: crd5c\_BCEmployees

Entity display name: BC Employees

Entity description:

☐ Delete rows that no longer exist in the query output

**Field mapping**

Key fields (none)

Source column	Destination field
Address	crd5c_Address
City	crd5c_City
First Name	crd5c_Name
No	crd5c_Number
Last Name	crd5c_Surname

Back Cancel Next

In the *Field mapping* part of window (right side), you need to map fields from web service in Business Central as a *Source column* with *Destination fields* (fields in our entity). When you finish it, just click Next and you will find a page where you can configure refresh settings. That means you need to choose how often system will synchronize data from Business Central web service to the entity. Click Create and you have been finished with integration.

But something will miss here. As you are using just refresh model, that means you will get records from Business Central, but you cannot insert there. Actually, you can insert to entity, but system will not insert them to BC. To solve this, you can create very simply flow in Power Automate. Actually... you will need as many flows as you want actions.

**Build an automated flow**

Flow name: CDS2BC

Choose your flow's trigger \* ⓘ

comm

- When a record is deleted - Common Data Service ⓘ
- When a record is updated - Common Data Service ⓘ
- ☒ When a record is created - Common Data Service ⓘ
- When a comment is added to a chec... - Way We Do Integration API ⓘ
- When a record comment is posted o... - kintone ⓘ
- When a new commit is pushed - Rithurvat ⓘ

Skip Create Cancel

You can see on previous picture that I chose *When a record is created* and it will be OK if you want to have only *Insert* from portal. But if you want more action, you need to use the following triggers:

- For *Modify* – When a record is updated,
- For *Delete* – When a record is deleted.

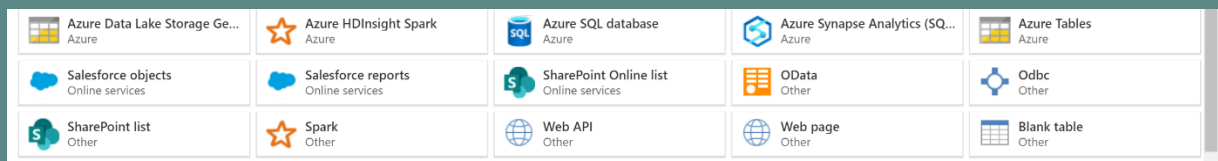
In this example you will see flow for inserting, but I think you can easily understand how to create two additional flows based on well-known parameters.

The screenshot shows a Power Automate flow configuration. The trigger is 'When a record is created'. The action is 'Create record (Preview)' for the 'employees' table in the 'CRONUS USA, Inc.' company, 'PRODUCTION' environment. Fields include 'number', 'displayName', 'givenName', 'middleName', 'surname', and 'jobTitle'.

Keep in the mind that you need to use the following parameters in the trigger:

- *Environment* – choose an environment you used for building solution in Power Apps
- *Entity name* – entity you created
- *Scope* – Organization

Now when you save it, your solution is finished. I would just like to mention that instead of web service integration you could choose API integration as well:



Configuration in both of cases is very similar and there is not a reason to repeat completely process.

## Building a portal


### Power Portal

Now when we made an integration using one of the models, we can continue with building our portal.


To finish with this process, we need to open Power Apps again and to start with creation new Power App. You can start from *Home* or from *Create* and you need to choose *Portal from blank* option.

Enter the name of your portal and carefully choose *Address* for your portal. This is place where you can also choose a language.

### Portal from blank



Create a website to share data with external and internal users. This template comes with sample pages to get you quickly started. [Learn more](#)

 Portal


① TIP: We'd need to install portal solution packages on this environment, and this may take a while. To try portals quickly, use an environment with the required packages already installed or create a new environment using the link. [Create new environment](#)

**Name \***

**Address \* ①**

✓ BCEmployeePortal.powerappsportals.com

**Language**



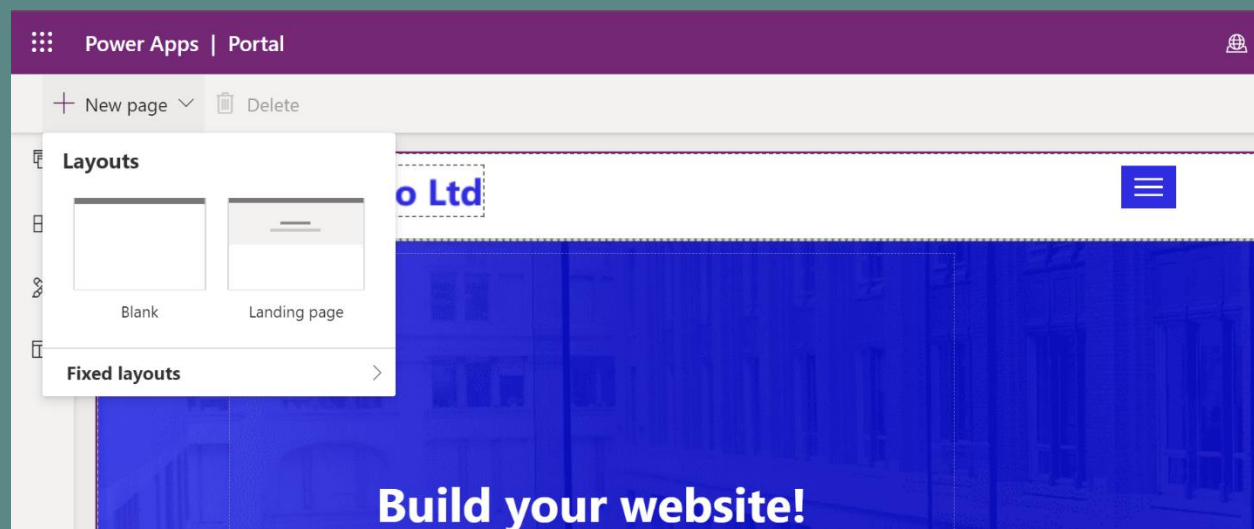
By clicking on Create, you agree to the [Terms and Conditions](#) and the [Terms of Service](#).

[Privacy and Cookies](#)

Create

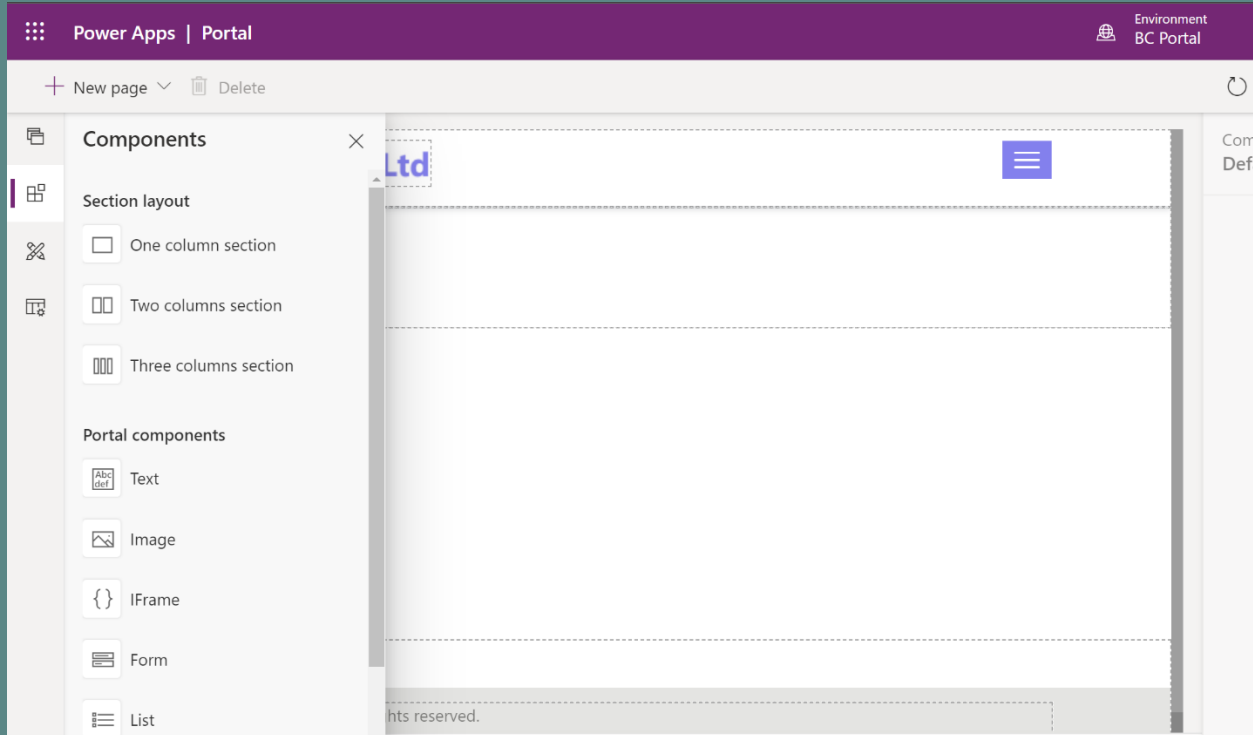
Cancel

When you select Create, you need to be ready to wait some time until system create portal. It usually takes a few minutes, sometimes more, sometimes less... but be a patient. When an app is created, open it in the edit mode. You will see we have prebuilt portal, but we want to add new page with our data. To do this, select *New page* and choose *Blank*.

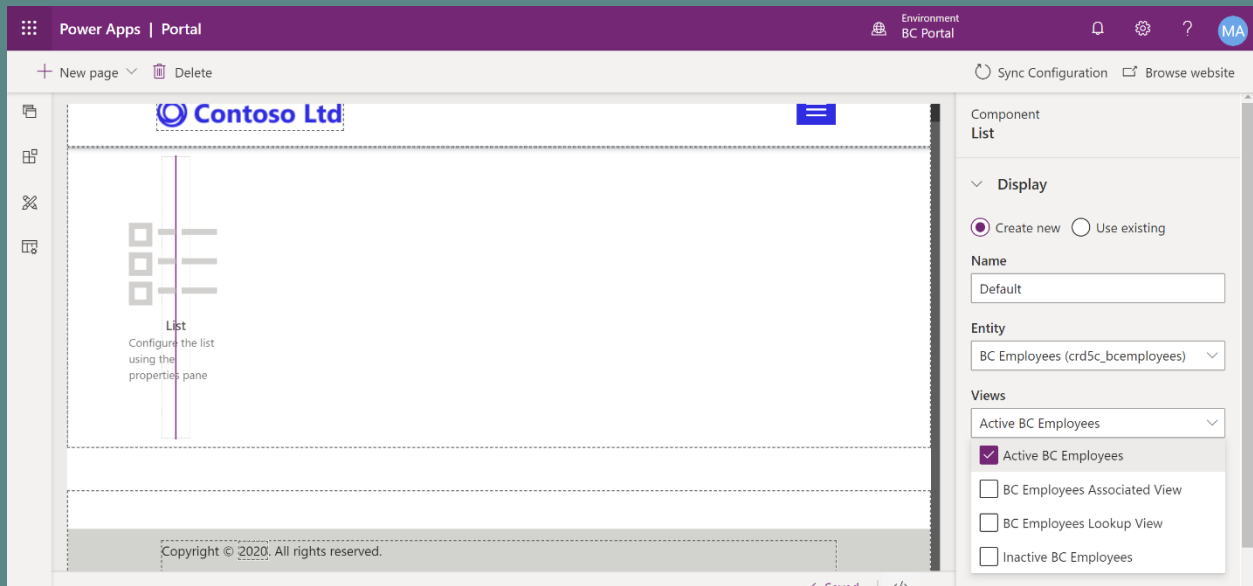


System will create new blank page and we need to add necessary components. Select Components icon in the left-side menu and locate *List*. This is logical if you want to start with a list view.





Now you need to configure some details. As we will create new component, choose *Create new display* and as *Entity* choose your entity (BC Employee in my example). The next important step is to choose a view as each entity has more views. I think that *Active {items}* are logical choice here.

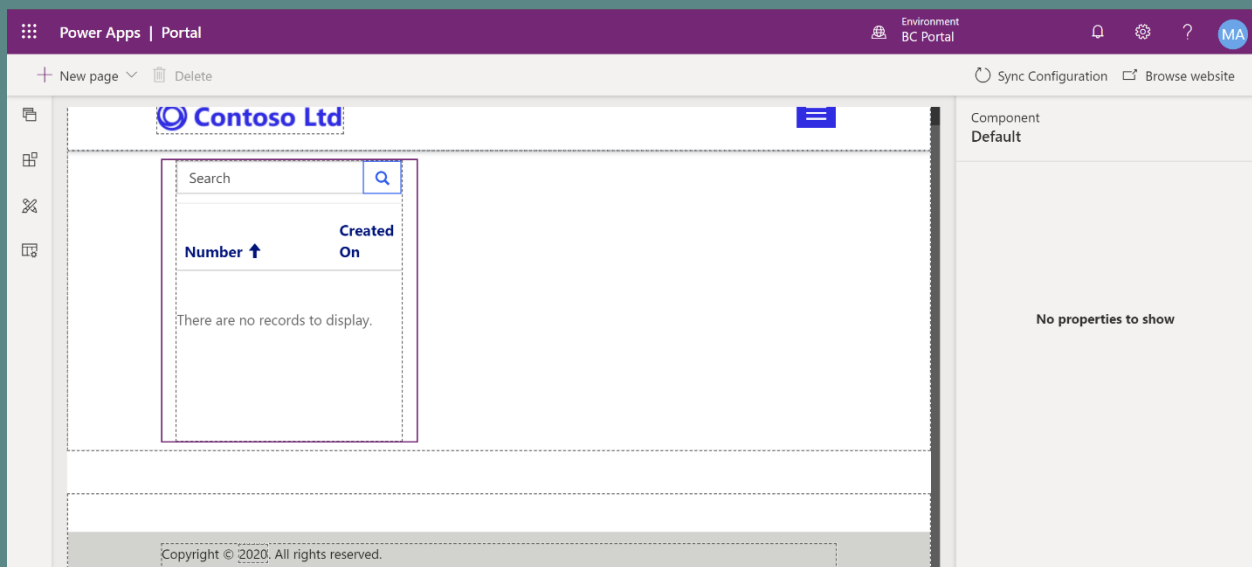


OK, this is how we can create a list. But if you want to have possibilities to create new entry or to edit or delete it from here, you have an opportunity to do it immediately here. In the right-sided pane you will see a few options appear.

Create new record	<input type="checkbox"/>
View details	<input type="checkbox"/>
Edit record	<input type="checkbox"/>
Delete record	<input type="checkbox"/>

You can choose if you want to add the following features here: creating, viewing, editing and deleting. If you switch-on any of these options, you will get an opportunity to choose which form will be run to make this action. This is very easy for configuration, but what is important is that you need to have these forms already built.

OK, now you need to select Sync Configuration command to see result. But you can see that you have only two columns here in your list and this is not what you want. This is because, when system creates entity, views are created automatically but only with the main field plus *Created On*. But this is not problem as you just need to customize your view.



### View customization

To customize view, you should go back to Power Apps and entity you previously created. There you need to select *View* tab and from the list of all view to select one you want to customize. In our case it is *Active BC Employees*.

When you open this view in edit mode, you need to add fields you want to see on your view. I'll add Name, Surname, Address and City and resize it as I would like to see on the screen.

When you finish with adding and/or moving fields, you need to click first *Save* and after that *Publish* commands. Keep in mind that if you didn't publish it you cannot use it.

## WHITEPAPER: HOW TO BUILD PORTAL ON DYNAMICS 365 BUSINESS CENTRAL

The screenshot shows the 'Fields' pane in Power Apps. On the left, under 'BC Employees', there is a search bar and a 'Show only unused fields' checkbox which is checked. The main area displays a table of fields with columns: Number, Name, Surname, Address, City, and Created On. The table contains six rows of employee data. On the right, there is a 'Publish' button and a 'Save' button.

Number	Name	Surname	Address	City	Created On
JR	John	Roberts	160 Walt Whitm...		7/31/2020 3:30 PM
MD	Mary	Dempsey	10 Columbus Cir...		7/31/2020 3:07 PM
MH	Mark	Hanson	10344 Destiny U...		7/31/2020 3:07 PM
PS	Peter	Saddow	125 Westchester ...		7/31/2020 3:07 PM
RL	Richard	Lum	400 Commons W...		7/31/2020 3:07 PM
TS	Timothy	Sneath	3710 Route 9 So...		7/31/2020 3:07 PM

### Test

Now we can say we finished with everything. Go back to the Power Apps and choose *Apps* on the left-side pane. You will see completely list of your apps. Just choose app (portal) you just created. When you run it, choose the page we created and that's it. You can see the window in portal with our data from Business Central.

The screenshot shows the Contoso Ltd portal. The header includes the company logo and navigation links: Home, Services, About us, Empl, and Sign in. Below the header is a search bar. The main content area displays a table of employee data with columns: Number, Name, Surname, Address, City, and Created On. The table contains six rows of employee data.

Number	Name	Surname	Address	City	Created On
JR	John	Roberts	160 Walt Whitman Road		7/31/2020 5:30 PM
MD	Mary	Dempsey	10 Columbus Circle		7/31/2020 5:07 PM
MH	Mark	Hanson	10344 Destiny USA Drive		7/31/2020 5:07 PM
PS	Peter	Saddow	125 Westchester Avenue		7/31/2020 5:07 PM
RL	Richard	Lum	400 Commons Way		7/31/2020 5:07 PM
TS	Timothy	Sneath	3710 Route 9 South		7/31/2020 5:07 PM