Designing and Developing Power Apps Portals



Agenda

- Creating a Power Apps Portal
- Adding and Editing Portal Content
- Writing Liquid Template Language Expressions
- Understanding Portal Configuration
- Configuring Portal Security
- Publishing Dynamic CDS Content



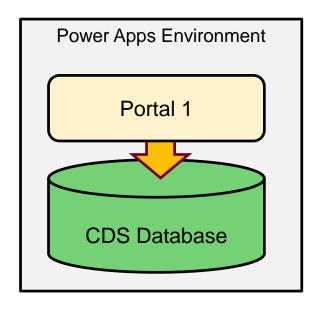
Power Apps Portals

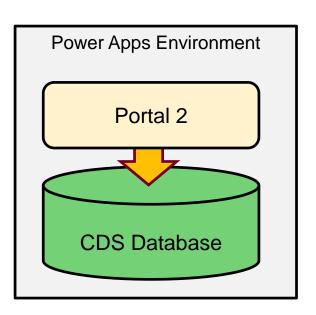
- Power Apps portals provide web development platform
 - Create websites for anonymous users and/or authenticated user
 - Allows for registration and authentication of internal users
 - Allows for authentication through LinkedIn, Facebook, Twitter, etc.
- Portal content managed by business users
 - Portal Editor used to add pages and author content
 - Portal Management app created along with portal
- Portal can be customized by web developers
 - Liquid template language used to add dynamic content
 - Developers can surface data from CDS entities
 - Developers can extend portal with custom page templates



Power Apps Portal Architecture

- Power Apps portals built on Common Data Service
 - You must create a environment with CDS database to create portal
 - CDS used to track data for pages, templates and site content
 - Creating portals triggers installation of several ADX solutions







Portal Templates

Customer self-service portal

Provides customers with access info, support resources and order status

Partner portal

Provides portal for with resellers, distributors, suppliers and/or partners

Employee self-service portal

streamline common tasks and allows for sharing resource

Community portal

Facilitates interactions between customers and experts

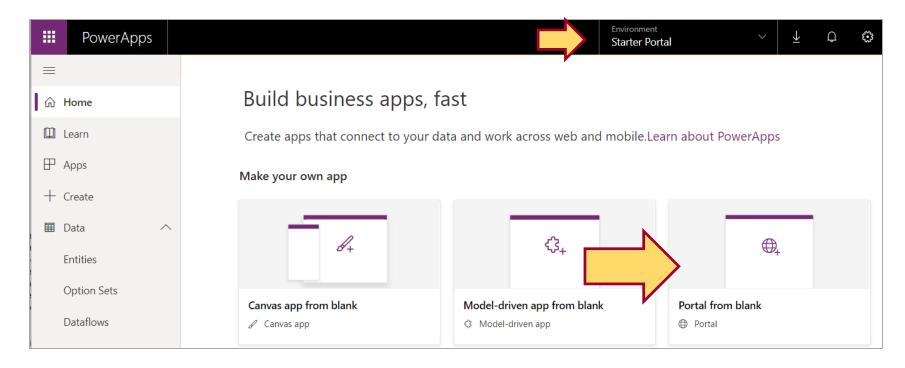
Portal from blank

- Minimum portal with a small set of sample pages
- The ONLY template available unless you have a Dynamics 365 license



Creating a New Power Apps Portal

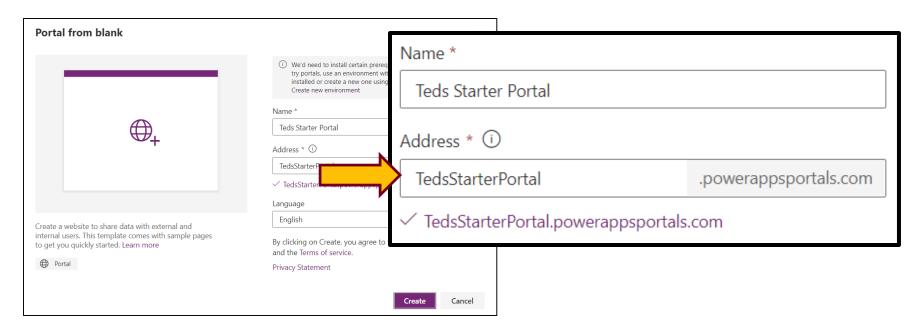
- New portal created using Power Apps Maker Portal
 - Select your target environment
 - Create portal using Portal from blank template

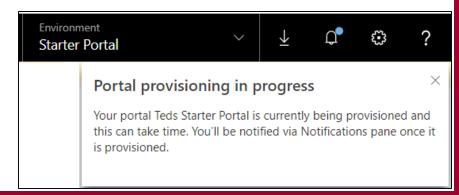




Providing Portal Provisioning Data

Portal requires Name and unique address

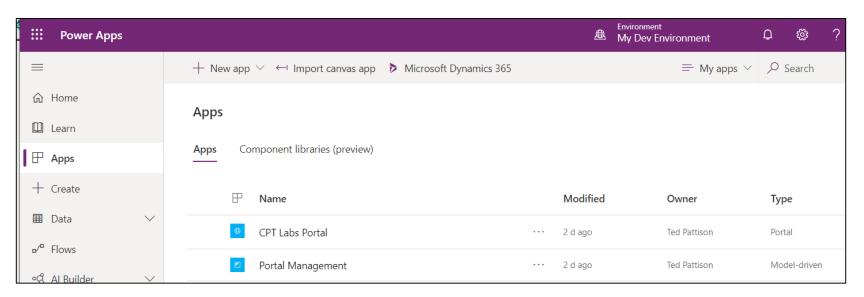






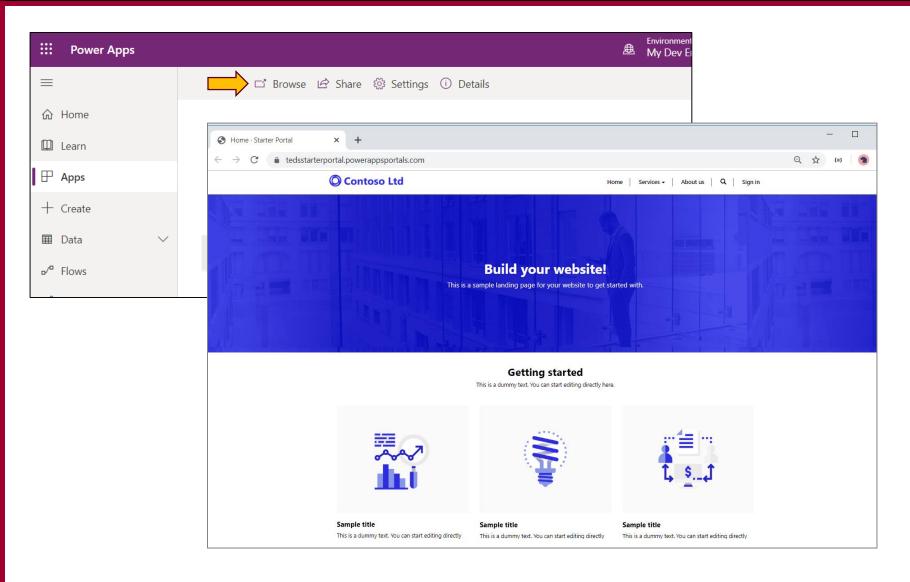
Portal Apps

- Provisioning a portal creates two applications
 - Power Apps portal
 - Model-driven app named Portal Management





Launching the Portal





Solutions Installed to Support Portals

Creation of portal triggers installation of ADX solutions

!!! PowerApps						
=	+ New solution ← Import 🖺 Open AppSource [📑 Publish a	all customizations ☐ S	witch to classic 😲	Solution checker ∨	
ம் Home	Solutions					
☐ Learn	Display name		Name	Created ↓	Version	Managed externally?
□ Apps	Common Data Service Starter Portal		CDSStarterPortal	10/30/2019	9.2.10.10	А
+ Create	Dynamics 365 Portals - Base Html Editor		BaseHtmlEditor_portal	10/30/2019	1.1.1.1	А
⊞ Data ∨	Dynamics 365 Portals - Timeline		MicrosoftPortalTimel	10/30/2019	9.2.10.0	А
o/o Flows	Dynamics 365 Portals - Azure Storage		MicrosoftAzureStora	10/30/2019	9.2.10.0	А
∘	Dynamics 365 Portals - Feedback		Feedback	10/30/2019	9.2.10.0	А
Solutions	Dynamics 365 Portals - Web Forms		MicrosoftPortalWebF	10/30/2019	9.2.10.0	А
	Dynamics 365 Portals - Identity Workflows		MicrosoftldentityWo	10/30/2019	9.2.10.0	А
	Dynamics 365 Portals - Identity System Workfl		MicrosoftldentitySys	10/30/2019	9.2.10.0	А
	Dynamics 365 Portals - Identity		Microsoftldentity	10/30/2019	9.2.10.0	A
	Dynamics 365 Portals - Web Notification		WebNotification	10/30/2019	9.2.10.0	A
	Dynamics 365 Portals - Portal Base Workflows		MicrosoftCrmPortalB	10/30/2019	9.2.10.0	A
	Dynamics 365 Portals - Portal Base System Wor		MicrosoftCrmPortalB	10/30/2019	9.2.10.0	A
	Dynamics 365 Portals - Portal base		MicrosoftPortalBase	10/30/2019	9.2.10.0	A
	Portal Privacy Extensions		msdynce_PortalPriva	10/30/2019	9.2.10.0	A
	Dynamics 365 Portals - Portal dependencies		MicrosoftPortalDepe	10/30/2019	9.2.10.0	А
	Common Data Services Default Solution		Cr7c436	10/12/2019	1.0.0.0	A
	Default Solution		Default	10/12/2019	1.0	â



Power Apps Portal Entities

Ad	adx_ad	
Ad Placement	adx_adplacement	
Alert Subscription	adx_alertsubscription	
Change Password for Portals Contact	adx_bpf_c2857b638fa7473d	
Content Snippet	adx_contentsnippet	
Entity Form	adx_entityform	
Entity Form Metadata	adx_entityformmetadata	
Entity List	adx_entitylist	
Entity Permission	adx_entitypermission	
External Identity	adx_externalidentity	
Invitation	adx_invitation	
Invite Redemption Page Alert	adx inviteredemption adx_pagealert	
Page Notification	adx_pagenotification	
Page Tag	adx_pagetag	
Page Template	adx_pagetemplate	
Poll	adx_poll	
Poll Option	adx_polloption	
Poll Placement	adx_pollplacement	
Poll Submission	adx_pollsubmission	
Portal Comment	adx_portalcomment	
Portal Language	adx_portallanguage	
Publishing State	adx_publishingstate	
Publishing State Transition Rule	adx_publishingstatetransitionrule	
Redirect	adx_redirect	
Setting	adx_setting	
Shortcut	adx_shortcut	

Site Marker	adx_sitemarker		
Site Setting	adx_sitesetting		
Tag	adx_tag		
URL History	adx_urlhistory		
Web File	adx_webfile		
Web File Log	adx_webfilelog		
Web Form	adx_webform		
Web Form Metadata	adx_webformmetadata		
Web Form Session	adx_webformsession		
Web Form Step	adx_webformstep		
Web Link	adx_weblink		
Web Link Set	adx_weblinkset		
Web Notification Entity	adx_webnotificationentity		
Web Notification URL	adx_webnotificationurl		
Web Page	adx_webpage		
Web Page Access Control Rule	adx_webpageaccesscontrolrule		
Web Page History	adx_webpagehistory		
Web Page Log	adx_webpagelog		
Web Role	adx_webrole		
Website	adx_website		
Website Access	adx_websiteaccess		
Website Binding	adx_websitebinding		
Website Language	adx_websitelanguage		
Web Template	adx_webtemplate		





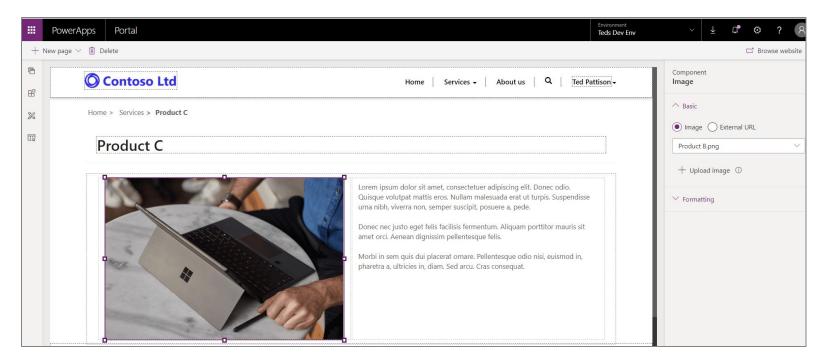
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Portal Editor

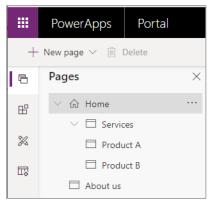
- Used to add pages and author page content
 - Designed for less-technical users
 - Editor does not require web designer/developer skills





Page Hierarchy

- Web Page can have one or more child pages
 - Provides foundation for building page hierarchy



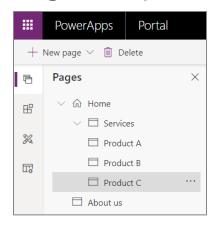
Page hierarchy used to build navigation menu



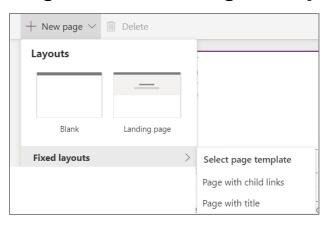


Adding and Navigating Pages

Pages tab provides navigation across pages



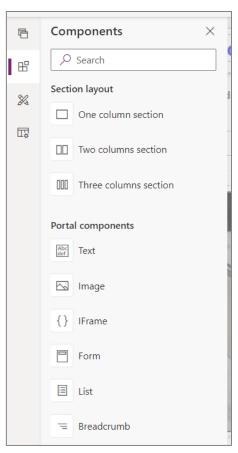
Pages added using New page menu button





Adding Page Content using Components

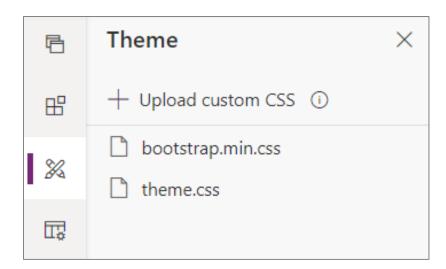
- Portal Editor provides Components for content authors
 - You drag components onto the Page Copy placeholder
 - Sections used to constrain max page width and create responsive design





Portal Themes

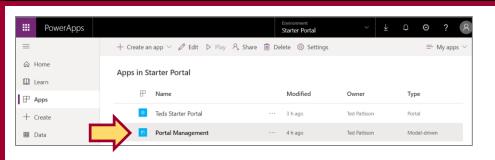
- Portals out-of-box branding based on Bootstrap 3
 - bootstrap.css version 3.3 automatically included
 - You can add custom CSS style rules to themes.css
 - Upgrading to newer version of Bootstrap (e.g. v4) not supported

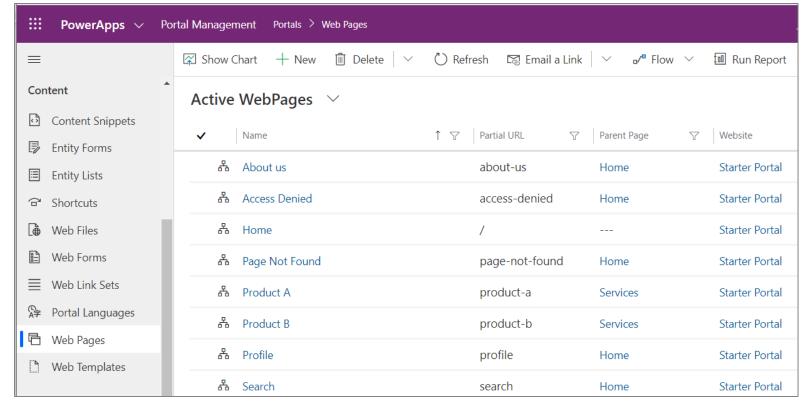






Portal Management App

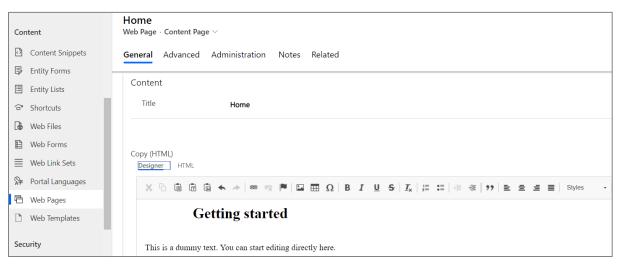






Editing Page Content

- Portal Management App provides access to web pages
 - You can edit web page properties
 - You can editor page content using the Designer editor



You can editor page content using the Designer editor



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Liquid Template Language

- Power Apps Portals use Liquid Template Language
 - Open-source template language created by Shopify in 2006
 - Currently used by 100s of websites and ISVs
- Liquid used on portal pages to generate dynamic content
 - Liquid markup code stored in CDS along with HTML
 - Liquid was designed to surface data from databases on web pages
- Learning the fundamentals of the Liquid template language
 - Liquid Objects
 - Liquid Tags
 - Liquid Filters



Liquid Objects

The follow Liquid objects are available in Power Apps portals

now	A date/time object that refers to the current UTC time at the time the template is rendered.	
page	current portal request page with title and URL	
params	request.parameters from query string.	
request	Contains information about the current HTTP request.	
settings	Allows you to load any Site Setting by name.	
sitemap	Allows access to the portal site map.	
sitemarkers	Allows you to load any Site Markers by name.	
snippets	Allows you to load any Content Snippet by name.	
user	Refers to the current portal user. If no user is signed in, this variable will be null.	
weblinks	Allows you to load any Web Link Set by name or ID.	
website	current portal Website record with website properties.	

- Power Apps-specific reference for Liquid template language
 - https://docs.microsoft.com/en-us/Power Apps/maker/portals/liquid/liquid-overview



Liquid Objects

Liquid objects are referenced by name

```
user
page
request
```

Object properties referenced using dot notation

```
user.fullname
page.title
request.params['HTTP_CLIENT_IP']
```

Object properties displayed using output tags {{ ... }}

```
{{ user.fullname }}
{{ page.title }}
{{ request.params['HTTP_CLIENT_IP'] }}
```



Liquid Tags - {% ... %}

- Liquid provides tags with control-of-flow logic
 - if statement tags

```
{% if user %}
  Hello {{ user.firstname }}
{% else %}
  Hello Mr Anonymous User
{% endif %}
```

Hello Ted

Hello Mr Anonymous User

for loops tags

Child Pages

- Product A
- Product B



Liquid Filters

- Filters used to transform data
 - Use of filter requires pipe operator | followed by filter name
 - Filter arguments (if any) passed using colon operator:

```
BOB'S YOUR UNCLE
bob's your uncle
Bob's Your Uncle
Robert's your uncle
Bob...
```

<h1>My example html</h1>

```
April 20, 2020
May 20, 2020
```

Bob's your...

```
{% assign quote = "Bob's your uncle" %}

{{ quote | upcase }}
{{ quote | downcase }}
{{ quote | capitalize }}
{{ quote | replace: 'Bob', 'Robert' }}
{{ quote | truncate: 6 }}
{{ quote | truncate: 6 }}
{{ quote | truncate_words: 2 }} 
{{ "<h1>My example html</h1>" | escape }}
{{ now | date: 'MNMM dd, yyyy' }}
{{ now | date_add_days: 30 | date: 'MNMM dd, yyyy' }}
```

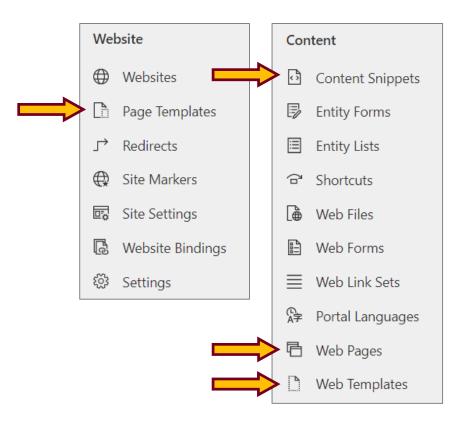
Agenda

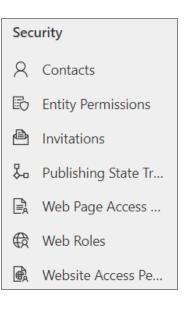
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Portal Management App Entities

- Portal Management app provides access to portal entities
 - Website entities
 - Content entities
 - Security entities







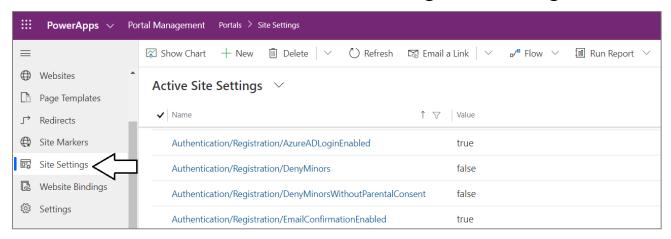
Web Templates and Page Templates

- Every Web Page is based on a Page Template
 - Several page templates are available out of the box
 - You can add new page templates
- Every Page Template is based on a Web Template
 - Some Web Templates are designed as full page templates
 - Some Web Templates are designed as partial page templates
- Web Templates can pull content from Content Snippets
 - Snippets provide easy-to-edit sections in a portal web site



Configuring Portal Registration Features

Portal authentication features configured using Site Settings



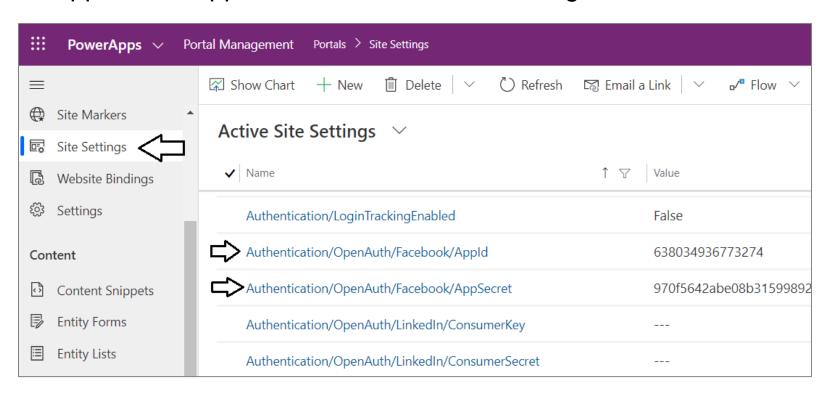
Site Setting key documented by Microsoft

Site Setting Name	Description		
Authentication/Registration/Enabled	Enables or disables all forms of user registration. Registration must be enabled for the other settings in this section to take effect. Default: true		
Authentication/Registration/OpenRegistrationEnabled	Enables or disables the sign-up registration form for creating new local users. The sign-up form allows any anonymous visitor to the portal to create a new user account. Default: true		
Authentication/Registration/InvitationEnabled	Enables or disables the invitation code redemption form for registering users who possess invitation codes. Default: true		
Authentication/Registration/CaptchaEnabled	Enables or disables captcha on the user registration page. Default: false Note: This site setting might not be available by default. To enable captcha, you must create the site setting and set its value to true.		



Configuring Third Party Identity Providers

- External identity providers configured using Site Settings
 - Requires pre-creating app with identity provider
 - App ID and App Secret added as Site settings





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Power Apps Portal Audiences

- Anonymous users
 - Users that usually just need to view public content
- Authenticated users
 - Users that need to view secured content
 - Users that need to add and edit content
- Content managers
 - Users that need to author pages and CDS records
- Portal administrators
 - Users that need to monitor and administrate portal



Power Apps Portal Security Model

- Every portal user associated with Contact record
 - Contact entity provides foundation for user identity
 - Contact records used to manage permissions and authorization
- Configurable Authorization for Portal Access
 - Page viewing: is the user authorized to view a page
 - Page authoring: is the user authorized to edit & publish pages?
 - CDS Entities: is the user allowed to view or edit CDS records?
 - Website authoring: can the user edit site settings and navigation?



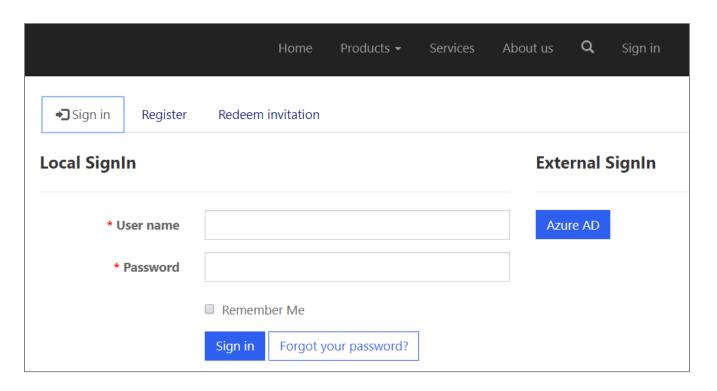
User Authentication in Power Apps Portals

- Local authentication
 - Everything about user identity stored in Contact record
 - User name and hashed password stored in Contact
 - No need for external identity providers
- External authentication
 - Authentication provider by external identity provider
 - Azure AD used to authenticate users from same tenant as portal
 - Azure AD can be used to authenticate guest users for other tenants
 - Third party identity providers can be used to authenticate external users



Default Logon Screen

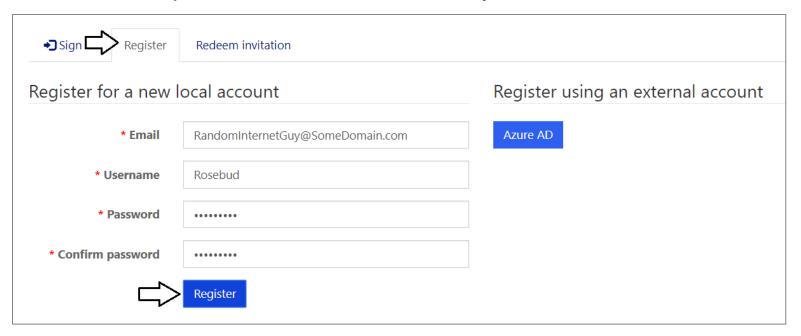
- What type of login is supported by default?
 - Local registration and authentication
 - Azure AD authentication (auto-registration)





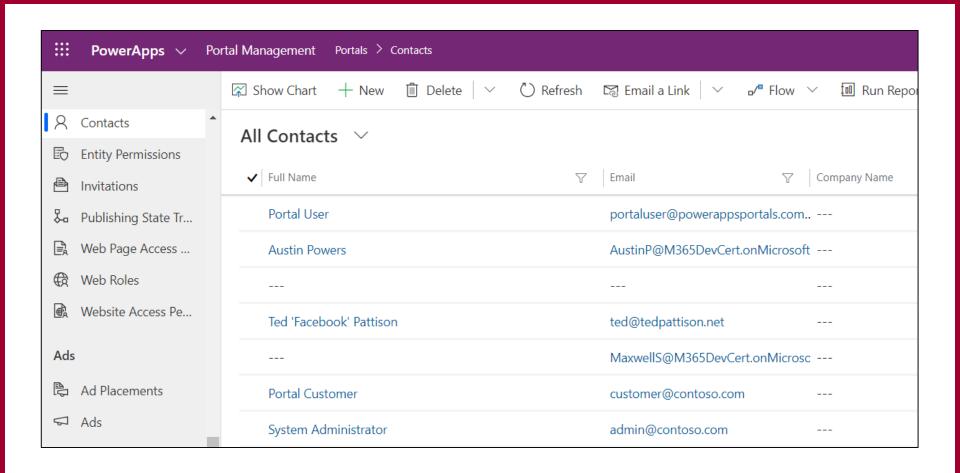
Registering a Local Account

- Local authentication requires account registration
 - Registration results in new Contacts record for user
 - User password saved in Contacts records as hashed value
 - Portal requires email confirmation by default





Examining Portal Contacts





Configuring Portal Authorization

- Web Roles
- Web Page Access Rules
- Website Permissions
- Entity Permissions



Web Roles

- Web roles allow administrator to control access
 - Contact can be assigned to one or more web roles
 - Account can be assigned to one or more web roles
 - Invitation associated with parent account and set of web roles

Active Web Roles 💛			
✓ Name	↑ ▽ Website		
Administrators	Wingtip Toys Portal		
Anonymous Users	Wingtip Toys Portal		
Authenticated Users	Wingtip Toys Portal		
News Authors	Wingtip Toys Portal		
Partners	Wingtip Toys Portal		
Product Managers	Wingtip Toys Portal		



Web Page Access Rules

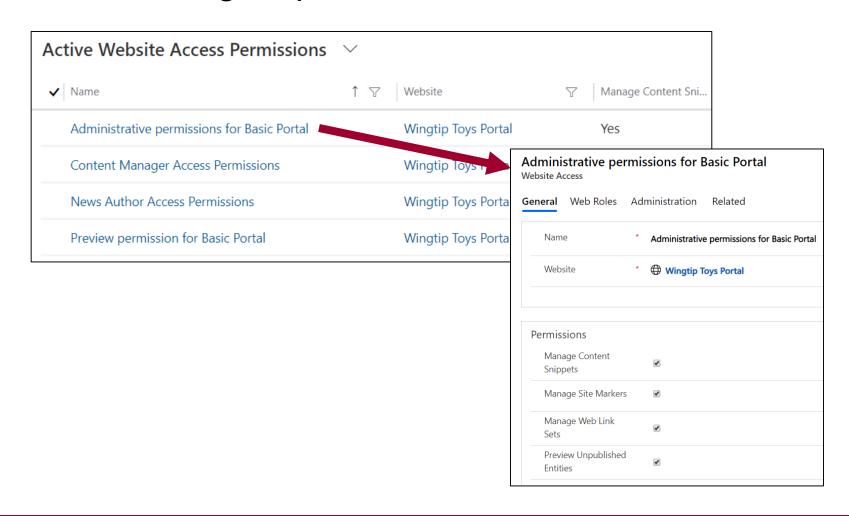
- Web page access rule records used to manage access
 - Web page access rule used to restrict page viewing
 - Web page access rule used to provide editing/publishing permissions
 - Web page access rule associated with a single page
 - Child page access control through parent page access rule
- Web page access control rule rights
 - Restrict read access
 - Allow content editing

Active Web Page Access Control Rules 💛				
✓ Name	↑ ▽ Website	▽ Right	▽ Web Page	
Grant Change to Administrators	Wingtip Toys Portal	Grant Change	Home	
Grant Change to News Authors	Wingtip Toys Portal	Grant Change	News	
Partner Page Read	Wingtip Toys Portal	Restrict Read	Partners	
Restrict Product Management	Wingtip Toys Portal	Restrict Read	Product List	



Website Access Permissions

Used to give permissions to content authors





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Entity Permissions

- Entity permissions grants access to CDS records
 - Permissions can be read-only
 - Permissions can allow inserts, updates and deletes





Accessing CDS Entity Data using Liquid

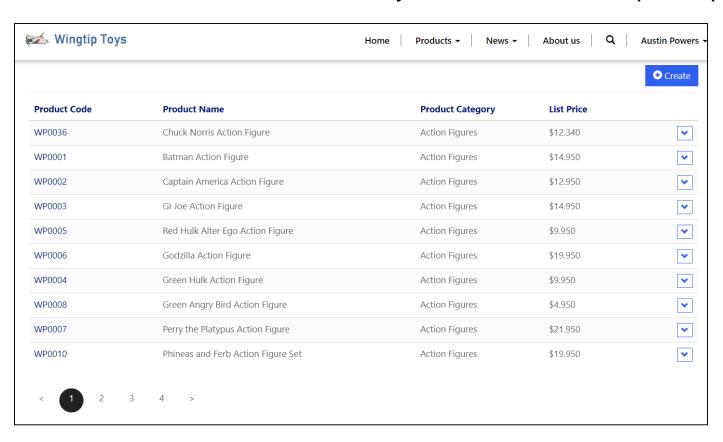
You can write liquid expressions to CDS surface data

```
<div class="container">
 <div class="row" style="padding-top:8px;">
   {% entityview logical_name:'cptlabs_product', name:"Active Products", page_size: 50 %}
   {% assign category = request.params['category'] %}
   {% if category %}
   {% assign products = entityview.records | where: "cptlabs_productcategory.label", category | order_by: "cptlabs_productcode" %}
   {% else %}
   {% assign products = entityview.records | order_by: "cptlabs_productcode" %}
   {% endif %}
   {% for item in products %}
   <div class="col-lg-4">
     <div class="panel panel-default">
       <div class=" panel-heading">{{ item.cptlabs_productname }}</div>
       <div class="panel-body" style="border:1px solid ■#CCCCCC;height:90px;">
         <img style="float:left;" src="{{ item.cptlabs_productimageurl }}" />
         <div>{{ item.cptlabs_productdescription }}</div>
         <div>List Price: ${{ item.cptlabs_listprice | round:2 }}</div>
         <div stvle="clear:left"></div>
   {% endfor %}
   {% endentityview %}
```



View CDS Data with Entity View

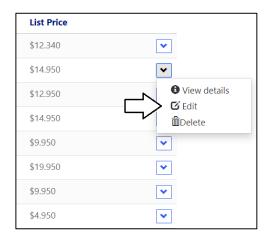
- CDS Allows you to add entity views
 - Use views from a custom entity to surface data on portal page

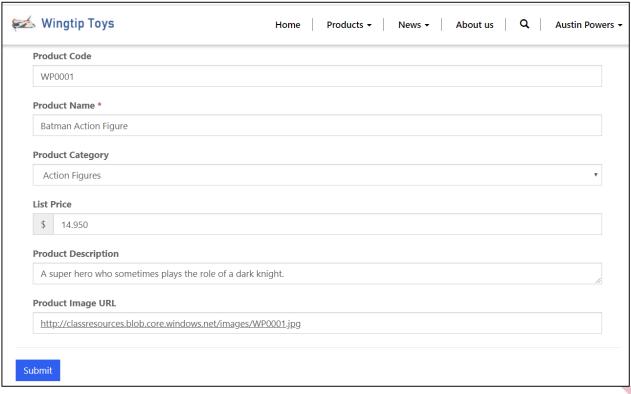




Updating CDS Data with Entity Forms

- Entity forms can be used to allow user editing
 - Users can edit existing CDS records
 - Users can add new CDS records





Summary

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