



MB-400 Study Group #1 Introduction/Over view of exam

**Joe Griffin
Julian Sharp**

 **D365UG**

INTRODUCTION – Joe Griffin

- Director & Co-Founder, SOLO Cloud Solutions
- 5 years experience working with Dynamics CRM / Dynamics 365
- 7+ years SQL Server, .NET and Office 365 experience
- Power Apps + Dynamics 365 Developer Associate
- PRINCE2 PM/Agile Practitioner
- Certified Scrum Master



🔗 <https://crmchap.co.uk>

🔗 joe@griffin.gb.net

🔗 [joejgriffin](#)

🔗 [joejgriffin](#)

🔗 [JJGriffin](#)

INTRODUCTION – Julian Sharp

- Dynamics 365 and Azure Solution Architect
- Microsoft Certified Trainer
- Dynamics ~ 15 years
- Azure for ~ 5 years
- Power Apps ~ 2 years
- Field Service ~ 3 years
- 60+ Microsoft Exams



Linked  <https://www.linkedin.com/in/juliansharp>



@juliandynamics

Pre-Requisites

- Developed against Dynamics CRM/365
- Passed MB-200 Power Platform + Dynamics 365 core exam
- C# / VB.NET Plug-ins
- FetchXML
- Workflows
- JavaScript
- Web Resources

AGENDA

- What is exam MB-400
- Power Platform Overview
- Refresher: Core concepts
- Online vs On-Premise: Differences

What is exam MB-400

Microsoft Certified: Power Apps + Dynamics 365 Developer Associate

- MB-200 Power Platform + Dynamics 365 Core
- MB-400 Power Apps + Dynamics 365 Developer
- Associate level



MB-400 Power Apps + Dynamics 365 Developer Exam

- Create a technical design (10-15%)
- Configure Common Data Service (CDS) (15-20%)
- Create and configure Power Apps (10-15%)
- Configure business process automation (10-15%)
- Extend the user experience (15-20%)
- Extend the platform (15-20%)
- Develop integrations (10-15%)



<https://docs.microsoft.com/learn/certifications/exams/mb-400>

Exam MB-400: Microsoft Power Apps + Dynamics 365 Developer

Languages: English

Retirement date: none

This exam measures your ability to accomplish the following technical tasks: create a technical design; configure Common Data Service (CDS); create and configure Power Apps; configure business process automation; extend the user experience; extend the platform; and develop integrations.

Exam basics



40-60 questions

- Some questions worth more than 1 point
- Answer all the questions
- *No penalty for guessing*
- *Some questions cannot be skipped!*
- Mark items for review if you're not sure of your answer



Plan for 180 minutes

- 150 minutes to answer questions
- 30 minutes for instructions, comments, score reporting, etc.



More than just multiple-choice questions!

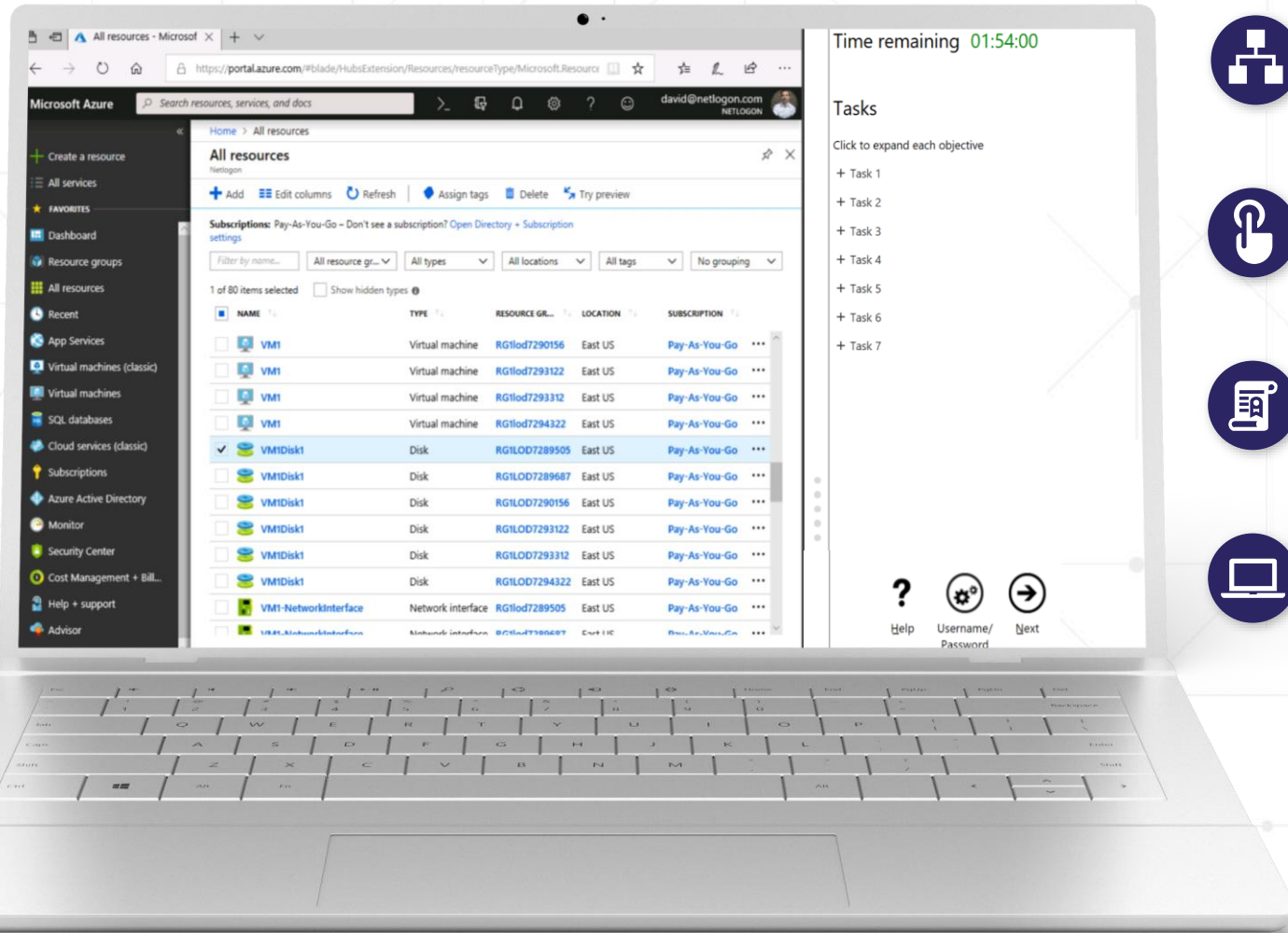
- Build list, hot area, active screen, drag and drop, etc.
- Performance based testing



Case Studies

- Detailed information on business and technical requirements; existing environment and other background you need to solve problems
- Requires you to understand and integrate information across multiple sources, determine what's important, and make the best decision

Performance-based testing - prove your skills with hands-on labs



Applies to role-based certifications with at least one exam per certification



Real-world scenarios where you configure, manage resources and services



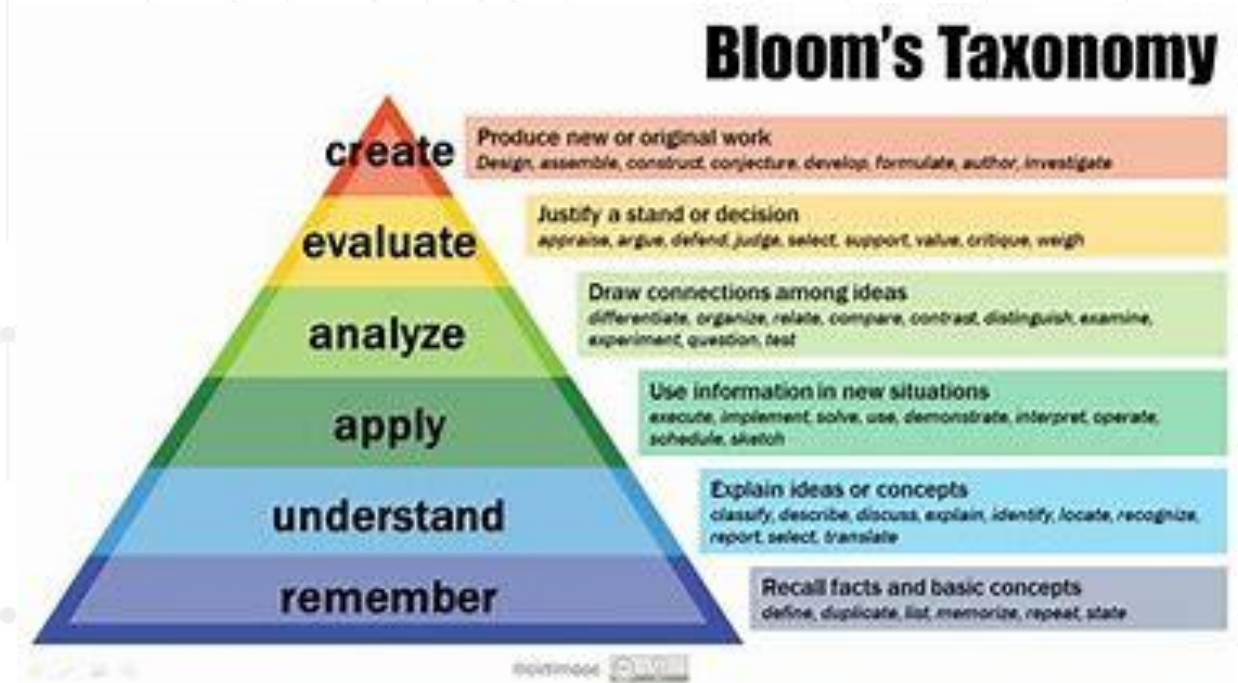
Demonstrate your hands-on skills



1 or 2 labs with up to 15 tasks that you need to complete

MB-400 Exam

- Power Platform not Dynamics 365
- How and Why - not What
- Question Types
 - Build List
 - Active Screen
 - Drag and Drop
 - Graphic Interpretation
 - Hot Spot
 - Dynamic Option Multiple Choice
 - Multi-Source Reasoning
 - Case Study
 - Performance Based Testing



Topics you should be familiar with

- Data Modelling in Common Data Service
- Security in Common Data Service
- Solutions
- Model-driven apps
- Server side code with Plug-ins
- Client side code with Web API and Form scripting

Exam Topics not being covered

Create a Technical Design (10-15%)

- Validate requirements and design technical architecture
 - determine whether requirements can be met with out-of-the-box functionality
- Create a data model
 - design a data model

Configure Common Data Service (15-20%)

- Configure security to support development
 - troubleshoot operational security issues
 - create or update security roles and field-level security profiles
- Implement entities and fields
 - configure entities
 - configure fields
 - configure relationships
- Create and maintain solutions
 - configure solutions
 - import and export solutions
 - manage solution dependencies

Exam Topics not being covered

Configure business process automation (10-15%)

- Implement processes
 - create and configure business process flows
 - create and configure business rules

Extend the user experience (15-20%)

- Apply business logic using client scripting
 - configure supporting components
 - create JavaScript or Typescript code
 - register an event handler
 - use the Web API from client scripting
- Create a command button function
 - create the command function
 - design command button triggers, rules, and actions
 - edit the command bar using the Ribbon Workbench
 - modify the form JavaScript library dependencies

Exam Topics not being covered

Extend the platform (15-20%)

- Create a plug-in
 - debug and troubleshoot a plug-in
 - develop a plug-in
 - use the global Discovery Service endpoint
 - optimize plug-ins for performance
 - register custom assemblies by using the Plug-in Registration Tool
 - create custom actions
- Use platform APIs
 - interact with data and processes using the Web API
 - optimize for performance, concurrency, transactions, and batching
 - perform discovery using the Web API
 - perform entity metadata operations with the Web API
 - use OAuth with the platform APIs

Topics you may not be familiar with

Canvas Apps

Power Automate

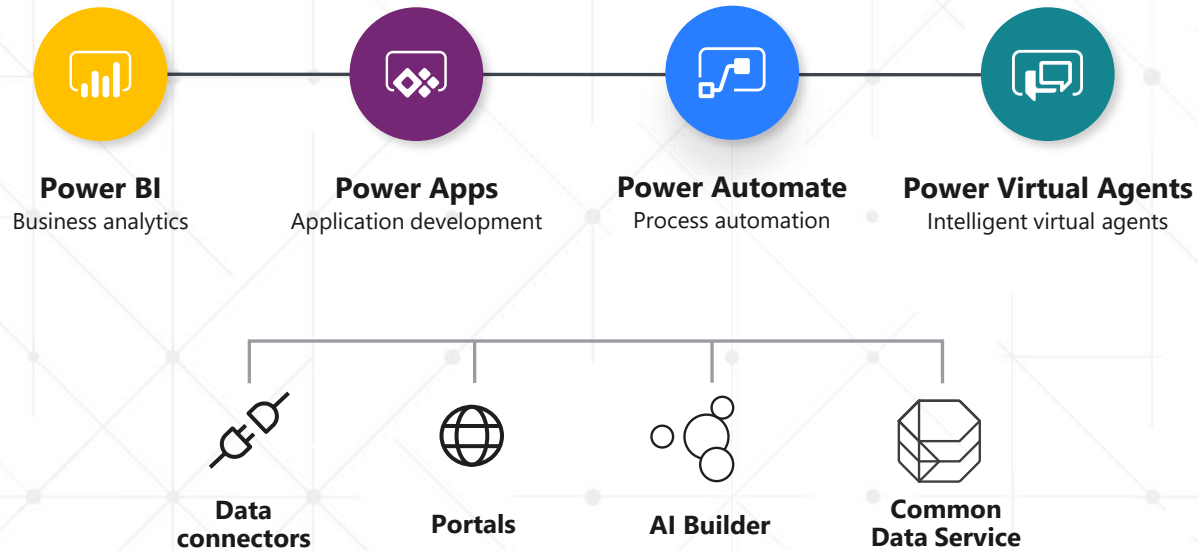
Power Apps Component Framework (PCF)

Azure Integration

Power Platform Overview

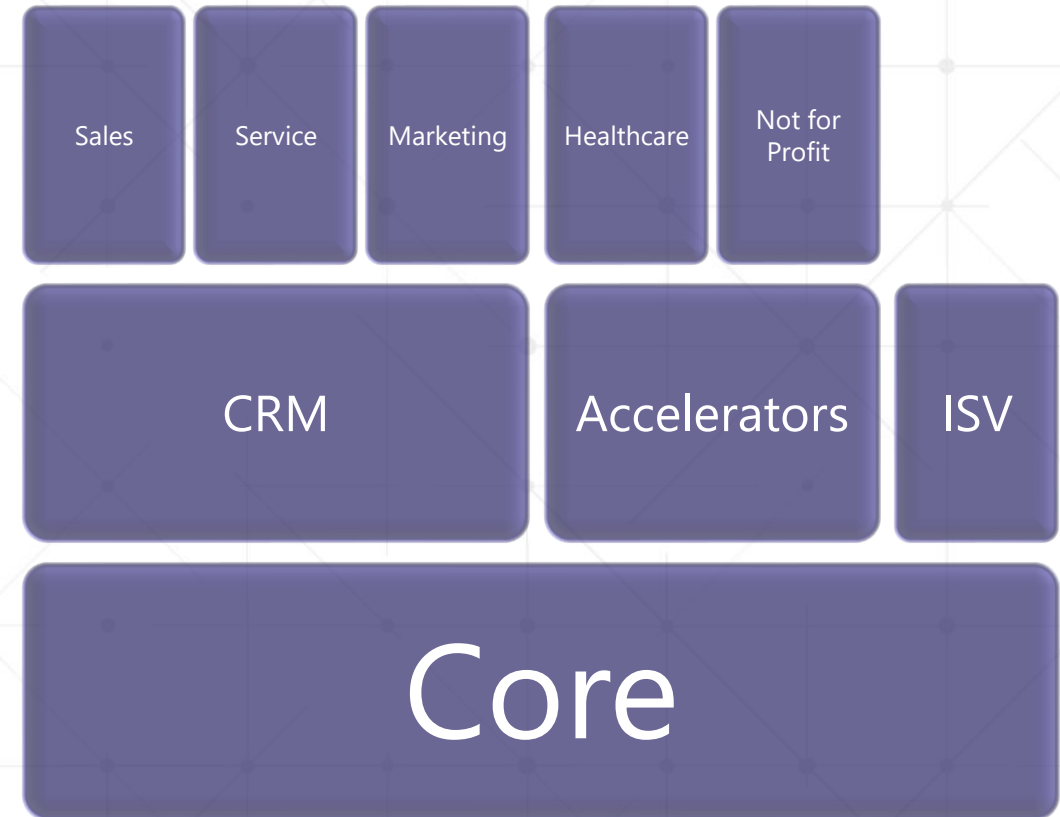
Power Platform

One low-code platform that spans Office 365, Dynamics 365, Azure and standalone applications

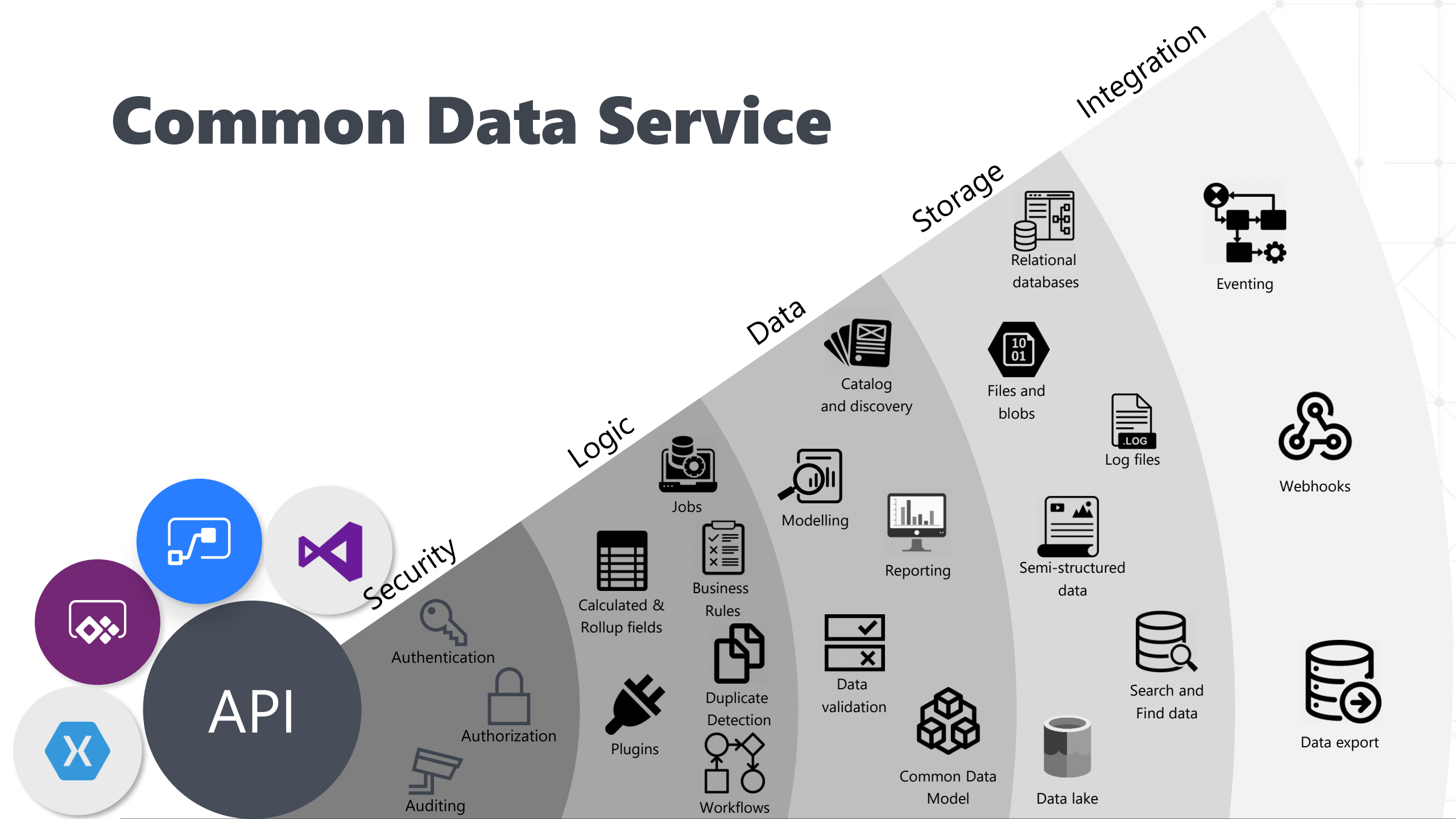


Common Data Model

- Schema for Business Applications
- Industry Accelerators
- Extensible
- GitHub
- Common Data Service
- Dynamics 365
- Power BI



Common Data Service



Integration

Storage

Data

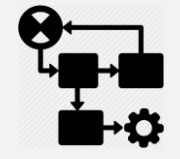
Logic

Security

API



Relational databases



Eventing



Catalog and discovery



Files and blobs



Log files



Webhooks



Jobs



Modelling



Reporting



Semi-structured data



Data export



Calculated & Rollup fields



Business Rules



Duplicate Detection



Workflows



Data validation



Common Data Model



Search and Find data



Plugins



Data lake



Authentication



Authorization



Auditing



Common Data Service

- CDS: Common Data Service for Apps
- Securely stores and manages data used by Business applications
- Quickly and easily create a data model

Power Platform

- Ability to customize and extend Dynamics 365
- Low code/no code to adapt Dynamics 365 apps to meet user requirements
- Build standalone apps



Power Apps

Canvas
apps

Model-
Driven
apps

Portal
apps



Power Automate

Automation
solution

Automate
workflows
between
applications
and services

Approvals

Button Flows



Power BI



Datasets



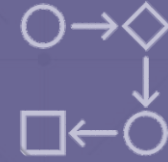
Visualizations



Reports



Dashboards



Dataflows



Alerts



Power Virtual Agents

Conversational Bots

No Code

Use with

- Websites
- Facebook
- Teams

Connectors

Connect to data and services

Triggers

Actions

Hundreds of connectors

Code vs Low Code

- When evaluating requirements, developers should be fully aware and leveraging functional solutions over code-first solutions where possible:
 - Power Automate flows offer and can exceed functionality traditionally available within Workflows and Plugins
 - Business Rules can achieve common requirements that negate the need for JavaScript form functions

Power Automate vs Workflows

Power Automate Flows	Workflows
Asynchronous only	Can be executed synchronously and asynchronously
Connectors to 350+ systems	Bound to Common Data Service only
Full CRUD operation support	Supports CRU operations only (natively)
Powerful, expression-based language	Simple capabilities for dynamic record properties
UI automation support upcoming	No UI automation capability
Custom connector support, but not possible to replace default connector actions	Extensible via custom workflow assemblies

Power Automate vs Plugins

Power Automate Flows	Plugins
Asynchronous only	Can be executed synchronously and asynchronously
Connectors to 350+ systems	Bound to Common Data Service only
Full CRUD operation support	Full CRUD operation support
Powerful, expression-based language	Written in C# / VB.NET, allowing high bespoke capability
Can be scaled into Azure, via conversion to Logic Apps	Can execute plug-ins within Azure or integrate alongside Azure Service Bus

Business Rules vs JavaScript

Business Rules	JavaScript
Supports simple operations – hide/show field, change business requirement, update field etc.	Supports both simple and complex operations
Can be bound to a single form, multiple or execute server-side.	Form-based only.
No support to leverage alongside the Web API	Full Web API support
Fully supported by Microsoft, and reduces need to test thoroughly as part of major releases	Although supported, can risk introducing use of unsupported solutions (e.g. interacting with the DOM)

Refresher: Core Concepts

Data Modelling

Entities

- Entity Type
 - Standard
 - Custom
 - Activity
- Ownership
- Quick Create
- Alternate Keys
- Auditing
- Business Rules

Fields

- Data Types
- Properties

Relationships

- **1:N**
- **N:1**
- N:N
- Connections
- Mapping
- Cascade Behaviours on 1:N

Rollup and Calculated Fields

Rollup fields

- Aggregate
- 1:N relationships
- Updated every hour
- Alternatives
 - Plug-in Code
 - Power Automate

Calculated fields

- Fields on entity and N:1 relationships
- Updated on Save
- Alternatives
 - Business Rules
 - JavaScript
 - Real-time workflow
 - Plug-in Code
 - Power Automate

Solutions

Unmanaged vs Managed

Clone a Patch

Clone Solution

Version Numbers

Solution Packager

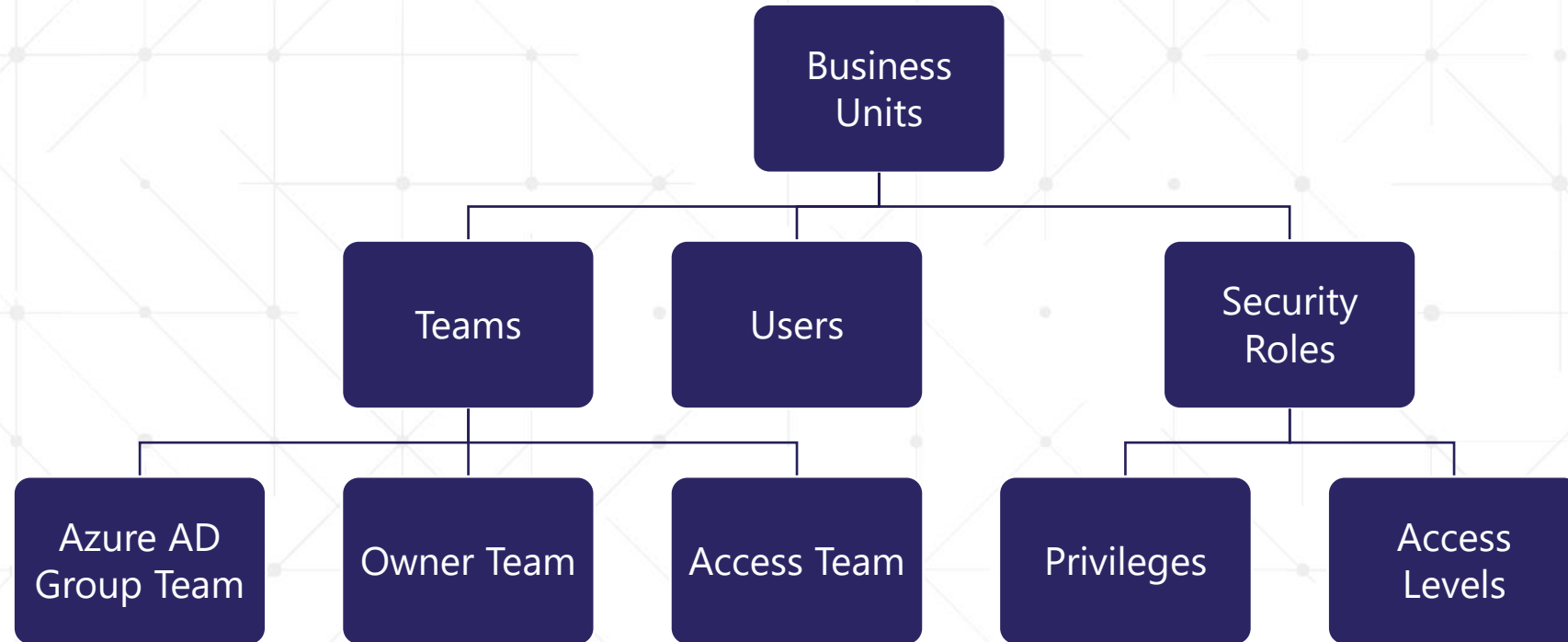
Configuration Migration tool

- Configuration Data

Package Deployer

- Solutions + Data

Common Data Service Security Model



Model-driven apps

App Designer

Site Map for
each app

Ribbon
Workbench for
buttons

Plug-ins

Event Pipeline Stages

- PreValidation
- PreOperation
- PostOperation

Impersonation

- Calling User
- Specific User

Pre and Post Entity Images

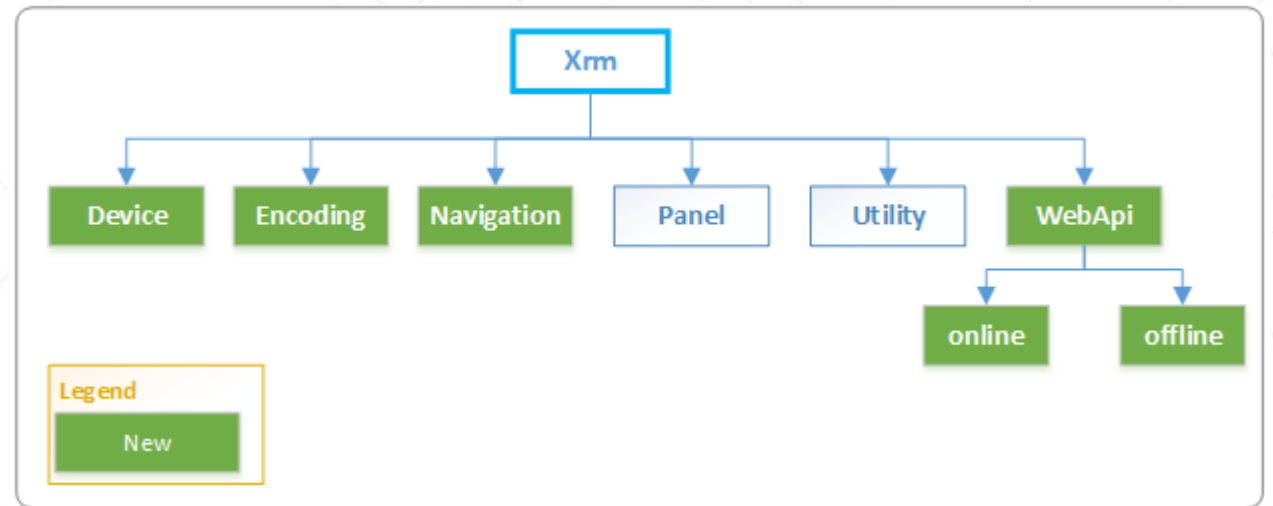
Switch between Synchronous to Asynchronous

Best Practice

- Filter attributes
- Use entity images
 - Do not retrieve record
- Tracing service
- Analytics in Power Platform Admin Centre
- Do not use SharedVariables – no longer works
- Avoid ILMerge – not supported

JavaScript

- Event Handlers
 - Onload
 - OnSave
 - OnChange
 - OnReadyStateComplete
 - TabStateChange
 - PreSearch
 - OnRecordSelect
- Execution Context
 - getformContext not XRM.Page
 - Xrm.Utility.getGlobalContext
- Xrm.Navigation not Xrm.Utility



Deprecated

Dialogs

Lots of Client APIs e.g., XRM.Page

ClientGlobalContext.js.aspx

AssignRequest

SetStateRequest

Background workflow

Online vs On-Premises

Environments

- Similar to on-premise Dynamics CRM, a separate database and instance for your solution.
- 5 types of environments
 - Production
 - Default
 - Sandbox
 - Trial
 - Developer
- Subscription offering will determine the availability and maximum storage capacity for your environments.
- Managed via the Power Platform Admin Center:
 - <https://admin.powerplatform.com>
- Common administrative tasks for environments include:
 - Backup / Restore / Reset / Copy
 - Install managed applications
 - Modify environment-level settings (Currency, Language settings etc.)
 - Review analytics

One Version

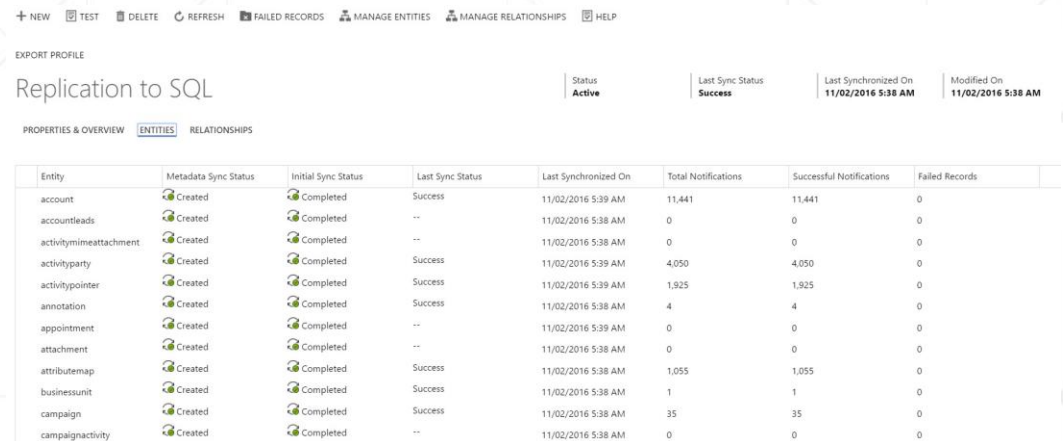
- Version 9.1 is now the single, one version of Dynamics 365 online
- Organisations will receive 2 major updates each year:
 - Wave 1 - Spring
 - Wave 2- Autumn
- Microsoft automatically release service/security fixes proactively in the background.
- A consistent version allows for greater predictability when working within multiple environments.

Database Access

- **No** direct read/write access to the underlying SQL Server database.
- On-Premise Dynamics CRM reports migrating to Dynamics 365 **must** be rewritten using FetchXML, as opposed to direct SQL.
- Dynamics 365 Web API also a fully compliant OData V4 endpoint.
- For scenarios/requirements necessitating SQL query access, consider implementing the Data Export Service

Data Export Service

- “Free” add-on solution for CDS / Dynamics 365
- Allows you continually sync data to a Azure SQL database or SQL Server on a Windows VM.
- One-way sync
- Required setup:
 - Provision Azure environment:
 - SQL Database OR VM with SQL Server
 - Azure Key Vault
 - Install Data Export Managed Solution
 - Define Data Export Profile (i.e. list of entities to sync)
 - Begin sync:
 - Metadata
 - Initial data sync (can take a while!)
 - Continuous delta data sync.
- Further info:
 - <https://docs.microsoft.com/en-us/power-platform/admin/replicate-data-microsoft-azure-sql-database>



The screenshot displays the 'EXPORT PROFILE' configuration for 'Replication to SQL'. The profile is active, with a last sync status of 'Success' and a last synchronized time of 11/02/2016 5:38 AM. Below the profile information, there are tabs for 'PROPERTIES & OVERVIEW', 'ENTITIES', and 'RELATIONSHIPS'. The 'ENTITIES' tab is selected, showing a table with the following columns: Entity, Metadata Sync Status, Initial Sync Status, Last Sync Status, Last Synchronized On, Total Notifications, Successful Notifications, and Failed Records.

Entity	Metadata Sync Status	Initial Sync Status	Last Sync Status	Last Synchronized On	Total Notifications	Successful Notifications	Failed Records
account	Created	Completed	Success	11/02/2016 5:39 AM	11,441	11,441	0
accountleads	Created	Completed	---	11/02/2016 5:38 AM	0	0	0
activitymimeattachment	Created	Completed	---	11/02/2016 5:38 AM	0	0	0
activityparty	Created	Completed	Success	11/02/2016 5:39 AM	4,050	4,050	0
activitypointer	Created	Completed	Success	11/02/2016 5:39 AM	1,925	1,925	0
annotation	Created	Completed	Success	11/02/2016 5:38 AM	4	4	0
appointment	Created	Completed	---	11/02/2016 5:39 AM	0	0	0
attachment	Created	Completed	---	11/02/2016 5:38 AM	0	0	0
attributemap	Created	Completed	Success	11/02/2016 5:38 AM	1,055	1,055	0
businessunit	Created	Completed	Success	11/02/2016 5:38 AM	1	1	0
campaign	Created	Completed	Success	11/02/2016 5:38 AM	35	35	0
campaignactivity	Created	Completed	---	11/02/2016 5:38 AM	0	0	0

Virtual Entities

- To reduce storage and afford better integration options with external systems, data can be surfaced in a read-only state using Virtual Entities.
- Natively supports OData V4 endpoints; developers can also implement bespoke connectors.
- In all other respects, customised and operate the same as normal entities.
- Further info:
 - <https://docs.microsoft.com/en-us/dynamics365/customerengagement/on-premises/customize/create-edit-virtual-entities>

SDK & NuGET

- Solution Development Kit (SDK) no longer available via direct download.
- Developers should reference NuGET for the latest assemblies/tools relating to Dynamics 365 / Common Data Service development:
 - <https://www.nuget.org/profiles/crmsdk>
- Microsoft provide assemblies and tools covering the following scenarios:
 - Plug-in / Custom Workflow Assembly Development
 - Package Authoring / Deployment
 - Portal Development
 - Connection tooling for PowerShell
 - Helper code for Virtual Entity Data Provider development
 - Unified Service Desk (USD) development
 - Power Apps Control Framework (PCF) Development

HTTPS / TLS Enforcement

- Both users and developers must interact with Dynamics 365 using HTTPS / Transport Layer Security (TLS).
- Version 9.x+ now enforces TLS 1.2 as a **mandatory** requirement for connectivity into the application.
- If migrating from on-premise Dynamics CRM, consider the following:
 - .NET Framework 4.6.2+ should be used for all SDK projects
 - Use latest version of all assemblies/tools from NuGET
 - Verify all corporate devices utilise a supported web browser:
 - <https://docs.microsoft.com/en-us/dynamics365/customerengagement/on-premises/admin/supported-web-browsers-and-mobile-devices>

Sandbox Limitations

- All plug-ins/custom workflow assemblies deployed online are restricted to sandbox isolation mode execution.
- Keep in mind the following limitations when migrating from Dynamics CRM on-premise:
 - No GAC access
 - No external Web Services connectivity
 - 2-minute maximum execution time for all custom code
- Sandbox provides a secure area for custom code to execute safely.

API Limits

- Dynamics 365 online is a shared platform, containing many hundreds of customer tenants.
- To ensure a fair playing field for all customers, Microsoft now monitor, meter and may (in some cases) restrict specific SDK, Power Automate connector or standard CRUD user operations.
- Key highlights:
 - License type will determine the maximum number of API requests over a 24-hour period
 - More Expensive License = More API Requests
 - Non-licensed users are allocated requests based on the number of subscriptions on the tenant
 - Rate limiting enforced for Web API / Organisation Service requests
 - Tenant administrators will be notified if their online instance(s) exceed any limits
 - Capacity add-ons to be released Q3/Q4 2020

Q&A

Any questions?

 **D365UG**

Resources

Resources

- Microsoft Docs

The screenshot shows the Microsoft Docs interface for the article "Finding Pages and Information with Tell Me". The page includes a navigation sidebar on the left with a search filter, a main content area with a video player, and a right-hand sidebar with feedback and related content options.

Microsoft Docs | Docs Get Dynamics 365 Release plans Support Regional availability Trust Centre AppSource More Search

Dynamics 365 / Business Central / Working with Business Central / Finding Pages and Information with Tell Me Bookmark Feedback Share Theme Sign in

Filter by title

- Welcome to Business Central
- > Getting Started
- > Working with Business Central
 - Overview
 - Finding Pages and Information with Tell Me**
 - Finding Pages from a Feature Overview
 - Tell Me FAQ
 - Sorting, Searching, and Filtering
 - Searching and Filtering FAQ
 - Entering Data
 - Copy and Paste FAQ
 - Working with Calendar Dates and Times
 - Detecting Mandatory Fields
 - Changing Language and Locale
 - Viewing and Editing in Excel
 - Manage Attachments, Links, and Notes on Cards and Documents
 - Change Basic Settings
- Download PDF

Finding Pages and Information with Tell Me

01/10/2019 • 3 minutes to read • 🗨️ 🏠 🌐

This topic describes how Tell Me can help you quickly go to things like actions, pages, or reports, find information about how to complete a particular task, and discover additional apps and consulting services for Business Central.

TELL ME WHAT YOU WANT TO DO

1896-S · ATH

Go to Pages and Tasks (15)

- Receive Customer Payments
- Register Customer Payments
- PayPal Payments Standard Accounts

Go to Reports and Analysis (7)

- Projected Cash Payments
- Detail Trial Balance
- Customer - Trial Balance

Documentation (20)

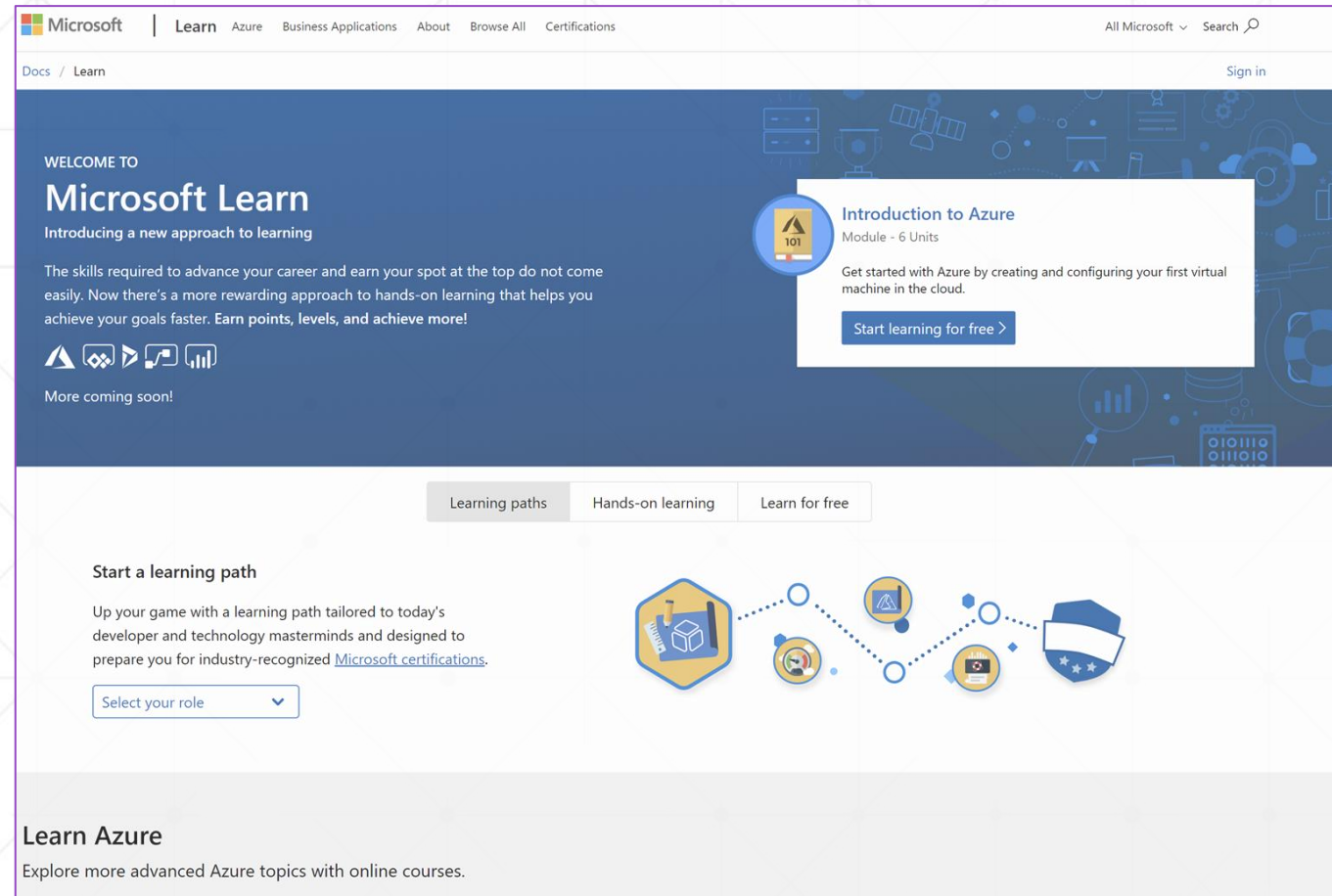
- How to Post LSV+ Payments
- How to Activate SEPA Payments
- SEPA Credit Transfer Payments

Is this page helpful?
Yes No

In this article
[Searching for Data Questions?](#)
[See Also](#)

Resources

Microsoft Learn



The screenshot shows the Microsoft Learn website homepage. At the top, there is a navigation bar with the Microsoft logo, a menu with 'Learn', 'Azure', 'Business Applications', 'About', 'Browse All', and 'Certifications', and a search bar on the right. Below the navigation bar, the main content area has a dark blue header with the text 'WELCOME TO Microsoft Learn' and 'Introducing a new approach to learning'. A sub-header reads: 'The skills required to advance your career and earn your spot at the top do not come easily. Now there's a more rewarding approach to hands-on learning that helps you achieve your goals faster. Earn points, levels, and achieve more!'. There are icons for various learning activities and a 'More coming soon!' message. A prominent white box on the right features a '101' icon and the title 'Introduction to Azure', with a sub-header 'Module - 6 Units' and a description: 'Get started with Azure by creating and configuring your first virtual machine in the cloud.' A blue button below says 'Start learning for free >'. Below this, there are three tabs: 'Learning paths', 'Hands-on learning', and 'Learn for free'. The 'Learning paths' tab is active, showing the text 'Start a learning path' and a description: 'Up your game with a learning path tailored to today's developer and technology masterminds and designed to prepare you for industry-recognized [Microsoft certifications](#).' Below this is a dropdown menu labeled 'Select your role'. To the right of the text is a graphic showing a sequence of icons connected by dotted lines, representing a learning path. At the bottom, there is a section titled 'Learn Azure' with the text 'Explore more advanced Azure topics with online courses.'

THANK YOU FOR ATTENDING!



📧 <https://crmchap.co.uk>

📧 joe@griffin.gb.net

📧 joejgriffin

📧 joejgriffin

📧 JJGriffin



📧 juliandynamics

📧 juliansharp