Microsoft

Dynamics 365

SPRING '18 RELEASE NOTES

THE NEXT STEP IN YOUR DIGITAL TRANSFORMATION

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Release overview

We're thrilled to announce our Spring '18 release, which delivers significant investments designed to help you transform your business.

We've made tremendous progress:

- **Unifying our business applications** across marketing, sales, service, operations, finance, talent, and retail into a comprehensive family of capabilities that spans the entire business process landscape – so you can solve specific business problems with applications that work seamlessly together.
- **Ensuring you gain synergistic benefit from your other Microsoft investments** by enriching Dynamics 365 with deeper integrations with Microsoft Outlook, Teams, SharePoint, Stream, Azure, and LinkedIn. We've enhanced Dynamics 365 with data and signal from Office 365 and Bing. We've also made Dynamics 365 more intelligent by employing decades of AI work pioneered by Microsoft Research.
- **Advancing the platform beneath Dynamics 365** – the same platform beneath Office 365 – to combine Power BI, PowerApps, Microsoft Flow, Microsoft Stream, the Common Data Service for Apps, and the Common Data Service for Analytics into an unmatched palette of tools to extend, customize, and integrate Dynamics 365 and Office 365 into your environment. These experiences are powered by insights and intelligence from data across hundreds of business systems with built-in connectivity to the platform, and with rich audio-visual media that integrates tightly into the business applications people use daily.

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 Spring '18 release.

How to use these release notes

These release notes provide descriptions of new and enhanced capabilities in Dynamics 365 business applications and application platforms. These capabilities are available starting in April 2018.

To make it easy to find a list of changes for each business application or platform, there's a quick summary table in each section with links to any relevant information.

Availability

For a list of the regions where Dynamics 365 business applications are available, see the Availability Guide.

Your feedback matters

We know how important these release notes are to your organization for planning a successful update. We want to know what works and what doesn't.

Let us know your thoughts by sending email to releasenotes@microsoft.com. We'll use your feedback to improve our content.

Change history

The following changes are included in the Spring '18 Release Notes version 18.1.2, published May 1, 2018.

Document section	Description of change
Intro	Added section: Availability with link to availability guide.
Sales	Updated section: Built on the Unified Interface framework lists additional capabilities and solutions Added feature: Predictive lead scoring (Public Preview).
Service, Field Service	Universal Resource Scheduling added features: • Book by estimated arrival time instead of start of travel • Display more on the schedule board by adjusting the scale • Display up to 14 days on the hourly schedule board • Change booking statuses from daily, weekly, and monthly schedule boards • Pass in date and time for search parameters with the URL • Leverage the booking panel for multiday drag-and-drop scheduling • Select a resource and correctly load it into the driving directions window • Show a resource card by right-clicking instead of hovering • Display day of the week on hourly vertical schedule board • Keep the context when searching for availability and substituting a resource • Schedule board extensibility enhancements
Finance and Operations	Added features: • Globalization – United Arab Emirates localization for Fall 2017 release (version 7.3 update) • Create actuals in Project Service Automation and synchronize them to the Finance and Operations integration journal • Extensible project work breakdown structure • On-premises availability of Retail head-office capabilities

Talent	Added features:
	• Absence management
	  ○ Time entry on behalf of someone else
	  ○ Configurable proration options
	• Payroll Integration
	  ○ Ceridian payroll integration is now available in the UK

Document section	Description of change
	• Assignee placeholders (Public Preview)
Business Application Platform	PowerApps added feature: • Canvas apps support storing up to 20 MB of data locally on Android and iOS Microsoft Flow added features in April: • Find errors in Apply to each • Approval reassignment • See details of a flow • United Kingdom region • New documentation landing page • Add multiple records to array inputs • Test flows with previous run data • Access flow details with the workflow() expression Microsoft Flow added features in May: • Create a business process flow • Business process flow entity customization • Add an action to a business process flow • Create a flow for Microsoft To-Do in Outlook Web App • Test your flow by using sample data • Quick access to help and support
Business Intelligence Platform	Power BI Desktop revisions: • Incremental Refresh Policies removed from April '18 General Availability. • Drill-through on measures, conditional formatting, and Incremental data refresh added to May '18 General Availability. • Filters on data view section added to June '18 General Availability. • Matrix expand or collapse section removed from June '18 General Availability. • Improve the results of Quick Insights with custom analysis section removed from June '18 General Availability. • Performance inspector for reports section removed from June '18 General Availability. Power BI Service revisions: • Incremental data refresh moved from May '18 General Availability to May '18 Public Preview.

Document section	Description of change
	• Workspace search section moved from June '18 General Availability to June '18 Public Preview. • Common Data Service for Analytics in Power BI and Power BI Insights Apps sections moved to Public Preview sometime between July and September.

The following changes were included in Spring '18 Release Notes version 18.1.1, published April 2, 2018.

Document section	Description of change
Sales	Added section: New sales professional license with link to comparison page for details. Removed section: LinkedIn profile pictures for contact records.
Service, Field Service application	Removed FBX from list of supported file formats for 3D models.
Finance and Operations	Added section: Customer payment insights
Business Intelligence Platform	Updated availability information for the following sections: Incremental data refresh; Query acceleration for large datasets; Data metadata translations; Smart alerts; Workspaces with Azure AD groups; Export to PDF. For more information, see Spring '18 summary of what's new in Business Intelligence Platform Removed the following sections: Slideshow mode; Report snapshots for Power BI Premium.
Data Integration	Added multiple new pages on connectors, gateways, templates, and Power Query smart data preparation.
Media Platform	Removed public anonymous playback feature from the summary table.

To find out when there are updates to these release notes, follow us on Twitter @MSFTDynamics365.

GDPR and accessibility

Data protection and security

Dynamics 365 delivers industry-leading security measures and privacy policies to safeguard customer data when using a Microsoft Cloud Service or running Microsoft Dynamics business applications in our customers' data centers.

The Spring '18 release includes investments in Dynamics 365 products to address the requirements of the General Data Protection Regulation (GDPR) adopted by the European Union (EU).

General Data Protection Regulation

In May 2018, a European privacy law, the General Data Protection Regulation (GDPR), takes effect. The GDPR imposes rules on companies, government agencies, non-profits, and other organizations that offer goods and services to people in the EU, or that collect and analyze data tied to EU residents. The GDPR applies no matter where you are located.

Microsoft has extensive expertise in protecting data, championing privacy, and complying with complex regulations, and currently complies with both EU-U.S. Privacy Shield and EU Model Clauses.

We believe that the GDPR is an important step forward for clarifying and enabling individual privacy rights. We want to help you focus on your core business while efficiently preparing for the GDPR.

Resources to manage GDPR compliance for your organization

Go to the Trust Center, where you'll find tools and auditing reports to help you manage cloud-data security and compliance for your organization:

- Use Compliance Manager to get insights into your responsibilities for meeting compliance standards.
- Get details on how the Microsoft Cloud complies with standards that matter to your organization.
- Find resources like webinars, videos, white papers, and FAQs about the regulation.

Accessibility

Accessibility is a top priority for many organizations, often to meet regulatory requirements, but also because it is an important part of driving productivity through digital transformation.

The Spring '18 release includes investments that support our commitment to inclusive design in Dynamics 365. Accessibility capabilities are built in so organizations can accelerate digital inclusion and make it easier for users to create and consume content, whether they have disabilities or just don't have access to a mouse or monitor.

Marketing

Dynamics 365 for Marketing

Dynamics 365 for Marketing delivers comprehensive capabilities for creating and running multi-channel campaigns to generate leads for your sales team using simple drag-and-drop design tools. The application includes event management, lead management, embedded intelligence for segment targeting, lead scoring, and interactions insights.

The marketing application is built on the same platform as Dynamics 365 for Sales, so your marketing and sales teams share common information and business processes to help them collaborate closely throughout the sales cycle.

For more details about the capabilities, go to the Dynamics 365 for Marketing overview page.

Spring '18 summary of what's new in Marketing

April '18 – General Availability

Easy setup with guided first-run experience

Multi-channel campaigns with personalized customer journeys

- Customer journey designer:
  - Get started quickly with configurable templates.
  - Use a drag-and-drop designer to set up a customer journey that guides your buyer based on how they engage during campaigns.
- Dynamic segment designer - Set up rules to identify target segments based on detailed demographic, firmographic, and interaction data.
- High-volume email - Send email with dynamic content, and respond to interactions such as opens, forwards, clicks, and bounces.
- Forms and landing pages - Capture contact/lead information on the web and react to each interaction.
- Events and webinars - Promote webinars and in-person events for rich engagement across channels.
- Run surveys to gather feedback from customers.
- Bring in and nurture leads using a connector to LinkedIn Lead Gen Forms.

Content creation

- Template-driven design process - Includes professionally designed templates for emails and marketing pages, with customizable color palettes and support for custom templates.
- Email designer - Use a graphical tool for creating personalized emails with dynamic content.
- Marketing page designer - Use a graphical tool to create web pages with forms for collecting information from new and existing contacts.
- Email previews - Quick in-browser preview of responsive designs, plus third-party Litmus integration for pixel-perfect email inbox previews.

Event management

- Manage and track event registration and attendance.
- Comprehensive event logistics - Manage speakers, venues, sponsors, session schedules, event passes, and more.
- Webinars - Integration with the ON24 webinar service enables global participation in both web-only and hybrid live/web sessions.
- Comprehensive event portal – Makes it easy for attendees to view speaker bios, review the session schedule, register for events and sessions, and manage their event calendar.

Lead management

- Lead generation - Generate and manage leads throughout the customer journey.
- Multiple lead scoring - Set up automated scoring rules to help identify your hottest leads, with multiple models running concurrently, and automatic forwarding to sales when ready.
- Score leads based on behavior, demographics, and firmographics.

Embedded marketing insights

- Analyze all interactions recorded for each lead and customers.
- In-place insights - View relevant interaction records for each customer journey, email message, and landing page for easy drill-down.

Compliance

- General Data Protection Regulation (GDPR) - Investments address the European privacy law's requirements. Go to the Trust Center to learn more and find resources to help you comply.
- Accessibility enhancements - Go to the Trust Center to learn about our industry-leading accessibility standards.
- Built-in support for complying with common email-marketing regulations, including double opt-in and subscription management.

Easy setup with guided first-run experience

Get started quickly with Dynamics 365 for Marketing, whether you set up a trial or add the application to your production organization. The first-run experience guides you through the initial application set up, including all related services and solutions.

Multi-channel campaign orchestration with customer journeys

Create automated multichannel campaigns using the graphical and extensible customer journey designer. Each journey establishes a target market segment and can then deliver automated communications, make automated decisions, generate internal tasks, deliver follow-up communications, respond to customer interactions, and more.

Multi-channel campaign

Run high-volume email campaigns to deliver personalized messages that look great on all platforms and screen sizes. Judge the effectiveness of mailings with detailed counts of opens, clicks, forwards, and more.

Use the embedded segmentation engine to set up sophisticated, dynamic marketing segments that perfectly target your campaigns. The engine queries against a high-volume database that uses your collected behavioral, demographic, and firmographic data to find targeted prospects.

Segmentation flow example

Content creation

Create modern online content, including visually rich email messages, landing pages, and forms using intuitive, graphical digital content designers. Marketers can get to work quickly by starting with professionally designed templates, which can easily be customized and saved to help reinforce brand identity and build brand awareness.

Content designer interface

Event management

The Marketing application features comprehensive event management, which helps you plan, execute, promote, and follow-up on webinars and in-person events. Start your planning by modeling your venue, booking speakers, collecting sponsors, and setting up your event schedule. Then publish your event details directly to the event portal, where attendees can read about the event, view speaker bios, register online, and build their session schedule. Finally, set up a customer journey to promote the event, collect registrations, and follow up with attendees.

Example of an event portal

Lead management

Use landing pages to invite contacts to register with your organization and generate leads based on those submissions. An automated, rule-based lead scoring engine helps identify your hottest leads as they interact with your marketing activities, and can automatically forward sales-ready leads to salespeople when they reach a defined score threshold. Run lead-generation campaigns on LinkedIn and import those leads directly into Dynamics 365 for follow-up, nurturing, and eventual qualification.

Lead score model setup

Dynamics 365 business apps share the same platform, making it possible to share data and collaborate with sales, marketing, customer service, and other business groups.

Embedded marketing insights

The system continuously collects customer-interaction data, keeps records of marketing activities, and holds financial details. View targeted analytical dashboards right in the app and explore detailed interaction records for any email, landing page, or customer journey. Generate detailed analytics with pre-made widget-based reports. Gain qualitative insights, improve decision-making, maximize return on marketing investment (ROMI), and much more.

Marketing insights

Microsoft Social Engagement

Microsoft Social Engagement allows organizations to listen for keywords and phrases on social media to help them understand customer sentiment and engage in conversations about their products and brand.

Social Engagement is included at no additional cost with subscriptions to the Dynamics 365 Plan, Customer Engagement Plan, and customer engagement applications (Marketing, Sales, Customer Service, Field Service, and Project Service). 10,000 social posts per month are included, with the option to purchase additional social post quota packages as needed.

Social Engagement includes four categories of capabilities: social insights, brand reputation, social care, and social selling.

- **Social insights** offers interactive analytics for social media conversations, such as native-language-based sentiment analysis across a broad set of sources. Identify the most important conversations using unique adaptive sentiment and intention analysis capabilities. Quickly set up searches and track the right content (updated in near real-time).

- **Brand reputation** helps marketers and public relations professionals understand social media conversations about products and services and can be tailored to each organization's unique brand needs. Use intelligent alerts to stay ahead of any potential public relations crisis and receive notifications when significant changes on social media are detected. Companies can grow and engage their social media communities by identifying, tracking, and connecting with brand influencers and industry experts.
- **Social care** lets customer service organizations or community managers engage with their customers on social media. Use automation rules to intelligently assign social posts to the right people for follow-up, or to create cases in Dynamics 365.
- **Social selling** helps sellers build their social presence and credibility by providing intelligent and personalized recommendations about their company, brands, services, and products. The Social Selling Assistant lets people share these recommendations with their social networks, which underlines their social presence and eventually helps them find more leads and close more deals.

Spring ’18 summary of what’s new in Microsoft Social Engagement

April ’18 – General Availability

Compliance

- General Data Protection Regulation (GDPR) - Investments address the European privacy law’s requirements. Go to the Trust Center to learn more and find resources to help you comply.
- Accessibility enhancements - Go to the Trust Center to learn about our industry-leading accessibility standards.

Sales

Dynamics 365 for Sales

The capabilities in the Spring '18 release empower your sales team with more intelligence and analytics, deeper integrations with LinkedIn and Office 365, and consistent user experience for web, mobile, and clients using the Unified Interface framework.

These capabilities include:

- **Embedded intelligence lets sellers focus on selling.** Embedded intelligence collects, manages, and analyzes the diverse data and communications throughout the sales process, and then automatically suggests relevant actions and captures relevant activities to let salespeople spend more time selling.
- Embedded intelligence features introduced with this release are:
    - **Relationship assistant**, **Auto capture**, and **Email engagement** (previously these were part of a group of features named Relationship Insights) provide sales intelligence and are embedded within the Sales app.
    - **The Sales app is built on the Unified Interface framework for consistent user experience.** The Sales app delivers a consistent, uniform, user interface, and follows responsive design principles for optimal viewing on any screen size or device. All core sales entities used in business processes, including products, goals, and sales literature, run on this responsive platform and conform to common data model standards.

      Dynamics 365 App for Outlook, LinkedIn Sales Navigator integration, and the Gamification solution all run on the Unified Interface framework.
- **User interface controls use a Common Controls Framework (CCF) for consistency.** Controls follow consistent, familiar patterns on every surface of the application, making it easier for sales users to learn and be productive.
- **Enhanced integration with LinkedIn Sales Navigator enables a seamless sales workflow.** On forms, LinkedIn Sales Navigator controls provide up-to-date context and insights about companies and LinkedIn members.
- **GDPR and accessibility enhancements.** Investments address the European privacy law's requirements, and enhance accessibility for users who need assistive technologies to interact with the application.
- **Professional user license for streamlined Sales Force Automation (SFA).** With the addition of the Professional user license, along with the Enterprise user license currently in market, you can choose the capabilities that make sense for your specific business requirements.

These additional capabilities are available for Public Preview:

- **Dynamics 365 for Sales insights add-on provides advanced intelligence capabilities to salespeople.** The add-on includes Relationship analytics that show relationship and sentiment health.

  Relationship analytics analyzes the overall health of customer relationships by letting salespeople know how they're spending their time and who they're interacting with. Relationship analytics also recommends which customers and opportunities to focus on.

  Sentiment health analyzes customer interactions and signals to inform salespeople how satisfied their customers are with their relationship.

- **Self-serve installation of the Dynamics 365 for Sales insights add-on speeds onboarding.** System administrators can quickly get set up with a simplified installation process.

Spring '18 summary of what's new in Sales

April '18 – General Availability

Compliance

- General Data Protection Regulation (GDPR) - Investments address the European privacy law's requirements. Go to the Trust Center to learn more and find resources to help you comply.
- Accessibility enhancements - Go to the Trust Center to learn about our industry-leading accessibility standards.

Core sales

Sales application and core sales entities on Unified Interface framework.

Sales intelligence

Embedded intelligence:

- Relationship assistant
- Auto data capture
- Email engagement

Integrations

LinkedIn Sales Navigator:

- Customizable controls on forms

Gamification

Investments to address requirements of the GDPR privacy law, and enhance accessibility.

April '18 – Public Preview

Dynamics 365 for Sales Insights add-on

Relationship analytics (Public Preview)

- Relationship health
- Sentiment health

Self-serve installation of the Dynamics 365 for Sales insights add-on

May '18 – Public Preview

Dynamics 365 for Sales Insights add-on

Predictive lead scoring (Public Preview) (Included in the self-serve installation of Sales insights add-on)

Built on the Unified Interface framework

Because the app relies on the Unified Interface framework, the user experience follows consistent, familiar patterns making it easier for salespeople to get up and running quickly and be productive. The interface is responsive and accessible. All controls on the user interface have been designed to improve usability.

These additional capabilities and solutions are built on the Unified Interface framework:

- Yammer integration
- Office 365 Groups
- Export to Excel
- OneNote integration
- Document management using SharePoint and OneDrive for Business
- Document recommendations
- Skype for Business integration

Embedded intelligence

Embedded intelligence (previously known as Relationship Insights) collects, manages, and analyzes the diverse data and communications created throughout the sales process. The app then automatically suggests relevant actions and captures relevant activities to let salespeople spend more time selling.

This includes **Relationship assistant**, **Auto capture**, and **Email engagement**.

- **Relationship assistant** offers timely and actionable insights by continuously analyzing customer interaction data stored in Dynamics 365, Microsoft Exchange, and other sources, and then generating a collection of action cards with suggestions for relevant next steps.
- **Auto capture** scans a sales user's Outlook inbox for messages and appointments relevant to deals they're working in Dynamics 365, and then offers them as candidates for tracking. Watch video.
- **Email engagement** monitors actions taken by recipients such as opened, clicked on a link, opened an attachment, or replied. Sales users can schedule when an email is sent and receive follow-up reminders.

Relationship analytics (Public Preview)

Relationship analytics helps salespeople manage the opportunities pipeline by analyzing relationships and presenting data and insights about the health of customer relationships. Relationship Analytics includes **sentiment analysis** of Microsoft Office Exchange online email to enhance the relationship health score. [For more details about the capabilities, go to the Embedded intelligence page](#).

Relationship analytics overview

Relationship analytics dashboard

Sales insights configuration for administrators

Predictive lead scoring (Public Preview)

Predictive lead scoring uses a predictive machine learning model to calculate a score for all open leads. The score helps salespeople prioritize leads, achieve higher lead qualification rates, and reduce the time that it takes to qualify a lead. The reasons behind the score add transparency to the model and help salespeople validate the model.

The administration experience allows a business analyst to train the model and apply it to open leads for scoring based on prediction accuracy. In addition, when there is more data for leads or other related entities, such as accounts, a business analyst can retrain the model and apply it to achieve more accurate results. Plus, the business analyst can change the score ranges for lead grades to determine lead prioritization for their business, based on qualification rates.

Predictive lead scoring – Grid view

Predictive lead scoring – Score and reasons widget in form

Predictive lead scoring – Configuration create model

Predictive lead scoring – Configuration apply model

LinkedIn Sales Navigator integration

With LinkedIn Sales Navigator integration, salespeople can tap into their professional networks and relationships to improve their pipeline.

LinkedIn Sales Navigator (SNAP) controls on forms

With LinkedIn Sales Navigator integration, business analysts and system admins can add customizable form controls that deliver insights to help salespeople build connections as they work deals. The controls provide a full view into Sales Navigator member or company profiles, or focused views into lead icebreakers, mutual connections, and related leads, as well as account connections, recommended leads, and news.

LinkedIn Sales Navigator integration controls

Dynamics 365 Gamification

With the Gamification solution, organizations can set up competitions that incentivize employees to meet business goals. When employees achieve pre-defined performance metrics, they win prizes, awards, privileges, and recognition.

Gamification compliance

With the Spring ’18 release, investments address General Data Protection Regulation (GDPR) requirements. Go to the Trust Center to learn more and find resources to help you comply.

In addition, salespeople of any ability can compete and participate in team contests. Go to the Trust Center to learn about our industry-leading accessibility standards.

Dynamics 365 for Sales professional user license

Starting in Spring ’18, you can choose from two license types for sales: professional (new) and enterprise (currently in market), depending on your business requirements. To compare what’s included with each sales license option and determine which plan would work best for your organization, see the sales pricing page.

Service

Dynamics 365 for Customer Service

The Spring '18 release delivers investments in user experience, performance, developer productivity, and compliance across the Customer Service Hub, Dynamics 365 Portal, Voice of the Customer (VoC), and Unified Service Desk.

Key investments include:

Customer Service Hub application for case and knowledge management. Built on the Unified Interface framework, the Customer Service Hub is a focused and intuitive application for case and knowledge management on any screen size, device, or orientation.

Dynamics 365 Portal can be used to create cloud-hosted web portals for external audiences. Dynamics 365 Portal allows search within attachments, and includes improved debugging for developers.

Unified Service Desk for consolidated communication channels on a single interface. The Spring '18 release includes a Best practice analyzer that analyzes customizations and identifies defects to help with building and deploying efficient customizations and extensions. Customizers can also host Customer Service Hub pages and integrate business process flows within Unified Service Desk (Public Preview only).

Voice of the Customer enhancements for survey-creation and feedback analysis. Voice of the Customer includes cascade deletion of surveys, survey translation enhancements, the ability to dynamically insert question responses into subsequent questions, and improved analytics capabilities with the Voice of the Customer Analytics content pack for Power BI.

Spring '18 summary of what's new in Customer Service

April '18 – General Availability

Compliance

- General Data Protection Regulation (GDPR) - Investments address the European privacy law's requirements. Go to the Trust Center to learn more and find resources to help you comply.
- Accessibility enhancements - Go to the Trust Center to learn about our industry-leading accessibility standards.

Customer Service Hub

- Customer Service Hub on the Unified Interface framework for managing knowledge articles and cases.

Unified Service Desk

- Best practice analyzer – Developer tool for identifying defects in customizations or extensions.

April '18 – Public Preview

- Unified Interface integration with Unified Service Desk.

Customer Service Hub for efficient case resolution

The Customer Service Hub is designed to empower agents to deliver fast, personalized service and support. With interactive dashboards, guided business process flows, and a timeline that delivers a unified view of customer communications, the app simplifies an agent's job and helps increase productivity.

The app is available on the web in a browser and on mobile.

More resources

[Overview of Customer Service and the Customer Service Hub]

[Customer Service Hub Help and training]

[Customer Service Hub user guide]

Interactive dashboards

Customer Service Hub dashboards are a one-stop workplace where agents and supervisors review their workload and take actions to resolve issues. Dashboards make it easier to review and act on information coming from various entity views and queues, and make it easier to apply additional filtering with visual, global, and timeframe filters to quickly narrow down what is most actionable and urgent.

Tier 1 dashboard for agents

The Tier 1 multi-stream dashboard is displayed by default. The Tier 1 dashboard is tailored to help agents deliver the initial level of support needed, and handle multiple customer issues at the same time.

Tier 1 dashboard for service agents

Tier 2 dashboard for service managers or Tier 2 agents

The Tier 2 single-stream dashboard helps customer service managers and Tier 2 agents monitor more complex or escalated cases in a single view.

Tier 2 dashboard for service managers and Tier 2 agents

Business process flows for standardized case handling

Business process flows ensure that agents enter case data consistently and follow the same steps every time they interact with a customer.

Business process flows support floating and docked mode for process stages, which lets agents view case information and update the process stages simultaneously.

Business process flow example for a case record

Timeline view of customer interactions and activities

Capture customer interactions and communications by adding them as activities in the timeline section of the dashboard. The timeline section presents a unified view of everything that has happened with a case, such as email received, follow-up tasks, and automatically generated system posts, plus any notes taken during customer interactions.

Customer activity timeline on the case dashboard

Search for knowledge articles on the reference panel

Reference panel tabs allow agents to quickly find related records, or search knowledge articles for accounts, contacts, cases, and other knowledge articles.

Reference panel on the case dashboard

Support for authoring, searching, publishing, and translating knowledge articles

Author and edit well-formatted content for knowledge articles using a rich text editor. The editor brings common word processor features like advanced styling, linking, find and replace, and insert images and tables. Search, publish, and translate knowledge articles. Preview how the knowledge articles render on different devices before publishing.

Knowledge article editor

Knowledge managers and authors monitor the status of knowledge articles using interactive knowledge management dashboards.

Knowledge manager dashboard

Update from Interactive Service Hub to Customer Service Hub

Interactive Service Hub is a web-based customer service application included with Dynamics CRM Online 2016 Update 1 and Microsoft Dynamics CRM 2016.

Organizations using Interactive Service Hub on Dynamics versions CRM 2016, CRM Online 2016 Update 1, and Dynamics 365 (online and on-premises) Update 2.1 are eligible to upgrade to Dynamics 365 (online) version 9.0 during the Customer Driven Update schedule.

Upgrading from a version earlier than CRM 2016 is not supported.

Refer to this blog post for details on how to plan for the update to Customer Service Hub.

Unified Service Desk enhancements

Unified Service Desk for Dynamics 365 provides a configurable framework for building call center applications that deliver a unified view of customer data and numerous communication channels (such as phone, chat, email, and social media) into a single interface.

Best practice analyzer for Unified Service Desk

Best practice analyzer is a developer tool that identifies defects in customizations and extensions, to help developers build and deploy efficient customizations and extensions.

Unified Interface apps integrate with Unified Service Desk (Public Preview)

Unified Interface apps integrate with Unified Service Desk to provide consistent user experiences for session management, customizable layouts, agent guidance, line-of-business applications, and channel integration.

GDPR and accessibility

General Data Protection Regulation (GDPR) investments address the European privacy law's requirements. Go to the Trust Center to learn more and find resources to help you comply.

Accessibility enhancements help users who require assistive technologies to interact with the application. Go to the Trust Center to learn about our industry-leading accessibility standards.

Dynamics 365 Portal

With the Spring '18 release, the search experience includes the ability to search within attachments. In addition, improved debugging makes troubleshooting easier for developers.

Spring '18 summary of what's new in Dynamics 365 Portal

April '18 – General Availability

Compliance

- General Data Protection Regulation (GDPR) - Investments address the European privacy law's requirements. Go to the Trust Center to learn more and find resources to help you comply.
- Accessibility enhancements - Go to the Trust Center to learn about our industry-leading accessibility standards.

Dynamics 365 Portal

- Renew portal authentication key.
- Search attachment content.

Renewal of authentication key

Dynamics 365 Portal connects to an organization using an authentication key linked to Azure Active Directory. The authentication key expires every two years. The administrator receives notification on the key expiration date, and can renew the authentication key. For more information, go to Renew portal authentication key.

Troubleshooting improvements

Dynamics 365 Portal provides detailed, contextual error information and diagnostic logging, and enables developers to define custom error messages for consistent and reliable troubleshooting. For more information about debugging and troubleshooting, go to Viewing portal error logs.

Searchable attachments for knowledge articles

Knowledge article attachments are searchable to increase the likelihood of relevant search results.

Searchable attachments for knowledge articles

GDPR and accessibility

The customer data sent to and processed by Dynamics 365 Portal can be configured to address requirements of the General Data Protection Regulation (GDPR) adopted by the European Union. The

solution allows configuration of custom terms and conditions, age gating, and parental consent requirements.

Go to the Trust Center to learn more and find resources to help you comply.

Accessibility enhancements help users who require assistive technologies interact with the Portal. Go to the Trust Center to learn about our industry-leading accessibility standards.

Voice of the Customer (VoC)

The Spring '18 release of the Voice of the Customer (VoC) solution includes cascade deletion of surveys, survey translation enhancements, the ability to dynamically insert question responses into subsequent questions, and improved analytics capabilities with the Voice of the Customer Analytics content pack for Power BI.

Spring '18 summary of what's new in Voice of the Customer

April '18 – General Availability

Compliance

- General Data Protection Regulation (GDPR) - Investments address the European privacy law's requirements. Go to the Trust Center to learn more and find resources to help you comply.
- Accessibility enhancements - Go to the Trust Center to learn about our industry-leading accessibility standards.

Reliability

- Survey translation enhancements.
- Enable self-troubleshooting.

Enhanced user experience

- Voice of the Customer analytics using Power BI.
- Personalize surveys by adding customer responses into questions.
- Cascade deletion of surveys.
- Restore the VoC configuration.

Cascade deletion of surveys

When a user deletes a survey, the dependent entities of the survey are also deleted. Any required actions needed for deleting a survey are displayed on the screen for easy resolution.

Restore configuration of Voice of the Customer

Admins can repair or restore the configuration if it is accidentally deleted or misconfigured.

Survey translation enhancements

Survey translation files are validated for any missing translated strings or incorrect HTML formatting when a survey is previewed or published. Error logs identify which strings in the translation file have issues. Users are able to translate the survey link text in the invitation email to personalize it for the respondent's locale by providing the language as input in the survey snippet.

Personalize surveys by dynamically adding customer responses into questions

Personalize a survey by inserting the response to a question into subsequent questions and response option texts, using the Answer Tag field. When building the survey, provide a value for the Answer Tag for the first question, and then use the same value in the subsequent questions.

Providing value for Answer Tag for the first question

Using same Answer Tag value in subsequent question

Enable self-troubleshooting

Self-troubleshooting makes it easier for administrators and survey designers to identify issues with the configuration of surveys. Validation tests verify the survey configuration or the survey itself, depending on the context. Results are displayed on-screen with the option to download a log file.

Voice of the Customer analytics using Power BI

The Voice of the Customer Analytics content pack for Power BI enables organizations to glean insights about surveys and responses. Administrators or survey designers can track metrics, such as average Net Promoter Score (NPS), average customer satisfaction (CSAT) score, and response ratio. The dashboard and reports provide charts and analytics for survey questions, and allow users to explore and analyze survey data.

GDPR investments

General Data Protection Regulation (GDPR) investments address the European privacy law's requirements. Go to the Trust Center to learn more and find resources to help you comply.

Survey page accessibility

The portal used by survey respondents to submit their responses is accessible for users who require assistive technologies to interact with the survey page. Go to the Trust Center to learn about our industry-leading accessibility standards.

Dynamics 365 for Field Service

The Spring '18 release of the Field Service application includes resource scheduling and optimization improvements, GDPR and accessibility enhancements, and a new user experience with the application built on the Unified Interface framework.

Microsoft Dynamics 365 for Field Service is available for Private Preview to select members of the Dynamics 365 for Field Service Insiders program starting in April 2018. For consideration or to register, go to the Dynamics 365 Insider page.

Spring '18 summary of what's new in Field Service

April '18 – Private Preview

Compliance

- General Data Protection Regulation (GDPR) - Investments address the European privacy law's requirements. Go to the Trust Center to learn more and find resources to help you comply.
- Accessibility enhancements - Go to the Trust Center to learn about our industry-leading accessibility standards.

Field Service app

- Built on the Unified Interface framework.
- Common Controls Framework (CCF).
- Associate 3D content with customer asset records.

Universal Resource Scheduling (URS) solution

- Schedule board list view.

Resource Scheduling Optimization (RSO) solution

- Extensible scope.
- Run as a simulation.
- Enforce skill level.

Connected Field Service (IoT) solution

- Built on the Unified Interface framework.
- Synchronization of device conditions and properties with device twins.
- Synchronization of device tags with device twins.
- Configuration of device properties and commands through device categories.

Field Service app enhancements

The Field Service app works in tandem with the customer service application to help organizations manage field-based service teams. The Field Service app includes these capabilities:

- Work order management.
- Scheduling, dispatch, and routing of field technicians to customer sites.
- Repairs and returns management.
- Inventory management.
- Mobile app for field technicians.

Built on the Unified Interface framework

With the Spring '18 release, the field service app is built on the Unified Interface framework for improved user experience. The app delivers a consistent, uniform user interface, and follows responsive design principles for optimal viewing on any screen size or device.

Work order form on the Unified Interface framework

Common Controls Framework (CCF)

User interface controls use a Common Controls Framework (CCF) for consistency with other Dynamics 365 business applications. Controls follow consistent, familiar patterns on every surface in the application, making it easier for field service users to onboard and be productive.

Associate 3D content with customer asset records

Arm your technicians with 3D content to help them complete repairs. 3D models or sequences can be uploaded (directly to Dynamics 365 or hosted externally), and then associated with customer asset records for use by technicians within the mobile app. Supported 3D file formats are glTF, GLB, and OBJ.

3D model image used with permission from NASA

Universal Resource Scheduling (URS) enhancements

Universal Resource Scheduling (URS) provides scheduling capabilities for the Customer Service, Field Service, and Project Service apps. Additionally, the solution can be configured to schedule any entity in the system.

The capabilities included here were introduced in Universal Resource Scheduling solution (version 2.4.1.x), Field Service application (version 7.4.1.x), and Project Service Automation application (version 2.4.1.x), and they run on platform version 9.0.x. For more details about the capabilities, see this blog post from April 2018.

Note: If your organization has previously updated to the latest version of the URS solution, it already has these features.

Schedule board list view

Interact with the schedule board using a list view to see data in a more meaningful way. For example, use the list view to work with bookable resources on the schedule board, or search for resource availability in hourly, daily, weekly, or monthly schedule board views.

Book by estimated arrival time instead of start of travel

When resource managers search for availability, especially when the customer is on the phone at the same time, it's important that they be able to communicate the available appointment times efficiently. Previously, when resource managers searched for availability for an onsite requirement, the gray recommended slot that was drawn on the schedule board represented the available appointment time, inclusive of travel. However, in many cases, especially when talking to a customer, the resource manager cares most about when the resource will arrive.

To address this need, the solution lets you book by estimated arrival. When you book based on estimated arrival on the schedule board, the recommended slot that is shown is based on when the resource will arrive onsite instead of when the resource will begin travel.

Resource managers who are more focused on arranging bookings without interacting with customers can continue to use the current option to book by the start of travel.

Display more on the schedule board by adjusting the scale

Users can adjust the scale of the schedule board to decrease the width of the columns. In this way, they can view a wider date range. Whether you're viewing the hourly, daily, weekly, or monthly board, you'll see a scale control at the bottom of the screen.

Location of scale control

Display up to 14 days on the hourly schedule board

To allow resource managers to see more data without changing schedule board dates, the number of days that can be viewed on the hourly schedule board has increased from 7 to 14. To increase the number of days, navigate to the settings, and adjust the slider for Number of days per page.

Display more resources on the schedule board

Users can narrow the height of the resource rows to see more resources at the same time.

Change booking statuses from the daily, weekly, and monthly schedule boards

Users can right-click a booking on the hourly schedule board and change the status of a booking. However, on the multiday schedule boards, bookings are aggregated from the same requirement and the same status into one block, for legibility. Users can now change the statuses for multiple bookings at once from the multiday boards.

Pass in the date and time for search parameters by using the URL

Previously, when creating dynamic searches by using URLs, you could pass in the search date range but not the specific time of the search on each day. For example, you could indicate that you need a resource between April 1 and April 3, but you couldn’t indicate that a resource was needed between April 1 at 8 AM and April 3 at 5 PM. Now, you can specify a date and a time for the search beginning and end. [See this blog for related details about building searches dynamically with URLs](#).

Leverage the booking panel for multiday drag-and-drop scheduling

Our latest investment is moving interactions to the booking panel and shifting away from pop-ups for creating bookings. Now, when you drag a booking from the bottom booking requirements panel to the multiday schedule boards, instead of a pop-up, the booking panel slides out.

By using the panel instead of a pop-up, you can interact with the schedule board by changing dates and resources, and the booking panel is updated with your values. When you make your selections and are ready to book, just click the Book button on the panel.

Select a resource and correctly load it into the driving directions window

When you select a resource cell on the schedule board and click Actions > Get driving directions, the selected resource and address are now correctly loaded into the driving directions window.

Show a resource card by right-clicking instead of hovering

To reduce pop-ups, users can view the resource card on the schedule board by right-clicking the resource and then clicking View resource card, instead of by hovering with a mouse.

Display the day of the week on the hourly vertical schedule board

The vertical schedule board now displays the date along with the day of the week.

Keep the context when searching for availability and substituting a resource

The solution supports keeping the context when a user moves an existing booking to a different resource to make room for a new scheduling requirement. For example, when a user searches for availability for a requirement, and the resource for the requirement doesn't have the hours available, the user might want to move an existing booking to another resource to make room for this requirement. Plus, the user wants to be sure to move the existing booking to a qualified resource that has availability, without changing the booking time. Then, when the user has finished moving the existing booking, he or she lands back in the original Schedule Assistant context and can continue working.

Schedule board extensibility enhancements

Multi-select option set fields can be queried and displayed

When modifying a UFX query for an extensible scheduling scenario, you can now query multi-select option set fields. Additionally, you can display selected values in a multi-select option set on the resource cell template.

For more information about extensibility, check out this blog post. For more information about business scenarios that leverage extensibility capabilities, see also Schedule board date ranges and Sort available resources by total available time.

Ignore or consider proposed bookings when searching for availability (change default)

The February 2018 update introduced the ability to ignore or consider proposed bookings when searching for resource availability. In the April update, you can now change the default value from always defaulting to

ignore proposed bookings. [For more information, see the "Ignore or consider proposed bookings" section in this blog post from February 2018](#).

Resource Scheduling Optimization (RSO) enhancements

Resource Scheduling Optimization (RSO) is an add-on capability for the Dynamics 365 for Field Service application that enables you to automatically schedule work orders for the most appropriate resources, while simultaneously optimizing appointment setting for travel time, work hours, and many other constraints.

Extensible scope

The Resource Scheduling Optimization solution uses scope to define the input for resources, resource requirements, and resource bookings, as well as the timeframes used for optimization. With extensible scope, the solution leverages entity views in Dynamics 365 to provide an easy and flexible way to define what gets optimized.

Scheduling optimization scope

Run as a simulation

The admin can run a schedule on demand as a simulation, which results in resource bookings that are simulations without affecting actual bookings. This capability helps an administrator better understand the

effects of adjusting optimization scope, constraints, objectives, and other parameters, to determine what optimization configuration best matches business goals and objectives.

Enforce skill level

Resource requirements can include not only a skill, but also the level (or rating) of the skill required to do the work. By considering the skill (or resource characteristic) rating level required, the solution is able to find resources that better match required skills and proficiency.

Connected Field Service (IoT) enhancements

Connected Field Service helps service organizations proactively detect, troubleshoot, and resolve service issues so a technician is dispatched only when necessary. Organizations can enable IoT alerts, device fault states, and preventive maintenance notifications to let field service managers or technicians know when to create a new case, create a work order, send commands to control customer assets remotely, prepare parts needed for a repair, or take other actions.

Built on the Unified Interface framework

With the Spring '18 release, the Connected Field Service solution is built on the Unified Interface framework for improved user experience. The app delivers a consistent, uniform user interface, and follows responsive design principles for optimal viewing on any screen size or device.

Synchronization of device conditions and properties with device twins

Connected Field Service includes a representation of customer assets and devices that can be registered within Azure IoT Hub to enable messages to flow through Azure IoT Hub to create alerts.

In the Spring '18 release, in addition to receiving messages that require action, Connected Field Service uses the Azure IoT device twin capability. The device twin, which is kept in sync with physical devices, is a JSON document that holds metadata and configuration data, as well as a virtual cloud representation of physical devices.

Connected Field Service communicates with device twins to allow devices to report operating conditions such as device state, heartbeat for connectivity speed, and machine vibration. Field service operations managers gain visibility into device conditions and properties on a graphical dashboard. For example, the capacity of a tank can be monitored through IoT Hub and represented on the dashboard. When capacity reaches a threshold, an alert is sent to designated users for follow-up action.

Synchronization of device tags with device twins

Device twin tags allow grouping of devices to make them easier to search and find. Tags for device twins are created in Connected Field Service, and then converted into JSON that is understood by a device.

Tags make it easy to group by device usage, identification, or other properties. For example, customer assets needing a similar repair can be grouped using a tag.

Configuration of device properties and commands through device categories

When IoT devices are registered, connected, and configured in Azure IoT hub, Connected Field Service is able to retrieve properties and configurations from device twins.

With the Spring '18 release, field service managers and technicians can define device properties individually or in bulk. For example, field service managers can add measurements, such as temperature or vibration, which are common to devices in a category, and then update properties, configure thresholds, or send commands.

Field service managers or technicians can also use pre-defined commands to control a piece of equipment, such as when to restart or shut down.

Dynamics 365 for Project Service Automation

The Spring '18 release of Project Service includes multidimensional pricing capabilities, GDPR and accessibility enhancements, and new user experience with the app built on the Unified Interface framework.

Project Service is available for Private Preview to select members of the Dynamics 365 for Project Service Insiders program starting in April '18. For consideration or to register, go to the Dynamics 365 Insider page.

Spring '18 summary of what's new in Project Service

April '18 – Private Preview

Compliance

- General Data Protection Regulation (GDPR) - Investments address the European privacy law's requirements. Go to the Trust Center to learn more and find resources to help you comply.
- General Data Protection Regulation (GDPR) - Investments address the European privacy law's requirements. Go to the Trust Center to learn more and find resources to help you comply.
- Accessibility enhancements- Go to the Trust Center to learn about our industry-leading accessibility standards.

Project Service Automation app

- Built on the Unified Interface framework.
- Common Control Framework (CCF).
- Custom pricing dimensions for resource pricing.
- Dimension priority and dimension context for resolution.
- Price mark-ups and mark-downs.
- Work breakdown structure (WBS) editable grid with Gantt visualization.
- Extensible time and expense entry.

Universal Resource Scheduling for Project Service

- Schedule board list view.

Project Service app enhancements

The Project Service app helps sales and delivery teams engage customers and deliver billable projects on time and within budget. Project Service helps organizations:

- Estimate, quote, and contract work.
- Plan and schedule tasks.
- Assign resources and balance utilization.
- Improve team coordination and collaboration.
- Capture and approve time, expenses, and progress.
- Invoice in line with contractual expectations.
- Track financials and monitor overall performance.

Built on the Unified Interface framework

With the Spring ’18 release, the Project Service app is built on the Unified Interface framework for improved user experience. The redesigned app delivers a consistent, uniform user interface, and follows responsive design principles for optimal viewing on any screen size or device.

Work breakdown structure on the Unified Interface framework

Common Control Framework (CCF)

User interface controls use a Common Controls Framework (CCF) for consistency with other Dynamics 365 business applications. Controls follow consistent, familiar patterns on every surface in the application, making it easier for Project Service users to onboard and be productive.

Custom pricing dimensions for resource pricing

To maximize flexibility to meet different business requirements, the updated Project Service solution supports discrete application of pricing dimension sets to cost and bill rates. Dimension values can be set as the default and propagated across the costing and pricing process from resource profiling to time entry to project actuals. Customer-specific configuration and modification or extension leverages standard Dynamics 365 customizability infrastructure.

Selection and prioritization of dimensions that drive cost and sales prices

Sample price list with custom fields for standard title and work location used as pricing dimensions

Sample price list with role, resource unit, and work location as pricing dimensions

Dimension priority and dimension context for resolution

For each pricing dimension, it is now possible to assign a priority by cost, purchase, sales, or other context defined by the system administrator. The pricing API runs recursively to match input dimensions to price setup in order of dimension priority, defaulting to zero only in a no-match scenario.

Price mark-ups and mark-downs

Prices can be set up as a percent-based markup on a base price, for example, to reflect overtime hours or hazardous work conditions. This mark-up or mark-down ties to configured pricing dimensions, such as role or resourcing unit, as defined by the administrator. Priority-based mark-up or mark-down resolution is also supported.

Application of markup settings to a pricing dimension

Configuration of cost price markups

Configuration of sales price markups

Work breakdown structure (WBS) editable grid with Gantt visualization

The Spring '18 release introduces an editable grid with a Gantt visualization experience for the work breakdown structure (WBS), and removes the restriction that requires upfront booking of named resources to the project team before assigning them to tasks.

Project managers can assign named or generic resources to project tasks without a prior booking. Additionally, named resources can be created and assigned for any user of installed sales, service, field service, or project service apps. Formal booking or booking requests can then be executed after the project plan has been detailed.

This simplifies the project manager experience, and improves the range of scenarios where Project Service can be used to schedule work.

Assigning named or generic resources to project tasks

Extensible time and expense entry

With the Unified Interface framework, user interface controls for time and expense entry can be customized to align with an organization's unique business policies and workflows. New fields can be added to time and expense entry forms, and existing fields can be extended to support custom scenarios.

Universal Resource Scheduling for Project Service

The Project Service app builds on the Universal Resource Scheduling solution to help project managers and resource managers find and book resources for open project team member positions.

Schedule board list view

With the Spring ’18 release, the schedule board list view helps users interact with the schedule board using a list view to see data in a more meaningful way. For example, use the list view to work with bookable resources on the schedule board, or when searching for resource availability in hourly, daily, weekly, or monthly schedule board views.

Operations, Finance

Dynamics 365 for Finance and Operations

The Spring '18 release of Dynamics 365 for Finance and Operations delivers enhancements in system performance, servicing, reliability, and extensibility. It also offers new ways of integrating with other Dynamics 365 products and adds to our suite of business productivity tools. Highlights from this release include:

- A shift to Microsoft-managed platform and financial reporting updates, to improve service reliability and availability, and also to ensure that customers have the latest improvements and can take advantage of cloud scaling capabilities.
- Changing our approach to customization by moving from over-layering to enabling no-code extensibility. Extensions let Microsoft service Finance and Operations without disrupting customers, minimizing the impact and costs of subsequent releases. We've also added the ability to embed PowerApps in Finance and Operations forms pages and the ability to add custom fields without writing code.
- Data integration capability that synchronizes data using customizable projects. Standard templates can be used to create custom integration projects, where additional standard and custom fields and entities can be mapped to adjust the integration and meet specific business needs. New data integration functionality is provided between features in Finance and Operations and features in Dynamics 365 for Field Service, Dynamics 365 for Talent, and Dynamics 365 for Project Service Automation.
- Lifecycle Services (LCS) tools that make it easier for customers to get support when they need it, including:
    - Telemetry-driven knowledge-base (KB) recommendations that help us understand how well hotfixes have solved an issue and proactively push out hotfixes to customers. This will allow customers to spend less time looking for solutions to issues that a hotfix already exists for.
    - Returning a list of KB recommendations when customers enter a support case and continuously refining search results based on the user's input. This feature provides more relevant search results and reduces the need for customers to submit support cases by helping them find the solution before submitting a case.
    - Ability to report a production outage, providing a quick and effective channel to escalate issues to Microsoft Support if the services in a production environment are degraded or become unavailable.
- Intelligence applications that analyze customers' business processes and data, and proactively provide insights and recommendations. These include Optimization advisor and Credit and collections.
- Enhancements to vendor collaboration and warehouse management tools, allowing customers to streamline and expedite business operations.

- Investments in globalization features, including support for the India Goods and Services Tax (GST) in the Project management and accounting modules, enhanced code-free configuration, and the ability to translate documentation (.docx and .html formats) by using Dynamics Translation Service (DTS).

Spring '18 summary of what's new in Finance and Operations

April '18 – General Availability

Business productivity

- Alerts - Client-based alert functionality enables a user to define alert rules based on business events, such as when an invoice is paid or a customer changes an address.
- Optimization advisor - Uses telemetry to analyze customers' business processes, finds optimization opportunities, uses application data to quantify the opportunities, and then recommends solutions.
- Project timesheet mobile - Employees can create and submit project timesheets. The use of saved favorites and the ability to copy from a previous timesheet facilitates rapid, accurate time entry.
- Edit default project fulfillment hours - Project resource managers can edit the default hours as part of the project booking fulfillment process.
- Reserve project resources past the task end date - Project resource managers can fulfill resources on tasks past the current planned end date for the task.
- Person search report - You can find a person and their personal data in Finance and Operations.
- Data sharing for customer and vendor tables - Data can be shared across customer and vendor tables and many related tables across multiple legal entities.
- One voucher deprecation – One voucher is turned off by default, through a General ledger parameter.

Extensibility and customization

- Customizations through extensions only - Migrating customizations from one release to the next has been simplified by moving away from over-layering to the use of extensions.
- Extensibility requests - Customers can submit a request to Microsoft for extension support to be added to the product for a needed scenario. The Spring '18 release enhances this feature by moving it to Lifecycle Services.
- Embedding PowerApps in workspaces and forms - Use PowerApps to embed data from external sources into Finance and Operations data.
- Custom fields - Organizations can add custom fields to tailor their application to their business requirements, using a no-code extensibility experience.

Integration

- Integration with Common Data Service (CDS)
- Integration with Dynamics 365 for Field Service - Provides data integration to support scenarios where Field Service activities are done outside Finance and Operations, leveraging the data integrator.

Improved support experiences

- Telemetry-based KB recommendation - Telemetry from a production environment can be used to identify the application hotfixes that apply to a tenant.

- KB recommendations when entering a support case - LCS provides telemetry-driven KB recommendations.
- Report production outage - Provides a quick and effective channel to escalate issues to Microsoft Support if the services in a production environment are degraded or become unavailable.

Supply chain management

- Vendor collaboration – RFQ process - Enhancements make it easy to tell who entered a bid (a vendor or a procurement department).
- Partial shipment of a load (split load) - Allows single loads or multiple loads to be fully or partially loaded.
- Immediate replenishment of locations - Used during wave execution if allocation fails for a location directive line that has a replenishment template.
- Reason codes added to warehouse counting and adjustment - Users can add a reason code when performing counts and when making an adjustment.
- Batch balancing enabled for advanced warehousing processes.
- Analytical workspaces with embedded Power BI for Cost management – new Cost administration and Cost analysis workspaces

Globalization

- India localization – project and upgrade - Users can manage India Goods and Services Tax (GST) for the Project management and accounting module, and AX 2012 customers can upgrade to Dynamics 365 for Finance and Operations.
- Translation Service enhancements - In addition to supporting user interface translation, Dynamics Translation Service (DTS) now supports documentation translation in Microsoft Word and HTML formats (.docx, .html) (Public Preview).
- Enhanced configurability - New features include import and testing scenarios, and also broader support for configurability without coding.

Servicing, performance, and deployment

- Improved delivery of platform and financial reporting updates - Enhancements to how software updates are provided, to improve deployment time and the reliability of servicing.
- Upgrade automation - Upgrade automation makes major version upgrades a self-service operation for the customer, using LCS for non-production environments.
- Service hardening - Added service monitoring and alerting for core business processes, and improved form load performance of the most commonly used forms.
- Lifecycle Services sandbox self-service automation and RDP lockdown.
- On-premises deployment updates.

Compliance

- General Data Protection Regulation (GDPR) - Investments address the European privacy law's requirements. Go to the Trust Center to learn more and find resources to help you comply.
- Accessibility enhancements - Go to the Trust Center to learn about our industry-leading accessibility standards.

April 2018 - Preview

- Regulatory service – configuration (available at the end of April) - Regulatory service targets a no-code programming approach, allowing users to configure electronic reporting formats or tax rules rather than write code for them in the underlying application.
- Customer payment insights (Preview) - Customer payment insights (preview) uses machine learning to predict when an invoice will be paid and provides optimization strategies that can be tailored to maximize the probability of customers paying on time.

Integration

- Integration with Dynamics 365 for Talent (Public Preview) - Provides data integration of the appropriate HR information into Finance and Operations.
- Integration with Dynamics 365 for Project Service Automation (Private Preview)- Supports scenarios where project and resource management activities are done outside Finance and Operations, and the project accounting activities are done in Finance and Operations, leveraging the data integrator.

May '18 – General Availability

Globalization

- United Arab Emirates (UAE) localization – The Dynamics 365 for Finance and Operations Fall 2017 release (version 7.3) has been updated with support for mandatory regulatory requirements in United Arab Emirates (UAE).

Extensibility and customization

- Extensible project work breakdown structure – Enables customization of the project work breakdown structure through extensions. This replaces the hierarchical grid control that was previously used for the project work breakdown structure with a standard grid that supports hierarchical data. This feature is available in the May 2018 application update.

Alerts

Alerts form a notification system for critical events in Finance and Operations. You can use alerts to stay informed about events that you want to track during the workday. You can easily create your own set of alert rules so that you're alerted about deliveries that are overdue, orders that are deleted, prices that change, or other events you must respond to.

Create alert rule

When you create an alert rule, you can specify that you want to be alerted when a specific field changes. For example, suppose that you work in the Sales department of a company where the number of customer returns has become a major issue. You want to be alerted about any returned goods, so that you can immediately start to investigate why the goods are returned. Therefore, you create a rule that triggers an alert if the Status field of any sales order is changed to Canceled.

Alternatively, you can specify that you want to be alerted when a record on a page is created or deleted. For example, you want to make sure that no customers are deleted on the All customers page without your knowledge. Therefore, you create a rule that triggers an alert when a record is deleted on that page.

When the selected event occurs for the field or record on the page, an alert is sent to you. These alerts can help you monitor your business more effectively and enable you to take corrective action when necessary.

Alerts are processed by the batch processing functionality in Finance and Operations. You must set up batch processing before alerts can be delivered.

Optimization advisor

Optimization advisor provides added visibility and intelligence in your business operations to improve efficiency. This system, which is available to business users, uses telemetry to analyze your business processes, find optimization opportunities, use application data to quantify the opportunities, and then recommend solutions.

In this release, Optimization advisor rules analyze the:

- Performance of inventory closing.
- Performance of wave processing and work creation within warehouse management.
- Overall performance of the application. Optimization advisor then recommends changes to system configuration settings to improve the performance of the business processes in use.
- Master data quality across bills of materials, routes, and inventory management.

- Ability to unlock a financial journal that is locked by the system.

Optimization opportunities

After running a business process, a notification appears in the Action center. A user opens the notification and is directed to opportunities in the Optimization advisor workspace. The user reviews the list of opportunities and then decides whether to take the recommended action. The system automates the action to be taken, if possible, or takes the user to the appropriate location, if manual steps are needed. If the action isn't appropriate for the business, the user can either hide the opportunity or deactivate the analysis. Organizations can also create new Optimization advisor rules for their businesses.

In the following example, an inefficient route runtime was detected in a warehouse because the route runtime varied from the system's average runtime.

Optimization advisor recommendation

To learn more about Optimization advisor, watch this video or go to the Optimization advisor documentation.

Project timesheet mobile

Project timesheet is a mobile app that lets employees create and submit project timesheets to record their hours for a specific project. Employees can create a new timesheet from scratch or copy data from an existing timesheet to ensure rapid, accurate time entry. If an employee is designated as a delegate, he or she can also enter a timesheet for another worker. The app lets employees filter by project, resource, or approval status to quickly locate and select a timesheet. Employees can also save favorites, which saves the project and activity information on the timesheet. The saved favorites can be used to create future timesheets, speeding the time entry process. Project timesheet can be accessed via the web browser on a mobile device.

Project timesheet mobile

Edit default project fulfillment hours

The project resource manager can view and edit the default hours as part of the project booking fulfillment process. By default, the system fulfills a resource from the start of the project over the scheduled task period. This might not align with the true availability of the resource, and the resource manager must be able to adjust the default fulfillment hours.

For example, if a specific task is selected to start on February 26 and is projected to take 20 hours, the system assigns default hours for the selected resource beginning on February 26. Typically, the hours assigned would be 8 hours on day 1, 8 hours on day 2, and 4 hours on day 3. Assume that the selected resource was finishing another project and was allocated on that project for 4 hours on February 26. Based on the default hours assigned to the resource, the resource would be overbooked on day 1 (12 hours). The resource manager can edit the assigned hours and change them to 4 hours (total of 8 hours across both projects) on the first day and 8 hours on the third day. The resource manager can also potentially choose to schedule days 2 and 3 at 10 hours each, and day 1 at 0 hours for the project task (all within the task schedule period).

Specify Allison Brown hours per day for 00000129 : District Mall BI Project

Proposed fulfillment start date: 2/26/2018

Proposed fulfillment end date: 3/9/2018

Fulfill all by request Cancel all fulfillment

✓	Date	Capacity	Requested hours	Remaining capa...	Hours to fulfill
	Monday, 2/26/2018	8.00	8.00	4.00	4.00
	Tuesday, 2/27/2018	8.00	8.00	0.00	8.00
	Wednesday, 2/28/2018	8.00	8.00	4.00	4.00
	Thursday, 3/1/2018	8.00	8.00	0.00	8.00
	Friday, 3/2/2018	8.00	8.00	0.00	8.00
	Saturday, 3/3/2018	0.00	0.00	0.00	0.00
	Sunday, 3/4/2018	0.00	0.00	0.00	0.00

Total fulfilled hours for this activity

72.00

Edit default project fulfillment hours

Reserve project resources past the task end date

At times, the project resource manager might not have resources available to start on a project task's start date, or the requested resource might be unavailable for a portion of the task duration. The resource manager must be able to fulfill resources for tasks that might extend past the planned task end date.

This feature lets the project resource manager extend the resource reservation past the planned task end date. The project manager is notified of the change so that they can review the task assignments and determine the impact on the project overall. The project manager can then either make the changes to the project tasks or request a new resource reservation.

Reserving a resource past the planned task end date

Person search report

The Person search report lets you find a person and their personal data in Finance and Operations. (The report is also available for Dynamics 365 for Talent and Dynamics 365 for Retail.) By using the Finance and Operations data management framework and a pre-packaged set of entities, you can generate a report and export personal data for a specified person. The data can be exported in a choice of formats, including Excel worksheets.

A person might be a customer, a vendor, an applicant, a truck driver, or an employee. When using the Person search report, you can specify data that lets you easily identify those roles and extract the data in a single report.

The report can provide value in a number of situations. It's possible for a single person to be entered in Finance and Operations more than once. For example, someone named Jodi Christiansen might be listed in the address book by the name "Jodi Christiansen" and by using initials, such as "J. R. Christiansen." The Person search report lets you specify each instance of a person and include them on a single report. The report can also be used in response to a request for personal data under the General Data Protection Regulation (GDPR).

To use the Person search report:

1. From the System administration menu, open the Person search list page, and create a new search.
2. Name the project "Jodi Christiansen."

Person search report

3. The search gives you three options: you can search by ID, by name, or by address. In this example, you would search by ID, so that the report will return instances of each name that is associated with the ID you entered.
4. Run the search to show the results.
5. Verify that the results are valid. Clear any selections that return information you don't want to include on the report.
6. Select Process report, and then select the Person search template.
7. Select OK. A data package is generated.
8. When the package has been generated, export it to your selected data format.

Data sharing for customer and vendor tables

You can share the customer and vendor tables and many related tables across multiple legal entities. Although data sharing was already available under System Administration > Setup > Configure cross-company data sharing, tables with the “Main” table group were not supported for cross-company data sharing. The Spring '18 release enables data sharing for customers and vendors and for related tables across a small number of legal entities. To enable this functionality, contact your Solution Architect, who will verify that your business requirements and data volumes will be acceptable for data sharing, and then enable the sharing policies in your environment.

One voucher deprecation

The existing functionality for financial journals (general journal, fixed asset journal, vendor payment journal, and so on) lets you enter multiple subledger transactions in the context of a single voucher. This functionality is referred to as “One voucher.” The One voucher functionality causes issues during settlement, tax calculation, reconciliation of a subledger to the general ledger, financial reporting, and more. Because of these issues, the One voucher functionality will be made obsolete. However, because there are functional gaps that depend on this functionality, the functionality won't become obsolete all at once. Instead, we will use the following schedule:

- **Spring '18 release** – The functionality will be turned off by default, through a General ledger parameter. However, you can turn the functionality on if your organization has a scenario that falls in the business scenario gaps that are listed in the One voucher documentation.
    - If a customer has a business scenario that doesn't require One voucher, don't turn the functionality on. We won't fix “bugs” in the areas that are identified in the One voucher documentation if this functionality is used.
    - Stop using One voucher for integrations into Microsoft Dynamics 365 Finance and Operations, unless the functionality is required for one of the functional gaps.
- **Fall '18 and later releases** – The functional gaps will be filled. After the functional gaps are filled, the One voucher functionality will be permanently turned off.

See the One voucher documentation for detailed information about the use and deprecation of this functionality.

Customizations through extensions only

In the Spring '18 release, we’ve continued our work to allow our application code base be customized only through extensions. We are removing the ability to over-layer customizations. The primary benefits of this change include:

- Removing the ability to create intrusive customizations, to make customized environments more robust.
- Simplified application lifecycle management for customizations: Customers will no longer have to merge code, or compile and deploy Microsoft code. This will lead to shorter build times and a shorter development lifecycle.

- Making it possible for customers to be on the latest release of Finance and Operations. This is just one of the key steps in this process.

To take advantage of the new extensibility features, partners and customers need to convert their existing overlayered customizations to extensions. To support this move, we have updated our extensibility documentation, which has details about the process of migrating existing code to extensions, and also specific articles about platform capabilities and application frameworks and how to extend them: Extensibility documentation. We have future work planned to improve the Code upgrade service and development tools to facilitate this migration.

Extensibility requests

If you discover a customization that you can't implement as an extension, you can log a request to Microsoft to add appropriate extension support to the product for your scenario. Currently, you can use the process described in the Extensibility requests documentation. Also, in the Spring '18 timeframe, we are adding the Extensibility requests feature to Lifecycle Services, and currently have it available for private preview. This change lets you manage the work items that you've filed with Microsoft in a single location.

To create an extensibility request, sign in to LCS, in the project for which you need the additional extension support, and then from the Support Work items workspace, create the request.

Extensibility request

Extensible project work breakdown structure

The current hierarchal grid control used for the project work breakdown structure is being deprecated and replaced with a standard grid that is enhanced to support hierarchical data. This change will let you use extensions to customize the project work breakdown structure. This feature is available in the May 2018 application update.

Path ID	S...	N...	Task name	Predecessors	Category	Effort in hours	Start date	End date	Duration	Number of reso...	Role ID	Resources	Staffing s
						5,288.00	9/30/2016	12/26/2016	**62.00**				Not sta
1			**Project Management**			**480.00**	**10/2/2016**	**12/29/2016**	**64.00**				**Not sta**
1.1			Project Management		PM	480.00	9/30/2016	12/22/2016	60.00	1.00			Not sta
2			**Development**			**480.00**	**10/2/2016**	**10/2/2016**					**Not sta**
2.1			Dynamics AX customizations		AppDev	480.00	10/2/2016	12/24/2016	60.00	1.00			Not sta
2.2			SSRS reports		AppDev	480.00	10/2/2016	12/24/2016	60.00	1.00			Not sta
2.3			SSAS development		AppDev	480.00	10/2/2016	12/24/2016	60.00	1.00			Not sta
2.4			Dynamics AX integration		AppDev	480.00	10/2/2016	12/24/2016	60.00	1.00			Not sta
2.5			BizTalk integration		AppDev	480.00	10/2/2016	12/24/2016	60.00	1.00			Not sta
3			**Quality Assurance**			**480.00**	**10/2/2016**	**10/2/2016**	**1.00**				**Not sta**
3.1			DAX customization QA		QA	480.00	10/2/2016	12/24/2016	60.00	1.00			Not sta
3.2			SSRS QA		QA	480.00	10/2/2016	12/24/2016	60.00	1.00			Not sta
3.3			SSAS QA		QA	480.00	10/2/2016	12/24/2016	60.00	1.00			Not sta
3.4			Integration QA		QA	480.00	10/2/2016	12/24/2016	60.00	1.00			Not sta
3.5			BizTalk QA		QA	488.00	10/2/2016	12/26/2016	61.00	1.00			Not sta

Work breakdown structure – Scheduling view

Path ID	Task name	Transaction type	Description	Project category	Role ID	Quantity	Unit cost price	Unit sales price	Total cost price	Total sales price	Item number
1	**Project Management**										
1.1	**Project Management**										
		Expense		Flight		132.00	450.00	750.00	59,400.00	99,000.00	
		Expense		Meal		1,980.00	85.00	125.00	168,300.00	247,500.00	
		Expense		Hotel		660.00	250.00	350.00	165,000.00	231,000.00	
		Expense		Travel		3.00	10,000.00	27,000.00	30,000.00	81,000.00	
		Item		ProjItem		3.00	5,269.00	6,199.00	15,807.00	18,597.00	S0014
		Item		ProjItem		3.00	6,969.00	8,199.00	20,907.00	24,597.00	S0013
		Item		ProjItem		6.00	3,314.00	3,899.00	19,884.00	23,394.00	S0011
		Item		ProjItem		3.00	6,459.00	7,599.00	19,377.00	22,797.00	S0017
		Hour	Project Management	PM		480.00	200.00	350.00	96,000.00	168,000.00	
2	**Development**										
2.1	**Dynamics AX customizations**										
		Hour	Application Development	AppDev		480.00	190.00	325.00	91,200.00	156,000.00	
2.2	**SSRS reports**										
		Hour	Application Development	AppDev		480.00	190.00	325.00	91,200.00	156,000.00	
2.3	**SSAS development**										
		Hour	Application Development	AppDev		480.00	190.00	325.00	91,200.00	156,000.00	
2.4	**Dynamics AX integration**										
		Hour	Application Development	AppDev		480.00	190.00	325.00	91,200.00	156,000.00	

Work breakdown structure – Cost estimates view

Embedding PowerApps in workspaces and forms

We have added support for embedding PowerApps in Finance and Operations workspaces and forms. Users can pin Microsoft PowerApps to forms and share them with peers to augment system functionality. Finance and Operations now extends this capability, allowing customers to use PowerApps to embed data from external sources into Finance and Operations.

The following images show how easy it is to embed a PowerApp into a Finance and Operations form. In this example, a sample PowerApp application called Package Tracker, built on data outside Finance and Operations, is added as an embedded experience.

1. Open a form and, under the PowerApps button on the menu bar, select Insert a PowerApp.
2. Configure the PowerApp you want to embed.
3. Select Insert, and the selected PowerApp is available on the form.

Select a PowerApp to embed

After users select Insert, their PowerApp is available on the form. In this example, a sample PowerApp application called Package Tracker, built on data outside Finance and Operations, is now enabled as an embedded experience. For more information, see [PowerApps host control](#).

Embedded PowerApp

Custom fields

Although Finance and Operations provides an extensive set of fields out of the box for managing a broad range of business processes, customers sometimes need to track additional information in their system. To accommodate this, Finance and Operations lets you create custom fields to tailor the application to fit your business, without coding.

Creating a custom field

After you've created a custom field and exposed it on a form, a system administrator can push a personalization to all users or a subset of users. You can also export your personalizations, send them to one or more users, and have each of those users import your changes. Use the Manage option on the personalization toolbar to export and import personalizations.

Exporting a custom field

You can manage custom fields using the Custom fields page in the System administration module. This is used to:

- View a list of all custom fields in the system.
- Limit editing of existing custom fields.
- Delete custom fields.
- Expose custom fields on data entities.
- Provide translations of custom field labels and Help text.

Managing custom fields

To learn more about creating a custom field, watch this video or go to the Custom fields documentation.

Integration with Common Data Service (CDS)

Dynamics 365 for Finance and Operations has enabled cross-application business processes between Finance and Operations and Dynamics 365 for Field Service and between Finance and Operations and Dynamics 365 for Project Service Automation. These scenarios are configured using extensible Data integrator templates and CDS to enable the cross application scenarios. To learn more about CDS, see Common Data Service for Apps.

Integration with Dynamics 365 for Field Service

Data integration supports scenarios where Field Service activities are done outside Finance and Operations. Functionality includes:

- Enabling invoicing of Dynamics 365 for Field Service work orders and agreements in Finance and Operations.
- Integration of warehouse information with on-hand inventory, item reservations, usage, adjustments, and transfers.
- Support for purchase order integration with synchronization of vendors, purchase orders, and receipts.

The first phase of feature work focuses on enabling invoicing of Field Service work orders and agreements in Finance and Operations. The supported flow starts in Field Service, where information from work orders is synchronized to Finance and Operations as sales orders. In Finance and Operations, the sales orders are invoiced to generate invoice documents. In addition, the information from Field Service agreement invoices is synchronized to Finance and Operations.

The Dynamics 365 data integrator synchronizes data by using customizable projects. Standard templates can be used to create custom integration projects, where additional standard and custom fields, and also entities, can be mapped to adjust the integration and meet specific needs.

Field Service and Finance and Operations integrations

In the first phase, templates are provided for integration from Field Service to Finance and Operations for the following entities:

- Products, including Field Service Product Type information
- Work orders to sales orders
- Agreements invoices to free text invoices

Work orders to sales orders integration

In addition to the templates listed earlier, the previously released templates and functionality for Prospect to cash integration can be used to synchronize:

- Accounts to Customers.
- Invoices.

Prospect to cash data flow

To learn more about the Prospect to cash integration, watch this video or go to the Prospect to cash documentation.

Integration with Dynamics 365 for Talent (Public Preview)

Finance and Operations customers can use Dynamics 365 for Talent to manage their people. The integration provides the ability to integrate appropriate HR information into Finance and Operations. It takes advantage of the data management tools that are available in both Talent - Core HR and Finance and Operations. It provides the ability to quickly front-load Talent - Core HR with HCM data that currently resides in Finance and Operations. There will then be a recurring integration flow from Talent to Finance and Operations.

Configuring Dynamics 365 for Finance and Operations and Dynamics 365 for Talent integration

Integration with Dynamics 365 for Project Service Automation (Private Preview)

The Project Service Automation to Finance and Operations integration solution uses the data integrator feature to synchronize data across instances of Finance and Operations and Project Service Automation via the Common Data Service (CDS). Integration templates that are available with the data integrator feature enable the flow of projects, project contracts, and project contract lines from Project Service Automation to Finance and Operations.

Note: Before you can integrate Project Service Automation with Finance and Operations, you must configure the Project Service Automation integration parameters.

This integration solution enables direct synchronization in the following scenarios:

- Maintain project contracts in Project Service Automation and synchronize them directly from Project Service Automation to Finance and Operations.
- Create projects in Project Service Automation and synchronize them directly from Project Service Automation to Finance and Operations.
- Maintain project contract lines in Project Service Automation and synchronize them directly from Project Service Automation to Finance and Operations.

- Maintain project contract line milestones in Project Service Automation and synchronize them directly from Project Service Automation to Finance and Operations.
- Maintain project tasks in Project Service Automation and synchronize them directly from Project Service Automaton to Finance and Operations.
- Synchronize project expense categories between Finance and Operations and Project Service Automation.
- Create hour estimates in Project Service Automation and synchronize them directly from Project Service Automation to Finance and Operations project hour forecasts.
- Create expense estimates in Project Service Automation and synchronize them directly from Project Service Automation to Finance and Operations project expense forecasts.
- Create actuals in Project Service Automation and synchronize them directly from Project Service Automation to the Finance and Operations integration journal, where the accounting will be applied and the project transactions are posted. Synchronization of information back to Project Service Automation, such as the voucher number and any sales tax calculated in Finance and Operations, will also be provided as a template.

Not all templates are currently available. Templates will be released as they are completed. Additional phased releases will provide templates for synchronizing:

- Expense reports.
- Work breakdown structure.
- Billing.
- Purchase orders.

The following illustration shows how data is synchronized as part of the integration between Project Service Automation and Finance and Operations.

Dynamics 365 for Project Service Automation and Dynamics 365 for Finance and Operations integration

Dynamics 365 for Project Service Automation and Dynamics 365 for Finance and Operations integration

Lifecycle Services: Telemetry-based KB recommendation

LCS has been extended to include telemetry-driven KB recommendations to customers. The goal of this functionality is to help us understand the extent to which hotfixes have solved an issue and to proactively push out hotfixes to customers. This will allow customers to spend less time looking for solutions to issues that a hotfix already exists for. In addition, it will provide telemetry that gives us better insight into which

fixes have solved specific customer issues. This enhancement also lets us ship additional telemetry to gain additional insight where needed. The first example of telemetry-based KB recommendations is the Critical X++ updates tile.

Critical X++ updates are hotfixes that we recommend based on the telemetry data from your production environment. These updates are specific to your production environment and can be downloaded only from your production environment.

To test and apply critical X++ updates, you should first download the updates from the production environment, and then apply them in a development environment, build a deployable package, and then deploy and test it in your sandbox environment. After it's fully tested, you can then deploy it to your production environment.

LCS telemetry-based KB recommendations

KB recommendations when entering a support case

When a user creates a support case, the LCS support workflow populates possible issue solutions in Issue Search based on the user's selection and input, and dynamically refreshes these results as the user provides more details. This feature uses Azure Search to extract and collect data to use as search criteria, filter relevant KB results to the correct product version and environment, and provide an interactive, continuous, context-based support experience. The result is a smarter Issue Search that continuously refines search results based on the user's input. Therefore, it provides more relevant search results and better solutions, thereby reducing the need for users to submit cases by helping them find existing solutions.

Lifecycle Services > In-Market Test Project (Contoso 2 AX7)

Submit an incident

Topic selection | Incident details | Contact information | Support plan | Completed

DESCRIBE YOUR ISSUE

Did this issue occur in an environment in this project?

Yes

Select environment where incident occurred

App72-Dev

Problem area

Invoice & Journal

Title

PO and invoice transaction totals are different

Tell us more about your problem

Difference was noticed during an Invoice review. The corresponding Purchase Order Totals did not match the related Invoice. During the initial research of the issue found the situation only occurs when a price is changed at the line level in the Purchase Order after the corresponding Invoice was created. This issue can be recreated in a test environment and effect all users' performance changing a price.

Exact error message (if applicable)

The invoice you entered is not available for payment.

Steps to reproduce issue

1. Create a new Purchase Order Transaction (AP > purchase order > all purchase order)
2. Create on new PO line
3. Confirm the PO
4. Receive the PO
5. Select OK in the Posting product receipt form
6. Error message is shown

Does this issue reproduce in multiple environments?

No

ATTACH FILES (LIMIT 5 FILES, 10 MB EACH)

We respect customer confidentiality. Please click the following link to see our privacy guidelines:

Microsoft privacy statement

Attach file from computer

POSSIBLE ISSUE SOLUTIONS

"The invoice you entered" error when trying to create a customer payment for ...
KB 4073155

"Purchase order: XXX – not all product receipt numbers were found, invoice po...
KB 4057628

The vendor invoice with retention does not use fixed dimensions for the retenti...
KB 4049936

Incorrect sales price on project item requirement if you create a Purchase order...
KB 4039822

"Changes to Purchase Order XXX are only allowed in Draft when Change Mana...
KB 4050519

Invoice account on a purchase agreement created from an accepted RFQ does...
KB 4055759

Documents attached to Free text invoice lines aren't accessible after the invoice...
KB 4073148

Invoice proposal is re-enabled for posting after executing the Invoice cancellati...
KB 4039303

Payment History in the vendor invoice search not working properly.
KB 4046800

Invoices imported from Vendor invoice header and Vendor invoice line Data en...
KB 4054311

Back | Next

KB recommendations when entering a support case

Report production outage

This feature is available to customers who have purchased Finance and Operations and who have implementation projects that have a production environment deployed in LCS. It provides a quick and effective channel to escalate issues to Microsoft Support if the services in a production environment are degraded or become unavailable. A production outage can be defined as one or more system-wide issues on a live production environment that affect multiple users and prevent your business from performing daily operations.

The reporting flow is as follows:

1. In a live production environment, a customer experiences an outage or other situation that prevents business from continuing.
2. The customer reports a production outage issue by using the LCS Support portal.
3. The customer selects a production outage issue and provides additional information.
4. A Microsoft support engineer acknowledges the production outage ticket within 30 minutes of submission and begins to immediately collaborate with stakeholders to investigate and resolve the issue.
5. A support engineer contacts the customer to provide a status update.

Report production outage

Confirming a production outage

Vendor collaboration – RFQ process

Organizations issue requests for quotation (RFQ) when they want to receive competitive offers from several vendors for the items or services that they must purchase. The introduction of the vendor's ability to enter a bid for an RFQ resulted in the need for explicitly indicating who entered bid data: the vendor or the procurement department. This requirement is addressed by the introduction of a new reply status. In addition, there is a new form dedicated to entering bids, so that entering the bid and processing the bid are now handled on separate forms.

Vendor bidding

Partial shipment of a load (split load)

This functionality supports scenarios where load planning from a transportation department can’t affect loads that are planned for a single truck or a specific outbound transport capacity. With this functionality, it's no longer necessary to wait for the transport trucks or other capacity to arrive to create the planning load. This feature lets customers designate a single load or multiple loads to be fully or partially loaded. The feature is integrated with appointment scheduling.

Partial shipment of a load

Immediate replenishment of locations

Immediate replenishment is used during wave execution if allocation fails for a location directive line that has a replenishment template. Instead of having to sum demand at the end of an allocation process and do replenishment based on the total quantity, you can apply an immediate replenishment strategy.

When you use this strategy, the inventory can be replenished immediately after a location directive line fails. Therefore, you can set up the replenishment so that it’s restricted by specific units and uses quantities that are set for specific locations.

Immediate replenishment of locations

Reason codes added to warehouse counting and adjustment

It's now possible to add a reason code when performing counts and when making an adjustment. This allows the warehouse manager and the controller to have a better understanding of the distribution of an event and to take appropriate measures. Reason codes are implemented in counting journals for Warehouse and on a mobile device. The following functions will be available:

- Post-counting journals as per standard Finance and Operations functionality
- Cycle count
- Spot count
- Threshold count
- Adjustment in
- Adjustment out

Reason codes for warehouse counting and adjustment

Batch balancing enabled for advanced warehousing processes

Batch balancing is a process where the amount of ingredients to use in a production batch is calculated from the concentration of active ingredients in product batches selected by the user. The batch balancing process is now available for products that are set up for warehouse management processes (in earlier releases, the batch balancing process was enabled only for products that were not set up for warehouse management processes). This enhancement makes it possible for the user to release ingredients to picking after the batch balancing process has been completed.

The batch balancing process is performed from the Batch balancing page. Select Cost management > Batch orders, and then, on the Process tab, select Batch balancing. Batch balancing is available for batch orders that have a status of Started.

In general, the following rule applies: Batch orders are applicable for batch balancing if the formula has at least one formula line where the ingredient type is Active.

The batch balancing process can be divided into two sub-processes:

Balance batch ingredients. In the Balance batch ingredients sub-process, the amount of ingredients to use for the production batch is calculated based on the selected batches that have active ingredients. As a rule, the calculation can be completed only if there is full coverage of all ingredients. You can't balance only part of the batch that the batch order is set up to produce.

Confirm and release the formula. After the ingredient quantities have been calculated, you can confirm and release the formula. The release process differs, depending on whether the products are enabled for the warehouse management processes.

There is one exception to the rule that batch orders are applicable for batch balancing if the formula has at least one formula line where the ingredient type is Active. If a formula contains an active ingredient for a product that is enabled for warehouse management processes, but Batch number is below Location in the reservation hierarchy, the batch order isn't applicable for batch balancing. A batch order that isn't applicable for batch balancing goes through the regular process cycle for batch orders.

Analytical workspaces with embedded Power BI for Cost management

If you are an Operations Manager or a cost accountant who wants to optimize your supply chain performance as well as manage costs, Analytical workspaces in Cost management provide you with the deep insights necessary for your role. You can get a bird’s eye view of your inventory and the associated costs by location or by product category. You can dive deeper into trouble spots and take action without leaving Finance and Operations.

New Analytical workspaces for Cost management are embedded in the Cost administration and Cost Analysis workspaces. The content pack includes measures such as beginning balance, ending balance, net sourcing and net usage. A set of calculated measures, such as inventory turn ratio, days inventory on-hand, and inventory accuracy are also included.

A new category hierarchy role named Cost management has been implemented. The hierarchies assigned to this role are made available for reporting in the Cost management Power BI content. The category hierarchies should be considered as an alternative to Item group.

The Cost administration workspace provides a bird's-eye view of:

- Overview (Application data)
- Inventory accounting status (Embedded Power BI)
- Manufacturing accounting status (Embedded Power BI)

Inventory accounting status

Manufacturing accounting status

The Cost analysis workspace provides a bird's-eye view of

- Overview (Application data)
- Inventory accounting analysis (Embedded Power BI)
- Manufacturing accounting analysis (Embedded Power BI)
- Standard cost variance analysis (Embedded Power BI)

Globalization – India localization: Project and upgrade

Project localization for India lets users manage Indian Goods and Services Tax (GST) for the Project management and accounting module.

- Maintain Indian GST information in project contracts, project categories, and so on.
- Calculate GST by using a configurable Global Tax Engine (GTE) for all tax-relevant project transactions, such as project quotations, expense journals, hour journals, item journals, fee journals, on-account transactions, project invoice proposals, and service management.
- Print a Tax invoice for a project.

Localization upgrade for India lets current Microsoft Dynamics AX 2012 customers upgrade to Microsoft Dynamics 365 for Finance and Operations.

Project management and accounting for India

Globalization – Enhanced configurability

Configurability of globalization features lets partners and customers do customizations without coding. We continue to extend not only the depth of configurability, by adding new features for import and testing scenarios, but also the breadth of configurability, by configuring features that were previously hard-coded, such as the free text invoice layout. Telemetry for all regulatory features lets us track usage of these features and proactively respond to any issues partners and customers have with these features. New capabilities include:

- Support for import formats in batch mode and detailed log of errors during import. This feature lets customers automate end-to-end scenarios that involve both sending an electronic file and processing the response, such as for payments.
- Configuration-specific data for validation. A business user can create test data in Microsoft Excel to fill the Electronic reporting (ER) data model that is defined in business terms, and use this data to validate the correctness of the output format, such as electronic invoices for tax authorities.
- Configurable free text invoice (FTI) layout example. We provide a fully-configurable ER template that partners and customers can use as a basis for their customized invoices.
- We track telemetry for all regulatory features, extending the coverage from configurable-only features.

Customized invoice example

Globalization – United Arab Emirates localization for Fall 2017 release (version 7.3 update)

The Dynamics 365 for Finance and Operations Fall 2017 release (version 7.3) has been updated with support for mandatory regulatory requirements in the tax area for United Arab Emirates (UAE). The UAE localization functionality includes:

- Electronic VAT return declaration.
- Electronic FAF audit file.
- VAT reverse charge functionality.
- Sales invoice printout report localization according to UAE requirements.
- New user interface language: Arabic for UAE.

User interface in Arabic (UAE) language

Translation Service enhancements

Dynamics Translation Service (DTS) allows ISVs and partners to translate Dynamics solutions and products (ERP only) in existing and new languages, taking advantage of their own linguistics assets and Microsoft linguistic assets. In addition to supporting user interface (UI) translation, DTS now supports user assistance (UA) translation in Microsoft Word and HTML formats (.docx, .html) (Public Preview). Recycling capabilities

from the latest Microsoft translations have also been enhanced for UI and documentation translation projects.

Globalization – translation service

Regulatory service – Configuration (Public Preview)

(Available at the end of April) Regulatory service targets a no-code programming approach, allowing users to configure Electronic reporting formats or tax rules rather than write code for them in the underlying application. Partners and customers using multiple versions of Finance and Operations and earlier versions (such as Microsoft Dynamics AX 2012 or Microsoft Dynamics AX 2009, for India only) can work with one configuration service to produce configurations for use across the various versions that they are using. With the Public Preview release, customers and partners can access Regulatory service as an independent service through a browser.

Availability

Public Preview of Regulatory service - Configuration is available in all regions where Dynamics 365 for Finance and Operations is available. However, data is hosted only in a US data center.

For a complete list of regions, see the Dynamics 365 International Availability Guide.

They will have access to:

- Electronic reporting and tax visual designers that let them create configurations for electronic document formats and tax calculation rules in accordance with country/region regulatory requirements.
- Metadata capabilities that provide the ability to import a description of the target application's artifacts, such as data tables, enumeration, and classes. These are used at design time to define data sources of a data model mapping version.

Customer payment insights (Preview)

Organizations often find it challenging to predict when a customer will pay their invoices. This lack of insight can lead to inaccurate cash flow forecasts, inefficient collection processes, and the possibility of orders being released to customers who may pose a credit risk. Customer payment insights (preview) uses machine learning to predict when an invoice will be paid. It also provides optimization strategies that can be tailored to maximize the probability of customers paying on time.

Payment predictions allow organizations to improve their business processes by helping to:

- Easily identify the invoices that are predicted to be paid late.
- Take appropriate measures to improve chances of getting paid on time.

Customer payment insights (preview) uses historical invoice, payment, and customer data to create a machine learning model that is used to predict when an invoice will be paid.

In addition to payment predictions, Customer payment insights (preview) can use optimization strategies to improve the chances of getting paid on time. This lets organizations do "What if" analysis by allowing users to adjust invoice and customer parameters and then compare the corresponding effect on the probability of receiving payment for invoices on time.

Improved delivery of platform and financial reporting updates

Starting April 1, 2018, platform and financial reporting updates will be continual updates managed by Microsoft rather than optional updates. This change is intended to improve service reliability and availability, and also to ensure that customers have the latest improvements and fixes. Platform and financial reporting updates are backward-compatible. Platform updates don't require any change in your customizations.

- If you purchase subscriptions to Finance and Operation after April 1, 2018, you will automatically begin receiving continual updates.
- For platform updates, if you're an existing customer and have Platform update 11 or earlier installed, you will be asked to move to Platform update 12 by April 1, 2018. By July 1, 2018, all customers will receive continual platform updates managed by Microsoft.

Starting with the Spring ’18 release, platform updates for both on-premises and online deployments will be available together.

Continual updates will be applied first to the sandbox environment and then on production.

These enhancements to the way software updates are provided will improve deployment time and the reliability of servicing, and will also lead to significantly reduced downtimes. These changes also provide the ability to elastically scale computing resources without downtime. We believe that these changes will result in gains for customers in the long term, allowing them to take advantage of cloud innovation and capabilities.

Upgrade automation

Upgrade automation makes major version upgrades a self-service operation for customers, using LCS for non-production environments. Upgrade automation includes environment, data, and code upgrades. Customers can also diagnose and fix issues as needed. This improves automation reliability and reduces downtime for servicing.

Service hardening

We have added service monitoring and alerting for core business processes, and improved the form load performance of the most commonly used forms. We have also improved the performance of business processes such as master planning and warehouse wave processing, and added resiliency for account structure activation.

Lifecycle Services sandbox self-service automation and RDP lockdown

Sandbox self-service automation supports data movement, debugging operations, monitoring, and diagnostics without requiring access to the sandbox environments through Remote Desktop. Remote Desktop capabilities for sandbox environments will be deprecated. This means that customers won’t be required to use Remote Desktop to access the VM, which improves reliability and security.

On-premises deployment updates

In the Spring '18 release timeframe, releases (for new deployments) include:

- Dynamics 365 for Finance and Operations, Enterprise edition 7.2 with Platform Update 12 (on-premises).
- Dynamics 365 for Finance and Operations, Enterprise edition 7.3 with Platform Update 15 (on-premises).
- Dynamics 365 for Finance and Operations 8.0 with Platform Update 16 (on-premises).

Additional on-premises-specific features are listed below.

- **Setup and deployment.** Improvements to setup and deployment greatly reduce the time to set up infrastructure. Increased automation and added multiple prerequisite checks improve reliability. For more information, see the most current setup instructions.
- **Servicing.** After deployment, on-premises customers can apply Microsoft-released platform and application updates, and also code customizations, to their environment through Lifecycle Services. This lets customers stay current with the latest set of fixes and take new customizations without having to reconfigure an existing environment or redeploy the on-premises environment. Customers can roll back code changes if package application fails. Note that the reconfigure feature will remain available for environments deployed with Platform update versions earlier than Platform update 12.
- **Disconnected client experiences.** You can disable experiences that depend on internet connectivity on the client machine, even when the client is connected to the internet, by using a simple configuration update from the application.
- **Data management.** The ability to import and export data in Data management via integration APIs is available for on-premises deployments. This functionality lets you integrate external applications with Finance and Operations so that you can import and export data by using data entities.
- **Retail.** The following retail head-office capabilities will be included in the Spring '18 timeframe:
    - Product categories
    - Channel categories and product attributes
    - Attributes, attribute types, and attribute groups
    - Trade agreements
    - On-hand quantities
    - Stock counts
    - Assortments
    - Retail catalogs
    - Retail product kits
    - Cross-docking and buyer's push
    - Call Center
    - Customer Loyalty

Retail channel components, including support for Retail Server and Point of Sale, will be available in the Fall '18 timeframe.

Accessibility

Building on top of a comprehensive accessibility foundation, Finance and Operations provides accessibility support by performing self-validation and resolving issues discovered on the most heavily used pages and controls in the product. Go to the Trust Center to learn about our industry-leading accessibility standards.

GDPR compliance

Finance and Operations and Lifecycle Services help partners and customers comply with General Data Protection Regulation (GDPR). GDPR investments address the European privacy law's requirements. Go to the Trust Center to learn more and find resources to help you comply. For detailed information, see the Dynamics 365 for Finance and Operations GDPR white paper.

Finance Insights: Credit and collections

Spring '18 summary of what's new in Credit and collections

April '18 - Public Preview

Credit and collections insights provides analytics that help organizations effectively manage their credit and collections processes. It provides:

- Aggregate views of credit and collections across all designated companies.
- Data broken down by company, customer group, and customer.
- Credit overview report.
- Collections report.
- Credit and collections details for a variety of dimensions.
- Predictive analytics to help identify trends.

Credit and collections overview

Are you providing the right level of credit to the right customers? Is your organization collecting efficiently and effectively? Credit and collections insights provides proactive guidance about questions such as these and more. It provides key credit and collections metrics, such as days sales outstanding, balance overdue, credit exposure, and customers who are over their credit limit. It uses transactional data and provides aggregate views of credit and collections across all designated companies. It also provides a breakdown per company, customer group, and customer.

Availability

Public Preview of Credit and collections is available in all regions where Dynamics 365 for Finance and Operations is available.

For a complete list of regions, see the Dynamics 365 International Availability Guide.

In addition to historical trends and analysis, you can leverage predictive analysis and built-in visuals to proactively show and identify trends. By experimenting with the visuals, you can see emerging trends and key groups of customers and credit.

The Credit and collections insights capabilities are available as part of a workspace within Dynamics 365 for Finance and Operations, and also in a stand-alone app, which is available at https://appsource.microsoft.com.

Credit and collections

Credit and collections

Retail

Dynamics 365 for Retail

The focus of the Spring '18 release for Retail includes an investment in service hardening and enabling new capabilities that drive our integrated and omni-channel value proposition even further. Specifically, our investments enhance customers' ability to:

- Work in a performant, scalable, and reliable cloud service that has better telemetry, diagnostics, and alerting. With this system, customer issues can be quickly and proactively analyzed and resolved.
- Manage customizations by using extensions. With a fully hard-sealed environment, customers should experience a significant reduction in the time and cost of servicing.
- Reconcile financials by using improved integrated end-of-day processing capabilities. Customers should experience improved performance and processes that are easier to understand.
- Process payments with faster and more secure transaction processing. Customers should experience better coverage and reliability. We have also made it easier to understand and recover from hardware, network, and back-end processing failures.
- Manage data distribution across distributed channels. Customers can more effectively manage network disruptions, using offline capabilities that are easy to administer and use.
- Operate retail stores on a 24/7 basis with greater predictability. We have introduced enhancements to support the goal of zero downtime during software updates and the separation of front-office and back-office processes through Retail Cloud Scale Unit. With this, Retail can scale more effectively to seasonal and on-demand needs.

Spring '18 summary of what's new in Retail

April '18 - General Availability

- CDX and data management - Provides improved offline capabilities to ensure that point of sale terminals continue to function during updates or internet disconnects.
- Deployment and servicing - Provides resource governance between transactional and back-office workloads to ensure that long-running batch processes don't affect transactional system performance, and that peak store traffic doesn't impede back office operations.
- End-of-day processing - Enhancements include improved statement posting performance, the addition of rollback and recovery to prevent data corruption, and enhanced in-app diagnostics that show status, errors, and logs.
- Globalization: Retail localization for India - Calculation of Goods and Services Tax (GST) and value-added tax (VAT) in POS is implemented.
- Globalization: Certified cash registers for France - New capabilities fulfill the requirements for NF525. The Retail solution is certified by an accredited body.

- Payments - Improved tolerance when connecting to payment providers over unreliable networks. There is also a stateless payment stack to prevent payment failures from crashing the point of sale app, and improved extensibility for payment scenarios at the point of sale.
- Extensibility (HQ, POS, CRT) - New extension points simplify the customization model, reduce the lines of code that need to be written by customers and partners, and reduce the effort required to upgrade.
- Monitoring and alerting - Added granularity in monitoring the health of specific user operations.

CDX and data management

Retail organizations often find it challenging to maintain connectivity everywhere at all times. It can be a disruptive and daunting task to manage and maintain full connectivity without downtime. By allowing for offline functionality that is seamless and simple to administer, retail organizations' point of sale terminals can continue to function during software updates or internet disconnects. To facilitate easy and informative workflows, the user interface and logic around when to switch between an online connectivity and an offline functionality has been enhanced to make it clear what is occurring and how to best handle any changes to the work being done.

On the Offline profile page, retail organizations can configure what happens when the point of sale terminal switches to offline functionality.

Configuring offline functionality

On the point of sale device, users can view the status of their connection to the database and choose to work offline, if required.

Viewing connected status of POS

Based on configuration settings, users can be prompted when offline operation is triggered.

Confirming offline functionality

Deployment and servicing

Retail organizations, especially those with globally-distributed operations, often find it challenging to pick a single maintenance window that is simultaneously non-disruptive to their entire global operational footprint. With near-zero downtime updates, most retail store operations can continue to work even through maintenance windows. This allows organizations that prefer low/no-footprint deployment to enjoy the same level of business continuity in their stores, even with a cloud-only topology. Retailers also routinely experience significant fluctuations in customer traffic based on seasonal trends, flash sales, viral popularity, or weather events. Likewise, system load during times of statement calculation and posting, or other batch

processes, can be disproportionately high. Resource governance between transactional and back-office workloads ensures that long-running batch processes don't affect transactional system performance, and that peak store traffic doesn't impede back office operations.

End-of-day processing

End-of-day processing is a crucial element of retail operational workflow. This involves aggregation of raw transactions into meaningful business data to ensure that business and accounting rules are conformed to, before posting transactions as official business records. Improving the reliability and performance of this batch process and increasing the visibility of the processing for the administrator improves the user experience. Users can easily monitor the progress of the processing and see exactly what caused a validation failure. As a result, they can quickly resolve the issue and reliably retry the process without contacting Microsoft Support.

New capabilities include improved statement posting performance by removing table deadlocks and optimizing batch processing. The introduction of a state model in the posting process aids in rollback and recovery, which eliminates data corruption and the need for manual intervention. Enhanced in-app diagnostics with detailed status, errors, and logs (including details of transactions included in the scope of the statement, transactions resulting in errors, and possible steps to correct issues) allow for easy troubleshooting.

Globalization: Retail localization for India

Retailers in India need to be able to calculate Goods and Services Tax (GST) in their POS solutions, and to post GST in Retail headquarters. Dynamics 365 for Retail was integrated with Global Tax Engine (GTE) to support GST calculation in POS. Both intrastate GST and interstate GST can be calculated, depending on the customer delivery location. GST integration is supported for normal sales and return transactions, and also for customer orders and replenishment operations. Dynamics 365 for Retail POS also supports the calculation of value-added tax (VAT) if it's required. In addition, for named customers, invoice numbers can be populated from POS receipt numbers.

Some sample transactions that are possible with this new functionality include:

- Sell to a registered customer.
- Sell taxable goods to a consumer.
- Sell taxable goods to an anonymous customer where GST is price-inclusive.
- Sell an exempted good.
- Return a transaction that has GST.

```
Transaction:   DELHI-DELHI-1-123       Date:    25-01-20
Terminal:      DELHI-1                 Time:    19:50
Employee:      000160
Customer No.:
Customer name:
Company PAN No AAACC1478C

GSTIN No.      07AEVPG9380C1Z7

TIN No.:


 Item name               Qty           Price       Total
 -------------------------------------------------------
 Wiring Harness          1.00      10,000.00   10,000.00
 HSN/SAC      70119010

-------------------------------------------------------
Subtotal                                        8,130.08
Tax                                               975.61
Tax                                               894.31
Total                                          10,000.00

Cash                                           10,000.00

                  ==========================
                  <B: ELHIHI-11_000023>

Tax componentS Tax code   Tax per Tax amount
CGST           AA         12.00        975.61
SGST           BA         11.00        894.31
```

Receipt example from a taxable goods sale to an anonymous customer where GST is price-inclusive

Globalization: Certified cash registers for France

As of January 1, 2018, all retailers in France must use cash systems certified per the NF525 requirements. The requirements cover inalterability, security, retention, and archiving of information pertaining to cash sales. New capabilities were implemented to fulfill the NF525 requirements. These requirements were confirmed by a certificate issued by an accredited body. The capabilities include:

- Retail POS capabilities:
  - Digital signing of all retail sales transactions, and also end-of-day reports and audit events.
  - Additional required data fields that can be added to receipt layouts, including an extract of the digital signature of the signed retail transaction, software version, count of receipt lines, and so on.
  - Registration of audit events, such as printing a copy of a receipt, entering/exiting offline mode, and so on.
  - Additional required data in end-of-day reports (X/Z reports), including cumulative grand totals, decomposition of shift totals per tax code, and so on.
  - Options to restrict shift duration to one day.

- Retail headquarters capabilities:
  - A period grand total journal that calculates retail sales and returns totals per store for a period and cumulatively, and also the decomposition of totals per tax code. A calculated and closed journal is digitally signed.
  - Archiving the export of retail sales data for a closed period, such as a closed period grand total journal. This includes transaction data for transactions completed in the period, shift data for shifts closed in the period, audit event data for events in the period, and the period grand total data. The resulting export file is digitally signed.

Payments

Beginning with the Spring '18 release, we have made investments to improve tolerance when connecting to payment providers over unreliable networks. This also includes a stateless payment stack to prevent payment failures from crashing the POS app, and improved extensibility for payment scenarios at POS. Issues with external components such as Hardware station, Payment connector, and Payment device are better handled by POS, which reduces the likelihood of POS app crashes due to payment failures. This functionality will be released incrementally through application updates starting in Spring 2018.

Extensibility (HQ, POS, CRT)

Most customers customize our product to support their business process. We made major enhancements in our retail extensibility framework to simplify the customization model, introducing a metadata and configuration-driven development experience and more advanced APIs. This new framework reduces the lines of code that need to be written and the time spent to do customizations. By using the framework, business users or power users can do simple customizations without writing any code.

We also introduced a new independent packaging model so that extensions can be packaged separately. With the new extension framework and independent packaging model, extensions can be created independently from the core app. They can then be packaged and published to AppSource or the marketplace seamlessly, and then loaded at runtime. This seamless extension model helps easily plug and unplug any new extension, app, or extension to an existing business process model. Extensions can also be serviced seamlessly without any change to the core app model. With this new model, ISVs and partners can independently develop extensions and deploy them seamlessly. POS can also load multiple extensions independently.

We are continuously enhancing the Dev Application Lifecycle Management and the extensibility framework to add more new extension features and APIs to simplify the development process and reduce the effort required for servicing the extensions.

Some new extensibility capabilities include:

- Dev Application Lifecycle Management (ALM) – Developer tools were added to simplify the developer experience. Many new code samples and docs were published to help with development scenarios. The samples will help customers complete their customizations more efficiently by copying and pasting the code and making minor changes.

- Packaging – With the independent extension packaging model and framework, customers can package extensions separately from POS, load multiple extensions, and plug or unplug individual extensions.
- POS UI and API extension - We are continuously enhancing the POS framework to expose new POS APIs and user interface (UI) extension points, such as metadata-driven extensions and custom controls. With these enhancements, customers can modify their POS layout to add or change UI workflow or elements.
- POS overridable requests and triggers - Overridable requests were added in POS to override the POS workflow or POS business logic and add custom logic and validation. The POS triggers framework helps run custom logic before or after core POS logic. With this new pattern, any workflow in POS can be modified.
- Search extensions – We enhanced the search framework to support searching any external system. Customers can modify Search by using their own custom fields or logic.
- Commerce runtime (business logic layer) – With our enhanced framework, business logic can be added and core logic can be modified to support custom extension scenarios. Extensions are supported in both the business logic layer and the data layer.
- Payment SDK – With the enhanced Payment SDK, any payment device or third-party payment provider can be integrated.
- Hardware station and peripherals – Enhancements in the hardware layer support existing device extensions, such as printers or line displays. Almost any new device can be integrated.

Extensibility example in Point of Sale

Monitoring and alerting

Building on existing capabilities related to monitoring of tenant and system-wide availability and reliability, this release extends these capabilities to the next level of granularity by monitoring the health of specific user operations. This ensures that, regardless of the relative volume of operations performed in a customer's tenant, business-impacting issues are immediately detected, and the reliability of the service remains high.

In addition to availability and reliability monitoring at the scenario level, performance monitoring to proactively detect performance degradations for high-value business operations has been implemented. To get comprehensive coverage, the reliability alerting capability has been extended to the client components, such as Modern POS. By seamlessly detecting issues logged at the client components, it’s now possible to detect reliability issues that are specific to the client applications and that might not otherwise have been detectable in the cloud service alone.

Talent

Dynamics 365 for Talent – Core HR

The Spring '18 release of Talent - Core HR focuses on General Data Protection Regulation (GDPR) compliance, enabling integrations, and adding key capabilities based on customer feedback.

To support best-of-breed payroll functionality and increase the portfolio of customers we can support, we have added payroll integration capabilities, including support for Ceridian Dayforce. In addition, we provide support for open enrollment processing and streamlined processing for employees to initiate qualified life event changes. These updates provide configuration and processing of all changes, together with a workflow to ensure accurate data across Talent for compliance and eligibility, and the ability to export elections to benefits providers.

Enhanced manager self-service capabilities mean that managers can initiate compensation change processes within their organizations. Integrated review and workflow approval processes ensure that changes are accurate and within budget.

We have integrations with Dynamics 365 for Finance and Operations to provide initial data load into Talent to support customers' migrations. We also provide ongoing integration to maintain Finance and Operations workflows and Human resources (HR) transactions. These integrations let existing Finance and Operations customers migrate to Dynamics 365 for Talent. They also let customers use Finance and Operations and Talent in concert.

Spring '18 summary of what's new in Talent – Core HR

January '18 - General Availability

- Manager self-service promotion requests/workflow - Expanded manager self-service capabilities.
- Attachments - Attachments from the hiring process can be transferred to new hires' employee records.

February '18 - General Availability

- Contextual filtering of reason codes - Reason codes can be configured for hire, transfer, termination, and compensation processes.
- Custom fields - This functionality has been enabled across Talent.
- Streamlined transfer process - When transferring an employee, the job is automatically added to the transfer request.
- Updated Power BI visuals - The visuals have been refreshed in Power BI reports. Mean and median gender pay metrics have also been added.
- Default dates - Dates are no longer completed by default for hire, transfer, and termination processes.
- Rehire flag – A flag for the worker's eligibility for rehire is set as part of the termination process.

March '18 – Public Preview

- Integration with Finance and Operations 7.2 and 7.3 (Public Preview) - Integration provides an initial data load into Talent, with ongoing integration to maintain Finance and Operations workflows and HR transactions.

April '18 – General Availability

- Payroll integration - Connect Talent to your payroll system by using out-of-box integration with Ceridian, or connect manually to other payroll providers.
- Absence management:
  - Working days calendars – Supports the creation of calendars that reflect company holidays.
  - Submit time off in days – More flexible increments for entering time off.
  - Custom absence accrual dates – Customize time carry-over and time-off accrual capabilities.
- Position and employee management updates - Provide additional information related to positions and employees, allowing HR professionals and managers to streamline the hiring process.

May '18 - General Availability

- Absence management:
  - Time entry on behalf of someone else – Enables managers and HR professionals to enter time-off for employees who can't.
  - Configurable proration options – More flexible options for handling proration of time-off accruals.

May '18 – Public Preview

- Payroll integration – Take advantage of the out-of-box integration with Ceridian in the UK.
- Benefits enhancements – Open enrollment

June '18 – Public Preview

- Calendar view of working time – Visualize the working days and times across the organization in a calendar view.

Manager self-service

Spring '18 updates provide managers with increased productivity and efficiency by expanding self-service options. Managers can initiate compensation changes and provide justification for them. The system then provides a workflow so HR can review and approve changes and ensure they are accurate and within budget.

Manager self-service promotion requests

Attachments

All attachments associated with hire requests are transferred to an employee record upon completion of the hiring workflow, providing a single source for all information.

Contextual filtering of reason codes

This feature lets users configure reason codes for hire, transfer, termination, and compensation processes. This streamlines reason codes, increasing data accuracy and providing better analytics for all processes that use reason codes. It also makes hire, transfer, and termination processes more efficient by displaying only the reason codes that are appropriate for the process.

Filtering of reason codes

Custom fields

Custom fields functionality enables new fields to be added to support additional tracking, integrations (using entities), and exports for reporting.

Streamlined transfer process

When transferring an employee, you can filter by position, and the job is automatically added to the transfer request. For easier filtering, the position lookup contains the person that the position reports to.

Updated Power BI visuals

The embedded Power BI reports have been updated, and new visuals and additional measures have been added, such as mean and median gender pay metrics for compensation analytics.

Default dates

Dates are no longer completed by default for hire, transfer, and termination processes. This reduces mistakes caused by accepting defaults that don't apply. Also, when hiring a new worker and entering a future hire date, the worker page opens as of the future hire date for correct date-effective entries.

Rehire flag

When completing the termination process, workers can now be flagged if they are eligible for rehire. If the employee is flagged as not eligible for rehire, he or she won't be included in the skill mapping process. The flag is also visible in the Past workers list.

Absence management

- **“Days” support:** In many organizations, especially in European markets, employees submit time off in days, not hours. This change provides expanded capabilities to help companies ensure that they can meet compliance policies in European markets. Human resource administrators and managers can do absence tracking and approvals, while employees can submit time-off requests in increments of days or half-days as well as in hours.

Absence management days support

- **Working day calendar:** Human resource administrators can create working day calendars that reflect company holidays. Working day calendars can be created for different types of employees and employees in different countries. As employees submit time-off requests, holidays are automatically excluded from the request, which streamlines the time-off request process.
- **Custom absence accrual dates:** (coming after April) Enable carry-over and time-off accrual capabilities that are customizable to meet organization policies.

- **Time entry on behalf of someone else:** When employees have emergencies or are away from work, human resource administrators and managers can enter time for them, keeping time-off data and schedules up to date.
- **Configurable proration options:** Each organization has unique requirements related to proration of employee time-off accruals. Options for not prorating accruals, prorating accruals, or awarding the full time-off amount at the time of enrollment ensure compliance with company policies and provide a more accurate time-off balance for employees.
- **Calendar view of working time (Public Preview):** Visualizing the working days and times across the organization as a calendar enables HR professionals a way to easily understand when employees are working.

Integration with Finance and Operations 7.2 and 7.3 (Public Preview)

In March, we enabled a connected story for Dynamics customers who are operating in our cloud service and using Finance and Operations. Finance and Operations customers will use Talent as the single source of truth for all their HR data. The new integration features provide an initial data upload into Talent and then provide ongoing integration to maintain Finance and Operations workflows and HR transactions.

Payroll integration/payroll data package

Plug Talent into your broader HR technology ecosystem by connecting your payroll system through a purpose-built, out-of-box integration to Ceridian, or connect manually to other payroll providers.

- **Ceridian Payroll integration** - HR and payroll configuration data, together with worker data, is sourced in Talent, whereas payroll processing is done within Ceridian's Dayforce application. The resulting pay runs produce general ledger transactions that are imported into Finance and Operations. This functionality is now available for public preview in the UK.
- **Generic payroll data export package** – If a customer is using a different payroll provider, they can modify the data included in the export package and then export the data package to any file storage location that their payroll software can access.

Talent to Ceridian integration flow

Benefits enhancements

- **Benefits open enrollment (Public Preview)**. Benefits open enrollment provides employees with an easy-to-follow, self-service experience for selecting their benefits. Human resource administrators can configure their organization's benefits open enrollment process. They can also design the employee enrollment experience using a guided solution. Employee benefit enrollment elections can then be exported and sent to benefit providers.

Benefits open enrollment

Dynamics 365 for Talent – Attract

The Spring ’18 releases expand recruiting management capabilities to include support for career websites and for posting multiple jobs at the same time to simplify the job posting process. We are continuing to build on our integration with LinkedIn to include:

- Apply with LinkedIn.
- Post to LinkedIn.
- Export candidates from Recruiter to Dynamics 365 for Talent.

The Spring '18 releases also add the ability to easily initiate candidate assessments via Koru, a leading provider in this space. We are also releasing Gauge, a companion application provided as part of Attract, that lets you easily create candidate assessments and surveys.

Spring '18 summary of what's new in Talent – Attract

February '18 - General Availability

- Configurable hiring process - Customers can define the hiring process on a job-by-job basis.
- Advanced interview scheduling - Enhanced scheduling of multi-day interviews, last-minute interviewer replacement, and improved communication throughout the scheduling process.
- Candidate notes - Ability for the hiring team to keep notes on candidate applications.

May '18 - General Availability

- Assessment activity with Koru integration - Third-party candidate assessment from Koru (www.joinkoru.com).

April '18 – Public Preview

- Company Career site - Quickly post jobs to a company career site to kick off the application process.
  - Candidate apply - Candidates can apply for open positions directly from the career site.
  - LinkedIn integrations - Apply with LinkedIn, and post openings to LinkedIn.
- Assessment activity with Gauge integration - Gauge is a tool for creating assessments for efficient hiring or employee assessment surveys.
- Configurable hiring process – templates - Create custom templates to guide the hiring process.

May '18 – Public Preview

- Offer management - Offer creation and management through templates and workflows.
- Prospect tracking - Manages all prospective candidates before formal application.
- LinkedIn Recruiter system connect - Quickly push candidates into Attract from LinkedIn Recruiter.

Configurable hiring process

Configurable hiring process features let customers fit Attract to their unique needs by using an out-of-box hiring process, or by configuring tailored hiring processes and saving them for future use. This allows customers to create a distinct hiring process for an individual job or apply a hiring process template to a job. This feature can be helpful in a complex enterprise hiring environment. (Templates will be available in late April 2018.)

Customers can add or remove stages to their hiring process. Within stages, activities can be added to tailor the process to an organization's needs. For example, an organization can set up different processes for different types of jobs. For seasonal workers, there might be just one interview stage, but for full-time employees, the process might be more complex and consist of multiple screening and interview stages.

Configurable hiring process

Company Career site (Public Preview)

Job management lets customers automate the publication of jobs to the new Talent Career site or use a unique URL for each job to advertise a position. New capabilities include:

- Talent Career site – Organizations can host open jobs on the public job listing site, which allows:
  - Searching for jobs, saving searches, and setting notifications of future job postings.
  - Displaying jobs based on internal versus external flags.
  - Recommending jobs based on candidate information.
- Quickly posting jobs to a company career site to kick off the application process.
- Publishing open positions to third-party job boards such as LinkedIn.

On the Job setup page, a hiring manager or recruiter can publish a job to the Talent Career site or LinkedIn, and manage other postings to external job boards, on separate tiles.

Availability

Public Preview of Talent - Attract is available in all regions where the product is available.

For a complete list of regions, see the Dynamics 365 International Availability Guide.

Publishing a job to a website

Job page on the Talent Career site

Advanced interview scheduling

Advanced interview scheduling makes it easier to manage multi-day interviews, handle last-minute interviewer replacement, and provide improved communication throughout the scheduling process. It supports customers with more complex requirements and provides additional options in the automated scheduling engine. New capabilities include:

- Scheduler role that provides the ability to:
  - View interview accept/decline notifications in Attract.
  - Create an interview schedule in just a few clicks.
- Propose alternate interview times.
- Cancel, propose, or notify the recruiter/hiring manager about interview schedule changes.
- Propose a list of interview time slots to candidates.

The interview scheduler might be a recruiter or hiring manager. They can use a scheduling wizard to create an interview schedule for a candidate in just a few clicks. The suggested schedule can be modified and extended with one or more interview slots, and each slot can have one or multiple interviewers. The scheduler can set an individual start time and duration for each interview slot, provide details about that slot, and include a conference room. After the interview schedule is completed, the scheduler sends invitations to interviewers. The status that indicates whether the interviewer accepted or declined can be tracked, and the scheduler can decide at any point to share the schedule with the candidate.

Advanced interview scheduler

Assessment activities

Hiring managers and recruiters can add an assessment activity to the hiring process. They can use two types of assessments to collect additional information about candidates and objectively compare them. The two types of assessments are Gauge and Koru.

Gauge (Public Preview)

Gauge lets hiring managers or recruiters create questionnaires and send them to candidates as part of an assessment activity. Candidates are informed in their candidate app that a new task is waiting for them. They can easily navigate to the questionnaire and complete the assessment. The hiring manager and recruiter can track the process and results directly in Attract.

Gauge integration

Koru

Koru is a third-party company that applies predictive analytics to assess, score, and rank candidates’ fit for an organization. Koru integration lets customers score and rank candidates to predict who will be the best fit. Hiring managers and recruiters can add a Koru project as an assessment activity to the hiring process. Candidates then take the Koru assessment, and the result is directly accessible from within Attract.

Dynamics 365 for Talent – Onboard

The focus for Spring '18 updates has been to streamline onboarding at the department level through more robust templates, reporting, and automation. Based on customer feedback, Onboard has been enhanced with collaborative capabilities to allow more individuals to create and implement onboarding experiences. Onboard now also includes template authoring workflows to enable template updates to be rolled out to all instances instantiated from the template.

Spring ’18 summary of what’s new in Talent – Onboard

March ’18 - General Availability

- Customizable welcome emails.
- Due date placeholders.
- Export to Excel.

June ’18 – Public Preview

- Import activities from other guides or templates.
- Assignee placeholders

Customizable welcome emails

Managers can personalize the welcome email sent to their new hires when it's time to onboard. This creates a personal touch and improves email response rate.

Due date placeholders

Managers can insert due date placeholders as an offset from a new hire's start date, such as two weeks after the start date or three days before. Due dates are updated automatically if the new hire's start date is changed.

Export to Excel

Hiring managers can export all the guides they create or contribute to an Excel file that can be used for reporting and Power BI.

Import (Public Preview)

Hiring managers can import content from other guides or templates to ensure that the latest content is always reflected. This helps them get started quickly and makes it easier to include the latest content from their manager or department leader.

Assignee placeholders (Public Preview)

Managers can insert assignee placeholders in their template, to be filled out later. For example, a group of tasks can be assigned to "business administrator" in a template. Then, when the someone uses that template, they specify who "business administrator" is. This allows for more flexibility and template reuse.

Business Central

Dynamics 365 Business Central

With the Spring ’18 release, Dynamics 365 Business Central brings the full power of Dynamics NAV to the cloud in 14 countries or regions and replaces Dynamics 365 for Finance and Operations, Business edition. Existing Dynamics 365 for Finance and Operations, Business edition customers will be automatically upgraded to Dynamics 365 Business Central at the next upgrade of their service.

Dynamics 365 Business Central is the next generation of Dynamics NAV, one of the leading Microsoft business application products, which has served 140,000 customers and millions of users worldwide. Dynamics 365 Business Central is an extremely flexible solution, easily adaptable to the needs of geographies, industries, and individual customers.

Our key investments for the Spring ’18 release center around:

- Full suite of application functionality in the cloud.
- Refreshed and modern user experience, optimized for insights and productivity.
- Easy extensibility by using apps from AppSource.

Spring ’18 summary of what’s new in Business Central

March 2018 - General Availability

Broad regional availability

- 14 markets - Dynamics 365 Business Central is available in 14 markets.

Full suite of application functionality

- Essential - Includes a broad range of functionality that most businesses need to run their business.
- Premium - Adds Service management and Manufacturing.

Look and feel

- Modern user experience - A refreshed and modern user experience, optimized for insights and productivity.

Easy to extend

- App Source - Customize your experience with apps from App Source.
- Power BI, PowerApps, and Flow - Combine with PowerApps and Microsoft Flow to compose new applications and extend existing business processes. Integrate with Power BI for custom dashboards and configurable reports.
- Extensions - Many improvements have been made to the extensions technology, so that you can extend, customize, and build solutions in an upgradable fashion, decoupled from the base application.
- Individual customizations - As a user, you can personalize your experience. As a partner, you can apply customizations to one or more customers' experiences.

- Business API - Integrate with external systems and services by using the robust API.
- Modern developer experience - File-based development environment and a new development language.

Compliance

- General Data Protection Regulation (GDPR) - Investments address the European privacy law's requirements. Go to the Trust Center to learn more and find resources to help you comply.
- Accessibility enhancements - Go to the Trust Center to learn about our industry-leading accessibility standards.
- ISO and SOC compliance.

Broad regional availability

At launch, Dynamics 365 Business Central is available in 14 markets:

- Europe:
  - Austria
  - Belgium
  - Denmark
  - Germany
  - Finland
  - France
  - Italy
  - Netherlands
  - Spain
  - Sweden
  - Switzerland
  - United Kingdom
- North America:
  - Canada
  - United States

Modern user experience

With the Spring '18 release, Dynamics 365 Business Central offers a refreshed and modern user experience, optimized for insights and productivity.

Example of a refreshed interface in Business Central

Essential and Premium

Dynamics 365 Business Central is available at two price points: **Essential** and **Premium**.

Essential licensing covers business areas that most businesses require in order to run their business. These areas are described in the following sections. **Premium licensing** adds **Service order management** and **Manufacturing**, bringing the full breadth of the popular Dynamics NAV application to the cloud.

Financial management

Basic General Ledger

Set up a company, and start posting to the general ledger, chart of accounts, general journals, VAT facilities, recurring journals, and source codes.

Budgets

Work with budgets in general ledger accounts.

Deferrals

Set up deferral templates that automate the process of deferring revenues and expenses over a predefined schedule.

Basic fixed assets

Keep track of fixed assets and related transactions, such as acquisitions, depreciations, write-downs, appreciations, and disposals.

Audit trails

The system automatically assigns audit trails and posting descriptions to every transaction. In addition, users can define reason codes to create complementary audit trails.

Bank account management

Create, operate, and manage multiple bank accounts to cater to your diverse business needs and across different currencies.

Reconciliation

Reconcile your bank statement data automatically to open bank account ledger entries end keep track of all your bank statements.

Dimensions

Add unlimited dimensions to any ledger for advanced transaction analyses.

Currencies

Manage multiple currencies throughout the system, including payables and receivables, general ledger reports, resource and inventory items, and bank accounts.

Example of the Business Central Accountant Role Center

Customer relational management

Contacts

Maintain an overview of your contacts, and record your contact information for all business relationships.

Campaigns

Organize campaigns based on segments of your contacts that you define.

Opportunity management

Keep track of sales opportunities, section your sales processes into different stages, and use this information to manage your sales opportunities.

Dynamics 365 for Sales integration

Integrate with Dynamics 365 for Sales in a few easy steps to synchronize your data, including sales orders, item availability, units of measure, and currencies.

Example of Business Central on a tablet device

Supply chain management

Sales order management

Manage sales orders, blanket sales orders, and sales order processes.

Basic receivables

Post sales transactions in journals and manage receivables. Register customers and manage receivables by using general journals.

Purchase order management

Manage purchases, blanket orders, and purchase order processes.

Locations

Manage inventory in multiple locations that might represent a production plant, distribution center, warehouse, showroom, retail outlet, or service car.

Item transfers

Track inventory as it's moved from one location to another, and account for the value of inventory in transit at various locations.

Basic warehousing

Manage items on a bin level. Pick and put away items in a bin, and move items between bins by using a report that optimizes space usage and picking processes.

Example of a new warehouse shipment in Business Central

Human resources

Employees

Group and track employee information, and organize employee data according to different types of information, such as experience, skills, education, training, and union membership.

Expense management

Post expenses against employee cards to track and reimburse their expenses.

Example of a Business Central employee list

Project management

Resources

Register and sell resources, combine related resources into one resource group, or track individual resources.

Estimates

Monitor resource usage, and get a complete overview of your capacity for each resource, with information about availability and planned costs on orders and quotations.

Jobs

Keep track of usage on jobs and data for invoicing the customer. Manage both fixed-price jobs and time-and-materials jobs.

Time sheets

Time sheets are a simple and flexible solution for time registration with manager approval, and they integrate with Service, Jobs, and Basic Resources.

Example of a Business Central project list

Other

With Essential licensing, you also have access to a wide range of capabilities that go across the various business areas.

Multiple languages

Switch languages on the client in real time, provided that the desired language is available.

Reason codes

Define a set of reason codes that can be assigned to individual transactions throughout the system, providing user-defined audit trails.

Extended text

Set up an unlimited number of lines to describe inventory items, resources, and general ledger accounts.

Intrastat reporting

Automatically retrieve the necessary data to report Intrastat information to statistics authorities. Local customs authorities can tell you whether your company is obligated to file such a report.

Outlook integration

Synchronize your to-do items and your contacts with your meetings, tasks, and contacts in Outlook.

Service order management

With **Premium licensing**, you get access to service management capabilities.

Service orders

Register your after-sales issues, including service requests, services due, service orders, and repair requests.

Service price management

Set up, maintain, and monitor your service prices.

Service item management

Record and keep track of all your service items, including contract information, component management, and BOM reference and warranty information.

Service contract management

Record details on service levels, response times, and discount levels, and also on the service history of each contract, including used service items and parts and labor hours.

Planning

Assign personnel to work orders, and log details such as work order handling and work order status.

Dispatching

Manage service personnel and field technician information, and filter according to availability, skills, and stock items.

Manufacturing

With **Premium licensing**, you get access to manufacturing capabilities.

Production orders

Create and manage production orders, and post consumption and output to the production orders.

Version management

Create and manage different version of the manufacturing bill of materials and routings.

Agile manufacturing

Plan rush hours, make exceptions, and handle last-minute changes to your processes with multiple planning options.

Basic supply planning

Plan for material requirements based on demand, with support for master production scheduling and materials requirements planning.

Demand forecasting

Plan and create production and purchase orders, taking into consideration the demand forecast together with the level of available inventory and parameters of requirement planning.

Capacity planning

Add capacities to the manufacturing process. Set up routings, and use these routings on production orders and in material requirements planning.

Machine centers

Manage capacity on several levels: on a more detailed level for machine centers and on a consolidated level for work centers.

Finite loading

Take capacity constraints into account, so that no more work is assigned to a work center than the capacities can be expected to execute during a given time period.

Extensibility

App Source

Within Dynamics 365 Business Central, you can find apps on App Source that bring you more capabilities. If you're a developer, you can build powerful extensions and then add them to App Source for easy discoverability. The April release includes many improvements to the extensions technology, allowing partners to extend, customize, and build solutions in an upgradable fashion, decoupled from the base application.

Power BI, PowerApps, and Flow

Dynamics 365 Business Central comes with easy integration with Power BI, PowerApps, and Flow, so that you can configure capabilities and implement business flows without writing a single line of code.

Individual customizations

You can personalize Dynamics 365 Business Central by, for example, adding or removing fields. Use the embedded designer to customize the user interface by moving fields or decluttering the experience.

As a partner, you can apply customizations to one or more of your customers individually. You can apply the same changes to all your customers in Dynamics 365 Business Central or give each of them the tweaks they need.

Modern developer experience

By using Visual Studio Code, you can build powerful extensions in a modern file-based development environment and language. All-new language capabilities are included for easy integration with Microsoft Azure services such as Azure Functions.

You can use the Dynamics 365 Business Central business API with 44 entities for easy, flexible, and fast interoperability with third-party solutions.

Business Application Platform

PowerApps

PowerApps is the high-productivity application development platform from Microsoft. In this release, we're combining the richness of Dynamics 365 with the agility of PowerApps to create a single unified platform. The PowerApps platform is now the platform that the Dynamics 365 for Sales, Service, Marketing, and Talent applications are natively built on. This release also includes major advancements to the Common Data Service for Apps (the data platform that comes with PowerApps) and client UX creation tools. These new capabilities are backward-compatible with the Dynamics 365 platform (frequently called the xRM platform), which means that Dynamics 365 customizers and partners can use already-acquired skills to create apps with PowerApps.

PowerApps is also tightly integrated with Office 365. You can use the same set of tools to customize and extend an increasing number of Office 365 apps, and build standalone business applications connected to more than 200 data sources. You can now build two types of applications with PowerApps: model-driven apps and canvas apps.

New capabilities include:

- **Model-driven apps.** You can build a new type of application with PowerApps: model-driven apps. Create and customize model-driven apps directly from PowerApps.com by using the app designer. Bring together entities, forms, views, dashboards, charts, and business processes to automatically generate powerful line-of-business applications. It's easy to get started building model-driven apps. Switch to model-driven mode, learn the basics, and then explore one of our great sample apps.
    - **Entity forms.** Create and customize sophisticated forms for Common Data Service for Apps entities directly from model-driven mode on PowerApps.com. Create forms with visual drag-and-drop designers by using a host of custom controls that are available from a rich control library.
    - **Entity views.** Create and customize views for Common Data Service for Apps entities directly from model-driven mode on PowerApps.com. Use point-and-click tools to create filters, set the sort order, and choose which columns to display.
    - **Business process flows.** Associate one or more business process flows with your model-driven app to focus your users' experience through a specific set of guided steps.
    - **Dashboards.** Build and use custom interactive dashboards with rich chart controls that use data from Common Data Service for Apps entities. Embed Power BI dashboards in model-driven application dashboards for deeper cross-system data analysis directly from the application.
    - **Metadata-driven responsive user experiences.** Model-driven application user experiences are automatically generated upon entity creation. A navigation model, basic forms, and a subset of views are available for customization. User experiences are responsive and metadata-driven. Applications provide consistent functionality across all surfaces, including web and mobile and support for right-to-left (RTL) languages.

  - **Accessible apps out of the box.** Model-driven apps built using the Unified Interface infrastructure meet Microsoft accessibility standards . The applications enable users, including keyboard-only users and touch-only users, to perform key tasks. The apps work well with screen readers and won't block other accessibility tools, such as one-click devices.
  - **Mobile player.** Run model-driven apps on mobile devices. For tablets and phones, applications are automatically optimized for the device.
- **Canvas apps.** The term "canvas apps" refers to apps built through the WYSIWYG screen design that provides complete control over the interface. With a canvas app, you start with a blank canvas to create a very tailored user interface. Then you connect that user interface to your choice of 200 data sources. You can build canvas apps for web, mobile, and tablet applications. With a model-driven app, you start with your data model. Build from your core business data and processes in the Common Data Service for Apps to model forms, views, and other components. Model-driven apps automatically generate a great user interface that's responsive across devices.
  - **Controllable delegation limits.** Control delegation limits for non-delegable data sources that have up to a maximum of 2,000 records. This allows client-side operations to work on larger datasets.
  - **SQL views.** To avoid performance issues, use SQL views to combine data in SQL Server before bringing it into PowerApps.
  - **Simplified access to entities through foreign key relationships.** Intuitive access to entities included in a relationship (foreign key) in entities that are stored in the Common Data Service for Apps makes it significantly easier to use related entities in canvas apps.
- **Improved app sharing experience.** The improved experience for canvas apps makes it easier to view the data sources used by an app and easier to set up user permissions to access that data. For model-driven apps, share apps by assigning appropriate security roles that provide user access to the entities and data in the Common Data Service for Apps.
- **Apps connected to SharePoint lists can include attachments.** Apps connected to SharePoint Online can now be used to view and upload attachments, including images and documents.
- **Improved support ticketing for admins.** Request help from a Microsoft support representative from the new Business platform admin center.
- **GDPR compliance.** To support the EU's General Data Protection Regulation (GDPR), administrators can support data subject rights requests for PowerApps users.
- **Automate governance with PowerShell.** The administrative capabilities of the Admin Center are now available programmatically to admins through the release of the PowerApps PowerShell cmdlets.

Spring '18 summary of what’s new in PowerApps

April '18 - General Availability

Model-driven apps

Entity forms for model-driven apps

Entity views for model-driven apps

Business process flows for model-driven apps

Dashboards for model-driven apps

Metadata-driven responsive user experiences

Accessible model-driven apps out of the box

Mobile player for model-driven apps

Canvas apps

Controllable delegation limits for canvas apps

SQL views for canvas apps

Simplified access to entities through foreign key relationships

Improved app sharing experience

Apps connected to SharePoint can include attachments

Improved support ticketing for admins

GDPR compliance

Automate governance with PowerShell

Model-driven apps

In addition to the canvas app development that PowerApps has been known for, which provides full visual control over the user experience of an app, PowerApps now offers another choice for high-productivity app development. With model-driven applications, app developers can start building an app with their data model instead. They can model entities and their associated business rules, processes, forms, views, and dashboards. From this model, they can easily generate immersive user experiences by using the app designer.

To get started with model-driven apps, use designers to:

- **Define your site map.** Model your app's navigation, pulling in only the subset of information your users need. Take advantage of multiple levels of hierarchy and the ability to reference external resources.
- **Add dashboards.** Include model-driven dashboards or embedded Power BI content within your app.
- **Include entities and components.** Add specific forms, views, dashboards, and charts for targeted entities to craft your user experience.

Model-driven apps list

Model-driven apps designer

[For more information about the app designer, go to Design custom business apps by using the app designer](#).

Entity forms

Model-driven entity forms are a critical component in any Dynamics 365 application and are now available for standalone model-driven apps built with PowerApps.

Entity forms include the following features:

- Multiple tabs. Craft purpose-built tabs for any entity.
- Sub-grids. Show a list of related records from another entity.
- Automatic responsive reflow. Forms adapt automatically to the type and size of device, and to various web browser resolutions.
- Form-factor targeting. Choose custom controls that are shown only on mobile, for a purpose-built view.
- Embedded business flow. Guide users through a specific set of steps.
- Navigation. Add navigation links to other related entities.

Form designer

For more information about using the form designer, go to Overview of the form editor interface.

Entity views

Model-driven views make it easy for citizen developers and users to quickly define custom views for a set of records on any entity.

Entity views include the following features:

- Create filters with sophisticated conditional logic by using drag-and-drop operations.
- Show or hide columns, and set the sort order.
- Provide visual snapshots through entity charts. Users can interactively create a subset of the underlying view for a chart.
- Users can create their own personal views.

For more information about entity views, go to Create and edit public or system views by using the app designer.

Business process flows

Use a business process flow to define a set of steps for people to follow to take them to a desired outcome. These steps provide a visual indicator that tells people where they are in the business process. Business process flows reduce the need for training, because new users don't have to focus on which entity they should be using. They can let the process guide them.

For example, you can configure business process flows to support common sales methodologies that can help your sales groups achieve better results. Or, for service groups, business process flows can help new staff get up to speed more quickly and avoid mistakes that could result in unsatisfied customers. The user experience can be tailored so that people with different security roles can have an experience that best fits the work they do in PowerApps.

For more information about business process flows, go to Create a business process flow to standardize processes.

Dashboards

Create rich, interactive dashboards to visualize data from the Common Data Service for Apps inside a model-driven application.

The drag-and-drop designer simplifies the dashboard creation process for:

- Homepage dashboards that include charts and lists from multiple entities.
- Entity-specific interactive dashboards that allow visual filtering and sorting of information.

Include rich Power BI capabilities directly inside model-driven apps by embedding Power BI dashboards in home pages. Dashboards can include data from any source, including the Common Data Service for Apps.

Interactive dashboard

Power BI Embedded in a dashboard

For more information about dashboards, go to Create or edit dashboards.

Metadata-driven responsive user experiences

Model-driven apps are responsive across different form factors and devices, allowing users to quickly continue their work while on the go.

Responsive user experiences allow for:

- A single layout for forms, dashboards, and lists that automatically reflows.
- Navigation and grids that adapt to mobile devices to enable efficient touch interactions.
- Visual controls that are optimized for touch and provide engaging user experiences. Examples include Slider, Arc, and Calendar controls.

Account form on a desktop computer

Account form on a phone

Accessible apps out of the box

Model-driven apps are metadata-driven. Core components of the user experience, such as dashboards, lists, navigation, forms, and commands, are generated upon creation of the entity. Standard components, such as charts, lists, and controls, are built to Microsoft accessibility standards (go to the Trust Center to learn about our industry-leading accessibility standards). By default, any app built using these components is also accessible. The custom control framework that controls are built on also provides accessibility hooks, so that any new controls that are created can easily be made accessible.

Mobile player for model-driven apps

Run any model-driven application on the Dynamics 365 mobile player. Applications can run on mobile devices, including Windows tablets, iPhone, iPad, Android phones, and Android tablets. Manage model-driven apps through Intune integration for enterprise scenarios.

Account form on a phone, showing Summary and Timeline tabs

Interactive dashboard on a phone

Canvas apps

You can now build two types of applications with PowerApps: canvas apps and model-driven apps. The term “canvas apps” refers to building apps through the WYSIWYG screen design.

Canvas app

Canvas app for a phone

Controllable delegation limits for canvas apps

Users can now control delegation limits for non-delegable data sources that have up to a maximum of 2,000 records, allowing client-side operations to work on larger datasets. By intentionally setting a low limit, you can also use this capability to spot potential problems due to lack of delegation of operations.

SQL views for canvas apps

Use SQL views to combine data in SQL Server before bringing it into PowerApps.

A common scenario is to have a single table (Product Category) with lookups to another table (Products) that contains data points such as the product number, name, and price.

Previously, you had to bring both tables into PowerApps, create a gallery of categories, and then look up the detail information for the product information. If this was done incorrectly, it could cause performance issues due to the number of data calls to SQL Server.

Another possible scenario is to aggregate (group and sum) data before bringing it into PowerApps. Rather than bringing all the records into PowerApps and using the Sum feature, you can do all of the advanced processing in SQL Server first.

Simplified access to entities through foreign key relationships

Makers can now write formulas that work seamlessly between entities, following lookups for related information.

For example, a record in the Accounts entity might have a Primary Contact field that is a lookup to a record in the Contacts entity. Previously, the maker had to manually look up records across entities, which meant knowing about and working with a foreign key. Now, a maker can simply write:

```
First( Accounts ).PrimaryContact.FullName
```

The maker then has access to all the PrimaryContact fields, such as Fullname, EmailAddress, or any other field.

Improved app sharing experience

Canvas apps. With the improved app sharing experience for canvas apps, you can quickly view the list of data sources used by an app and set up user permissions to access that data. For example, if an app connects to a SharePoint list and the Common Data Service for Apps, you'll see the data sources listed in the Data permissions section. For the Common Data Service for Apps, you'll see a list of entities used by the app. You can then select quick permissions to apply to these entities, such as Read only, Read and write, or Full access. If the quick permissions don't meet your needs, assign custom permissions through security roles.

Share an app: Data sources and permissions

Model-driven apps. Share model-driven apps with users by assigning appropriate security roles that provide access to the entities and data in the Common Data Service for Apps.

Share a model-driven app with security roles

Apps connected to SharePoint can include attachments

Apps connected to a SharePoint list with attachments can now both read and write attachments to the SharePoint site in PowerApps. Attachments appear in the data source as a field that can be added to a form as part of a data card. Create applications from scratch by using the attachment control as part of a data card and reference attachments in a gallery.

Canvas apps support storing up to 20 MB of data locally on Android and iOS

Apps that use the SaveData and LoadData functions to build offline-enabled apps on PowerApps can now save up to 20 MB of data in a single SaveData/LoadData call. This should enable common use cases, such as offline capture of images that are later uploaded to the service.

Improved support ticketing for admins

The Business Application Platform Admin center includes a support ticketing experience that admins can use to contact a Microsoft support representative if they are blocked.

Note: The Business Application Platform Admin center also includes the existing capabilities of the current PowerApps admin center, including the ability to establish data loss prevention policies, manage environments, and monitor active PowerApps and Flow users within an organization.

To try out the new support experience:

1. Go to the Business Application Platform Admin center, and select **Help + support** on the left navigation bar.
2. Select **New support request**, fill out the details for your issue, attach any relevant screenshots, and select **Submit**.

New support request form

GDPR compliance

Microsoft is committed to helping you comply with the General Data Protection Regulation (GDPR). When a user is deleted from Azure Active Directory (AAD), the tenant administrator receives an email notification indicating that the user has been deleted from the corporate directory.

At that point, the admin can determine which apps were previously owned by the user and reassign ownership of those apps by using PowerShell admin cmdlets. The admin can optionally delete the applications if they are no longer in use within the organization.

The newly assigned app owner can view, rename, edit, or delete the application. When a user is deleted from Azure Active Directory, if the app relied on any connections that were created by the user (such as connections to a Customer Connector, SQL Server, and so on), the app will be broken until the new owner takes the following steps:

1. Re-create the required connections.
2. In PowerApps Studio, update the app to point to those new connections.
3. Save and publish the application.

Update connections

Go to the Trust Center to learn more about GDPR and find resources to help you comply.

Automate governance with PowerShell

The PowerShell admin cmdlets provide PowerApps admins with visibility and control over their organization's usage of PowerApps and Flow. Most importantly, these cmdlets let admins of larger organizations automate their application lifecycle management and monitor the following areas:

- Environments and environment permissions
- PowerApps and app permission
- Flows and flow permissions
- Export and import of resource packages across environments
- PowerApps and Flow licenses report (of active users)

PowerShell administration

Common Data Service for Apps

The Common Data Service for Apps is how PowerApps, Office, and the Dynamics suite of products integrate with a single system of record for business data. The Common Data Service for Apps is the native system of record for:

- Dynamics 365 for Sales.
- Dynamics 365 for Service.
- Dynamics 365 for Field Service.
- Dynamics 365 for Project Service Automation.
- Dynamics 365 for Marketing.
- The Dynamics 365 for Talent family of applications.
- Standalone IT business apps.

Additionally, the new Data Integrator (powered by Power Query) provides an easy way to integrate data from Dynamics 365 for Finance and Operations with Common Data Service for Apps data.

Taken together, the Common Data Service for Apps provides a coherent view of a business across functions and roles in Dynamics 365. For example, you can have a single customer list, product catalog, or employee directory. The single system of record acts as the foundation for digital transformation.

New capabilities include:

- **Support for additional data types.** Additional data types support more complex entity definitions and provide richer experiences. (Applies to canvas and model-driven apps)
- **Improved entity creation and customization.** Create and customize entities in the Common Data Service for Apps right from PowerApps.com. The refreshed experience includes improved performance, a more user-friendly UI, and helpful features such as in-line option set creation. (Applies to canvas and model-driven apps)
- **Server-side logic for validation.** Create server-side business rules for validating data entered into the Common Data Service for Apps. (Applies to canvas and model-driven apps)
- **Calculated and rollup fields.** Create calculated and rollup fields in Common Data Service for Apps entities directly from PowerApps.com. (Applies to canvas and model-driven apps)
- **Improved Excel add-in for the Common Data Service for Apps.** The Common Data Service for Apps Excel add-in now supports the upgraded Common Data Service for Apps features.
- **Software Development Kit (SDK).** Developers can use the Common Data Service for Apps Software Development Kit (SDK) to create code-based customizations for the Common Data Service for Apps.
- **Application Lifecycle Management (ALM).** Solutions in the Common Data Service for Apps allow customizations to be organized, exported, and imported between environments to support Application Lifecycle Management scenarios within organizations, and between ISVs and their customers. (Applies to model-driven apps)

- **Common Data Service OData Web API.** Advanced users can access data stored in the Common Data Service for Apps through a new OData Web API.
- **Import data into Common Data Service for Apps with Power Query.** Use Power Query on the web to directly import data into the Common Data Service for Apps from multiple sources.

Spring '18 summary of what's new in Common Data Service for Apps

April '18 - General Availability

Support for additional data types
Improved entity creation and customization
Server-side logic for validation
Calculated and rollup fields
Improved Excel add-in
Software Development Kit (SDK)
Application Lifecycle Management (ALM)
Common Data Service for Apps OData Web API
Import data into Common Data Service for Apps with Power Query

Support for additional data types

Data stored in the Common Data Service for Apps in both standard and custom entities can use an updated list of data types. Data types provide basic validation of the data stored in a field and also different experiences within apps to ensure that the correct type of data is collected.

Support for IME Mode for complex characters and symbols such as Japanese Kanji characters is now supported on Single and Multiline text data types.

New data types include:

- Multi Select Option Sets. Allows multiple values to be selected from a drop-down.
- Two Options. Similar to a Boolean data type but with customizable selections.
- Floating Point Number. Similar to decimal number but provides greater control over precision.
- Customer. Creates a lookup to a list of Accounts and Contacts within the Common Data Service for Apps.

Existing data types include:

- Single Line of Text.
- New formats for Email, URL, Ticker Symbol, and Phone.
- Multiple Lines of Text.
- Option Sets: New support for one-time in addition to reusable.
- Whole Number.

- Decimal Number.
- Currency.
- Date and Time.
- Image.
- Lookup.

For more information about data types, go to the Types of fields and data types page.

Improved entity creation and customization

Creating and customizing Common Data Service for Apps entities from PowerApps.com is improved in the following ways:

- **Improved entity experience.** The experience for viewing, editing, and creating entities has been redesigned to take advantage of the latest Common Data Service for Apps features and the latest experience standards.
- **See only what you need.** Entity lists are now filtered to recommended views to make it easier to find what you need. Change the filter to "all" to see system entities and other less commonly used items. When creating entities and adding fields, you can focus on the most important decisions in-line, and then expand to more advanced options when needed.
- **Simplified in-line experiences.** Improve productivity when customizing entities by creating option sets directly in-line when adding fields to your entities. There's no need to switch contexts.

Improved entity experience

Server-side logic for validation

Business rules on Common Data Service for Apps entities make it possible to visually define server-side business logic for canvas and model-driven apps.

Use business rules to:

- Set default values for form fields based on logical parameters.
- Create simple and multi-step validation logic for any entity field, or for a combination of fields.
- Trigger workflows and other processes directly from rule logic.

Business rules designer

[For more information about the business rules designer, go to Create business rules and recommendations to apply logic in a form](#).

Calculated and rollup fields

Calculated and rollup fields on Common Data Service for Apps entities make it possible to easily compute values for any field and summarize multiple records in a single rollup calculation.

Create calculated and rollup fields when you need to:

- Create number-based calculations by using Excel-like formulas.
- Concatenate and update text.
- Create calculations by using values from related entities.

- Create rollups of number fields.
- Apply conditional calculations based on values in other fields.
- Create rollups of date fields (for example, MAX(Datefield)).

Calculated field

For more information about calculated fields, go to Define calculated fields to automate manual calculations. For information about rollup fields, go to Define rollup fields that aggregate values.

Improved Excel add-in

Data stored in the Common Data Service for Apps can be viewed, created, and edited through the updated PowerApps and Common Data Service for Apps Excel add-in.

Use the Excel Add-in to do any of the following from Excel:

- Create and edit data stored in standard and custom entities from the Common Data Service for Apps.
- Look up related entities and option sets for easier data editing.
- Apply server-side logic to data changes, including business rules and calculated fields.

Software Development Kit (SDK)

The SDK includes an architectural overview of the Common Data Service for Apps, the entity model, security model, and web services. Sample code and walkthroughs are provided to guide you through the features.

It also contains information that developers can use to customize components within the Common Data Service for Apps through code.

Note: If you used the Preview of the SDK for the previous version of the Common Data Service, you'll find that the new SDK (which is the version available for Dynamics 365) offers significant changes. The previous SDK will remain in Preview. Any apps using that SDK will have to be updated to work against the new SDK.

Developers can use the SDK to create and customize:

- Entities (including fields and views).
- Charts and dashboards.
- Business processes.
- Virtual entities.

The SDK can also be used for more advanced scenarios, including:

- Plug-ins, Azure extensions, and webhooks.
- Code-based data generation and import.
- Solution creation and management (ALM).

For information about the SDK, go to Developer Guide for Dynamics 365 Customer Engagement.

Microsoft Flow

Microsoft is modernizing business processes across productivity, CRM, and ERP applications, which makes it easier for every business to transform how people work. Microsoft Flow, the Microsoft workflow and business process management platform, is core to the success of this mission. It's the connective glue that’s used by users and app developers alike for digital transformation, no matter what application they’re using. Flow, together with PowerApps and Power BI, makes up the Business application platform.

New capabilities for Flow in the Spring ’18 release include:

- **Create a business process flow.** A business process flow is a new type of stateful, human-interactive flow based on the Common Data Service for Apps. Use these new flows to define a set of stages and steps for people to follow. They can move forward and backward as needed.
- **Business process flow entity customization.** Business process flow entities can appear in the system, so that entity record data can be made available in grids, views, charts, and dashboards.
- **Add an action to a business process flow.** In a business process flow, add a button that triggers an action or workflow that runs processes on your data.
- **Repair recommendations sent in email for failed flows.** If a flow fails, have detailed repair recommendations sent right to your inbox. These step-by-step recommendations are linked directly to the information you need to fix the most common failures.
- **Request for sign-off flow built into SharePoint.** When you select a file or item in SharePoint, you’ll see a new Request for sign-off flow. This flow, which doesn't require any configuration or setup, sends a sign-off request with a single click.
- **Customize SharePoint content approvals with Flow.** For SharePoint page libraries, site administrators can take advantage of Flow for content approval workflows.

- **Flows "owned by" SharePoint lists and libraries.** Flows that work with SharePoint lists (and libraries) can be shared with those lists, so instead of being shared with individuals or groups, they're shared with everyone who has access to the list. As membership of the list or library changes, users are automatically given access to the flow.
- **Test your flow by using sample data.** Creating a flow might require some trial and error during the development process. Use sample data to test your flow as you build it, so you know that the flow will run as expected.
- **Build and run flows from Excel.** With the new Flow button (accessed from the ribbon's Data tab), you can create and trigger automations from Flow on your table data in Excel. Automate data processing or the copying/importing of data.
- **Create a flow for Microsoft To-Do in Outlook Web App.** If someone is @mentioned in Outlook Web App, they'll see a shortcut to create a flow. This flow automatically creates tasks for the @mentioned person in Microsoft To-Do, based on the content of the email.
- **Return data to PowerApps from a flow.** Build flows that can be called from an app built with PowerApps, and return data back to the app. Use the visual drag-and-drop flow designer to build the logic you need for the app.
- **Quick access to help and support.** Open support tickets in the context of an issue encountered in Flow, such as when your workflow is failing. Automatically provide Microsoft support engineers with failure details for quicker resolution.
- **GDPR compliance.** To support the EU's General Data Protection Regulation (GDPR), administrators can now submit a request to export or delete all of the data about Flow users.
- **Access modern approvals in the Common Data Service for Apps.** Modern approvals data in Flow is built on the latest version of the Common Data Service for Apps. This means that you can build flows that read the status of the approvals you send or receive with the CDS connector.
- **Find errors in "Apply to each" actions.** Jump directly to errors in loops in the flow run view, even when there are hundreds of items in the loop.
- **Reassign approvals.** Assign any approval that you receive to another person in your organization, to delegate the approval.
- **See details of flow buttons.** When you run a flow that has been shared with you, see all the actions that the flow uses.
- **United Kingdom region.** Create environments to store data in the United Kingdom.
- **New documentation landing page.** On the documentation landing page, group content by skill level: beginner, intermediate user, or expert.
- **Add multiple records to array inputs.** Use a list builder to add multiple attachments to an email, for example.
- **Test flows with previous run data.** Test your flow with trigger data from previous flow runs by using a Test flow button in the designer.

- **Access flow details with the workflow() expression.** Access the environment name and flow display name with the workflow() expression.

Spring '18 summary of what's new in Microsoft Flow

April '18 - General Availability
Return data to PowerApps from a flow
Access modern approvals in the Common Data Service for Apps
Find errors in Apply to each
Reassign approvals
See details of flow buttons
United Kingdom region
New documentation landing page
Add multiple records to array inputs
Test flows with previous run data
Access flow details with the workflow() expression

May – July '18 - General Availability
Repair recommendations sent in email for failed flows
Request for sign-off flow built into SharePoint
Customize SharePoint content approvals with Flow
Flows "owned by" SharePoint lists and libraries
Build and run flows from Excel
GDPR compliance
Create a business process flow
Business process flow entity customization
Add an action to a business process flow
Create a flow for Microsoft To-Do in Outlook Web App
Test your flow by using sample data
Quick access to help and support

Create a business process flow

Use business process flows to define a set of steps for people to follow to take them to a desired outcome. You can configure business process flows to support common sales methodologies that can help your sales groups achieve better results. For service groups, business process flows can help new staff get up to speed more quickly and avoid mistakes that could result in unsatisfied customers.

With business process flows, you define a set of stages and steps that people go through.

Business process flow

Each stage contains a group of steps. Each step represents a field where data can be entered. People advance to the next stage by using the Next Stage button. You can make a step required, so that people must enter data for the corresponding field before they can proceed to the next stage. This is commonly called "stage-gating." In addition, you can call workflows from inside a business process flow.

Access business processes by selecting Processes in the Flow portal. From there, you can create new business process flows and monitor existing business process flows.

For more information about business process flows, go to Create a business process flow to standardize processes.

Business process flow entity customization

Because business processes flows are available as entities in the Common Data Service for Apps, you can use advanced find results as well as views, charts, and dashboards sourced from business process flow data for a given entity, such as a lead or opportunity. Create custom business process flow grids, views, charts, and dashboards that are similar to those created with any other entity.

Business process flows, such as Lead To Opportunity Sales Process, appear as a customizable entity in Solution Explorer.

Solution Explorer with the Lead To Opportunity Sales Process entity

Several default views are available that you can view as a chart, such as the Active Lead To Opportunity Sales Processes view.

Active Lead to Opportunity Sales Processes view

Currently, you can't create custom forms for entities based on a business process flow.

Add an action to a business process flow

You can add an action that triggers a workflow to run processes on your data.

For example, as part of the opportunity qualification process, the Contoso organization requires all opportunities to be reviewed by a designated reviewer. They need an action they can run on demand that:

- Creates a task record that is assigned to the opportunity reviewer.
- Appends "Ready for review" to the opportunity topic.

To integrate these tasks into the opportunity qualification process, the actions must appear on the opportunity business process flow.

To enable this functionality, under Available to Run, select As a Business Process Flow action step.

Available to run as a business process flow

Next, add the action step to Contoso's Opportunity business process flow, and validate the process.

Action added to the Opportunity business process flow

Now, members of Contoso's salesforce can start the action from the Opportunity Qualify business process step whenever they want by selecting Execute.

Execute action

To be able to execute an action or workflow on demand:

- The business process flow must include an action step. If the action step runs a workflow, the workflow must be configured to run on demand.
- The entity associated with the action or workflow must be the same as the entity associated with the business process flow.

Repair recommendations sent in email for failed flows

Enable email notifications to detect flow failures. To enable this feature, go to the Flow details page, and then, on the contextual menu (...), subscribe to receiving emails about flow failures.

These useful email notifications provide:

- Information about why your flow failed.
- Meaningful remediation steps.
- Additional resources to help you build robust flows that never fail.

Flow repair email

If you don’t want to receive emails but want to read about remediation steps and related resources, access them from the Run History view in the Flow portal.

Request for sign-off flow built into SharePoint

Use the Request sign-off feature in SharePoint to quickly send an item for approval to someone in your organization (no setup required).

Request sign-off makes use of SharePoint's integration with Flow. Just select a file or list item (not a folder) in SharePoint, access the Flow menu in the modern library UI, and then select Request sign-off. This flow will appear alongside any other custom flows added to the library.

Request sign-off from the Flow menu in SharePoint

When invoked, Request sign-off creates a new text column in your library, called Sign-off status. This column records the state of your request. It works just like any other text column—sort, filter, or group by it to organize your library.

On invocation, you're also notified that an approval request will be sent on your behalf, and asked to provide consent. After providing consent, pick one or more approvers, and then write a message for your approval request. If you add more than one approver, any one of them can approve your request.

Pick one or more approvers and enter a message

When you select the Run flow button, your request is sent, and the Sign-off status column shows Pending.

The person you send the approval to will receive an approval request. This is an actionable message on clients that support it. For example, an Outlook user can approve the request directly from Outlook. The approver can also provide comments along with their decision and can click a link to view the item in question.

Actionable message

The Sign-off status column is then updated with the decision, and the person who sent the approval request receives an email with the comments.

Sign-off status is updated with the decision

Customize SharePoint content approvals with Flow

For any modern SharePoint page libraries, site administrators and owners can turn on content approvals for new edits. With content approvals turned on, whenever a change is made to a page, it's put into Pending mode and submitted for approval. This in turn results in a new approval item for designated approvers. An approver can review changes and either approve them directly in SharePoint by using an embedded Flow experience or respond on the approvals center, on their phone, or directly from email. When an approver responds, the content author is notified, the change is published, and the page is updated.

Flows "owned by" SharePoint lists and libraries

Until recently, flows could be shared only with individuals or Azure Active Directory security groups. Now, flows that use SharePoint lists or libraries can be shared with those lists or libraries. This means that if new members are added to the list or removed, their access to the flow changes accordingly. Sharing comes in two flavors: you can add a list as a co-owner or as a run-only user. When you add a list as a co-owner, all members of the list have full access to the flow. They can edit the flow, delete it, or share it with others. When you add a list as a run-only user, all members of the list can only run the flow.

To add a list or library as a co-owner

For a flow that uses a SharePoint action (for example, when an item is added or modified):

1. Select the flow in the **My flows** or **Teams flows** list.
2. On the flow details page, select the **Add another owner** button.
3. Go to the **SharePoint** tab.
4. Select the site address and list ID of the list you want to share the flow with, and then select **Share**.

List members can navigate to the flow by selecting it on the menu in SharePoint.

To add a list or library as a run-only user

Run-only users can only be added to manually invoked flows—for example, flows that use the For a selected item trigger.

To add a list or library as a run-only user:

1. Select the flow in the **My flows** or **Teams flows** list.
2. On the flow details page, select the **Add another user** button in the **Manager run-only users** section.
3. Go to the **SharePoint** tab.
4. Select the site address and list ID of the list you want to share the flow with, and then select **Share**.

Share a flow with run-only permissions

After a flow is a shared with run-only permissions, all members of that list will be able to invoke the flow from the Flow menu in that list or library.

Test your flow by using sample data

Test your flows after creating them to ensure that they work as you expect.

There are two ways to access the test flow:

- Go to the flow details page, select the contextual menu (...), and then select Test Flow.

  -or-

- Select the Test button in the banner after saving your flow.

In the Test pane, there are three modes for testing your flow:

- Let Flow trigger the test by using sample data.
- Manually trigger the test yourself by doing the action that triggers the flow.
- Use data from previous runs to perform the test.

Testing flow side panel

Note, however, that not all options are available for all types of triggers.

Build and run flows from Excel

With the new Flow button, create and trigger automations from Flow on your table data in Excel to automate data processing or the copying/importing of data. You can create and run on-demand flows for selected rows in any Excel table on spreadsheets hosted in SharePoint or OneDrive for Business.

To get started, in Excel, select the Flow button on the Data tab. From the Flow launch panel, build your flow by using the For a selected row trigger, or start from one of the templates:

- For a selected row -> send email
- For a selected row -> create an entity in Dynamics
- For a selected row -> send for approval
- For a selected row -> post a message to Teams
- For a selected row -> create a row in another spreadsheet
- For a selected row -> Post a message to Twitter

After the flow is created, select a row, and then select the Play button to see your flow in action.

Create a new on-demand flow in Excel

Create a flow for Microsoft To-Do in Outlook Web App

A popular feature in Outlook is the sender's ability to explicitly call out a person on the recipient list to draw his or her attention to the email. This is done by including the at sign (@) before the name of the person, which causes the name of the recipient to be highlighted in the email and the recipient's email to be automatically included in the To line. By @mentioning someone in an email, you can call the recipient's attention to an action item assigned to them.

Now, with just a few clicks, create a flow that automatically creates a task in Microsoft To-Do whenever someone is @mentioned in an email message. That way, tasks they need to follow up on are centrally located in the Microsoft To-Do app.

Flow creation in Outlook Web App

The task contains the context from the email for reference, such as the sender and the body of the email. The recipient can add additional context, such as the due date and categorization, from within the To-Do app.

At this time, this functionality is available only for Outlook Web App (OWA).

Return data to PowerApps from a flow

Use Microsoft Flow to create logic that performs one or more tasks when an event occurs in a PowerApp. For example, configure a button that creates an item in a SharePoint list, sends an email or meeting request, or creates an online file. You can also use a flow to return data to PowerApps. For example, configure a flow that retrieves data from a web endpoint, SQL Server, or an Excel file in SharePoint, and then processes that data by using built-in actions. You can configure any control in the app to start the flow, which continues to run even if you close PowerApps.

Step One

To set up a flow that calls data from PowerApps, first start your flow with the PowerApps trigger.

PowerApps trigger

Next, add whatever actions you want to run when your flow is called. Inside these actions, you can use the **Ask in PowerApps** option to collect additional parameters from the PowerApp.

Step Two

After you have built your flow and collected the data you need, add the **Respond to PowerApps** action. In this action, define the output fields you want to provide to PowerApps. Name each field, and select Add Dynamic Content to pass in data from the actions in the flow.

Response action

Step Three

The last step is to add your flow to the PowerApp in the formula bar. Select the control to run your flow from, and then, on the **Action** tab on the ribbon, select **Flow**. Select the flow you created to add it to the formula bar, and pass any parameters that the flow requires.

Set variable

We recommend that you use **Set()** or **UpdateContext()** to set a variable that stores the result of your flow. That way, if multiple values are returned from the flow, you can access different properties in various places in your app. For example, the preceding flow returns two properties, **most_sales** and **sellers**, and you can use either on a control.

View result properties

Today, you can return basic types such as Text or Email. However, there might be cases where you want to return a list of data to the PowerApp, such as a list of names. In this case, you can use the **Join** action inside your flow and then use the **Split** function in your PowerApp.

Use results in the gallery

In the preceding example, notice that the result of the flow is set in SalesInfoVariable, and then the gallery is bound to the table output by splitting the names on a comma. If you have an array of objects in the flow, use the **Select** action first, to choose the property you want to pass to the PowerApp before joining the array.

Quick access to help and support

If you encounter issues when you're building or running a flow, or encounter any other issue while using Flow, open a support ticket from the Flow website (you don't have to go to a separate portal and sign in again to provide issue details). If you open the support ticket from the page of a broken flow, the flow ID details are automatically added to the ticket. The ticket contains details about your user account plan and the broken flow, where applicable, and will be sent to Microsoft support engineers so that they can quickly resolve the issue.

GDPR compliance

Microsoft is committed to GDPR compliance across our cloud services, including Microsoft Flow. When a user is deleted from Azure Active Directory, the tenant administrator receives an email notification indicating that the user has been deleted from the corporate directory. The admin can determine which flows the user owned by executing a PowerShell script, and can then reassign ownership in the Flow Admin Center.

Modify ownership in the Admin Center

Newly assigned owners can view or export the run details for the flow.

Run details

Flow owners can also do a Save As operation to provide a new name.

Save As

During this process, connections need to be reestablished to make the flow operational again.

Connections

Access modern approvals in the Common Data Service for Apps

Modern approvals data in Flow is now built on the latest version of the Common Data Service for Apps. This means that you can build flows that read the status of approvals you send or receive with the CDS connector. Examples include:

- Send automatic reminders for pending approval requests.
- Create to-do tasks in Microsoft To-Do, Trello, or Todoist when an approval is waiting for you.
- Post a message to Teams when a new approval request matching specific parameters waiting for you.

You can use this template as an example to start with. Customize it, and add or remove actions as needed, such as creating a To-Do or posting to Microsoft Teams.

Approvals in the CDS template

Today, all new environments created by an administrator use the latest version of the Common Data Service for Apps. Here are a few important notes for using this new functionality:

1. To have Approvals installed in an environment, the administrator must first create an Approval flow before any other users in the environment can use approvals.
2. After creation, it can take up to 10 minutes (or, in rare cases, longer) for Approvals to begin working in the environment.
3. For these templates to work, the person who is using them must be assigned the **Common Data Service User** security role in the CDS environment. Otherwise, the user won't be able to access the Approval records through the CDS connector. However, Approvals will continue to work as they do today, through the Approval center, regardless of the roles that are assigned to the user.

Existing environments that use Approvals will be updated with these new capabilities in the coming weeks.

Find errors in Apply to each

We recently increased the limits for Apply to each, which means that you can have loops that contain thousands of items. However, if a small number of the actions in these loops fail, it's important that you be able to jump directly to the failure. This week, we are adding new functionality: in the run view, there are two new buttons to take you directly to the next and previous *failed* items. You can now quickly go through only the failures in your actions to identify what went wrong, even if there are thousands of items in the loop.

Errors in Apply to each

Approval reassignment

If you can't or don't want to complete an approval yourself, you can now send the approvals you receive to another person. First, click the approval in the Approval center, and then select Advanced in the approval pane. You can then provide the email address of the user that you want to handle the approval on your behalf. After you reassign the approval, that user will see the approval request in their Approval center.

Reassign approvals

You can also reassign from the ellipsis (...) menu on each approval in your received requests.

See details of a flow

When you run a flow that has been shared with you, you can see details of exactly what that flow is going to do with your connections. Whenever you run a flow, select **See details** to view a list of every action that the flow uses (both name and description). Because the flow can use your accounts or connections, you should only ever run a flow if you trust the owner of the flow and are comfortable having them take the actions listed under **See details**.

See details

United Kingdom region

The United Kingdom region is now available for Microsoft Flow. This means that you can create environments in the UK, and all the flow customer data will be maintained solely within the UK. You can read more about our commitments to storing data on the Microsoft Trust Center page for Microsoft Flow.

New documentation landing page

We always want to make it easier to learn about Microsoft Flow. There is a lot of content out there, so we have grouped our documentation content into three sections to help you find the right level of depth for your task:

New documentation page

- I'm a beginner - Covering topics such as our guided learning tour, getting to know the mobile app, and how to create a button flow
- I'm intermediate - Covering how to create flows from scratch and how to troubleshoot those flows
- I'm an expert - Covering how to work with expressions, admin features, and custom connectors

Add multiple records to array inputs

There are many actions in Flow that take an array as input. For example, the **Send email** action has a list of attachments that can be included with the email. Before, you could pass just one attachment, or you could generate a list of attachments from the outputs of another action by using the **Select** action. However, there was no easy way to just have *two* attachments.

So we're happy to announce that, for any action that takes a list as an input, you can now add as many items inline as you want.

Array inputs

To add a second (or third, fourth, and so on) attachment, just click the **Add new item** button below the main fields for that attachment. Each time, you'll get a new set of the fields for the new attachment (or any other record that you're adding). To remove an item, select the ellipsis (...) menu next to the first field in the record you want to delete.

Test flows with previous run data

When you're editing a flow that you've run in the past, it can be useful to be able to rerun the flow with the trigger data from a previous run. This gives you a way to verify that your flow now behaves as you expect. This has been possible before by going to the **Run history** view and selecting **Resubmit**. Now, to streamline the editing experience, we are adding a **Test flow** button directly in the designer.

Test flow button

When you select Test flow, you will see a new pane with two options:

1. **Perform the trigger action yourself.** The action depends on what the trigger is. For example, for a button trigger, you'll run the flow button; for an email trigger, you'll send yourself an email; and for a file trigger, you'll upload a file to SharePoint Online.
2. **Use data from previous runs.** Here, if your flow has run before, you'll get a list of the most recent runs and can pick one to test your flow with.

Test flow pane

After you run the flow, you'll immediately see the details of the flow run and can watch each steps being executed. Finally, runs started via this route are marked as Tests in the run history view, so you can distinguish them from flow runs that were triggered normally.

Access flow details with the workflow() expression

The last feature that we added is a new output property called **tags** to the **workflow()** expression. The tags contain properties such as **flowDisplayName** and **environmentName**. This means that, from the flow itself, you can send custom email notifications that link back to the flow. For example, this will create an HTML link back to the flow, with the display name of the flow in the title.

```
<a
href="https://flow.microsoft.com/manage/environments/@{workflow()['tags']['environmentN
ame']}/flows/@{workflow()['name']}/details">Open flow
@{workflow()['tags']['flowDisplayName']}</a>
```

Business Intelligence Platform

Organizations can use Power BI to translate a wealth of data into actionable insights. New Power BI capabilities in the Spring '18 release include:

- **Analytics and exploration experiences.** Features include an improved SAP HANA connector that treats SAP HANA as a multi-dimensional source, and capabilities for analysts to improve productivity with unique ways to visualize data. For example, users can use canvas tooltips to express more detail in context. Excel users who use the matrix visual receive measure-driven conditional formatting, and the ability to expand or collapse sections of the visual.
- **Natural language analytics for everyone.** Authors can use some of the improvements to Q&A natural language experiences to add domain-specific language and phrasing tailored for their domain. Users can ask questions in the context of their workflow, which includes Cortana and reports in Dynamics 365. Users can identify trends or changes in their data using Smart alerts and enhanced Quick Insights.
- **Enterprise-grade trusted platform.** Governance improvements include additional administrative controls, access to user content, and reporting. With Power BI Premium, you get improved scalability support with larger node sizes, incremental refresh for faster data loads, and deployments that span multiple geographic regions worldwide.

Spring '18 summary of what's new in Business Intelligence Platform

Jan '18 - General Availability

Power BI Desktop

- Ask Top N questions in Q&A - Easily ask Top N questions in Q&A in both Power BI Desktop and Power BI Service.
- Azure Active Directory authentication - Leverage Azure Active Directory authentication when connecting to Azure SQL Database and Azure SQL Data Warehouse.
- Hide pages from reading mode - Authors control which report pages are exposed to users.

Power BI Service

- Ability to share and favorite reports - Shared reports appear in recent, favorites, and "shared with me" lists, similar to dashboards.
- Push apps - Admins can automatically deploy Power BI apps to users.
- Pin from apps to dashboard - Create dashboards that combine information from other shared dashboards, reports, or apps in an integrated view.
- Persistent filters - With persistent filters, Power BI saves a user's slicer and filter values, and automatically applies them when the user returns.
- Custom visual administrator control - Power BI admins can disable custom visuals for an organization.

Power BI Mobile

- Visio custom visual support - Custom visuals are presented in the mobile app when users tap the visual and sign into their Visio online account.
- Responsive visuals optimized for phone layout - Text—such as labels—also adjust based on the size of the visuals.

Power BI Embedded

- Capacity API – Using Enhanced Application Lifecycle Management capabilities, you can use APIs to assign or remove Workspaces from Power BI capacity.
- Row-level security on Azure Analysis Services based on CustomData - Filter data based on the CustomData function in Azure Analysis Services for row-level security.
- Custom layout - Dynamically change the size and layout definitions of a report page. Use one of the layouts in Power BI Desktop, or a fixed size to match the application element.
- Phased embedding - Load embedded content in the background to improve performance and get object metadata.
- Single visual embedding - Embed one or more visuals inside an iFrame.

Feb '18 - General Availability

Power BI Desktop

- Report level slicers - Filter other pages of the report.
- Cross-highlight across multiple visuals - Multi-select data points across visuals.
- Quick measures - Support for live connections and custom date tables.

Power BI Mobile

- Ability to invite and favorite reports - Users can view reports shared with them, share reports with others, view favorite reports, and mark reports as favorites.

Power BI Embedded

- Azure monitoring - With usage metrics, monitor the consumption of resources, and trigger actions when thresholds are met.
- Azure US Government Cloud availability - Power BI Embedded is available for United States government customers.
- Mobile layout support - Load embedded report pages in a phone layout.
- Model Parameters API - Get or set predefined model parameters using APIs.
- Visual level filters - Apply and capture filters for embedded visuals.

Feb 18 – Public Preview

Power BI Desktop

- SAP HANA connector - Treats SAP HANA as a multi-dimensional source.
- Organizational visuals store - Discover and import custom visuals distributed by your Power BI administrator.

Power BI Service

- Manage organizational visuals store - Power BI administrators can deploy and manage custom visuals for their organization.

March '18 - General Availability

Power BI Desktop

- Bookmarking - Bookmark report states to keep track of an exploration, tell a story, or create custom navigation.
- New SAP HANA and SAP Business Warehouse (BW) connectors.

Power BI Service

- Share content with consumer accounts - Share content with other users who have email addresses from consumer email services and telecommunications providers.
- Larger node sizes in Power BI Premium – Organizations can use P4 and P5 nodes to run larger workloads on premium capacity.
- Performance reporting for Power BI Premium - Provides insights about how Premium capacity resources are utilized, troubleshooting performance issues, and deciding when to upgrade to a larger node size.

Power BI Mobile

- Report tooltip touch optimization - Data point selection with tap and hold gesture.
- Power BI for mixed reality (Public Preview) - Mixed reality experience for viewing dashboards and reports, and positioning them in their surroundings with Microsoft HoloLens. Available in Microsoft Store.
- Persistent filters - Users resume working with report filters and slicers in the same state as their last interaction.
- Phone optimization for embedded reports - Mobile app developers who use embedded reports for phone optimized layout can resize and position visuals to fit the device.
- External sharing - Users can share reports and dashboards with external users.

Power BI Embedded

- Available on German datacenters.
- Bookmarks support - Apply bookmarks on embedded reports and control UI elements through APIs.
- Update dashboard/tile – With Application Lifecycle Management, developers can change deployed tiles and dashboards while retaining their original IDs.
- Single sign-on (SSO) for Azure SQL database - Optionally pass in authenticated Azure AD credentials in queries to the Azure SQL database.

Power BI report server

- Power BI Desktop features available since October '17:
  - Drill with filtering of all visuals on page
  - Rule-based conditional formatting for table and matrix
  - Cell alignment for table and matrix

- Lock objects on your reports
- Report options for slow data sources
- Filtering performance improvements
- Selection pane and visual display controls
- Bookmarking
- Report-level slicers
- Quick measures
- Cross-highlight across multiple visuals
- DirectQuery performance improvements

March '18 - Public Preview

Power BI Desktop

- Canvas tooltips - Design report pages for use as tooltips for a custom experience.

April '18 - General Availability

Power BI Desktop

- Control over linguistic schema - Report authors can improve Q&A results for users by adjusting the linguistic schema with phrasing and synonyms specific to the model domain.
- New experiences for Q&A in reports - Report authors can enable Q&A experiences for report consumers with suggested starting questions. These user experiences surface in Power BI Service, Power BI Embedded, and Cortana.
- Organizational visuals store - Discover and import custom visuals from the Power BI admin.

Power BI Service

- Data source setup improvements - Easily configure gateways and diagnose common errors.
- Organizational visuals store - Discover and import custom visuals from the Power BI admin.
- Administrator tenant usage reporting - Admins gain insights into workspace, report, and dataset usage across the tenant, including number of users and frequency of use.

Power BI Mobile

- Drill-down and drill-up support - Users drill down and drill up to analyze data on mobile via tap and hold to open a tooltip menu on report visuals.

Power BI Embedded

- Azure load monitoring - Monitor consumption of resources, and trigger actions when thresholds are met.
- Onboarding experience - Onboarding tool makes initial setup fast and easy.
- Show or hide report pages - Set the visibility of embedded report pages through the API.
- Get data APIs - Enable applications to extract data shown in visuals.
- Themes support - Manage themes by session for embedded objects with JavaScript API.

- Visual level configuration - Control which visual functions, such as focus mode and export data, are exposed to users.
- Azure diagnostics - Use error logging for analysis and tracking.

April '18 - Public Preview

Power BI Service

- Workspaces with Azure AD groups - Workspaces have their own roles and permissions separate from Office 365 groups to enable more control over management of workspaces, including assigning workspace roles to individual users. The preview is available for customers with Power BI deployments that meet certain criteria. Contact your Microsoft account representative to learn more about how you can participate.

May '18 - General Availability

Power BI Desktop

- Drill-through on measures – Power BI now supports drilling through on measures. This includes passing through the filter and slicer context from the current page.
- Conditional formatting based on another column – Table and matrix visuals can leverage columns that aren't necessarily part of the visual when they're conditionally formatted.
- Incremental data refresh – Users can set up incremental data refresh policies that will be applied when they publish to the Power BI service.

May '18 – Public Preview

Power BI Service

- Incremental data refresh - Incrementally load new data into a dataset without reloading all the data.

June '18 - General Availability

Power BI Desktop

- Filters on data view – In the data view of Power BI Desktop, users can now filter the data that they are working with.

Power BI Service

- Multiple-geographic regions for Power BI Premium - Create Premium capacities in geographic locations that are different from the Power BI tenant to achieve compliance requirements.
- Set up email subscriptions for other users.
- XMLA connectivity with Analysis Services - Treat Power BI Premium workspaces like Analysis Services servers and connect to them with existing tools.
- Smart alerts - Users receive automatic alerts when there are important changes to data.

Power BI Mobile

- Drill-through support - On mobile, use drill-through to navigate from one report page to another report page filtered by a selected entity.

Power BI Embedded

- App-only token support - Identify an application on the Power BI platform for enhanced deployment, security, and Application Lifecycle Management.
- Workspace collection deprecation.
- Export to PowerPoint - Export an embedded object to PowerPoint.
- Export to PDF - Export an embedded object to PDF.

June '18 - Public Preview

Power BI Service

- Workspace search - Search for and find content across all the workspaces that you have access to.
- SSRS reports for Power BI Premium - Publish and view SQL Server Reporting Services (SSRS) reports in Power BI Premium.

July – September '18 - General Availability

Power BI Service

- Dataset metadata translations - Users see dataset fields in their client locale and language when translations are defined in the dataset or Analysis Services model.
- **Export to PDF** - Export a Power BI report in PDF format.

July – September '18 – Public Preview

Power BI Desktop

- Model diagram and navigation – An improved modeling experience that scales to large and complex data models with many tables, calculations, and other objects.
- Common Data Service for Analytics capability in Power BI connectivity - Report authors can connect to data in Common Data Service for Analytics, add entities to data models, and mash-up Common Data Service for Analytics data with data from other sources.

Power BI Service

- Query acceleration for large datasets - Dataset authors create in-memory aggregations to enable interactive queries over big data.

Common Data Service for Analytics in Power BI

- Common Data Service for Analytics in Power BI (Public Preview) - Datapools become artifacts in Power BI, and users can create new datapools, manage access to existing datapools, manage data refresh from Common Data Service for Analytics, and monitor processing from within a Power BI workspace.
    - Use Power BI to import data to Common Data Service for Analytics - Use an authoring tool to import and transform data and map it to a common data model.
    - Manage Common Data Service for Analytics within Power BI workspaces
- Power BI apps for Common Data Service for Analytics - Users can customize and manage apps from the Power BI Service without writing code. No Azure subscription is required.

- Map data from Azure Blob storage to Common Data Service for Analytics - Map existing Azure Blob storage to standard or custom entities in Common Data Service for Analytics. Mapped entities are available in Power BI Desktop for building datasets, reports, and dashboards.

Power BI Insights apps

- Power BI for Sales Insights – Brings in key entities from either Dynamics 365 or Salesforce, allowing sales managers to track sales performance across products and salespeople.
- Power BI for Service Insights – Takes advantage of Dynamics 365 for Customer Service, Field Service, or Project Service Automation data to provide insights in each of these areas.

Power BI Desktop

Ask Top N questions in Q&A

Use ad hoc analysis in Q&A to ask Top N questions, such as "What are my top 10 customers by sales?" Users can ask these questions in Power BI Desktop when authoring a visual, in the Power BI Service while viewing a dashboard, or on mobile using voice.

Example of a question-based query on a dashboard

Azure Active Directory authentication

Connect to Azure SQL database and Azure Data Warehouse by using Azure Active Directory (Azure AD) authentication. This simplifies an organization’s ability to grant and manage access to these data sources in a single place.

Hide pages from reading mode

A report author can hide a page from view of the report consumer until the report is accessed via a drill-through or bookmark action. This capability is helpful for reports with many pages that should be hidden from the user unless accessed within context. This capability is familiar to users who use Excel and PowerPoint.

Authors can hide pages

Report level slicers

Report authors can use slicers that sync across pages, and update visuals across a report. This capability allows for dynamic navigation without losing context when switching from page to page. Report authors can take control of filtering in their report and customize it to meet user needs.

Report level slicers

Cross-highlight across multiple visuals

Users can multi-select data points across visuals to apply cross-highlighting. Users can perform deeper data exploration and glean new insights that may have otherwise been missed.

Example of cross-highlighting for deeper data exploration

Quick measures

The quick measures feature is generally available, and it no longer requires the feature to be turned on from the **Preview** tab in the **Options** dialog box. Additionally, the date hierarchy in Power BI is no longer required for time intelligence quick measures. Instead, you can use the **Date** field from your own date table.

Quick measures for Power BI Desktop

SAP HANA connector

By default, the SAP HANA connector treats SAP HANA as a multi-dimensional source, similar to SAP Business Warehouse (BW) or Analysis Services. For more information, see SAP HANA DirectQuery and SAP HANA.

SAP Business Warehouse (BW) connector

The DirectQuery mode for SAP Business Warehouse (BW) is generally available. For more information, see DirectQuery and SAP Business Warehouse (BW).

Organizational visuals store

Power BI admins can deploy visuals as part of an organizational repository. Deployed visuals display under a section of the Power BI custom visual store called MY ORGANIZATION.

Marketplace for Power BI Visuals

Bookmarking

Create bookmarks in the Power BI Service without first creating a bookmark in Power BI Desktop. The Bookmarking feature is generally available, and it no longer requires the feature to be turned on from the **Preview** tab in the **Options** dialog box.

Example of bookmarks

Canvas tooltips (Public Preview)

Using Canvas tooltips, you can design a report page as a custom tooltip for other visuals in a report. You can design any type of custom tooltips you need, from using cards that show detailed information to miniature drill-through pages shown on mouse hover.

Customizable canvas tooltips

Control over linguistic schema

To improve the results of Q&A for users across Power BI Desktop and Power BI Service, a report author can adjust the linguistic schema with phrasing and synonyms that are specific to a model domain.

User experiences for Q&A in reports

Report authors can enable Q&A experiences for report consumers with suggested questions to start from. These same experiences are surfaced in the Power BI Service, Power BI Embedded, and Cortana, so users can perform explorations with a preferred client.

Example of Power BI Desktop Q&A

Conditional formatting based on another column

The table and matrix visuals in Power BI will now support conditional formatting based on another column, even if that column isn't being used in the visual itself. This will allow more flexibility with conditional formatting and even allow you to write measures for deeper control over the formatting.

Filtering on Data View

In Power BI Desktop, the data view allows users to view individual rows from their data set. Power BI now supports Excel like filtering on the data view, enabling end users to slice and dice in the data view to get a better understanding of the data they are working with.

Power BI Service

Share and favorite reports

When you share a dashboard, related resources added to the dashboard are also shared. In other words, when report content is pinned to a dashboard, that report is also shared when you share the dashboard. But, what if a report you want to share is not on a dashboard, or if you want to share only a report?

The report sharing capability works like the dashboard sharing feature; using it, you can directly share a report. You can use the sharing pane to control access rights to a report and send invites to authorized users. When you share a report with a colleague, the report appears in their Shared with me list.

Share reports in your personal workspace or in an app workspace where you're a member. Or share other owners' reports after they grant you permission.

When you share a report, the underlying dataset is also shared. Row-level security settings for the dataset remain the same, so recipients see only the data that they're authorized to view.

Example of report sharing

Push apps

You can automatically install apps that people use for work in the **Apps** content list, instead of requiring users to find the app in Microsoft AppSource or follow an installation link. This streamlines roll-out of standard Power BI content to users.

To turn on this capability, tenant admins enable Push apps to users on the **Settings** tab in the Power BI admin portal. Admins can specify whether the entire organization or specific security groups get this capability.

Push apps functionality in the admin portal

How to install an app automatically for users

After an app publisher enables the Push apps setting, they need to push the app to all users or groups defined in the **Permissions** section of the **Access** tab. To do this, they select **Install app automatically**, and then select **Finish**.

Auto-install configuration setting

How users get the apps that were pushed to them

After you push an app, it automatically shows up in the **Apps** list. This helps organizations curate apps for a user or job role.

Curated list of apps

Pin from apps to dashboard

You can use dashboards to combine information from other shared dashboards, reports, or apps to create a 360-degree view. Now you can pin from dashboards that are distributed to you through apps, as well as when you're the owner of the dashboard or report that you're pinning from. You can create a personal dashboard or bring together and distribute information.

Pin apps to a dashboard

Persistent filters

Power BI persistent filters save users’ slicer and filter values, and automatically applies them when users return to view the reports. Users can reset filters back to the default setting.

Filters on a report

Sharing content with consumer accounts

You can share content with other users who have email addresses from consumer email services or telecommunications providers. Users can view Power BI content, but not author it. You can use additional admin controls through Azure Active Directory to restrict or control consumer sharing behavior, depending on organizational security policies.

Share a report

Larger node sizes in Power BI Premium

The Power BI Premium P4 and P5 nodes allow you to run larger workloads on Premium capacity.

Performance reporting for Power BI Premium

Organizations can use performance reporting for Power BI Premium to understand how their Premium capacity resources are used, troubleshoot performance issues, and decide when to upgrade to a larger node size. Metrics are included for common scenarios such as planning for scheduled refreshes, and to ensure good user query performance.

Data source setup improvements

Data source setup improvements make it easier to configure gateways and diagnose common errors.

Improved data source setup

Incremental data refresh

Organizations can use incremental data refresh to scale datasets to even larger sizes. With incremental data refresh, users can load only new or changed data. When creating a dataset in the Power BI Desktop, a user configures a refresh table for each table in the model that is to load incrementally, and then publishes it to a Power BI Premium workspace. Thereafter, each scheduled refresh loads only new or changed data.

Query acceleration for large datasets (Public Preview)

Users can create DirectQuery models over any size data in sources, such as Spark and Azure SQL Data Warehouse, and then accelerate common queries by building in-memory aggregations over some of the data. Common queries use the aggregated cache to return results in a fraction of a second instead of directly querying the source. Users can create datasets of massive size and still provide interactive querying.

Dataset metadata translations

Power BI users see dataset fields in their client locale or language when translations are defined in the dataset or Analysis Services model.

Smart alerts

Receive automatic alerts when there are important changes to data. A library of pre-built algorithms automatically runs to determine the best insights for users, and automatically delivers alerts to them. The alerts have additional controls that allow customizing the alerts.

Workspaces with Azure AD groups

Power BI workspaces have their own roles and permissions that are separate from Office 365 groups, and which enable control over management of workspaces. Capabilities include assigning workspace roles to individual users, Azure AD security groups, and Office 365 modern groups. Additionally, governance of Power BI workspaces is separated from governance of Office 365 modern groups.

Add a Power BI workspace on mobile

SQL Server Reporting Services (SSRS) reports for Power BI Premium (Public Preview)

Publish SQL Server Reporting Services (SSRS) reports (*.RDL format) to a Power BI Premium workspace, and view reports within the Power BI web app. No SSRS server is required.

SSRS reports for Power BI Premium

Subscribe other users for email

Set up email subscriptions for other users so they all receive relevant information. As part of subscribe others, users can customize a subject line and additional text for the email.

XMLA connectivity with Analysis Services

With this new capability, you can treat Power BI workspaces as if they were Analysis Services servers. You're able to connect the same tools to Power BI premium that are currently used with Analysis Services.

Common Data Service for Analytics capability in Power BI

Common Data Service for Analytics in Power BI integrates your organization's data with a standardized schema built on the Microsoft Common Data Model. It also helps enrich your data with advanced analytics and simplified access to machine learning to provide intelligent and actionable insights for your data.

Common Data Service for Analytics in Power BI (Public Preview)

Common Data Service for Analytics expands Power BI to provide a self-service data lake of business entities stored and manipulated directly within the Power BI Service. It combines the following:

- **The common data model.** A standardized and extensible collection of schemas (entities, attributes, and relationships) to represent business data objects and activities with well-defined semantics, publicly published by Microsoft. Examples of entities include: Account, Business Unit, Case, Contact, Lead, Opportunity, Product, Product Category, Purchase Order, and so on.
- **Federated storage for these entities.** These entities are stored within Power BI and across mounted Azure storage.
- **The ability to create, populate, transform, and enrich these entities.** Using an evolution of the low-code/no-code Power Query experience, users can create, populate, transform, and enrich these entities.

Common Data Service for Analytics datapools

In addition to dashboards, reports, workbooks and datasets, Common Data Service for Analytics introduces a new concept called datapools, which are sets of Common Data Service for Analytics entities. These datapools can be created, installed, browsed, and configured for data refresh from within the Power BI Service. A Get Data type of experience enables users to view and modify the entities, attributes, and relationships from within Power BI and leverage pre-built connectors and the on-premises data gateway to easily bring disparate data into Common Data Service for Analytics, and map it to the extensible schema. The preview includes out-of-the-box connectivity to Software as a Service (SaaS)business applications like Dynamics 365 and Salesforce.

Customizable out-of-the-box apps

Through AppSource, users can discover out-of-the-box Power BI apps from Microsoft and third parties that provide domain-optimized analytics based on Common Data Service for Analytics, which are customizable using Power BI. These solutions leverage and extend the common schema to build solutions with pre-built dashboards, reports, and datasets with domain-specific insights that are optimized for Q&A and Cortana. These experiences are available in Cortana, Power BI, and Dynamics 365.

Extensible through Azure

Common Data Service for Analytics storage is open, which means you can leverage the Azure data stack to make data available to Common Data Service for Analytics by bringing your own Azure Blob storage with Common Data Service for Analytics entities. Mapped entities are available through Power BI and Power BI Desktop, so they can be used by deployed Power BI apps, and you can use them to build datasets, reports, and dashboards.

Common Data Service for Analytics will be available with Power BI Pro, Power BI Premium, and Power BI Embedded.

Power BI apps for Common Data Service for Analytics

Common Data Service for Analytics users install out-of-the-box Power BI applications designed to work on top of Common Data Service for Analytics. These Power BI apps leverage connectors, the Common Data Service for Analytics schema, tabular models, and Power BI reports and dashboards to deliver analytic solutions that address business problems.

Guided setup

Power BI Apps are available to users through AppSource. A guided setup experience helps users quickly install and set up the app. After users provide a few details such as their Dynamics 365 credentials, they are redirected to their Power BI Service account where reports are readily available. Users receive a notification after data is copied and their app is ready to use.

Tailor apps to business needs

Power BI applications are customizable from data ingestion to visualization. Users can alter the data pipeline to reflect customizations in source applications. For example, users can bring in custom entities from

Dynamics 365. For visualization, reports are extensible; users can change color schemes, create new calculations and KPIs, and add visualizations and report pages.

Rich, immersive experiences

Power BI apps come with natural language query support. Users ask questions in the app or in Cortana to get immediate insights.

If you want users to view their insights in context, embed your Power BI app wherever you choose. You'll be able to customize your reports and leverage features like Q&A and Quick Insights.

Example of quick insights

Power BI Insights apps

Deliver out-of-box insights tailored to specific business scenarios across marketing, sales, service, finance, operations, and talent management. Insights are generated by applying advanced intelligence to a subset of unique Microsoft data, such as business, productivity and collaboration, and professional network data. Also, customers can easily incorporate additional data from a range of third-party sources to enhance relevance and accuracy. Power BI Insights apps can be further tailored by applying the full power of Azure Data Services.

Power BI for Sales Insights

The Power BI for Sales Insights app brings in key entities from either Dynamics 365 or Salesforce. Sales managers can to track sales performance across products and salespeople. They can also monitor the health of their pipeline and quickly identify at-risk accounts that they may want to focus their attention on. The app provides key KPIs like win ratios, lead conversion rates, and year-to-date (YTD) revenue.

Example of Sales Insights

Power BI for Service Insights

The Power BI for Service insights app provides out-of-the-box analytics for several scenarios, such as Project Service Automation, Customer Service, and Field Service.

Project Service Automation

The Project Service Automation reports focus on information that's critical to a Practice Manager, Resource Manager, and Account Manager. The app provides tailored reporting and insights for each role:

- **Practice Manager.** Responsible for revenue goals, project completion, and customer satisfaction for service engagements delivered. The app provides key insights around gross margins, revenue, costs, and utilization to help answer questions like:
  - Who are the most profitable customers?
  - Where are the largest costs on a project incurred?
- **Resource Manager.** Responsible for assigning the right resources to the projects at the right time. The app provides key insights about resource and role utilization, as well as unfulfilled demand to help answer questions like:
  - What does the utilization rate look like for developers over the last six weeks?
  - Is there enough resource capacity to fulfill incoming requests?
- **Account Manager.** Responsible for driving revenue from the customers. The app provides key insights about closed deals, billed versus unbilled sales, and ongoing engagements to help answer questions like:
  - On average, how long does it take to close a deal?
  - How are current contracts performing?

Customer Service Analytics

The Customer Service Analytics reports provide case analytics to the service manager about cases opened, resolved, and escalated, as well as key performance indicators (KPIs) for service level agreement (SLA) violations. The reports also provide insights about customer satisfaction and survey responses.

The reports help answer questions like:

- Which service engineers resolve the highest number of cases?
- What is the service team's average case duration?

Field Service Analytics

The Field Service Analytics reports focuses on the dispatcher or scheduler persona. The reports cover KPIs that help monitor the effectiveness of field service operations. Report pages focus on open and closed work orders, as well as bookings. The app helps answer questions like:

- What is the average duration of an incident?
- How many work orders have been completed by each field service engineer?

Power BI Embedded

Capacity API

Use capacity APIs to assign or remove workspaces to capacities, and get a list of capacities a user can access.

Currently, through the Power BI portal, a workspace admin with capacity assign permissions can use the **Edit workspace** dialog box to assign a capacity to a workspace.

Edit workspace options

With the AssignToCapacity API, you can manage a workspace with a Power BI Premium/Azure capacity, such as assign or remove the workspace from a capacity, or move between capacities.

Use the GetCapacities API to get a list of all the capacities a user has access to as a capacity admin and their assignment permissions. An additional property that states the capacity where a workspace resides, is available in the existing GetGroups API.

These Capacity API additions provide an enhanced ALM experience to onboard new customers by using a workspace for each customer. Here are the steps to automate the process:

1. Clone workspace with the analytical content for a new customer.
2. Connect the cloned content to the customer's data source.
3. Get the customer into production by assigning the cloned workspace to a dedicated capacity.

Row-level security on Azure Analysis Services based on CustomData

Use row-level security and filter data based on the CustomData function in Azure Analysis Services. You can customize and filter data retrieved from Analysis Services for each user session, which controls the data exposed to each user.

For Azure Analysis Services users, a property is added on token generation, so you can set the **CustomData** property on the connection string. This property can also be used by the **CustomData** function. The property can be applied for all embedded objects: reports, visuals, dashboards, and tiles. The feature works only with Azure Analysis Services.

Custom layout

You can use custom layout to set and change the size of a report page layout or control the size, position, and visibility of a report visual.

- **Page layout.** When you build a report page through Power BI Desktop, you configure the layout using two fields: page size type and page layout.

Page size options

Page layout options

By default, each time you embed a report, it uses the configuration made in Power BI Desktop. With custom layout, you can dynamically set the definitions to optimize the report layout inside the application page. You can change the layout during the session based on events such as a content change or browser resizing.

- **Visual layout.** This feature supports single visual embedding. With custom layout, you define which visuals to display and specify their size and position on the canvas. You have full configuration control of appearance of visuals on the canvas dynamically during user sessions.

  For example, assume that your application's customer has different departments. Instead of creating copies of the same report or report pages for each department and making the modifications, you can

show the same report page and expose only the relevant visuals to that user. Using custom layout, you can optimize the position of each visual.

Phased embedding

Load the embedded content in the background to improve performance and get metadata on the object. The loading of an embedded artifact is done using the embed call, containing an embed configuration object and the ** ** element that contains the iFrame. After the embedded object is called, it's loaded for the user, and any interaction with the object is done while the object is displayed.

With the Spring '18 release, there are more JavaScript calls that add phases to the embedding process:

- **Preload.** The **powerbi.preload()** call uses the browser's cache and download scripts before showing the embedded object itself. This can be useful for applications hosting several embedded reports. After the **preload** action completes, a **ready** event fires.
- **Load metadata.** The **powerbi.load()** call helps retrieve information about the embedded object, and dynamically changes the settings or the ** ** element in the background, before the object is displayed to the user. For example, you can use this function to get pages and then decide the page to show to the user. Or, you can get visuals and then decide which visuals you want to show or hide from the users. If you use this function, you need to call the **render** function to show the embedded object. After the load completes, a loaded event fires.
- **Render object.** The final call, in case you implemented the **powerbi.load** function, is **render**. The **render** completes the last actions needed to render and show the embedded object to the user. After the **render** completes, a rendered event fires.

Although the **load** and **render** functions must be used together, **preload** is independent of them. You can use the **embed** function to show the embedded object after preload. You can also utilize the full-phased procedure by calling **preload**, **load**, and **render** in order.

For more information, see Phased Embedding API.

Single visual embedding

By embedding visuals into your application, users can get in-page analytics where the most relevant and insightful data resides, facilitating data-driven decisions.

The flexible API gives the capability to choose which visual to show for each user, or switch visuals in the same iFrame during the user's session. The developer can optimize the size and layout of each visual at any time using the custom layout feature.

Unlike tile embedding, to embed a visual, the developer specifies the report and report page for the visual. From the list of visuals in a page, the developer can define the visuals that will be hidden and visible. This methodology has a few advantages:

- **Switching visuals.** By switching visuals on the same report, there is no need to generate a new embed token. Switch the visibility definition of the visuals and immediately different visuals already rendered, are displayed.

- **Displaying multiple visuals**. Why settle for a single visual, if you need more than one to gain insights? As you define the visibility of each visual, you can choose to show multiple visuals on the same iFrame and define in real time the size and position of each one. By showing multiple visuals, you also enjoy interactivity and cross-filtering between visuals, just like a regular report.

Azure monitoring

To optimize the use of an Azure resource in Power BI Embedded, we are adding the ability to monitor and track the usage and act on any changes. This is enabled through the integration with Azure Monitor Resource Metrics, which gives real-time data on the status and load of the Azure resource in an easy-to-use UI within the Azure portal, as well as through PowerShell commands and REST APIs to automatically monitor the resources. The data can be viewed using different measures and time periods.

Azure monitoring example

We are adding two new metrics to track the load of the Power BI Embedded resource:

- **Query duration.** Provides information about the duration to complete each query. In this case, a spike in the average duration time can be an indication that the current capacity doesn't have enough query processing units (virtual cores) to process the queries, and you should consider scaling to a higher capacity.

  The threshold to scale up or down depends on the developer's decision and can vary based on the data and the type of queries that are running.

- **Query pool queue length.** Provides information about the number of queries waiting to be processed. A spike in the number of queries might indicate that your capacity has too many datasets being queried at the same time, causing pagination in memory and thus more queries are waiting to be processed. In this case, you should consider scaling up to get more RAM. For the amount of memory available for each capacity, see Power BI Embedded pricing.

Available for US Government customers

Embedded analytics with Power BI is generally available for Government Community Cloud (GCC) and GCC High.

- In GCC, embedded analytics is available in Power BI Premium.
- In GCC High or DoD (Department of Defense), embedded analytics is available in Power BI Embedded in Azure.

Mobile layout support

Reports and dashboard support layouts are optimized to consume on mobile devices.

For reports, you can open report pages in phone layout, if they were created through Power BI Desktop. You can use a new JavaScript API to check whether a report page has a phone layout defined, and if it does, embeds it. It's the optimal layout to use when devices are in the portrait orientation. When devices are in landscape orientation, the optimal layout is the original report layout. Using the JavaScript API, you can switch views during the user's session according to the phone layout, offering an optimal experience at any state.

Dashboards can be rendered on mobile devices using the one column layout, which sets all tiles in a single column, one above the other. As in the reports, this view is optimal for portrait orientation. The application can also switch back to original layout during the session.

Model parameters API

Users can use model parameters to define parameters and make them a part of their reports and data models, such as a query filter, a data source reference, and a measure definition, dependent on one or more parameter values. Parameters are defined on the PBIX file through Power BI Desktop. For more information, see this blog post.

Developers can use our new API to dynamically change the values of the parameters and automate the process of working with them. The API includes a call to get all parameters defined on a specific dataset, and a call to set parameter values to set new values for existing parameters.

With this new API, you can automate many processes for multiple customers. A few examples are:

- **Change connection string.** By configuring parameters on the connection string, you can use the API whenever you onboard a new customer. Just clone the report and change the parameter values to connect to the customer's database. It can also help automate connection updates to data sources that are not supported through Update DataSources API.

- **Change query parameters.** By defining parameters on the API, you can set the values and get different results and data to reflect only what this report's users should see.
- **Measure parameters.** Dynamically change different calculated measures to answer each customer's needs on the same report. For example, you can set the currency through parameters for different customers or branches based in different countries.

The parameters are based on the dataset; therefore, they're defined per report or dashboard, but they're not defined on the user's session level. It means that different users using the same report at the same time will always see the same parameter's value.

Visual level filters

Additional APIs are available to support get, set, and remove filters on the Visual level. This API complements the Filters API already available at the report and page level, so now it supports all the UI experiences of the Filter pane. For more information, see Visual level filters.

Available on German datacenters

Power BI Embedded is available on the German datacenters as other Azure resources and services.

Bookmarks support

An application can apply bookmarks on the embedded report and control its UI elements through APIs. With bookmark APIs, developers can control the experience of the application's users by applying specific bookmarks on load or after specific actions in the app's flow, show or hide the bookmarks pane, and apply or disable the storytelling through bookmarks. You can also create a personalized experience by capturing the report's state and creating a bookmark to be managed and saved by the application. Developers can control who can use the bookmark and when to apply it to the report. Use the following APIs:

- **getBookmarks**
- **bookmarksManager.apply**
- **bookmarksManager.capture**
- **bookmarksManager.applyState**

Update dashboard or tile

Provides improved ALM capabilities by enabling changes in the dashboard or tile that were already deployed while retaining their original IDs. After a dashboard or a tile is updated to a newer version, the developer can deploy the update into production dashboards by using the **updateTile** API and stating the source and target tiles. The content of the tile is updated without changing the IDs, making the update smooth and fast.

Single sign-on (SSO) for Azure SQL database

Power BI Embedded has no awareness and information about the application's user. For applications that do want to set row-level security in Azure SQL database, there's a need to pass the application's user information back to Azure SQL.

When the SSO option is enabled and your users access reports built on top of the data source, Power BI sends their authenticated Azure AD credentials in the queries to the Azure SQL database. This enables Power BI Embedded to respect the security settings that are configured at the data source level.

Azure load monitoring

Expanding the available metrics to monitor the consumption of a resource in Power BI Embedded and trigger actions by thresholds. The following four metrics are exposed:

- Memory consumption
- Memory thrashing
- CPU spikes over 80 percent
- DirectQuery usage

In addition, developers can use Azure to define thresholds to trigger specific actions using alerts, such as automatic scale-up of the resource whenever a specific monitor crosses the defined threshold.

Onboarding experience for Power BI Embedded

Setting up a new environment to develop and deploy Power BI Embedded involved defining and configuring several entities. With the new onboarding tool, the process is faster and easier to complete.

Power BI embedding environment setup

The Power BI Embedded setup is done in four steps. With each step, the information required for the application to work is being added to the **Summary** tile on the right. The last step of the tool enables importing a report based on which an application will be created for the developer. The application can be used as a sample or reference to start with.

Show or hide report pages

When a report is being embedded in an application, all the pages of the reports are available. There are scenarios in which the developer wants to control pages of the reports that will be available to the application’s user. This capability is available when creating reporting in the Power BI Desktop and using them in the Power BI Service. The **report.getPages** API is updated to enable control of the report pages from the application at runtime.

Get data APIs

Users can interact with visuals embedded within an application by setting filters or cross-referencing from other visuals in the report. To make analytics an integrated part of the application and the application business logic, you can extract data displayed in the visual using APIs. The application can get this data and trigger application business logic based on data that is meaningful for the application user in this context.

Themes support

With report themes, you can apply a color theme to your entire report, such as corporate colors, seasonal coloring, or any other color theme you might want to apply. When you apply a report theme, all visuals in your report use the colors from your selected theme.

Apply themes to a report

Applying a report theme requires a JSON file, which you can then import into Power BI Desktop and apply to your report. The JSON file structure and the process of importing are quick and easy.

You can also use APIs to apply and change themes on a session level for an embedded object.

Visual level configuration

Control the experience and functionalities on a visual that is exposed to users. The default behavior is to expose all the Power BI capabilities:

- Show in Focus mode
- Export data
- Show data
- Spotlight

The application will have the control to enable all the capabilities or only part of them, as well as to decide whether to show the upper bar on the visual. You can also configure these settings on for each visual.

Azure Diagnostics

Azure Diagnostics is the capability within Azure to collect diagnostic data on a deployed application. The Azure Diagnostics extension can transfer this data to an Azure storage account or send it to services like Application Insights. The data can be used for debugging and troubleshooting, measuring performance, monitoring resource usage, traffic analysis and capacity planning, and auditing. Power BI Embedded is connected to Azure Diagnostics to enable the diagnostics of the Power BI Embedded part along with other Azure resources used by the application.

App-only token support

Currently, building a Power BI Embedded application (also known as "app owns the data scenario") requires creating a so-called master user account, storing the credentials for that account, and using them in the application code for performing non-interactive sign-in to Power BI. On the other hand, Azure AD has special support for applications authenticating using their own identity without a user context. This support was specially designed for app-only authentication, allows higher control and security, has less limitations, and is in general the recommended approach. We're adding support for application authentication to Power BI Embedded. This enhances the deployment, security, and ALM for ISV apps that are using Power BI Embedded.

Workspace collection deprecation

In June 2017, we announced the ability to embed Power BI using new APIs and the convergence of the APIs with the Power BI Service. This was announced as part of the Power BI Premium offers followed by Power BI Embedded offering in Azure. At the same time, we announced the deprecation of the Workspace Collection offering that will be effective from June 2018.

There's a migration path from the Workspace Collection solution to the new Power BI Embedded solution. Starting in June 2018, there won't be a way to create a new Workspace Collection and applications that will use this solution need to migrate to the enhanced Power BI Embedded offering.

Export to PowerPoint

Use APIs to enable the application to export the embedded object to PowerPoint. The embedded analytical objects play a major part in the application and bring significant value to the users of the application. With this API, users can use the embedded analytical objects in their PowerPoint presentations.

Export to PDF

Use APIs to enable the application to export the embedded object to a PDF file. The embedded analytical objects play a major part in the application and bring significant value to the users of the application. With this API, users can use the embedded analytical objects in their PDF files.

Power BI Mobile

Visio custom visuals

You can use the Visio custom visual to visualize data using Microsoft Visio diagrams from within Power BI dashboards and reports. With this new visual, you can connect to a Visio diagram hosted on SharePoint or OneDrive for Business. The underlying Power BI data is then automatically and intelligently linked to the diagram based on its shape properties, eliminating the need to do this manually.

Responsive Visualization optimized for phone layout

Power BI is providing more ways to create experiences optimized for devices of all sizes, delivering a rich visualization on a large screen and then preserving that richness in a small screen using *responsive visualizations*.

Power BI responsive visualizations dynamically change to display the maximum amount of data and insight, no matter the screen size. As a visualization changes its size, Power BI prioritizes the data view, for example removing padding and legend tweaks such as moving the legend to the top of the visualization—automatically, so the visualization remains informative and beautiful even as it gets smaller.

A responsive visualization optimizes across Power BI platforms, whether in a report, a dashboard, a phone report, a mobile dashboard, or even in embedded Power BI visuals that use the Power BI API.

Example of responsive visualizations

Report tooltip touch optimization

Users can drag a finger across the visual to explore details about each data point along the way. The tooltip visual is optimized for mobile consumption, so users can easily view data point details.

Mobile example of data exploration

Persistent filters

Users expect continuity in the work. Therefore, when visiting a report in mobile, they expect to have the same view of data and continue data investigation from where they left it before, no matter if this work was done in mobile or on web. With persistent filters, Power BI saves each user's slicer and filter values, and automatically applies them when users return to view the reports.

Invite and favorite reports

Users can share reports from the mobile app, similar to the way they share dashboards.

The report sharing feature works just like the dashboard sharing feature but allows you to directly share a report. The new sharing pane opens for a report, which allows you to give access right to the report and send invites to the users you add. When you share the report with your colleagues, it appears in their Shared with me list, on the web and in the mobile app.

The **Invite** option is available on the action bar of the report. You can share reports in your personal workspace or in an app workspace that you're a member of. You can also share reports if the owner gives you re-share permissions.

When you select **Invite**, the **Invite a colleague** pane appears. You'll notice that it has the same capabilities as for dashboards. When you share the report, it shares both the report and the underlying dataset. It doesn't change any row-level security setting for the dataset, so the recipient sees only the data that they're authorized to view.

Share reports from the mobile app

External sharing

Users can share reports and dashboards with users external to their tenant. This can be users from other Azure AD tenants, or with recipients who have email addresses from popular consumer email services and telecommunications providers directly from their mobile app.

The app displays a warning message to inform the user that they are going to share the artifact with an external user, and seeks approval before sending the invite to the external recipients.

Phone optimization for embedded reports

Developers who build custom mobile applications can use the phone optimized report layout in their custom app. Phone optimized layout is created using Power BI Desktop, and then it can be embedded in a mobile custom app.

Power BI for mixed reality (Public Preview)

A preview release of Power BI for Mixed Reality targeted to first line task workers. This app, running on HoloLens, allows users to consume reports and dashboards augmented into their real world.

Power BI for Mixed Reality brings together the Power BI platform with the innovative HoloLens to help first line task workers and field service workers effectively make data-driven decisions by providing a new, intuitive hand-free access to Power BI's dashboards and reports in real time.

The Power BI for Mixed Reality app is based on our Universal Windows Platform (UWP) app, with additional unique capabilities that lights up on HoloLens like voice commands and hand gestures.

Mixed reality app for HoloLens integration

While wearing a HoloLens device, users can switch classic Windows view to holographic view (also known as "holospace"), by using the air tap gesture on the full-screen button.

By using gaze, users can easily scan reports' QR codes to load them into their holographic view. This can be used to attach reports' QR codes to physical objects, thereby allowing easy access to these reports by providing insights into the object.

Drill-down and drill-up support

Mobile users can use drill-down and drill-up to dive deep into their data. This brings our mobile users more data analysis and investigation capabilities, allowing them to get the insights in their data. Drill down and up is enabled from the report visual's tooltip menu. Tapping on a visual data point will pop the menu and if drill down or drill up is defined, additional drill buttons are presented and enabled for tapping.

Drill up or down into data (for mobile)

Drill-through support

Supporting drill-through in mobile using the new tooltip platform. Users can use drill-through to navigate from one report page to another report page filtered by selected entity. This is defined in Power BI Desktop. After drill-through is defined for a report page, the user can also use it in the mobile app by using the drill-through option in their tooltip menu.

Data Integration

Data Integration provides the connectors and gateways that make it possible to bring any external data into the Common Data Service (CDS) and store the data in Common Data Model (CDM) form. This makes it easier for customers to integrate their data in a single place for business applications and analytics. Data Integration is based on Power Query, the same technology that millions of people use daily in Power BI and Excel.

Data Integration connectors

Data Integration provides direct connectivity to hundreds of business-critical data sources as well as:

- Hybrid connectivity via the on-premises data gateway.
- Integration into Power BI, PowerApps, Logic Apps, Microsoft Flow, Azure Analysis Services, and Office 365 (Power Query in Excel).

Common Data Model and Data Integration

The Common Data Model is an open-source definition of standard entities that represent commonly used concepts and activities across a variety of business and application domains. The Common Data Model offers well-defined, modular, and extensible business entities such as Account, Business Unit, Case, Contact, Lead, Opportunity, and Product. It also offers interactions and relationships between vendors, workers, and customers, such as activities and service level agreements.

The Common Data Service for Apps and the Common Data Service for Analytics from Microsoft implement the Common Data Model. These services hold data that conforms to the Common Data Model definition. By building on top of these services, packaged applications and analytical solutions can work with well-defined entity shapes and share data, regardless of where data originally comes from or where it's mastered. Custom line-of-business apps and analytical solutions can take advantage of the same entities for data sharing.

Microsoft and our partners are committed to building applications on top of the Common Data Service and storing your business data in Common Data Model form. A large and growing collection of solutions "just work" when data is stored in Common Data Model form. This means you can quickly implement new business processes and gain insights into your business operations without friction or complexity.

Applications on top of the Common Data Services take advantage of Common Data Model entities

The Common Data Model simplifies the challenges of data management by unifying data in a known form that provides structural and semantic consistency across applications and deployments. It helps integrate and disambiguate data collected from business processes, digital interactions, product telemetry, people interactions, and so on.

Data stored in the Common Data Service for Apps integrates easily and automatically with the Common Data Service for Analytics, for customers who use both services. You can start from enterprise and transactional data you already own (such as leads, campaign information, and previous customer purchases) and combine it with data from other sources (such as weblogs or product telemetry) to get a unified picture.

The Common Data Model is also extensible. You can add fields to any of the customizable entities that come with the Common Data Model or create your own custom entities. The Common Data Model standard defines a common language for business entities that covers the full range of business processes across

sales, service, marketing, operations, finance, talent, and commerce, and for the Customer, People, and Product entities that are at the core of a company's business processes. The Common Data Model also facilitates data interoperability that spans multiple channels, service implementations, and vendors.

The Common Data Model and the Common Data Services provide the following capabilities:

- **Definition of standard entities.** The Common Data Model provides a definition of the most commonly used entities across business and productivity applications. The public Common Data Model GitHub repository (https://github.com/Microsoft/CDM) contains the core entities that span the entire business process landscape. It will also be enhanced with additional vertical industry data models, and with cross-spanning sources such as surveys, search engines, and product telemetry.
- **Data integration**. You can use Power Query as the built-in web experience to import and transform data from your existing systems, and to combine data from online and on-premises sources with no or little code, which means Excel and Power BI data transformation skills apply seamlessly. When you import data, you can map it to existing, standard Common Data Model entities or create and map new entities. Out-of-the-box data integration and mapping templates simplify the process of connecting to common data sources such as Salesforce.com. Mapping templates are fully customizable and extensible.

Import external data and map it to standard entities in Power Query

- **Extensibility.** You can extend the entities without breaking data sharing with other apps.
- **Dependability**. Because you can depend on common entities, you can build reusable components that are bound to those entities. The Common Data Model includes a design for extensibility and versioning that protects your development investment.
- **Entity consistency across deployments.** Your solutions can connect information from productivity platforms with data from business applications. For example, you can connect a calendar appointment or a Microsoft Outlook task with a sales opportunity.

The Common Data Service for Apps implements the Common Data Model, which facilitates business application development. With the Common Data Service for Apps, you can:

- **Take advantage of packaged business applications**. Packaged applications, including Dynamics 365 for Sales, Dynamics 365 for Service, Dynamics 365 for Field Service, Dynamics 365 for Project Service Automation, Dynamics 365 for Marketing, and Dynamics 365 for Talent are built on top of the Common Data Service for Apps.
- **Customize applications and build native extensions for your needs.** Customizers and developers can distribute application solutions with a well-defined application lifecycle. Application extensions appear as a native part of the original application.
- **Build no-code/low-code WYSIWYG apps with PowerApps.** Use the same shared entities created or used by the packaged applications or by other third-party applications to create standalone line-of-business apps with PowerApps.
- **Automate business processes with Microsoft Flow**. Use a business process flow to define a set of stages and steps to achieve a desired outcome.

The upcoming Public Preview of the Common Data Service for Analytics also implements the Common Data Model, supporting business data analytics in a standardized form, including:

- **Packaged and customized analytical solutions that use standard data entities.** Applications such as the Sales Insights add-on, which tracks historical sales performance, provide consistent insights, regardless of where the data was originally mastered, because the data integration experience maps data from other sources (Salesforce.com, for example) to Common Data Model entity shapes. This simplifies your analytical solution by focusing on the data semantics of well-defined entities such as Leads and Opportunities.
- **No-code/low-code Power Query data integration.** Create, populate, transform, and enrich entities by using an evolved Power Query experience.
- **Bring your own Azure storage.** Take advantage of the Azure data stack to make data available to the Common Data Service for Analytics. The entities are stored in the same Common Data Model format recognized by analytical solutions.

Highlights from the Spring '18 release

- **Evolution of Power Query for data integration** – Use Power Query to integrate data into the Common Data Service for Apps and the Common Data Service for Analytics. Create, populate, transform, and enrich standard entities defined in the Common Data Model.
- **27 new connectors for PowerApps, Flow, and Logic Apps (Public Preview)** – Includes connectors for Excel Online, Microsoft To-Do, ServiceNow, Workday HCM, and Azure SQL Data Warehouse, among others. See the full list.
- **3 new connectors for Power BI (General Availability)** – Includes Adobe Analytics, IBM Netezza, and Azure Analysis Services.
- **5 new connectors for Power BI (Public Preview)** – Includes HDInsight Interactive Query, Data.World, Vertica, Azure Consumption Insights, and Dynamics 365 for Financials.

- **Enhancements to major connectors** – Includes SQL Server, SAP HANA, SAP BW, Office 365 Outlook, Salesforce.com, Visual Studio Team Services, Azure Blob Storage, and Impala.
- **Improved extensibility for partners** – Partners can create and distribute their own connectors and submit them for certification across the platform.
- **Smart data preparation capabilities for Power Query** – Use example column values to infer column rows (Add Column from Examples).
- **On-premises data gateway improvements** – Includes many improvements, such as data mashup between on-premises and cloud sources, high-availability gateway clustering, Single Sign-On (SSO) for DirectQuery sources, and more.

Spring '18 summary of what's new in Data Integration

General Availability

New and improved connectors for Power BI

- Improved SAP BW DirectQuery connector.
- Improved SAP HANA DirectQuery connector.
- Improved SAP HANA & BW certification.
- New Adobe Analytics connector.
- New Azure Analysis Services connector.
- New IBM Netezza connector.
- Improved Azure Blob Storage connector.

Improved connectors for PowerApps, Microsoft Flow, and Logic Apps

- Improved SQL Server connector supports views, native queries, and temporal tables.
- New operations in Office 365 Outlook and Office 365 Users connectors.
- Write support for PostgreSQL, MySQL, and Teradata connectors.
- Support for large file transfer up to 1 GB in FTP and Azure Blob connectors.
- Support for bulk operations in the Salesforce.com connector.
- Logic Apps connectors now supported in Azure Government Cloud.
- PowerApps and Microsoft Flow connectors now supported in UK.

Gateway improvements

- Support for queries combining on-premises and online sources.
- Single Sign-On support for DirectQuery sources.

Smart data preparation capabilities for Power Query

Public Preview

New connectors for Power BI

- HDInsight Interactive Query.
- Data.World.
- Vertica.
- Azure Consumption Insights.
- Dynamics 365 for Financials.

New and improved connectors for PowerApps, Microsoft Flow, and Logic Apps

- New Azure SQL DataWarehouse connector.
- New Excel Online connector for Microsoft Flow and Logic Apps.
- Support for views in Teradata and Oracle connectors.
- Improved Visual Studio Team Services connector.
- New partner-built connectors, including Plumsail Forms, Plumsail SP, Kintone, and more (see the full list).

Integration with the Common Data Service for Apps and the Common Data Service for Analytics

- Load data from a wide range of data sources into the Common Data Service for Apps or the Common Data Service for Analytics.
- Data integration capabilities for admins.

Templates

- Salesforce.com template.
- Field Service Integration template.

Gateway improvements

- High availability and disaster recovery improvements.
- PowerShell gateway commands library.

Extensibility

- M connector SDK enables third parties to write new connectors.
- Improved certification program for partners looking to build and release connectors across Power BI, Microsoft Flow, PowerApps, and Logic Apps.
- M connector support for on-premises data gateway (personal mode), starting in April.

Availability

Data Integration features available for Public Preview are typically available in all regions where the product is available. For a complete list of regions, see the Availability Guide.

New and improved connectors for Power BI

Connectors provide direct access to a wide range of data sources in Power BI.

New connectors for General Availability

- Adobe Analytics
- Azure Analysis Services
- IBM Netezza

New connectors for Public Preview

- HDInsight Interactive Query
- Data.World
- Vertica
- Azure Consumption Insights
- Dynamics 365 for Financials

Improvements to the SAP BW connector

- DirectQuery connector (General Availability)
- Support for Dimension properties (Key, Short/Medium/Long Text, and custom properties)
- Kerberos-based Single Sign-On (coming in April)
- Variable input UX enhancements
- SAP certification (coming in April)

Improvements to the SAP HANA connector

- Multidimensional DirectQuery connector (General Availability)
- HANA SSL certificate validation support
- Variable input UX enhancements
- SAP certification (coming in April)

Improved connectors for PowerApps, Flow, and Logic Apps

Connectors provide access to a wide range of data sources in PowerApps, Flow, and Logic Apps.

Improvements to the SQL Server connector (General Availability)

- Performance improvements and increased throttling for shared connections in PowerApps
- Support for SQL views, which improves the overall app performance in PowerApps
- Support for SQL temporal tables

Improvements to the Office 365 Outlook connector

- New trigger for emails with @mentions (Public Preview)
- New action to forward email (Public Preview)
- New action to respond to a calendar event (Public Preview)
- New action to export emails (Public Preview)
- Ability for users to customize text for send approval mail actions (General Availability)

Improvements to the Office 365 Users connector (General Availability)

- New action to update the user profile
- New action to update the user photo
- New action to look up people relevant for a user
- New action for trending documents for a user

Improvements to the Visual Studio Team Service connector (Public Preview)

- New action to query work items
- Ability for users to get work item details (including custom fields)
- Updated actions to create/update work items to include additional fields

Additional connectors (Public Preview)

The following connectors, many of which are built by our partners, are also available for Public Preview:

- Azure Container Instance
- Azure Kusto
- Azure SQL Data Warehouse
- Content Moderator
- Custom Vision
- D&B Optimizer
- Derdack SIGNL4
- Docparser

- Enadoc
- Excel Online (Business)
- Excel Online (OneDrive)
- Flow management
- iAuditor
- Infobip
- Kintone
- Metatask
- Microsoft Kaizala
- Microsoft To-Do (Business)
- Pitney Bowes Data Validation
- Pitney Bowes Tax Calculator
- Plumsail Documents
- Plumsail Forms
- Plumsail SP
- QnA Maker
- ServiceNow
- Tago
- Workday HCM

Integration with the Common Data Service for Apps and the Common Data Service for Analytics

Business users can load data from a wide range of data sources (including other CRM instances) into the Common Data Service for Apps and the Common Data Service for Analytics, visually map entities and fields, and, schedule data refreshes. This functionality is a key enabler for customers with data-driven apps.

Load data from a wide range of data sources

You can specify connection settings, including the data source location, credentials, and the installed instance of the on-premises data gateway to use (for on-premises data sources).

Establishing a connection

After establishing a connection to a data source, such as an OData feed, preview the tables included in the data source, and select one or more.

CustomerID	CompanyName	ContactName	ContactTitle	Address	City	Region	PostalCode
ALFKI	Alfreds Futterkiste	Maria Anders	Sales Representative	Obere Str. 57	Berlin	(null)	12209
ANATR	Ana Trujillo Emparedados ...	Ana Trujillo	Owner	Avda. de la Constitución 2...	México D.F.	(null)	05021
ANTON	Antonio Moreno Taquería	Antonio Moreno	Owner	Mataderos 2312	México D.F.	(null)	05023
AROUT	Around the Horn	Thomas Hardy	Sales Representative	120 Hanover Sq.	London	(null)	WA1 1DP
BERGS	Berglunds snabbköp	Christina Berglund	Order Administrator	Berguvsvägen 8	Luleå	(null)	S-958 22
BLAUS	Blauer See Delikatessen	Hanna Moos	Sales Representative	Forsterstr. 57	Mannheim	(null)	68306
BLONP	Blondesddsl père et fils	Frédérique Citeaux	Marketing Manager	24, place Kléber	Strasbourg	(null)	67000
BOLID	Bólido Comidas preparadas	Martín Sommer	Owner	C/ Araquil, 67	Madrid	(null)	28023
BONAP	Bon app'	Laurence Lebihan	Owner	12, rue des Bouchers	Marseille	(null)	13008
BOTTM	Bottom-Dollar Markets	Elizabeth Lincoln	Accounting Manager	23 Tsawassen Blvd.	Tsawassen	BC	T2F 8M4
BSBEV	B's Beverages	Victoria Ashworth	Sales Representative	Fauntleroy Circus	London	(null)	EC2 5NT
CACTU	Cactus Comidas para llevar	Patricio Simpson	Sales Agent	Cerrito 333	Buenos Aires	(null)	1010
CENTC	Centro comercial Moctezu...	Francisco Chang	Marketing Manager	Sierras de Granada 9993	México D.F.	(null)	05022
CHOPS	Chop-suey Chinese	Yang Wang	Owner	Hauptstr. 29	Bern	(null)	3012
COMMI	Comércio Mineiro	Pedro Afonso	Sales Associate	Av. dos Lusíadas, 23	Sao Paulo	SP	05432-043
CONSH	Consolidated Holdings	Elizabeth Brown	Sales Representative	Berkeley Gardens 12 Brew...	London	(null)	WX1 6LT
DRACD	Drachenblut Delikatessen	Sven Ottlieb	Order Administrator	Walserweg 21	Aachen	(null)	52066
DUMON	Du monde entier	Janine Labrune	Owner	67, rue des Cinquante Ota...	Nantes	(null)	44000
EASTC	Eastern Connection	Ann Devon	Sales Agent	35 King George	London	(null)	WX3 6FW
ERNSH	Ernst Handel	Roland Mendel	Sales Manager	Kirchgasse 6	Graz	(null)	8010
FAMIA	Familia Arquibaldo	Aria Cruz	Marketing Assistant	Rua Orós, 92	Sao Paulo	SP	05442-030
FISSA	FISSA Fabrica Inter. Salchic...	Diego Roel	Accounting Manager	C/ Moralzarzal, 86	Madrid	(null)	28034
FOLIG	Folies gourmandes	Martine Rancé	Assistant Sales Agent	184, chaussée de Tournai	Lille	(null)	59000
FOLKO	Folk och fä HB	Maria Larsson	Owner	Åkergatan 24	Bräcke	(null)	S-844 67
FRANK	Frankenversand	Peter Franken	Marketing Manager	Berliner Platz 43	München	(null)	80805
FRANR	France restauration	Carine Schmitt	Marketing Manager	54, rue Royale	Nantes	(null)	44000
FRANS	Franchi S.p.A.	Paolo Accorti	Sales Representative	Via Monte Bianco 34	Torino	(null)	10100
FURIB	Furia Bacalhau e Frutos do ...	Lino Rodriguez	Sales Manager	Jardim das rosas n. 32	Lisboa	(null)	1675
GALED	Galería del gastrónomo	Eduardo Saavedra	Marketing Manager	Rambla de Cataluña, 23	Barcelona	(null)	08022
GODOS	Godos Cocina Típica	José Pedro Freyre	Sales Manager	C/ Romero, 33	Sevilla	(null)	41101

Preview tables

Use the Power Query editor to apply filters, transformations, and other operations (including mashing up data from different data sources) to get the source data into the desired shape for the Common Data Service.

Power Query editor

After applying data transformations, define how the query results map to Common Data Service entities: as new entities or as existing entities.

Map entities

This experience for loading data into the Common Data Service with the familiar Power Query tool is common across the Common Data Service for Apps and the Common Data Service for Analytics.

Data integration capabilities for admins

The Data Integrator for the Common Data Service for Apps includes many improvements for admins.

Admin dashboard for monitoring

The admin dashboard provides a one-stop, real-time view of project runs and status, with drill-down for execution details. The dashboard shows the total count of runs by state and by execution state over time.

The color-coding shows the status of each project: green for completed projects, yellow for completed projects with warnings, and red for failures. By default, the view shows executions for the previous two weeks. Customize a report by accessing the Report timeframe menu.

Admin dashboard for monitoring

The bar chart provides a quick lookup of the project execution date, the status, and the count of records that were updated. You can customize the view by right-clicking the bar chart and show the data in a split view. To change the subset of records, use the visual filters.

Admin dashboard in split view

Another way to determine the cause of a failed project execution is to drill down to the specific record that failed to synchronize.

Admin dashboard showing record drill-down

Data Integrator Scheduler

Use the Data Integrator Scheduler to refresh data on a regular schedule. Run projects manually or set up a recurrence that refreshes your project on an hourly, daily, weekly, or monthly schedule. You can refresh as often as every minute. You can also add start and end dates and times.

Data Integrator Scheduler configuration screen

Email notifications

If you're on the move, you can continue to monitor the health of your projects with email notifications. When you select the Notifications check box on the Scheduling tab, you're automatically alerted when jobs are completed or when they fail due to errors.

Data Integrator email notification configuration screen

Power Query support for Data Integrator (Public Preview)

The Data Integrator uses the familiar Power Query user interface to mash up source data before loading it into the Common Data Service. Use Power Query to filter, transform, and target data from a variety of external resources—without writing a single line of code.

Filtering with Power Query

Transforming data with Power Query

Conditional data transformation with Power Query

Get data from external sources

Templates (Public Preview)

Starting in April, you can use the Salesforce.com, Field Service Integration, and Project Service Integration templates as a starting point to help map entities and fields from source to destination. You can customize these templates with custom entities and field mappings to fit your specific business needs.

Salesforce.com template

With the Salesforce.com template, you can build an app on the Common Data Service for Apps that combines data from Salesforce.com and Dynamics 365 to provide a 360-degree view of your business.

Mapping Salesforce.com Opportunity fields into the Common Data Service for Apps

Field Service Integration template

The Data Integrator supports scenarios where Dynamics 365 for Field Service activities are done outside Dynamics 365 for Finance and Operations. Capabilities include:

- Enabling invoicing of Field Service work orders and agreements in Finance and Operations.
- Integration of a warehouse with on-hand inventory, item reservations, usage, adjustments, and transfers.
- Support for purchase order integration with synchronization of vendors, purchase orders, and receipts.

The first phase of feature work focuses on enabling invoicing of Field Service work orders and agreements in Finance and Operations. The supported flow starts in Field Service, where information from work orders is synchronized to Finance and Operations as sales orders. In Finance and Operations, the sales orders are invoiced to generate invoice documents. In addition, the information from Field Service agreement invoices is synchronized to Finance and Operations.

Integrating Field Service with Finance and Operations

Gateway improvements

With the on-premises data gateway, you can refresh queries that combine and merge data from online and on-premises sources.

The enterprise gateway admin decides whether to allow the gateway to refresh cloud data sources by using the newly added setting on the Manage Gateways page.

Setting that allows refresh of cloud source data sources

We added support for Single Sign-On that takes advantage of Kerberos when DirectQuery mode is used to connect to the following data sources from Power BI: SQL Server, Teradata, SAP HANA, SAP BW, (coming in April), and Impala (coming in April).

When a user interacts with a DirectQuery report in Power BI, each cross-filter, slice, sort, or report edit operation can cause queries to execute live against the underlying on-premises data source. When Single Sign-On is configured for the data source, queries execute under the identity of the user who is interacting with Power BI (that is, through the web experience or Power BI mobile app). Therefore, each user sees only the data they have permissions for in the underlying data source. There is no shared data caching across different users.

Single Sign-On Kerberos settings when adding a supported data source

High availability and disaster recovery improvements (Public Preview)

High availability for the on-premises data gateway gives administrators a way to group multiple gateway instances together. This offers a more robust and scalable architecture that eliminates single-point-of-failure risks.

As part of the on-premises data gateway installation, admins can specify whether the gateway instance is added to an existing cluster or a new one. Older gateways are exposed in their own clusters, so that users can either associate new gateway instances with the existing ones or set up new clusters.

Adding new gateways to existing clusters for high availability

PowerShell commands library for the on-premises data gateway (Public Preview)

The on-premises data gateway PowerShell cmdlets are available in the public PowerShell gallery.

Use the PowerShell commands to:

- Retrieve the list of gateway clusters that are available for a user.
- Retrieve the list of gateway instances registered in a cluster, and their online or offline status.
- Modify the enable/disable status for a gateway instance within a cluster, and other gateway properties.
- Delete a gateway.

To use the commands, you don't need to use the same computer where the gateway is installed.

Other gateway improvements

Other gateway improvements include:

- Gateways will automatically fall back on the HTTPS protocol when communicating with the Azure Service Bus if the default TCP protocol fails for any reason.
- Turning on additional logging in the gateway client will capture mashup engine logging.
- Gateway admins can configure the number of mashup engine containers that run simultaneously on the gateway machine by changing the MashupDefaultPoolContainerMaxCount setting in the gateway configuration file. This file is named Microsoft.PowerBI.DataMovement.Pipeline.GatewayCore.dll.config and is located in the gateway's installation directory.
- Monthly updates for the mashup engine match the version released in Power BI Desktop.

Smart data preparation capabilities – Add Column from Examples

As part of the data transformation capabilities of the Power Query editor, you can easily add a new column of data by providing one or more sample values for the new column. Power Query applies intelligence algorithms to determine the set of data transformations that need to be applied to infer column results.

This approach is useful in the following situations:

- You know the data result you want in the new column, but you're not sure which transformation (or collection of transformations) will provide that result.
- You know which transformations you need, but you're not sure how to do the transformations through the user interface.
- You know which transformations you need, but one (or more) of those expressions aren't available in the user interface.

You can access Add Column from Examples from the Add Column tab in the Power Query editor. Power Query provides suggestions for common operations, based on columns in context. Suggestions are based on data samples (Tuesday, for example) and descriptive text (day of the week, for example).

Add Column from Examples

Remaining column rows inferred from example column values

For more information about inferring values from an example column, go to: [Add a column from an example in Power BI Desktop](#).

Extensibility (Public Preview)

With the M connector SDK, partners and developers can contribute to the rich connector ecosystem. Additionally, M connector support is provided for the on-premises data gateway (personal mode), starting in April. An improved certification program lets partners build and submit their connectors for review and release across Power BI, Microsoft Flow, PowerApps, and Logic Apps.

Media Platform

Microsoft Stream

Microsoft Stream is a service that enables your employees to create, discover, and share videos securely across your organization, right inside the collaboration apps they use most, such as Microsoft Teams, SharePoint, Office 365, and Dynamics 365. Intelligence capabilities provide more ways to find and interact with videos, and help people access relevant content quickly and easily.

Microsoft Stream provides accessible, enterprise-grade security for organizations of any size, and uses artificial intelligence (AI) to convert speech to text, and face identification for smarter search.

Microsoft Stream empowers organizations to:

- **Build an easy-to-use video experience that is familiar, appealing, and secure.** Microsoft Stream minimizes the learning curve for employees to do more with video at work.
- **Integrate tightly into the business applications people use daily**. Microsoft Stream takes video to the productivity apps where people spend their time, and delivers a seamless, embedded experience. Additionally, embedded video in business applications brings video directly to apps where people work with customers.
- **Create their own content.** Content creation tools allow employees create and publish content to Microsoft Stream. For example, videos created via meeting recordings in Microsoft Teams can be published and shared with others. AI techniques extract insights about the content and enable business users to make informed decisions.

Spring '18 summary of what's new in Media Platform

April '18 - General Availability

- **General Data Protection Regulation (GDPR)** investments address requirements imposed by the European privacy law. Go to the Trust Center to learn more and find resources to help you comply.
- **Tier-C compliance** – Microsoft Stream is a certified Tier-C service for compliance standards such as ISO and SOC2.
- **Spotlight videos on the Stream home page and groups pages** – Admins and group owners can highlight (or spotlight) videos to make them more visible to employees.
- **Cloud recording for meetings in Microsoft Teams** – Record and share meetings in Microsoft Teams.
- **Seamless single sign-on with Microsoft Teams and Yammer** – Single sign-on for users of Stream videos, and channels is embedded in Microsoft Teams and Yammer.
- **Edit transcripts and curate people timelines** – Edit automatically generated transcripts, and curate people timelines.

Spotlight videos

Spotlighting capability enables admins to highlight videos on the Stream home page to get the broadest reach. Additionally, group owners can highlight videos on their group home page. Employees who sign in to Stream and have access to these videos see them prominently featured.

Spotlight videos on the Stream home page

Edit transcripts and curate the people timeline

Microsoft Stream generates automatic transcripts for videos by using AI to convert speech to text. Automatically generated transcripts can be corrected through inline editing.

Transcript editor in Stream

Microsoft Stream automatically detects the people in a video and builds a timeline view showing where they appeared. Owners of the video can curate these timelines by hiding extra people or merging two timelines into one with a built-in inline editor.

Detected faces appear in the video timeline

Cloud recording for meetings in Microsoft Teams

Microsoft Stream enables cloud recording for meetings in Microsoft Teams. Users start recording while the meeting is going on. After the meeting, the recording is automatically available in Microsoft Stream, with speech-to-text transcription and people detection. The people who attended the meeting receive permission to view the video and can watch it from within the conversation timeline.

Record meetings for Microsoft Teams

Got feedback?

Drop us a line at releasenotes@microsoft.com. We'll use your feedback to improve our content.

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Microsoft