Microsoft Power Platform

2019 RELEASE WAVE 2 PLAN

Features releasing from October 2019 through March 2020

Last updated June 26, 2019.

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Contents

Power Platform: 2019 release wave 2 plan

The release plan (formerly release notes) for the 2019 release wave 2 describes all new features releasing from October 2019 through March 2020 for Power Platform (PowerApps, Power BI, and Microsoft Flow). You can either browse the release notes online or download the document as a PDF file.

New for wave 2: The Dynamics 365 features coming in the 2019 release wave 2 have been summarized in a separate release plan.

2019 release wave 2 overview

The Microsoft Power Platform enables users and organizations to analyze, act, and automate on the data to digitally transform their businesses. The Power Platform today is comprised of three products – Power BI, PowerApps, and Flow.

For **PowerApps**, this release wave includes major improvements to enable app makers to build higher-quality apps more easily while still supporting more advanced enterprise and administrator requirements. Improvements in PowerApps focus not only on introducing capabilities but also on simplifying existing concepts to improve maker and end-user productivity in PowerApps and Dynamics 365 apps built upon the Unified Interface.

PowerApps makers can now create a powerful new type of experience called **PowerApps Portals**, which are web portals that surface data stored in Common Data Service to employees or users outside their organizations.

Microsoft Flow is introducing smarter and more powerful experiences in three key areas. Flow makers get smarter and more powerful experiences. End users of flows can leverage world-class business process capabilities, including working with business processes offline. Finally, there is now much richer tooling for administrators, such as PowerShell cmdlets and the new Power Platform Admin center.

AI Builder (preview) is a brand-new Power Platform capability for teams with the business expertise to easily automate processes and predict outcomes to improve business performance. AI Builder is a turnkey solution that brings the power of Microsoft AI through a point-and-click experience and is directly integrated into PowerApps and Microsoft Flow.

Power BI simplifies how organizations derive insights from transactional and observational data. It helps organizations create a data culture where employees can make decisions based on facts, not opinions. For the upcoming release, Power BI is investing in four key areas that drive a data

culture: intuitive experiences, a unified BI platform, big data analytics, and pervasive artificial intelligence (AI).

Data integration provides built-in connectivity to the Power Platform and more, with data across hundreds of business systems, enabling rich and intelligent experiences. The Common Data Model provides semantic consistency for canonical business entities across Dynamics 365 and Common Data Service, increasing value and saving time for application developers, ISV partners, and integrators.

This release plan describes functionality that may not have been released yet. Delivery timelines and projected functionality may change or may not ship (see Microsoft policy).

Key dates for the 2019 release wave 2

Here are the key dates for the 2019 release wave 2.

Milestone	Date	Description
Release plans available	June 10, 2019	Learn about the new capabilities coming in the 2019 release wave 2 (October 2019 – March 2020) across Dynamics 365 and the Power Platform.
Early access available	August 2, 2019	Try and validate the new features and capabilities that will be a part of the 2019 release wave 2, October update, before they get enabled automatically for your end users.
General availability	October 1, 2019	Production deployment for the 2019 release wave 2 begins. Specific deployment dates for each country or region or instance will be communicated in advance.

We are listening: New for 2019 release wave 2

In the April '19 release, we heard feedback that it was not clear which features were turned on automatically and when exactly each feature would be delivered. To address this, we specify when each feature will be available. In addition, we call out how each feature is enabled:

- **End users, automatically** – These features include change(s) to the user experience for end users and are enabled automatically.

- **Admins, makers, or analysts, automatically** – These features are meant to be used by administrators, makers, or business analysts and are enabled automatically.

- **End users by admins, makers, or analysts** – These features must be enabled or configured by the administrators, makers, or business analysts to be available for their end users.

You can get ready with confidence knowing which features will be enabled automatically.

We've done this work to help you — our partners, customers, and users — drive the digital transformation of your business on your terms. We're looking forward to engaging with you as you put these new services and capabilities to work, and we're eager to hear your feedback as you dig into the 2019 release wave 2.

Let us know your thoughts. Share your feedback on the Power Platform community forum. We will use your feedback to make improvements.

Change history

This topic is updated when features are added, or when a feature's release date changes. To find out about updates to these release plans, follow us on Twitter @MSFTDynamics365.

Microsoft PowerApps

Features added to release plan

Feature	Date added
Usability enhancements to lookups in Unified Interface	June 16, 2019
Timeline wall filter improvements	June 10, 2019

Release date changed

Feature	Change	Date updated
Improved capacity governance	Public Preview date updated to May 2019.	June 17, 2019
Admin connectors for Microsoft PowerApps	Public Preview date updated to August 2018.	June 17, 2019
PowerApps cmdlets for admins	Public Preview date updated to May 2018.	June 17, 2019
One admin center to rule them all	Public Preview date updated to September 2018.	June 17, 2019

Features removed from release plan

Feature	Reason	Date removed
External users can access apps on the PowerApps mobile app	Merged the feature information with **Share apps with users outside your tenant B2B or B2C** feature.	June 10, 2019
Model-driven app for Outlook to be generally available	Changed release date from October 2019 to June 2019.	June 26, 2019

Business intelligence

Release date changed

Feature	Change	Date updated
Mobile Home (Android, iOS)	Public Preview date updated to September 2019.	June 10, 2019

Common Data Model and data integration

Release date changed

Feature	Change	Date updated
Write existing data before turning on Dual Write	Public Preview date updated to July 2019.	June 14, 2019
Making Dual Write resilient to planned or unplanned maintenance	Changed Public Preview date from May 2019 to July 2019.	June 14, 2019
Support for data and metadata changes in Azure Data Lake	Changed Public Preview date from June 2019 to August 2019.	June 14, 2019
Support incremental writes to Azure Data Lake	Changed Public Preview date from June 2019 to August 2019.	June 14, 2019

Feature	Change	Date updated
Hydrate Azure Data Lake with Common Data Service data and create rich reports	Changed Public Preview date from July 2019 to August 2019.	June 14, 2019
Enable analytics on Common Data Service data in Azure Data Lake	Changed Public Preview date from June 2019 to August 2019.	June 14, 2019

Features removed from release plan

Feature	Reason	Date removed
Support for multiple legal entities	Changed Public Preview date from October 2019 to July 2019 and moved to April 2019 release notes.	June 14, 2019

Microsoft PowerApps

Overview of Microsoft PowerApps 2019 release wave 2

PowerApps is a suite of apps, services, connectors, and a data platform that provides an environment for rapidly developing custom apps for your business needs. Using PowerApps, you can quickly build custom business apps that connect to your business data stored either in the underlying data platform (Common Data Service) or in various online and on-premises data sources (SharePoint, Excel, Office 365, Dynamics 365, SQL Server, and so on). Use PowerApps documentation to get expert information and answers to address your needs, regardless of how you use PowerApps.

The 2019 release wave 2 provides major improvements across the themes in this list to enable app makers to build higher-quality apps more easily, while still supporting more advanced enterprise and administrator requirements.

Improvements in PowerApps focus not only on introducing capabilities but also on simplifying existing concepts to improve maker and end-user productivity in PowerApps and Dynamics 365 apps built upon PowerApps and the Unified Interface.

What's new and planned for Microsoft PowerApps

This topic lists features that are planned to release from October 2019 through March 2020. Because this topic lists features that may not have released yet, **delivery timelines may change and projected functionality may not be released** (see Microsoft policy).

In the **General availability** column, the feature will be delivered within the month listed. The delivery date can be any day within that month. Released features show the full date, including the day of release.

Add intelligence using AI Builder

Feature	Enabled for	Public preview	General availability	Early access?*
Add intelligence to PowerApps with AI Builder	Admins, makers, or analysts, automatically	June 2019	October 2019	No

Easier to deliver high-quality apps

Provide the right tools and components to build awesome apps for end users.

Feature	Enabled for	Public preview	General availability	Early access?*
PowerApps component framework for canvas apps	End users by admins, makers, or analysts	November 2019		No
Build responsive, reflowing canvas pages	End users by admins, makers, or analysts	December 2019		No
Build and consume reusable canvas components	End users by admins, makers, or analysts		October 2019	No
Faster, reliable, and stable canvas and model-driven apps on mobile	End users, automatically		October 2019	No
New Common Data Service form designer adds support for event handlers	Admins, makers, or analysts, automatically		October 2019	No
Office 365 suite header coming to PowerApps	Admins, makers, or analysts, automatically		October 2019	No
PowerApps component framework for model-driven apps	End users by admins, makers, or analysts		October 2019	No
Sign in using an email address in the Dynamics 365 mobile app on an Android device	End users, automatically	August 2019	October 2019	No
Improvements to entity designer	Admins, makers, or analysts, automatically	August 2019	October 2019	No

Integrated experience and tooling for administrators

Admin experiences are key to the adoption of any trusted platform.

Feature	Enabled for	Public preview	General availability	Early access?*
Data loss prevention policy enhancements	Admins, makers, or analysts, automatically		October 2019	No
PowerApps cmdlets for admins	Admins, makers, or analysts, automatically	May 21, 2018	October 2019	No
Admin connectors for Microsoft PowerApps	Admins, makers, or analysts, automatically	August 30, 2018	October 2019	No
One admin center to rule them all	Admins, makers, or analysts, automatically	September 26, 2018	October 2019	No
Improved capacity governance	Admins, makers, or analysts, automatically	May 22, 2019	October 2019	No

Portal capabilities for PowerApps

Feature	Enabled for	Public preview	General availability	Early access?*
Power BI Embedded support for portals	End users by admins, makers, or analysts		October 2019	No
PowerApps Portals	End users by admins, makers, or analysts	July 2019	October 2019	No
Portal Checker enhancements	Admins, makers, or analysts, automatically		November 2019	No

Scalable enterprise solutions

Enterprises have scalable solutions as part of the Power Platform.

Feature	Enabled for	Public preview	General availability	Early access?*
PowerApps test framework	Admins, makers, or analysts, automatically	October 2019		No
Runtime telemetry	Admins, makers, or analysts, automatically	October 2019		No
Modern Solution Explorer is the default customization experience	Admins, makers, or analysts, automatically		October 2019	No
New solution components get full support	Admins, makers, or analysts, automatically		October 2019	No
The PowerApps Checker includes rules for canvas apps and flows	Admins, makers, or analysts, automatically		October 2019	No
Enhanced offline capabilities for apps on the Dynamics 365 mobile app	End users by admins, makers, or analysts	August 2019	October 2019	No
Share apps with users outside your tenant, B2B or B2C	End users by admins, makers, or analysts	August 2019	October 2019	No

Unified Interface for everybody

Feature	Enabled for	Public preview	General availability	Early access?*
Anchoring error notifications in Unified Interface	End users, automatically		October 2019	Yes
Connection role enabled in Unified Interface	End users, automatically	August 2019	October 2019	Yes
Form header usability improvements	End users, automatically		October 2019	Yes

Feature	Enabled for	Public preview	General availability	Early access?*
Improved usability, density, and filtering capabilities for the Unified Interface grid	End users, automatically		October 2019	Yes
Manage email on the timeline wall in Unified Interface	End users, automatically		October 2019	Yes
Timeline wall filter improvements	End users, automatically	August 2019	October 2019	Yes
Timeline wall improvements in Unified Interface	End users, automatically		October 2019	Yes
Usability enhancements to lookups in Unified Interface	End users, automatically	August 2019	October 2019	No
View inline images for emails that are read-only	End users, automatically		October 2019	Yes

* Some features are available for you to opt-in as part of early access on August 2, 2019, including all mandatory changes that impact end users. Learn more about early access.

Description of **Enabled for** column values:

• **End users, automatically** – These features include change(s) to the user experience for end users and are enabled automatically.

• **Admins, makers, or analysts, automatically** – These features are meant to be used by administrators, makers, or business analysts and are enabled automatically.

• **End users by admins, makers, or analysts** – These features must be enabled or configured by the administrators, makers, or business analysts to be available for their end users.

Add intelligence using AI Builder

Overview

AI Builder is a new Power Platform capability for teams with the business expertise to easily automate processes and predict outcomes to improve business performance. AI Builder is a

turnkey solution that brings the power of Microsoft AI through a point-and-click experience. You can now build AI without knowing programming or data science. Using AI is made even easier with integration directly into PowerApps and Microsoft Flow.

Add intelligence to PowerApps with AI Builder

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically	June 2019	October 2019	No

Feature details

To start using AI Builder from Microsoft PowerApps:

1. Sign in to Microsoft PowerApps.

2. Select **Build** under **AI Builder (preview)** in the menu on the left side of the page.

3. Select one of the templates.

4. Get started creating AI models for your organization.
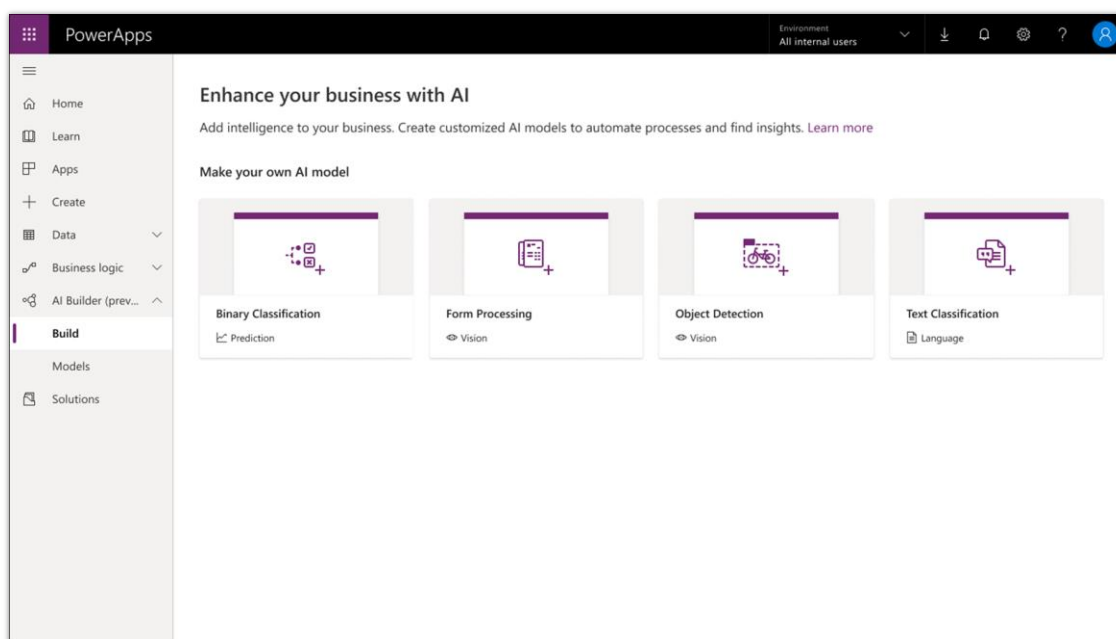
AI Builder in PowerApps

More information: Overview of AI Builder

Easier to deliver high-quality apps

Overview

Improvements for app makers and end users are focused on improving productivity by introducing capabilities and simplifying existing concepts to remove barriers while still providing rich capabilities for advanced users. PowerApps introduces capabilities for pro-developer components and reusable components, as well as improvements for working with Common Data Service for both canvas and model-driven apps. In addition to improvements to the app-maker experiences, PowerApps also introduces updates to the Unified Interface to improve density, usability, and navigation.

PowerApps component framework for canvas apps

Enabled for	Public preview	General availability	Early Access
End users by admins, makers, or analysts	November 2019		No

Business value

By taking advantage of PowerApps component framework, customers can build the components and features they need and not have to wait for support from Microsoft.

Feature details

PowerApps component framework allows professional developers to build custom components that can be used in canvas apps. Makers can import custom components to enhance their canvas apps with the functionality that is not available out of the box.

Public preview of PowerApps component framework allows developers and makers to test their custom components in canvas apps, taking advantage of the growing list of supported APIs, as well as the new theming system.

Build responsive, reflowing canvas pages

Enabled for	Public preview	General availability	Early Access
End users by admins, makers, or analysts	December 2019		No

Feature details

In PowerApps Studio, app makers can build pages that are fully responsive to changes in screen size and orientation but that also offer the same flexibility for custom UI and data binding as standard canvas-app screens. These pages contain prebuilt layouts with regions that automatically reflow as the available real estate on the screen changes, as well as supporting all existing canvas concepts, such as reusable custom components. App makers can build these components in PowerApps Studio, or a professional developer can build them by using PowerApps component framework.

All app developers, including implementers of Dynamics 365, can build fully custom and responsive experiences into their applications, thus improving experiences that are tailored to the needs of end users and increasing their satisfaction. Many people in the PowerApps community have requested this important step on the journey toward unifying app types.

Thank you for your idea

Thank you for submitting this idea. We listened to your idea, along with comments and votes, to help us decide what to add to our product roadmap.

Build and consume reusable canvas components

Enabled for	Public preview	General availability	Early Access
End users by admins, makers, or analysts		October 2019	No

Feature details

Canvas components are generally available for app makers to use in production apps. App makers can build and share elements, such as menus or calendars, on multiple screens of the same app or in multiple apps. App makers can build these reusable components and composite controls in PowerApps, just as they build canvas apps.

In addition, canvas components are fully supported as part of solutions and PowerApps environments. These components participate in the solution lifecycle for managing and updating components and apps between environments. App makers can browse components across their environments and insert them directly into their apps without importing or exporting the component.

By using canvas components, app makers can quickly create, consume, and share their building blocks across screens and apps, build apps more quickly, and maintain apps more easily.
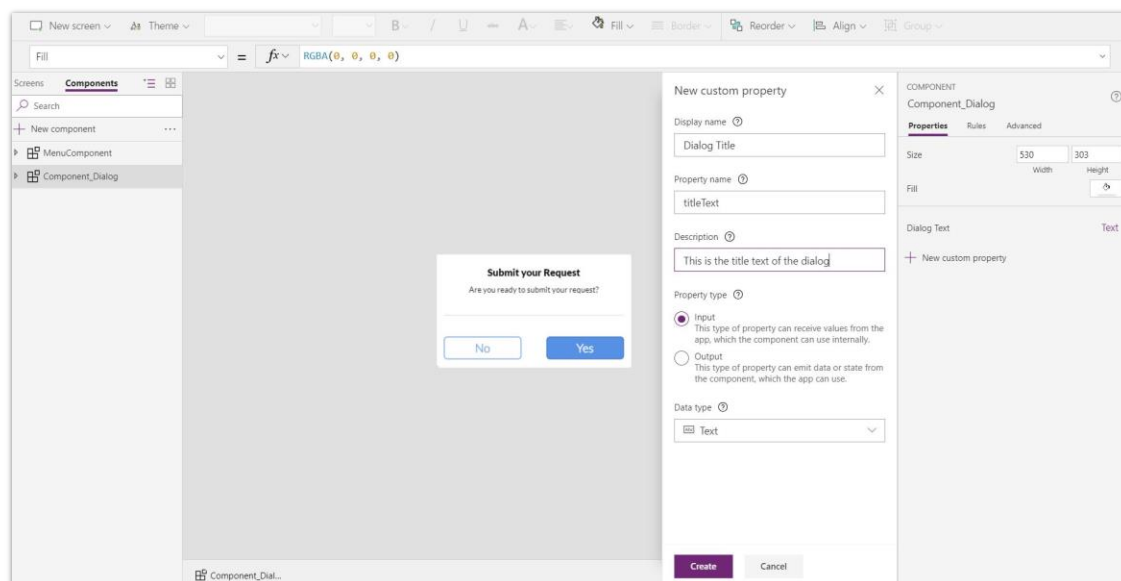
Pane for defining a custom property

Faster, reliable, and stable canvas and model-driven apps on mobile

Enabled for	Public preview	General availability	Early Access
End users, automatically		October 2019	No

Feature details

Canvas applications on mobile devices are more reliable and faster. With improved reliability, errors and unexpected experiences are minimized. Load time of applications has significantly improved. Time to load data and navigate through the application has also improved, contributing to a better user experience.

- With optimizations to the email sign-in and app-loading experience, the Dynamics 365 Mobile app is significantly faster for end users.

- First-time users can sign in and get to their app of choice within a few seconds reliably.

- Returning users can jump right into their app from their previous session and view their most up-to-date information, with background refresh.

- Errors and unexpected experiences are minimized, with reliability of actions and updates greatly improved.

New Common Data Service form designer adds support for event handlers

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Feature details

The new Common Data Service form designer offers a major experience improvement from the legacy Dynamics 365 for Customer Engagement experience of authoring forms.

Following the general availability release, the form designer will enable support to add and configure event handlers on the form and its child controls.

Using event handlers, makers will be able to achieve advanced customizations on the display and behavior of forms. For example, using event handlers, makers will be able to hide or show certain fields based on logic (JavaScript) when the form is loaded or when another field's value is changed.

The new form designer will not only improve the experience of adding and configuring event handlers, it will also tackle other common problems faced by makers such as discoverability of configured events on the form.

Using the classic form designer, makers do not have an easy way to find the elements on the form that have event handlers associated with them. The new form designer will readily surface this information in the Tree view, enabling makers to instantly identify and inspect elements of the form that have event handlers associated with them.

Office 365 suite header coming to PowerApps

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Feature details

The Office 365 suite header is coming to powerapps.com and PowerApps is coming to the Office 365 suite header.

The Power Platform will align with the new Office header, allowing you to access all of your Microsoft applications, notifications, and messages from a consistent header. Additionally, panels like help, notifications, and feedback will be aligned so that you always get the same experience across all of Microsoft.

We'll also take this opportunity to make improvements to existing controls that are specific to PowerApps, like the environment picker, so that they are easier to use.

Aligned header

PowerApps component framework for model-driven apps

Enabled for	Public preview	General availability	Early Access
End users by admins, makers, or analysts		October 2019	No

Feature details

The PowerApps component framework is generally available for model-driven apps, allowing professional developers to create custom components for use across the full breadth of PowerApps capabilities. Third-party developers can now create their own custom components using the libraries and services of their choice and add these reusable components to any model-driven app. The framework not only saves time but also unlocks powerful capabilities for advanced interactions. To facilitate the development of custom components, the Microsoft PowerApps CLI tool enables fast component creation, easy debugging, built-in validation, and testing using the code editor of your choice.

Professional developers can now add to user experiences that are available out of the box. Custom components have access to a rich set of framework APIs that expose capabilities like control lifecycle management, contextual data and metadata access, seamless server access, utility, data formatting methods, device features like camera, location, and microphone along with easy-to-invoke UX elements like dialogs, lookups, and full-page rendering. Component developers can use modern web practices and harness the power of external libraries to create advanced user interactions. The framework automatically handles component lifecycle, retains application business logic, and optimizes for performance (no more async iframes).

Components created using the framework are fully configurable and can be reused on multiple surfaces in the model-driven apps like forms, dashboards, grids, and business process. Component definition, dependencies, and configurations can all be packaged into a solution and moved across environments and shipped via AppSource. The PowerApps component framework is the foundation for the new Unified Interface released with Dynamics 365 for Customer Engagement apps version 9.0 that uses responsive web design principles to provide an optimal viewing and interaction experience for any screen size, device, or orientation.
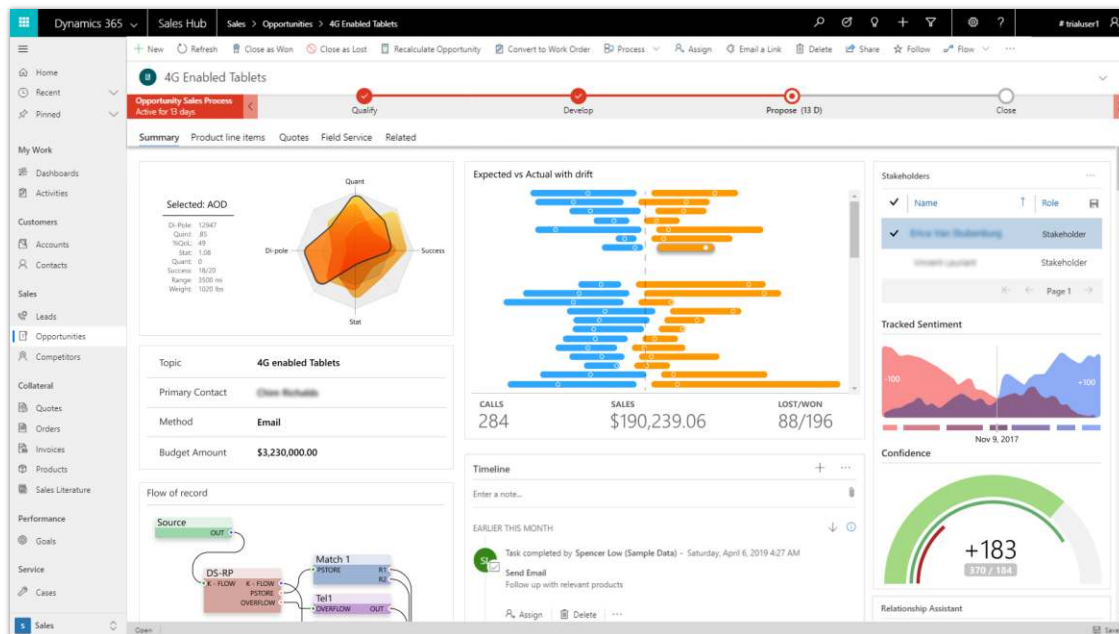
PowerApps component framework example

Sign in using an email address in the Dynamics 365 mobile app on an Android device

Enabled for	Public preview	General availability	Early Access
End users, automatically	August 2019	October 2019	No

Feature details

Model-driven app users can now sign in to the Dynamics 365 mobile app on an Android device using their corporate email addresses.

Details about the experience:

- Online users can sign in easily using their email addresses and on-premises users can still sign in using the web address option.
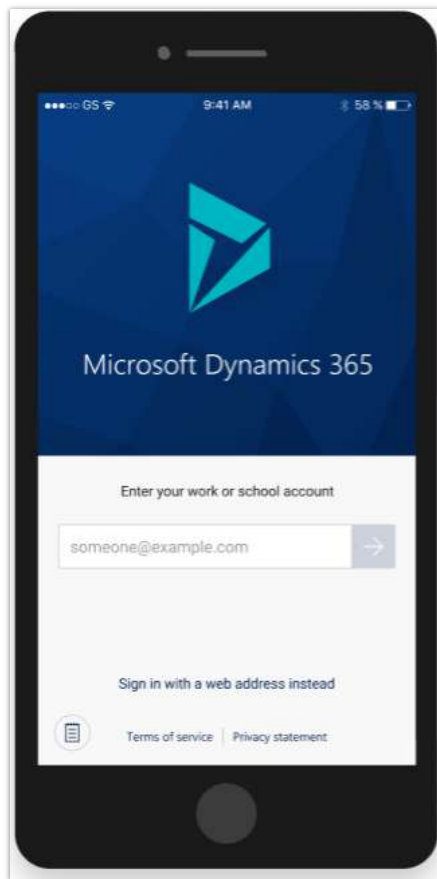
Sign in using email address
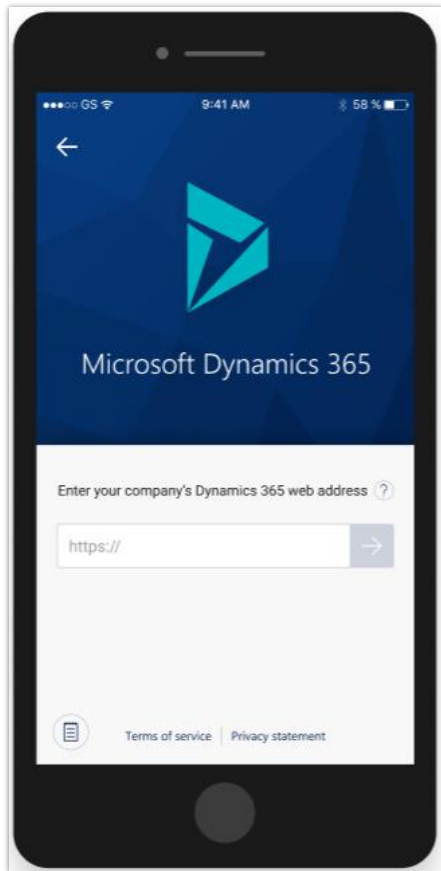
Sign in using web address

- Online users now have access to all their apps across multiple instances in a single list. Users no longer need to sign out and sign in multiple times with different instances to use all their apps.

- The sign-in and app selection experience is easy and intuitive with a modern look and feel.
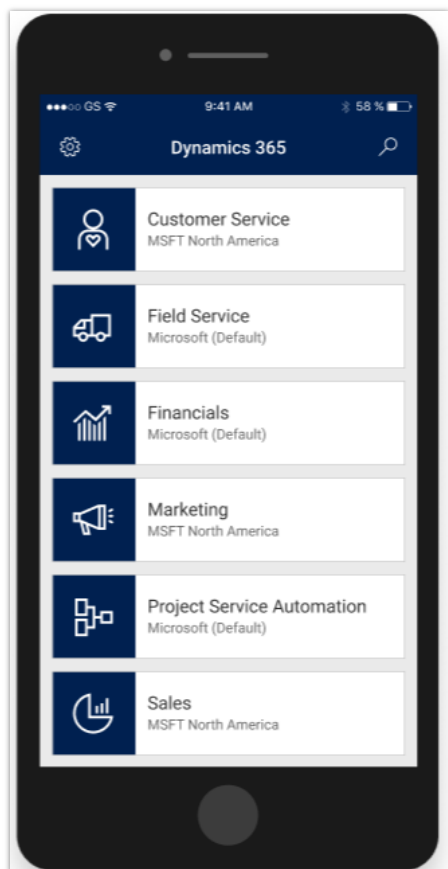
Choose an app

Improvements to entity designer

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically	August 2019	October 2019	No

Feature details

The new entity designer for Common Data Service lets makers more quickly create and edit app components, such as entities, fields, and relationships. Some notable feature improvements to the entity designer include the ability to:

• Create the entity in the background so the maker can proceed with adding fields and relationships, and make key changes while the entity, its default forms, and views are created. These additional changes can be saved after the entity is created.

• Modify the primary field properties along with the entity definition.

- Add fields for the new image and file data types.

- Make changes to the managed properties.

- View data in the updated and accessible **Data** tab.

- Add or edit data in Microsoft Excel using the **Edit data in Excel** command.

These enhancements will further improve the usability, convenience, and productivity for makers.
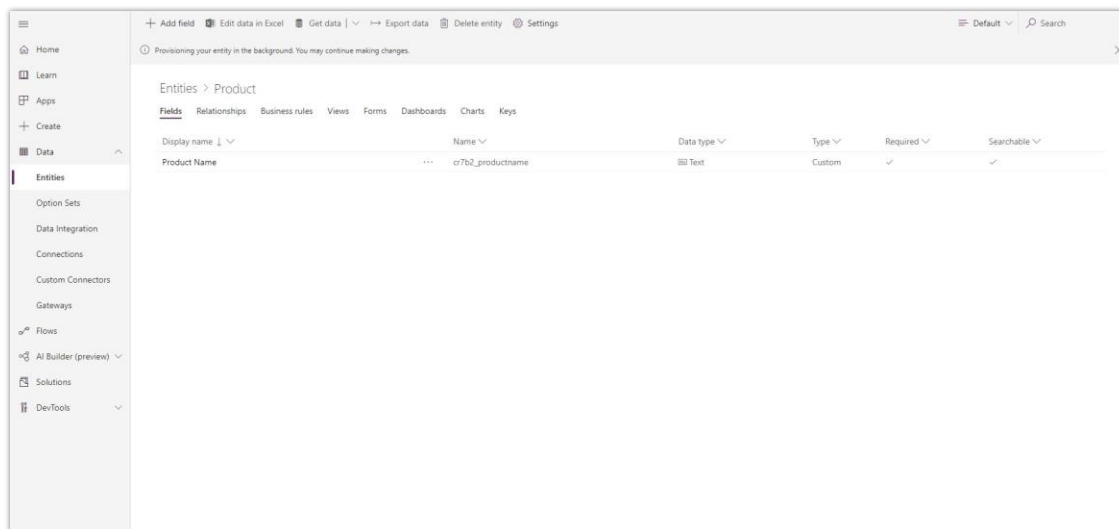
Background entity create

Integrated experience and tooling for administrators

Overview

PowerApps makes maintaining and managing apps across your organization easier than ever. The Power Platform Admin center is now the single admin center for PowerApps and Microsoft Flow admins and partners, offering a more reliable, unified experience to manage storage capacity, environments, and deployments. Powerful analytics empowers admins to investigate and diagnose issues with their deployments, and the integrated help and support experience allows them to find the help they need and escalate to Microsoft Support when necessary.

Data loss prevention policy enhancements

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Feature details

Data loss prevention (DLP) policies provide organizations with the ability to group connectors into business and non-business data groups. This allows organizations to build flows that contain only business data sources and prevent business data from leaking to non-business data sources. A common example is: I don't want my SharePoint data to end up on Twitter.

However, there are many scenarios where this level of control is not enough. One common example is companies with outside principals in their production tenant (for example, vendors and partnerships). The companies might want to limit access for these users to their business data sources through PowerApps and Microsoft Flow. With our new DLP enhancements, you will be able to define which user principals would be accepted by connectors that use Basic Auth and OAuth authentication.

PowerApps cmdlets for admins

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically	May 21, 2018	October 2019	No

Feature details

With the preview launch of the PowerShell cmdlets for administrators last year, admins are able to automate many of the monitoring and management tasks that were previously only possible through the PowerApps admin center.

In the 2019 release wave 2, we will be announcing the general availability (GA) of these cmdlets, as well as the addition of new cmdlets around:

1. Capacity management

2. Permission and user management

3. Environment lifecycle management

Admin connectors for Microsoft PowerApps

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically	August 30, 2018	October 2019	No

Feature details

With the preview launch of the Admin connectors for Microsoft PowerApps and Microsoft Flow last year, Power Platform admins found new and powerful ways to improve their own productivity by using the same tools that they manage.

This October, we will be announcing the general availability (GA) of these connectors, as well as the addition of a series of templates and samples outlining common user cases for canvas apps and flows built against these connectors:

- Power Platform for Admins

- PowerApps for Admins

One admin center to rule them all

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically	September 26, 2018	October 2019	No

Feature details

Today, admin experiences for Dynamics 365 for Customer Engagement, PowerApps, Microsoft Flow, and Common Data Service are spread across multiple portals lacking a single unified end-to-end experience. Therefore, we are excited to announce the planned 2019 release wave 2 GA of the new Power Platform Admin center. With this launch, the Power Platform Admin center will be the single entry point to:

- Install, upgrade, and manage apps and flows.

- Create and manage environments.

- Review analytics and telemetry.

- Set the right governance controls and data loss prevention policies for your organization.

Improved capacity governance

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically	May 22, 2019	October 2019	No

Feature details

With the introduction of the new capacity-based provisioning model in April '19, citizen developers are able to more easily provision environments they need for their applications. With this change comes the need for IT admins to be able to better plan and manage database, file, and log capacity consumption within their organization. To support this, the Power Platform Admin center will provide a new real-time view of capacity consumption (Database, File, and Log), historical trends for up to 12 months, and storage breakdowns by entity and application to help facilitate capacity planning and cross-charging to the business units that consume platform capacity.

Portal capabilities for PowerApps

Overview

Use the portal capabilities of PowerApps to create websites that external users can access either with a wide variety of identities (such as personal accounts and LinkedIn) or anonymously.

Power BI Embedded support for portals

Enabled for	Public preview	General availability	Early Access
End users by admins, makers, or analysts		October 2019	No

Business value

In the April 2019 release of Dynamics 365 for Customer Engagement Portal, we started a preview for Power BI Embedded service. With Power BI Embedded service, customizers can provide access to Power BI dashboards and reports to users who don't have a Power BI account. As part of this release, this functionality would be generally available for all customers.

Feature details

This feature provides the ability to surface Power BI Embedded service components (reports, dashboards, and tiles) contextually to portal users who don't have a Power BI license.

With this feature you can embed Power BI components on a portal and contextually serve the data to end users coming to the portal. Some of the core capabilities of this feature include:

- Pass automatic filters to reports using a filter parameter along with the **powerbi** liquid tag. This will help you to filter down the data contextually based on what the end user is viewing on the portal.

- Enable Power BI row-level security (RLS) capabilities by passing the **roles** parameter in the context of the signed-in user. This will help organizations to secure the data that is visible to end users and show them only what they are allowed to see.

More details about this feature can be found at Enable Power BI Embedded service and powerbi.
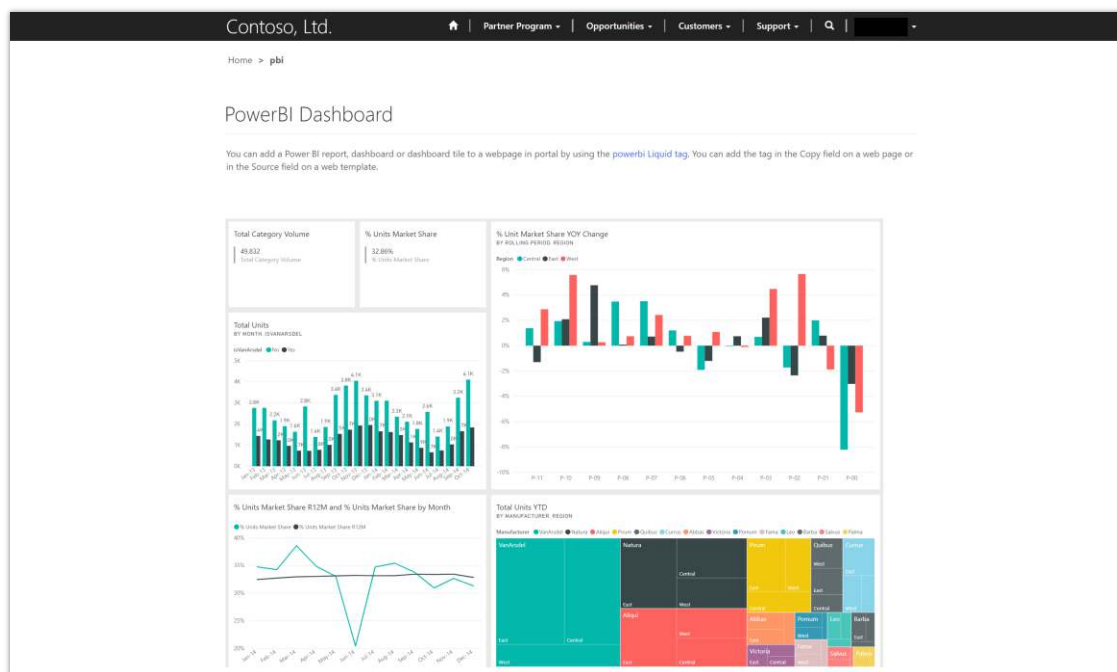
Power BI embedded in portal

PowerApps Portals

Enabled for	Public preview	General availability	Early Access
End users by admins, makers, or analysts	July 2019	October 2019	No

Business value

PowerApps makers can now create a powerful new type of experience: web portals that surface data stored in Common Data Service to employees or users outside their organizations.

Feature details

As part of this feature, PowerApps and Dynamics 365 makers can create a new type of app called **Portal** to create a website that can be extended to users who are outside your organization and can sign in with a wide variety of identities, or even browse the content anonymously.

This feature will provide full capabilities of Dynamics 365 for Customer Engagement Portal, previously offered only as an add-on to Dynamics 365 for Customer Engagement applications. It also features a revamped end-to-end experience for makers to quickly create a website, customize it with pages, layout, and content, reuse page design through templates, add forms, views, and other key data from Common Data Service, and publish to users. With these new capabilities, makers can deliver rich, web-based experiences to users far beyond their fellow employees, unlocking a host of business scenarios for employees, business to business (B2B) partners, and end customers.
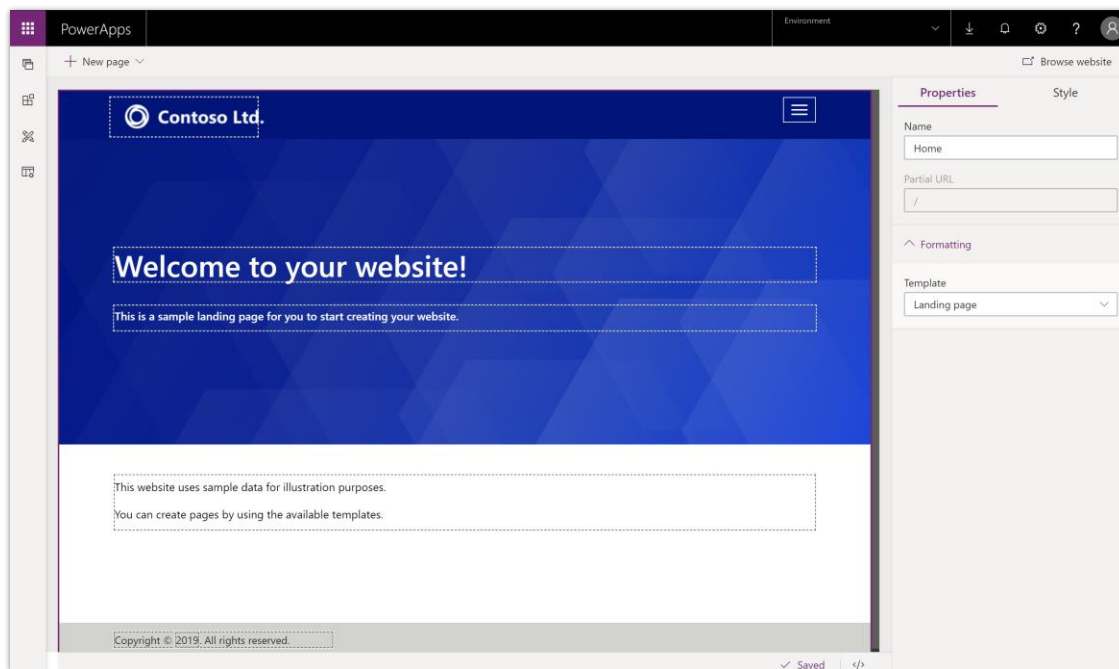
PowerApps Portals
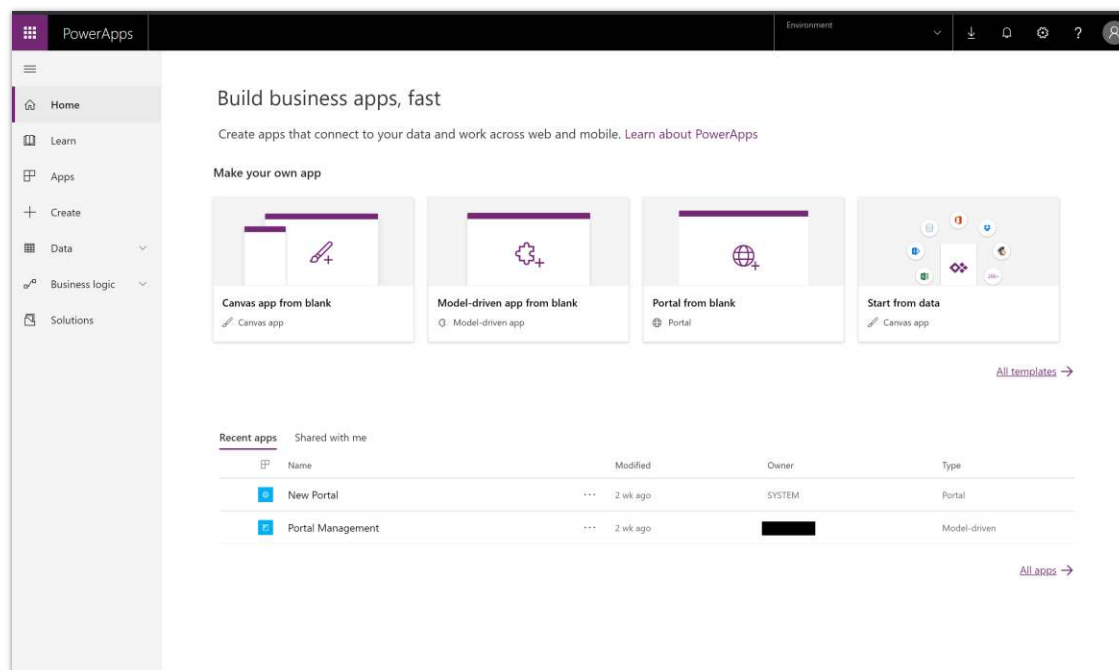
Maker experience for PowerApps Portals

Thank you for your idea

Thank you for submitting this idea. We listened to your idea, along with comments and votes, to help us decide what to add to our product roadmap.

Portal Checker enhancements

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		November 2019	No

Business value

The Portal Checker tool released in the October '18 wave looks at portal configuration and identifies potential configuration problems as well as provides solutions on how to resolve the issues. Portal customizers and administrators can use this tool to quickly resolve common issues and reduce the amount of time spent on diagnosing issues. As part of this feature enhancement, we will be adding enhancements to identify more scenarios that will help customers to resolve common issues with their portal.

Feature details

The feature enhancements allow users to:

• Identify complex entity permissions that can cause slowness.

• Identify performance-impacting slow queries and views.

• Identify configuration issues with authentication-related site settings.
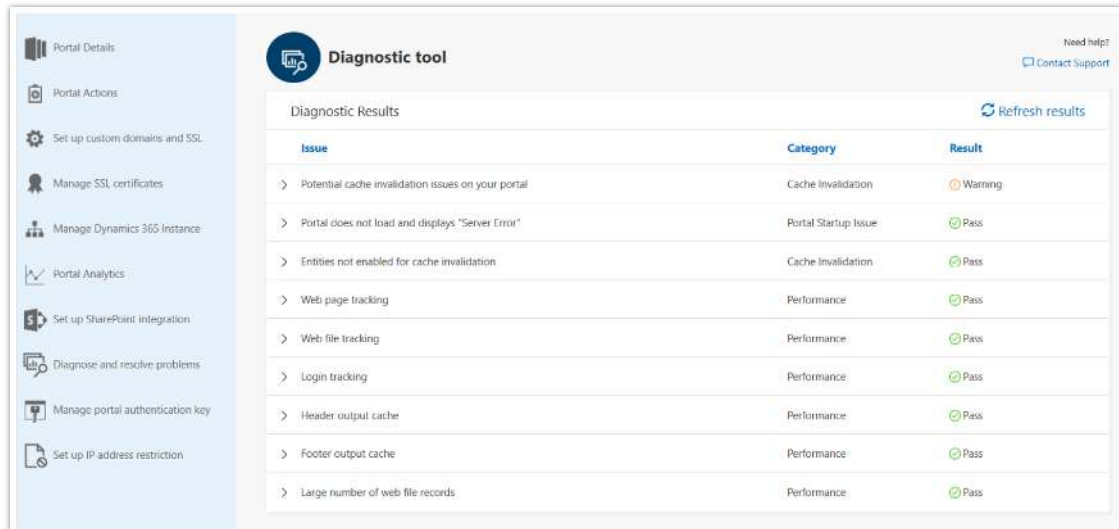
Portal Checker

Scalable enterprise solutions

Overview

Enterprise makers have quality embedded throughout their experiences. Diagnostic data is available for canvas apps to make troubleshooting easier, and a test framework is available in canvas apps for makers to create test coverage for their mission-critical apps. Enterprises can share apps with vendors, contractors, and other partners outside of their companies.

PowerApps test framework

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically	October 2019		No

Feature details

App makers and testers can leverage the PowerApps test framework to create UI automation and end-to-end tests for their canvas apps. App makers can catch and react to issues early as they move across environments, test out the latest service versions, or push updates to their existing production applications.

By using this framework, you can perform these tasks:

- Create and organize test suites and test cases for your app in a new test designer.

- Capture your actions and create test steps automatically by using an intuitive recorder.

- Manually create test steps and validate expected results by using new PowerApps testing expressions.

- Play back your tests to quickly identify issues early and understand any failures.

Runtime telemetry

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically	October 2019		No

Business value

Access to runtime telemetry will allow admins to build their own customized report and configure their own monitoring and alerting for their apps.

Feature details

Admins and app makers can now get access to PowerApps runtime telemetry from their own datastore, which will allow customized reporting, monitoring, and alerting of their apps. With detailed telemetry available, admins and app makers can identify and diagnose performance and reliability issues faster.

Modern Solution Explorer is the default customization experience

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Business value

Modern Solution Explorer offers several key benefits over the classic experience including multiple new features, building and managing customizations under one umbrella, inline help when you need it, and a more performant and usable interface.

Feature details

Makers are more productive and no longer need to switch between solution interfaces. Along with many new solution capabilities such as canvas apps, flows, custom connectors, and environment variables, all the familiar capabilities from classic Solution Explorer are now available within the new experience. If you still need to access classic Solution Explorer, simply select **Switch to classic**.

Other improvements include:

•   Tailored interface for advanced users.

•   Updated import/export experiences with the ability to configure environment variables.

•   Solution actions panel to support healthy application lifecycle management (ALM).

•   Better views for managing plug-ins.
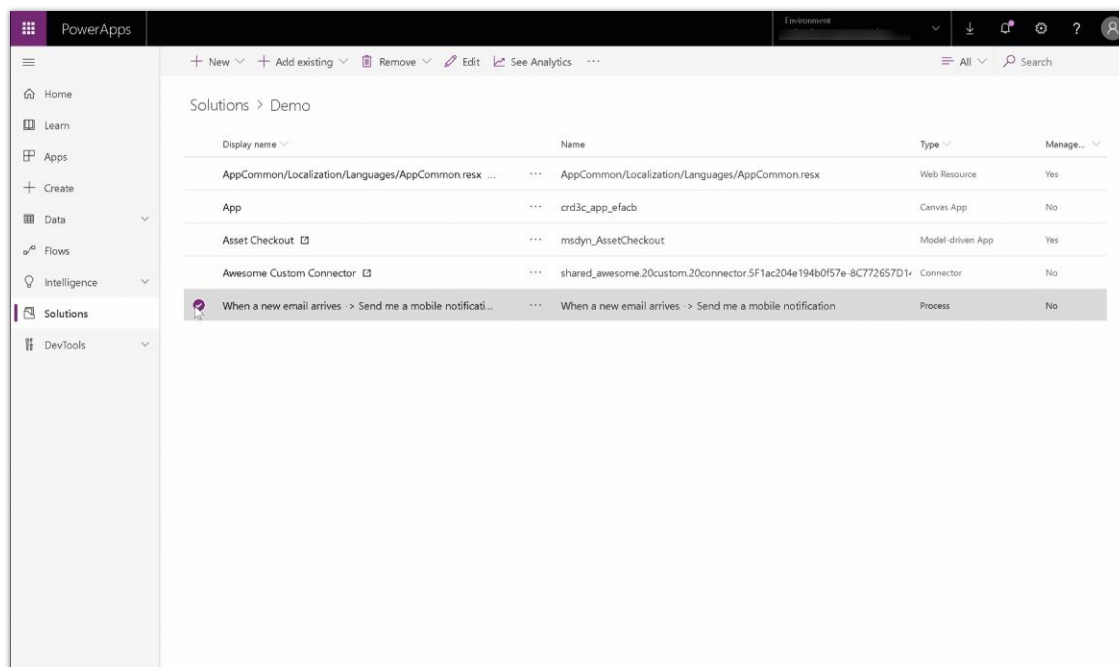
Modern Solution Explorer in action

Required licenses and plans

This feature requires the following licenses or plans: PowerApps for Office 365

New solution components get full support

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Business value

The Power Platform is continuing to adopt a single packaging mechanism. We're continuing to close gaps so that any solution component has consistent behavior and pre-existing user workflows are not negatively impacted. Combined with enhancements to our developer tooling, all customizations can be managed in source control enabling CI/CD (continuous integration/continuous delivery) with fully automated build and release pipelines.

Feature details

With 2019 release wave 2, you will be able to take full advantage of the new types of components that are added to a solution. The latest features like canvas apps, flows, connections, custom connectors, and environment variables will now follow the full end-to-end lifecycle, including:

• Canvas apps with flows are supported within solutions.

• Custom connectors are added that were not originally created from a solution.

• Connections get created automatically when importing solutions.

• Dependencies are tracked and enforced.

• Flows natively consume environment variables.

In addition, flows in solutions are easier to discover and edit. They are located under **Team Flows** and don't need to be turned off before editing.

Required licenses and plans

This feature requires the following licenses or plans: PowerApps for Office 365

The PowerApps Checker includes rules for canvas apps and flows

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Business value

PowerApps has added components to the rule set that encourages best practices in the PowerApps Checker. You can check your canvas apps and flows that are included in solutions and then review all issues in a single, consolidated report.

Feature details

The PowerApps Checker has helped hundreds of admins and makers pinpoint potential issues in their solutions and quickly resolve them with rich documentation. That experience has been enhanced in several ways. The PowerApps Checker pulls data not only from the App Checker in PowerApps Studio but also the Flow Checker in the flow designer.
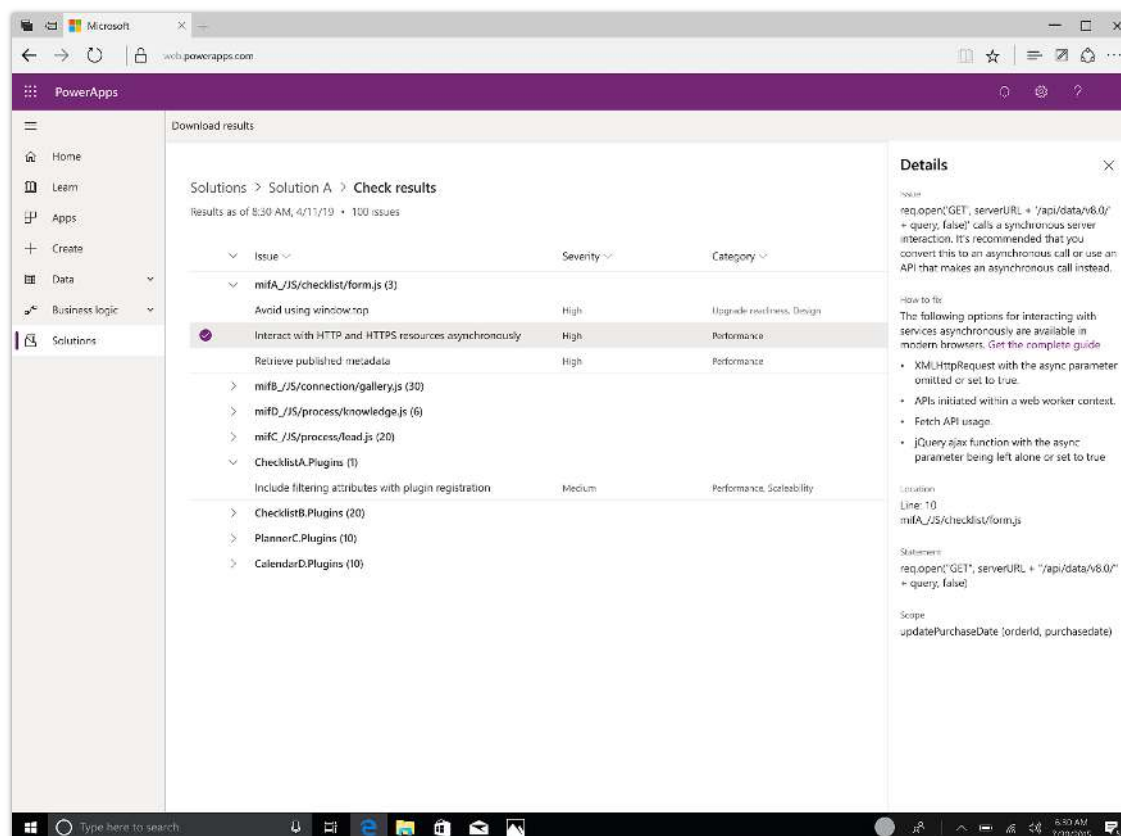
Details pane of the PowerApps Checker

Enhanced offline capabilities for apps on the Dynamics 365 mobile app

Enabled for	Public preview	General availability	Early Access
End users by admins, makers, or analysts	August 2019	October 2019	No

Feature details

Ability to work with data in offline mode is a key business requirement for field scenarios. We released the first phase of robust offline functionality early this year. With our commitment to provide a great offline solution, we are continuously investing in building more capabilities on top of it.

New capabilities and enhancements:

- Offline metadata is now synced automatically in the background to provide a better user experience. Previously, anytime there was a change in offline metadata, a user got a prompt to update the metadata to be able to work in offline mode. Metadata sync

happened in the foreground, blocking the user. Now, a user no longer has to worry about syncing offline metadata or data and can continue working seamlessly in both online and offline mode.

- Notes are available in offline mode. Users are now able to access their notes, create notes, and add attachments in offline mode.

- User experience is better in offline mode, such as improved messaging in offline.

Share apps with users outside your tenant, B2B or B2C

Enabled for	Public preview	General availability	Early Access
End users by admins, makers, or analysts	August 2019	October 2019	No

Feature details

You can invite external business partners, contractors, and third parties to run your company's canvas apps. You can share your apps with any guest of your Azure Active Directory tenant.

You can share a canvas app with a guest as easily as you do with a co-worker. Type your guest's email address to quickly share both the app and its data.

If a SharePoint list has been shared with a guest user, that user can also run any canvas apps that are embedded in that list.

To run standalone apps, guest users need the same license as users in your tenant. All apps require a paid license, and some apps require a PowerApps Plan 1 or higher license.
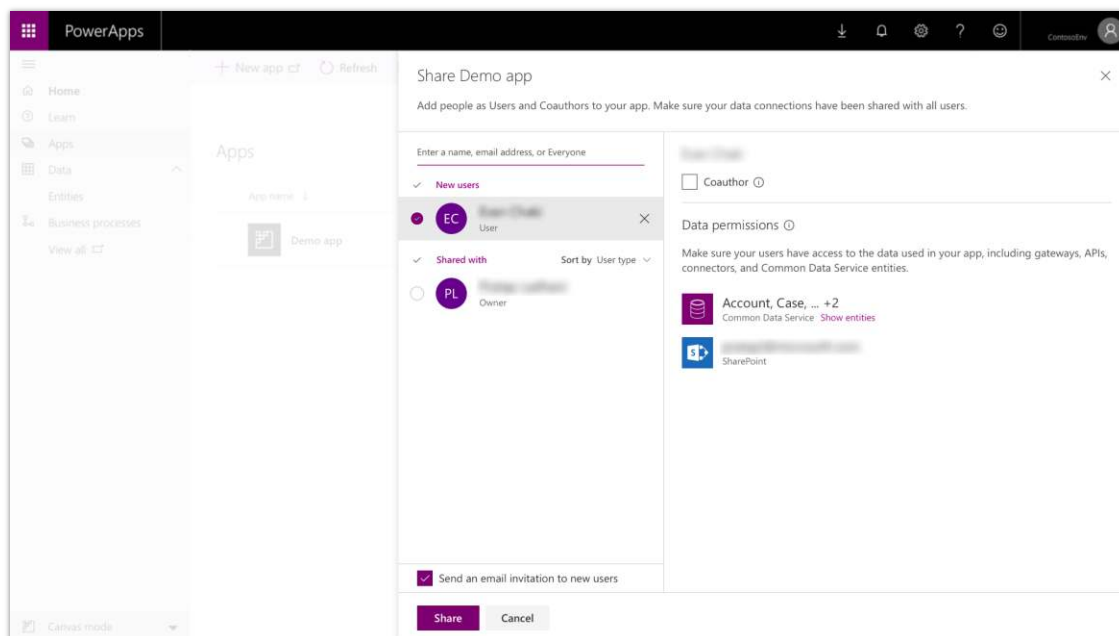
Sharing pane for canvas apps

Unified Interface for everybody

Overview

The Unified Interface is the model-driven app layer that generates great user experiences over Common Data Service. The Unified Interface uses responsive web-design principles to provide an optimal viewing and interaction experience for any screen size, device, or orientation. The new Unified Interface brings all the rich experiences to any client that you're using. Whether you're on a browser, a tablet, or a phone, you can consume similar experiences, as in these examples:

• Similar form experiences to update and view your records.

• Interactive dashboards across all devices to view your information and drill into it.

• Improved performance.

• Support for right-to-left (RTL) languages.

• Accessibility improvements across all experiences on the Unified Interface.

Anchoring error notifications in Unified Interface

Enabled for	Public preview	General availability	Early Access
End users, automatically		October 2019	Yes

Feature details

Users will be able to quickly navigate to a field on a form that has an error from a notification by simply clicking on the error message. The focus will be set on the error field, reducing clicks and improving productivity when there is an error on a form.
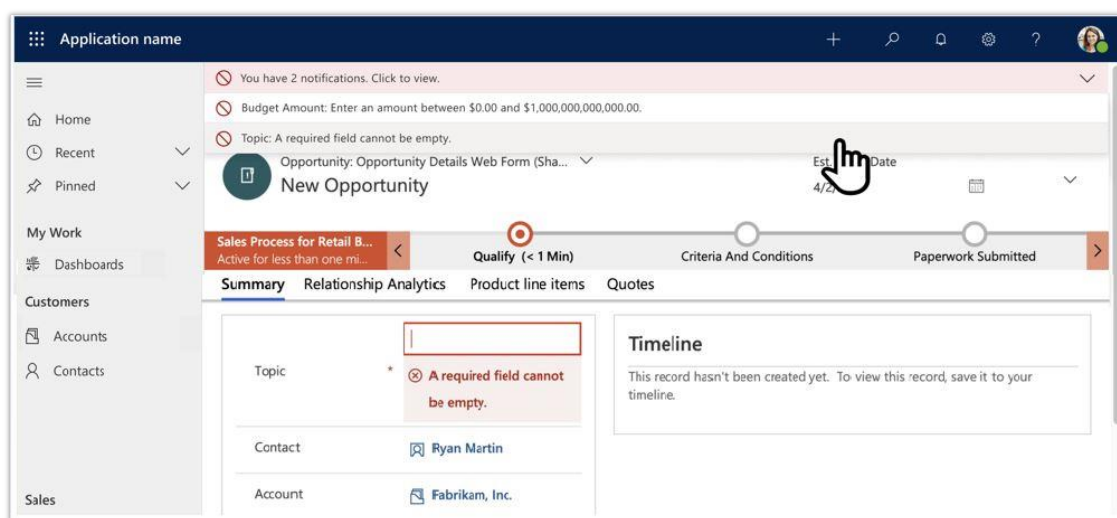
Error notification

Connection role enabled in the Unified Interface

Enabled for	Public preview	General availability	Early Access
End users, automatically	August 2019	October 2019	Yes

Business value

Closes feature gaps between the legacy web client and the Unified Interface, reducing issues or friction for customers updating from v9.x web client to the Unified Interface. Also allows for new users to easily add a connection role to a connection in the Unified Interface.

Feature details

Users will be able to add or delete connection roles with the August 2019 preview and October 2019 general availability release of the Unified Interface. This entity was previously available only when relating a connection role to a connection, with no ability to manage a connection role. This will close a feature gap between the legacy web client and the Unified Interface.

Form header usability improvements

Enabled for	Public preview	General availability	Early Access
End users, automatically		October 2019	Yes

Feature details

Customers will have an improved experience when they open and read information for a record in the Unified Interface with increased data density and usability with the form header.

Enhancements to the header include:

- Information will always be available in the header with four read-only fields, reducing clicks and improving productivity.

- The title of the record will never truncate.

- Current forms will support editable fields with a simple click of a chevron to enter data.

- A read-only form will have an enhanced notification with details on why a form is read-only.

Header density

Legacy form header

Improved usability, density, and filtering capabilities for the Unified Interface grid

Enabled for	Public preview	General availability	Early Access
End users, automatically		October 2019	Yes

Feature details

The Unified Interface grid now includes several updates focused on usability and navigation for end users. The grid layout and styling has been optimized to improve density, allowing users to see more records on a single screen without feeling cluttered. This update removes unused and redundant space in the grid that has been highlighted in user feedback as impacting efficiency and making the grid harder to navigate.

In addition to the density changes, updates have been made to improve the filtering and navigation behavior. Now as users filter records in the view page, navigate to a record, and return to the grid, the filters on the grid are remembered. This allows end users to navigate back and forth between the grid and filtered records without reapplying the filter, search, or view selection each time.

Improvements have also been made to the advanced grid column filtering options to find their records quickly. This includes filtering on the activity type field and alignment of date field filtering for existing operators.

Improved grid density

Required licenses and plans

This feature requires the following licenses or plans: PowerApps Plan 2

Manage email on the timeline wall in Unified Interface

Enabled for	Public preview	General availability	Early Access
End users, automatically		October 2019	Yes

Feature details

Users can easily set email messages to show as conversation threads on their timeline wall, significantly reducing scrolling and clicks when they are managing email activities in the Unified Interface.
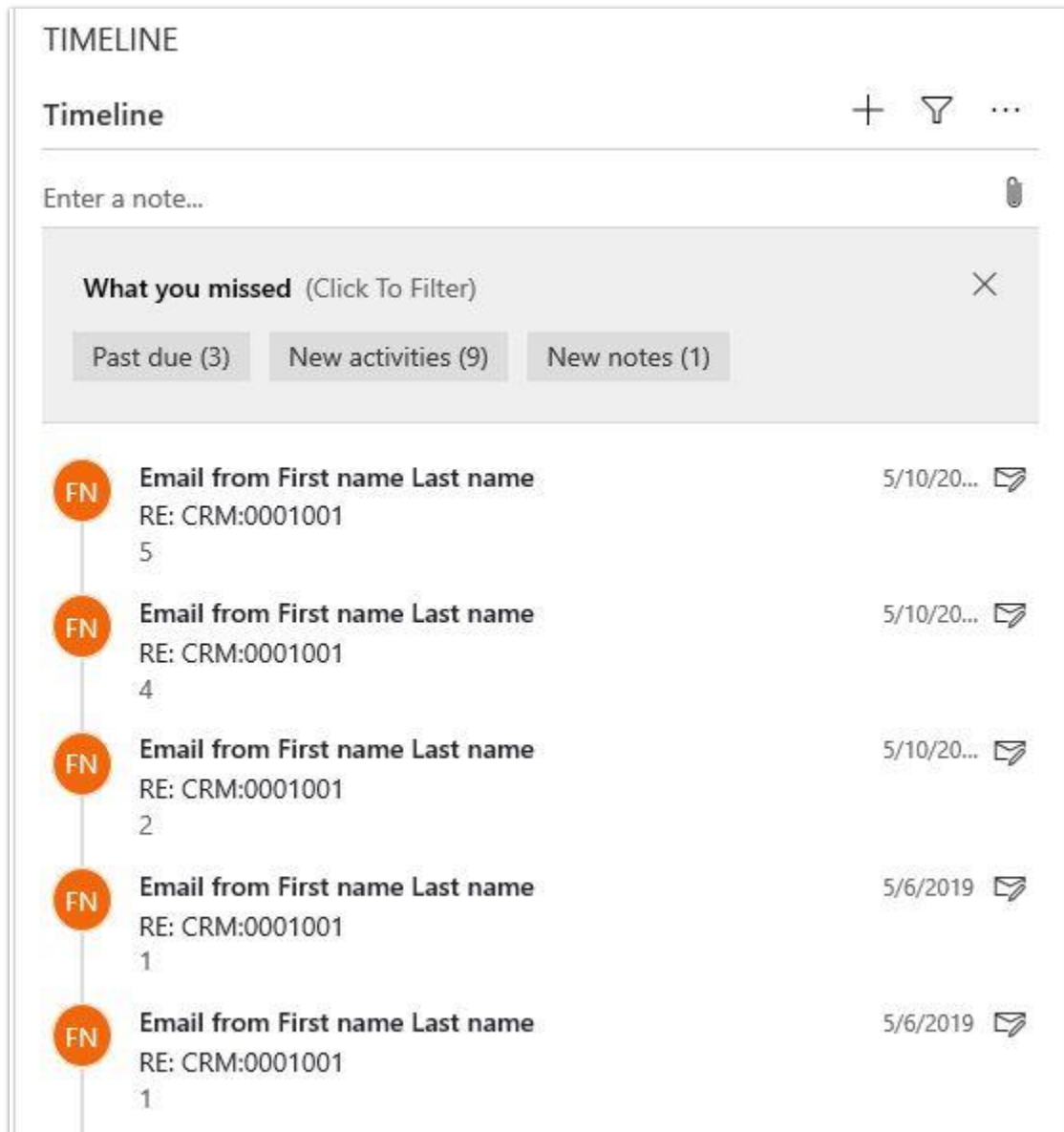
Conversation thread window

Timeline wall filter improvements

Enabled for	Public preview	General availability	Early Access
End users, automatically	August 2019	October 2019	Yes

Business value

Filtering activities will be faster and easier to use, improving productivity and aligning the experience to similar industry standards that customers are used to like Outlook, Power BI, and SharePoint.

Feature details

Filtering activities will now be simple and easy to use. It will include multiple filter options, and data and times will be clearer and easy to understand. We are also reducing confusion by removing pie charts to simplify and align to a more modern filtering experience. The experience will be more aligned to what users expect with similar filtering in Outlook, Power BI, and SharePoint.

Timeline wall filtering

Timeline wall improvements in Unified Interface

Enabled for	Public preview	General availability	Early Access
End users, automatically		October 2019	Yes

Feature details

Managing activities in the timeline wall will be faster and more responsive with improvements to data density and usability.

Enhancements include:

• Easily expand and collapse activities in the timeline wall.

Command bar

- Simple icons that help users quickly identify key activities.
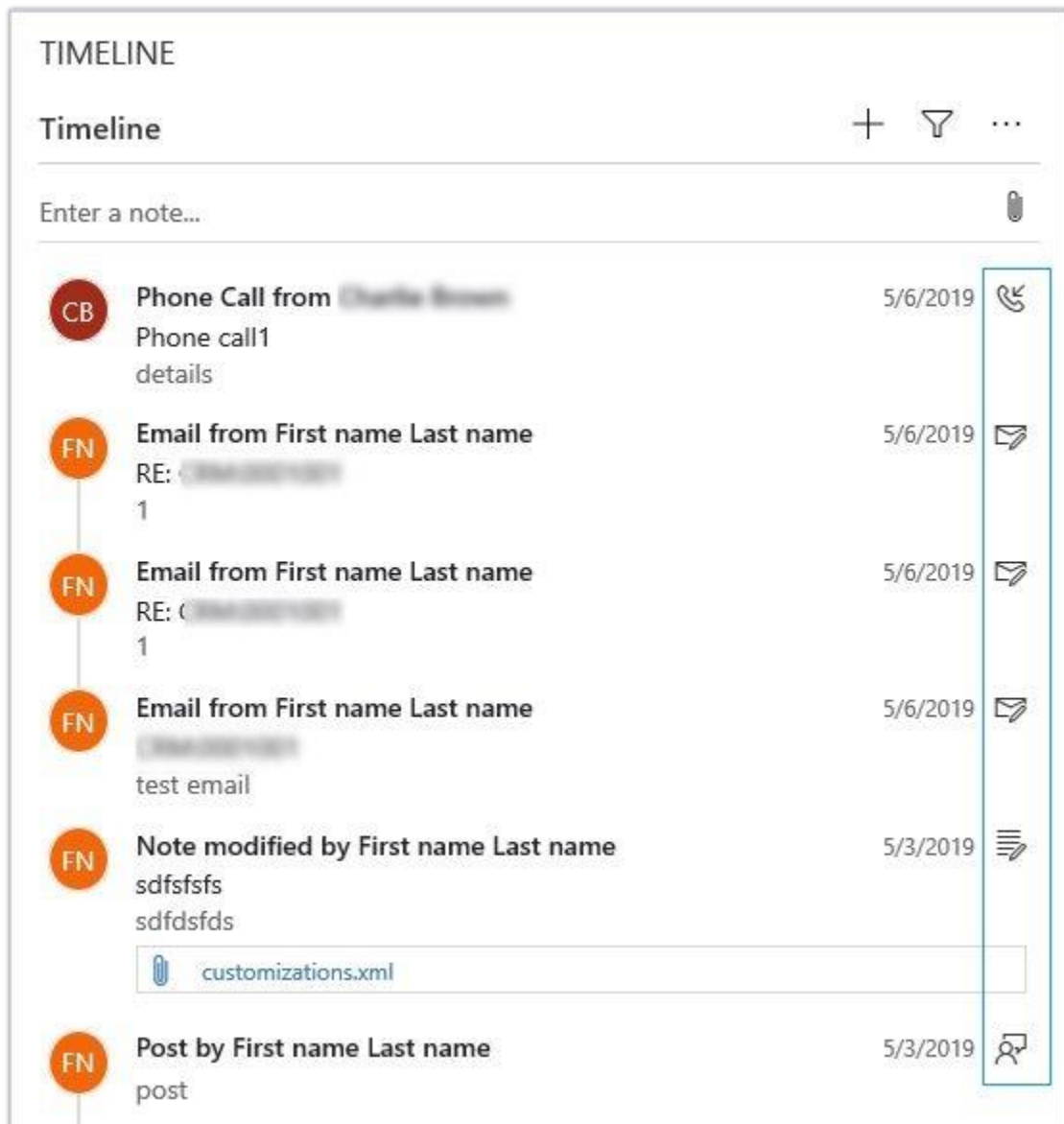
Icons

- Quick and easy access to the command bar to perform common actions on an activity.

Expanded view
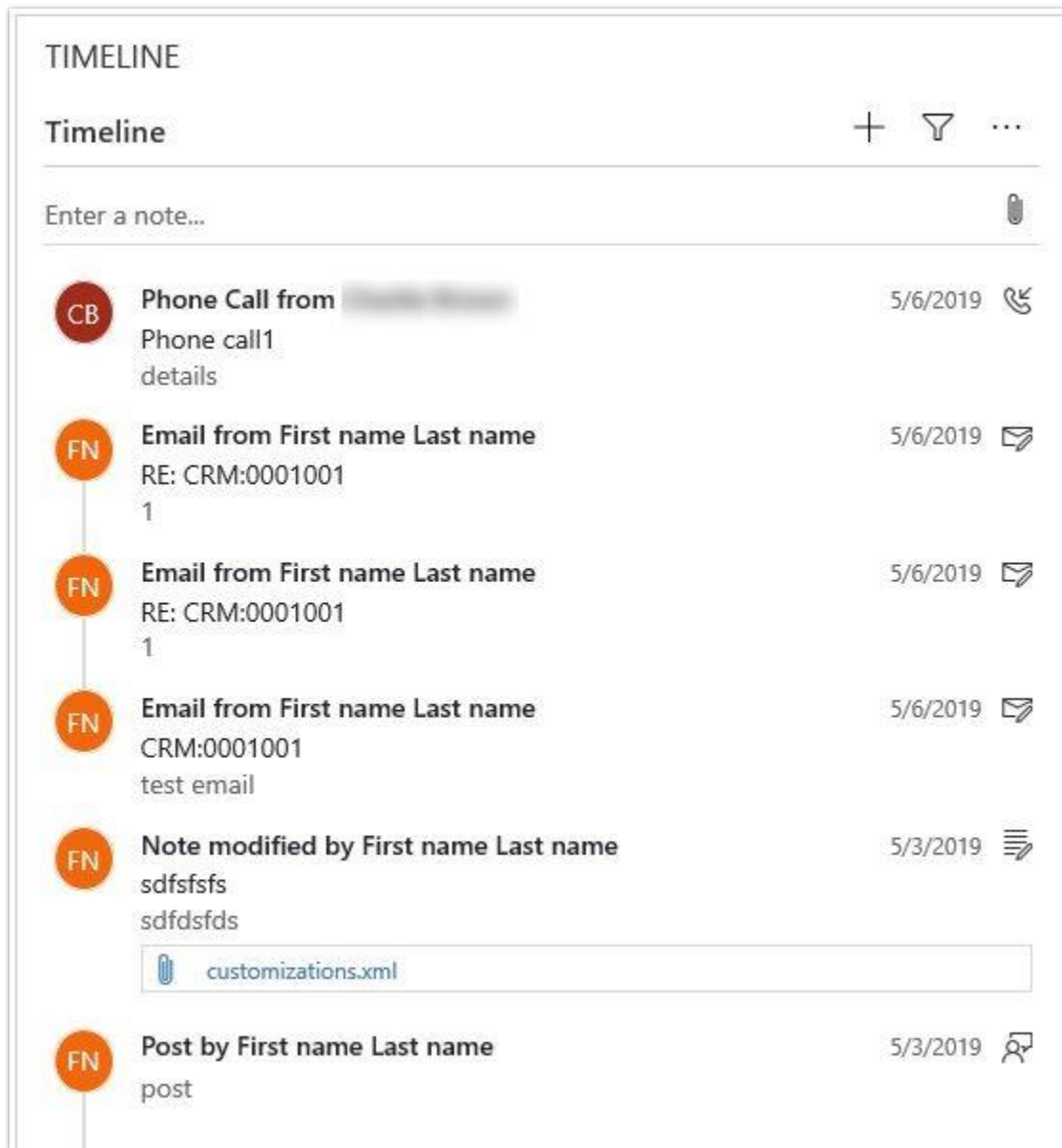
Improve density

Usability enhancements to lookups in Unified Interface

Enabled for	Public preview	General availability	Early Access
End users, automatically	August 2019	October 2019	No

Business value

Enhanced lookup functionality will give users improved interactivity and consistency with the drop-down menu.

Feature details

Enhanced functionality within lookup includes improved entities filter layout, improved interactivity with the search box, and consistency displaying recent and pinned records.
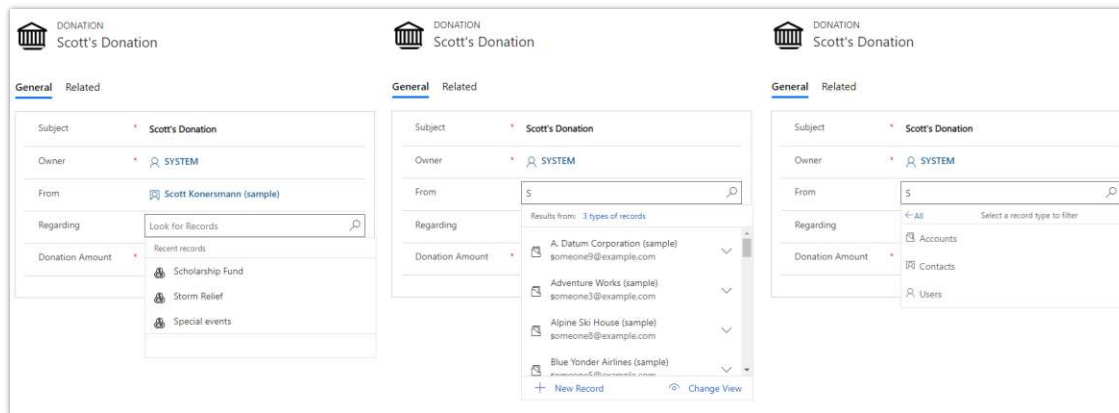
Lookup enhancements

View inline images for emails that are read-only

Enabled for	Public preview	General availability	Early Access
End users, automatically		October 2019	Yes

Feature details

With the 2019 release wave 2, customers can easily view images inline when they open and read an email. This eliminates the need to open each individual image that is attached in an email. Providing inline image support for read-only emails streamlines the experience and improves usability and user productivity when they manage their email in the Unified Interface.

Microsoft Flow

Overview of Microsoft Flow 2019 release wave 2

Microsoft Flow is the popular process automation and workflow product from Microsoft. Every month, over a million people automate everything from simple notifications to highly tailored multi-step approval processes spanning organizational boundaries. Microsoft Flow exemplifies the future of automation by infusing intelligence and empowering completely non-technical users to automate complex workflows—all without tortuous IT deployments. This October, Microsoft Flow is introducing several new features in three key areas.

For **flow makers**, we are providing smarter and more powerful experiences. For example, with the new **AI Builder** capabilities, makers can create flows that parse content from a PDF form or classify the objects in an image. For the **end users** of flows, we are delivering world-class business process capabilities, including working with business processes offline. Finally, there is now much richer tooling for **admins**, such as our PowerShell cmdlets and new Power Platform Admin center.

What's new and planned for Microsoft Flow

This topic lists features that are planned to release from October 2019 through March 2020. Because this topic lists features that may not have released yet, **delivery timelines may change and projected functionality may not be released** (see Microsoft policy).

In the **General availability** column, the feature will be delivered within the month listed. The delivery date can be any day within that month. Released features show the full date, including the day of release.

More intelligent and powerful capabilities for Microsoft Flow makers

The citizen developers of the Microsoft Power Platform now have richer capabilities when they are building out business processes inside of Microsoft Flow.

Feature	Enabled for	Public preview	General availability	Early access?*
Flows that use other solution components are generally available	Admins, makers, or analysts, automatically		October 2019	No

Feature	Enabled for	Public preview	General availability	Early access?*
Running flows from a geofence is generally available	Admins, makers, or analysts, automatically		October 2019	No
Share flows as templates	Admins, makers, or analysts, automatically		October 2019	No
Support gateways in all environments	Admins, makers, or analysts, automatically		October 2019	No
Add intelligence to Microsoft Flow with AI Builder	Admins, makers, or analysts, automatically	June 2019	October 2019	No

Rich tooling for administrators

Admin experiences are key to the adoption of any trusted platform.

Feature	Enabled for	Public preview	General availability	Early access?*
Admin connectors for Microsoft Flow are generally available	Admins, makers, or analysts, automatically		October 2019	No
Improved capacity governance for resource usage	Admins, makers, or analysts, automatically		October 2019	No
Manage Microsoft Flow in the Power Platform Admin center	Admins, makers, or analysts, automatically		October 2019	No
Microsoft Flow PowerShell cmdlets for admins are now generally available	Admins, makers, or analysts, automatically		October 2019	No

World-class business process capabilities

Microsoft Flow provides world-class business process capabilities for its users that span endpoints and experiences.

Feature	Enabled for	Public preview	General availability	Early access?*
Build business process flow stages with custom controls	Admins, makers, or analysts, automatically		October 2019	No
Business process flow immersive experiences	End users, automatically		October 2019	Yes
Fluent experience for flows in Dynamics 365 and SharePoint available	End users, automatically		October 2019	Yes
Work with business process flows offline	End users, automatically		October 2019	Yes

* Some features are available for you to opt in as part of early access on August 2, 2019, including all mandatory changes that impact end users. Learn more about early access.

Description of **Enabled for** column values:

- **End users, automatically** – These features include change(s) to the user experience for end users and are enabled automatically.

- **Admins, makers, or analysts, automatically** – These features are meant to be used by administrators, makers, or business analysts and are enabled automatically.

- **End users by admins, makers, or analysts** – These features must be enabled or configured by the administrators, makers, or business analysts to be available for their end users.

More intelligent and powerful capabilities for Microsoft Flow makers

Overview

The citizen developers of the Microsoft Power Platform now have richer capabilities when they are building out business processes inside of Microsoft Flow. Flow makers can now leverage the **smarter** experiences of AI Builder.

Flows that use other solution components are generally available

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Feature details

The Microsoft Power Platform is continuing to adopt a single packaging mechanism. We're continuing to close gaps, so that any solution component has consistent behavior and pre-existing user workflows aren't negatively affected. Combined with enhancements to our developer tooling, you can manage all customizations in source control, enabling continuous integration and continuous delivery with fully automated build and release pipelines.

You will be able to take full advantage of the new types of components that are added to a solution. The latest features, like canvas apps, flows, connections, custom connectors, and environment variables, will now follow the full end-to-end lifecycle, including:

• Canvas apps with flows are supported within solutions.

• Add custom connectors that were not originally created from a solution.

• Connections for flows are created automatically when importing solutions.

• Dependencies are tracked and enforced for new solution components.

• Flows natively consume environment variables.

In addition, flows in solutions are easier to discover and edit. They are located under **Team Flows** and no longer need to be turned off before editing.

Running flows from a geofence is generally available

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Feature details

In May, we previewed the ability to trigger a flow from the Microsoft Flow app for iOS and Android. The feature allows users to create a location range that triggers a flow when a mobile device enters or leaves the location range. This enables certain flows to automatically run, without manual activation from the user, further adding to the mobile application's efficiency.

With general availability, we are adding more configuration options, including the ability to trigger a flow on either an entry or an exit, but not both.

Share flows as templates

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Feature details

Earlier this year, we previewed the ability for users to share copies of their flows with their co-workers. When you send a copy of a flow, recipients can create their own copies of the original flow. These recipients own their copies, and their copies use the recipient's connections (not the original owner's connections). Recipients can make any changes they want after they create their own copy.

We're now making this feature generally available for everyone to use. You can use this feature to create an organization-specific gallery of templates for your users, for example.

Support gateways in all environments

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Feature details

You can now create and manage gateways in any environment, not just the *default* environment. This release allows users to use all gateways that they have access to within their environment's region. Admins can use the rich gateway management experience in the Power Platform Admin center to manage and control access to gateways. Admins can also define who can access gateways, and their permissions.

Add intelligence to Microsoft Flow with AI Builder

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically	June 2019	October 2019	No

Feature details

AI Builder (preview) is a new Microsoft Power Platform capability for teams with the business expertise to easily automate processes and predict outcomes to improve business performance. AI Builder is a turnkey solution that brings the power of Microsoft AI through a point-and-click experience. You can now build AI without knowing programming or data science. Using AI is made even easier with integration directly into PowerApps and Microsoft Flow.

To start using AI Builder from Microsoft Flow:

1. Sign in to Microsoft Flow.

2. Select **Build** under **AI Builder (preview)** on the left menu.

3. Select one of the templates.

4. Get started creating AI models for your organization.
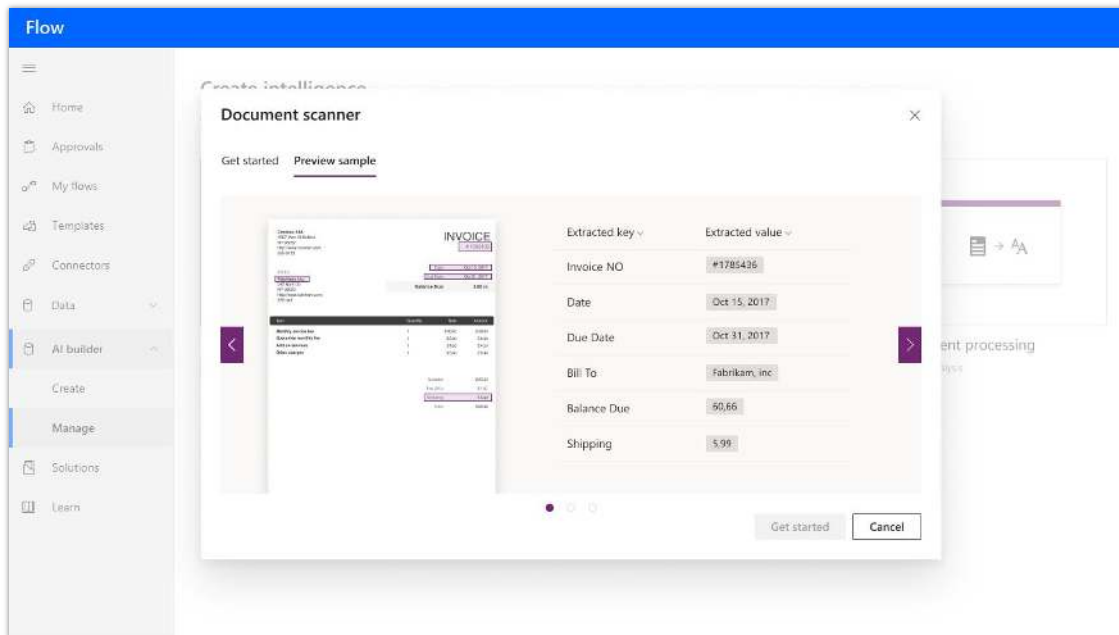
AI builder image

More information: Overview of AI Builder

Rich tooling for administrators

Overview

Microsoft Flow makes maintaining and managing business processes across your organization easier than ever. The Power Platform Admin center is now the single admin center for Microsoft Flow admins and partners, offering a more reliable, unified experience for managing storage capacity, environments, and deployments. Powerful analytics empower admins to investigate and diagnose issues with their deployments, and the integrated Help and Support experience allows them to find the help they need and escalate to Microsoft Support when necessary.

Admin connectors for Microsoft Flow are generally available

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Feature details

With the preview launch of the Admin connectors for PowerApps and Microsoft Flow last year, Power Platform admins found new and powerful ways to improve their productivity by using the same tools that they manage.

We are now announcing the general availability of these connectors, and the addition of some templates and samples that outline common use cases for canvas apps and flows that are built against these connectors:

•   Power Platform for Admins

•   Microsoft Flow for Admins
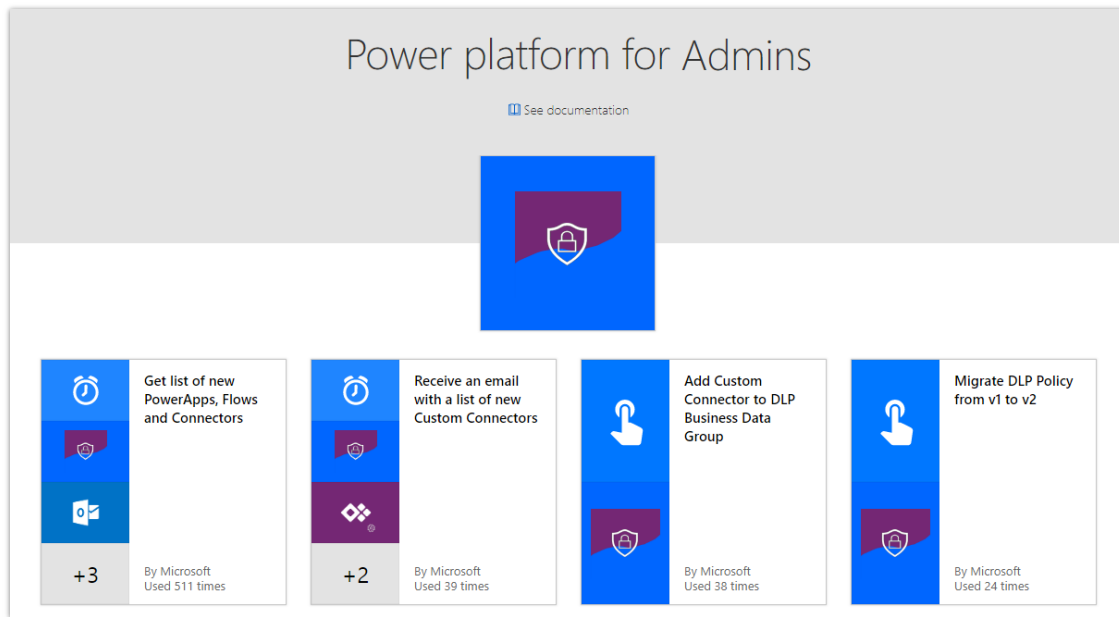
Power Platform Admin connectors are available

Improved capacity governance for resource usage

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Feature details

With the introduction of the new capacity-based provisioning model earlier this year, citizen developers are able to more easily provision the environments they need for their applications. But with this change comes the need for IT admins to better plan and manage database, file, and log capacity consumption within their organizations. To support this, the Power Platform Admin center will launch a new real-time view of capacity consumption (database, file, and log), historical trends for up to 12 months, and storage breakdowns by entity and application to help facilitate capacity planning and cross-charging to the business units that consume platform resources.

Manage Microsoft Flow in the Power Platform Admin center

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Feature details

Historically, admin experiences for Dynamics 365, PowerApps, Microsoft Flow, and Common Data Service have been spread across multiple portals, lacking a single, unified, end-to-end experience. Now, we're very excited to announce the general availability of the new Power Platform Admin center.
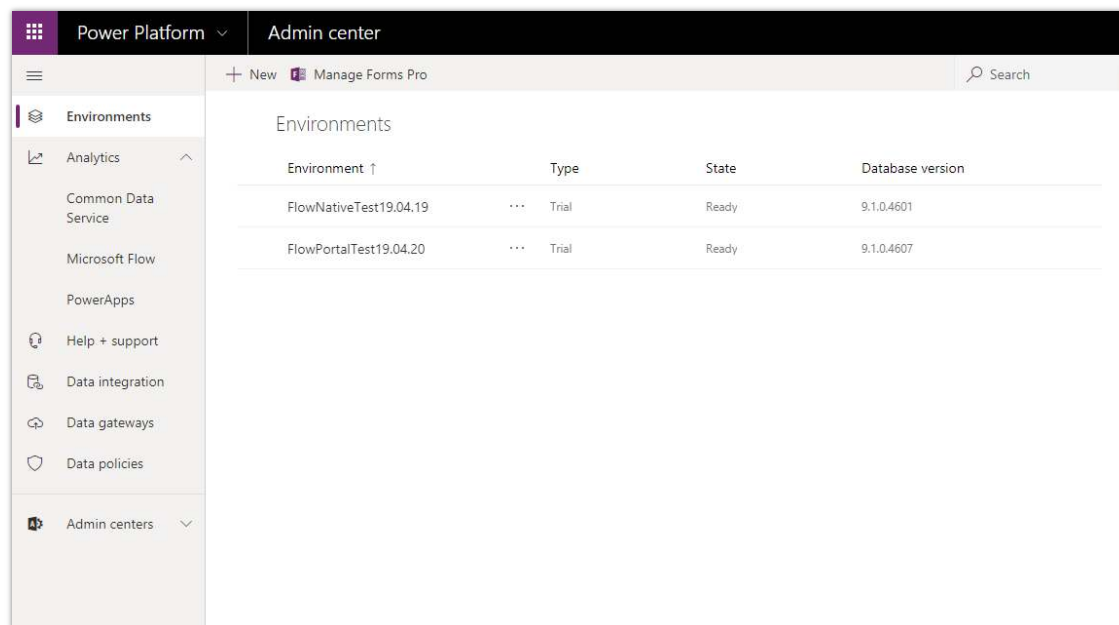
Admin center

With this launch, the Power Platform Admin center is now the single place to:

• Install, upgrade, and manage flows.

• Create and manage environments.

• Review analytics and telemetry.

• Set governance controls and data loss prevention policies.

Microsoft Flow PowerShell cmdlets for admins are now generally available

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Feature details

With the preview launch of the PowerShell cmdlets for administrators last year, admins are able to automate many of the monitoring and management tasks that were only possible through the Microsoft Flow Admin center.

We are now announcing the general availability of these cmdlets, as well as the addition of new cmdlets around:

- Capacity management.

- Permission and user management.

- Environment lifecycle management.

World-class business process capabilities

Overview

Microsoft Flow provides world-class business process capabilities for its users that span endpoints and experiences. These include significant experience improvements for users, so that they can now accomplish basic scenarios with business processes offline.

Build business process flow stages with custom controls

Enabled for	Public preview	General availability	Early Access
Admins, makers, or analysts, automatically		October 2019	No

Feature details

Business process flows provide a guided way to get work done in the form of stages and steps. Stages tell you where you are in the process, whereas steps are action items that lead to a desired outcome. Steps in a business process are bound to fields in Common Data Service and, until now, only allowed for default visualizations of the field type (text boxes, drop-down lists, and so on).
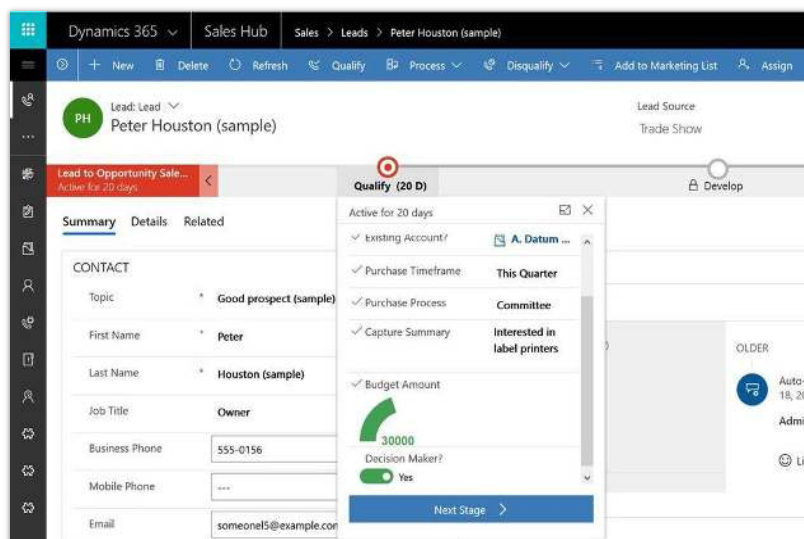
Custom controls in a business process flow

With this release, we're making a new feature generally available, so that you can use custom controls to add rich visualizations (such as sliders, radial knobs, the LinkedIn control, and more) to business process flow steps and then deliver engaging experiences to those who use your business process flows.

Business process flow immersive experiences

Enabled for	Public preview	General availability	Early Access
End users, automatically		October 2019	Yes

Feature details

Organizations are increasingly using business process flows to model their key processes. Here are the new experiences that we are delivering for business process flows.

Immersive business process flows

There is a new vertical layout that you can dock on the side of existing content. This allows full interaction with the flow without affecting the main content. This new vertical approach is possible for any business process flow.

Additionally, we're deprecating task flows (which offered a similar vertical experience).

Fluent experience for flows in Dynamics 365 and SharePoint available

Enabled for	Public preview	General availability	Early Access
End users, automatically		October 2019	Yes

Feature details

The experience for triggering button flows in SharePoint, OneDrive, and Dynamics 365 now matches the latest Fluent Design System—the same design system that's used across all Microsoft 365 and Dynamics 365 applications.

Fluent experience

In this new experience, **Run flow** docks on the right side, like what's done in SharePoint today.

Additionally, by default, the embedded flow experiences use the same language that the Dynamics 365 app uses.

Finally, with this release, it is no longer possible to disable the **Flow** button in Dynamics 365 applications.

Work with business process flows offline

Enabled for	Public preview	General availability	Early Access
End users, automatically		October 2019	Yes

Feature details

You can now use business process flows offline if the following conditions are met:

- The business process flow is used from a PowerApps app.

- The PowerApps app is enabled for offline use.

- The business process flow has a single entity.

Specifically, the three commands that are available for a business process flow when the PowerApps app is offline are:

- Next stage

- Previous stage

- Set Active stage

AI Builder

Overview of AI Builder 2019 release wave 2

Artificial Intelligence (AI) brings new opportunities to your business by solving particular business needs or problems with intelligence.

AI for everyone

Creating AI, however, can often prove to be costly and require a specialized set of skills, such as data science or software development teams to integrate the AI into your business processes. This adds overhead in the form of cost, risk, and time-to-market for delivering an AI solution. Creating AI, therefore, is restricted to those business units or companies capable of making such investments.

AI Builder (preview) is a new Power Platform capability for teams with the business expertise to easily automate processes and predict outcomes to improve business performance. AI Builder is a turnkey solution that brings the power of Microsoft AI through a point and click experience. You can now build AI without knowing programming or data science. Using AI is made even easier with integration directly into [PowerApps](#) and [Microsoft Flow](#).

Our mission is to help businesses of any size accelerate their digital transformation journey by empowering them to use AI.

Empower businesses of any size to use AI

These are the high-level steps on how AI Builder opens up the world of AI to business analysts and citizen app developers.

1. **Choose AI template**: Select your business problem from a growing set of AI turnkey solutions.

2. **Connect data**: Select your business-specific data from Common Data Service. AI Builder does the hard work for you thanks to Common Data Model.

3. **Tailor your AI model**: Filter your data and customize your AI model to best fit your business problem.

4. **Train your AI model**: Training is an automatic operation where AI Builder builds your model by teaching it how to solve your business problem (for example, recognize your products on an image) using your business data and customizations. Once trained, your AI

model can generate insights, such as the result of a prediction or the objects detected on an image.

5.   **Use your AI model**: Take advantage of the insights provided by your AI model without writing a single line of code. With Power Platform, you can create end-to-end solutions to your business problems, such as creating a flow that automates document processing or an app that predicts whether a supplier will fall out of compliance.

What's new and planned for AI Builder

This topic lists features that are planned to release from October 2019 through March 2020. Because this topic lists features that may not have released yet, **delivery timelines may change and projected functionality may not be released** (see Microsoft policy).

In the **General availability** column, the feature will be delivered within the month listed. The delivery date can be any day within that month. Released features show the full date, including the day of release.

Add intelligence with AI Builder

Feature	Enabled for	Public preview	General availability
Add intelligence with AI model templates	End users by admins, makers, or analysts	June 2019	October 2019
Manage AI models	End users by admins, makers, or analysts	June 2019	October 2019

Automate contact creation with business card reader

Feature	Enabled for	Public preview	General availability
Add contacts in three taps	End users by admins, makers, or analysts	June 2019	October 2019
Create your company's business card reader in a snap	End users by admins, makers, or analysts	June 2019	October 2019

Build prediction models using binary classification

Feature	Enabled for	Public preview	General availability
Build prediction models using binary classification model	End users by admins, makers, or analysts	June 2019	October 2019
Use your binary classification model in Power Platform and Dynamics 365	End users by admins, makers, or analysts	June 2019	October 2019

Classify text data with text classification

Feature	Enabled for	Public preview	General availability
Classify text data using text classification model	End users by admins, makers, or analysts	June 2019	October 2019
Use your text classification model in Power Platform	End users by admins, makers, or analysts	June 2019	October 2019

Extract structured text from documents with form processing

Feature	Enabled for	Public preview	General availability
Extract structured text from documents using form processing model	End users by admins, makers, or analysts	June 2019	October 2019
Use your form processing model in Power Platform	End users by admins, makers, or analysts	June 2019	October 2019

Recognize objects in pictures with object detection

Feature	Enabled for	Public preview	General availability
Recognize objects in pictures using object detection model	End users by admins, makers, or analysts	June 2019	October 2019
Use your object detection model in Power Platform	End users by admins, makers, or analysts	June 2019	October 2019

Description of **Enabled for** column values:

- **End users, automatically** – These features include change(s) to the user experience for end users and are enabled automatically.

- **Admins, makers, or analysts, automatically** – These features are meant to be used by administrators, makers, or business analysts and are enabled automatically.

- **End users by admins, makers, or analysts** – These features must be enabled or configured by the administrators, makers, or business analysts to be available for their end users.

Add intelligence with AI Builder

Overview

Many businesses ask what AI can do for them. AI Builder offers various types of AI model templates to solve specific business needs for your organization.

An AI model template is a preset for building a model to solve a particular business scenario, such as classifying customer feedback. Users can tailor a model template to suit their needs with minimal effort. The result of this customization is a business-specific AI model that can be used in PowerApps, Microsoft Flow, and more.

Add intelligence with AI model templates

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	June 2019	October 2019

Feature details

Use AI Builder in PowerApps (select **AI Builder (preview)** > **Build** in the left navigation pane) to discover and choose from a list of AI model templates that can be used to create AI models for your business.
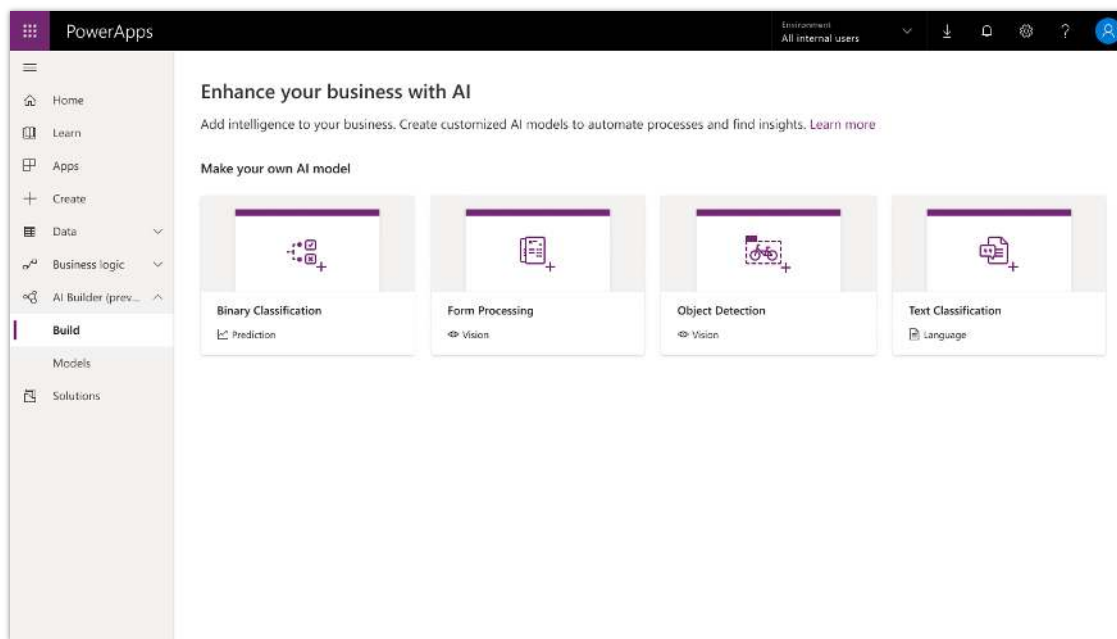
AI Builder homepage

Manage AI models

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	June 2019	October 2019

Feature details

An AI model created using AI Builder can begin generating insights and automating workflows for your business once it has been properly customized and trained.

The **Models** page in PowerApps (select **AI Builder (preview)** > **Models** in the left navigation pane) lists all the AI models in your environment that you have access to. The page provides an overview of the state and performance for each AI model.
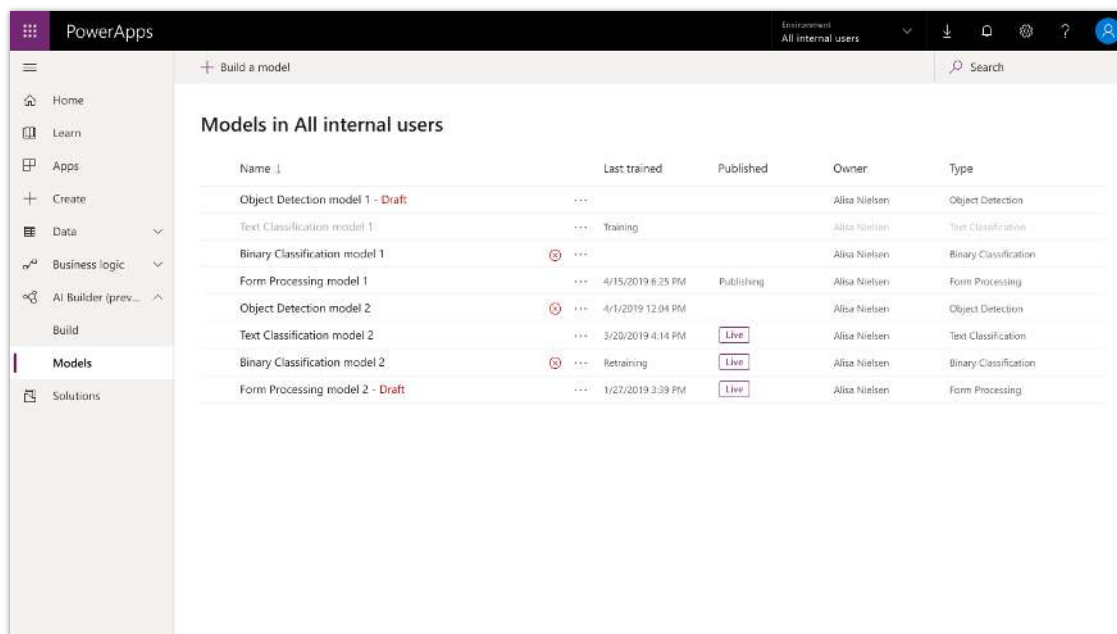
Manage AI Models

Review detailed information about each AI model by clicking on the name or selecting **Details** from the context menu after it's trained. From the **Details** page, you can take additional actions such as using your AI model in PowerApps or performing a quick test of your AI model.

Additionally, you might also see an overview of the performance and configuration of the *current published version* and the *last trained version* for each AI model, if applicable.

Automate contact creation with business card reader

Overview

Use AI Builder to either take a photo or load an image from a local device and get it scanned to find some business card-related information. If any gets detected, the business card reader component will extract it and export it.

Add contacts in three taps

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	June 2019	October 2019

Feature details

Whether your sales team meets new customers or your marketing team collects leads during a trade show, business cards are widely used to share contact information. With business card reader from AI Builder, your team on the field can add contacts from physical business cards with three taps.

Create your company's business card reader in a snap

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	June 2019	October 2019

Feature details

As an app maker in PowerApps, you can use the **Business card reader** component in a canvas app to provide business card reader capabilities. To do this, add the **Business card reader** component in your canvas app, bind it to your form, and publish your app to your organization.
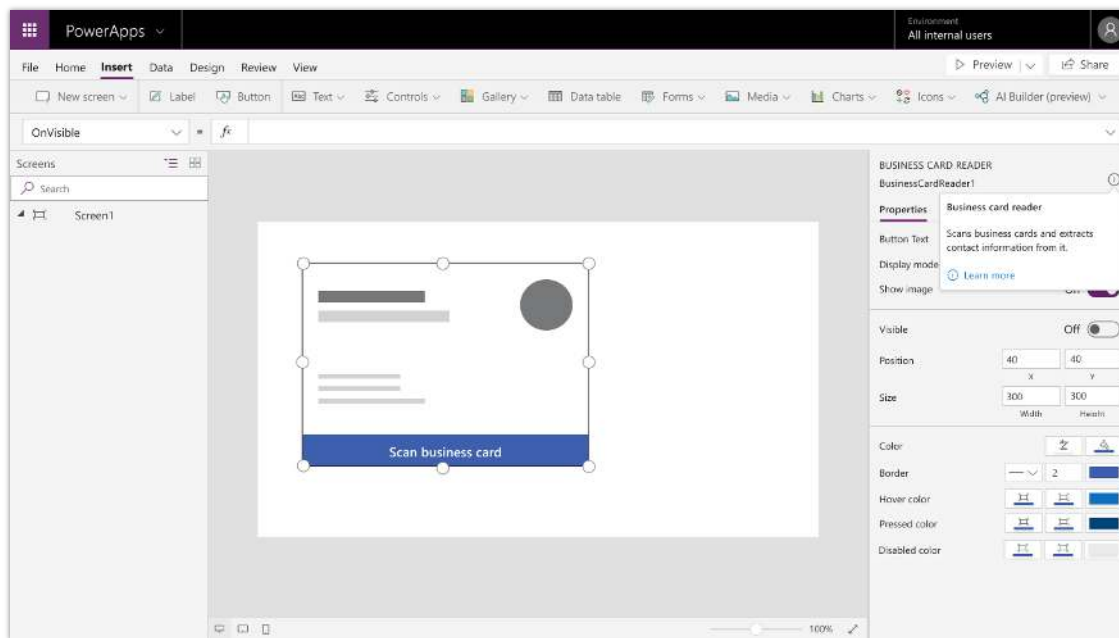
Business card reader in PowerApps studio

Further, tailor your business process with AI Builder and [Power Platform](). For example, add to the newsletter, automatically send a welcome email, create a task for sales to follow up, and create a report on contacts added at a trade show.

NOTE For business card reader integration in Dynamics 365 for Sales and Dynamics 365 for Marketing apps, see the respective app's release notes.

Build prediction models using binary classification

Overview

Predictive analytics has until now been the preserve of businesses that can afford in-house data science teams or AI consultancy services. Now, binary classification with AI Builder simplifies the complexity of building AI models to perform predictive analytics through an easy-to-use interface built into PowerApps.

Binary classification allows business users without any data science skills to build tailored AI models addressing various binary classification problems in the context of their business or industry. Binary classification problems are business questions with a *yes* or *no* outcome in a given time frame, such as will my customer churn in the next 12 months or will this property sell in the next six weeks?

Build prediction models using binary classification model

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	June 2019	October 2019

Feature details

Prediction AI models are created through AI Builder and results are written to Common Data Service that can be seamlessly used by customizing Dynamics 365 applications or in PowerApps and Microsoft Flow.
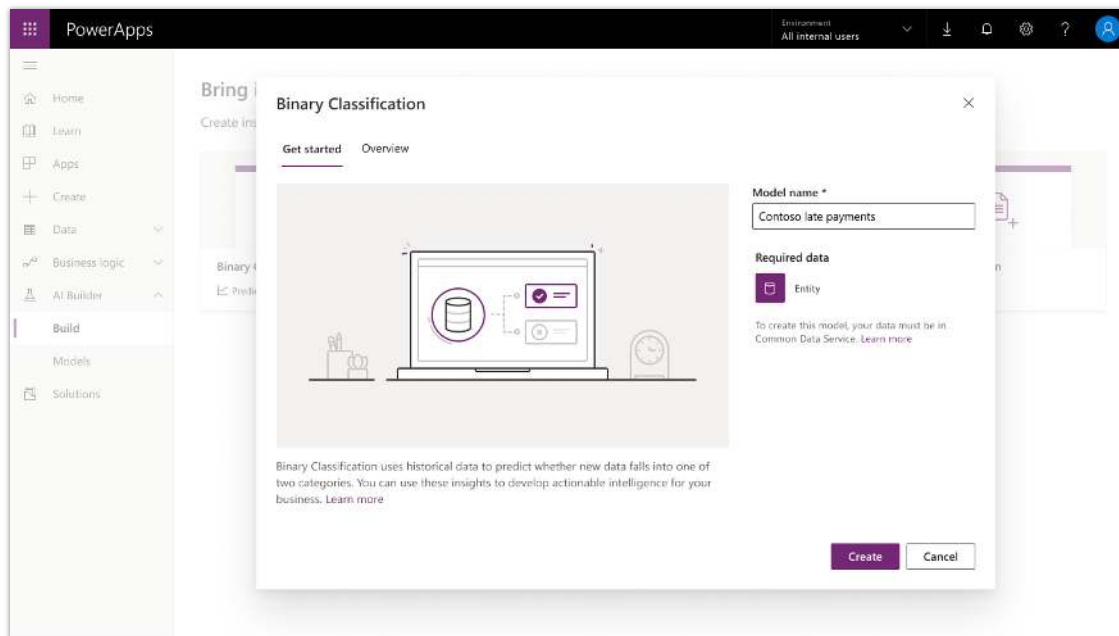
Get started with binary classification

The steps are the following:

1. Define what you want to predict by selecting the appropriate field.
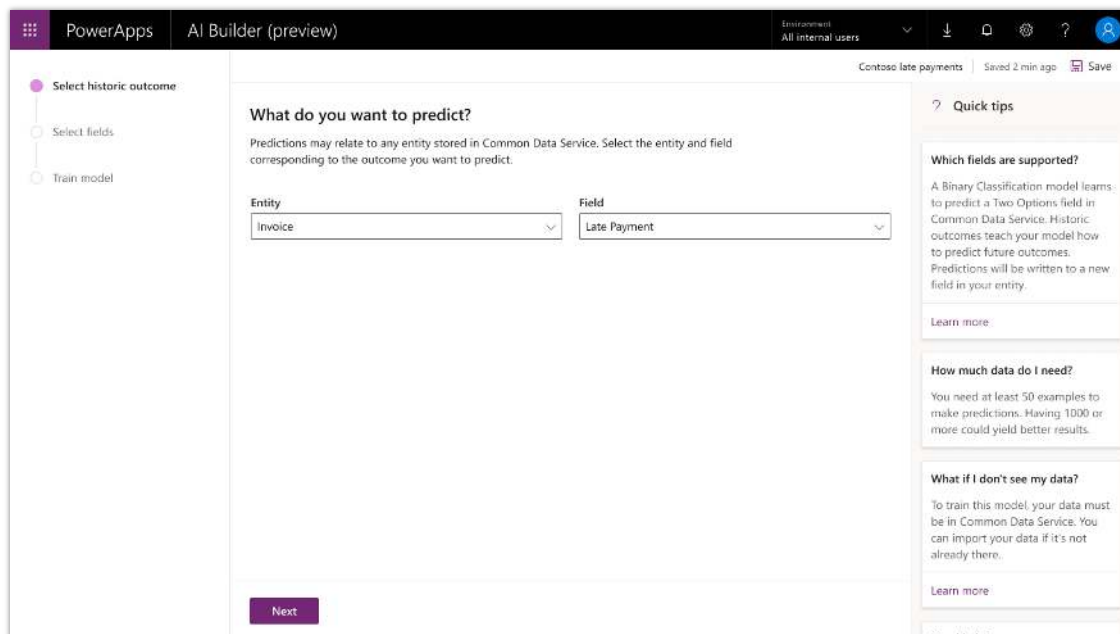
Define what you want to predict

2. Select the data fields specific to your business that should be used for the prediction.

Select the data fields

3.   Review and train your binary classification model.

Review and train your binary classification model

Use your binary classification model in Power Platform and Dynamics 365

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	June 2019	October 2019

Feature details

After your binary classification model has been trained and run for the first time in AI Builder, predictions will be available in Common Data Service. Create flows, apps using PowerApps, Power BI visualizations, and even customize your Dynamics 365 applications by leveraging your binary classification model's insights.
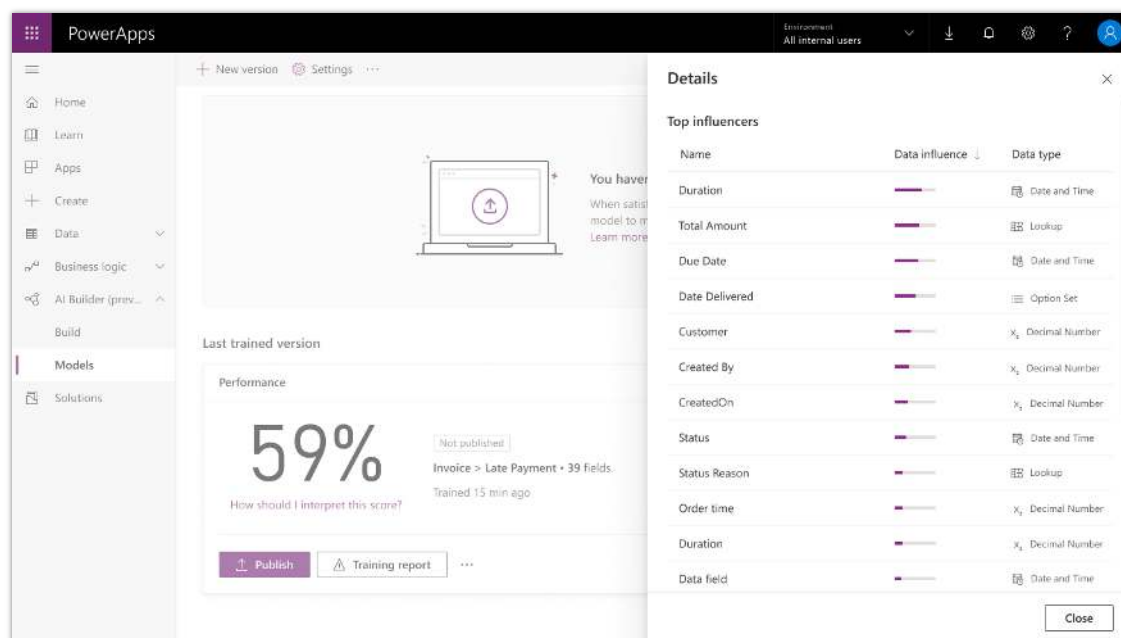
Use binary classification in Power Platform

Classify text data with text classification

Overview

Textual data volume is growing exponentially in organizations through multiple channels such as emails, documents, or social media. The data contains a lot of valuable information that, when extracted and acted upon, helps you provide better products and services to your customers. Dealing with this ever-growing data is time-consuming and error-prone that leads to missed business opportunities and costs.

Text classification in AI Builder can be used in conjunction with PowerApps and Microsoft Flow to automate and scale your business processes, freeing up time of your employees to act on these insights. It can also be used as an input for other AI capabilities, such as subscription user churn and predictive analysis, or stand alone to:

- **Route customer service messages**: Route your customer requests directly to the knowledgeable agent to provide efficient customer support.

- **Extract actionable insights from customer feedback**: Marketers and product managers can analyze customers' feedback from free-text surveys, social media, online reviews, or customer support to understand what the customers want and what's trending.

Classify text data using text classification model

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	June 2019	October 2019

Feature details

AI Builder can use your previously labeled text items to build your text classification model, enabling you to classify unstructured text data stored in Common Data Service into your own business-specific categories.

The steps are the following:

1. Select the source of your text data to train the AI model.
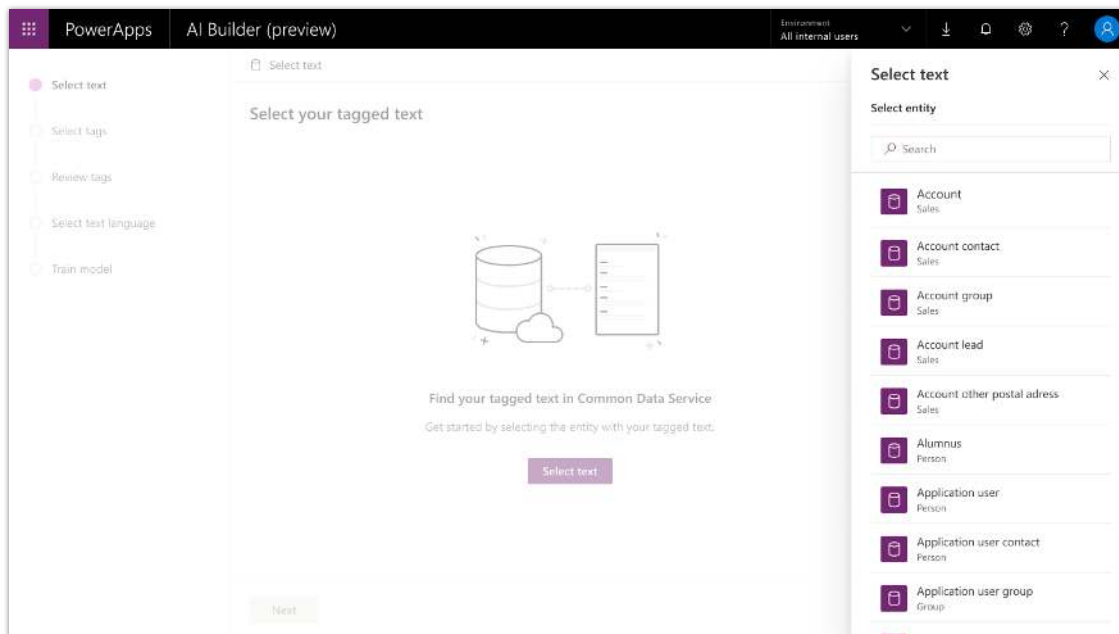
Select the source of your text data

2.   Select the corresponding tags that are applied to the text.

3.   *Optionally*, change your AI model configuration, such as where to write the tag suggestions, run scheduling, and define targeted tags.
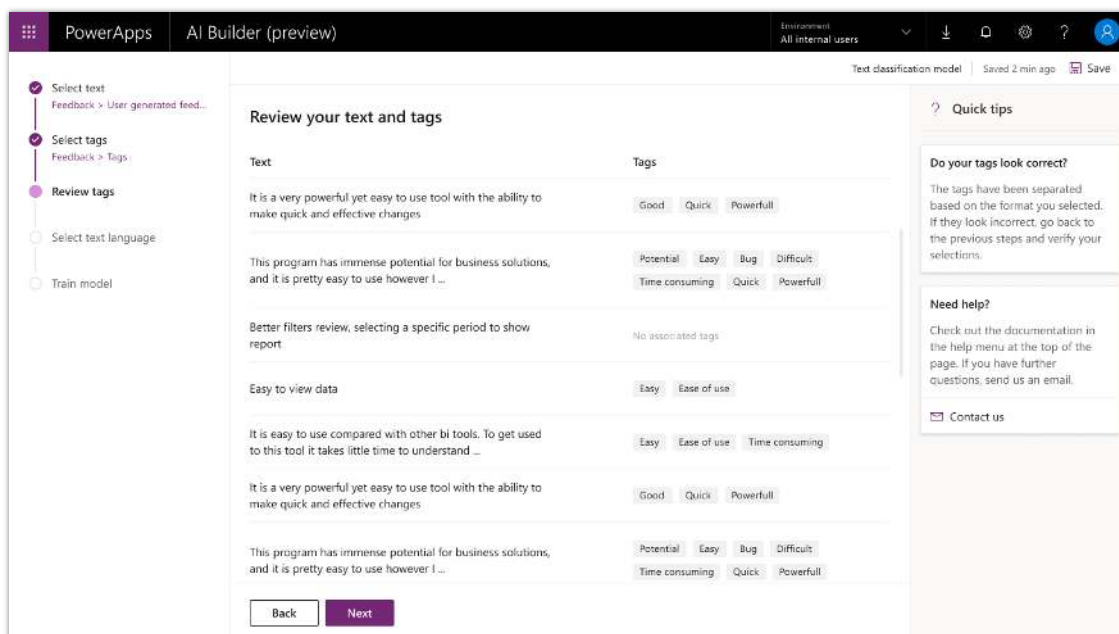
Review your text and tags

4.   Train your AI model.

Once your AI model is trained, assess its performance using quick test by entering the sentences you want to classify.
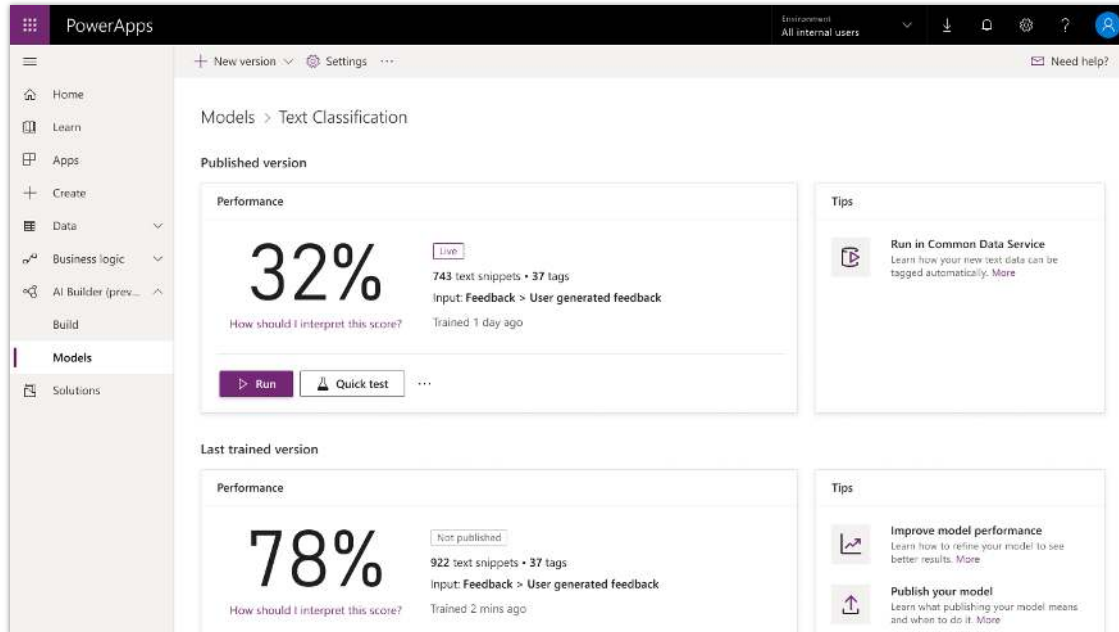
Assess performance

Use your text classification model in Power Platform

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	June 2019	October 2019

Feature details

Text classification model from AI Builder writes the suggested tags directly to Common Data Service. This allows you to continue using your existing tools and applications while benefiting from your text classification model results. You can also use your AI model in Microsoft Flow to tag text entries in your automated workflows.

Extract structured text from documents with form processing

Overview

Manual document processing is a time-consuming and labor-intensive task, which creates friction in business processes. With AI Builder, it's now possible to automate the extraction of content and structure from specific business documents. These can originate from scans, e-mail, or document repositories in PDF or image formats.

Extract structured text from documents using form processing model

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	June 2019	October 2019

Feature details

To create your form processing model, you will need to upload a minimum of five distinct examples of the same document structure in an image or PDF format. Some example documents might include an invoice from a given supplier or a fixed-shape form that your field employees fill out when collecting supply chain parts.
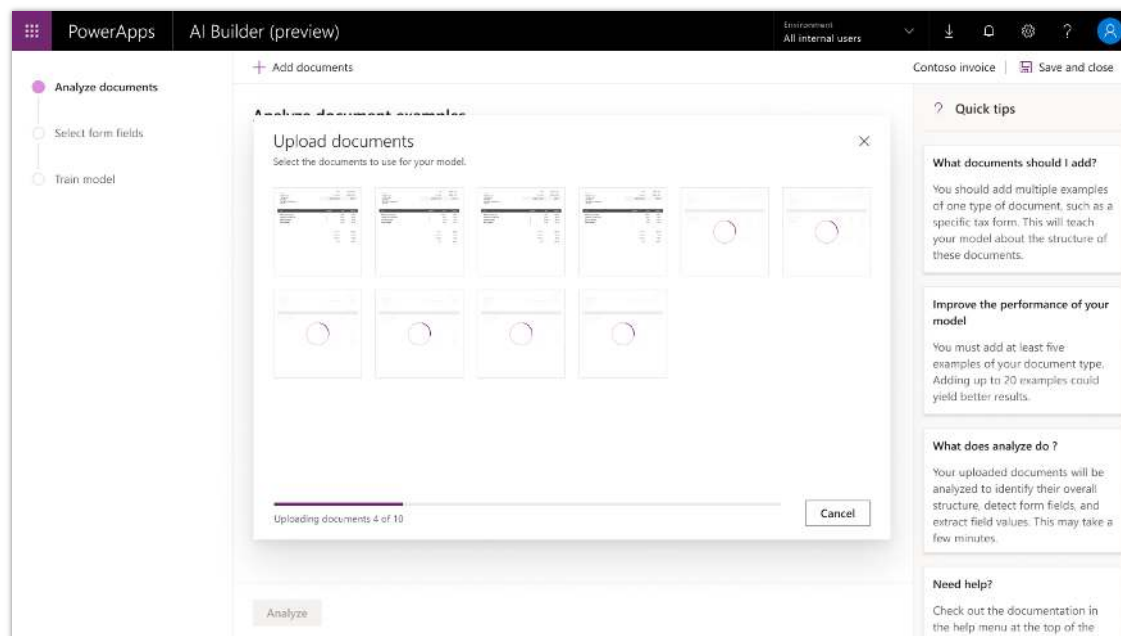
Upload your forms

Once your documents have been uploaded and analyzed, AI Builder shows the form fields detected (such as invoice number, customer name) for you to select what information should be retrieved from the documents.

Select what to retrieve

When finished selecting form fields, publish your AI model to make it available for use in PowerApps and Microsoft Flow.

Use your form processing model in Power Platform

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	June 2019	October 2019

Feature details

You can use the AI Builder form processing model in PowerApps and Microsoft Flow.

In PowerApps

Add the **Form processor** component from the **AI Builder (preview)** menu in a canvas app and then select your form processing model to hook the fields defined in the AI model to forms or Common Data Service entities using the formula bar.
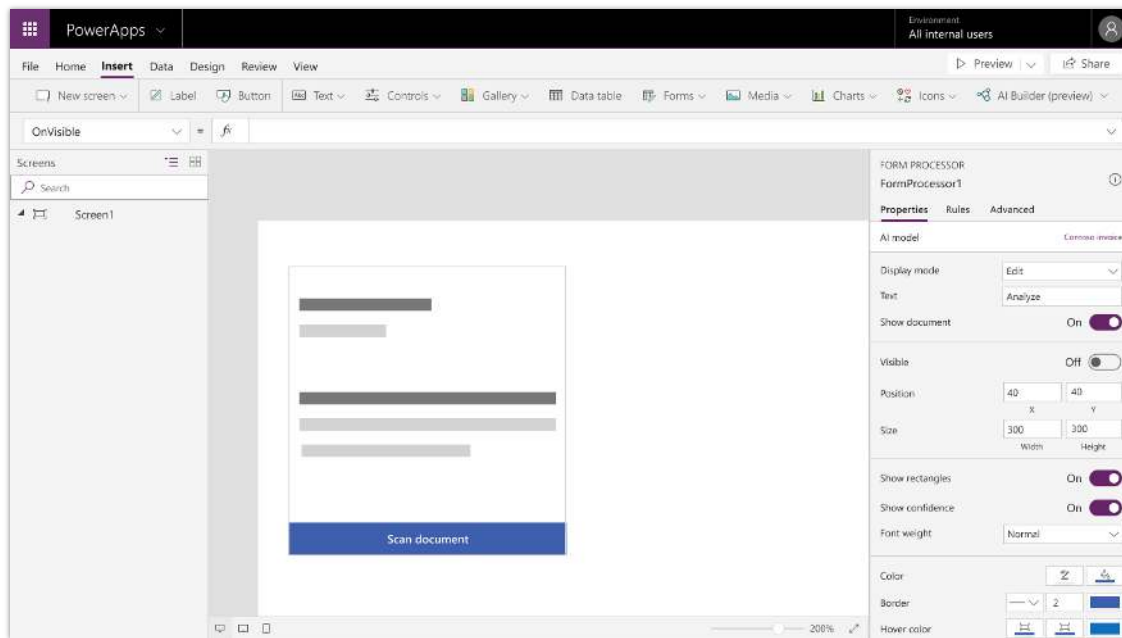
Form processing in PowerApps

After you publish your app, users in the field can easily automate document processing:

1. Take a PDF or picture from your local disk or camera.

2. Optionally, correct detection errors.

3. Submit the content.

In Microsoft Flow

You can create workflows that use your published form processing AI models to automate the extraction of content and structure from specific business documents like PDF files added to a SharePoint site.

Recognize objects in pictures with object detection

Overview

When your business process involves recognizing or counting objects, you can use object detection in AI Builder to automate the process using images. Object detection with AI Builder improves the automation of your business processes in two steps:

1. Build your AI model to recognize objects, such as products or parts, within an image through training. The result is your tailored AI model.

2.   Solve your end-to-end business problem by using your AI model in PowerApps. These apps can detect and count objects that are captured by the device's camera.

Recognize objects in pictures using object detection model

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	June 2019	October 2019

Feature details

AI Builder lets you load your list of objects and images from Common Data Service to create your custom object detection model.
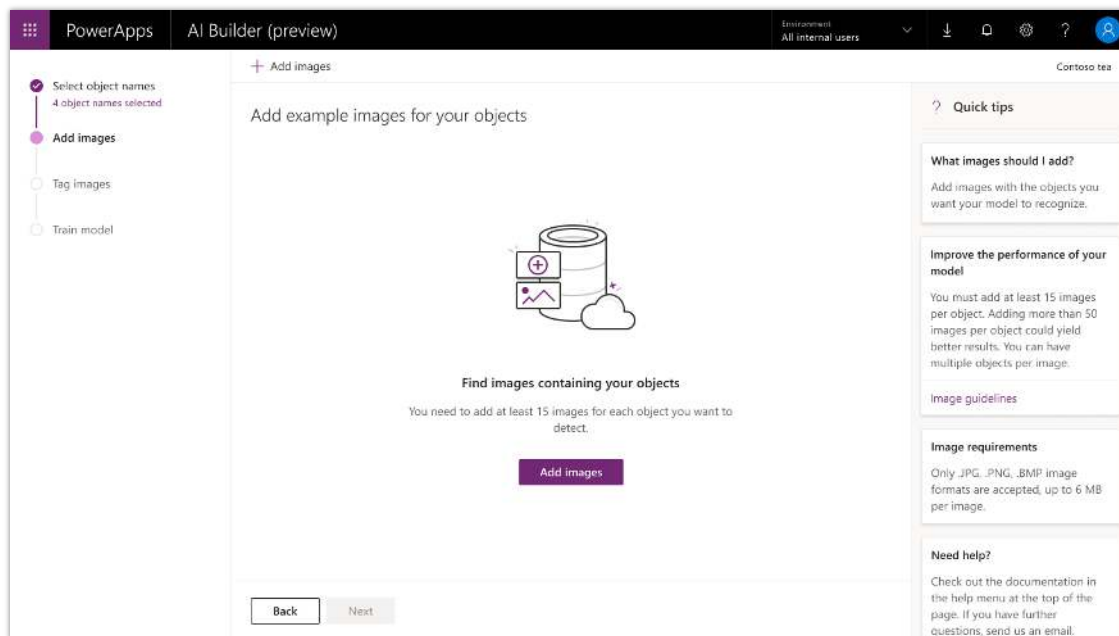
Find images containing your objects

For each of your example images, you will teach your AI model to recognize them by tagging the objects that are shown. The guided experience is already powered with AI to pre-detect some object types to expedite the object tagging process. Once trained, publish your object detection model to use with PowerApps.
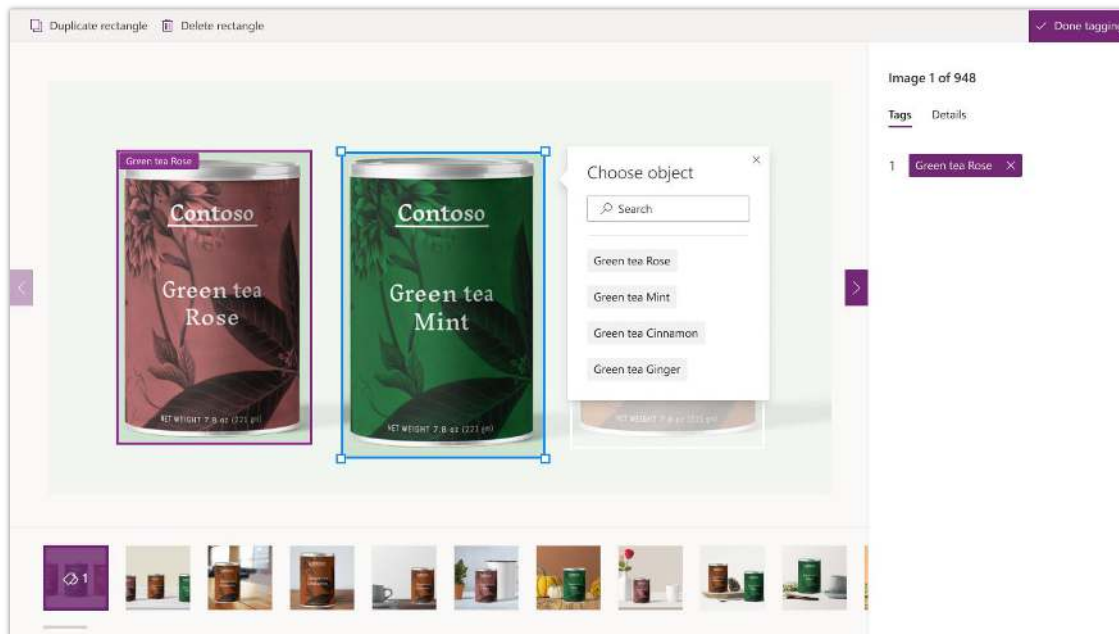
Teach your AI Model

Use your object detection model in Power Platform

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	June 2019	October 2019

Feature details

In the PowerApps Studio, you have access to a smart camera component that links directly with your AI models created using AI Builder. The component lets you access the list of objects and the number of occurrences detected via the PowerApps formula bar to enable workflows such as letting users review the detected objects before storing in Common Data Service, creating a visualization, and more.
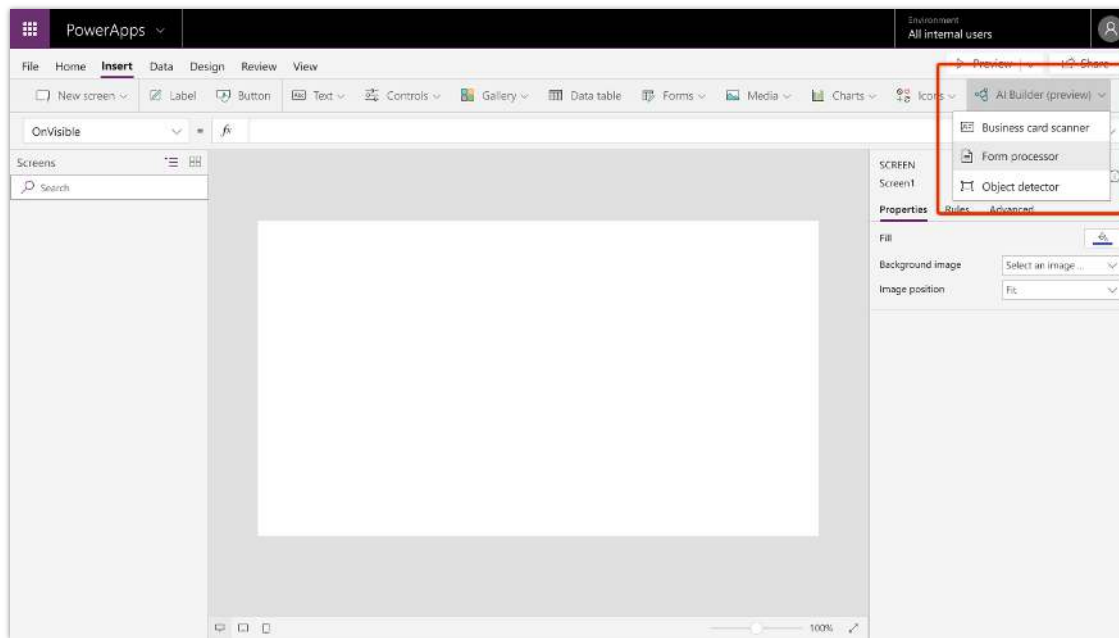
AI Builder components

In Microsoft Flow, you can create automated workflows that use your published object detection AI models to recognize objects from images, such as for images attached to incoming emails from a specific sender.

Business intelligence

Overview of business intelligence 2019 release wave 2

Microsoft business intelligence (BI) simplifies how organizations derive insights from transactional and observational data. It helps organizations create a data culture where employees can make decisions based on facts, not opinions. We're investing in four key areas that drive a data culture: intuitive experiences, a unified BI platform, big data analytics, and pervasive artificial intelligence (AI).

Self-service analytics for everyone

To build a data culture, everyone in your organization needs to be empowered to work with data. At its core, BI is a collaborative process. We're investing in simple, intuitive experiences that are deeply integrated with Microsoft Office 365. Get monthly updates that'll include navigation, streamlined viewing, and user collaboration—focusing on simpler ways to explore, find, and share insights. Also take advantage of rich authoring capabilities, from evolved formatting controls to performance-tuning tools.

Unified platform for enterprise BI

Enable your organization to create a global, governed, scalable, secure, and unified BI platform that meets the needs of both self-service and centralized BI. Move to one modern, compliant platform as the single destination for business analytics with key enterprise-facing updates on enterprise-grade semantic models and reporting at worldwide scale.

Big data analytics with Azure data services

As your data volumes and complexity continue to grow exponentially, invest in an analytics solution that's easy to use, fast, and secure, so you can extract critical insights from your data and take timely actions to maintain a competitive advantage. Our investment in petabyte-scale analytics makes Power BI and Azure an unmatched combination.

Pervasive artificial intelligence for BI

Help your employees explore your data, automatically find patterns, understand what your data means, and predict future outcomes to drive business results. The new AI capabilities, pioneered in Azure and now available in Power BI, require no code, enabling all Power BI users to discover hidden actionable insights in your data and drive better business outcomes.

What's new and planned for business intelligence

This topic lists features that are planned to release from October 2019 through March 2020. Because this topic lists features that may not have released yet, **delivery timelines may change and projected functionality may not be released** (see Microsoft policy).

In the **General availability** column, the feature will be delivered within the month listed. The delivery date can be any day within that month. Released features show the full date, including the day of release.

Power BI

Feature	Enabled for	Public preview	General availability
Data lineage capabilities	Admins, makers, or analysts, automatically	October 2019	
Entity detection and OCR	Admins, makers, or analysts, automatically		October 2019
Home customization	End users by admins, makers, or analysts		October 2019
New Microsoft Flow actions	Admins, makers, or analysts, automatically		October 2019
New experience for report consumption	End users, automatically	August 2019	October 2019
Time series forecasting using automated machine learning in Power BI	End users by admins, makers, or analysts	July 2019	October 2019
Export AutoML models from Power BI to Jupyter Notebook or Azure Notebooks	End users by admins, makers, or analysts		October 2019
Power BI Q&A – feedback loop	Admins, makers, or analysts, automatically	September 2019	February 2020
Power BI Q&A – visual	Admins, makers, or analysts, automatically	September 2019	February 2020

Feature	Enabled for	Public preview	General availability
Power BI Q&A tooling – train by example	Admins, makers, or analysts, automatically	September 2019	February 2020

Power BI Desktop

Feature	Enabled for	Public preview	General availability
Automatic page refresh	Admins, makers, or analysts, automatically	October 2019	
Object grouping	Admins, makers, or analysts, automatically		October 2019
PowerApps custom visual as core visual	Admins, makers, or analysts, automatically		October 2019

Power BI Embedded

Feature	Enabled for	Public preview	General availability
Scale out with Azure capacity resources	End users by admins, makers, or analysts		October 2019
Create visuals on the fly	End users by admins, makers, or analysts	May 2019	October 2019
Embed paginated reports	End users by admins, makers, or analysts	July 2019	October 2019
Embedded AI	End users by admins, makers, or analysts	July 2019	October 2019

Power BI Mobile

Power BI Mobile continues to support data-driven cultures within organizations by providing access to business data, anytime, anywhere, and from any device.

Feature	Enabled for	Public preview	General availability
Barcode scanning (Android)	End users, automatically		October 2019
Bookmarks (iOS, Android)	End users, automatically		October 2019
Model translation (Android, iOS, Windows)	End users by admins, makers, or analysts		October 2019
Native secured access (Android, iOS)	End users, automatically		October 2019
Mobile Home (Android, iOS)	End users, automatically	September 2019	October 2019

Power BI template apps

Feature	Enabled for	Public preview	General availability
In-place app update	End users, automatically	July 2019	October 2019
Support apps with Microsoft Power Platform dataflows	End users, automatically	July 2019	October 2019
Unattended app installation	End users by admins, makers, or analysts	July 2019	October 2019

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Power BI

Overview

We are continuing toward our vision of enabling customers to standardize on a single platform for self-service analytics and enterprise BI. Our investments include:

- **Self-service analytics**: With deep feedback from our community, we are adding new features to make Microsoft Power BI easier and more delightful to use as well as new capabilities for power users who want to push the limits of what they thought possible.

- **Enterprise reporting**: As organizations seek to standardize their BI platform, the need for advanced reporting scenarios increases, whether that is content organization, managed distribution, lifecycle management, or more advanced reporting. We will continue adding capabilities to meet the needs of these advanced enterprise use cases.

- **Enterprise datasets**: Standardized BI deployments put more demands on data models, including larger data volumes, increased model complexity, and the need for collaboration across teams. New capabilities make this possible.

- **Enterprise administration**: An enterprise-wide BI platform must be manageable, governable, and conform to an organization's security policies. We are investing in new experiences for admins to get visibility into their tenant's content, track lineage, understand impact, and set granular policies and controls, among other improvements to make Power BI work at scale.

Data lineage capabilities

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

BI professionals use Power BI today to build advanced analytical projects spanning numerous data sources, artifacts, and dependencies. Providing insights about the data lineage in these

projects is key for shaping efficient work processes and for empowering users to better manage existing dependencies, derive the potential impact of planned changes in a project, and determine data lineage for important business KPIs. Data lineage insights also help BI professionals understand exactly where their data comes from and assess usage on various artifacts, such as popular data sets.

To further empower our Power BI users, we're introducing a new experience for visualizing data lineage between different Power BI artifacts within a workspace and including cross-workspace dependencies. In addition, APIs to extract lineage information will be supported. This new experience makes it possible for Power BI professionals and admins to better understand the relationships between artifacts and more easily manage Power BI projects in their organization.

Entity detection and OCR

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

Pretrained models for entity detection and optical character recognition (OCR) will be added to the existing set of cognitive services. Entity detection parses text to extract known entities and provides additional information on the entity. The OCR function allows users to extract text from images with handwritten or typed text.

Required licenses and plans

This feature requires the following licenses or plans:
- Power BI Premium

Home customization

Enabled for	Public preview	General availability
End users by admins, makers, or analysts		October 2019

Feature details

We will be enhancing Home in Power BI to make it more customizable for users and organizations:

- **User customization of pinned tiles**: Allowing users choose which dashboards or reports show up on top of Home for an at-a-glance view of their key metrics.

- **Organizational branding**: Allowing administrators to insert a company logo, change the header color, and add a background cover image on Home to match their corporate brand. Here's an example of Contoso branding their Power BI tenant.
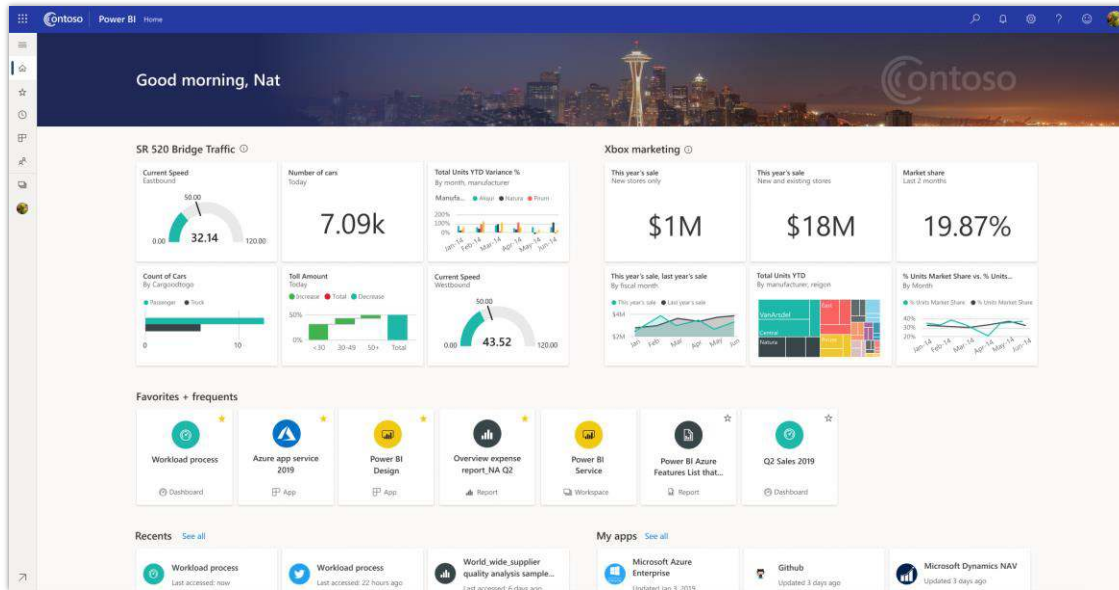
Organizational branding in Power BI Home

- **Promoted content**: Allowing administrators or designated content creators to promote and set the default recommended content. By setting default content, an organization can ensure that users have a consistent and standardized experience for navigating within the service.

- **Configure learning resources**: Allowing administrators to configure the documentation links in the **Learn how to use Power BI** section for their tenant.

New Microsoft Flow actions

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

We will support new actions in Microsoft Flow, allowing users to automate workflows that involve data in Power BI. Specific actions will include:

• Query data from Power BI for later use in a flow.

• Trigger a refresh of a Power BI dataset.

• Read the refresh status of a dataset.

We are also improving the discoverability of the existing Microsoft Flow integration in Power BI by making it even easier to create a flow from a Power BI data alert.

New experience for report consumption

Enabled for	Public preview	General availability
End users, automatically	August 2019	October 2019

Feature details

As a report consumer, you need a simple, consistent, and easy-to-use experience when viewing items in Power BI. This feature updates the item consumption experience for reports and dashboards, and gives a face-lift to other navigation UI elements to match the consistent fluent design language. Most Power BI users use one or two reports/dashboards. So optimizing the experience of using a single item is vital to driving improved experiences.

Time series forecasting using automated machine learning in Power BI

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	July 2019	October 2019

Feature details

Business analysts can build machine learning models in Power BI using their historical time series data. Power BI supports the automatic generation of time series forecasting machine-learning models using multivariate inputs with support for seasonality, country-specific holidays, and fiscal periods. The simplified experience for analysts includes automatic featurization of inputs, algorithm selection, and hyperparameter tuning.

As with all automated machine learning models in Power BI, this includes the automatic generation of validation reports after training. The trained models can be used with incoming or updated records with just a few clicks, and the predictions are automatically refreshed upon data refresh.

Export AutoML models from Power BI to Jupyter Notebook or Azure Notebooks

Enabled for	Public preview	General availability
End users by admins, makers, or analysts		October 2019

Feature details

Automated machine learning (AutoML) in Power BI enables analysts to build ML models for common business scenarios, such as binary prediction, classification, regression, and time-series forecasting. It automates feature extraction from inputs, algorithm, and hyper-parameter selection for tuning of ML models and validation.

For further customization and specialized tuning of these models, you can now export the automatically created models to Jupyter Notebook or Azure Notebooks with just a couple of clicks. The exported models can then be customized and deployed outside Power BI with services such as Azure Machine Learning.

Power BI Q&A: Feedback loop

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	September 2019	February 2020

Feature details

The Power BI Q&A feedback loop feature allows the analyst to see the questions their end users are asking against their models. They will also be able to see and filter the questions by those that Q&A understood and those that Q&A didn't understand. This, together with the Q&A tooling, will allow users to address the common questions users are asking, which otherwise are left unanswered.

Power BI Q&A: Visual

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	September 2019	February 2020

Feature details

The Power BI Q&A visual feature allows analysts to add search to their Power BI desktop reports to allow them to easily discover and perform ad hoc analysis.

Power BI Q&A tooling: Train by example

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	September 2019	February 2020

Feature details

The Power BI Q&A train by example feature allows analysts to improve and train the natural language processing (NLP) capabilities in Power BI. You can do this by giving a specific example of questions and using Q&A to fix the terms Q&A didn't understand.

Power BI Desktop

Overview

With each monthly release, Microsoft Power BI Desktop continues to deliver simple, intuitive experiences that make authoring content easier and provide powerful tools to create amazing experiences for report users. These investments will span the following areas:

- **PowerPoint for data**: Millions of people are familiar with how to use Microsoft Office—especially Excel and PowerPoint. Users want to create content in Power BI Desktop as quickly and easily as they can create a slide in PowerPoint. A user experience that is familiar is key to ensuring that customers feel welcome. They intuitively know how to create a chart, add some text, or choose a layout, because they've done it before in other Office tools. Leveraging this knowledge will make experiences even more delightful for our users.

- **Enable authors to empower their end users**: Power BI creators want to empower their end users to find the answers to their own questions, without needing to constantly adjust their reports for their many users' needs. We will enable report authors to turn on exploration capabilities for end users, allowing them to make lightweight changes to a

report—for example, changing a measure or adding a filter, without needing full edit access to a report and without needing to go into a full-blown authoring experience. This will result in happier end users and lots of time savings for authors.

- **Enterprise-grade content creation**: The Power BI Desktop will continue to support large scale enterprise BI deployments through rich tooling, a focus on performance and infrastructure capabilities to support BI at scale.

- **Empower analysts with AI-infused authoring experiences**: Power BI Desktop will infuse AI throughout the report authoring experience, enabling analysts to find new insights, more easily create engaging content, and empower their end users with engaging AI visualizations.

Automatic page refresh

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

When monitoring critical events with Power BI, it's important that the data is reflected in Power BI as soon as the data source gets updated. For example, in the manufacturing industry, it's critical to know when a particular machine is malfunctioning. Report authors using a DirectQuery source will be able to set the refresh interval of visuals in their report. For very fast updating sources, this near real-time experience will allow end users to monitor time-critical reports and ensure that they are always viewing the latest.

Object grouping

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

We will add visual grouping in reports to align us with the Microsoft Office authoring experience that users know and are comfortable with. At a basic level, users will be able to group objects together on a report page to easily move and resize them as one, in the same way they do in PowerPoint. Additionally, we will go beyond what exists today in PowerPoint and allow users to decide how the container and the visuals within the container interact with each other.

In addition to the scaling behavior users know and love from Office, they can also choose for the visuals to grow and move to evenly fill the size of the container and to extend beyond the size of the container with a scroll bar. This will allow users to not only use grouping to help with authoring reports, but also to create new interactive controls that can make reports look and act like apps or websites.
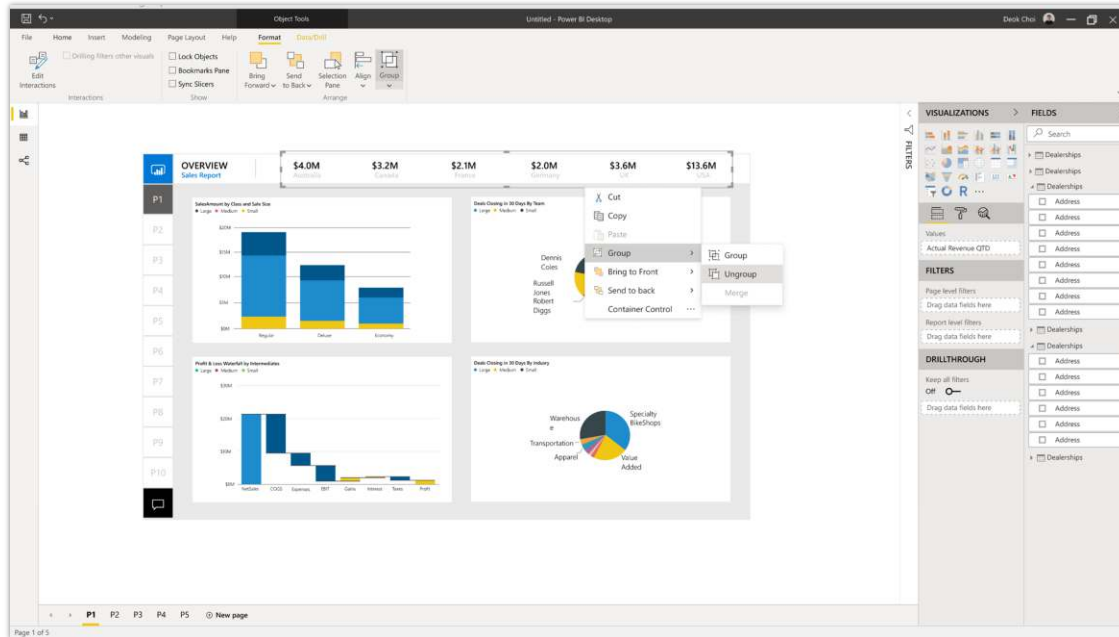
Object grouping in reports

Thank you for your idea

Thank you for submitting this idea. We listened to your idea, along with comments and votes, to help us decide what to add to our product roadmap.

PowerApps custom visual as core visual

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

With PowerApps embedded directly into Power BI reports, users can analyze their data and act on it in context, with the feedback being pushed directly back to the source system for further analysis. The PowerApps custom visual available today will be brought into the Power BI authoring experience by default as a core visual.
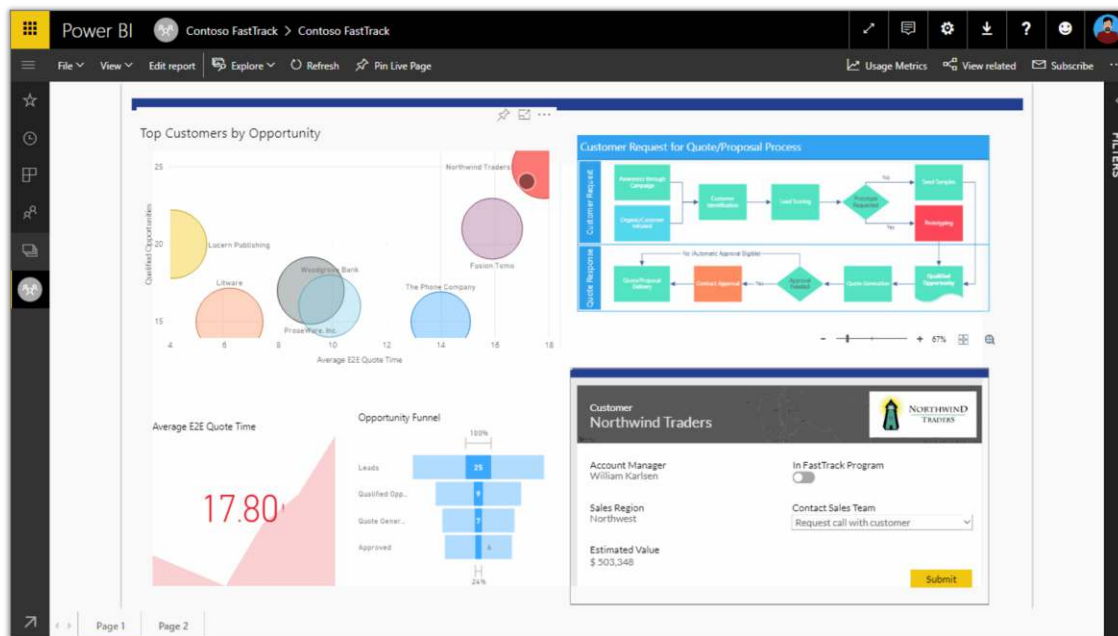
PowerApps custom visual in Power BI

Power BI Embedded

Overview

Power BI Embedded enables developers of SaaS services and enterprise portals to embed stunning interactive reports and dashboards. Power BI Embedded will continue to support large-scale enterprise BI deployments with rich tooling and a focus on performance to enable at-scale solution management, using either Power BI or an external application.

Scale out with Azure capacity resources

Enabled for	Public preview	General availability
End users by admins, makers, or analysts		October 2019

Feature details

Currently, the only way for customers to increase the resources for their capacities is to scale up (from A1 up to A6).

Scaling out will add the following capabilities:

- Manually increase or decrease the count of the capacity of the same SKU.

- Auto load balancing of resources across nodes to get the best capacity utilization.

- Eliminate a single point of failure. For example, if a workload crashes, then the availability of the workload for the capacity does not go to zero.

- Increase the resources of a capacity beyond that of an A6 SKU.

- Eliminate downtime during scale operations.

Create visuals on the fly

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	May 2019	October 2019

Feature details

The ability to create objects on the fly is highly desirable for scenarios like the following:

- Provide users with authoring capabilities by giving them a short wizard to generate a new visual.

- A survey platform that presents a visual with each question, where each type of question has its own visual, but the survey platform owners don't know in advance which questions each survey will include. Therefore, the visuals need to be created dynamically per survey.

- An IoT software-as-a-service app providing root-cause analysis for a machine problem based on an algorithm that visualizes the results with analytics, but it depends on the type of output the algorithm returns.

- Bot scenarios where visuals are created dynamically according to the interactions with users.

Embed paginated reports

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	July 2019	October 2019

Feature details

You can embed paginated reports in an organization's internal applications and portals using a set of new APIs.

Embedded AI

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	July 2019	October 2019

Feature details

AI can aid in data exploration, combing through data to automatically find patterns, helping users understand what the data means, and predicting future outcomes. Power BI Embedded has been a pioneer in applying AI through natural language, which enables users to get answers by asking questions in plain English.

We're now bringing AI to Power BI Embedded by delivering key influencers analysis. The key influencers visual shows what increases or decreases based on the likelihood of a business event occurring or what influences a KPI's rise or fall. Machine learning is used to rank influencers, from most to least impactful, and a likelihood score and natural language description is provided to explain the impact. Users can drill into a factor to see the distribution of their data for that variable/category. As users interact with their reports, either through filtering or selecting visuals, the key drivers are re-evaluated and updated in real time.

Power BI Mobile

Overview

Power BI Mobile continues to support data-driven cultures within organizations by providing access to business data anytime, anywhere, and from any device. We will continue to invest in delivering **simple, fast, and intuitive experiences** to get business users more engaged with their data and collaborate with others to share their insights. In 2019 release wave 2, we will enhance support for **IT admins** to manage mobile applications and to meet security and compliance policies.

Barcode scanning (Android)

Enabled for	Public preview	General availability
End users, automatically		October 2019

Feature details

Scan barcodes printed on products or shelves at your store, and in seconds see related records in your dataset, and filter reports by barcode. Barcode scanners can also be used for warehouse inventory management, or even in IT to retrieve data on tagged physical equipment.

Bookmarks (iOS, Android)

Enabled for	Public preview	General availability
End users, automatically		October 2019

Feature details

Bookmarks are now available to Power BI Mobile app users. Users will be able to view and switch between a report's bookmarks as defined by the author or by themselves. In addition, users will be able to decide if they want a bookmark to be available when the application is offline. This will allow the user to define a given view—not just the default view—of a report to be available offline.

Model translation (Android, iOS, Windows)

Enabled for	Public preview	General availability
End users by admins, makers, or analysts		October 2019

Feature details

Analysis Services models might use translations to present metadata in different languages. Power BI Mobile apps will use the client's locale, and if the model is configured to support translation, reports will be presented in the app in the locale's language.

Native secured access (Android, iOS)

Enabled for	Public preview	General availability
End users, automatically		October 2019

Feature details

Users can configure Power BI Mobile to require biometric authentication, if supported by their device. Each time they access the app, users will be required to identify themselves before getting access to the app. Biometric authentication can be face or fingerprint ID.

Mobile Home (Android, iOS)

Enabled for	Public preview	General availability
End users, automatically	September 2019	October 2019

Feature details

As a new landing experience for Power BI Mobile users, Home will make it easier and more efficient for users to find what has changed with their data and what requires their attention. In Home, users will learn which datasets and related reports have changed, when they changed, the active conversations they should engage with, and changes in their data that need their attention. Home will also allow quick and easy access to the most used items, including items promoted by the organization's admin.

Power BI template apps

Overview

Power BI template apps enable partners to accelerate customer acquisition and enable Microsoft Power BI users to quickly connect to valuable data sources and immediately begin exploring, learning, and taking action on their data.

In-place app update

Enabled for	Public preview	General availability
End users, automatically	July 2019	October 2019

Feature details

Improve the app-update story to enable updating and replacing template apps:

• Install an app.

• Get a new version of the app from AppSource.

- Install the update and decide if you want to replace the content that was received by the app in its previous version, or install the new version of the app in a new workspace side-by-side with the current app workspace.

Support apps with Microsoft Power Platform dataflows

Enabled for	Public preview	General availability
End users, automatically	July 2019	October 2019

Feature details

Enable a template app to be packaged and installed with a Microsoft Power Platform dataflow that is templatized so that users who install the app can configure parameters for the dataflow data sources and get a connected data model that is linked to the report and dashboard provided through the same app install. Once installed, everything is fully customizable.

Unattended app installation

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	July 2019	October 2019

Feature details

You can automate the installation of a template app by using the install template app API and providing all the app configurations so that the app is installed and configured without any user interaction.

Common Data Model and data integration

Overview of Common Data Model and data integration 2019 release wave 2

Our vision is to democratize data (integration) for business users, so that it is seamless to extract, transform, and load data into Common Data Service and Azure Data Lake Storage from any data source, and to provide structure and meaning to that data through the Common Data Model. To achieve this vision, we are investing in three key pillars:

- **Common Data Model**: Establishes industry-wide structure and semantics of underlying data so that customers can then reason about that data through various business application solutions, analytics, and machine learning (ML) algorithms. In this milestone, we will extend the reach of the Common Data Model through SDKs and object models to support developers and partners, better in-product experiences, and more.

- **Power Platform dataflows**: Power Query is the industry-leading smart data preparation tool and evolves by infusing AI and machine learning into data transformations, and by extending dataflows to all of the Microsoft Power Platform.

- **Enable analytics on Common Data Service data**: Enhanced data integration through Office data integration, new and enhanced connectors, improvements to the connectivity platform, extending Dual Write, improving the data export service, and enhancing on-premises gateways for enterprises.

Here are the themes and guiding principles for our investments in this milestone:

- Improved fundamentals and engineering excellence.

    – Security, reliability, performance, compliance, supportability, and efficiency.

- Remove enterprise blockers.

    – Services are deployed to every geography with a Hero or Hub region.

    – Enterprise connectivity asks: For example, guest access, Excel data, and SAP.

- Improved and intelligent data integration.

    – Power Platform dataflows.

–   Enable analytics on Common Data Service data.

–   Smart data preparation.

–   Common Data Model and the Open Data Initiative.

•   Make our partners successful.

What's new and planned for Common Data Model and data integration

This topic lists features that are planned to release from October 2019 through March 2020. Because this topic lists features that may not have released yet, **delivery timelines may change and projected functionality may not be released** (see Microsoft policy).

In the **General availability** column, the feature will be delivered within the month listed. The delivery date can be any day within that month. Released features show the full date, including the day of release.

Common Data Model

Feature	Enabled for	Public preview	General availability
Additional capabilities in Common Data Model folders	Admins, makers, or analysts, automatically	October 2019	
Common Data Model object model available in public package managers	Admins, makers, or analysts, automatically	October 2019	
Improved experiences in Common Data Model and Power Query Online	Admins, makers, or analysts, automatically	October 2019	
New Common Data Model standard entity definitions	Admins, makers, or analysts, automatically	October 2019	
New Dynamics 365 Industry Accelerator solutions	Admins, makers, or analysts, automatically	October 2019	
Public documentation for Common Data Model object model libraries	Admins, makers, or analysts, automatically	October 2019	

Data Integrator and Dual Write

Feature	Enabled for	Public preview	General availability
Back up and restore Data Integrator and Dual Write artifacts	Admins, makers, or analysts, automatically		October 2019
Copy Dynamics 365 for Finance and Operations data into Common Data Service	Admins, makers, or analysts, automatically		October 2019
SDK for Data Integrator	Admins, makers, or analysts, automatically		October 2019
Making Dual Write resilient to planned or unplanned maintenance	Admins, makers, or analysts, automatically	July 2019	October 2019
Write existing data before turning on Dual Write	Admins, makers, or analysts, automatically	July 2019	October 2019

Enable analytics on Common Data Service data

Feature	Enabled for	Public preview	General availability
Enable analytics on Common Data Service data in Azure Data Lake	Admins, makers, or analysts, automatically	August 2019	October 2019
Hydrate Azure Data Lake with Common Data Service data and create rich reports	End users by admins, makers, or analysts	August 2019	October 2019
Support for data and metadata changes in Azure Data Lake	End users by admins, makers, or analysts	August 2019	October 2019
Support incremental writes to Azure Data Lake	End users by admins, makers, or analysts	August 2019	October 2019

Gateway

Feature	Enabled for	Public preview	General availability
Add intelligence to gateway load balancing	Admins, makers, or analysts, automatically	October 2019	
Automate gateway installation	Admins, makers, or analysts, automatically	October 2019	
Gateway management enhancements	Admins, makers, or analysts, automatically	October 2019	
Performance monitoring and diagnostics for gateways	Admins, makers, or analysts, automatically	October 2019	
Support testing on certified connectors	End users by admins, makers, or analysts	October 2019	

Power Platform dataflows

Feature	Enabled for	Public preview	General availability
Author dataflows in the PowerApps Maker Portal	Admins, makers, or analysts, automatically		October 2019
Consume data from entities stored in Common Data Model folders	Admins, makers, or analysts, automatically		October 2019

Power Query Desktop

Feature	Enabled for	Public preview	General availability
New and enhanced connectors	Admins, makers, or analysts, automatically	October 2019	

Feature	Enabled for	Public preview	General availability
Query Diagnostics enhancements	Admins, makers, or analysts, automatically	October 2019	
Support for new AI Insights including Cognitive Services and custom Azure Machine Learning models	Admins, makers, or analysts, automatically	October 2019	
Custom connector and extensibility support	Admins, makers, or analysts, automatically		October 2019
Data Profiling enhancements including better visualizations and more enhanced capabilities	Admins, makers, or analysts, automatically		October 2019
Enhancements to Data Profiling	Admins, makers, or analysts, automatically		October 2019
New and enhanced connectors in Power BI	Admins, makers, or analysts, automatically		October 2019

Power Query Online

Feature	Enabled for	Public preview	General availability
New and enhanced connectors in Power Query Online	Admins, makers, or analysts, automatically		October 2019
Parity with Power Query Desktop	Admins, makers, or analysts, automatically		October 2019
Smart data preparation	Admins, makers, or analysts, automatically		October 2019

PowerApps and Microsoft Flow Connector Platform

Feature	Enabled for	Public preview	General availability
Better enterprise connectivity to Oracle Database	Admins, makers, or analysts, automatically	October 2019	
Improved command-line interface for connector developers	Admins, makers, or analysts, automatically	October 2019	
New and enhanced connectors in Power BI (Preview)	Admins, makers, or analysts, automatically	October 2019	
Use the Microsoft Excel Online connector in PowerApps	Admins, makers, or analysts, automatically	October 2019	
More open-source connectors are available on GitHub	Admins, makers, or analysts, automatically		October 2019
Better enterprise connectivity to SQL Server	Admins, makers, or analysts, automatically	June 2019	October 2019
Certification portal	Admins, makers, or analysts, automatically	June 2019	October 2019
Support for Azure API Management policies in custom connectors	Admins, makers, or analysts, automatically	June 2019	October 2019

Description of **Enabled for** column values:

- **End users, automatically** – These features include change(s) to the user experience for end users and are enabled automatically.

- **Admins, makers, or analysts, automatically** – These features are meant to be used by administrators, makers, or business analysts and are enabled automatically.

- **End users by admins, makers, or analysts** – These features must be enabled or configured by the administrators, makers, or business analysts to be available for their end users.

Common Data Model

Overview

The Common Data Model is the shared data language used by applications to enable consistency of the meaning of data across applications. It provides modular and extensible business entities (account, lead, opportunity, and so on) and also observational data concepts (such as Link clicks and Email opens). It unifies data in a well-known schema across data silos, applications, and deployments. Although the Common Data Model started in Common Data Service and Dynamics 365, it is bringing the same semantic consistency to Azure Data Lake Storage with Common Data Model folders, allowing an organization to take advantage of AI and machine learning on a scale that wasn't previously possible. The Common Data Model enables business and analytics applications to interoperate over a variety of areas, including sales, service, healthcare, higher education, and more. The span of products, platforms, and services that implement, produce, and consume data in Common Data Model form continues to grow, both inside and outside of Microsoft.

Additional capabilities in Common Data Model folders

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

Common Data Model folders and the metadata file (model.json) support describing data that's stored within Azure Data Lake. After the initial release of Common Data Model object model and libraries, several partners provided feedback, feature requests, and more, through forums like GitHub Issues. Based on feedback regarding the data types, file formats, and partition structures specification, we're extending the capabilities in the Common Data Model folder specification to include data types such as *date*.

Although the libraries provide capabilities for reading and writing metadata files, one clear area of feedback from partners is to add and expand the validation capabilities to ensure that the metadata files are compliant with the specification.

Common Data Model object model available in public package managers

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

The Common Data Model object model will be available in at least three languages—C#, TypeScript, and Python—to support partners who are building and contributing to the ecosystem. These object models will be publicly available in the GitHub repository, and also in the public NuGet, npm, and PyPI package managers, for easier use in your development processes.

Improved experiences in Common Data Model and Power Query Online

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

Power Query Online offers several capabilities to connect, transform, and load data into Azure Data Lake. To improve the experience when a query is mapped to a standard Common Data Model entity, this feature uses the *Map to Standard* transform, which is more intuitive. One key feature is the incorporation of the schema hierarchies included in the standard entities, such as crmCommon, solutions, or marketing. This feature allows customers to better understand the available set of Common Data Model standard entities, so that they can ensure that their data is mapped correctly.

New Common Data Model standard entity definitions

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

The set of Common Data Model standard entities that is published and open sourced on GitHub continues to grow as more applications and data producers contribute to the standard. New concepts submitted by subject matter experts are diligently reviewed before being publicly released. Similarly, extensions to existing concepts (like Account and Contact) are done with a careful review of the current semantics, ensuring alignment. With an increased focus on analytics, Common Data Model standard definitions are being extended to include observation and perception models and traits that can be used in analytical applications.

New Dynamics 365 Industry Accelerator solutions

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

Industry accelerators are basic components within the Microsoft Power Platform and Dynamics 365 that enable ISVs and other solution providers to quickly build industry vertical solutions. The accelerators extend the Common Data Model so that it includes new entities to support a data schema for concepts within specific industries.

Public documentation for Common Data Model object model libraries

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

Partners who want to take advantage of Common Data Model libraries will now have additional content and guidance to given them a better understanding of the purpose and capabilities of the libraries. This content will include best practices and scenario-based examples to make it even easier for partners to produce and consume data in Common Data Model form.

Data Integrator and Dual Write

Overview

The Common Data Service Data Integrator (for Admins) is a point-to-point integration service used to integrate data into Common Data Service. It supports process-based integrations, like Prospect to Cash, that provide direct writes between Dynamics 365 for Finance and Operations and Dynamics 365 for Sales. It also supports integrating data from multiple sources into Common Data Service.

Whereas Data Integrator is a highly customizable batch-based integration service, Dual Write is a near-real-time integration service that allows Dynamics 365 for Finance and Operations customers to natively get their data in Common Data Service. Customers should be able to adopt business applications from Microsoft and expect that they will speak the same language and seamlessly work together. Dual Write allows our customers not to think about these apps as

different systems that must be written to independently. Instead, the underlying infrastructure makes it seamless for these apps to write simultaneously.

With this release, we continue to make Data Integrator the data integration tool of choice for enterprises and ISVs by making investments in lightweight ALM along with the ability to ship templates as part of solutions. Additionally, we are making big investments in making Dual Write setup a frictionless experience where, in a few clicks, Finance and Operations customers can natively get their data in Common Data Service. The primary goal of Dual Write is to enable seamless writes between Finance and Operations and Common Data Service. When you make a change in one app, it is seamlessly reflected in the other in near-real time.

In the GA release of this feature, Finance and Operations customers will be able to natively get their data into Common Data Service. For customers who want to customize their setup, we will provide an advanced and intuitive UI with step-by-step instructions that will guide them through the setup process. As Finance and Operations expands globally and includes the China sovereign cloud, we are making Data Integrator compliant with Azure China cloud, so that our customers in China who want to keep their data within the China region can comply with government regulations.

Back up and restore Data Integrator and Dual Write artifacts

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

Protecting your data and ensuring continuous availability of services are important. As more ISVs and enterprises adopt our services, it is increasingly important to support their requirements – not only from a functionality and scalability standpoint, but also from a lifecycle management and software redistribution standpoint.

With this feature, admins can use on-demand backup and restore for Data Integrator and Dual Write artifacts, including projects and templates, and package them in solutions.

Copy Dynamics 365 for Finance and Operations data into Common Data Service

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

Dual Write enables seamless writes between Dynamics 365 for Finance and Operations and Common Data Service. Changes that you make in one app seamlessly replicate to the other app in near-real time.

This feature provides a frictionless experience by automatically connecting to or creating a Dual Write–enabled Common Data Service environment. Finance and Operations customers can now natively put their data in Common Data Service.

Every business is different. Customers who want to customize their setup can use the advanced and intuitive user interface (UI) with step-by-step instructions.

SDK for Data Integrator

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

We are providing a Common Data Service Data Integrator SDK to help ISVs and partners create, update, and schedule data integration projects programmatically, without user interaction. This will help you automate project and template management (create, read, update, and delete templates and projects) and automate testing (automatically execute projects and retrieve execution history for projects).

Making Dual Write resilient to planned or unplanned maintenance

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	July 2019	October 2019

Feature details

In the unfortunate event that data writes to an app fail because of planned or unplanned maintenance, admins want to be notified and to be empowered to take immediate action. This new feature provides additional ability for admins to define experiences that are suitable for their business needs. Admins can now define rules that provide email notifications or take actions on their behalf for specific error types and thresholds.

Write existing data before turning on Dual Write

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	July 2019	October 2019

Feature details

With this feature, we will write existing data before turning on Dual Write. This feature also keeps that data updated.

Enable analytics on Common Data Service data

Overview

Our vision is to empower our customers to gain comprehensive insights and drive business actions based on their data in Common Data Service. To run analytics and extract intelligence from your data, there is a need to push the data to Azure Data Lake, which enables best-in-class analytics performance along with the fundamental availability, security, and durability capabilities of Azure storage. Through this effort, we will empower our customers and first-party apps such as Dynamics 365 Customer Insights, Dynamics 365 Sales Insights, and Dynamics 365 Customer Service Insights to push data from Common Data Service to Azure Data Lake.

Enable analytics on Common Data Service data in Azure Data Lake

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	August 2019	October 2019

Feature details

If you are a sales person interested in the complete interaction history for a customer, a sales manager looking to gain insights into your team, or a customer service manager looking to anticipate needs and improve performance through insights into case trends, analytics apps like Dynamics 365 Customer Insights, Sales Insights, and Customer Service Insights let you do just that. This feature lets you hydrate Azure Data Lake with your Common Data Service data so that you can use rich insights driven by empowering first-party analytics apps.

Hydrate Azure Data Lake with Common Data Service data and create rich reports

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	August 2019	October 2019

Feature details

In a few steps, you can hydrate your Azure data lake with data from Common Data Service. Alternatively, we can create an Azure data lake for you. After your Azure data lake is created, you can create rich reports by using Power BI, other powerful analytics, and Machine Learning (ML) services.

Support for data and metadata changes in Azure Data Lake

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	August 2019	October 2019

Feature details

Business data changes constantly. With this release, we provide complete support for data and metadata changes to your Azure Data Lake data. This includes support for CRUD (create, read, update, and delete) operations.

Support incremental writes to Azure Data Lake

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	August 2019	October 2019

Feature details

This feature enables writing existing and incremental Common Data Service data to the data lake, instead of rewriting a full copy of the data at every refresh.

Gateway

Overview

The on-premises data gateway is a well-established product that is widely used by enterprises to access on-premises data sources and transfer petabytes of data weekly. Today, gateways are used with either one or a combination of services and applications, like Power BI, PowerApps, Microsoft Flow, Logic Apps, and others. Based on enterprise requests, the focus for this milestone is to improve the management of gateways, improve scale and performance (as enterprises access more and more on-premises data through gateways and depend on them), improve monitoring and diagnostic capabilities for issues (refresh errors, slow-running queries, and so on), and offer a lot of new functionality (like gateway installation automation) to improve the overall enterprise experience.

Add intelligence to gateway load balancing

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

Currently, gateway clusters distribute traffic between gateway members by using a round-robin approach. We plan to add intelligence into the process that determines which gateway cluster member processes a request, based on its current CPU, memory, and network usage. Gateway admins will define the criteria by which gateway members are selected to process requests, based on the available resources mentioned earlier, for the best cluster performance.

Automate gateway installation

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

Today, gateway admins must manually install and register gateways on every machine where the gateway is needed. This manual process takes significant effort in large organizations with many gateways. To address this, we're adding a new feature that allows for the installation and registration of gateways via the command prompt.

Gateway management enhancements

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

Centralized gateway management will help gateway admins have a standard experience for managing gateways across all products on the Microsoft Power Platform, including Power BI, PowerApps, and Microsoft Flow. Gateway admins managing multiple gateways can have a lot of data sources to manage. But they do not currently have search and sort capabilities, making the management experience less than ideal. We plan to enhance this management experience by including sort and search functionality. We also plan to offer management of high-availability clusters from the gateway management portal, including visibility into gateway members and their versions.

Currently, the administration of gateways at a tenant level is available only for Office 365 or global tenant admins. We plan to make this available for the application and service admins too, so that they can get visibility into all gateways within a tenant, view gateway members, and manage administrators.

We also plan to enhance the public REST APIs and Windows PowerShell cmdlets with additional functionality and documentation for it.

Performance monitoring and diagnostics for gateways

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

Today, gateway admins use the Windows Performance Monitor tool to troubleshoot gateways. This new feature enables gateway admins to analyze system performance counters and query execution details for the gateway machine, so that they can identify bottlenecks and optimize gateway performance. Additionally, they can choose to store this information in Application Insights for historical trend analysis.

Support testing on certified connectors

Enabled for	Public preview	General availability
End users by admins, makers, or analysts	October 2019	

Feature details

Currently, developers need to alter connector and function names to do end-to-end testing on the gateway for any changes that they make to certified connectors. Developers must then reverse those alterations before they ship the new version of the connector. This new feature enables you to test certified connectors, reducing the probability of human errors.

Power Platform dataflows

Overview

Data preparation is considered the most difficult, expensive, and time-consuming task of enterprise analytics and app projects. Moreover, data is often fragmented and dispersed across data sources, lacks structural or semantic consistency, and requires complex system integrations to bring it together.

The new dataflows capability in the Microsoft Power Platform aims to reduce the time, cost, and expertise required to prepare and aggregate data for analytics. Power Platform dataflows allow any Power Platform customer to easily define ETL pipelines (dataflows) to ingest data into their company's Business data lake (Azure Data Lake Storage). Dataflows can be configured to use an existing Azure Data Lake Storage account, or they can also use an Azure Data Lake Storage data lake that is auto-provisioned and auto-managed by the Microsoft Power Platform, enabling a friction-free setup experience for customers who do not yet have a Data Lake implementation.

Power Platform dataflows increase the momentum of Power BI dataflows, which were launched into Public Preview in November 2018 and hit General Availability within Power BI in March 2019. Power BI dataflows received extremely positive feedback from customers and market analysts because of their innovative approach to democratizing data ingestion into a company's data lake for data analysts and other non-technical users.

Power Platform dataflows are one of the building blocks that allow Microsoft to provide out-of-box analytics and AI insights to its users, such as the analytic and insights provided by AI Builder or Dynamics 365 Customer Insights, making them a huge differentiator for the company's Dynamics 365 offerings.

In addition to Power Platform dataflows, Microsoft is also investing in making Dynamics 365 data automatically available in Azure Data Lake Storage, to make it even easier for Dynamics 365 customers to derive analytics and insights from their existing Dynamics 365 data.

Author dataflows in the PowerApps Maker Portal

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

Power Platform dataflows are familiar and simple to author. The authoring experience is based on Power Query, which millions of customers use in several Microsoft products, including Power BI, Microsoft Excel, Analysis Services, Microsoft Flow, and Common Data Service.

Power Platform dataflows are a no-code experience for connecting, reshaping, and combining data from hundreds of data sources. They support both cloud and on-premises data sources via the on-premises data gateway. The breadth of data connectivity options is one of the strongest differentiators that Microsoft has in this space.

Power Platform dataflows are easily composable, meaning that users can define dataflows that load one or more entities into their data lake and keep them refreshed on a schedule.

Users can also reference other Azure Data Lake entities (their own or those that other users create) in multiple dataflows to compose new entities.

When you refresh the root entities, Power Platform dataflows refresh all dependent entities without any additional configuration. This allows users to easily build multiple ETL pipelines that are automatically synchronized, without having to deal with advanced configurations. Traditionally, this task needed professional ETL developers. This feature gives millions of data analysts a frictionless experience without requiring additional skills.

Consume data from entities stored in Common Data Model folders

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

Power Platform dataflows use the Common Data Model to provide semantic meaning alongside the data, making it easier for other systems and applications to understand and use data stored in a data lake.

Power Platform dataflows create Common Data Model folders within the data lake and can also consume Common Data Model folders created by other applications and data producers.

Additionally, the dataflow experience allows users to create data and easily map data of any shape and size to Common Data Model standard entities. These entities, starting with key concepts used within Microsoft Dynamics 365, have been extended with the help of subject matter experts across many verticals, including healthcare, non-profit, education, retail, and marketing.

Power Query Desktop

Overview

Power Query provides a no-code experience for non-technical users to seamlessly connect, transform, and combine data from hundreds of data sources. Power Query is natively integrated into several Microsoft offerings, both in the desktop experience and through a web-based experience built on Microsoft Azure.

New and enhanced connectors

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

We plan to improve the Power Query connector library by enhancing some existing connectors and adding new connectors.

Enhancements to existing connectors

The enhancements to existing connectors include:

- Support for the Snowflake connector in Power BI without using an on-premises data gateway. The Snowflake connector will also be enhanced to support Azure Active Directory–based single sign-on delegation for DirectQuery datasets.

- Support for Oracle Kerberos–based single sign-on via the on-premises data gateway.

New connectors

The new connectors include:

- Apache Hive LLAP (including Import and DirectQuery) with Kerberos-based single sign-on via the on-premises gateway.

- Amazon Athena (including Import and DirectQuery) via the on-premises gateway.

Query Diagnostics enhancements

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

Another major area of investment going forward is in Query Diagnostics.

Often, customers connect to slow data sources and then create queries with many or complex transformation steps, resulting in slow queries. To debug issues with queries, customers need to look into Power Query traces to understand whether their queries are pushed to the data source (if the data source supports the transformations being used), or whether Power Query compensated and ran those queries locally within the Mashup Engine.

In a few months, a new user experience surface will be added to the Power Query editor, making it easier for customers to gain insights, including:

- Knowledge of what data source queries are being generated to run their M queries.

- Knowledge of what data source queries are being generated to retrieve schema and metadata information.

- The amount of time queries take to run within the data source versus locally in the Mashup Engine.

Query Diagnostics will allow customers to more easily troubleshoot issues with their queries and identify potential optimizations. In addition to all these smart data preparation capabilities that will result in customer-facing features, Power Query will also become smarter about understanding data transformation usage patterns based on telemetry (non-PII), so that these and future capabilities can be further refined.

Support for new AI Insights including Cognitive Services and custom Azure Machine Learning models

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

Power Query is adding support for new Artificial Intelligence (AI) Insights, including Cognitive Services and Azure Machine Learning models:

- **Cognitive Services**: Power BI provides access to a variety of pretrained models that you can use to transform data in the Power Query editor. The initial set of models consists of language detection, sentiment scoring, key phrase extraction, entity recognition, and image tagging.

- **Azure Machine Learning**: In the AI Insights browser in the Power Query editor, analysts can automatically see all the Azure Machine Learning models that have been shared with them. When they select a model, Power BI automatically maps columns from their data to the parameters of the model, when the name and data type match. By applying the model to their query, they add the score from the machine learning model as a new column in their dataset.

Custom connector and extensibility support

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

Multiline support for custom connectors in Power BI Desktop will enable a more user-friendly user interface for connectors that passes native queries through to back-end systems. Users will be able to view the contents of queries that they paste, allowing them to more easily confirm that the correct query is used.

Data Profiling enhancements including better visualizations and more enhanced capabilities

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

Power Query continues to lead innovation in the area of smart data preparation by taking advantage of and creating products based on the strong Microsoft-wide investments in artificial intelligence and other research efforts around data preparation. Over the last 18 months, we've added several Power Query features to enable customers to transform their data in smarter ways, including:

- **Example Data Extraction**: Enables customers to extract data from HTML pages or from any table within the Power Query Editor, simply by entering sample output values that they want to extract, even selecting from a set of suggested values that Power Query automatically detected based on common transformation patterns. Power Query's AI algorithms can then infer the user intent and the optimal combination of data transformations that's needed to go from input data to the desired output specified by the user.

- **Fuzzy Merge**: Merges tables by using fuzzy matching algorithms (the Jaccard index) to determine matching rows across tables. These fuzzy matching algorithms are the result of several years of research at Microsoft, and they have been released in multiple products, including Microsoft Excel and Microsoft SQL Server, in addition to Power Query.

- **Data Profiling**: Supports over 300 different data transformations, allowing users to filter outlier values, remove duplicates, remove or replace errors, and so on. However, recent investments in Data Profiling within the Power Query Editor have made it even easier for customers to realize that their data has such issues, so that they know that they need to apply the necessary data transformations to fix them.

- **Mapping to the Common Data Model entities schema**: Allows Power Query Online customers to map arbitrary tables from any data source to a target entity schema that's defined as part of the Common Data Model specification. After an entity mapping is defined, downstream processing of that data becomes more powerful, because it can operate over this data at the semantic level instead of only the data level.

Going forward, Power Query's investments will further expand these capabilities.

Here is an overview of the next wave of smart data preparation capabilities that will be delivered to Power Query customers:

- Enhancements to Data Profiling

- Support for new AI Insights, including Cognitive Services and Azure Machine Learning models

- Query Diagnostics

Enhancements to Data Profiling

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

Data Profiling is one of the most acclaimed features by Power Query customers. Based on customer feedback, we're continuing to expand Data Profiling capabilities to include the following:

- **Taking action from within Data Profiling UI controls**: Includes the ability to apply value-based filters (equals, does not equal, starts with, ends with, contains, and more).

- **Enabling richer exploration of data profiles**: Includes the ability to group data by using different criteria based on column data types, such as value length (for text columns), year, quarter, month, day, and so on (for date columns), even, odd, positive, and negative (for number columns), and more.

- **Allowing customers to export data profiling information**: Supports the ability to export to a clipboard or a CSV file, so that the data is easily shared with others within an organization (such as other data analysts or the owners of a problematic data source).

New and enhanced connectors in Power BI

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

We plan to improve the Power Query connector library by enhancing some existing connectors and adding new connectors.

Enhancements to existing connectors

The enhancements to existing connectors include:

- SAP BW single sign-on using Common Crypto Library via the gateway.

- Support for SAP HANA HDI 2.0 Containers.

- Redshift connector support via the gateway.

- Support for the IBM DB2 Connect Gateway feature in the existing IBM DB2 connector.

- The AtScale Connector will become generally available.

New connectors

- Azure Data Lake Gen2 connector with support for physical storage and Common Data Model folders.

Power Query Online

Overview

Power Query Online will approach parity with many of the features in Power Query Desktop integrations, allowing end users to have a more seamless authoring experience against more data sources and providing a seamless authoring experience in the browser.

New and enhanced connectors in Power Query Online

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

Existing connectors will be improved, bringing support for native database queries and other connector advanced options, including time-outs and hierarchical navigation.

The available folder and database connectors on the platform will be increased. Here's a list of the new databases and connectors:

Database connectors

- Impala

- HDInsight Spark

- Apache Spark

- HDInsight Interactive Query

- Google BigQuery

- Vertica

- Teradata

- Sybase

- MySQL

- PostgreSQL

- IBM Informix

Folder connectors

- Local Folder

- SharePoint Folder

- SharePoint Online Folder

- Hadoops HDFS

- Azure HDInsight (HDFS)

- Azure Data Lake Storage Gen2

Our investments in the following categories of connectivity will also increase.

Connector	Description
Generic ODBC	This connector, which is widely used in Power BI Desktop, will become available in Power Query Online to enable connectivity to any data source that provides an ODBC interface.

Connector	Description
PDF Files	This connector, which was released a few months ago for Power BI Desktop, will also be available in Power Query Online.

New data preparation capabilities in Power Query Online will bring it closer to parity with Power Query Desktop in these areas:

Transformation	Description
Table	Includes fill up, fill down, pivot, extract text, before, after, or between delimiters, keep or remove characters, split by character transition, append queries advanced mode, combine files, and more.
List	Includes keep or remove, top, bottom or duplicates, alternate, reverse, sort, and statistics, including sum, avg, min, max, std, count, and countD.
Scalar	Includes text transforms (ToList, table, split, and format. Upper, lower/capitalize, trim, clean, prefix, and suffix), extract (length, first, last, range), and parse (JSON/XML).

Parity with Power Query Desktop

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

Many features that are present in Power Query Desktop are being brought to Power Query Online to significantly improve the query development and management experiences and the interface. These improvements include a significant number of tweaks. The areas of focus include:

• Automatic column type detection.

• Security and authentication features, including support for privacy levels and encryption warnings.

• Support for query parameters in the user interface (UI).

- Parameters experience and the ability to bind to query parameters from input controls in specific operations, such as connector dialog boxes (for URLs and paths) and the most commonly used transformations (split columns, replace values, filter rows, and so on).

- Function creation and invocation user experience (UX), enabling users to easily convert queries with parameters into functions that are easily invoked from other queries.

- Steps pane improvements to allow advanced authoring capabilities such as reordering steps, support for descriptions for any step, or refactoring base query steps into new queries for easy reusability.

- Query groups improvements, including the ability to move queries between groups and reorder groups.

- Queries pane improvements, including the ability to easily reorder queries and manage other query properties from the queries pane.

- IntelliSense support in the formula bar and advanced editor dialog box.

Smart data preparation

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

A continuing goal for Power Query and Power Query Online is to make data preparation *smarter*. This enables analysts to have artificial intelligence (AI) capabilities at the touch of a button, enriching and enhancing data. In addition to the AI insight capabilities that are already in Power Query Online for Power BI Dataflows, two new smart data preparation capabilities will be added:

- **Fuzzy Merge**: Allows users to easily combine data from multiple tables by using fuzzy matching algorithms instead of strict matching.

- **Data Profiling**: Helps users easily identify error, empty, and outlier values within their Power Query Editor data previews.

PowerApps and Microsoft Flow Connector Platform

Overview

A critical part of data integration and the suite of products it supports — PowerApps, Microsoft Flow, Power BI, and Power Query — is connectivity to external data sources. Although we built the initial set of connectors ourselves, most of the connectors over the past few semesters have been built directly by our ISV partners.

During this semester, we plan to further bolster our connector platform ecosystem to make it easier for our ISV partners to create their own connectors and enable them on our applications. A few examples of our investment include providing CLI tools to ISV partners so that they can update, manage, and deploy their own connectors, and providing sample connector source code by open-sourcing a limited set of existing connectors. We also plan to invest in providing policy templates, providing more comprehensive documentation, and creating a dedicated discussion forum. Finally, we will launch a fully automated certification portal that will enable our ISV partners to submit their connectors for certification and deployment.

Along with strengthening the ISV community's ability to create their own connectors, we plan to continue to invest in enterprise-grade data connectors like SQL Server, Oracle Database, Outlook, and more. More specifically, our investments in enterprise connectivity will include support for Azure Active Directory authentication in SQL Server, support for Excel Online in PowerApps, and enhanced connectivity to Oracle databases.

Better enterprise connectivity to Oracle Database

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

The Oracle database connector now returns output parameters from stored procedures. Therefore, users can now invoke any stored procedure and process the result in their flows and apps.

The Oracle database connector now supports native queries that can run on the Oracle server. Users can enter a SQL query and have the query run on the Oracle server. The connector then returns the result to the app or flow. This unlocks a powerful feature in the connector.

The Oracle database connector can now be used directly, without the need for an on-premises data gateway. For enterprises with their Oracle database server on the cloud, this eliminates the

need to install a gateway and Oracle libraries. It also means that Logic Apps customers can now use the Oracle database connector in their Integration Service Environments.

Improved command-line interface for connector developers

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

The command-line interface (CLI) provides a useful tool for developers who want to take advantage of source control systems for their connectors. The tool allows connectors to be updated, deployed, and managed from their source control systems. This release includes improvements to the CLI for Microsoft Flow and PowerApps custom connectors. These improvements focus on expanding the scope of the CLI (such as supporting Logic Apps), and also on improving the user experience and capabilities of the CLI.

New and enhanced connectors in Power BI (Preview)

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

We continuously add new connectors for PowerApps and Microsoft Flow as we engage partners and ISVs to build them. As the ecosystem grows, we expect more partners and ISVs to build and certify connectors. We will also continue to add new features to existing connectors.

Use the Microsoft Excel Online connector in PowerApps

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	October 2019	

Feature details

Although Excel Online documents can be accessed from Microsoft Flow, until recently it has not been possible to use the Excel Online connector in PowerApps. This release includes support for

the Excel Online connector in PowerApps. Therefore, we now provide a capable, reliable, quick-start approach to building apps over data in Excel spreadsheets. This will unlock the vast set of unstructured data that we have in Excel today and benefit users who are familiar with Excel, allowing them to take advantage the low-code, no-code app building experience that we provide through PowerApps.

More open-source connectors are available on GitHub

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically		October 2019

Feature details

With the launch of the open-source connector repository on GitHub, Microsoft encourages the community to contribute to the maintenance of connectors. With this release, we see more connectors that are open source. Microsoft also encourages partners to adopt an open-source connector development model and to take advantage of the developer ecosystem to maintain their connectors.

Better enterprise connectivity to SQL Server

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	June 2019	October 2019

Feature details

As more enterprises move their workloads to the cloud, Azure AD–based authentication for their SQL Server database on the cloud has become more prevalent. Azure AD provides better security because access control is enforced at the data source. You no longer have to manage separate user accounts and authentication for SQL Server databases.

In this release, we've added support for Azure AD authentication for SQL Server from PowerApps and Microsoft Flow. There's no impact on existing users. Enterprises benefit from using an enhanced security model for their data sources and apps. Makers can now seamlessly connect their apps and flows to a SQL Server database and rely on Azure AD to secure the underlying database.

When you share apps, each user authenticates directly with the database by using their own identity.

Other improvements in the SQL Server connector include enhanced support for date types (date, datetime, datetime2, and smalldatetime) and support for connection strings. When you use these data types from PowerApps, they participate and will delegate the processing to SQL Server. With the support for connection strings, customers can now use a popular format to specify the connection details.

Certification portal

Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	June 2019	October 2019

Feature details

As we work with various developers and partners, the certification process needs to be improved so that there is a predictable SLA, visibility into status, a decrease in human errors, and an overall improvement in the time and process for certification. This release includes a new certification portal where ISV partners can submit their custom connectors for certification, see the status of the certification, and see a rich set of information about their certified connectors.

Support for Azure API Management policies in custom connectors

| Enabled for	Public preview	General availability
Admins, makers, or analysts, automatically	June 2019	October 2019

Feature details

While building connectors for PowerApps and Microsoft Flow, developers might need to modify behaviors for the underlying API. For example, in cases where a service provides custom domain or sub-domain endpoints, connectors might need to dynamically route the requests to endpoints based on the connection parameters.

In other cases, connectors might add extra headers or query parameters, or enforce throttling limits for their operations. Today, you can manage these behavioral modifications with Azure API Management (APIM) policies for any of the standard built-in connectors.

Until now, APIM policies weren't available for custom connectors. This has meant that any modification to custom connectors must be done in-house. Partners who build these custom connectors rely on Microsoft for any modification to their connectors, even to try out and test them. This leads to a high-touch development model, which isn't ideal.

With this release, you can enable APIM policies on your custom connectors for your apps (PowerApps) and flows, and then use APIM policies to modify the behaviors of your connectors. For example, APIM policies allow you to limit the number of calls from a connection on one or more operations in your connector. You can use other APIM policies to fix headers or query parameters, or even modify a field or a parameter. You can also use policies to improve the overall user experience of your connectors.
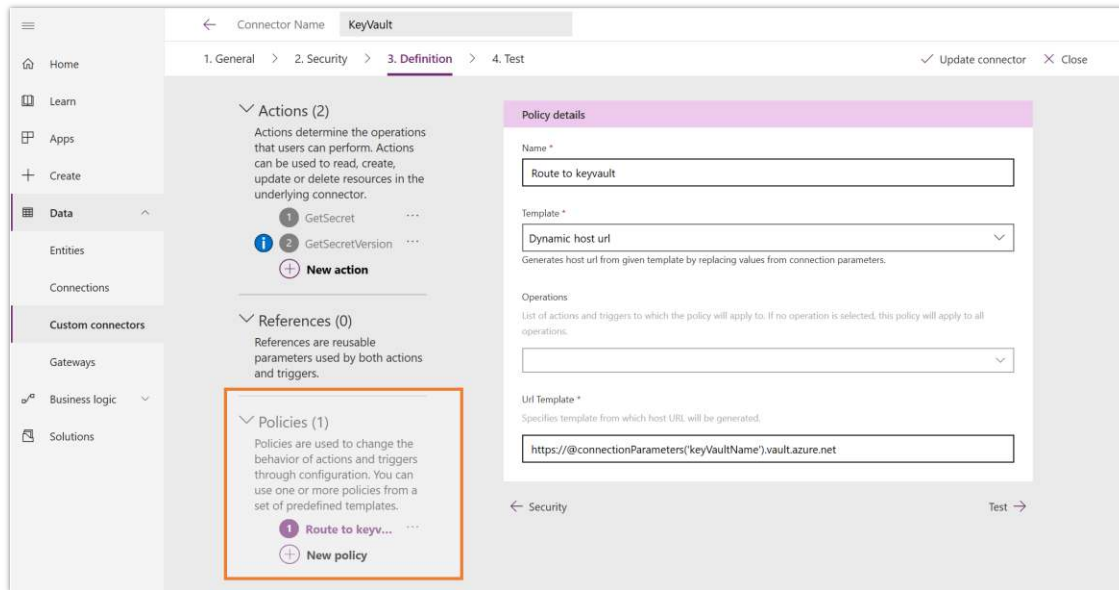
Policy in custom connector

Got feedback?

Share your feedback on a community forum for Dynamics 365 or Power Platform. We'll use your feedback to make improvements. To find out about updates to these release notes, follow us on Twitter @MSFTDynamics365.

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