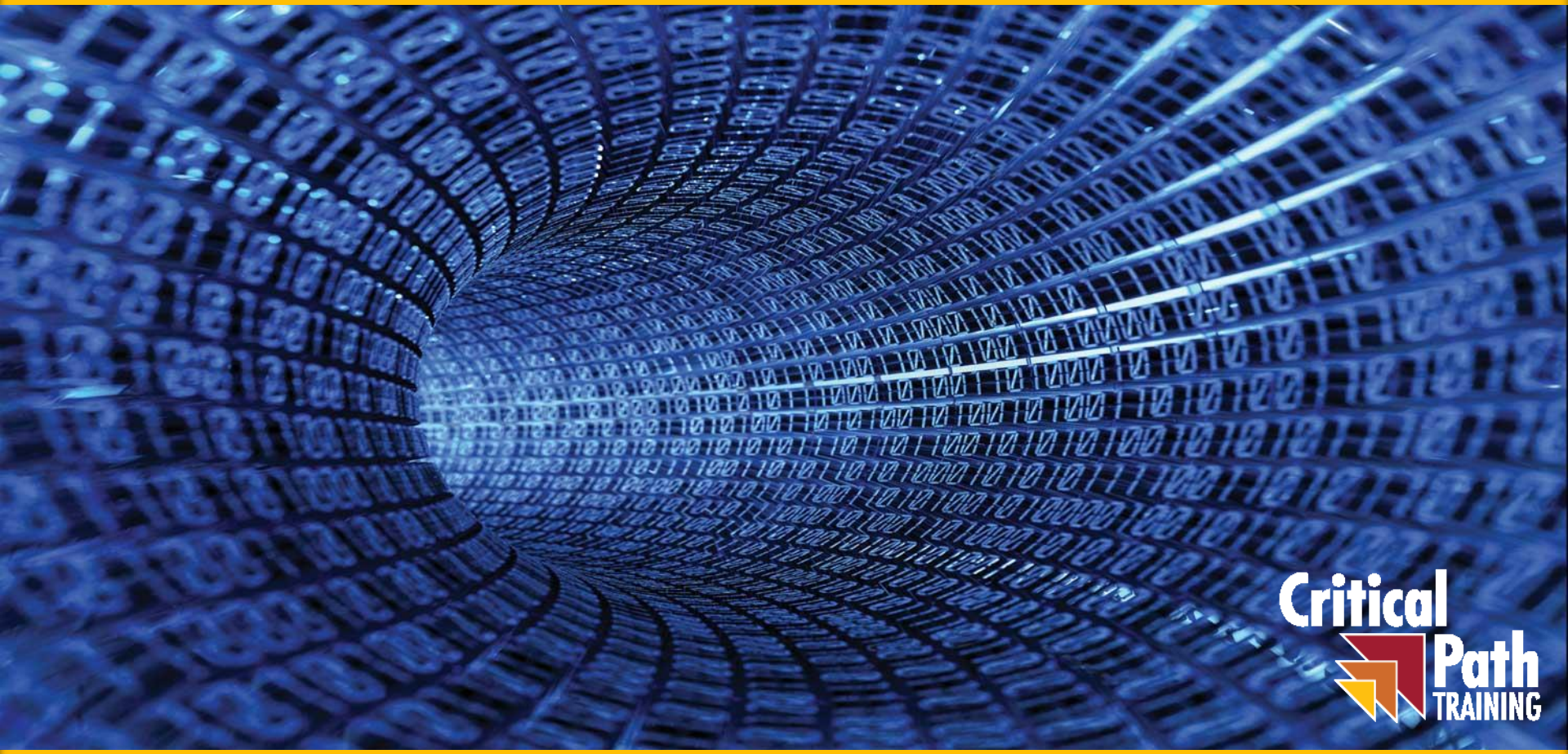
Working with the Common Data Service for Apps



Agenda

- Common Data Service for Apps Overview
- Creating the CDSA Database
- Understanding Entities
- Creating a Custom Entity
- Importing Data into the CDS Database
- Building Model-driven Apps

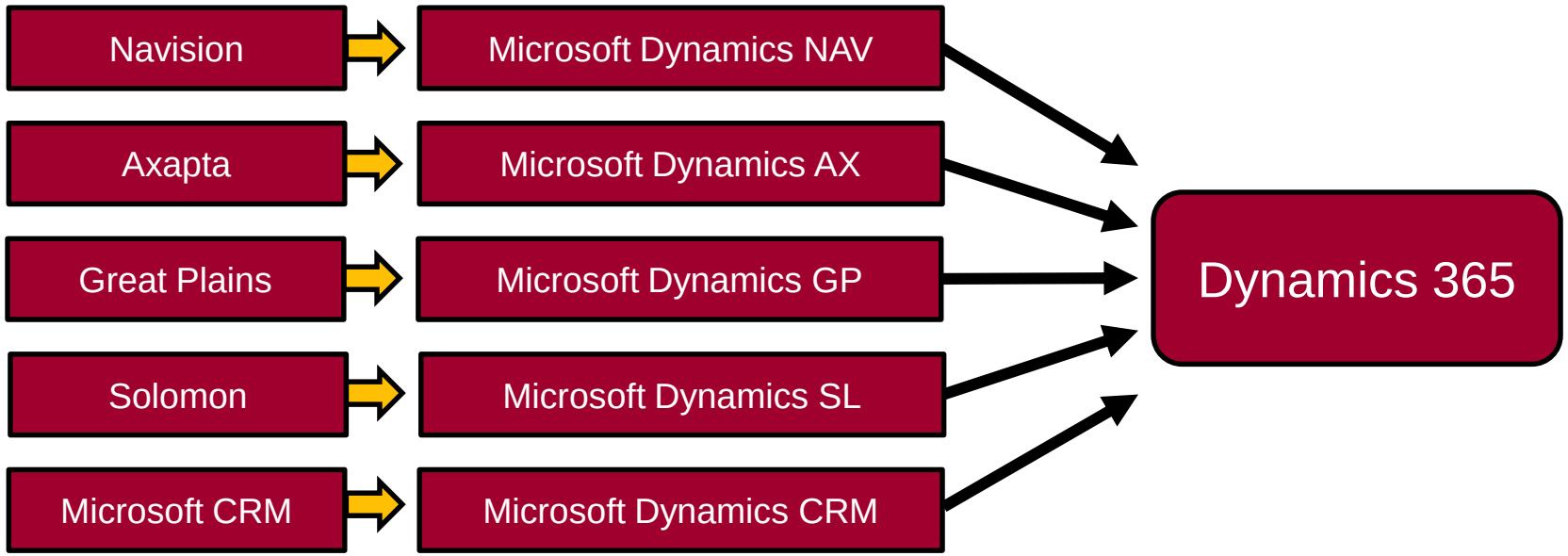
What is Common Data Service for Apps?

- Platform for building business applications
  - Business application include CRMs, ERPs, etc.
  - Provides common infrastructure

- What does CDS for Apps provide?
  - Standard database schema of common entities
  - Extensible design for extending and creating entities
  - Ability to build entity-specific UI components
  - Ability to build entity-specific business logic
  - Ability to build apps by assembling components

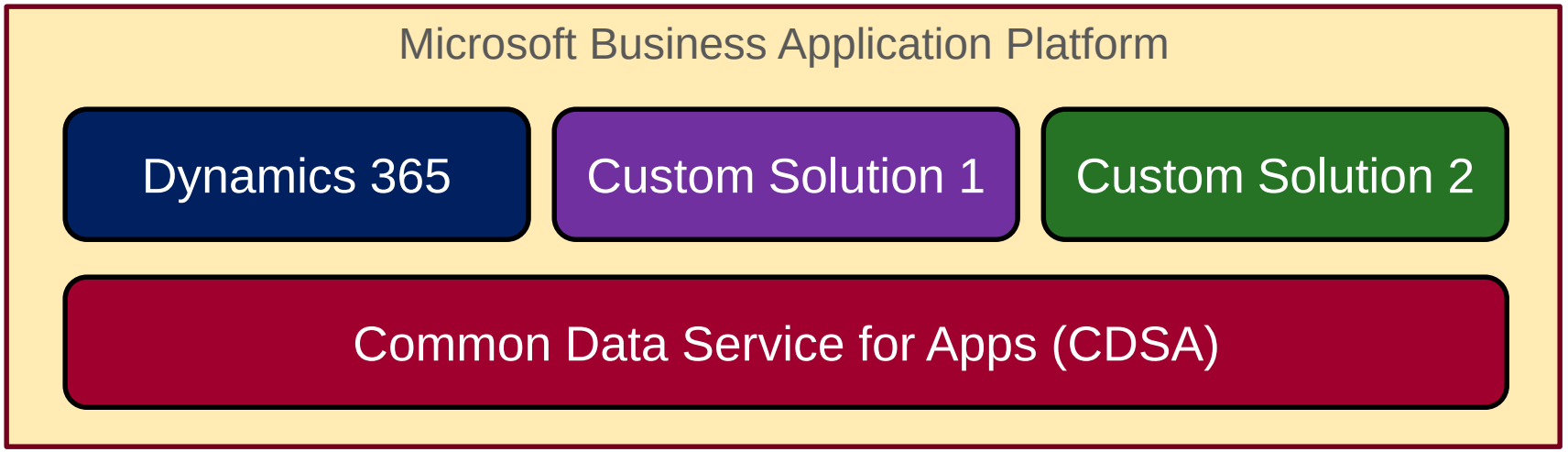
Evolution of Microsoft Business Application Suite

- Microsoft has acquired many software companies
  - Several acquisitions involved software that targets CRM and ERP
  - Microsoft evolved many software applications into Dynamics suite
  - Dynamics 365 represents evolution from on-premises to cloud



Birth of a Platform

- Microsoft migrating infrastructure out of Dynamics 365
  - CDSA has infrastructure for building entity-based business solutions
  - Dynamics 365 is now collection of entities with UI and logic
  - Custom solutions can be built using entities with UI and logic
  - CDSA provides foundation of Microsoft Business Application Platform



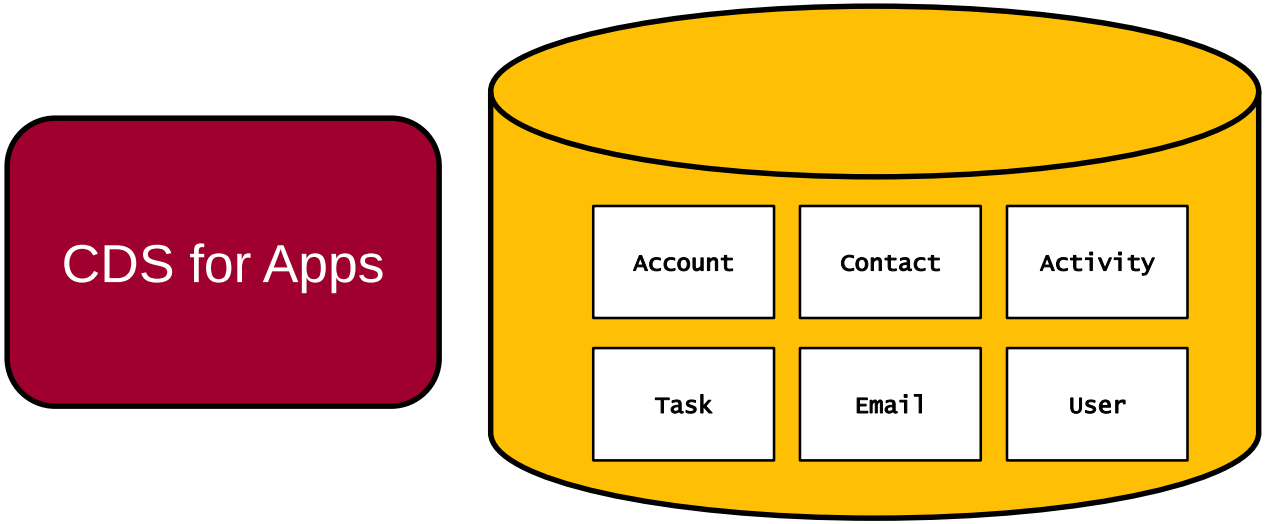
Common Data Model (CDM)

- What is the Common Data Model (CDM)?
  - Open-sourced definition of standard entities
  - Entities are well-defined, modular, and extensible
  - structural and semantic consistency across apps and deployments

- CDM helps integrate and *disambiguate data* from
  - business processes
  - digital interactions
  - product telemetry
  - people interactions

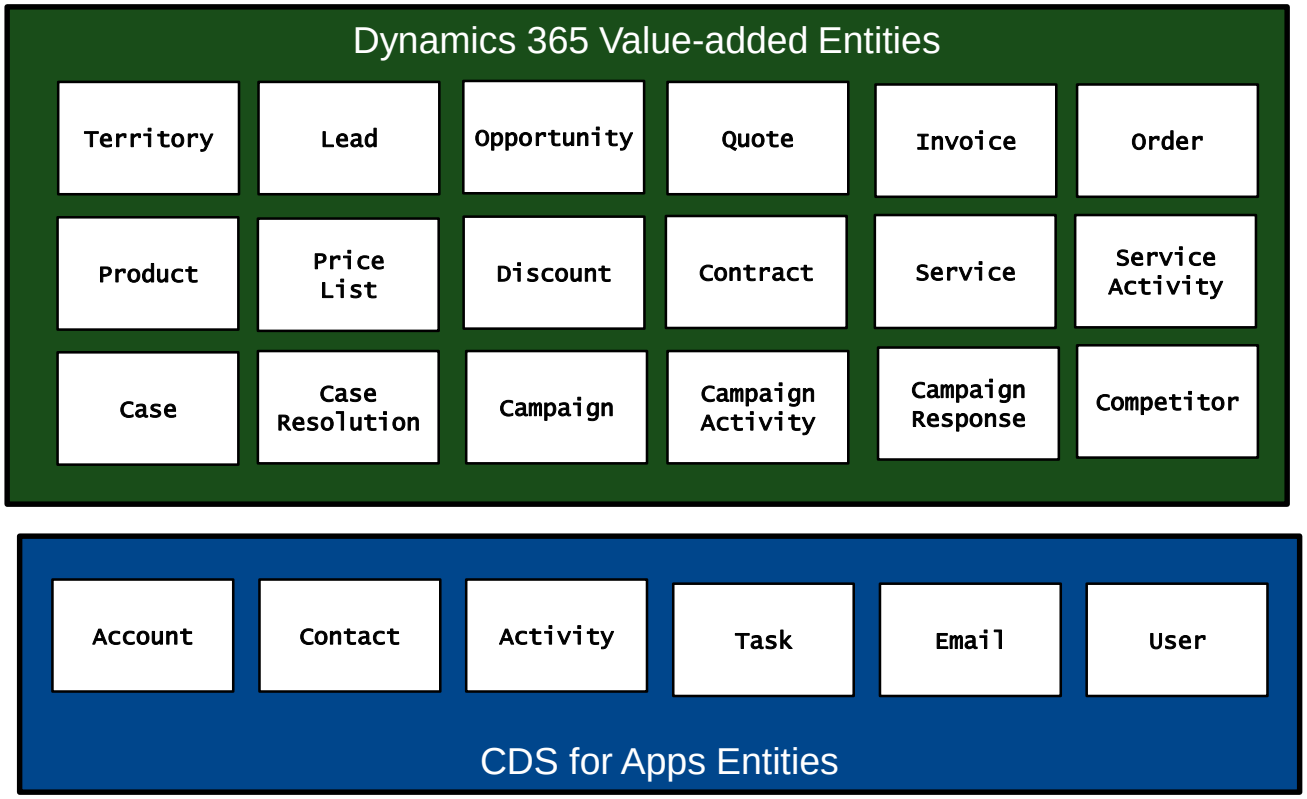
Common Database Model Schema

- CDM defines set of entities available to all applications
  - **Account**: represents an business entity that can be invoiced
  - **Contact**: represents a human being
  - **Activity**: represents an event that can be schedule
  - **Task**: represents work item that can be assigned to user or team
  - **Email**: represents email message sent or received
  - **User**: represents system user who can be owner of records



CDS for Apps vs Dynamics 365 for Sales

- CDS for Apps provides base set of entities
  - Custom solutions can extend and add entities
  - Dynamics 365 add a large set of its own entities

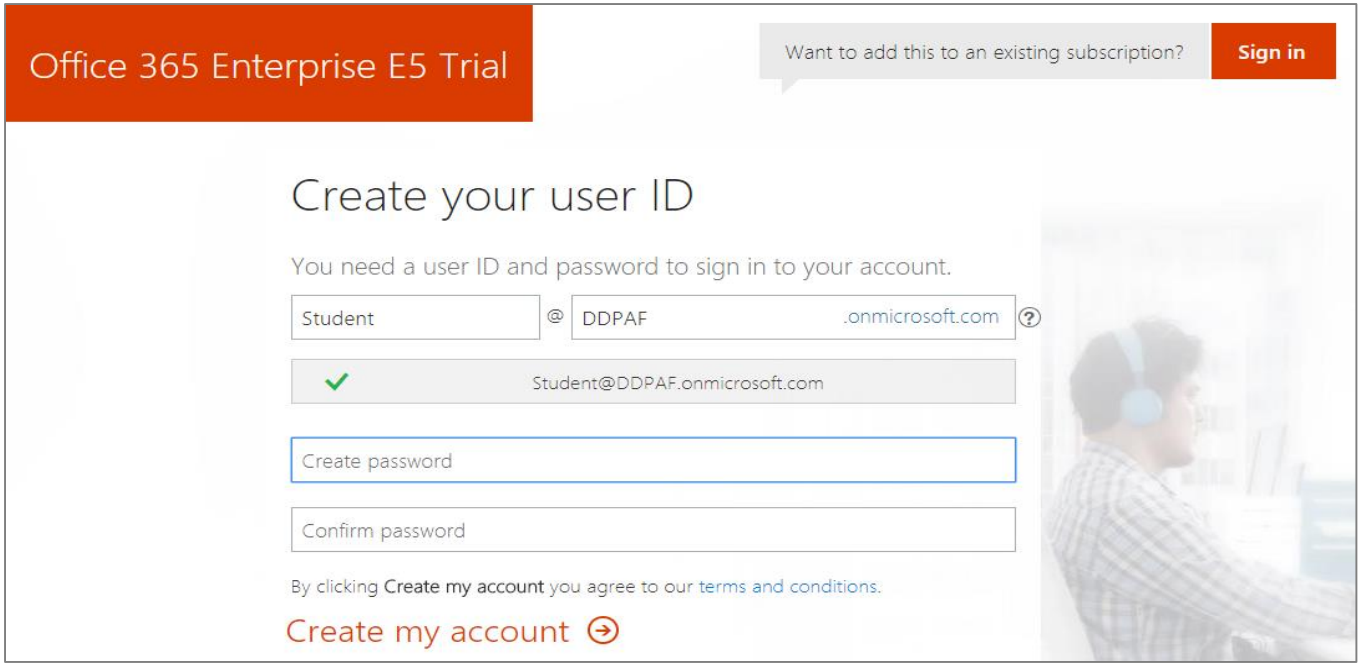


Agenda

- ✓ Common Data Service for Apps Overview
- ➢ Creating the CDSA Database
- Understanding Entities
- Creating a Custom Entity
- Importing Data into the CDS Database
- Building Model-driven Apps

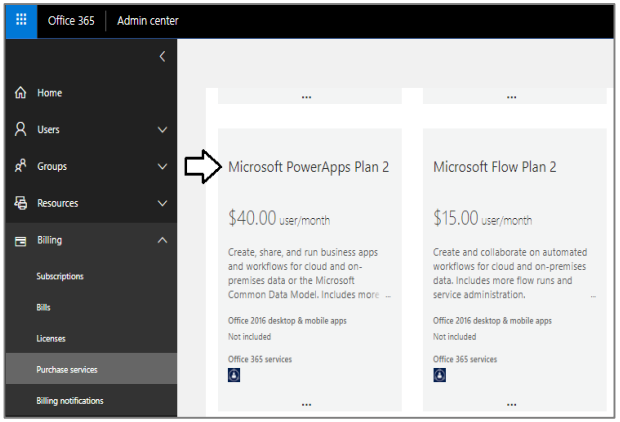
Creating an Office 365 E5 Trial Tenant

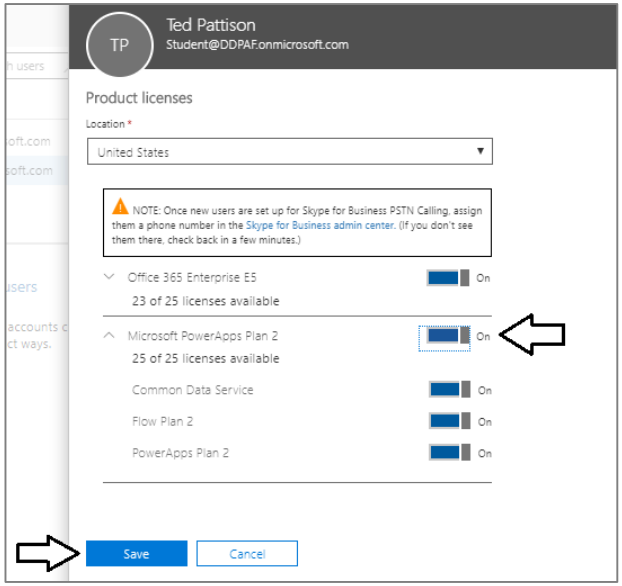
- Test out CDSA by creating an Office 365 trial tenant
  - Provides an isolated development environment for testing
  - Trial accounts will last for 30 days
  - Use this link: https://go.microsoft.com/fwlink/p/?LinkID=698279&culture=en-US&country=US



PowerApps Plan 2

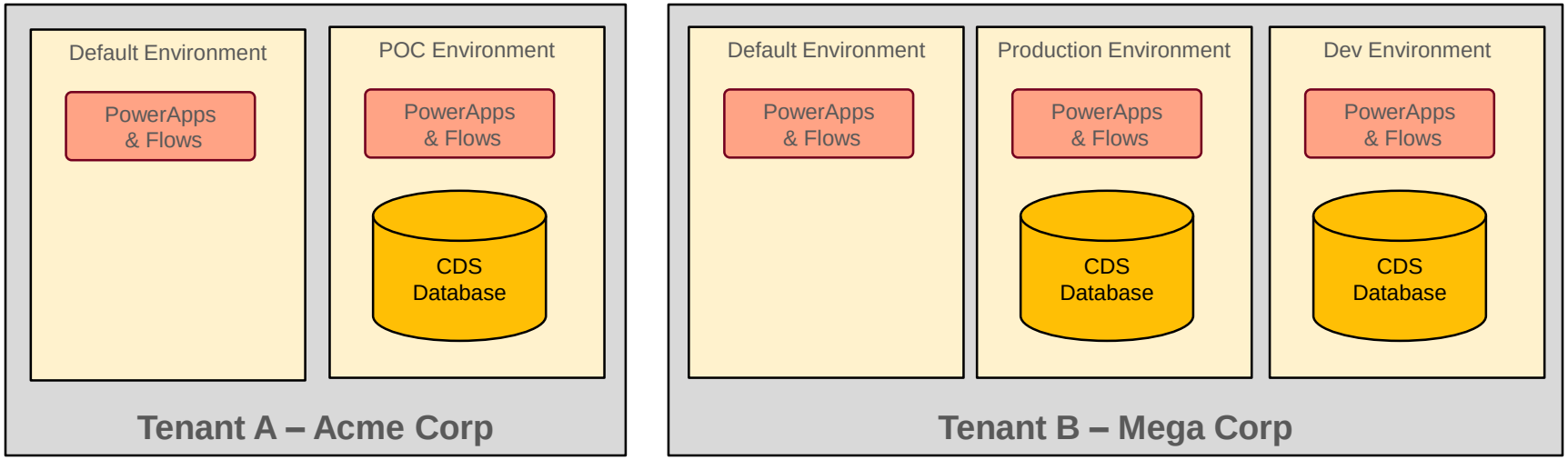
- Certain design tasks require PowerApps Plan 2
  - You can start a 30-day trial for PowerApps Plan 2
  - License must be assigned to individual user accounts





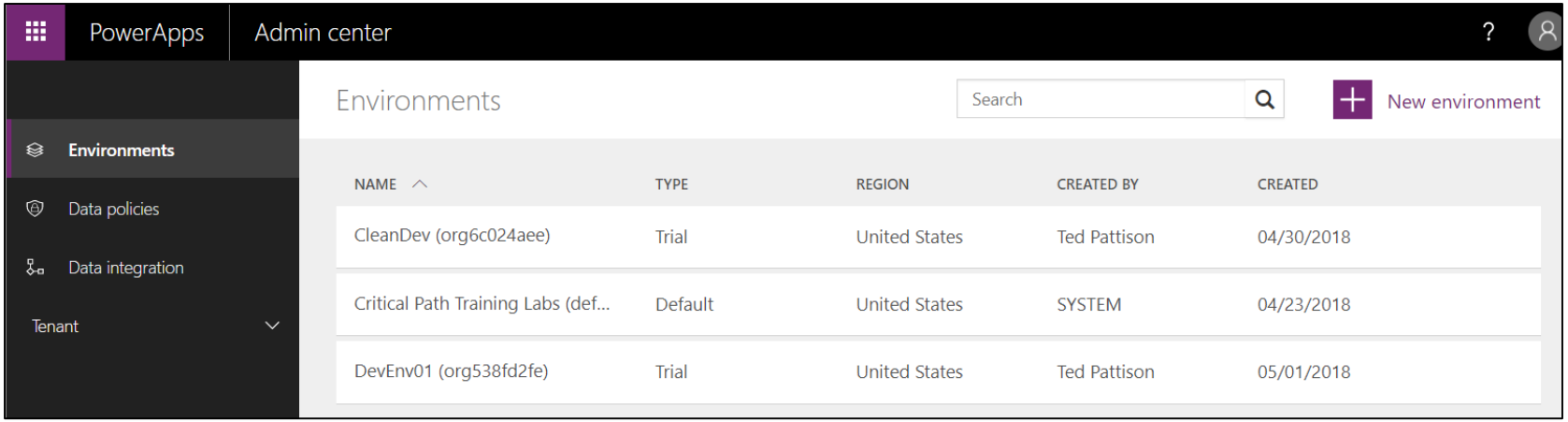
What is an Environment?

- Environment is container for PowerApps, Flow and the CDS
  - Each environment and its resources exist within a geographic region
  - Environment resources include PowerApps, Flows and CDS database
  - Environment represents a governance and security boundary
  - Every tenant is provisioning with a default environment
  - Administrator can provision additional environments if needed
  - Environment can be provisioned with or without a CDS database
  - Environment can contain only one CDS database



Environments and CDS for Apps

- Environments managed in PowerApps Admin Center
  - You can configure security and access
  - You can create new environments
- Access to environment controlled at 3 different levels
  - Environmental roles
  - Resource permissions for apps and flows
  - CDS Database roles



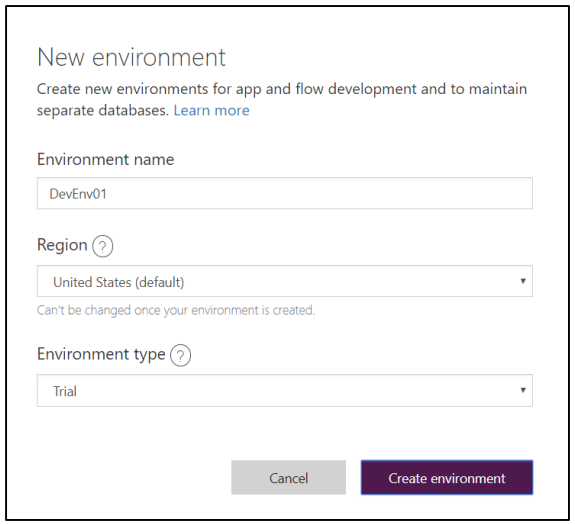
Environment Roles (Admin and Maker)

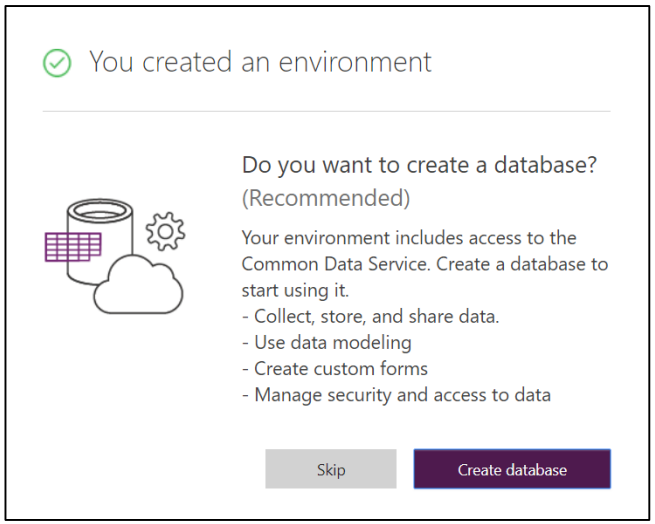
- Environment Admin role
  - Change role membership
  - Create new environments with or without CDS database
  - View and manage all resources created in environment
  - Set Data Loss Prevention policies

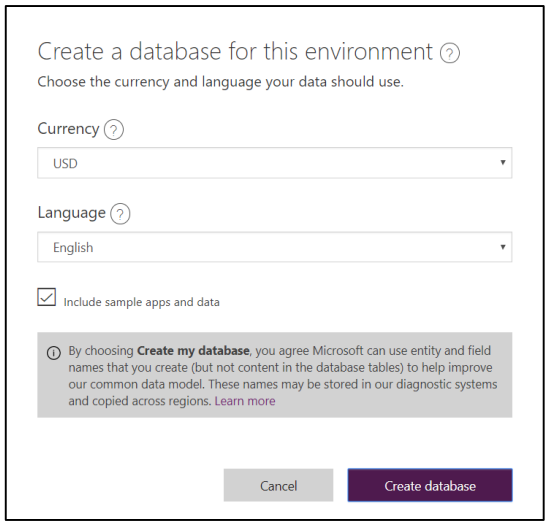
- Environment Maker role
  - Create apps, connections, custom APIs, gateways, and flows
  - Create and extend CDS entities *(requires PowerApps plan 2)*

Creating the CDS for Apps Database

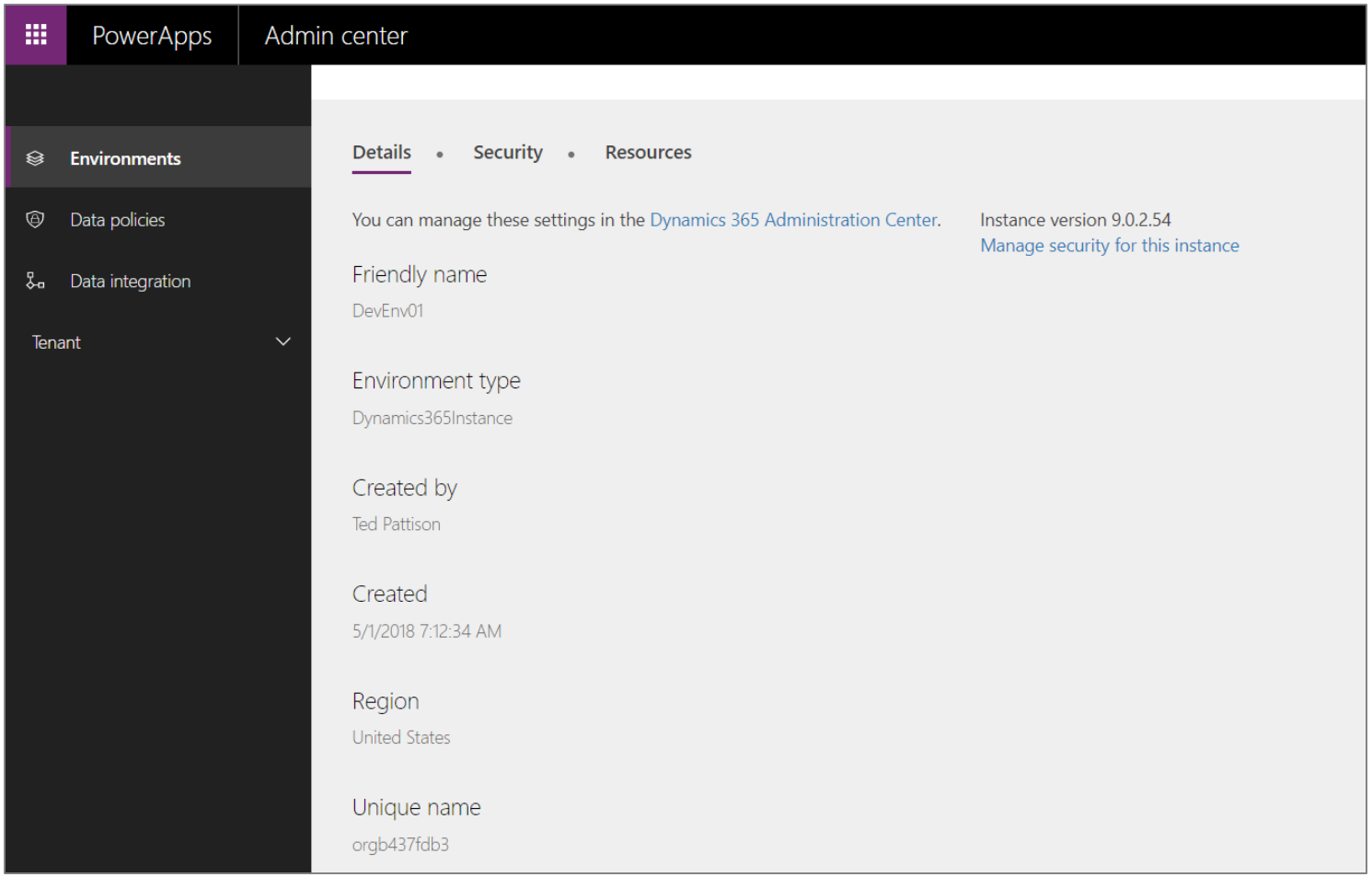
- Steps to create a new CDS for Apps Database
  1. Navigate to Power Apps Admin Center
  2. Create a new environment
  3. Configure the new environment with a CDS for Apps database
  4. Add option to include sample data [Optional]



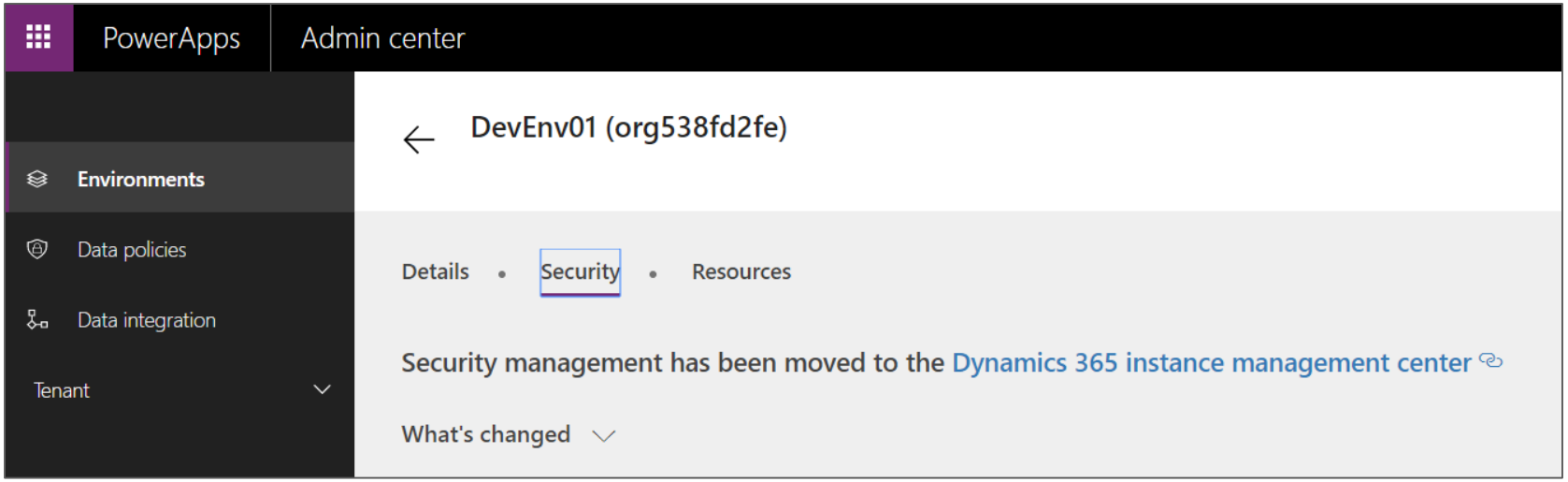




Examining the New Environment

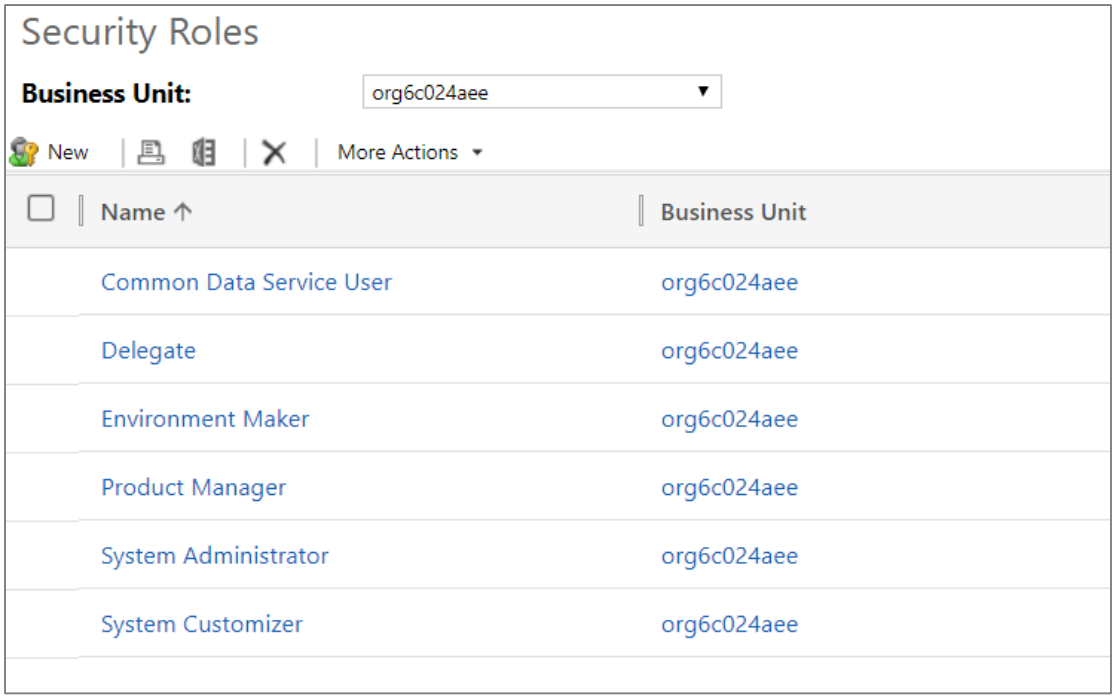


Configuring Environment Security



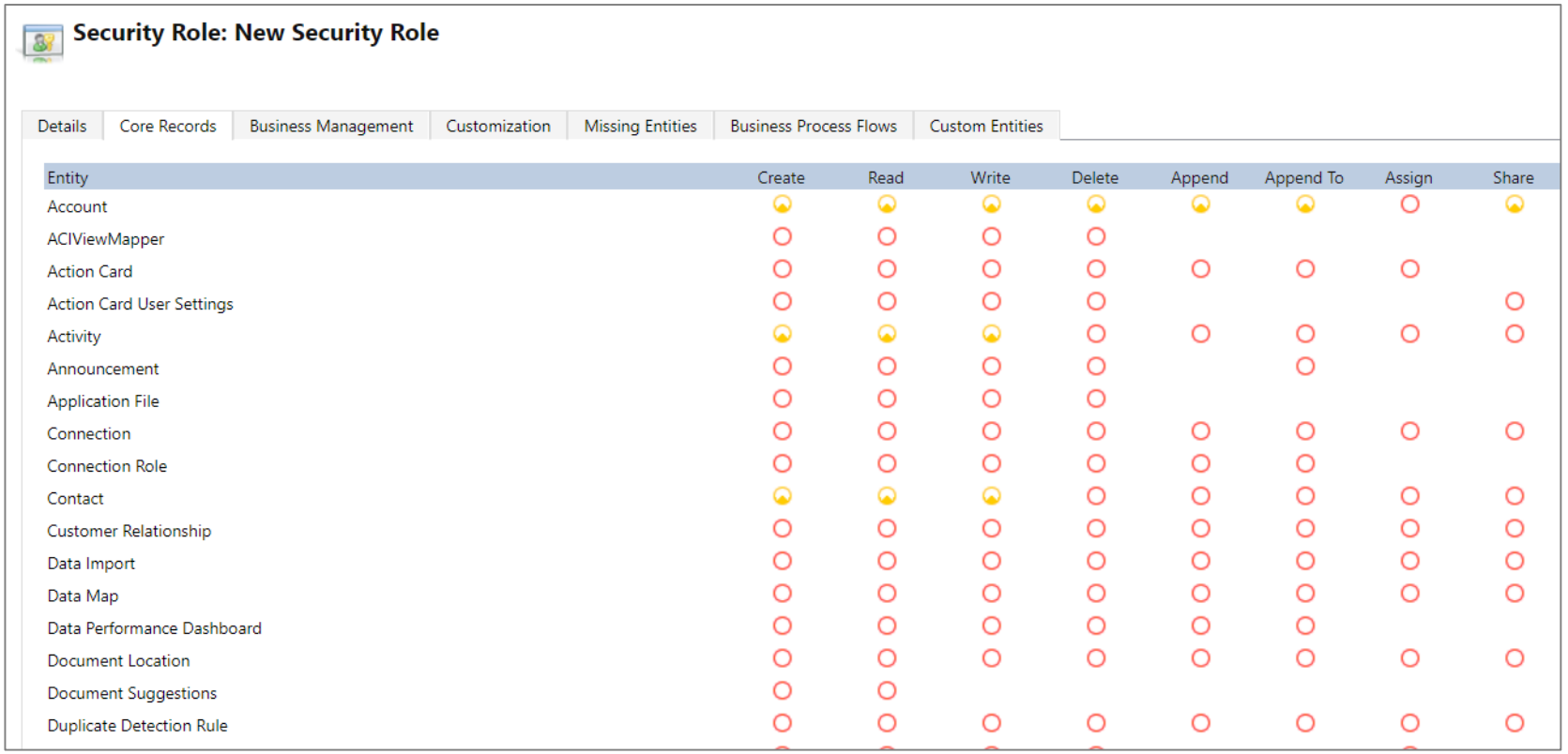
Environmental Security Roles

- User access to CDS data based on roles
  - Environment security configured in terms of business units
  - CDS pre-defines common security roles
  - You can define custom security roles as well



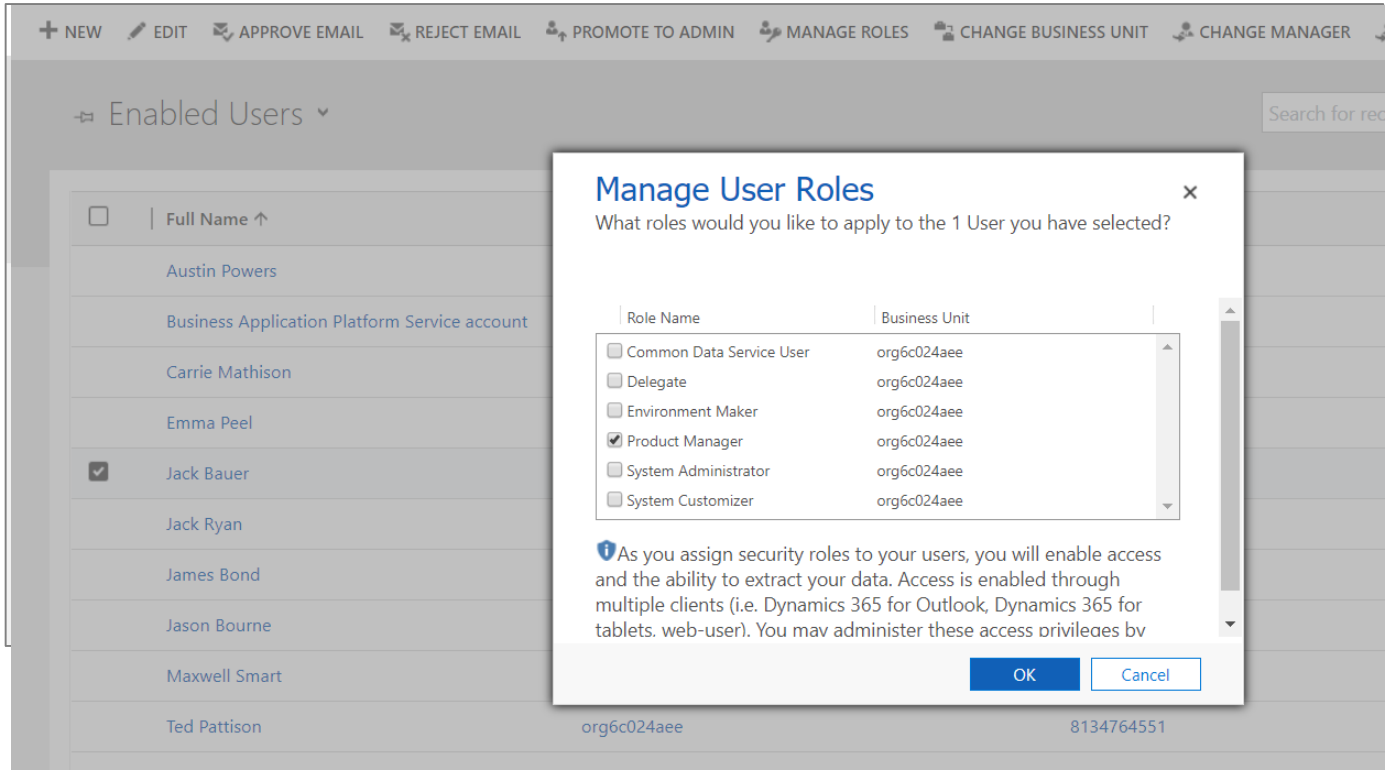
Security Role Configuration – Core Records

- Roles define access to specific entities
  - Permissions include **create**, **read**, **write**, **delete**, etc.



Assigning Users to Security Roles

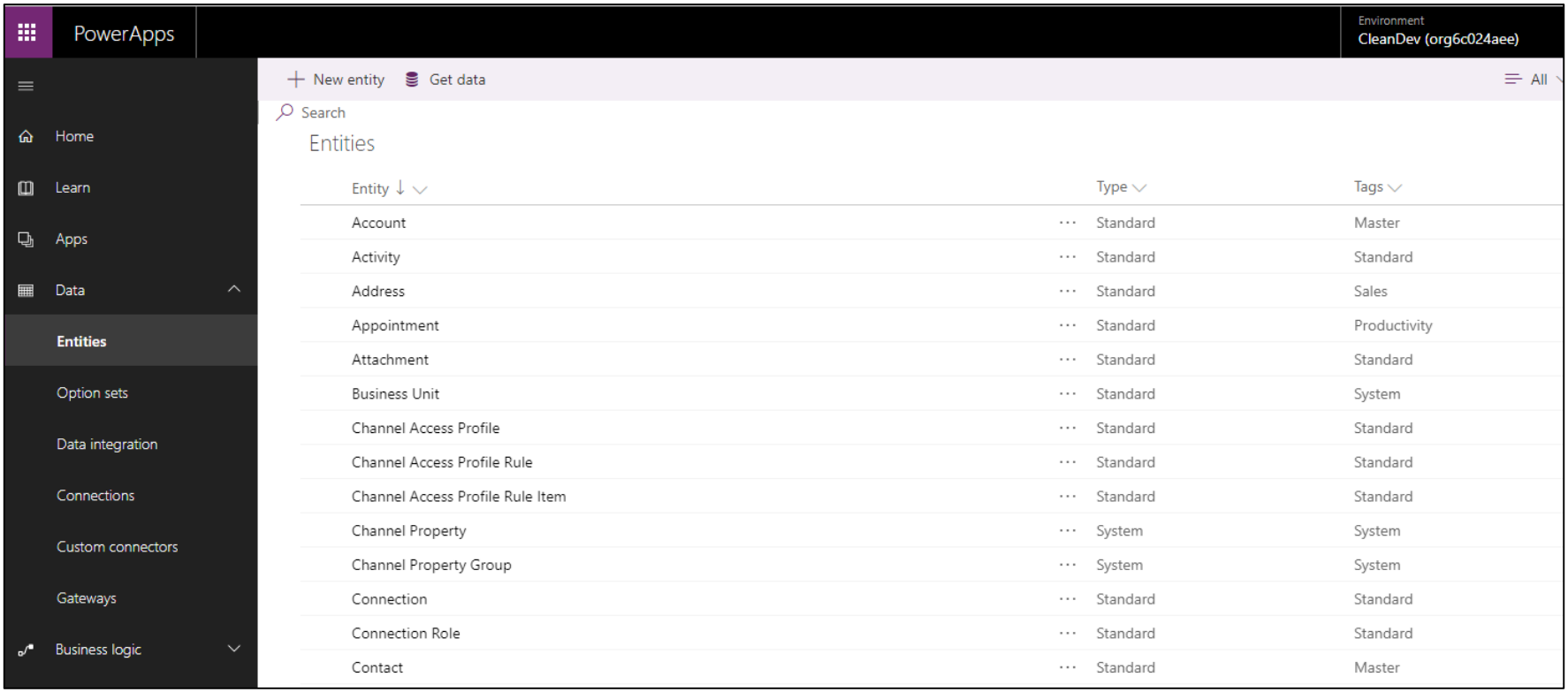
- Roles are assigned to users and groups



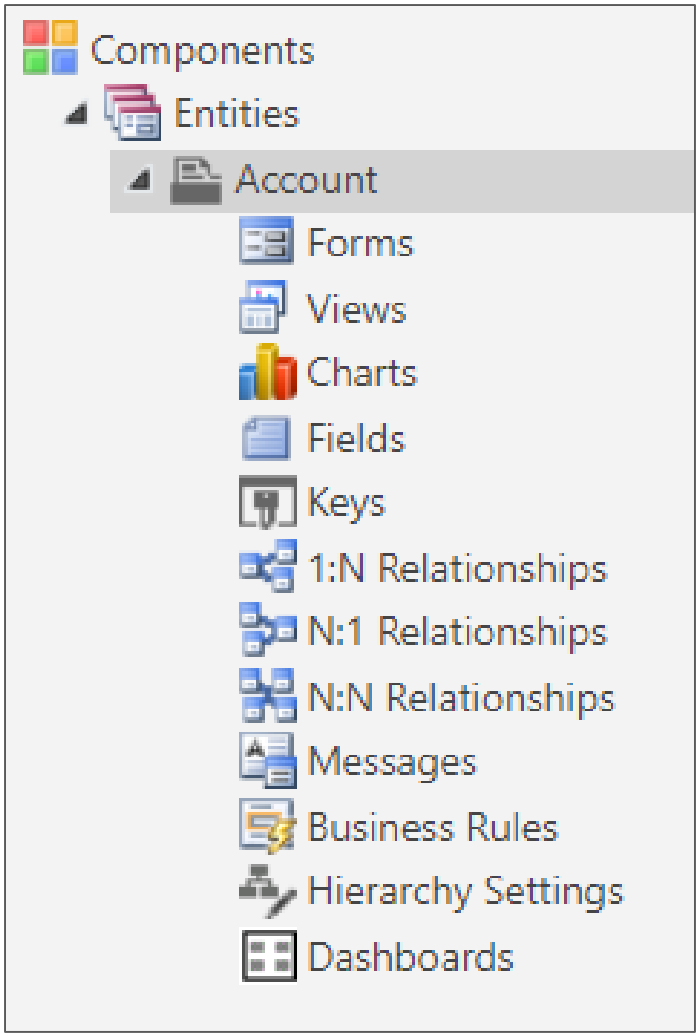
Agenda

- ✓ Common Data Service for Apps Overview
- ✓ Creating the CDSA Database
- ➢ Understanding Entities
- Creating a Custom Entity
- Importing Data into the CDS Database
- Building Model-driven Apps

Inspecting the Standard Entities

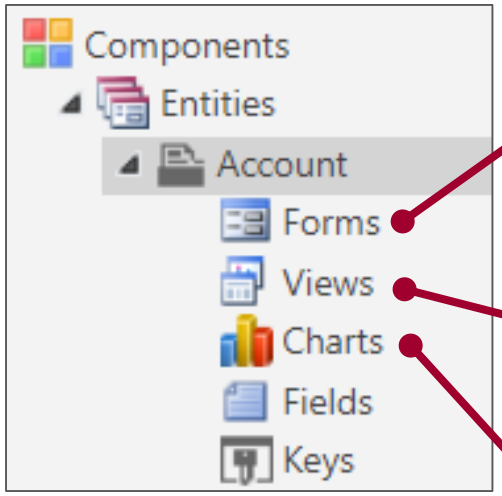


What Exactly is an Entity?



- Data components
  - Entity, Fields, Option sets, Relationships
- UI components
  - Forms
  - Views
- Logic Components
  - Business rules
  - Business process flows
  - Workflows, Actions & Flows
- Visualization Components
  - Charts
  - Dashboards
  - Power BI components

Inside an Entity



System Forms **Active Forms**

New | Delete | Enable Security Roles | Form Order | Activate | Deactivate | More Actions

Name	Form State	Form Type	State	Customizable	Version	Description
Account Card form	Active	Card	Managed	True	8.0.0.0	Default Account card form.
Account for Interactive experie...	Active	Main	Managed	True	8.0.0.0	Default Interactive experience Account form.
Account	Active	Main	Managed	True	5.0.0.0	Updated default Account form.
Account Quick Create	Active	Quick Create	Managed	True	6.0.0.0	Default quick create form for Account

View: All Active Views

New | More Actions

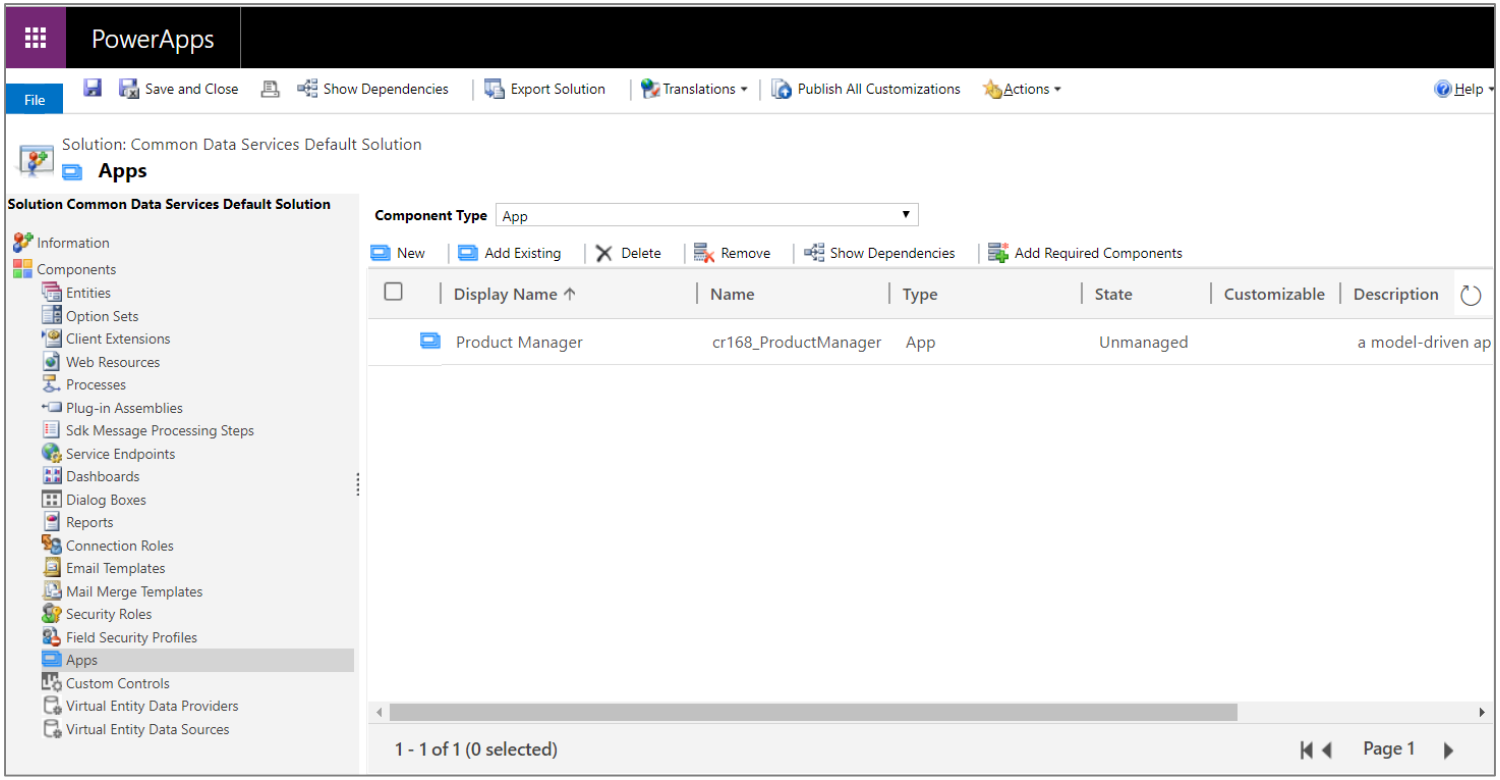
Name	Type	State	Customizable	Description
Account Advanced Find View	Advanced Find View	Managed	True	
Account Associated View	Associated View	Managed	True	Displays information about related accounts in the detail form of ...
Account BulkOperation View	Associated View	Managed	True	Display Accounts for BulkOperation View
Account List Member View	Associated View	Managed	True	Displays information about related accounts in the Members subg...

New | More Actions

Name	State	Customizable	Description
Accounts by Industry	Managed	True	Shows the total number of accounts by industry.
Accounts by Owner	Managed	True	Shows the total number of accounts by owner.
Accounts by Owner - Tag Chart	Managed	True	Shows the total number of accounts by owner in a tag chart.
New Accounts By Month	Managed	True	Shows the number of new accounts in a month.

Solution Explorer

- Solution Explorer provides top-level view of customizations
  - Can be challenging to find in current UI experience



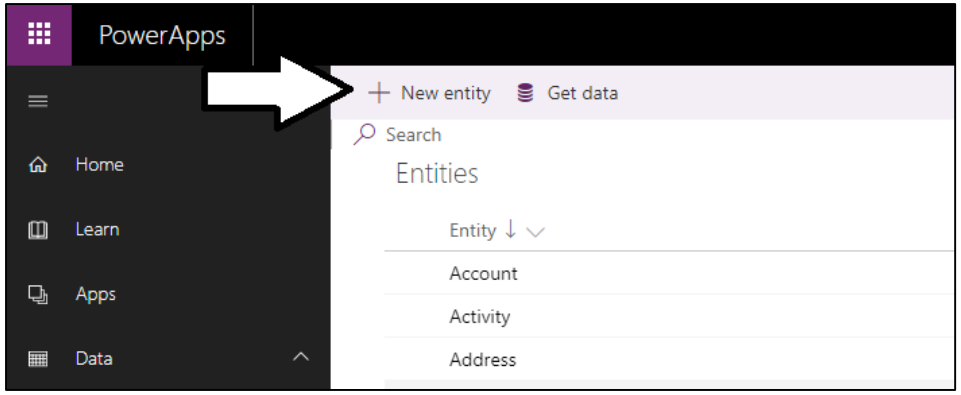
CDM Extensibility

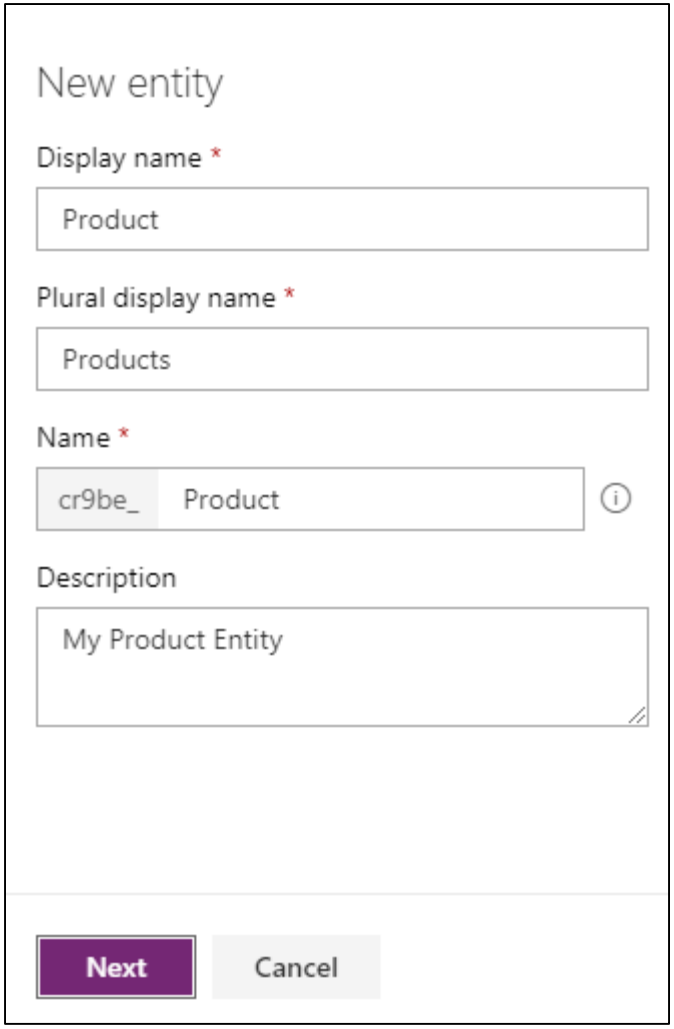
- You can modify most standard entities
  - Modification involves adding fields
  - Existing fields cannot be modified or removed
  - System entities cannot be modified
- You can create custom entities
  - Herein lies the ability to design complex business apps

Agenda

- ✓ Common Data Service for Apps Overview
- ✓ Creating the CDSA Database
- ✓ Understanding Entities
- ➢ Creating a Custom Entity
- Importing Data into the CDS Database
- Building Model-driven Apps

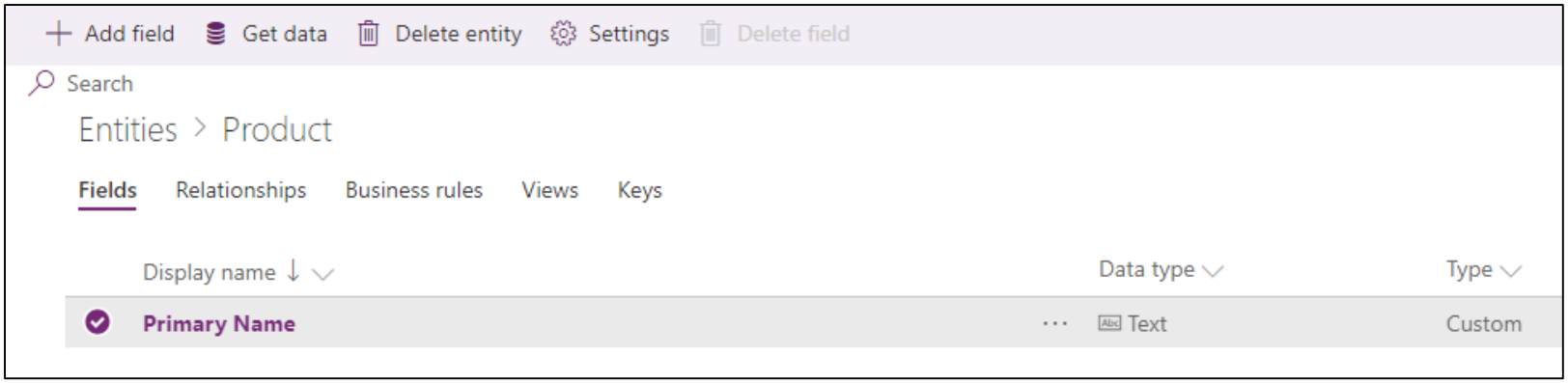
Creating a Custom Entity





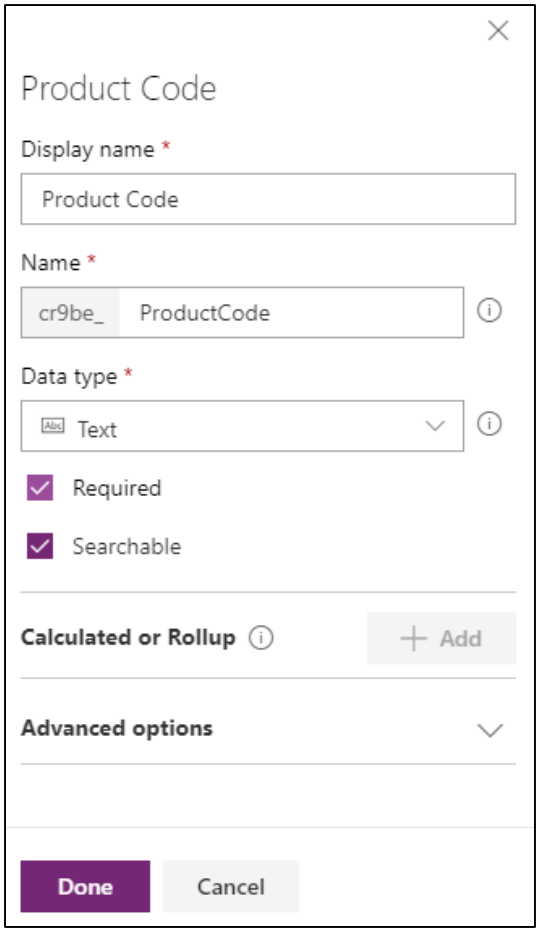
Primary Name

- Every entity created with Primary name field
  - Display name can be changed to something more appropriate

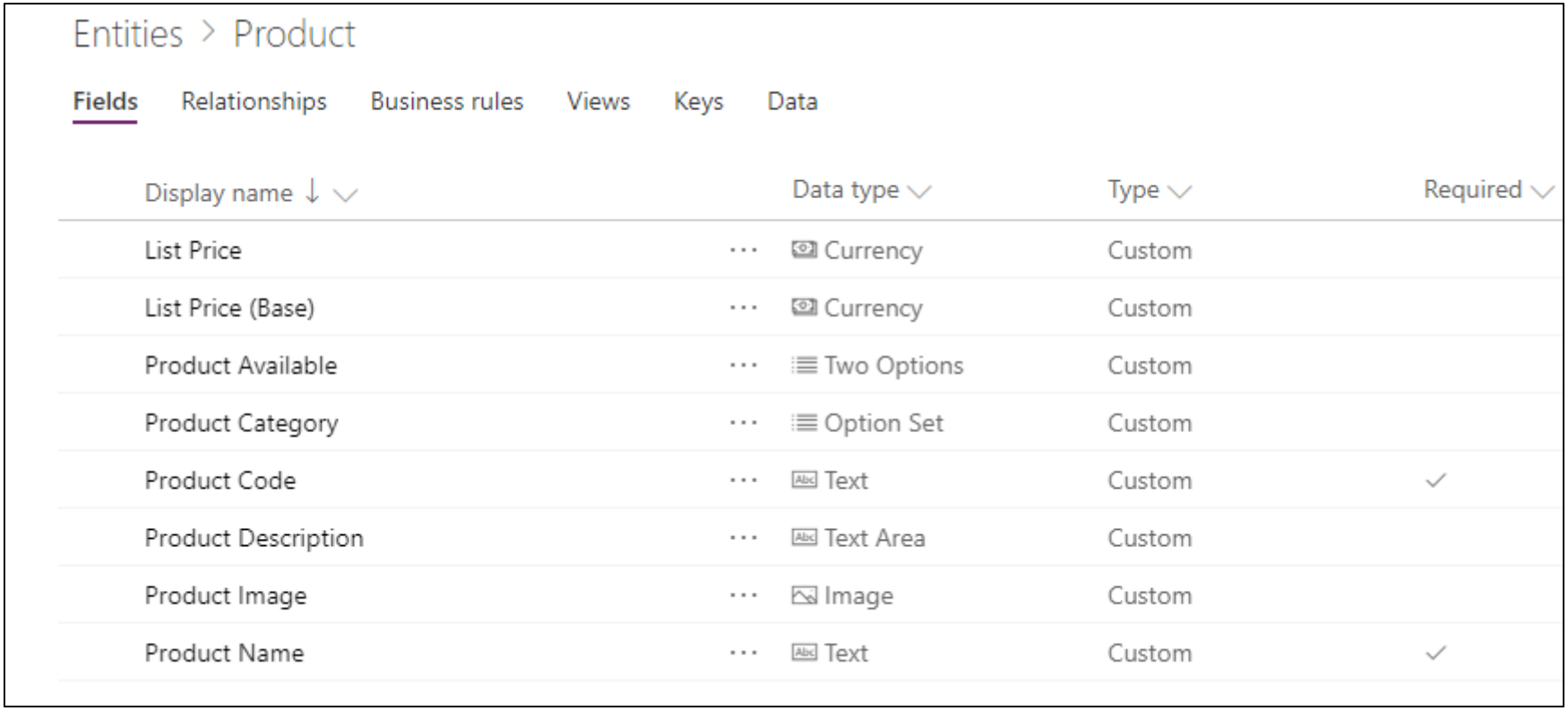


Adding Fields

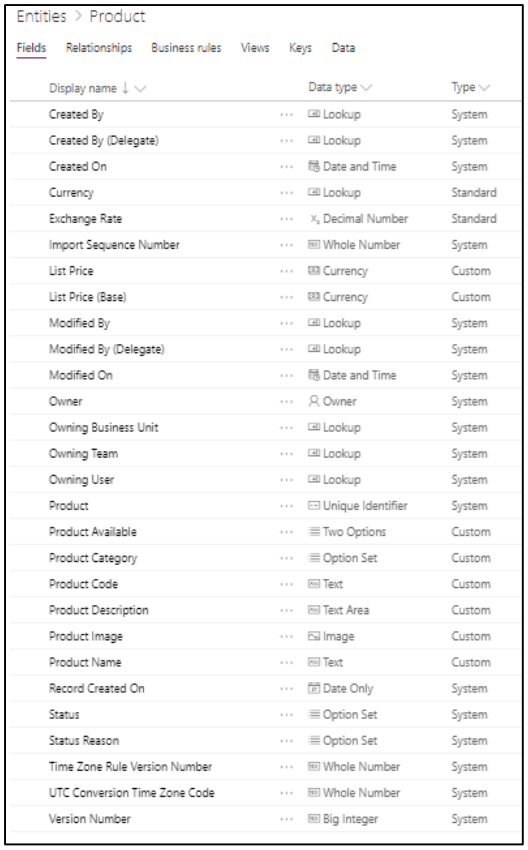
- Custom entity can be extended by adding fields



Adding Custom Fields



Core System Fields Added to All Entities



Entities > Product

Fields | Relationships | Business rules | Views | Keys | Data

Display name	Data type	Type
Created By	Lookup	System
Created By (Delegate)	Lookup	System
Created On	Date and Time	System
Currency	Lookup	Standard
Exchange Rate	Decimal Number	Standard
Import Sequence Number	Whole Number	System
List Price	Currency	Custom
List Price (Base)	Currency	Custom
Modified By	Lookup	System
Modified By (Delegate)	Lookup	System
Modified On	Date and Time	System
Owner	Owner	System
Owning Business Unit	Lookup	System
Owning Team	Lookup	System
Owning User	Lookup	System
Product	Unique Identifier	System
Product Available	Two Options	Custom
Product Category	Option Set	Custom
Product Code	Text	Custom
Product Description	Text Area	Custom
Product Image	Image	Custom
Product Name	Text	Custom
Record Created On	Date Only	System
Status	Option Set	System
Status Reason	Option Set	System
Time Zone Rule Version Number	Whole Number	System
UTC Conversion Time Zone Code	Whole Number	System
Version Number	Big Integer	System

Product	Unique Identifier	System

Created By	Lookup	System
Created By (Delegate)	Lookup	System
Created On	Date and Time	System

Modified By	Lookup	System
Modified By (Delegate)	Lookup	System
Modified On	Date and Time	System

Owner	Owner	System
Owning Business Unit	Lookup	System
Owning Team	Lookup	System
Owning User	Lookup	System

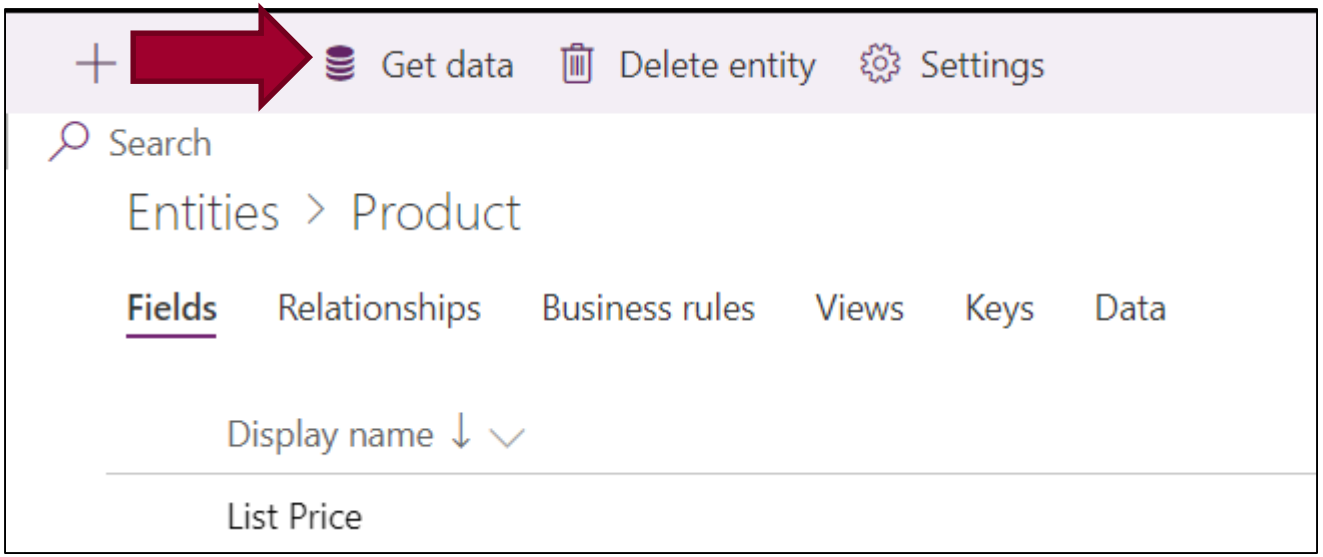
Record Created On	Date Only	System
Status	Option Set	System
Status Reason	Option Set	System
Time Zone Rule Version Number	Whole Number	System
UTC Conversion Time Zone Code	Whole Number	System
Version Number	Big Integer	System

Agenda

- ✓ Common Data Service for Apps Overview
- ✓ Creating the CDSA Database
- ✓ Understanding Entities
- ✓ Creating a Custom Entity
- ➢ Importing Data into the CDS Database
- Building Model-driven Apps

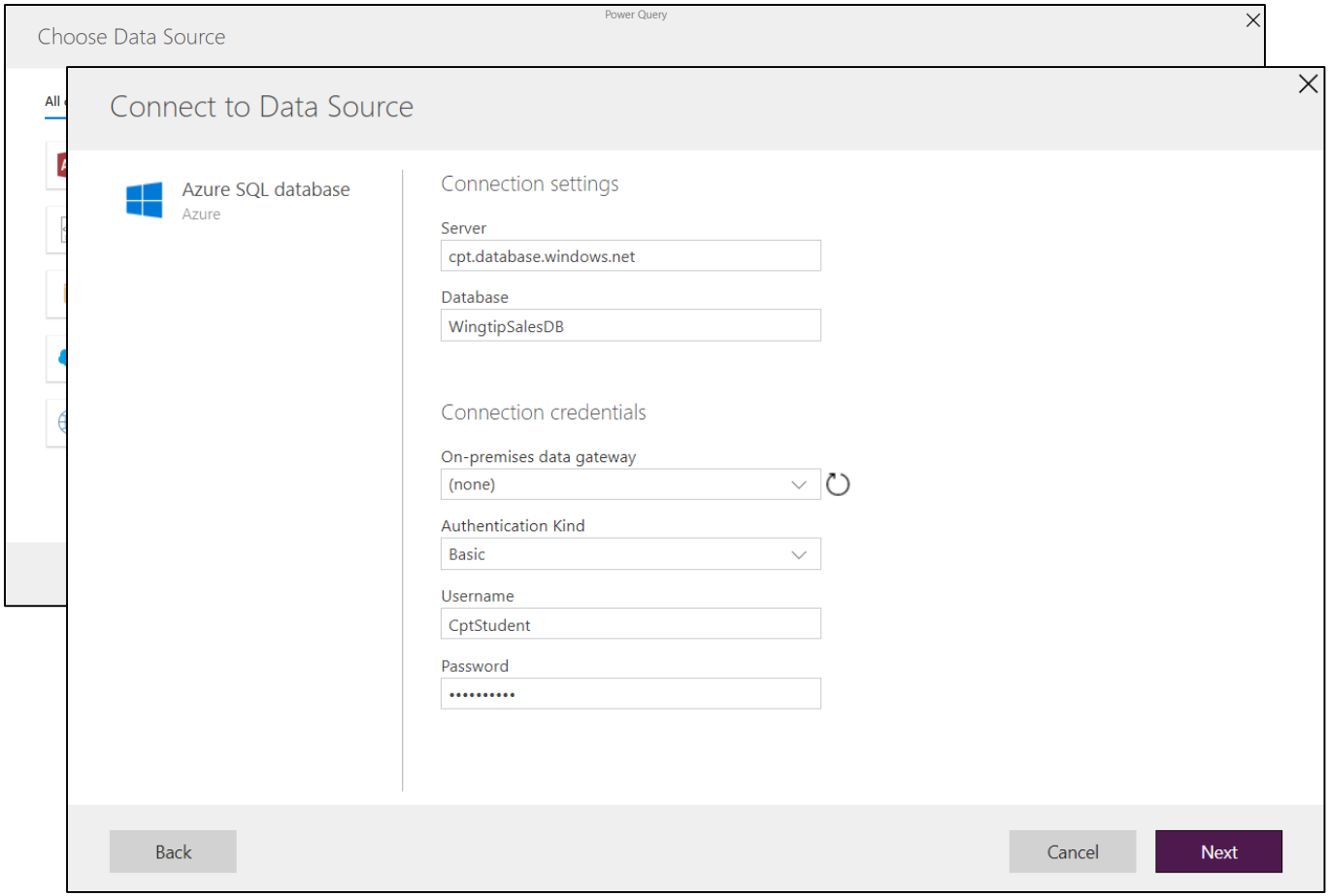
Importing Data

- You can import data from external sources
  - Data can be added to table for new or existing entity
  - Importing tools include Power Query in the browser

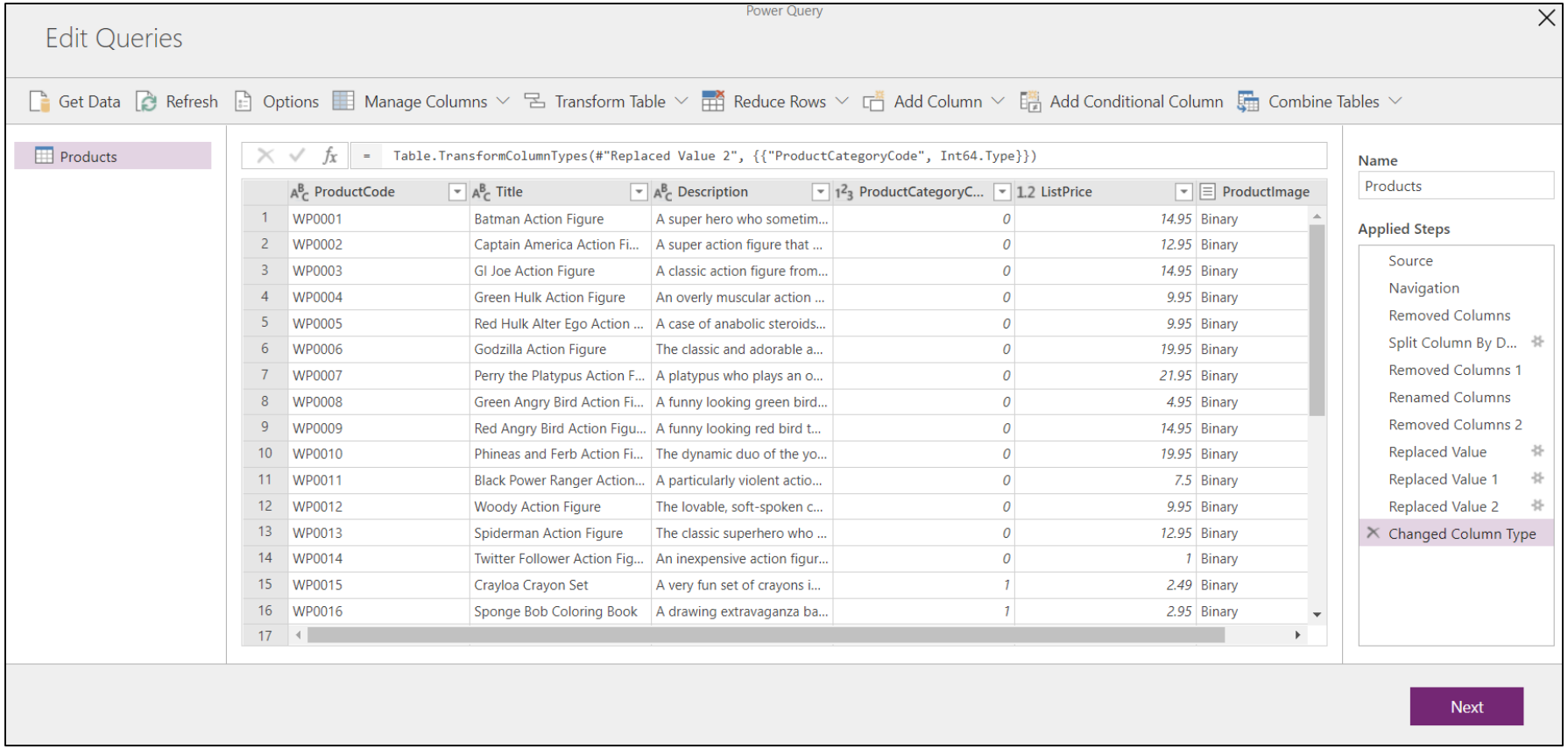


Selecting an External Datasource

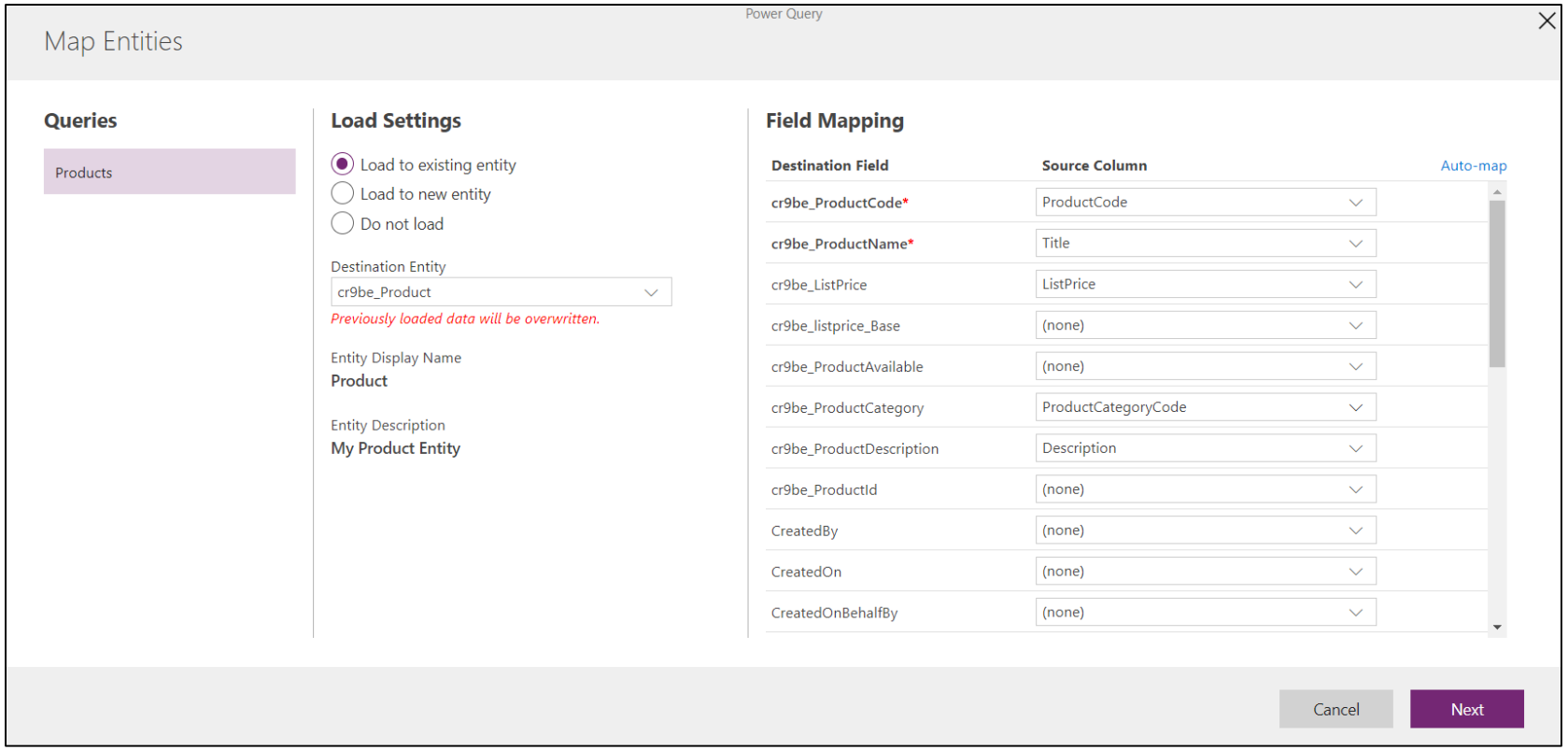
- Select a supported datasource connector



Power Query in the Browser



Loading Imported Data into Existing Entity



Agenda

- ✓ Common Data Service for Apps Overview
- ✓ Creating the CDSA Database
- ✓ Understanding Entities
- ✓ Creating a Custom Entity
- ✓ Importing Data into the CDS Database
- ➢ Building Model-driven Apps

Moving to Model-driven Apps

- What are the key benefits of model-driven apps?
  - Rich no-code design environment focusing on components
  - Create apps with consistent UI navigation, elements & metaphors
  - Design apps using the building blocks of Dynamics 365
  - Create responsive apps that work on desktop and mobile devices
  - Build apps into solutions that can be distributed and versioned

- What are the steps to building a model-driven app?
  - Model business data using entities in Common Data Model (CDM)
  - Define business processes on top of app-specific entity model
  - Compose the app UI on top of entities and business processes

MDA Components and Designers

- Model-driven apps assembled using components
  - App designer builds app by adding components
  - Components used to compose app functionality and appearance
  - App metadata consists of components and component properties

- App components separated into four categories
  1. Data components
  2. Logic components
  3. UI components
  4. Visualization components

Data Components

- Entity
- Field
- Option set field
- Relationship

UI Components

- App
  - Top-level collection of components
  - Tracks fundamental app properties, client type, and app URL
- Site map
  - Provides navigation across other UI components
- Form
  - Provides set of data-entry fields for a specific entity
- View
  - Read-only view of records for a specific entity
  - Defines display columns, column width, sort behavior and filters

Logic Components

- Business process flow
  - Interactive logic to walk user through standard business process
  - User moves flow from step to step until flow completes
- Workflow
  - Non-interactive logic to automate business process
  - Once workflow starts, it runs to completion without user interaction
- Actions
  - Logic that can be invoked manually by user
- Business rule
  - Logic to define rule or validation constraints to a form
- Flow
  - Microsoft Flow logic to read or write data to external sources

Visualization Components

- Chart
  - Standard visualization such as bar chart or map
  - Can be displayed on a view, form or dashboard
- Dashboard
  - Palate for composing visualizations into single view
  - Used to create high-level overview of actionable business data
- Power BI Visual Elements
  - Tiles
  - Dashboards
  - Reports


DEMO
Creating Model-driven Apps

Summary

- ✓ Common Data Service for Apps Overview
- ✓ Creating a Custom Entity
- ✓ Adding Forms and Views
- ✓ Adding Business Logic
- ✓ Building Model-driven Apps