Contents

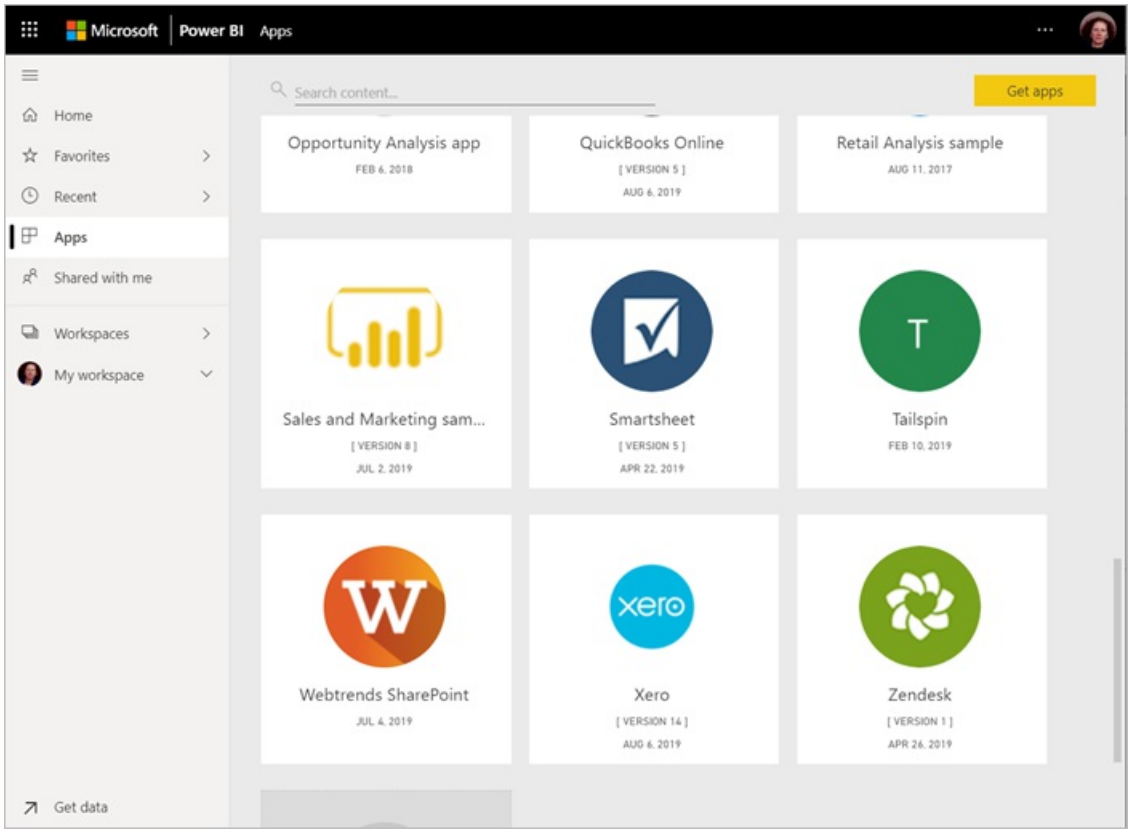
Ways to share your work in Power BI

5/13/2020 • 8 minutes to read • Edit Online

You've created dashboards and reports. Maybe you collaborated on them with your coworkers, too. Now you want others to have access to them. What's the best way to distribute them? In this article, we compare these options for collaborating and sharing in Power BI:

- Collaborate with coworkers to create meaningful reports and dashboards in *workspaces*.
- Bundle those dashboards and reports into *apps* and distribute them to a larger group or your whole organization.
- Create *shared datasets* that your coworkers can use as the basis for their own reports, in their own workspaces.
- Share dashboards or reports with a few people, from the service or the Power BI mobile apps.
- Annotate and share from the Power BI mobile apps.
- Embed a report in Microsoft Teams.
- Print reports.
- *Embed* reports in secure portals or public web sites.
- Create a *template app* that you can distribute to external Power BI users, via Microsoft AppSource.

No matter which option you choose, to share your content you need a Power BI Pro license, or the content needs to be in a Premium capacity. License requirements vary for the colleagues who view your content, depending on the option you choose. The following sections spell out details.



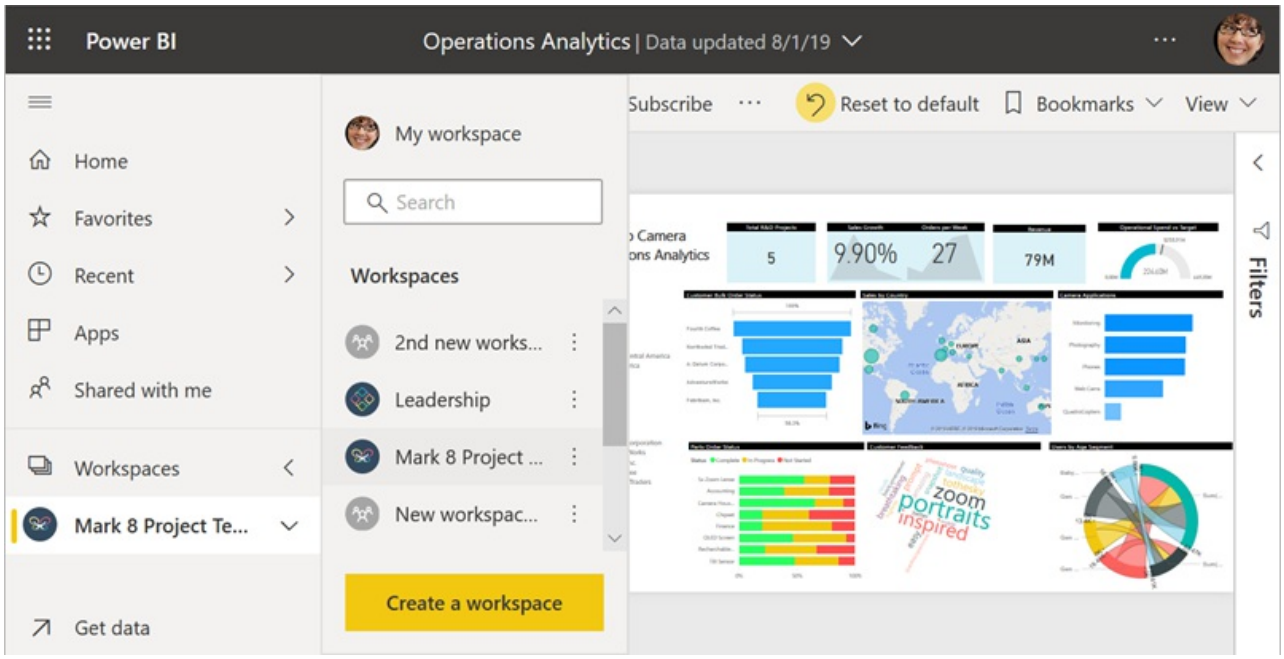
Apps in the Power BI service

Collaborate in a workspace

When teams work together, they need access to the same documents so they can quickly collaborate. In Power BI

workspaces, teams come together to share the ownership and management of their dashboards, reports, datasets, and workbooks. Sometimes Power BI users organize their workspaces based on organizational structures, other times they create them for specific projects. Still other organizations use several workspaces to store different versions of reports or dashboards they use.

Workspaces provide roles that determine what permissions your coworkers have. You can use those roles to determine who can manage the entire workspace, or edit its content, and distribute its content.



You might naturally put content in your My Workspace and share it from there. But workspaces are better for collaboration than My Workspace, because they allow co-ownership of content. You and your entire team can easily make updates or give others access. My Workspace is best used by individuals for one-off or personal content.

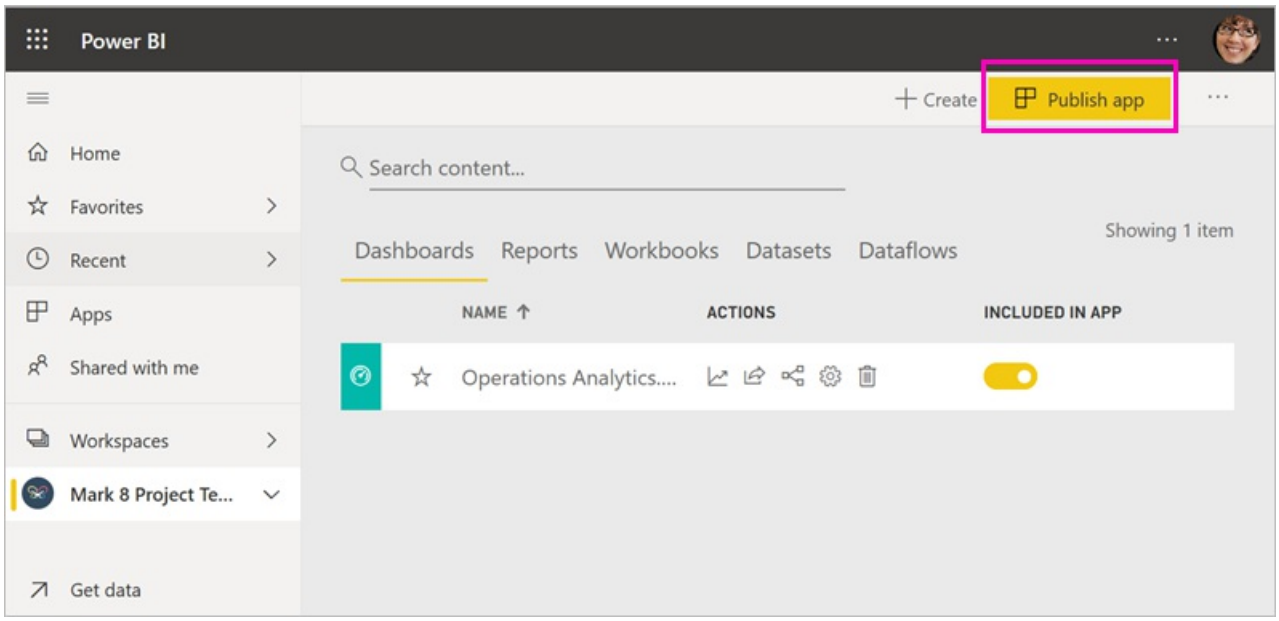
Let's imagine you have a finished dashboard you need to share with your colleagues. What's the best way to give them access to the dashboard? The answer depends on a number of factors.

- If colleagues need to keep the dashboard up to date, or need access to all the content in the workspace, consider adding them to the workspace.
- If colleagues just need to see that dashboard and not all the content in the workspace, you again have alternatives. If a few people need just that one dashboard, then sharing the dashboard could be the best solution.
- However, if the dashboard is part of a bigger set of content you need to distribute to many colleagues, then publishing an *app* is likely the best choice.

Power BI has a new workspace experience. Read Create the new workspaces to see how workspaces have changed.

Distribute insights in an app

Say you want to distribute your dashboard to a broad audience in your organization. You and your coworkers have created a *workspace*, then created and refined dashboards, reports, and datasets in the workspace. Now you select the dashboards and reports you want and publish them as an app, either to a group or to your whole organization.



Apps are easy to find and install in the Power BI service (https://app.powerbi.com). You can send your business users a direct link to the app, or they can search for it in AppSource. If your Power BI administrator gives you permissions, you can install an app automatically in your coworkers' Power BI accounts. Read more about publishing your apps.

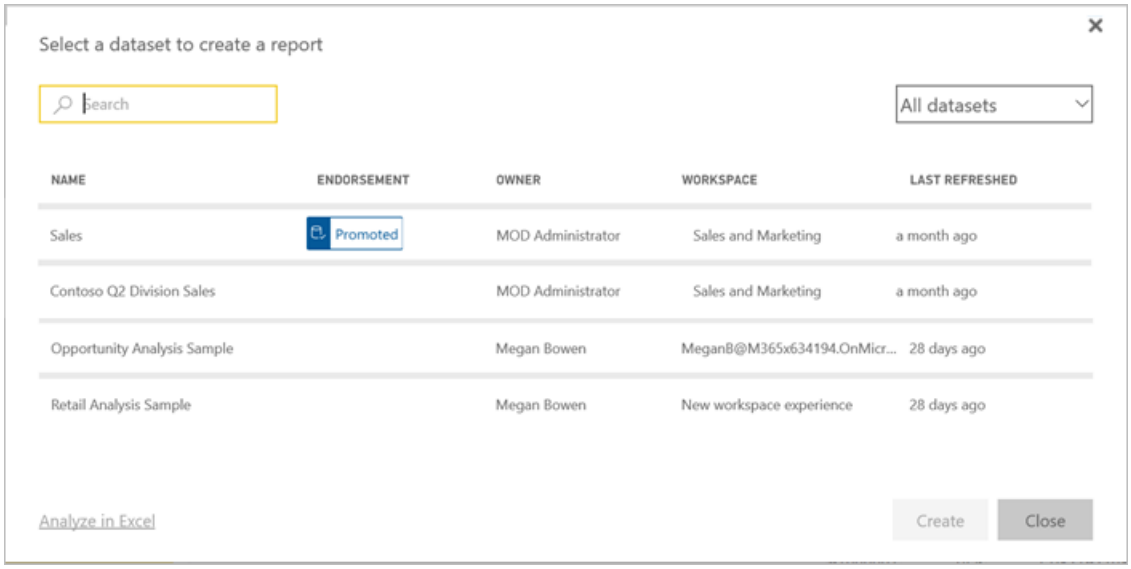
After they install an app, they can view it in their browser or mobile device.

For your users to view your app, either they need to have a Power BI Pro license, too, or the app needs to be stored in a Power BI Premium capacity. Read What is Power BI Premium? for details.

You can publish apps to people outside your organization, too. They can view and interact with the app content, but can't share it with others. Now you can create *template apps* deploy them to any Power BI customer.

Share a dataset

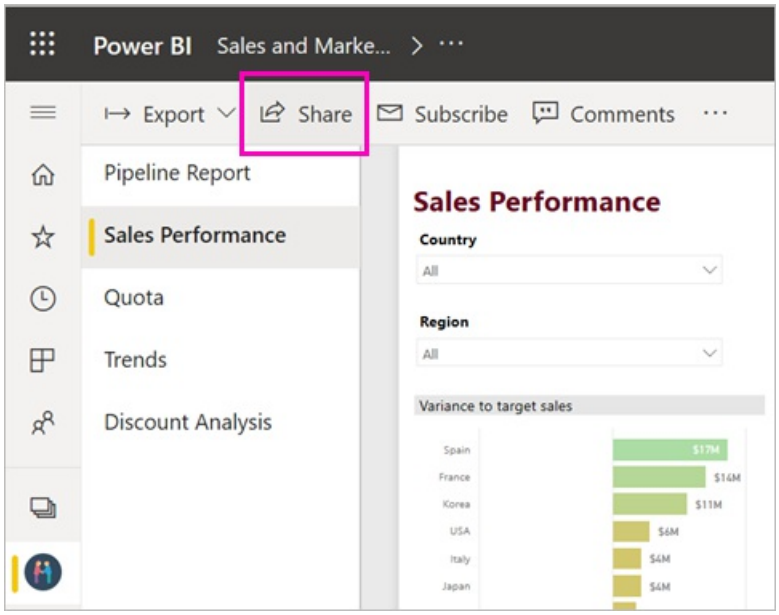
Let's face it, some people are more skilled at creating high-quality, well-designed data models in their reports. Maybe you're that person. Your whole organization can benefit from using the same well-designed data models. *Shared datasets* fill that role. When you create a report with a data model that everyone should use, you can save that report to the Power BI service and give the right people permission to use it. Then they can build their reports on your dataset. That way, everyone is basing their reports on the same data, and seeing the same "version of the truth."



Read more about creating and using shared datasets.

Share dashboards and reports

Let's say you've finalized a dashboard and a report in your own My Workspace or in a workspace and you want a few other people to have access to it. One way to get it to them is to *share* it.



You need a Power BI Pro license to share your content, and the people you share it with do too, or the content needs to be in a workspace in a Premium capacity. When you share a dashboard or report, recipients can view it and interact with it, but can't edit it. They see the same data that you see in the dashboard and reports unless row-level security (RLS) is applied to the underlying dataset. The coworkers you share it with can share with their coworkers, if you allow them to.

You can share with people outside your organization, too. They can view and interact with the dashboard or report too, but can't share it.

More about sharing dashboards and reports from the Power BI service. You can also add a filter to a link and share a filtered view of your report.

Annotate and share from the Power BI mobile apps

In the Power BI mobile apps for iOS and Android devices, you can annotate a tile, report, or visual and then share it with anyone via email.

You're sharing a snapshot of the tile, report, or visual, and your recipients see it exactly as it was when you sent the mail. The mail also contains a link to the dashboard or report. If they have a Power BI Pro license, or the content is in a Premium capacity, and you've shared the object with them already, they can open it. You can send snapshots of tiles to anyone not just coworkers in the same email domain.

More about annotating and sharing tiles, reports, and visuals from the iOS and Android mobile apps.

You can also share a snapshot of a tile from the Power BI app for Windows 10 devices.

Embed a report in Microsoft Teams

Increase data-driven collaboration in your organization by embedding your Power BI reports and Power BI paginated reports in Microsoft Teams. You can add separate Power BI tabs for each individual report, and give each tab the name of the report, or any other name. Your colleagues can view your reports on the Power BI tabs in Teams. They can also open the Conversation window and comment on the report right in Teams. Read more about embedding a report in Microsoft Teams.

Print or save as PDF or other static file

You can print or save as PDF (or other static file format) an entire dashboard, dashboard tile, report page, or visualization from the Power BI service. Reports can only be printed one page at a time -- you can't print the entire report at once. More about printing or saving as a static file.

Embed reports in secure portals or public web sites

Embed in secure portals

You can embed Power BI reports in portals or web sites where your users expect to see them.
The **Embed in SharePoint Online** and the **Embed** option in the Power BI service allows you to embed reports for your internal users securely.

- **Embed in SharePoint Online** works with the Power BI web part for SharePoint Online. It provides a single

sign-on experience with control over how the report is embedded.

- **Embed** works with any portal or web site that supports embedding content using a URL or an iFrame.

Whichever option you choose, Power BI enforces all permissions and data security before users can see content. The person viewing the report needs the appropriate license. More about Embedding in SharePoint Online and the Embed option in Power BI.

Publish to public web sites

With **Publish to web**, you can publish Power BI reports to the whole Internet by embedding interactive visualizations in blog posts, web sites, social media, and other online communications on any device. Anyone on the Internet can view your reports, and you have no control over who can see what you've published. They don't need a Power BI license. Publishing to the web is available only for reports that you can edit. You can't publish reports to the web if they're shared with you or if they're in an app. More about publishing to the web.

> **WARNING**
> Use Publish to web only to share content publicly, not for internal sharing.

Create and deploy template apps

Template apps are designed to be distributed publicly, often in Microsoft AppSource. You build an app, and with little or no coding, you can deploy it to any Power BI customer. Your customers connect to their own data and instantiate their own accounts. Read more about Power BI template apps.

Next steps

- Share dashboards with coworkers and others
- Create and publish an app in Power BI
- Embed report in a secure portal or web site

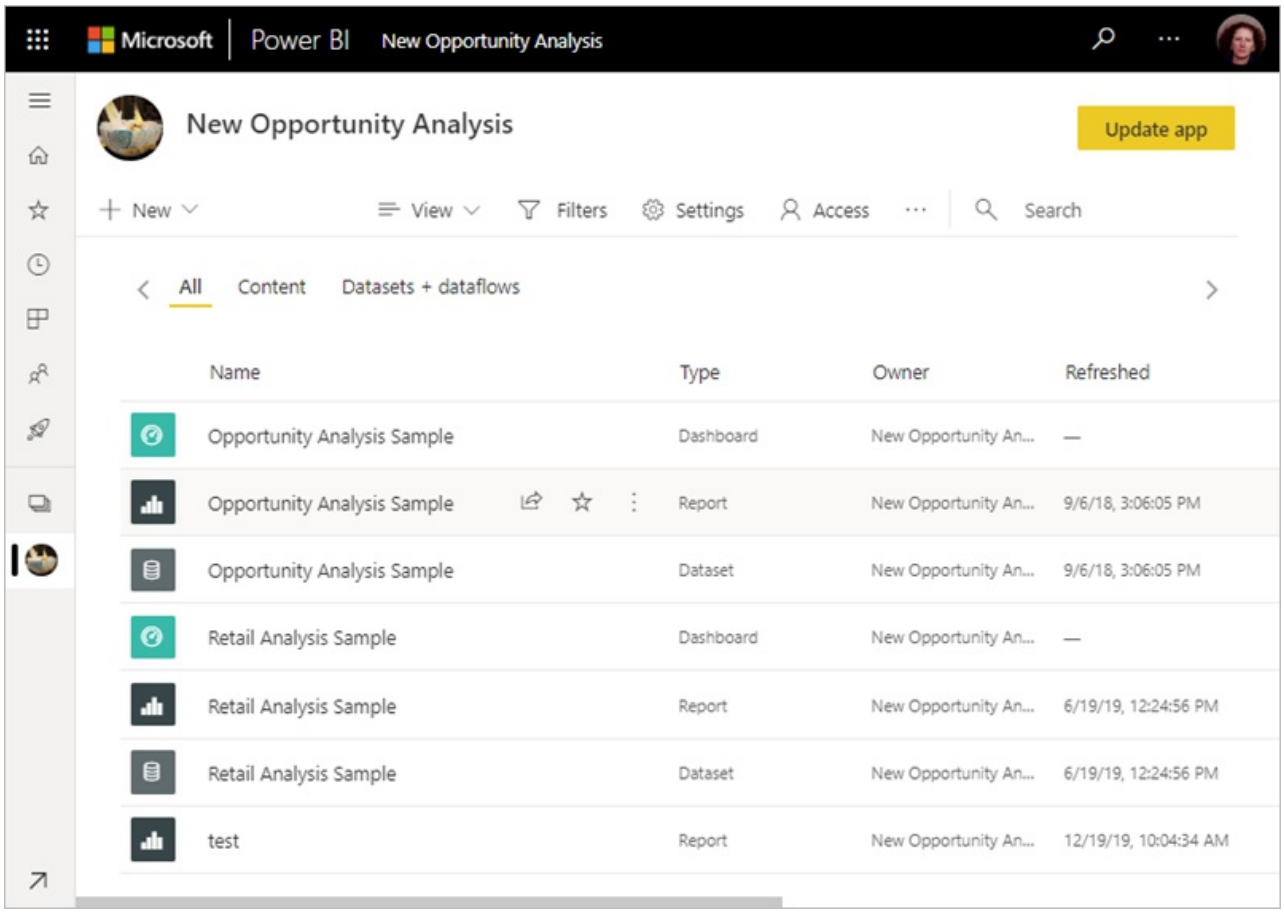
Have feedback? Go to the Power BI Community site with your suggestions.

More questions? Try the Power BI Community

Organize work in the new workspaces in Power BI

5/28/2020 • 9 minutes to read • Edit Online

Workspaces are places to collaborate with colleagues to create collections of dashboards, reports, datasets, and paginated reports. The new workspace experience helps you better manage access to content. This article describes the new workspaces, and how they differ from the classic workspaces. As with classic workspaces, you still use them to create and distribute apps. Ready to create a new workspace? Read Create a new workspace experience.



New, upgraded workspaces can coexist side by side with existing classic workspaces. The new workspace experience is the default workspace type. You can still create and use classic workspaces based on Microsoft 365 groups, if you need to. Ready to migrate your classic workspace? See Upgrade classic workspaces to the new workspaces in Power BI for details.

New and classic workspace differences

With the new workspaces, we've redesigned some features. Here are the main differences.

- **Creating the new workspaces doesn't create Microsoft 365 groups** like classic workspaces do. All the new workspace administration is in Power BI, not in Office 365. You can still manage user access to content through Microsoft 365 groups, if you want. You just add a Microsoft 365 group in the workspace access list.
- **Use more granular workspace roles** for more flexible permissions management in the new workspaces. In classic workspaces, you can add only individuals to the members and admin lists.
- **Assign user groups to workspace roles**: In the new workspaces, you can add multiple Active Directory security groups, distribution lists, or Microsoft 365 groups to these roles, for easier user management.
- **Contact list**: In the new workspaces, you can specify who receives notification about workspace activity.
- **Create template apps**: You can only create *template apps* in the new workspaces. Template apps are apps that

you can distribute to customers outside of your organization. Those customers can then connect to their own data with your template app. Read more about template apps.

- **Share datasets**: To share a dataset outside a specific workspace, you need to save the report that contains the dataset to one of the new workspaces. You can't share datasets from classic workspaces. Read more about shared datasets.
- **Organizational content packs**: You create and consume organizational content packs in classic workspaces. You can't create or consume them in the new workspaces. Apps and template apps replace organizational content packs in the new workspaces.

This article explains these features in more detail.

> **NOTE**
> Power BI continues to list all Microsoft 365 groups that you're a member of. This avoids changing existing workflows.

Features that work differently

In the new workspaces, some features work differently. These differences are intentional, based on feedback we've received from customers. They enable a more flexible approach to collaboration in workspaces.

- **Licensing enforcement**: Publishing reports to a new workspace experience enforces existing licensing rules. Users collaborating in new workspaces or sharing content to others in the Power BI service need a Power BI Pro license. Users without a Pro license see the error "Only users with Power BI Pro licenses can publish to this workspace."
- **'Members can reshare' setting**: The Contributor role in the new workspaces replaces the 'Members can reshare' setting in the classic workspaces.
- **Read-only workspaces**: The Viewer role in the new workspaces replaces granting users read-only access to a classic workspace. The Viewer role allows similar read-only access to the content in the new workspaces.
- **Users without a Pro license** can access a new workspace if the workspace is in a Power BI Premium capacity, but only if they have the Viewer role.
- **Allow users to export data**: Even users with the Viewer role in the new workspace can export data if they have Build permission on the datasets in that workspace. Read more about Build permission for datasets.
- No **Leave workspace** button in the new workspaces.

Workspace contact list

The new **Contact list** feature allows you to specify which users receive notification about issues occurring in the new workspaces. By default, any user or group specified as a workspace admin in the new workspace is notified. You can add to that list. Users or groups in the contact list are also listed in the user interface (UI) of the new workspaces, so workspace end-users know whom to contact.

Read about how to create the workspace contact list.

Workspace OneDrive

As we've stated, Power BI doesn't create a Microsoft 365 group behind the scenes when you create one of the new workspaces. Still, you might find it useful to have a OneDrive associated with the new workspace. With the Workspace OneDrive feature in the new workspaces, you can configure a Microsoft 365 group whose SharePoint Document Library file storage is available to workspace users. You create the group outside of Power BI.

Power BI doesn't synchronize between Microsoft 365 group membership and permissions for users or groups with access to the new workspace. You can synchronize them: Manage workspace access through the same Microsoft 365 group whose file storage you configure in this setting.

Read about how to set the workspace OneDrive.

Roles in the new workspaces

Roles let you manage who can do what in the new workspaces, so teams can collaborate. New workspaces allow you to assign roles to individuals, and to user groups: security groups, Microsoft 365 groups, and distribution lists.

To grant access to a new workspace, assign those user groups or individuals to one of the workspace roles: Admin, Member, Contributor, or Viewer. Everyone in a user group gets the role you've assigned. If someone is in several user groups, they get the highest level of permission provided by the roles they're assigned. If you nest user groups, all the contained users have permission. All of these capabilities, except viewing and interacting, require a Power BI Pro license. Read more about licensing in this article.

CAPABILITY	ADMIN	MEMBER	CONTRIBUTOR	VIEWER
Update and delete the workspace.				
Add/remove people, including other admins.	✓			
Add members or others with lower permissions.	✓	✓		
Publish and update an app.	✓	✓		
Share an item or share an app.[1]	✓	✓		
Allow others to reshare items.[1]	✓	✓		
Feature apps on colleagues' Home	✓	✓		
Feature dashboards and reports on colleagues' Home	✓	✓	✓	
Create, edit, and delete content in the workspace.	✓	✓	✓	
Publish reports to the workspace, delete content.	✓	✓	✓	
Create a report in another workspace based on a dataset in this workspace.[2]	✓	✓	✓	
Copy a report.[2]	✓	✓	✓	

CAPABILITY	ADMIN	MEMBER	CONTRIBUTOR	VIEWER
Schedule data refreshes via the on-premises gateway.[3]	✓	✓	✓	
Modify gateway connection settings.[3]	✓	✓	✓	
View and interact with an item.[4]	✓	✓	✓	✓
Read data stored in workspace dataflows	✓	✓	✓	✓

[1] Contributors and Viewers can also share items in a workspace if they have Reshare permissions.

[2] To copy a report, and to create a report in another workspace based on a dataset in this workspace, you need Build permission for the dataset. For datasets in this workspace, the people with Admin, Member, and Contributor roles automatically have Build permission through their workspace role.

[3] Keep in mind that you also need permissions on the gateway. Those permissions are managed elsewhere, independent of workspace roles and permissions. See Manage an on-premises gateway for details.

[4] Even if you don't have a Power BI Pro license, you can view and interact with items in the Power BI service if the items are in a workspace in a Premium capacity.

NOTE

- You can assign users to roles, either alone or in a group, even if they can't use the role. In other words, you can assign users who don't have Power BI Pro licenses to a role that requires a license. See Licenses in this article for details.
- To enforce row-level security (RLS) for users browsing content in a workspace, use the Viewer role. You can also enforce RLS without giving access to the new workspace. Publish an app and distribute it to those users, or use sharing to distribute content to them.

Licensing and administering

Licenses

If one of the new workspaces is in a shared capacity, everyone you add to it needs a Power BI Pro license. These users can all collaborate on the dashboards and reports in the new workspace. If you want to distribute content to others inside your organization, either assign Power BI Pro licenses to those users or place the workspace in a Power BI Premium capacity.

When the new workspace is in a Power BI Premium capacity, users with the Viewer role can access the workspace even if they don't have a Power BI Pro license. However, if you assign these users a higher role like Admin, Member, or Contributor, they're prompted to start a Pro trial when they try to access the workspace. If you want users without Pro licenses to use the Viewer role, make sure they don't also have other workspace roles, either as individuals or as part of a user group.

NOTE

Publishing reports to the new workspace experience has stricter enforcement of existing licensing rules. If you try to publish from Power BI Desktop or other client tools without a Pro license, you see the error, "Only users with Power BI Pro licenses can publish to this workspace."

Guest users

By default, Azure AD B2B Guest users can't access workspaces. Power BI admins can allow external guest users to edit and manage content in the organization. Enabled Guest users can access workspaces to which they have permission.

Administering new workspace experience workspaces

Administration for new workspace experience workspaces is in the Power BI admin portal. Power BI admins decide who in an organization can create workspaces and distribute apps. Admins can see the state of all the workspaces in their organization. They can also manage and recover workspaces. Read more about administering the new workspaces in the Admin portal article.

Auditing

Power BI audits the following activities for new workspace experience workspaces.

FRIENDLY NAME	OPERATION NAME
Created Power BI folder	CreateFolder
Deleted Power BI folder	DeleteFolder
Updated Power BI folder	UpdateFolder
Updated Power BI folder access	UpdateFolderAccess

Read more about Power BI auditing.

Limitations and considerations

Limitations to be aware of:

- Workspaces can contain a maximum of 1,000 datasets, or 1,000 reports per dataset.
- A person with a Power BI Pro license can be a member of a maximum 1,000 workspaces.
- Power BI publisher for Excel isn't supported.

Frequently asked questions

Are links to existing content affected by the new workspace experience?

No. Links to existing items in classic workspaces aren't affected by the new workspace experience. The general availability (GA) of the new workspace experience changes the default workspace you create, but doesn't change existing workspaces.

Are existing workspaces upgraded to the new workspace experience with GA?

No. The new workspace experience GA only changes the default workspace type to the new workspace experience. Existing classic workspaces that are based on Microsoft 365 groups remain unchanged.

Are workspaces still automatically created for Microsoft 365 groups?

Yes. Since we support both types of workspaces side by side, we continue to list all Microsoft 365 groups you have access to in the workspaces list.

Next steps

- Create the new workspaces in Power BI

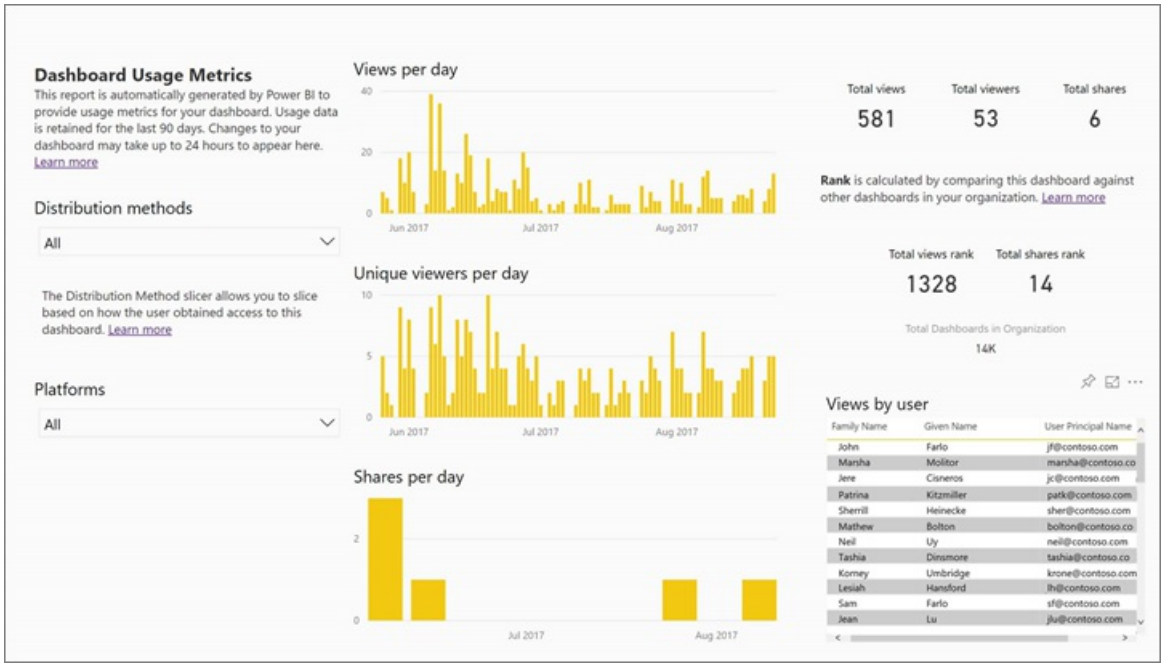
- Create the classic workspaces
- Install and use apps in Power BI
- Questions? Try asking the Power BI Community

Monitor usage metrics for Power BI dashboards and reports

5/13/2020 • 11 minutes to read • Edit Online

If you create dashboards and reports, usage metrics help you understand their impact. When you run either dashboard usage metrics or report usage metrics, you discover how those dashboards and reports are being used throughout your organization, who's using them, and for what purpose.

Usage metrics reports are read-only. However, you can copy a usage metrics report. Copying creates a standard Power BI report that you can edit. You can also build your own reports in Power BI Desktop based on the underlying dataset, which contains usage metrics for all dashboards or all reports in a workspace. To begin with, the copied report shows metrics just for the selected dashboard or report. You can remove the default filter and have access to the underlying dataset, with all the usage metrics of the selected workspace. You may even see the names of specific users, if your admin has allowed that.



NOTE

Usage metrics track usage of reports that are embedded in SharePoint Online. However, usage metrics don't track dashboards and reports embedded via the "user owns credentials" or "app owns credentials" flow. Usage metrics also don't track usage of reports embedded via publish to web.

Why usage metrics are important

Knowing how your content is being used helps you demonstrate your impact and prioritize your efforts. Your usage metrics may show that one of your reports is used daily by a huge segment of the organization and it may show that a dashboard you created isn't being viewed at all. This type of feedback is invaluable in guiding your work efforts.

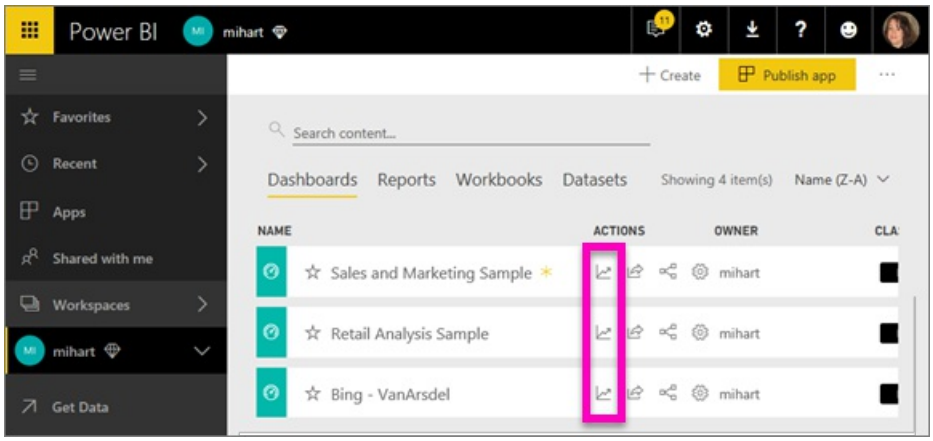
You can only run usage metrics reports in the Power BI service. However, if you save a usage metrics report or pin it to a dashboard, you can open and interact with that report on mobile devices.

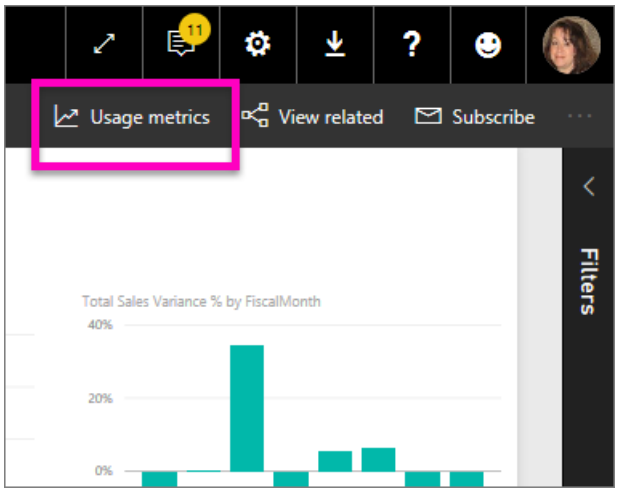
Prerequisites

- You need a Power BI Pro license to run and access the usage metrics data. However, the usage metrics feature captures usage information from all users, regardless of the license they're assigned.
- To access usage metrics for a particular dashboard or report, you must have edit access to that dashboard or report.
- Your Power BI admin has to have enabled usage metrics for content creators. You Power BI admin may have also enabled collecting per-user data in usage metrics. Read about how to enable these options in the admin portal.

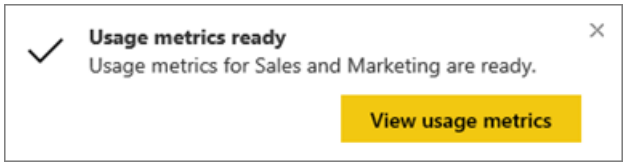
View a Usage Metrics report

1. Start in the workspace that contains the dashboard or report.
2. From either the workspace content list or from the dashboard or report itself, select the icon for **Usage metrics** .





3. The first time you do this, Power BI creates the usage metrics report and lets you know when it's ready.



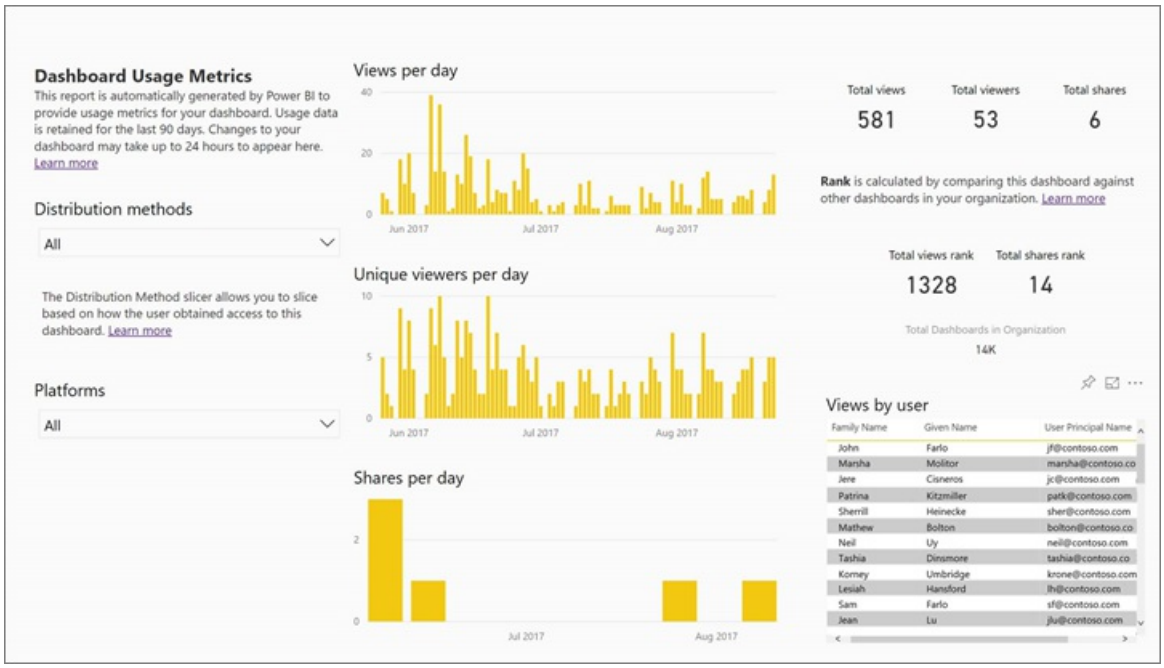
4. To see the results, select **View usage metrics**.

   Usage metrics are a powerful ally as you work to deploy and maintain Power BI dashboards and reports. Wondering which pages of your report are most useful, and which ones you should phase out? Slice by **Report page** to find out. Wondering if you should build a mobile layout for your dashboard? Slice by **Platforms** to discover how many users are accessing your content via the mobile apps vs. via web browser.

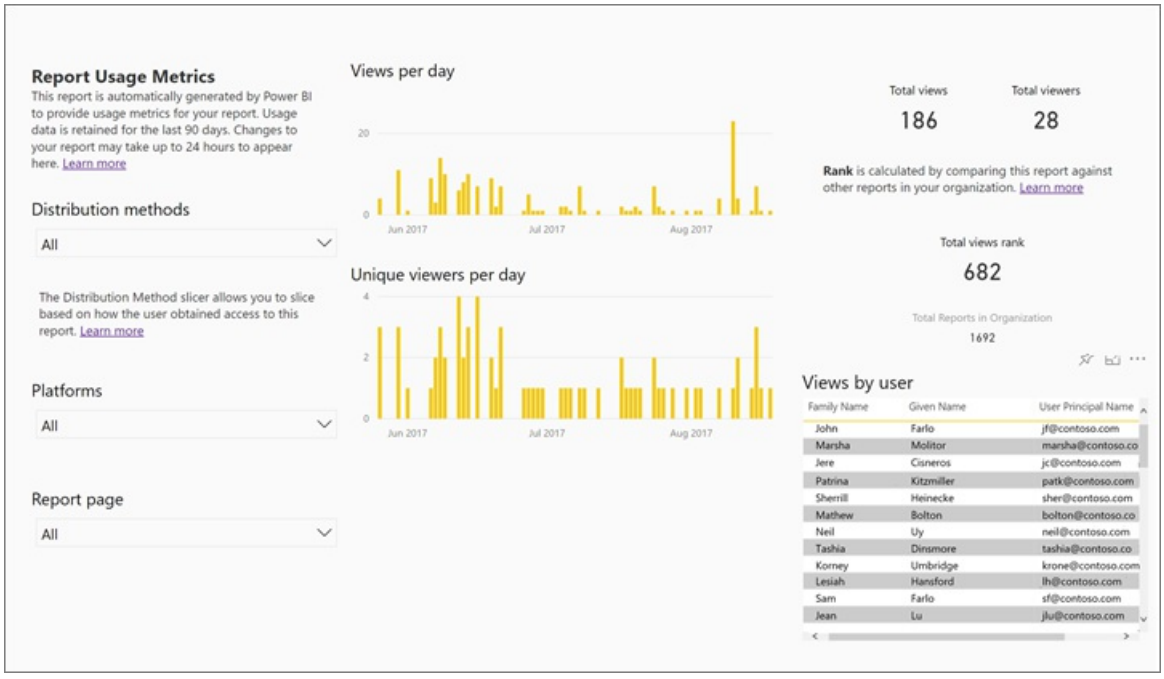
5. Optionally, hover over a visualization and select the pin icon to add the visualization to a dashboard. Or, from the top menu bar, select **Pin Live Page** to add the entire page to a dashboard. From the dashboard you can monitor the usage metrics more easily or share them with others.

> **NOTE**
>
> If you pin a tile from a usage metrics report to a dashboard, you can't add that dashboard to an app.

Dashboard Usage Metrics report



Report Usage Metrics report



About the Usage Metrics report

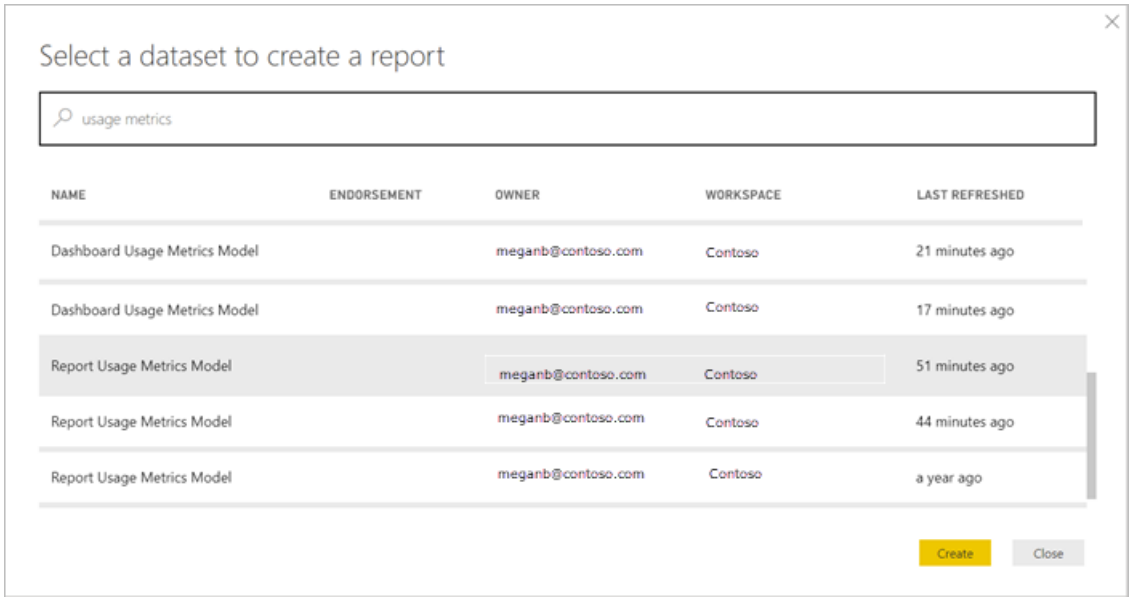
When you select **Usage metrics** or the icon  next to a dashboard or report, Power BI generates a pre-built report with usage metrics for that content for the last 90 days. The report looks similar to the Power BI reports you're already familiar with. You can slice based on how your end users received access, whether they accessed via the web or mobile app, etc. As your dashboards and reports evolve, so too will the usage metrics report, which

updates every day with new data.

Usage metrics reports don't show up in **Recent**, **Workspaces**, **Favorites**, or other content lists. They can't be added to an app. If you pin a tile from a usage metrics report to a dashboard, you can't add that dashboard to an app.

To dig into the report data, or to build your own reports against the underlying dataset, you have two options:

- Make a copy of the report in the Power BI service. See Save a copy of the Usage Metrics report later in this article for details.
- Connect to the dataset from Power BI Desktop. For every workspace, the dataset has the name "Report Usage Metrics Model." See Establish a connection to a published dataset for details.



Which metrics are reported?

METRIC	DASHBOARD	REPORT	DESCRIPTION
Distribution method slicer	yes	yes	How users got access to the content. There are 3 possible methods: users can access the dashboard or report by being members of a workspace, by having the content shared with them, or by installing a content pack/app. Note that views through an app are counted as "content pack."
Platforms slicer	yes	yes	Was the dashboard or report accessed via the Power BI service (powerbi.com) or a mobile device? Mobile includes all our iOS, Android, and Windows apps.

METRIC	DASHBOARD	REPORT	DESCRIPTION
Report page slicer	no	yes	If the report has more than 1 page, slice the report by the page(s) that was viewed. If you see a list option for "Blank," that means a report page was recently added (within 24 hours the actual name of the new page appears in the slicer list) and/or report pages have been deleted. "Blank" captures these types of situations.
Views per day	yes	yes	Total number of views per day - a view is defined as a user loading a report page or dashboard.
Unique viewers per day	yes	yes	Number of *different* users who viewed the dashboard or report (based on the AAD user account).
Views per user	yes	yes	Number of views in the past 90 days, broken down by individual users.
Shares per day	yes	no	Number of times the dashboard was shared with another user or group.
Total views	yes	yes	Number of views in the past 90 days.
Total viewers	yes	yes	Number of unique viewers in the past 90 days.
Total shares	yes	no	Number of times the dashboard or report was shared in the past 90 days.
Total in organization	yes	yes	Count of all dashboards or reports in the entire organization which had at least one view in the past 90 days. Used to calculate rank.
Rank: Total views	yes	yes	For total views of all dashboards or reports in the organization over the past 90 days, where does this dashboard or report rank.

METRIC	DASHBOARD	REPORT	DESCRIPTION
Rank: Total shares	yes	no	For total shares of all dashboards in the organization over the past 90 days, where does this dashboard or report rank.

Save a copy of the Usage Metrics report

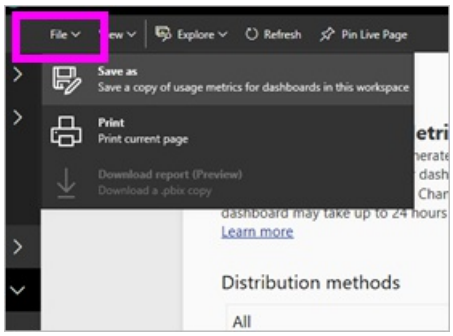
Use **Save as** to convert the usage metrics report to a regular Power BI report that you can customize to meet your specific needs. You can also use Power BI Desktop to build custom usage metrics reports based on the underlying dataset. See Establish a connection to a published dataset for details.

Better yet, the underlying dataset includes the usage details for all dashboards or reports in the workspace. This opens up more possibilities. You could, for example, create a report that compares all dashboards in your workspace based on usage. Or you could create a usage metrics dashboard for your Power BI app by aggregating usage across all the content distributed within that app. See how to remove the filter and see all usage metrics for the workspace later in this article.

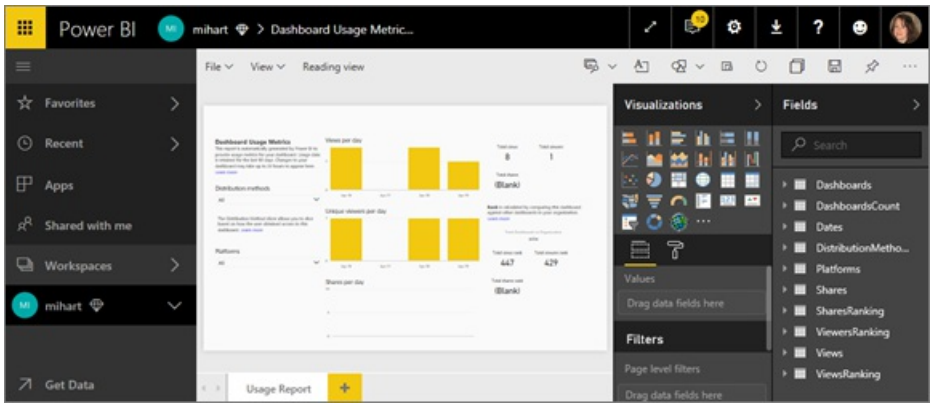
Create a copy of the usage report

When you create a copy of the read-only, pre-built usage report, Power BI creates an editable copy of the report. At first glance, it looks the same. However, you can now open the report in Editing view, add new visualizations, filters, and pages, modify or delete existing visualizations, and so on. Power BI saves the new report in the current workspace.

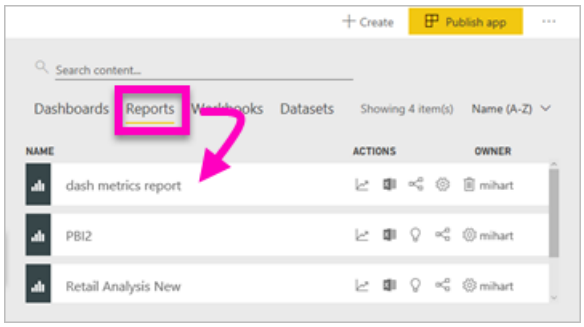
1. From the pre-built usage metrics report, select **File > Save As**. Power BI creates an editable Power BI report, saved in the current workspace.



2. Open the report in Editing view and interact with it as you would with any other Power BI report. For example, add new pages and build new visualizations, add filters, format the fonts and colors, etc.



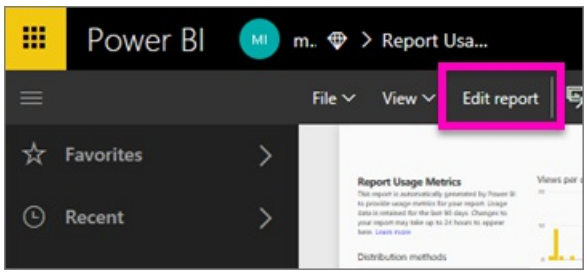
3. The new report is saved to the **Reports** tab in the current workspace, and added to the **Recent** content list.



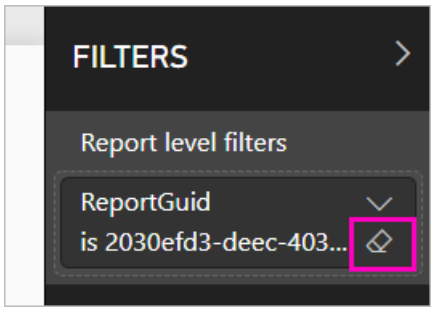
See *all* workspace usage metrics

To see the metrics for all the dashboards or for all the reports in the workspace, you have to remove a filter. By default, the report is filtered to display metrics for only the dashboard or report that you used to create it.

1. Select **Edit report** to open the new editable report in Editing view.



2. In the Filters pane, locate the **Report level filters** bucket and remove the filter by selecting the eraser next to **ReportGuid**.



Now your report displays metrics for the entire workspace.

Power BI admin controls for usage metrics

Usage metrics reports are a feature that the Power BI or Office 365 administrator can turn on or off. Administrators have granular control over which users have access to usage metrics; they are **On** by default for all users in the organization.

> **NOTE**
> Only admins for the Power BI tenant can see the Admin portal and edit settings.

By default, per-user data is enabled for usage metrics, and content consumer account information is included in the metrics report. If admins don't want to expose this information for some or all users, they can disable the feature for specified security groups or for an entire organization. Account information then shows in the report as *Unnamed*.

When disabling usage metrics for their entire organization, admins can use the **delete all existing usage metrics content** option to delete all existing reports and dashboard tiles that were built using the usage metrics

reports. This option removes all access to usage metrics data for all users in the organization who may already be using it. Deleting existing usage metrics content is irreversible.

See Control usage metrics in the Admin portal article for details on these settings.

Usage metrics in national clouds

Power BI is available in separate national clouds. These clouds offer the same levels of security, privacy, compliance and transparency as the global version of Power BI, combined with a unique model for local regulations on service delivery, data residency, access, and control. Due to this unique model for local regulations, usage metrics aren't available in national clouds. For more information, see national clouds.

Considerations and limitations

Discrepancies between audit logs and usage metrics

It's important to understand that differences can occur when comparing usage metrics and audit logs, and why. *Audit logs* are collected using data from the Power BI service, and *usage metrics* are collected on the client. Aggregate counts of activities in audit logs may not always match usage metrics, because of the following:

- Usage metrics may sometimes undercount activities due to inconsistent network connections, ad blockers, or other issues that can disrupt sending the events from the client.
- Certain types of views aren't included in usage metrics, as described earlier in this article.
- Usage metrics may sometimes overcount activities, in situations where the client refreshes without the need for a request being sent back to the Power BI service.

Other considerations

You need to view the content in your workspace, from within that workspace, at least once. If there are no views of the content from the workspace itself at least once, data isn't correlated from the application views in the Usage Metrics Report. To unblock the processing of data for this report, just view the content from your workspace at least once.

Frequently asked questions

In addition to potential differences between usage metrics and audit logs, the following questions and answers about usage metrics may be helpful for users and administrators:

Q: I can't run usage metrics on a dashboard or report

A: You can only see usage metrics for content you own or have permissions to edit.

Q: Do usage metrics capture views from embedded dashboards and reports?

A: Usage metrics currently don't support capturing usage for embedded dashboards, reports, and the publish to web flow. In those cases, we recommend using existing web analytics platforms to track usage for the hosting app or portal.

Q: I can't run usage metrics on any content at all.

A1: Admins can turn off this feature for their organization. Contact your admin to see if this is the case.

A2: Usage metrics is a Power BI Pro feature.

Q: The data doesn't seem up to date. For example, distribution methods don't show up, report pages are missing, etc.

A: It can take up to 24 hours for data to update.

Q: There are four reports in the workspace but the usage metrics report only displays three.

A: The usage metrics report only includes reports (or dashboards) that have been accessed in the past 90 days. If a report (or dashboard) doesn't show up, likely it hasn't been used in more than 90 days.

Next steps

Administering Power BI in the admin portal

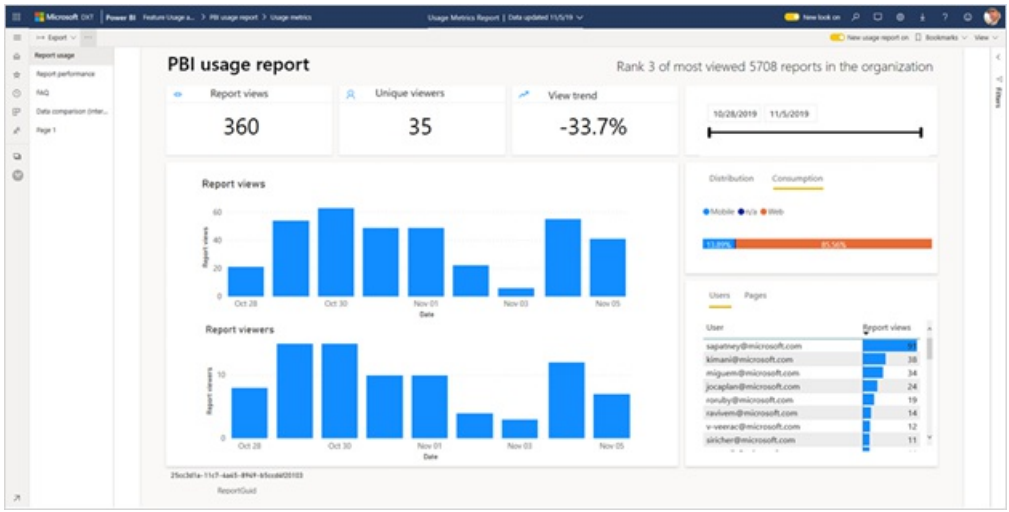
More questions? Try the Power BI Community

Monitor usage metrics in the new workspace experience

5/20/2020 • 19 minutes to read • Edit Online

Knowing how your content is being used helps you demonstrate your impact and prioritize your efforts. Your usage metrics may show that one of your reports is used daily by a huge segment of the organization and it may show that a dashboard you created isn't being viewed at all. This type of feedback is invaluable in guiding your work efforts.

If you create reports in modern workspaces, you have access to improved usage metrics reports that enable you to discover how those reports are being used throughout your organization and who's using them. You can also identify high-level performance issues. The improved usage reports in the modern Workspace experience replace the existing usage metrics reports documented in Monitor usage metrics for Power BI dashboards and reports.



NOTE

You can only run usage metrics reports in the Power BI service. However, if you save a usage metrics report or pin it to a dashboard, you can open and interact with that report on mobile devices.

Prerequisites

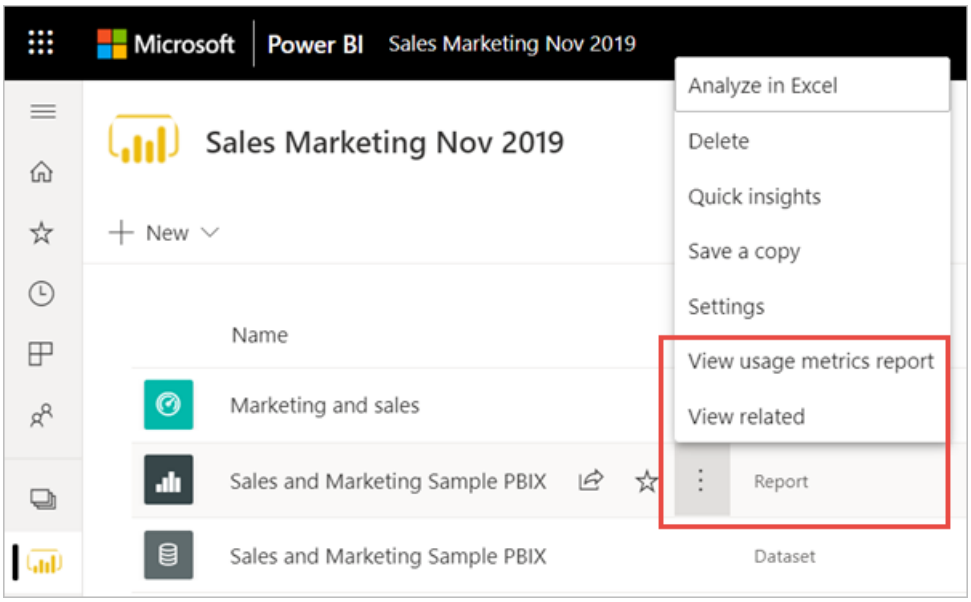
- You need a Power BI Pro license to run and access the usage metrics data. However, the usage metrics feature captures usage information from all users, regardless of the license they're assigned.
- To access improved usage metrics for a report, the report must reside in a modern workspace and you must have edit access to that report.
- Your Power BI admin must have enabled usage metrics for content creators. Your Power BI admin may have also enabled collecting per-user data in usage metrics. Read about how to enable these options in the admin portal.

Create & view an improved usage metrics report

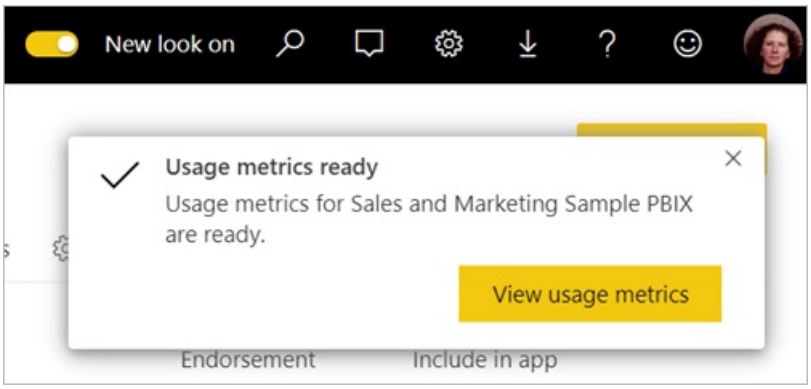
Only users with admin, member, or contributor permissions can view the improved usage metrics report. Viewer permissions aren't sufficient. If you are at least a contributor on a modern workspace in which your report resides, you can use the following procedure to display the improved usage metrics:

1. Open the workspace that contains the report for which you want to analyze the usage metrics.

2. From either the workspace content list, open the context menu of the report and select **View usage metrics report**. Alternatively, open the report, then open the context menu on the command bar, and then select **Usage metrics**.

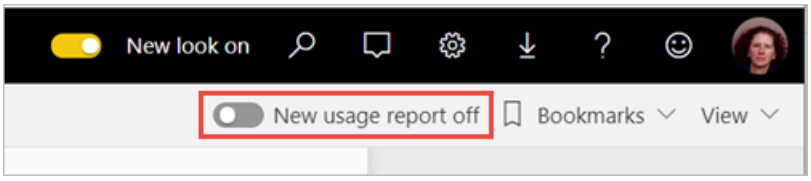


3. The first time you do this, Power BI creates the usage metrics report and lets you know when it's ready.



4. To see the results, select **View usage metrics**.

5. If this is the first time you do this, Power BI might open the old usage metrics report. To display the improved usage metrics report, in the upper right corner, toggle the New usage report off switch to **On**.



> **NOTE**
> You can only see the New usage report switch if your report resides in a modern workspace. Legacy workspaces do not offer improved usage metrics reports.

About the improved usage metrics report

When you display the improved usage metrics report by following the above procedure, Power BI generates a pre-built report with usage metrics for that content for the last 30 days. The report looks similar to the Power BI reports you're already familiar with. You can slice based on how your end users received access, whether they accessed via the web or mobile app, etc. As your reports evolve, so too will the usage metrics report, which updates every day

with new data.

> **NOTE**
> Usage metrics reports don't show up in Recent, Workspaces, Favorites, or other content lists. They can't be added to an app. If you pin a tile from a usage metrics report to a dashboard, you can't add that dashboard to an app.

Usage metrics report dataset

The improved usage metrics report relies on a Usage Metrics Report dataset, which Power BI creates automatically when you first launch the improved usage metrics report. Power BI then refreshes this dataset daily. While you can't change the refresh schedule, you can update the credentials that Power BI uses to refresh the usage metrics data. This might be necessary to resume scheduled refresh if the credentials expired of if you removed the user who first launched the usage metrics report from the workspace where the dataset resides.

Usage metrics report pages

The improved usage metrics report includes the following report pages:

- **Report usage** Provides information about report views and report viewers, such as how many users viewed the report by date.
- **Report performance** Shows the typical report opening times broken down by consumption method and browser types.
- **FAQ** Provides answers to frequently asked questions, such as What is a "Viewer" and what is a "View"?

Which metrics are reported?

PAGE	METRIC	DESCRIPTION
Report usage	Report views	A report view is recorded each time someone opens a report. Note that the definition of a view differs from previous usage metrics reports. Changing report pages is no longer considered an additional view.
Report usage	Unique viewers	A viewer is someone who opened the report at least once during the time period (based on the AAD user account).
Report usage	View trend	The view trend reflects view count changes over time. It compares the first half of the selected time period with the second half.
Report usage	Date slicer	You can change the time period on the Report usage page, such as to calculate week-over-week or biweekly trends. In the lower left corner of the Report usage page, you can determine the earliest and latest date for which usage data is available for the selected report.
Report usage	Rank	Based on view count, the rank shows the popularity of a report in comparison to all other reports in the organization.
Report usage	Report views per day	Total number of views per day.

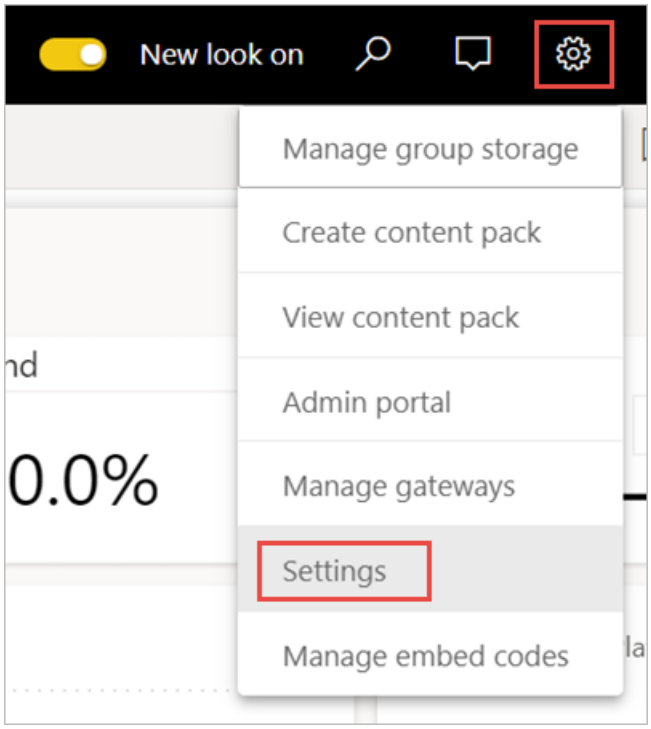
PAGE	METRIC	DESCRIPTION
Report usage	Report viewers per day	Total number of different users who viewed the report (based on the AAD user account).
Report usage	Distribution method	How users got access to the report, such as by being members of a workspace, by having the report shared with them, or by installing an app.
Report usage	Platform slicer	If the report was accessed via the Power BI service (powerbi.com), Power BI Embedded, or a mobile device.
Report usage	Users with report views	Shows the list of users who opened the report sorted by view count.
Report usage	Pages	If the report has more than 1 page, slice the report by the page(s) that was viewed. If you see a list option for "Blank," that means a report page was recently added (within 24 hours the actual name of the new page appears in the slicer list) and/or report pages have been deleted. "Blank" captures these types of situations.
Report performance	Typical opening time	The typical report opening time corresponds to the 50th percentile of the time it takes to open the report. In other words, it is the time below which 50% of the open-report actions are completed. The Report performance page also breaks down the typical report opening time by consumption method and browser type.
Report performance	Opening time trend	The opening time trend reflects open-report performance changes over time. It compares the opening times for the report of the first half of the selected time period with the opening times of the second half.
Report performance	Date slicer	You can change the time period on the Report performance page, such as to calculate week-over-week or biweekly trends. In the lower left corner of the Report performance page, you can determine the earliest and latest date for which usage data is available for the selected report.
Report performance	Daily performance	The performance for 10%, 50%, and 90% of the open report actions calculated for each individual day.

PAGE	METRIC	DESCRIPTION
Report performance	7-day performance	The performance for 10%, 50%, and 90% of the open report actions calculated across the past 7 days for each date.
Report performance	Consumption method	How users opened the report, such as via the Power BI service (powerbi.com), Power BI Embedded, or a mobile device.
Report performance	Browsers	What browser the users used to open the report, such as Firefox, Edge, and Chrome.

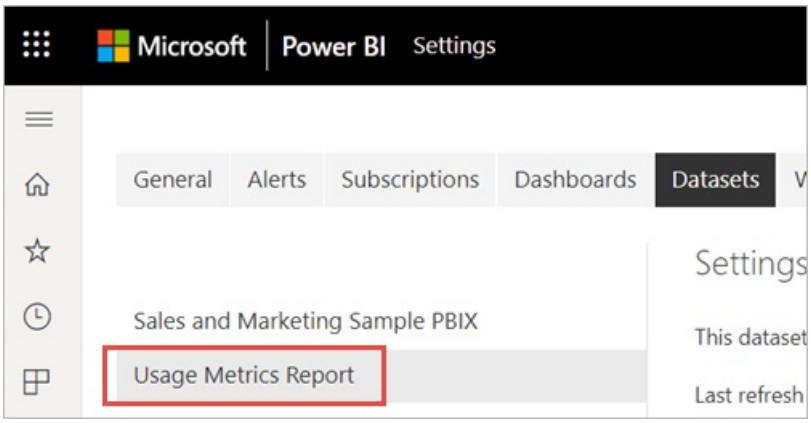
Update usage metrics report credentials

Use the following procedure to take over a Usage Metrics Report dataset and update the credentials.

1. Open the workspace that contains the report for which you want to update the Usage Metrics Report dataset.
2. In the black header bar at the top, select the **Settings** icon, then select **Settings**.



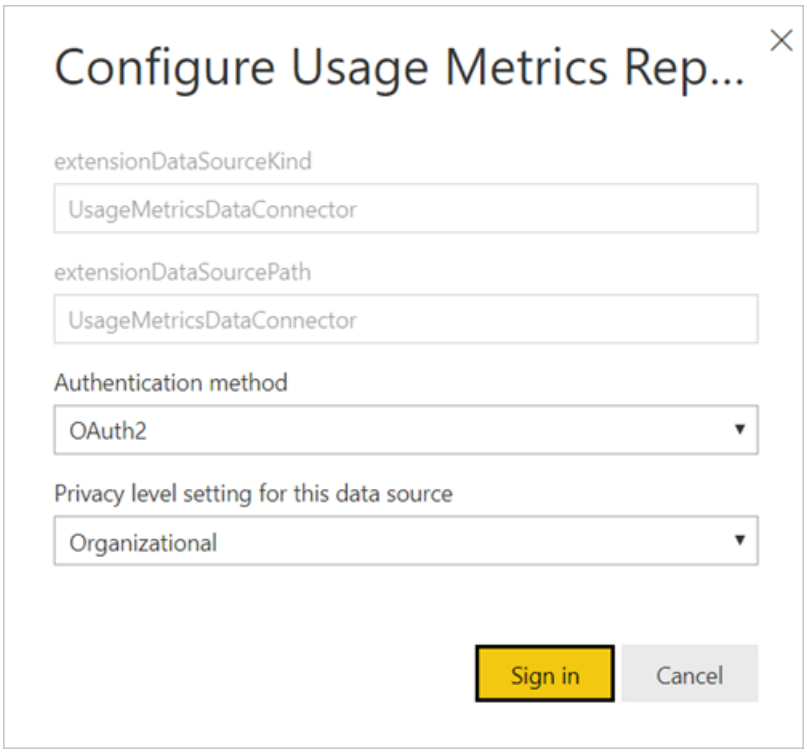
3. Switch to the **Datasets** tab.
4. Select the Usage Metrics Report dataset.



If you aren't the current dataset owner, you must take over ownership before you can update the data source credentials.

5. Select the **Take over** button, then in the **Take over dataset settings** dialog box, select **Take over** again.
6. Under **Data source credentials**, select **Edit credentials**.

7. In the **Configure Usage Metrics Report** dialog box, select **Sign in**.



8. Complete the sign-in sequence and note the notification that the data source was updated successfully.

> **NOTE**
> The Usage Metrics Report dataset contains usage data for the last 30 days. It can take up to 24 hours for new usage data to be imported. You can't trigger a manual refresh by using the Power BI user interface.

Disable usage metrics reports

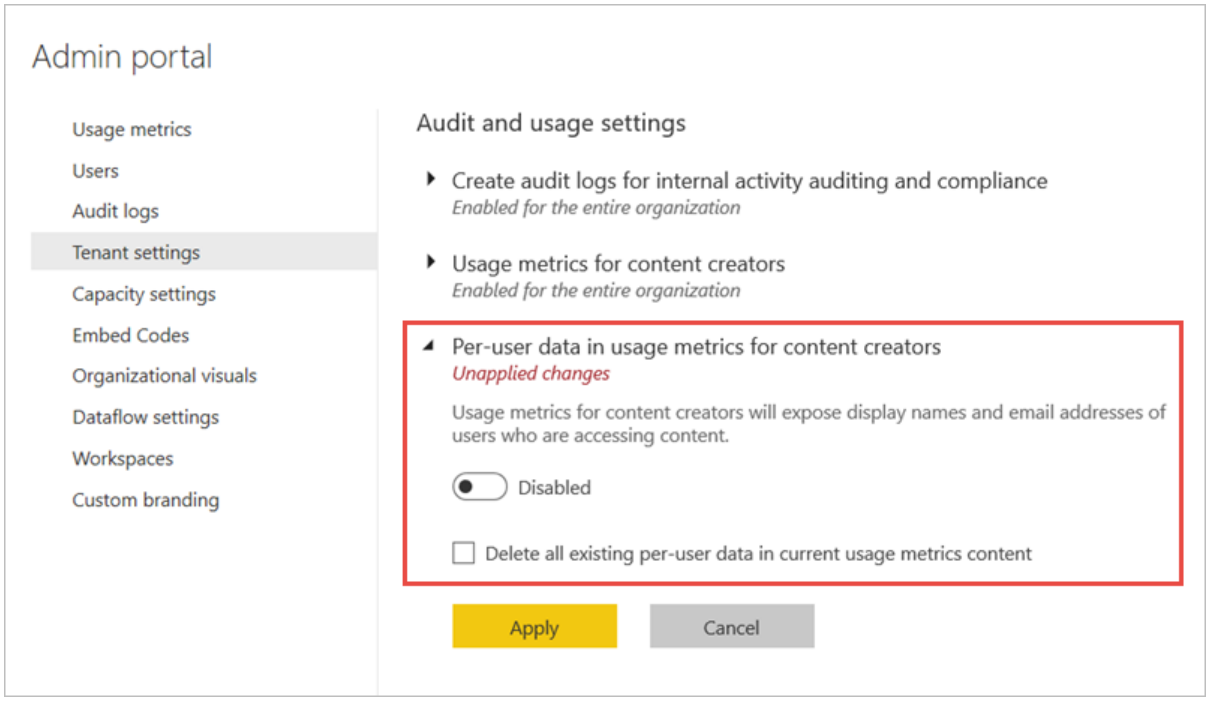
Usage metrics reports are a feature that the Power BI or Microsoft 365 administrator can turn on or off. Administrators have granular control over which users have access to usage metrics; they are On by default for all users in the organization. See Control usage metrics in the Admin portal article for details on these settings.

> **NOTE**
> Only admins for the Power BI tenant can see the Admin portal and edit settings.

Exclude user information from usage metrics reports

By default, per-user data is enabled for usage metrics, and content consumer account information is included in the metrics report. If admins don't want to expose this information for some or all users, they can exclude user information from your usage report by disabling Per-user data in usage metrics for content creators in the Power BI admin portal tenant settings for specified security groups or for the entire organization.

1. On the **Tenant settings** tab in the admin portal, under **Audit and usage settings**, expand **Per-user data in metrics for content creators** and select **Disabled**.
2. Decide whether to **Delete all existing per-user data in current usage metrics content**, and select **Apply**.



If user information is excluded, the usage report refers to users as Unnamed.

When disabling usage metrics for their entire organization, admins can use the Delete all existing usage metrics content option to delete all existing reports and dashboard tiles that were built using the usage metrics reports. This option removes all access to usage metrics data for all users in the organization who may already be using it. Deleting existing usage metrics content is irreversible.

> **NOTE**
> Only admins for the Power BI tenant can see the Admin portal and configure the Per-user data in usage metrics for content creators setting.

Customize the usage metrics report

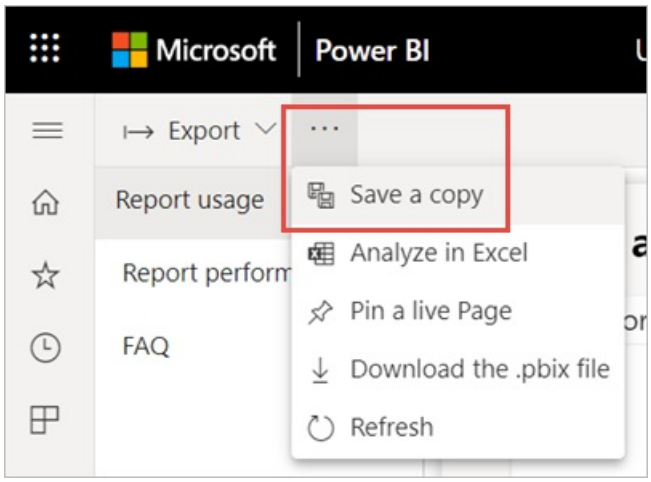
To dig into the report data, or to build your own reports against the underlying dataset, you have several options:

- **Make a copy of the report in the Power BI service.** Use **Save a copy** to create a separate instance of the usage metrics report, which you can customize to meet your specific needs.
- **Connect to the dataset with a new report.** For every workspace, the dataset has the name "Usage Metrics Report," as explained earlier in the section Usage metrics report dataset. You can use Power BI Desktop to build custom usage metrics reports based on the underlying dataset.
- **Use Analyze in Excel.** You can also take advantage of PivotTables, charts, and slicer features in Microsoft Excel 2010 SP1 or later to analyze the Power BI usage data. Read more about the Analyze in Excel feature.

Create a copy of the usage report

When you create a copy of the read-only, pre-built usage report, Power BI creates an editable instance of the report. At first glance, it looks the same. However, you can now open the report in Editing view, add new visualizations, filters, and pages, modify or delete existing visualizations, and so on. Power BI saves the new report in the current workspace.

1. In the new usage metrics report, select the **More options** menu (...), then select **Save a copy**.



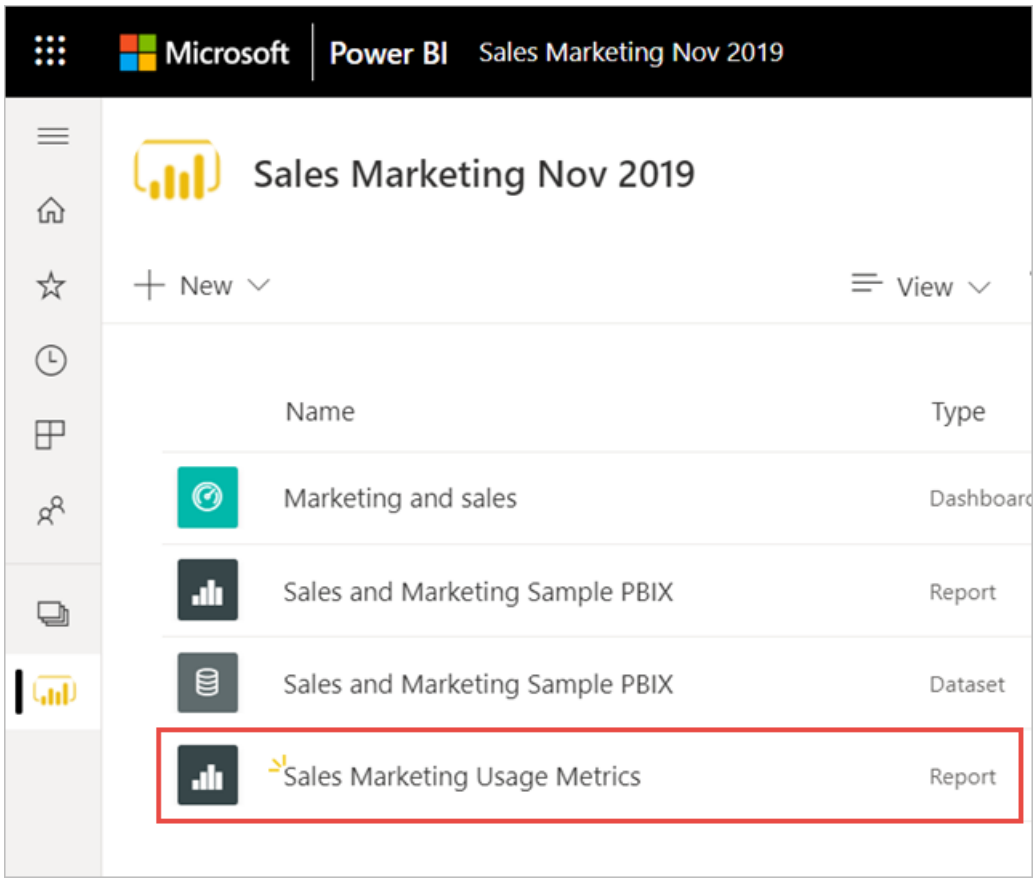
2. In the **Save your report** dialog box, enter a name, then select **Save**.

   Power BI creates an editable Power BI report, saved in the current workspace, and opens the report copy.

3. Select the **More options** menu (...), then select **Edit** to switch into Editing view.

   For example, you can change filters, add new pages, and build new visualizations, format the fonts and colors, etc.

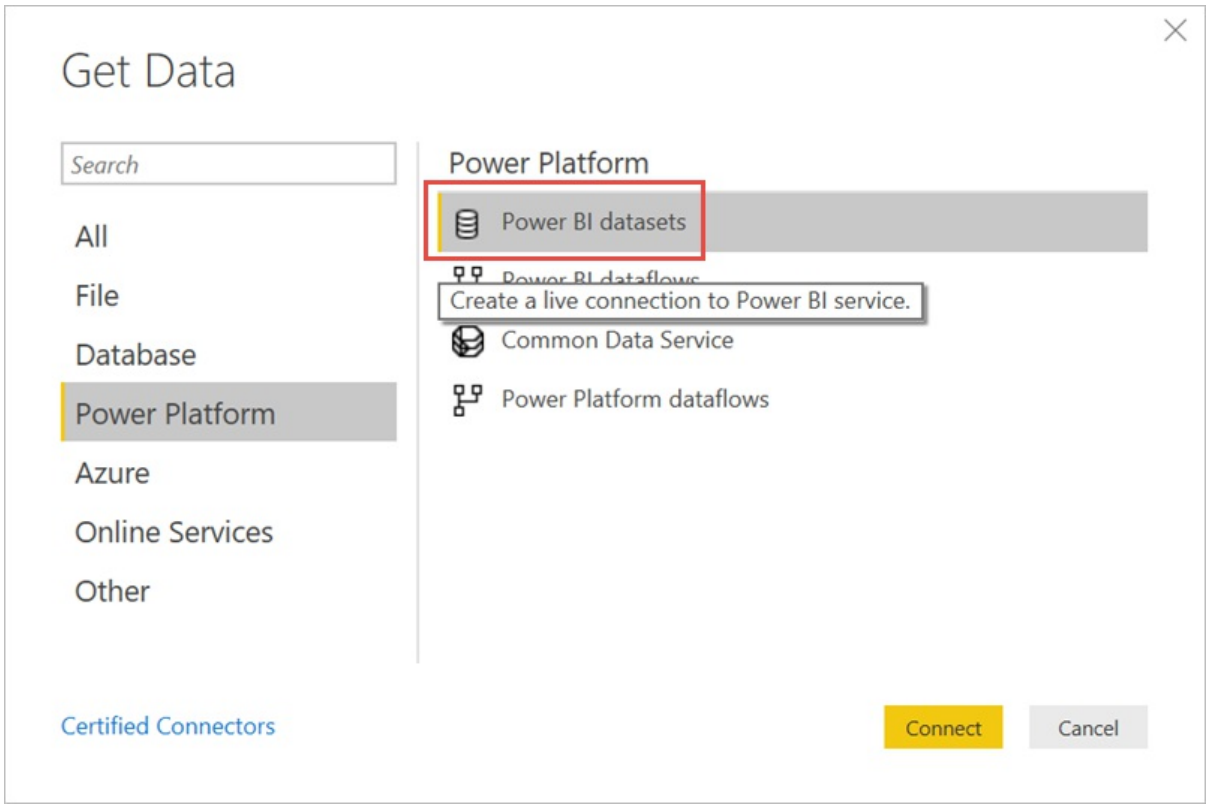
4. The new report is saved to the Reports tab in the current workspace and added to the Recent content list.



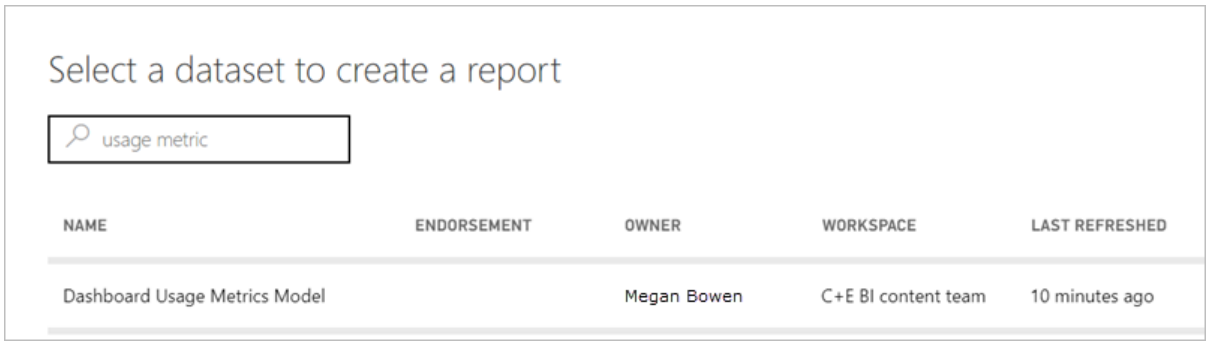
Create a new usage report in Power BI Desktop

You can create a new usage report in Power BI Desktop, based on the Usage Metrics Report dataset. To establish a connection to the Usage Metrics Report dataset and create your own report, you have to be signed in to the Power BI service in Power BI Desktop.

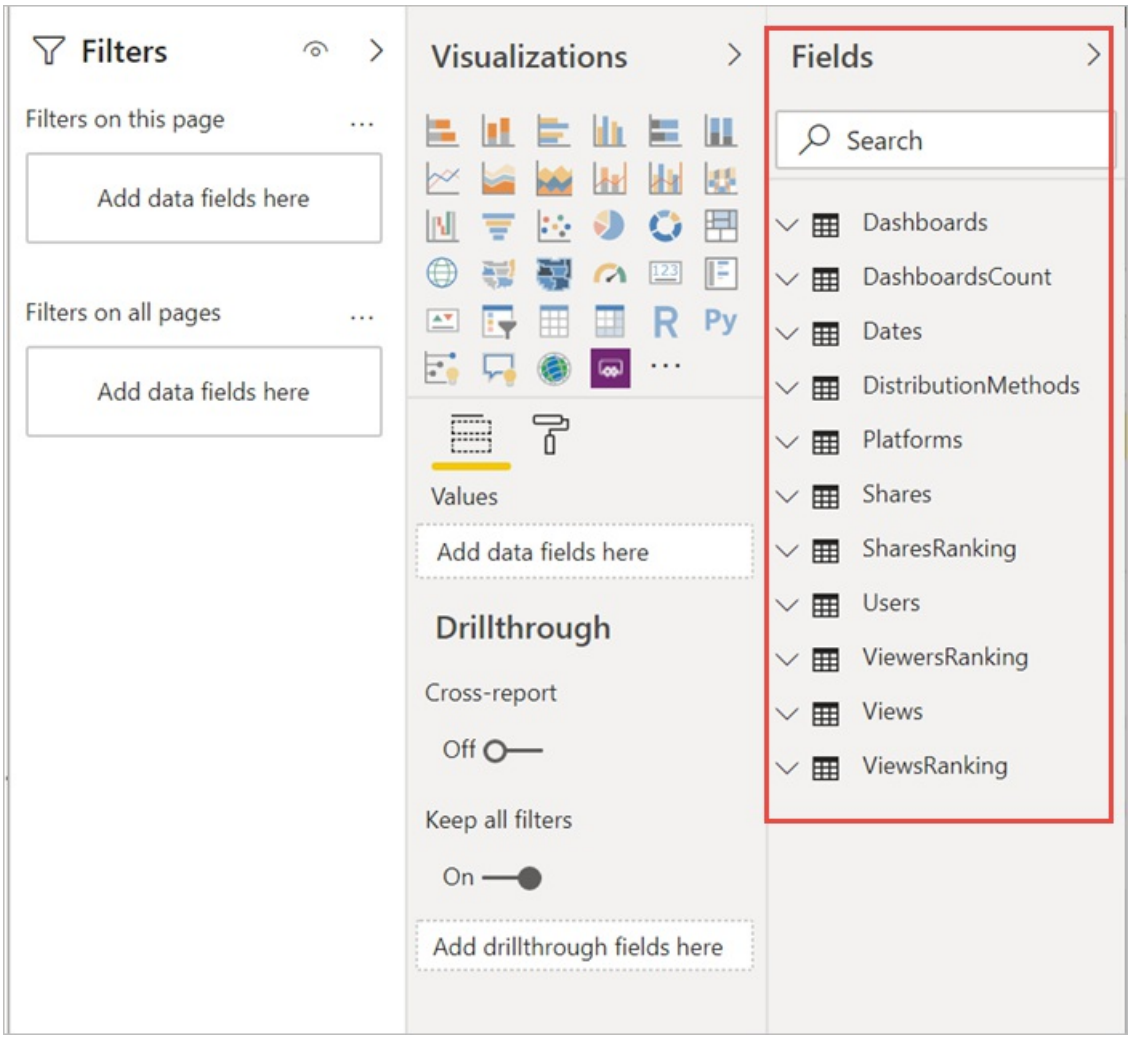
1. Open Power BI Desktop.
2. If you aren't signed in to the Power BI service, on the **File** menu select **Sign in**.
3. To connect to the Usage Metrics Report dataset, on the **Home** ribbon select **Get Data**.
4. In the left pane, select **Power Platform**, then select **Power BI datasets** > **Connect**.



5. Scroll to the desired dataset or type *Usage Metrics Report* in the search box.
6. Verify in the Workspace column that you are selecting the correct dataset, then select **Create**.



7. Check the Fields list in Power BI Desktop, which gives you access to the tables, columns, and measures in the selected dataset.



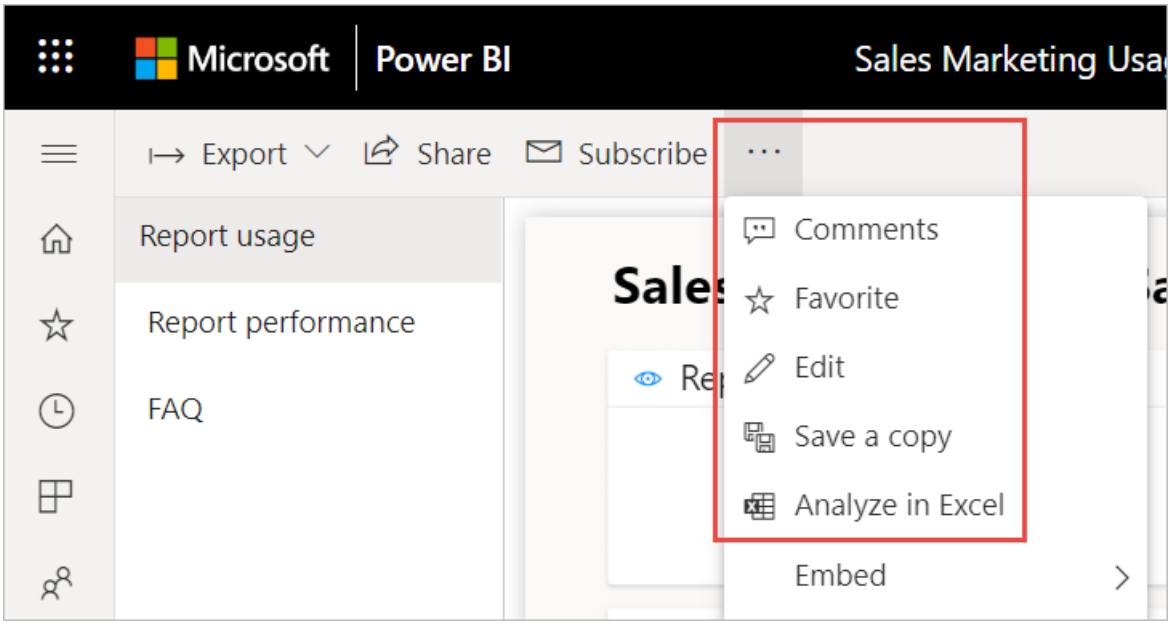
8. Now you can create and share custom usage reports, all from the same Usage Metrics Report dataset.

Analyze usage data in Excel

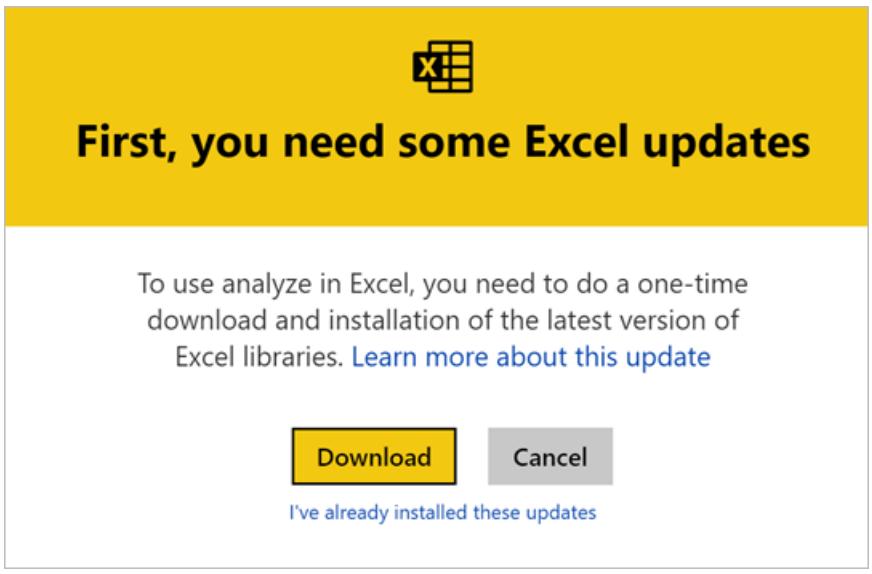
When you connect to the usage data in Excel, you can create PivotTables that use the pre-defined measures. Note that Excel PivotTables do not support drag-and-drop aggregation of numeric fields when connecting to a Power BI dataset.

1. First, if you haven't done so already, create a copy of the usage metrics report.

2. Open the new usage metrics report, select the **More options** menu (...), and select **Analyze in Excel**.

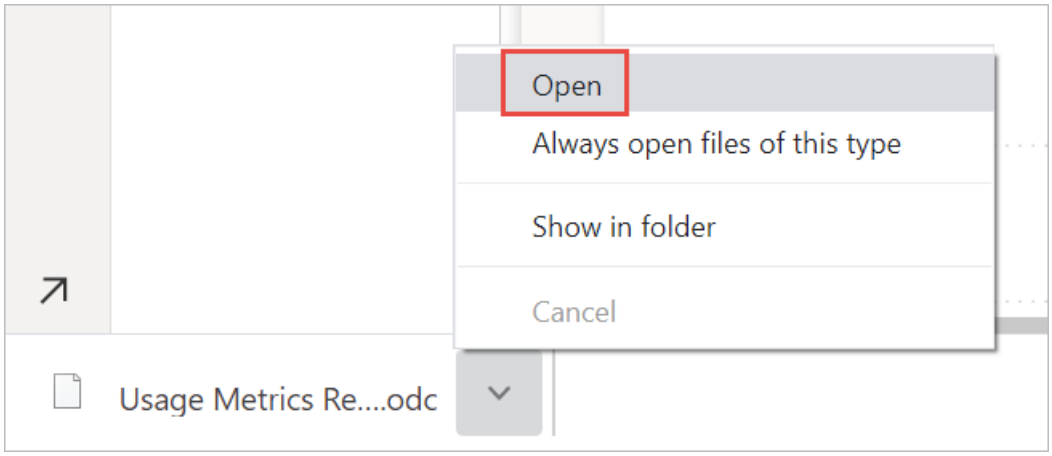


3. If you see the **First, you need some Excel updates** dialog box, select **Download** and install the latest updates for Power BI connectivity, or select **I've already installed these updates**.

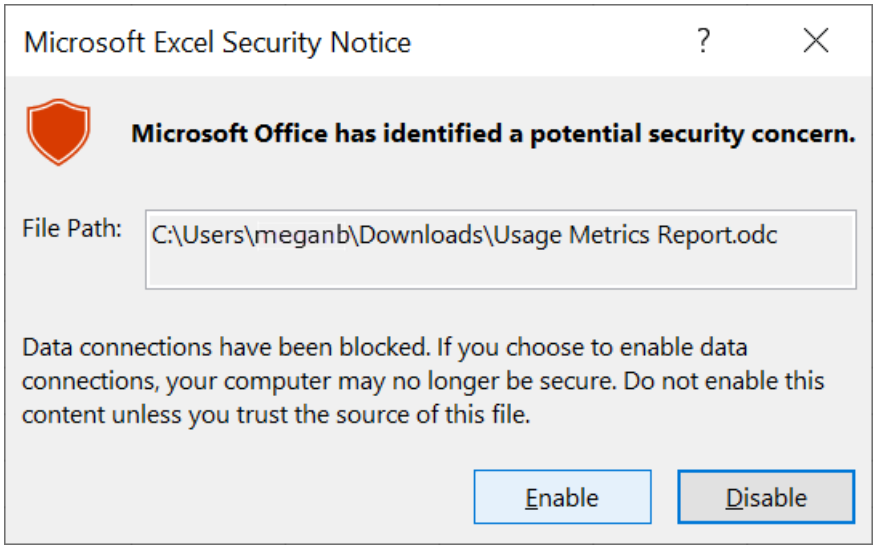


> **NOTE**
> Some organizations may have Group Policy rules that prevent installing the required Analyze in Excel updates to Excel. If you can't install the updates, check with your administrator.

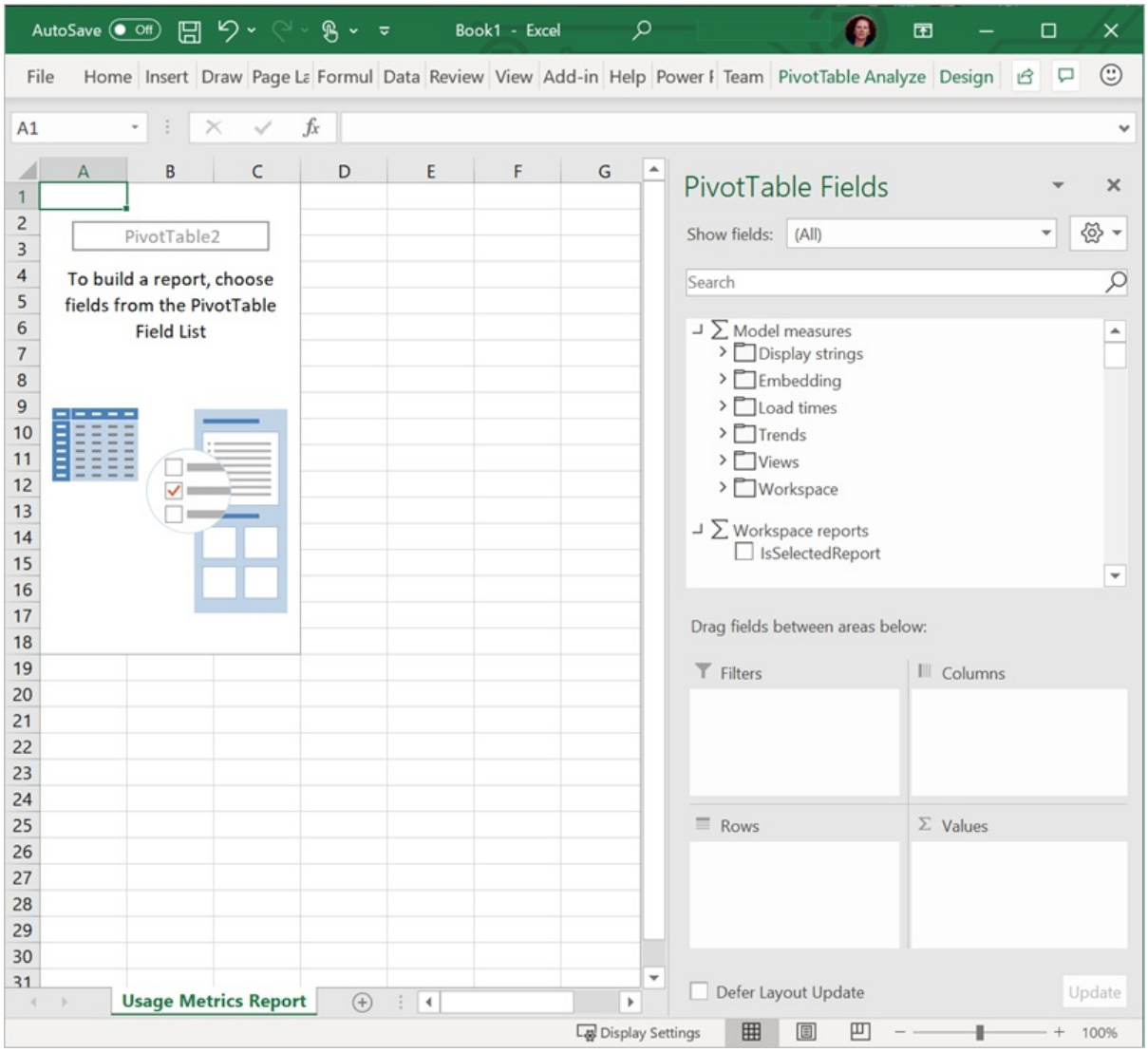
4. In the browser dialog asking what you want to do with the Usage Metrics report.odc file, select **Open**.



5. Power BI launches Excel. Verify the file name and path for the .odc file, then select **Enable**.



6. Now that Excel has opened and you have an empty PivotTable, you can drag fields onto the Rows, Columns, Filters, and Values boxes and create custom views into your usage data.



Usage metrics in national clouds

Power BI is available in separate national clouds. These clouds offer the same levels of security, privacy, compliance and transparency as the global version of Power BI, combined with a unique model for local regulations on service delivery, data residency, access, and control. Due to this unique model for local regulations, usage metrics aren't available in national clouds. For more information, see national clouds.

Considerations and limitations

It's important to understand that differences can occur when comparing the improved usage metrics report with its predecessor. Particularly the report usage metrics are now based on activity data collected from the Power BI service. Previous versions of the usage metrics report relied on client telemetry which does not always match usage metrics collected from the service. Moreover, the improved usage metrics report uses a different definition for a "View." A view is an open-report event, as recorded in the service each time someone opens a report. Changing report pages is no longer considered an additional view.

> **NOTE**
>
> Because the improved usage metrics report relies on activity data collected from the Power BI service, the usage metrics now match the aggregate counts of activities in audit logs and activity logs. Under- and overcounting of activities due to inconsistent network connections, ad blockers, or other client-side issues no longer skew the viewer and view counts.

In addition to the above differences between previous and improved usage metrics reports, note the following limitations for the preview release:

- Dashboard usage metrics still rely on the previous version of the usage metrics reports.
- Improved usage metrics reports are only available for reports in modern workspaces. Reports in legacy workspaces only support the previous version of the usage metrics reports.
- Report performance metrics are based on client telemetry. Certain types of views aren't included in the performance measurements. For example, when a user selects a link to a report in an email message, the view is accounted for in the report usage but there is no event in the performance metrics.
- Report performance metrics aren't available for Paginated Reports. The Pages tab on the Report usage page as well as the charts on the Report performance page don't show data for these types of reports.
- User masking isn't working as expected when using nested groups. If your organization has disabled Per-user data in usage metrics for content creators in the Power BI admin portal tenant settings, only the members on the top level are being masked. Members of subgroups are still visible.
- Initializing the Usage Metrics Report dataset might take a few minutes, resulting in showing a blank usage metrics report because the Power BI user interface does not wait for the refresh to finish. Check the refresh history in the Usage Metrics Report dataset settings to verify that the refresh operation succeeded.
- Initializing the Usage Metrics Report dataset might fail due to a timeout encountered during refresh. Refer to the Troubleshooting section below to resolve this issue.

Frequently asked questions

In addition to the above considerations and limitations, the following questions and answers about usage metrics might be helpful for users and administrators:

Q: I can't run usage metrics on a report.

A: You can only see usage metrics for reports you own or have permissions to edit.

Q: Why can't I see the New usage report on toggle in the upper right corner of my existing usage metrics report?

A: The improved usage metrics report is only available for reports in modern workspaces.

Q: What time period is covered by the report?

A: The usage report is based on activity data for the last 30 days, excluding activities of the current day. You can narrow the time period by using the Date slicer on the Report usage page, such as to analyze only last week's data.

Q: When will I see the most recent activity data?

A: The usage report includes activity data up until the last complete day based on the UTC time zone. The data shown in the report is also dependent on the refresh time for the dataset. Power BI refreshes the dataset once per day.

Q: The data doesn't seem up to date.

A: Note that it might take up to 24 hours for new activity data to appear in the usage report.

Q: What is the data source for the usage data?

A: The Usage Metrics Report dataset imports data from a Power BI-internal usage metrics store by using a custom Usage Metrics Data Connector. You can update the credentials for the Usage Metrics Data Connector on the Usage Metrics Report dataset settings page.

Q: How can I connect to the data? Or change the default report?

A: You can create a copy of the read-only, pre-built usage report. The report copy connects to the same Usage Metrics Report dataset and enables you to edit the report details.

Q: What is a "Viewer" and what is a "View"?

A: A viewer is someone who opened the report at least once during the time period. A view is an open-report event. A report view is recorded each time someone opens a report.

Note that the definition of a view differs from previous usage metrics reports. Changing report pages is no longer considered an additional view.

Q: How is the "View trend" calculated?

A: The view trend reflects view count changes over time. It compares the first half of the selected time period with the second half. You can change the time period by using the Date slicer on the Report usage page, such as to calculate week-over-week or biweekly trends.

Q: What do "Distribution" and "Platform" mean?

A: Distribution shows how the viewers obtained access to a report: shared directly, through workspace access, or through an app.

The Platform indicates the technology a viewer used to open a report: via PowerBI.com, Mobile, or Embedded.

Q: How does report ranking work?

A: Based on view count, the rank shows the popularity of a report in comparison to all other reports in the organization.

Q: What are "Unnamed Users"?

A: Your organization can decide to exclude user information from your usage report. If excluded, the usage report refers to users as Unnamed.

Q: What is the "Typical report opening time"?

A: The typical report opening time corresponds to the 50th percentile of the time it takes to open the report. In other words, it is the time below which 50% of the open-report actions are completed. The Report performance page also breaks down the typical report opening time by consumption method, and browser type.

Q: How is the "Opening time trend" calculated?

A: The opening time trend reflects open-report performance changes over time. It compares the opening times for the report of the first half of the selected time period with the opening times of the second half. You can change the time period by using the Date slicer on the Report performance page, such as to calculate week-over-week or biweekly trends.

Q: There are four reports in the previous version of the usage metrics report, but the improved version only displays three.

A: The improved usage metrics report only includes reports that have been opened in the past 30 days, while the previous version covers the past 90 days. If a report isn't included in the improved usage metrics report, it likely hasn't been used in more than 30 days.

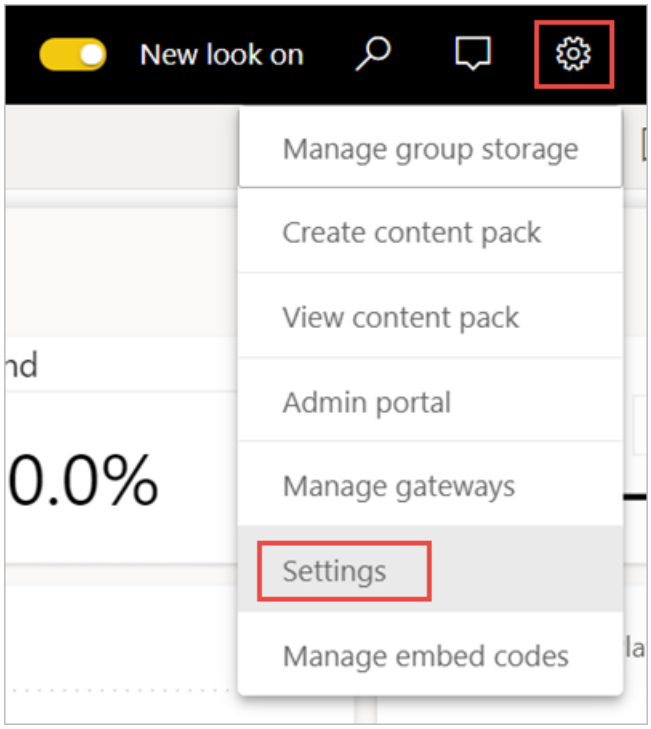
Troubleshoot: Delete the dataset

If you suspect data consistency or refresh issues, it might make sense to delete the existing Usage Metrics Report dataset. Then you can run View Usage Metrics again to generate a new dataset with its associated improved usage metrics reports. Follow these steps.

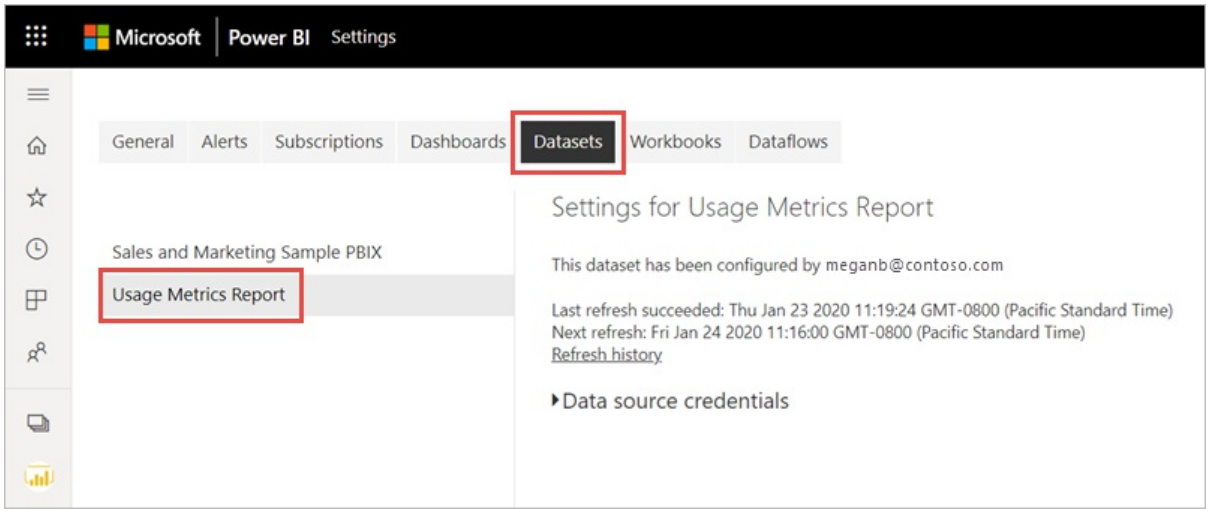
Delete the dataset

1. Open the workspace that contains the report for which you want to reset the Usage Metrics Report dataset.

2. In the black header bar at the top, select the **Settings** icon, then select **Settings**.

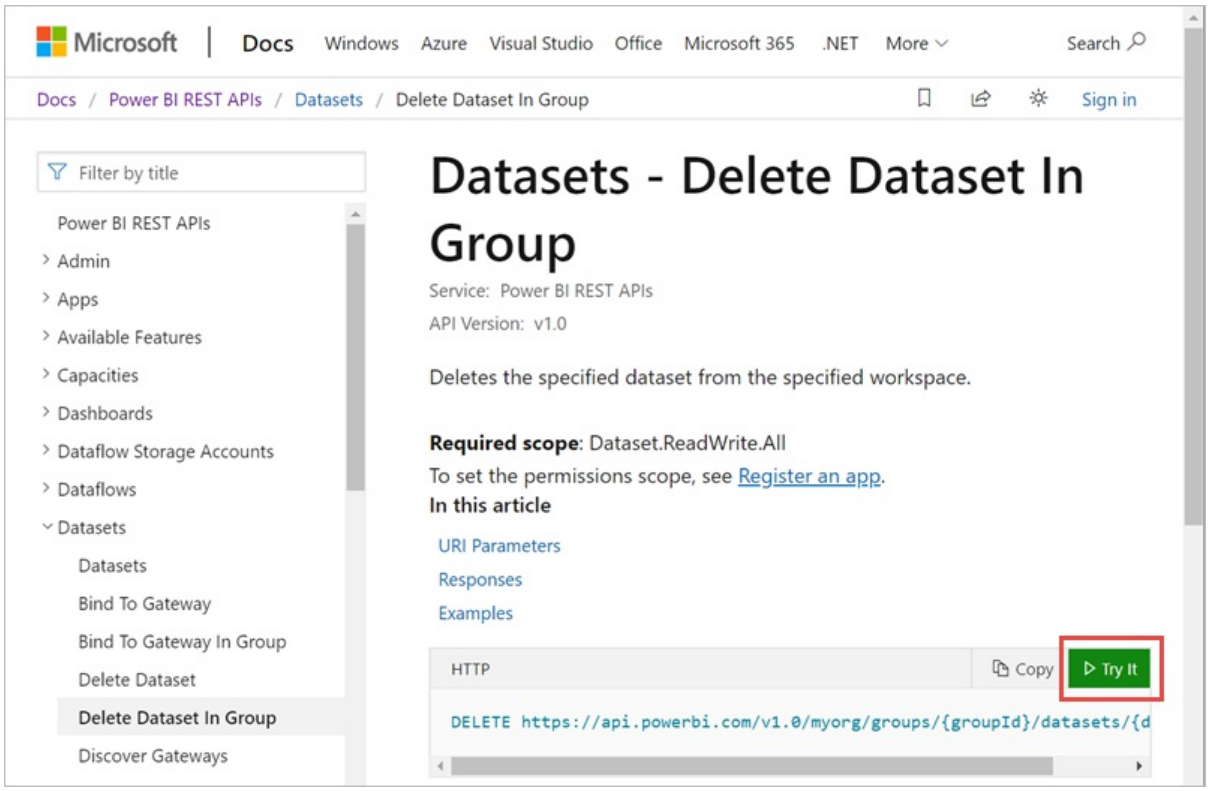


3. Switch to the **Datasets** tab, and select the Usage Metrics Report dataset.

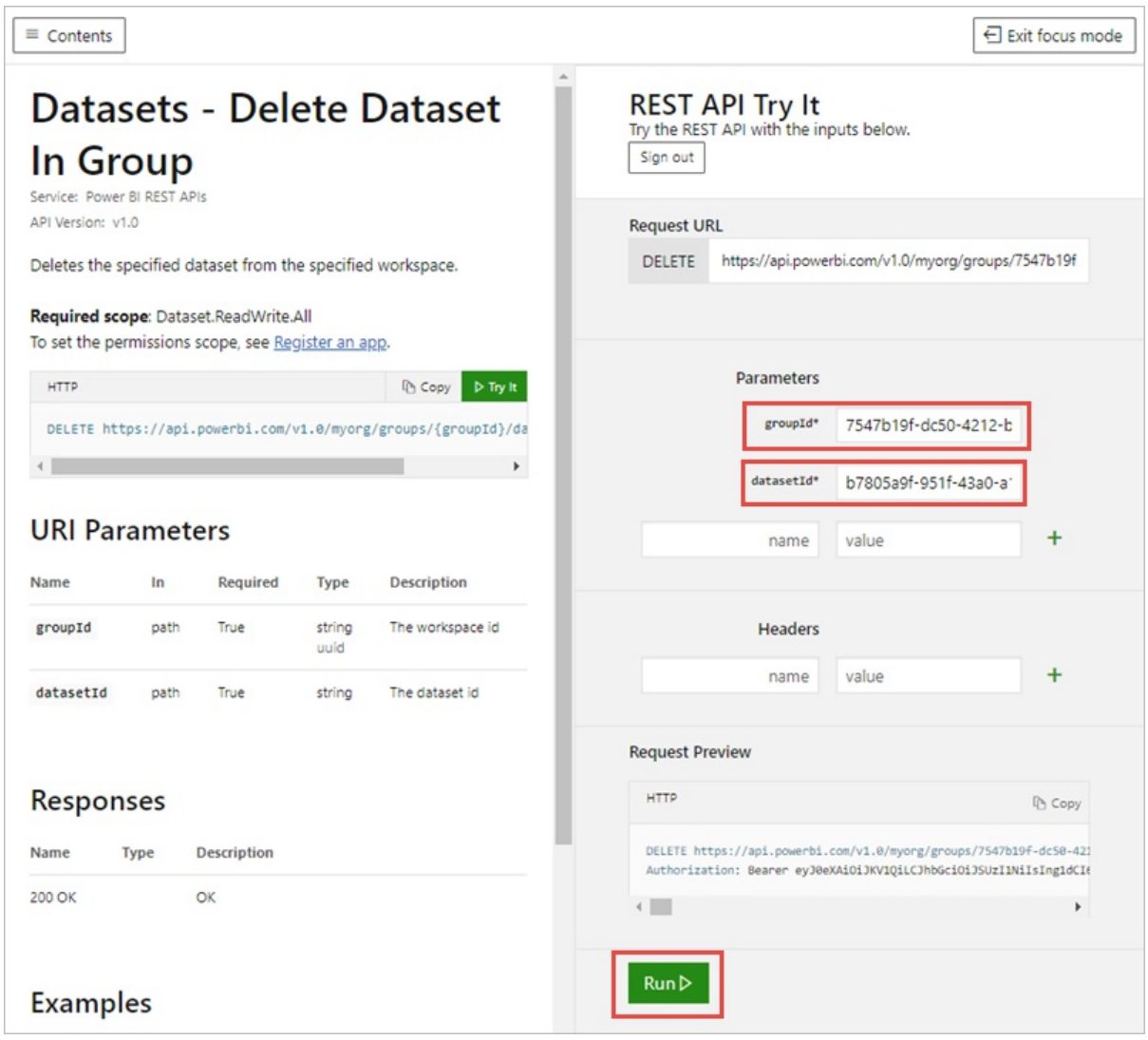


4. Copy the workspace and dataset IDs from the URL displayed in the address bar of your browser.

5. In your browser, go to https://docs.microsoft.com/rest/api/power-bi/datasets/deletedatasetingroup, and select the **Try It** button.

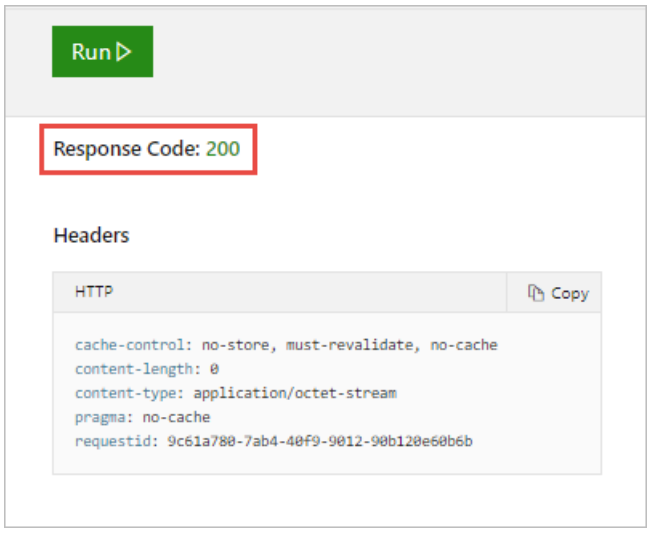


6. Sign in to Power BI, paste the Workspace ID in the **groupId** text box and the dataset ID into the **datasetId** text box, and then select **Run**.



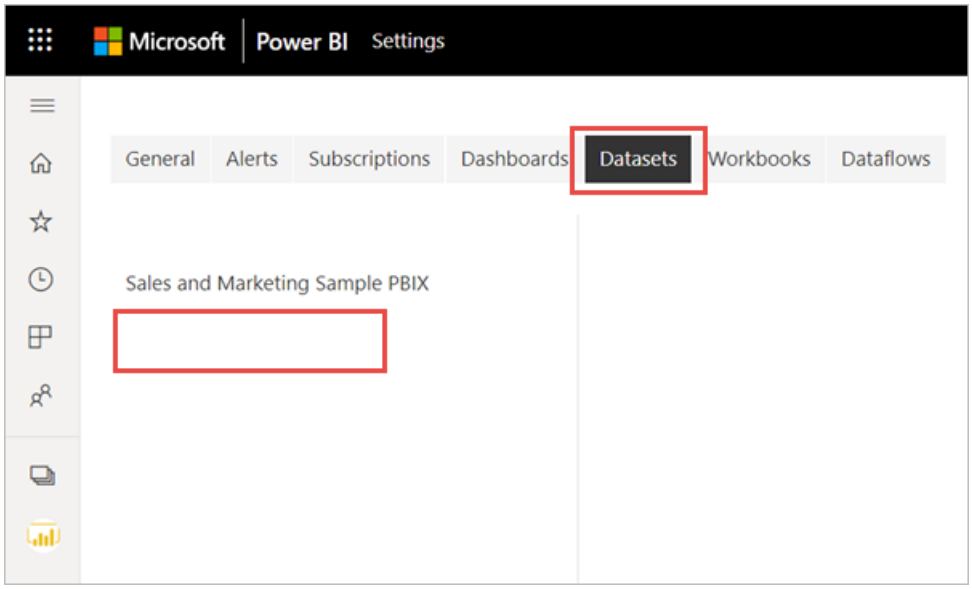
7. Under the **Run** button, verify that the service returns a Response Code of **200**. That code indicates that the

dataset and its associated usage metrics reports have been deleted successfully.



Create a fresh usage metrics report

1. Back in the Power BI service, you see the dataset is gone.



2. If you still see the Usage Metrics report in the Reports list, refresh your browser.
3. Create a fresh usage metrics report.

Next steps

Administering Power BI in the admin portal

More questions? Try the Power BI Community

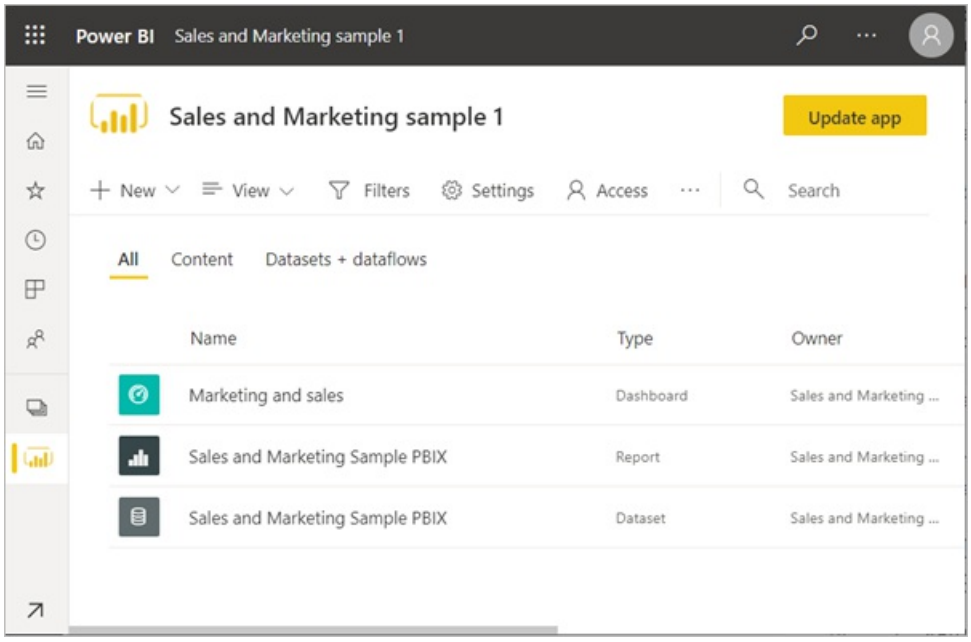
Create the new workspaces in Power BI

5/28/2020 • 4 minutes to read • Edit Online

This article explains how to create one of the *new workspaces* instead of a *classic* workspace. Both kinds of workspaces are places to collaborate with colleagues. In them, you create collections of dashboards, reports, and paginated reports. If you want, you can also bundle that collection into an *app* and distribute it to a broader audience.

Here's how the new workspaces differ from the old. In the new workspaces, you can:

- Assign workspace roles to user groups and individuals.
- Create a workspace in Power BI without creating a Microsoft 365 group.
- Use more granular workspace roles for more flexible permissions management.



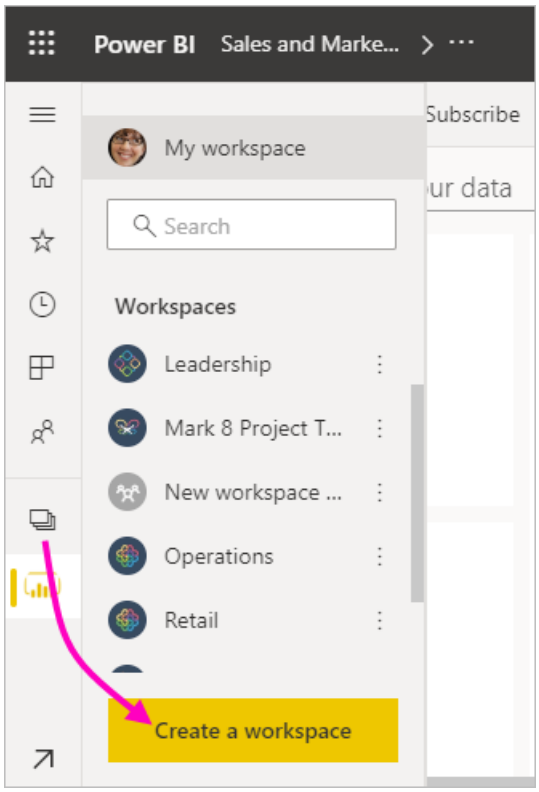
For more background, see the new workspaces article.

Ready to migrate your classic workspace? See Upgrade classic workspaces to the new workspaces in Power BI for details.

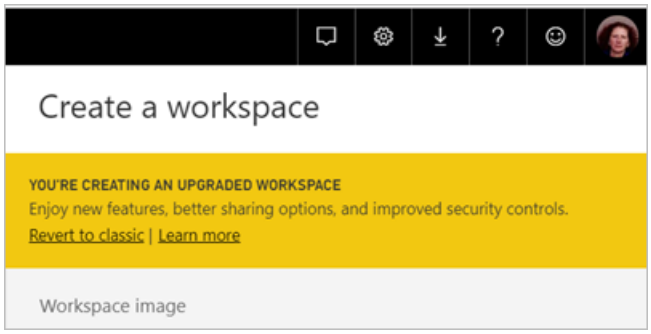
> **NOTE**
> To enforce row-level security (RLS) for Power BI Pro users browsing content in a workspace, assign the users the Viewer Role.

Create one of the new workspaces

1. Start by creating the workspace. Select **Workspaces** > **Create workspace**.



2. You're automatically creating an upgraded workspace, unless you opt to **Revert to classic**.



If you select **Revert to classic**, you create a classic workspace based on a Microsoft 365 group.

3. Give the workspace a unique name. If the name isn't available, edit it to come up with a unique name.

   The app you create from the workspace will have the same name and icon as the workspace.

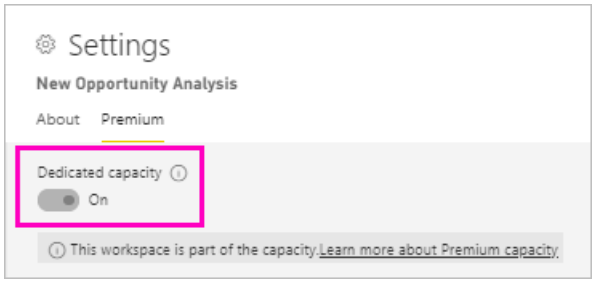
4. Here are some optional items you can set for your workspace:

   Upload a **Workspace image**. Files can be .png or .jpg format. File size has to be less than 45 KB.

   Add a **Contact list**. By default, the workspace admins are the contacts.

   Specify a **Workspace OneDrive** to use a Microsoft 365 group file storage location.

   To assign the workspace to a **Dedicated capacity**, on the **Premium** tab select **Dedicated capacity**.



5. Select **Save**.

Power BI creates the workspace and opens it. You see it in the list of workspaces you're a member of.

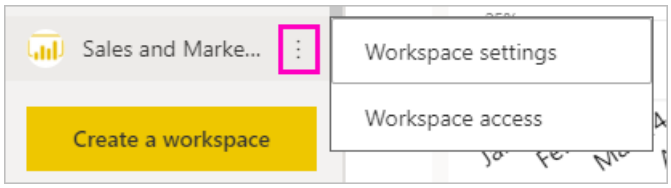
Create a contact list

You can specify which users receive notification about issues occurring in the workspace. By default, any user or group specified as a workspace admin is notified, but you can add others to the *contact list*. Users or groups in the contact list are listed in the user interface (UI) to help users get help related to the workspace.

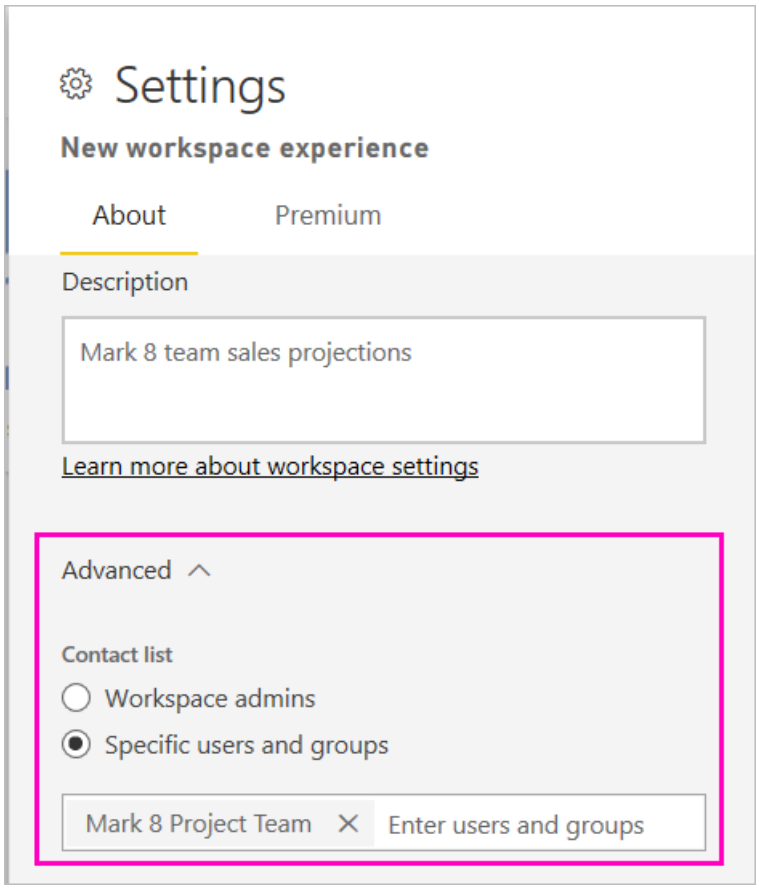
1. Access the new **Contact list** setting in one of two ways:

   In the **Create a workspace** pane when you first create it.

   In the nav pane, select the arrow next to **Workspaces**, select **More options** (...) next to the workspace name > **Workspace settings**. The **Settings** pane opens.



2. Under **Advanced** > **Contact list**, accept the default, **Workspace admins**, or add your own list of **Specific users or groups**.



3. Select **Save**.

Set a workspace OneDrive

The Workspace OneDrive feature allows you to configure a Microsoft 365 group whose SharePoint Document Library file storage is available to workspace users. You create the group outside of Power BI first.

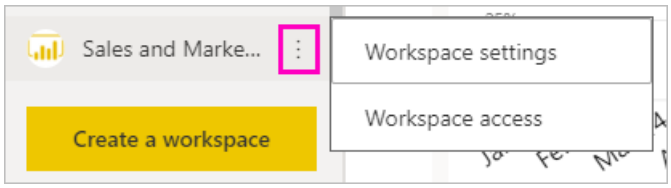
Power BI doesn't synchronize permissions of users or groups who are configured to have workspace access with the Microsoft 365 group membership. The best practice is to give access to the workspace to the same Microsoft

365 group whose file storage you configure in this setting Microsoft 365 group. Then manage workspace access by managing membership of the Microsoft 365 group.

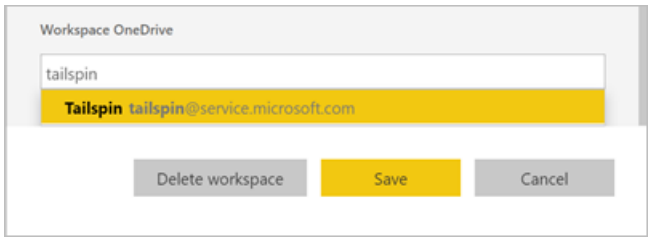
1. Access the new **Workspace OneDrive** setting in one of two ways:

   In the **Create a workspace** pane when you first create it.

   In the nav pane, select the arrow next to **Workspaces**, select **More options** (...) next to the workspace name > **Workspace settings**. The **Settings** pane opens.



2. Under **Advanced** > **Workspace OneDrive**, type the name of the Microsoft 365 group that you created earlier. Type just the name, not the URL. Power BI automatically picks up the OneDrive for the group.

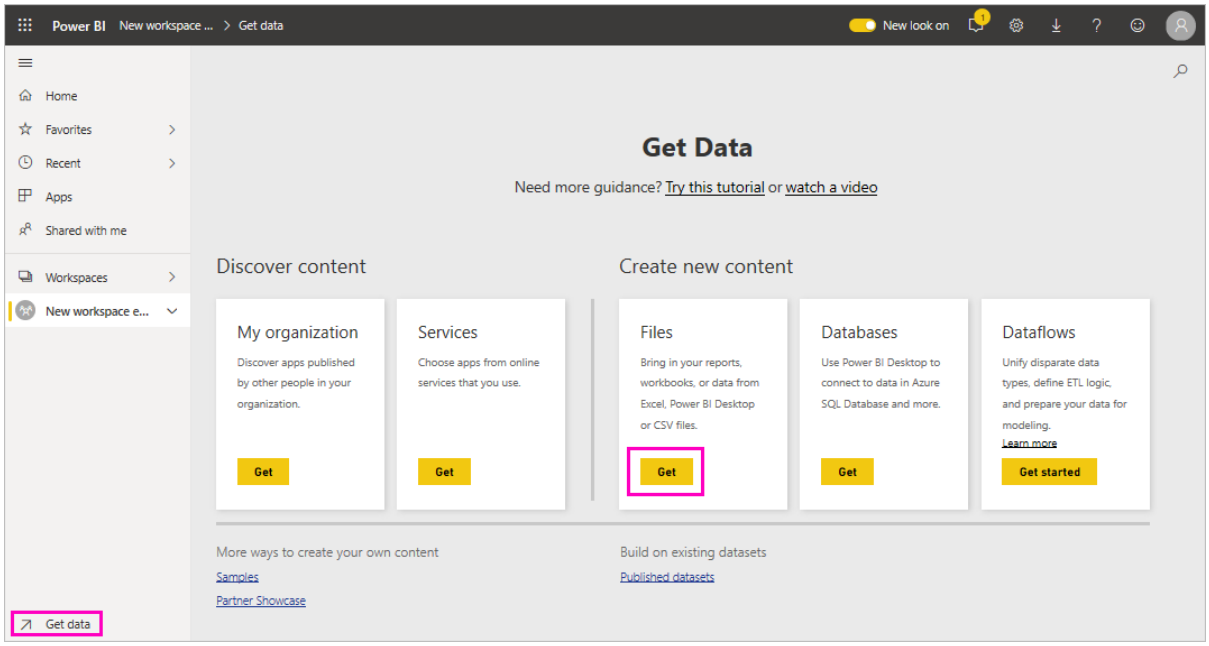


3. Select **Save**.

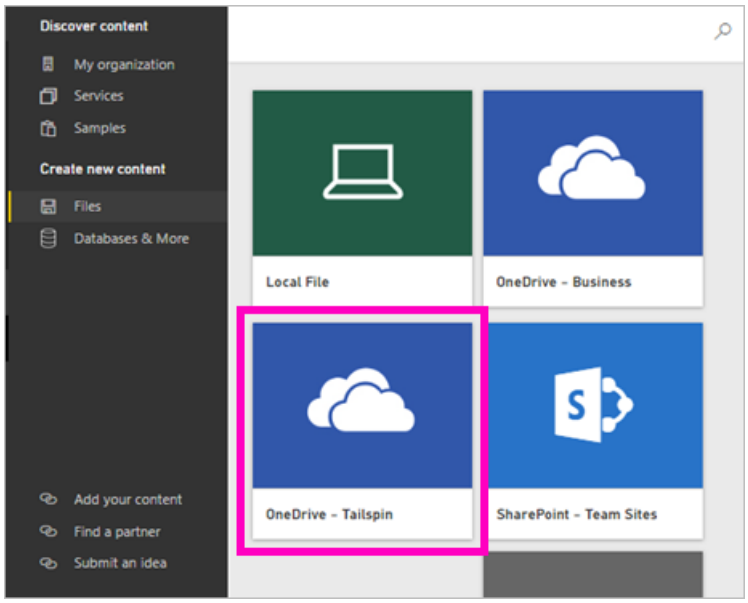
Access the workspace OneDrive location

After you've configured the OneDrive location, you get to it in the same way you get to other data sources in the Power BI service.

1. In the nav pane, select **Get Data**, then in the **Files** box select **Get**.



2. The **OneDrive – Business** entry is your own OneDrive for Business. The second OneDrive is the one you added.



Connect to apps in new workspaces

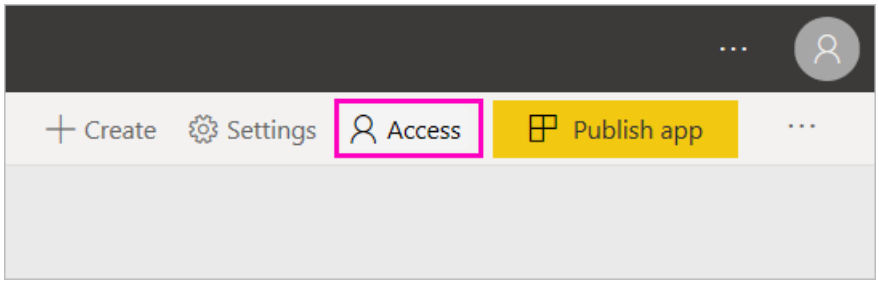
The new workspace experiences create and consume *apps* instead of content packs. Apps are collections of dashboards, reports, and datasets that connect to third-party services and organizational data. Apps make it easy to get data from the services such as Microsoft Dynamics CRM, Salesforce, and Google Analytics.

In the new workspace experience, you can't create or consume organizational content packs. Ask your internal teams to provide apps for any content packs you're currently using.

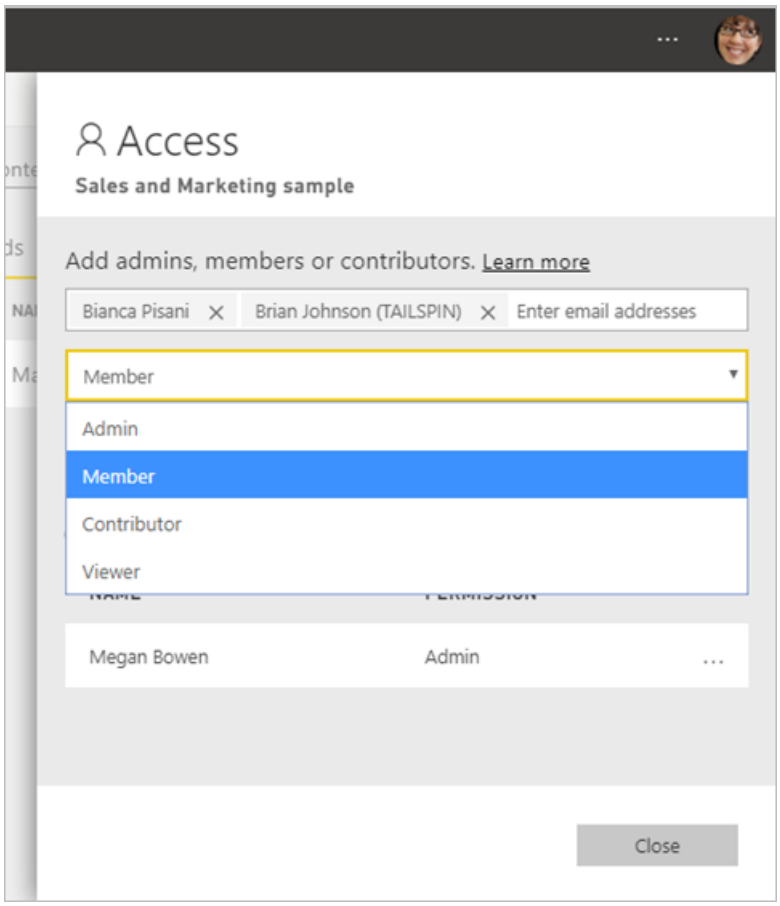
Give access to your workspace

Anyone who has an admin role in a workspace can give others access to the workspace.

1. Because you're an admin, on the workspace content list page, you see **Access**.



2. Add security groups, distribution lists, Microsoft 365 groups, or individuals to these workspaces as admins, members, contributors, or viewers. See Roles in the new workspaces for an explanation of the different roles.



3. Select **Add** > **Close**.

Distribute an app

If you want to distribute official content to a large audience in your organization, you can publish an *app* from your workspace. When the content is ready, you choose which dashboards and reports you want to publish, and publish it as an app. You can create one app from each workspace.

Read about how to publish an app from the new workspaces.

Next steps

- Read about organizing work in the new workspaces experience in Power BI
- Create classic workspaces
- Publish an app from the new workspaces in Power BI
- Questions? Try asking the Power BI Community

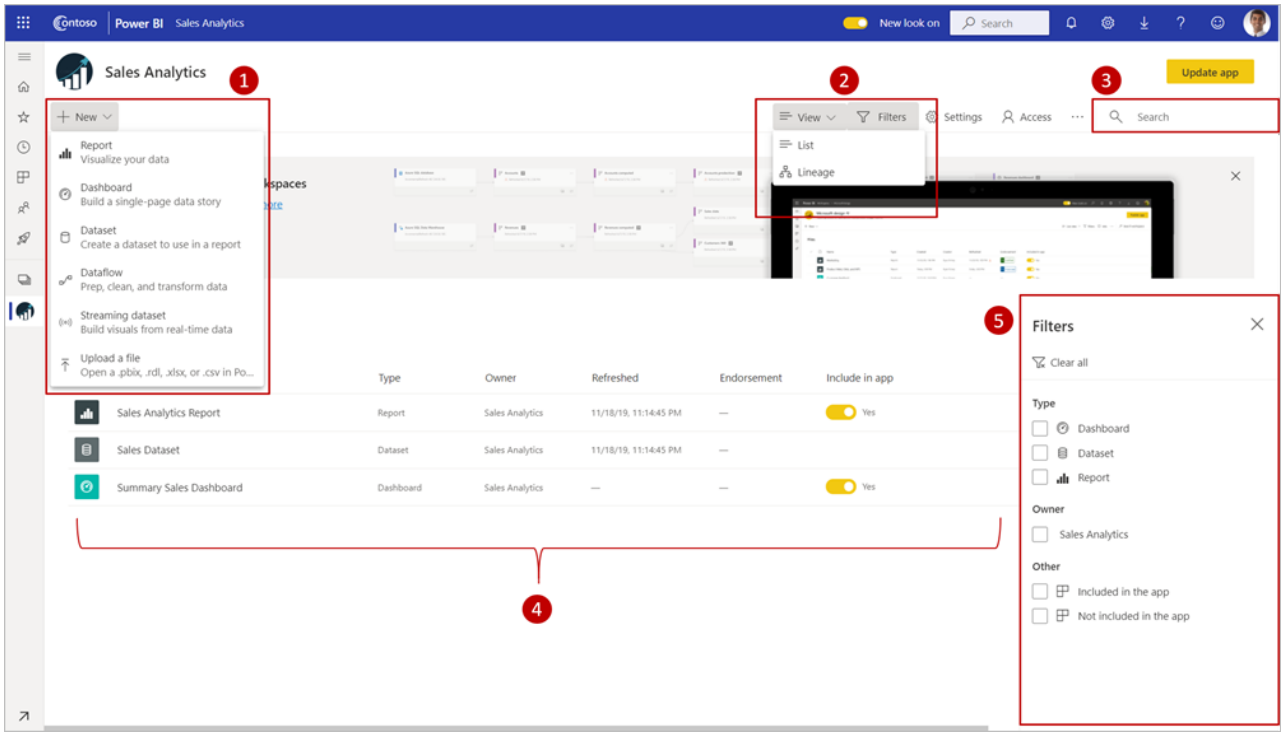
Opt in to the workspace 'new look' (preview)

5/13/2020 • 2 minutes to read • Edit Online

Workspaces have a new look that coincides with the new look of the Power BI service. Anyone using the Power BI service (app.powerbi.com) can opt in. When you turn on the **New look** in the black header bar, you opt in to the new look for reports and workspaces. All workspaces, both classic and new, can benefit from the new look.

Looking for information about the new look in **Power BI Desktop**? See Use the updated ribbon in Power BI Desktop.

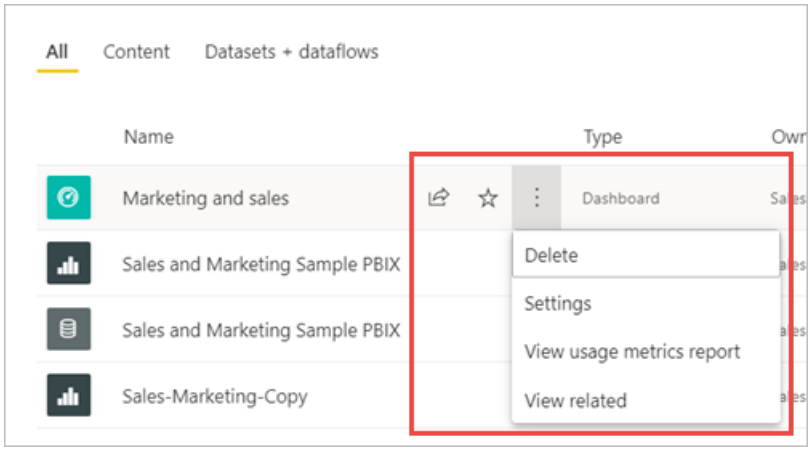
Features of the new look



NUMBER	HOW IT WORKS
1	**Get Data**: It's easier to add content to your workspace. Select the **+ New** button to connect to data, open files, and create reports, dashboards, and more.
2	**View switcher**: To see the connections between dataflows, datasets, reports, and dashboards, and their connections to other data sources, switch between **List** view and **Lineage** view.
3	**Search within workspace**: Search all the content in a workspace in the new search box.

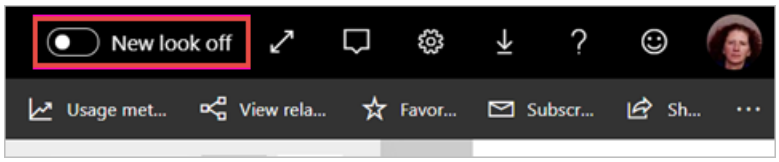
NUMBER	HOW IT WORKS
4	**List and tabs**: All the content in a workspace is in a flat list of dashboards, reports, datasets, etc., like SharePoint. You no longer open a workspace to a potentially empty **Dashboards** tab, and wonder where your content is. Here's the new tab order: **All**: Shows all content (dashboards, reports, workbooks, paginated reports, datasets, and dataflows) in the workspace. **Content**: Gathers all content created for consumption (dashboards, reports, workbooks, and paginated reports) within the workspace. **Datasets + dataflows**: Gathers all the datasets and dataflows in the workspace, for easy data management.
5	**Filters**: For workspaces with hundreds of artifacts, you can filter the content in the Filters pane. Once a filter is applied, you see the filter on top of the content list.

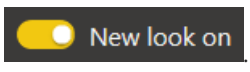
Quick actions: When you hover over content in the list, you see the most common actions for that item, plus others available on the **More options** (...) menu.



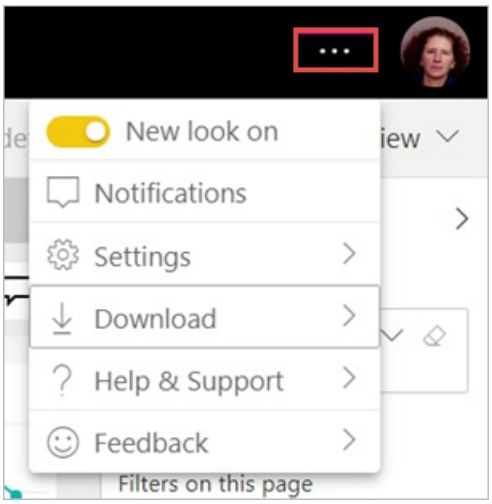
Opt in to the new look

Any Power BI service user can opt in to the new look. Just slide **New look off** to **New look on**.



If you need to return to the old look, just slide it back to **off** 

. If you don't see it, select the ellipsis menu in the upper-right corner.



Next steps

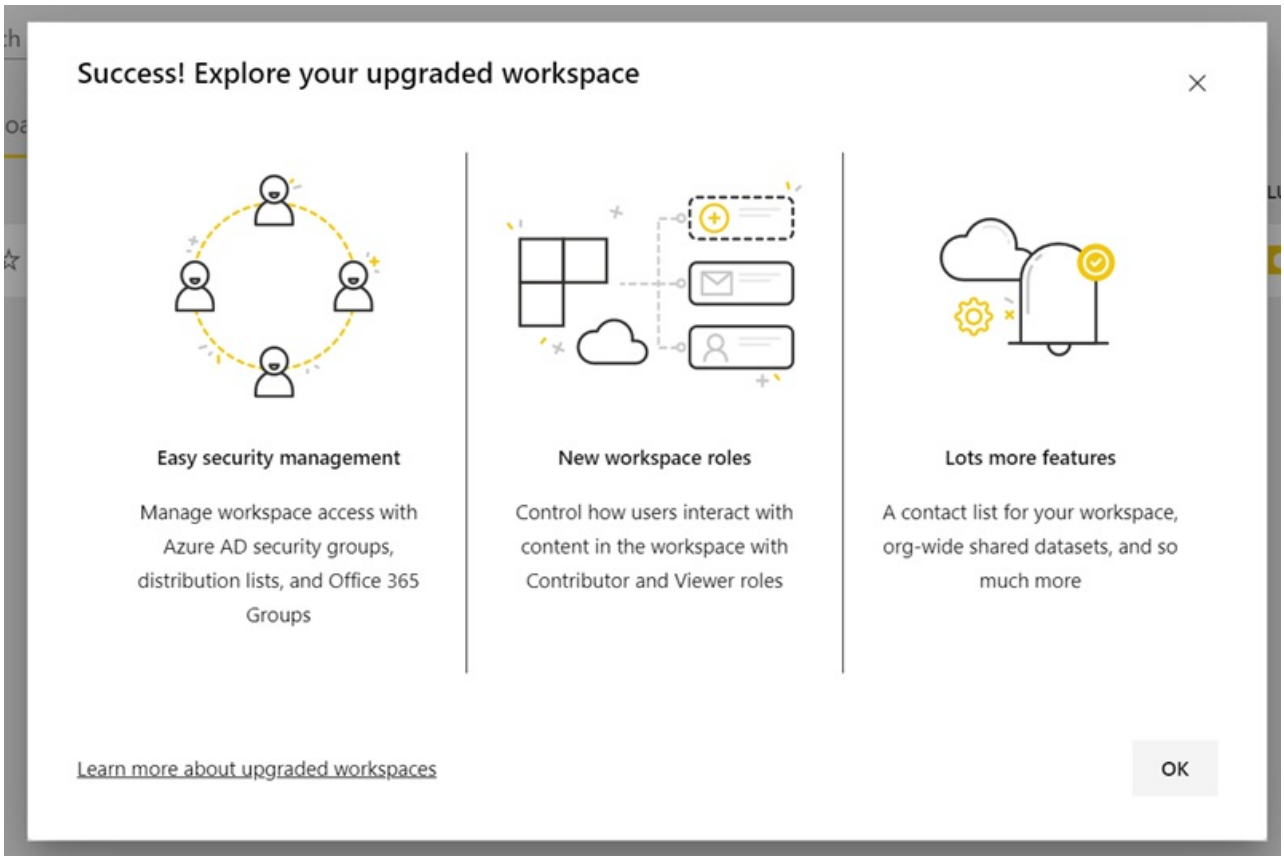
- Use the updated ribbon in Power BI Desktop
- The 'new look' of the Power BI service
- Questions? Try the Power BI Community

Upgrade classic workspaces to the new workspaces in Power BI

5/20/2020 • 11 minutes to read • Edit Online

This article explains how to upgrade, or *migrate*, a classic workspace to the new workspace experience. You can upgrade any classic workspace. The new workspaces have more granular workspace roles so you can better manage access to content. You also have more flexibility managing upgraded workspaces because they're more loosely connected to their original Microsoft 365 group. Learn about the new workspace experience.

> **NOTE**
> Workspace upgrade is available as a Public Preview.



However, there may be changes to your workspace that you need to be aware of and plan for. For example, content packs aren't supported in the new workspace experience. See the Upgrade considerations and limitations section, later in this article.

Things to do after upgrading

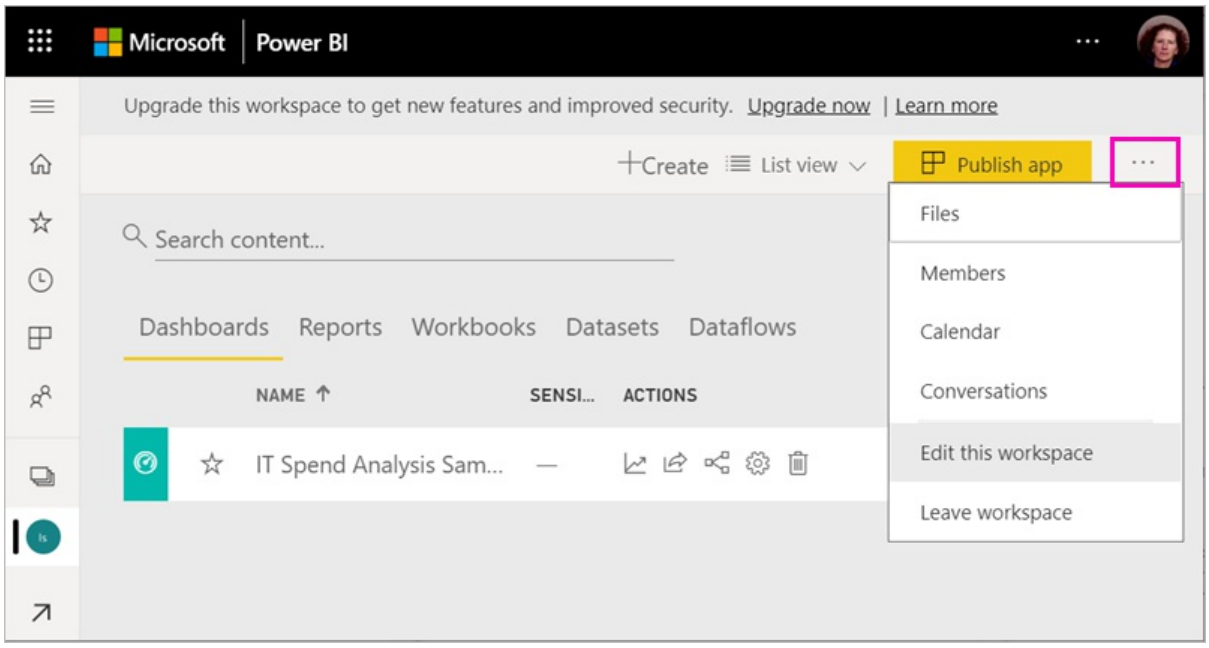
You should do several things *after* you upgrade. It's best to plan them *before* you upgrade:

- Review the access list and understand the permissions after upgrade.
- Review the contact list and make sure it's set as you desire.
- If you've not already, learn about the new workspace experience.

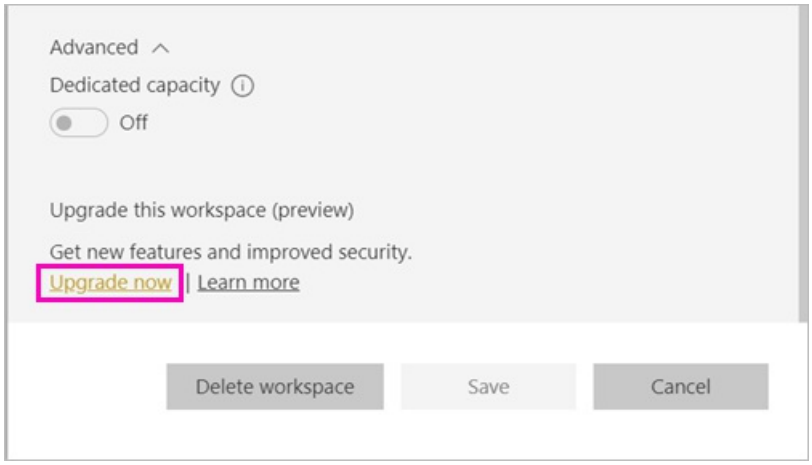
Upgrade a classic workspace

Any workspace admin can upgrade the workspace. For classic workspaces, to be a workspace admin you must be an Owner of the underlying Microsoft 365 group. To upgrade a workspace, follow these steps.

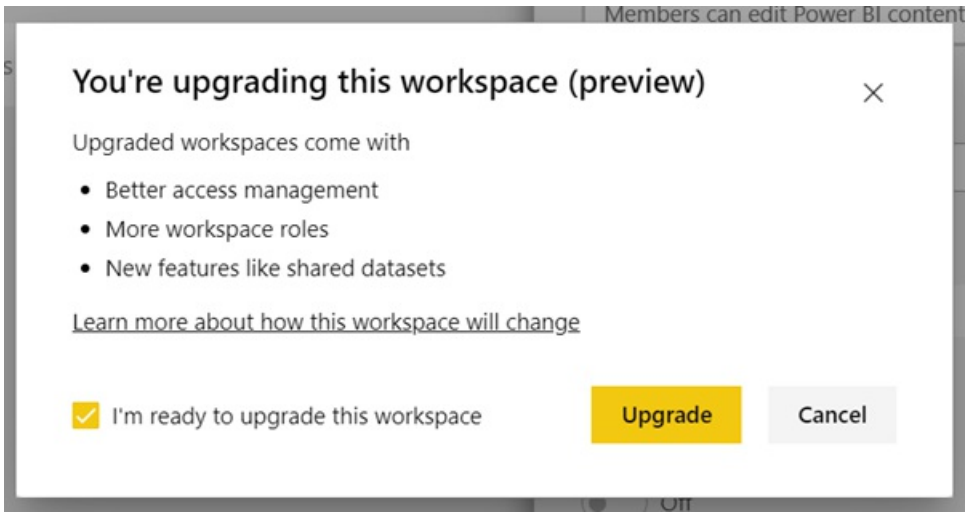
1. In the workspace content list, select **More options** (...) > **Edit this workspace**.



2. Expand **Advanced** and select **Upgrade now**.



3. Review the dialog box information. You see warnings if you've published or installed content packs in the workspace. When you're ready, check **I'm ready to upgrade this workspace**, then select **Upgrade**.



4. During upgrade, you see the **Upgrading** message. It usually takes less than a minute to upgrade your workspace.

5. After upgrade finishes, you see the **Success** dialog box. We recommend reading Organize work in the new workspaces in Power BI so you're familiar with how new workspaces differ from classic workspaces.

Impact on other workspace users

We recommend upgrading during off-hours when few users are actively viewing or editing items in the workspace.

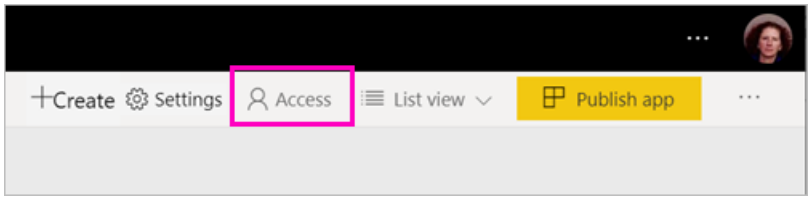
Users who are actively using the workspace are asked to refresh their browser. Users who are editing a report are given the option to save before they refresh.

Upgrade considerations and limitations

- The URLs and IDs of your workspace, the content it contains, and the app published from the workspace don't change. Content from content packs installed in your workspace is handled separately. See Content packs during upgrade in this article for details.
- Content packs aren't supported in the new workspace experience. Read the sections about published content packs or installed content packs to learn about how they're handled during upgrade. We recommend deleting content packs installed or published in your workspace before you upgrade.
- The Microsoft 365 group for your classic workspace isn't affected by the workspace upgrade in Power BI. Any Teams, SharePoint sites, mailboxes, or other resources managed by Microsoft 365 aren't changed. They remain intact after you upgrade your Power BI workspace. The Microsoft 365 group continues to exist as before.
- There are changes to how your workspace is secured after the upgrade. See the workspace permissions after upgrade section for details.
- An option to **go back to a classic workspace** is provided in case you need it. However, it doesn't fully restore some aspects of your workspace before it was upgraded. If you start using features that work only in the new workspace experience, you won't be able to go back. The go back option is available for 30 days after you upgrade.

Permissions after upgrade

Select **Access** in the menu bar at the top of the workspace content list to review permissions after upgrade.



Each Microsoft 365 group Owner is added individually to the Admin role for the upgraded workspace. The Microsoft 365 group itself is added to a workspace role. The role it's added to depends on whether the classic workspace is *read-only* or *read-write*:

- When the workspace is set to **Members can edit Power BI content**, after upgrade the Microsoft 365 group is added to the workspace access list with the **Member** role.
- When the workspace is set to **Members can only read Power BI content**, after upgrade the Microsoft 365 group is added to the workspace access list with the **Viewer** role.

Because the Microsoft 365 group is given a role in the workspace, any user added to the Microsoft 365 group after upgrade has that role in the workspace. However, if you add new Owners to the Microsoft 365 group after the upgrade, they don't have the Admin role for the workspace.

Differences in roles before and after upgrade

Workspace roles are different in the classic and new workspaces. The new workspace experience enables you to

give workspace roles to Microsoft 365 groups, security groups, or distribution lists.

- **Members** can share individual items and give access to the entire workspace through the Member, Contributor, or Viewer roles
- **Viewers** can only view content and can't export underlying data or analyze in Excel for any workspace datasets, unless they have the Build permission.

Any users who have access to items in the workspace through sharing or app permission continue to have access to those items. Anyone with access to the workspace also has access to the app published from the workspace. These users aren't listed in the app access list.

We recommend evaluating whether to use the new Contributor role. After upgrade, you can change the Microsoft 365 group to have the Contributor role in the Access pane.

After upgrade, you may consider creating a security or Microsoft 365 group or distribution list for workspace admins, instead of managing access through role assignments to individual users.

Read more about roles in the new workspaces.

Licensing after upgrade

Users in the Admin, Member, or Contributor workspace roles need a Power BI Pro license to access the workspace.

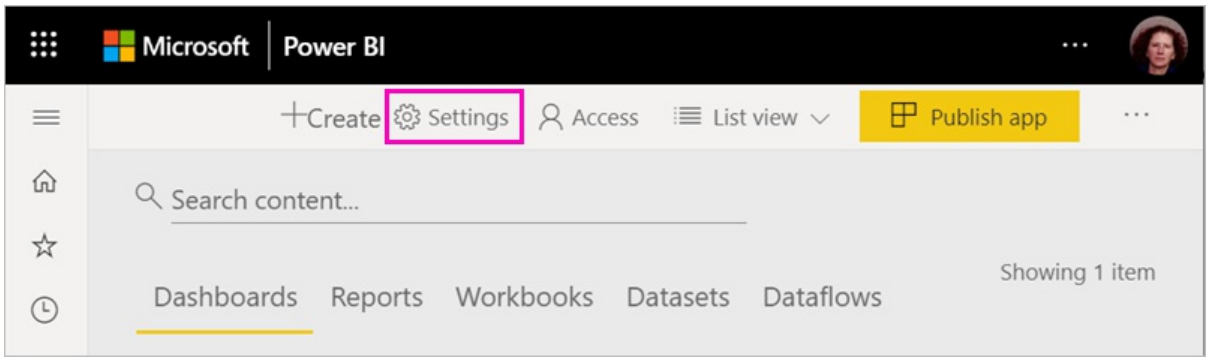
If the workspace is in the shared capacity, users in the Viewer workspace role also need a Power BI Pro license to access the workspace. However, if the workspace is in a Premium capacity, users in the Viewer role don't need a Pro license to access the workspace.

Other new workspace features

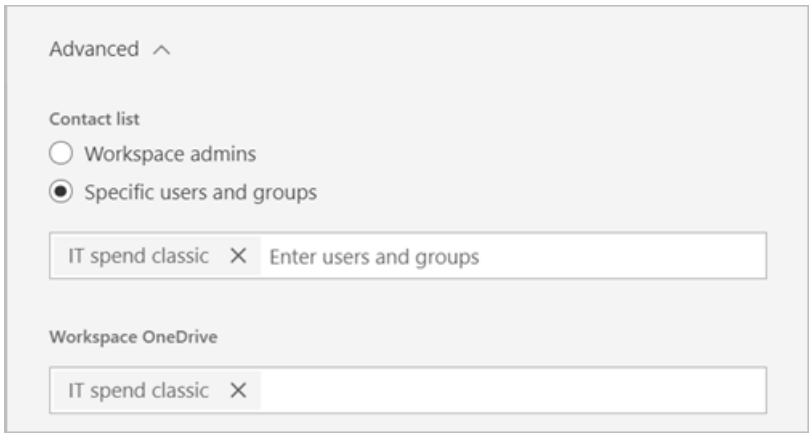
The new workspace experience has features that the classic workspaces don't have. One difference is the ability to set a contact list that's different from the workspace admins or owners. One similarity is that it's still connected to the Microsoft 365 group SharePoint document library.

Modify the contact list

1. Select **Settings** in the menu bar at the top of the workspace content list to access workspace settings.



2. Under **Advanced**, the workspace **Contact list** is configured to be the Microsoft 365 group the workspace was upgraded from. You can add more users or groups to the contact list, or switch it to workspace admins.



The workspace OneDrive

After upgrade, the workspace **OneDrive** is connected to the Microsoft 365 group SharePoint document library. This document library shows as the **OneDrive** option in the **Get Data** > **Files** experience. Be aware that not all workspace users may have permission to that document library, if they're not in the Microsoft 365 group.

Content packs during upgrade

The new workspace experience doesn't support content packs. Instead, use apps and shared datasets to distribute content in the workspace. We recommend removing published or installed content packs from the workspace prior to upgrade. However, if there are published or installed content packs when you upgrade, the upgrade process attempts to preserve the content, as described below. There is no way to restore the content pack or the association of content to the content pack after you upgrade.

Published content packs

Content packs published from the workspace are removed during the upgrade. You won't be able to publish or update them after upgrade, even if you revert back to the classic workspace. If others have installed your content pack in their own workspaces, after upgrade they see a copy of the content pack content in their workspaces. See the **installed content packs** section for details.

Installed content packs

When you upgrade your workspace, or the workspace from which the content pack is published is upgraded, important changes happen to installed content packs. After the upgrade, your workspace contains a copy of the content pack content. It's connected to the original dataset in the original workspace.

However, there are important changes:

- The content no longer updates if the content pack is updated.
- The URLs and item identifiers change and require any bookmarks or links you've shared with others to be updated.
- Any user customizations on the original content pack from your workspace are lost. Customizations include subscriptions, alerts, personal bookmarks, persistent filters, and favorites.
- New users may not have access to the datasets that were in the content pack. You need work with the dataset owner to ensure workspace users have access to the data.

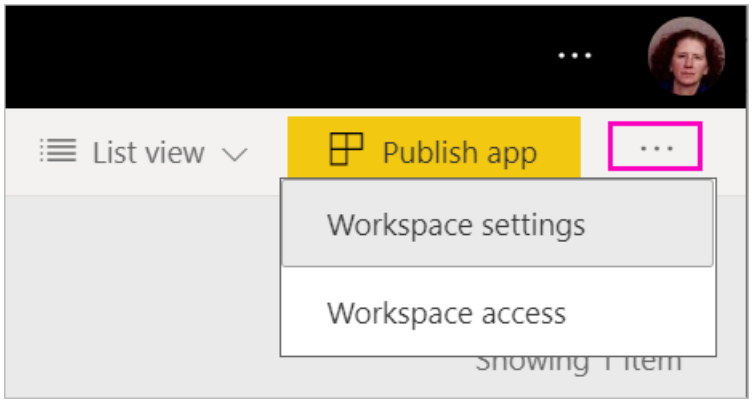
Go back to a classic workspace

As part of the upgrade experience, you have the option to go back to a classic workspace for 30 days after the upgrade. This capability restores the association of workspace content with the original Microsoft 365 group. It's available in case your organization encounters major issues using the new workspace experience. However, there are limitations. Read Considerations for switching back to classic in this article first.

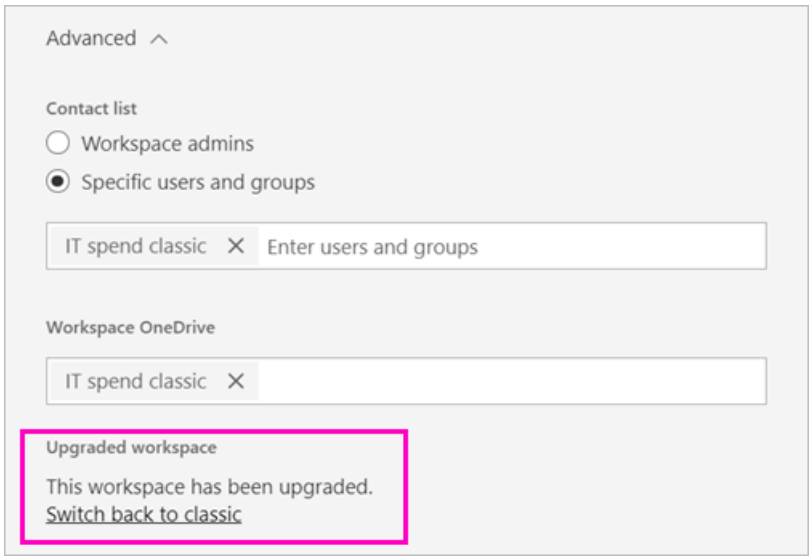
To go back, you need to be an Owner of the Microsoft 365 group the workspace was associated with before it was

upgraded. Follow these steps.

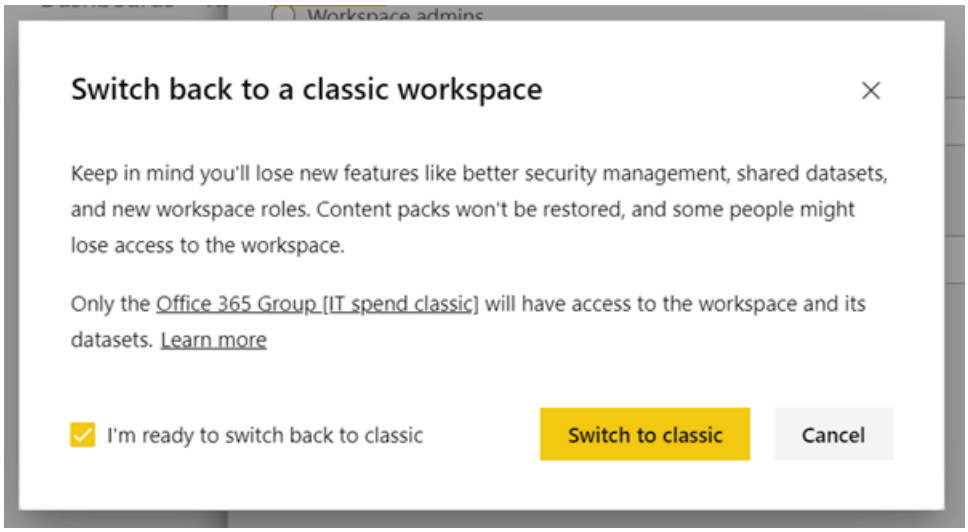
1. In the workspace content list, select **More options** (...) > **Workspace settings**.



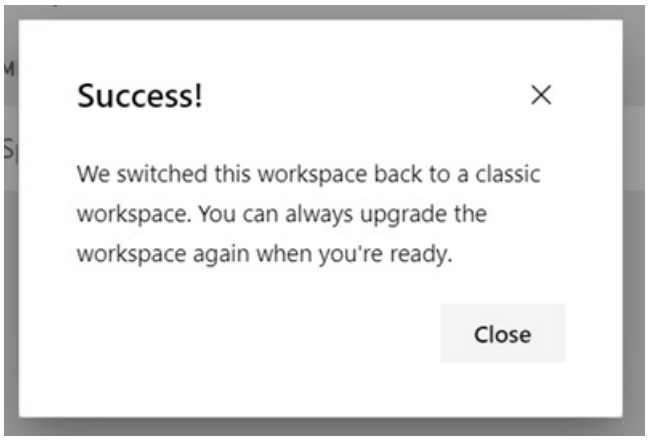
2. Expand **Advanced** and select **Switch back to classic**. If this option isn't available to you, see Considerations for switching back to classic in this article.



3. When you're ready, check the **I'm ready to switch back to classic** box and select **Switch to classic**. You may see warnings or blockers in this dialog box. Read the considerations for switching back in this article if you encounter these issues.



4. When the switch back is complete, you see a confirmation dialog box.



Considerations for switching back to classic

You can't switch back if any of the following statements about your workspace are true:

- The Microsoft 365 group was deleted.
- It's been more than 30 days since you upgraded.
- Datasets in the workspace are used by reports or dashboards in other workspaces. How does this happen? Say you published a content pack from the workspace before upgrade, and someone installed the content pack in another workspace. Immediately after upgrade, the datasets are used by the reports and dashboards in that content pack.
- The workspace is part of an application life-cycle management pipeline.
- The workspace is used for template apps.
- The workspace uses the large models capability.
- The workspace uses the new usage metrics feature.

When you switch back to a classic workspace, you aren't restoring an exact copy of the original workspace. The following changes occur:

- Permissions for the workspace are set by the Microsoft 365 group the upgraded workspace was originally connected to.
  - Any admins of the Microsoft 365 group become admins of the classic workspace.
  - Any members of the Microsoft 365 group become members of the classic workspace. If the classic workspace was set to **members can only read Power BI content**, this setting is restored.
  - Any users or user groups added to the workspace after upgrade completed (outside the Microsoft 365 group) lose access to the workspace. Add them to the Microsoft 365 group to give them access. Note that Microsoft 365 groups don't allow nesting security or distribution groups in the membership.
  - Users who received access to the app for the workspace continue to have access to the app.
  - Users who received access to items in the workspace through sharing continue to have access to them.
- Content packs published from the classic workspace before upgrade aren't restored.
- Content packs installed in the classic workspace before upgrade aren't restored.
- Subscriptions created by users in the workspace after upgrade are removed. Subscriptions that existed before upgrade continue to work as expected.
- Data alerts aren't preserved. They're removed.
- If you renamed the workspace after upgrade, the name of the workspace is restored to match the name of the Microsoft 365 group.
- In-progress operations like refreshes aren't impacted by workspace upgrade.

Manage migration to the new workspaces for your tenant

Some organizations desire to move many or all workspaces to the new workspace experience. The workspace upgrade tooling focuses on enabling workspace admins to upgrade. For organizations wanting to manage such a

process, they can take the following steps.

1. The workspaces list in the Power BI admin portal and the corresponding API provides a list of all workspaces in Power BI. Classic workspaces are shown as type Group in the list.
2. Work with individual group owners or your admin in Microsoft 365, to have them upgrade the workspaces. If you want to upgrade the workspace, you need to become an Owner of the group.

The workspace upgrade capability doesn't provide tools for bulk or programmatic upgrade. Additionally, new Microsoft 365 groups created in your organization will continue to appear in Power BI.

Known issues

There are several known issues that you may encounter:

- After upgrading users may see a "Failure to load model" warning dialog. This message is shown erroneously and can be ignored.
- After upgrading some workspace names are different than before upgrade. When this occurs, the workspace name is either reverted to a previous name for the workspace or the workspace name become blank. To resolve this issue, rename the workspace to the desired name.
- After upgrading a workspace that had an installed content pack, you may see additional dashboards in the workspace which were not visible before the upgrade. This occurs in some cases where a content pack has not been updated recently. You can safely remove these dashboards.

Next steps

- Organize work in the new workspace experiences
- Create the new workspaces
- Create the classic workspaces
- Questions? Try asking the Power BI Community

Create classic workspaces in Power BI

5/20/2020 • 5 minutes to read • Edit Online

In Power BI, you can create *workspaces*, places to collaborate with colleagues to create and refine collections of dashboards, reports, and paginated reports. Then you can bundle the collection together into *apps* that you can distribute to your whole organization or to specific people or groups.

Did you know? Power BI offers a new workspace experience, which is now the default. Read Organize work in the new workspaces for details about the new workspaces. Ready to migrate your classic workspace? See Upgrade classic workspaces to the new workspaces in Power BI for details.

When you create a classic workspace, you're creating an underlying, associated Microsoft 365 group. All the workspace administration is in Microsoft 365. You can add colleagues to these workspaces as members or admins. In the workspace, you can all collaborate on dashboards, reports, and other articles that you plan to publish to a wider audience. Everyone you add to a workspace needs a Power BI Pro license.

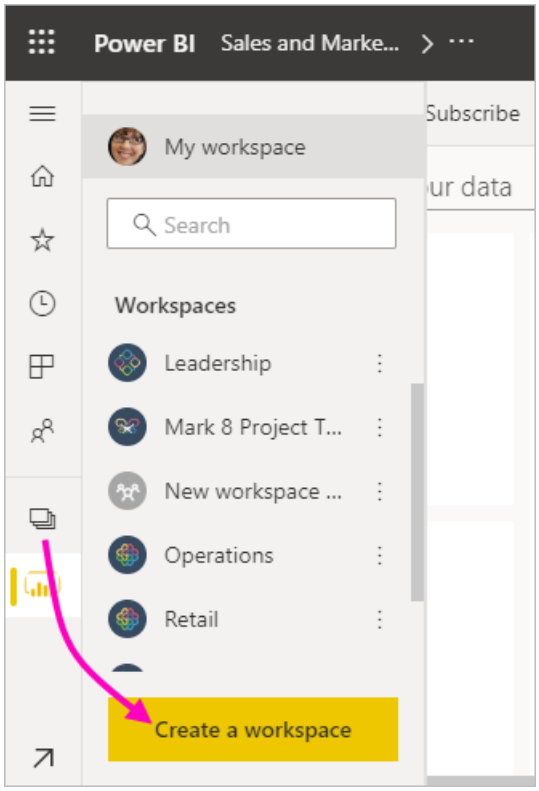
Video: Apps and workspaces

https://www.youtube.com/embed/Ey5pyrr7Lk8?showinfo=0

Create a classic workspace based on a Microsoft 365 group

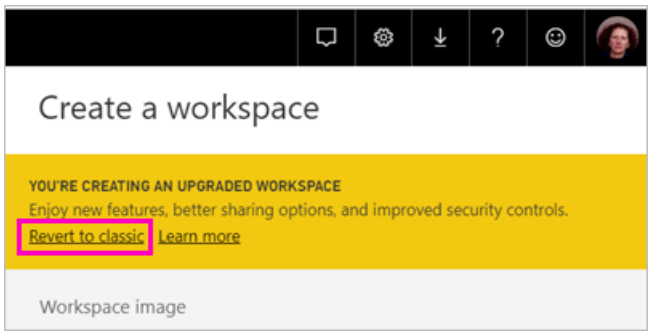
When you create a workspace, it's built on a Microsoft 365 group.

1. Start by creating the workspace. Select **Workspaces** > **Create workspace**.



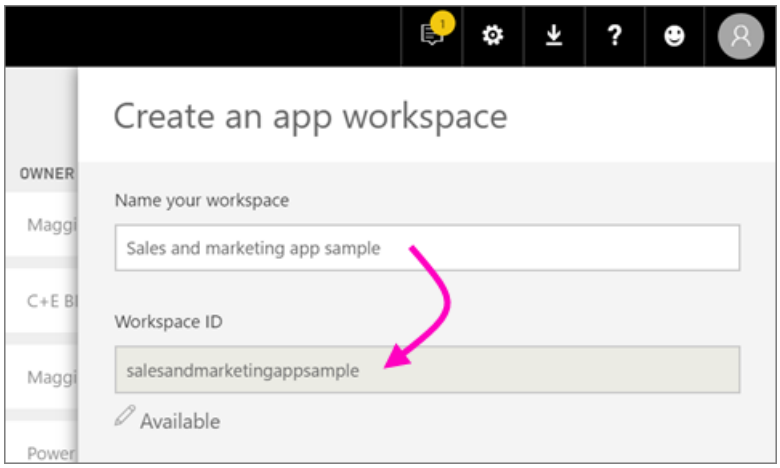
   Here you'll put the content that you and your colleagues collaborate on.

2. In the **You're creating an upgraded workspace** banner, click **Revert to classic**.

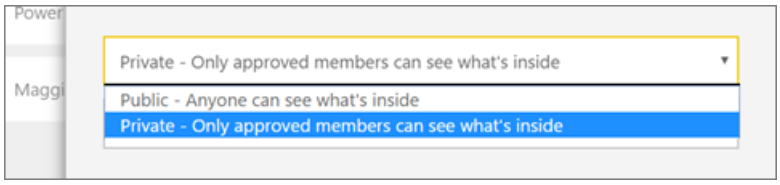


3. Give the workspace a name. If the corresponding **Workspace ID** isn't available, edit it to come up with a unique ID.

   The app will have the same name.

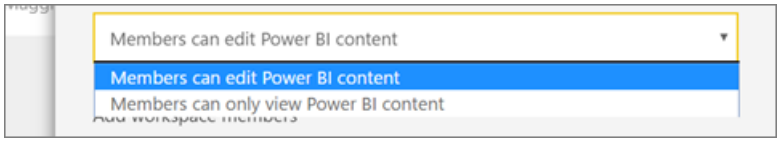


4. You have a few options to set. If you choose **Public**, anyone in your organization can see what's in the workspace. **Private** means only members of the workspace can see its contents.



   You can't change the Public/Private setting after you've created the group.

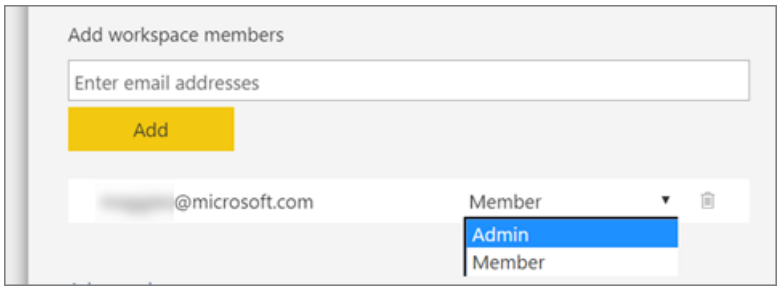
5. You can also choose if members can **edit** or have **view-only** access.



   Only add people to the workspace so they can edit the content. If they're only going to view the content, don't add them to the workspace. You can include them when you publish the app.

6. Add email addresses of people you want to have access to the workspace, and select **Add**. You can't add group aliases, just individuals.

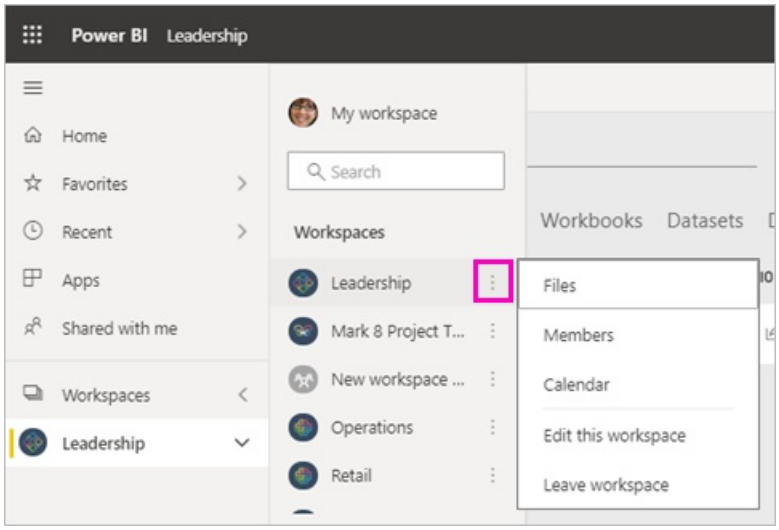
7. Decide whether each person is a member or an admin.



Admins can edit the workspace itself, including adding other members. Members can edit the content in the workspace, unless they have view-only access. Both admins and members can publish the app.

8. Select **Save**.

Power BI creates the workspace and opens it. It appears in the list of workspaces you're a member of. Because you're an admin, you can select **More options** (...) to go back and make changes to it, adding new members or changing their permissions.

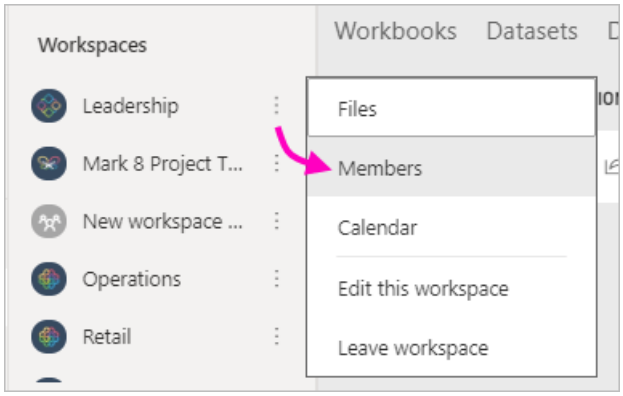


When you first create it, you may need to wait an hour or so for the workspace to propagate to Microsoft 365.

Add an image to your Microsoft 365 workspace (optional)

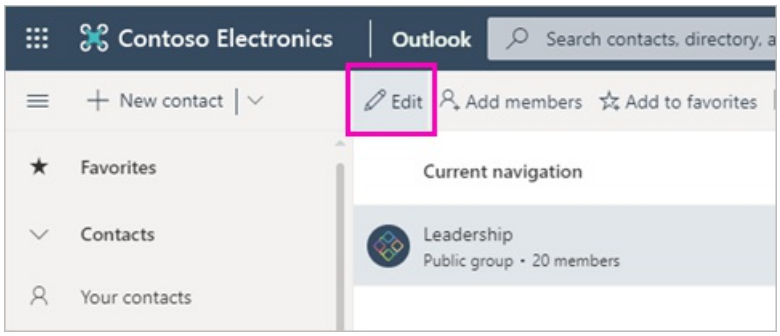
By default, Power BI creates a little colored circle for your app, with the app's initials. But maybe you want to customize it with an image. To add an image, you need an Exchange Online license.

1. Select **Workspaces**, select **More options** (...) next to the name of the workspace, then **Members**.

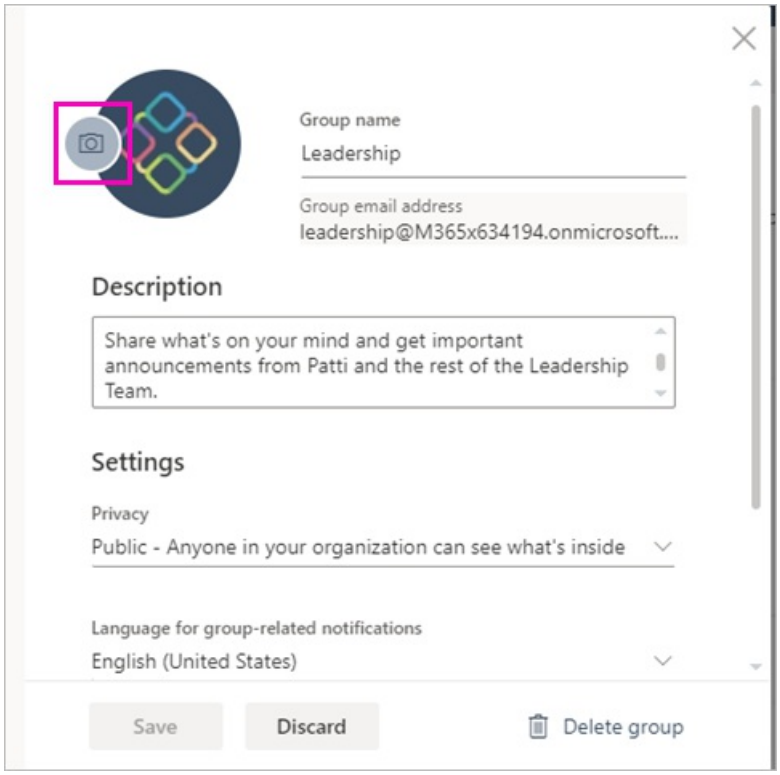


The Microsoft 365 Outlook account for the workspace opens in a new browser window.

2. Select the **Edit** pencil.



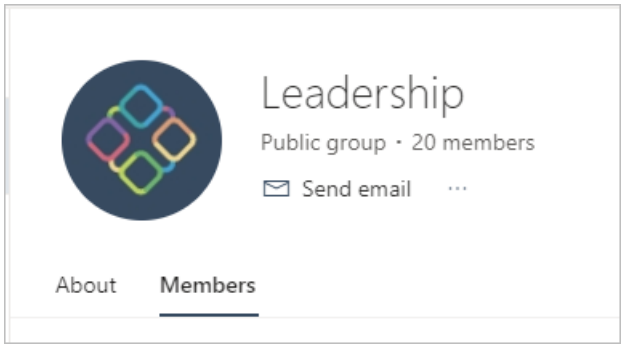
3. Select the camera image, and find the image you want to use.



Images can be .png, .jpg, or .bmp files. Their file size can be large, up to 3 MB.

4. Select **OK**, then **Save**.

The image replaces the colored circle in the Microsoft 365 Outlook window.



In a few minutes, it will appear in the app in Power BI, too.

Add content to your workspace

After you've created a workspace, it's time to add content to it. It's just like adding content to your My Workspace, except the other people in the workspace can see and work on it, too. A big difference is that when you get done, you can publish the content as an app. When you view content in the content list of a workspace, the workspace name is listed as the owner.

Connect to third-party services in workspaces

Apps are provided for all the third-party services Power BI supports, making it easy for you to get data from the services you use, such as Microsoft Dynamics CRM, Salesforce, or Google Analytics. You can publish organizational apps to give your users the data they need.

In the current workspaces, you can also connect using organizational content packs, and third-party content packs such as Microsoft Dynamics CRM, Salesforce, or Google Analytics. Consider migrating your organizational content packs to apps.

Distribute an app

If you want to distribute official content to a large audience within your organization, you can publish an app from your workspace. When the content is ready, you choose which dashboards and reports you want to publish, and then publish it as an *app*. You can create one app from each workspace.

The Apps list in the nav pane shows all the apps you've installed. Your coworkers can get your app in a few different ways.

- They can find and install your app from Microsoft AppSource
- You can send them a direct link.
- You can install it automatically in your coworkers' Power BI accounts if your Power BI administrator gives you permission.

Users see updated app content automatically after you publish an update from your workspace. You can control how frequently the data refreshes by setting the refresh schedule in the datasets used by the app content in your workspace. See Publish an app from the new workspaces in Power BI for details.

Power BI classic apps FAQ

How are apps different from organizational content packs?

Apps are the evolution of organizational content packs. If you have organizational content packs already, they'll continue to work side by side with apps. Apps and content packs have a few major differences.

- After business users install a content pack, it loses its grouped identity: it's just a list of dashboards and reports interspersed with other dashboards and reports. Apps, on the other hand, maintain their grouping and identity even after installation. This grouping makes it easy for business users to continue to navigate to them over time.
- You can create multiple content packs from any workspace, but an app has a 1:1 relationship with its workspace.
- Over time we plan to deprecate organizational content packs, so we recommend you create apps from now on.
- With the new workspace experience, we're taking the first steps towards deprecating organizational content packs. You can't consume or create them in the new workspaces.

See New and classic workspace differences to compare the two.

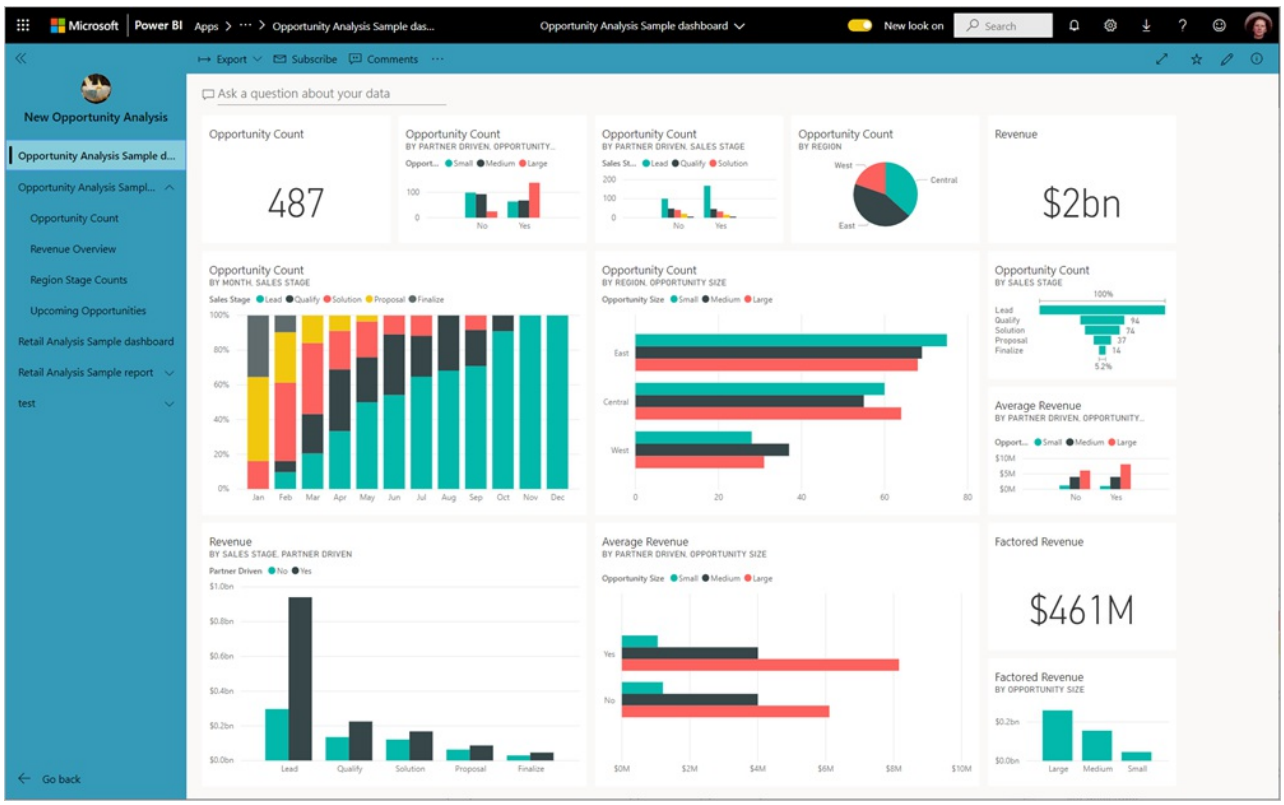
Next steps

- Install and use apps in Power BI
- Create the new workspaces
- Questions? Try asking the Power BI Community

Publish an app in Power BI

5/20/2020 • 12 minutes to read • Edit Online

In Power BI, you can create official packaged content, then distribute it to a broad audience as an *app*. You create apps in *workspaces*, where you can collaborate on Power BI content with your colleagues. Then you can publish the finished apps to large groups of people in your organization.



Your business users often need multiple Power BI dashboards and reports to run their business. With Power BI apps, you can create collections of dashboards and reports and publish these collections as apps to your whole organization or to specific people or groups. For you as a report creator or admin, apps make it easier to manage permissions on these collections.

Business users get your apps in a few different ways:

- They can find and install your app from Microsoft AppSource.
- You can send them a direct link.
- You can install it automatically in your coworkers' Power BI accounts if your Power BI administrator gives you permission.
- Power BI does not send any email to internal users when you distribute or update an app. If you distribute it to external users, those users receive an email with a direct link.

You can create the app with its own built-in navigation, so your users can easily find their way around your content. They can't modify the contents of the app. They can interact with it either in the Power BI service, or one of the mobile apps –– filtering, highlighting, and sorting the data themselves. They get updates automatically and you can control how frequently the data refreshes. You can also give them Build permission to connect to the underlying datasets, and to create copies of the reports in the app. Read more about the Build permission.

Licenses for apps

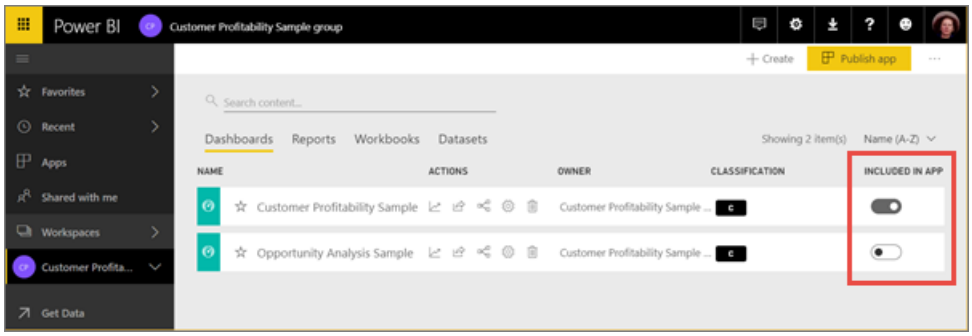
To create or update an app, you need a Power BI Pro license. For app *consumers*, there are two options.

- **Option 1** The workspace for this app is *not* in a Power BI Premium capacity: All business users need Power BI Pro licenses to view your app.
- **Option 2** The workspace for this app *is* in a Power BI Premium capacity: Business users without Power BI Pro licenses in your organization can view app content. However, they can't copy the reports, or create reports based on the underlying datasets. Read What is Power BI Premium? for details.

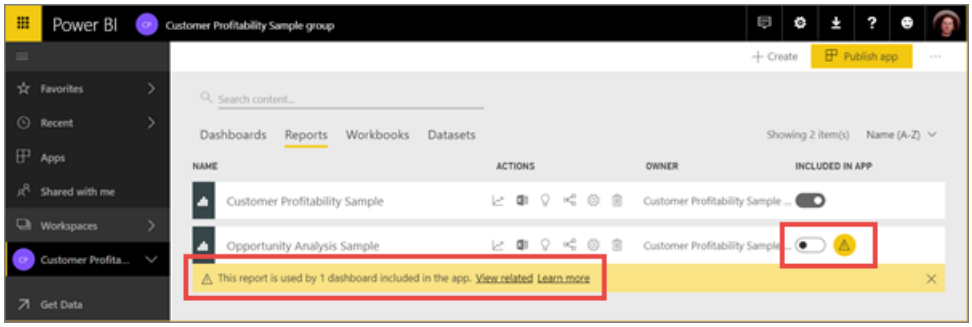
Publish your app

When the dashboards and reports in your workspace are ready, you choose which dashboards and reports you want to publish, then you publish them as an app.

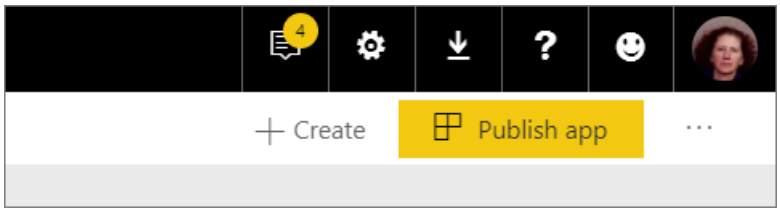
1. In the workspace list view, decide which dashboards and reports you want **Included in app**.



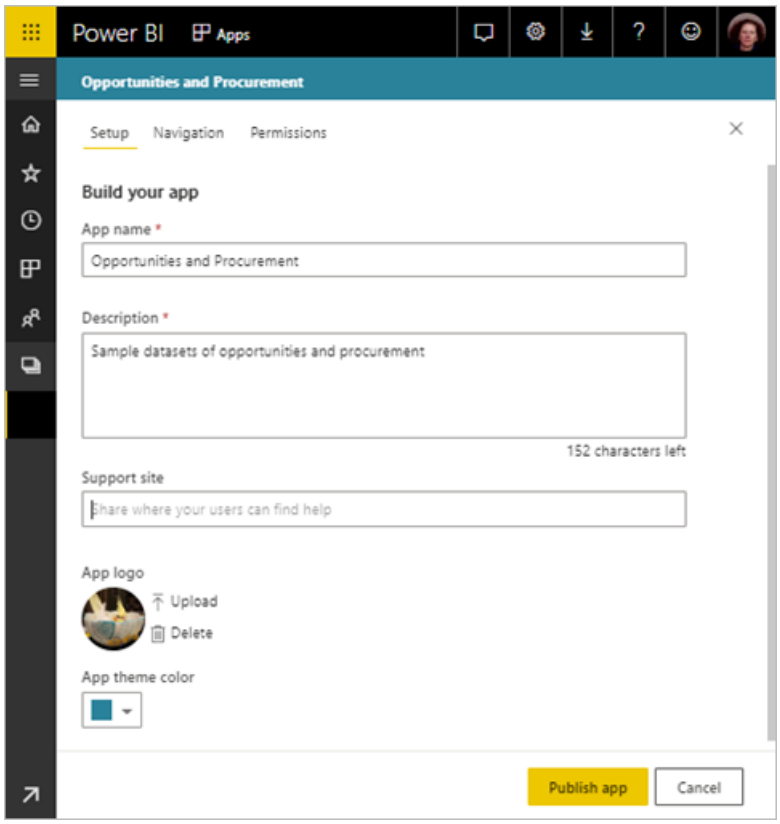
   If you choose not to include a report that has a related dashboard, you see a warning next to the report. You can still publish the app, but the related dashboard won't have the tiles from that report.



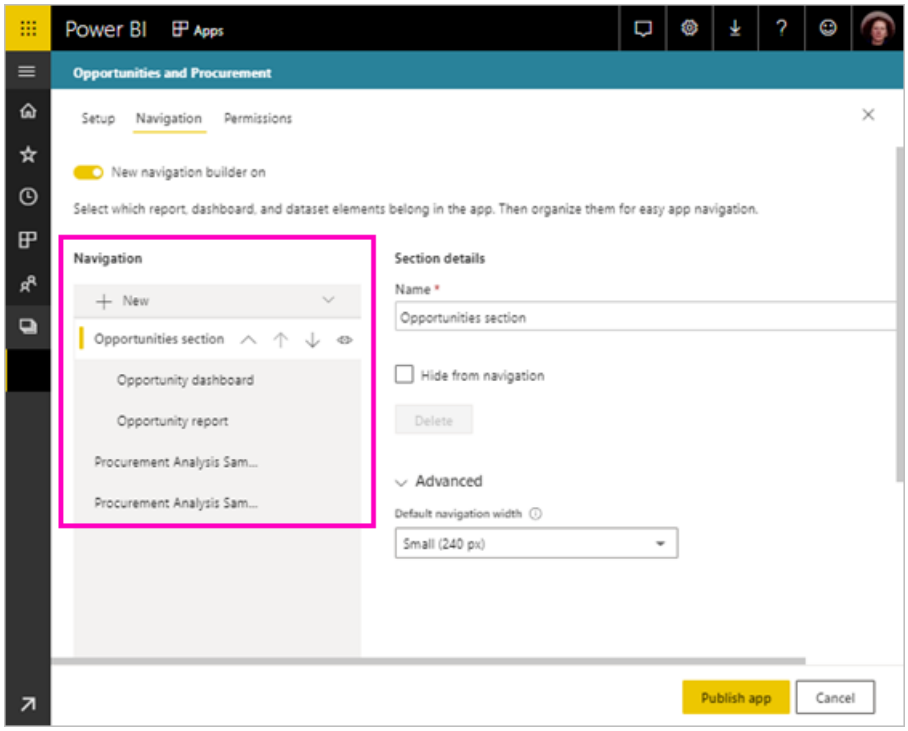
2. Select the **Publish app** button in the upper right to start the process of creating and publishing an app from the workspace.



3. On **Setup**, fill in the name and description to help people find the app. You can set a theme color to personalize it. You can also add a link to a support site.



4. On **Navigation**, you select the content to be published as part of the app. Then you add app navigation, to organize the content in sections. See Design the navigation experience for your app in this article for details.



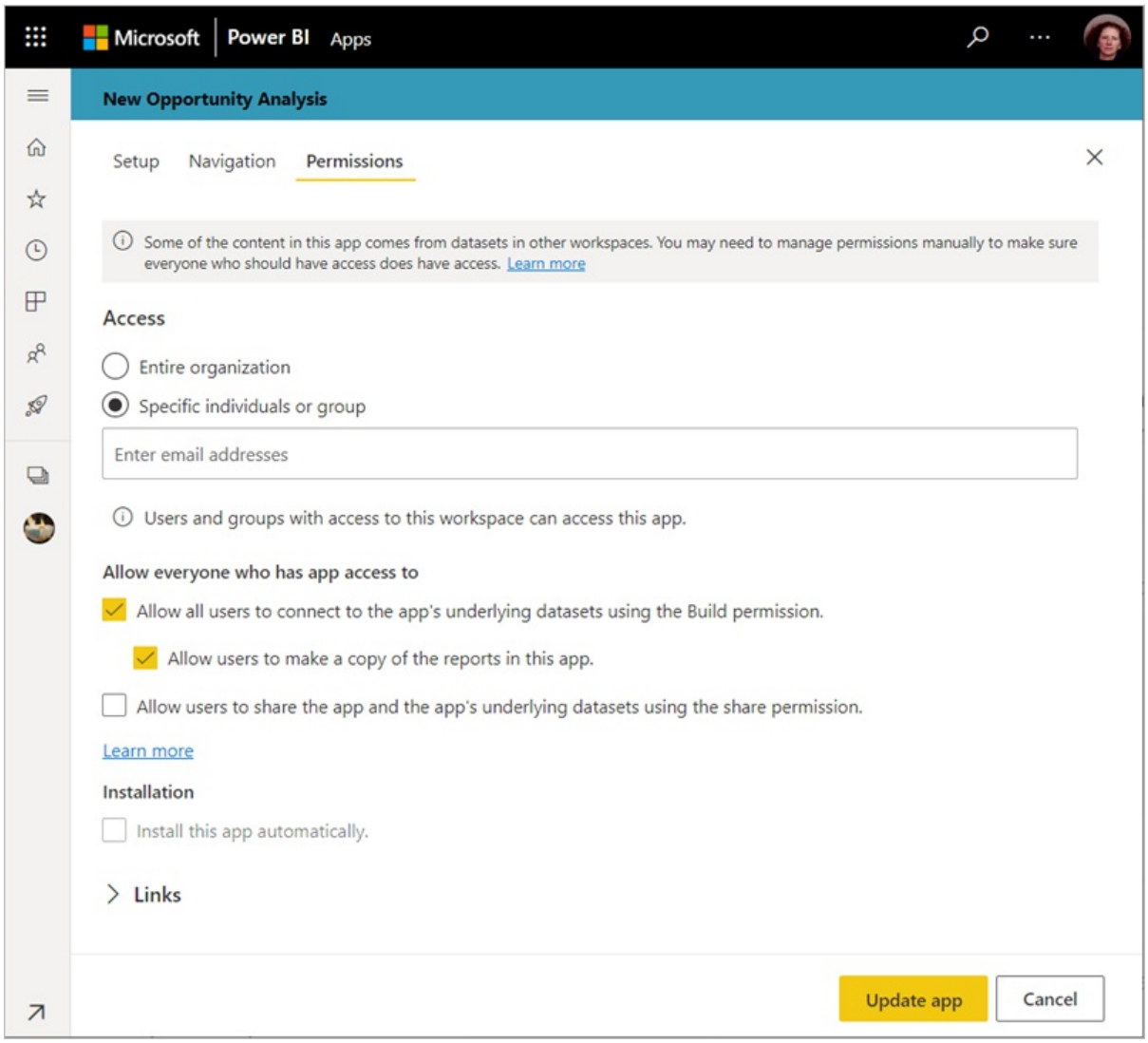
5. On **Permissions**, decide who has access to the app, and what they can do with it.

   - In classic workspaces: everyone in your organization, specific people, or Azure Active Directory (Azure AD) security groups.
   - In the new experience workspaces: specific people, Azure AD security groups and distribution lists, and Microsoft 365 Groups. All workspace users are automatically given access to the app for the workspace.
   - You can allow app users to connect to the app's underlying datasets by giving them Build permission. They'll see these datasets when they're searching for shared datasets. Read more about allowing users to connect to the app's datasets, in this article.

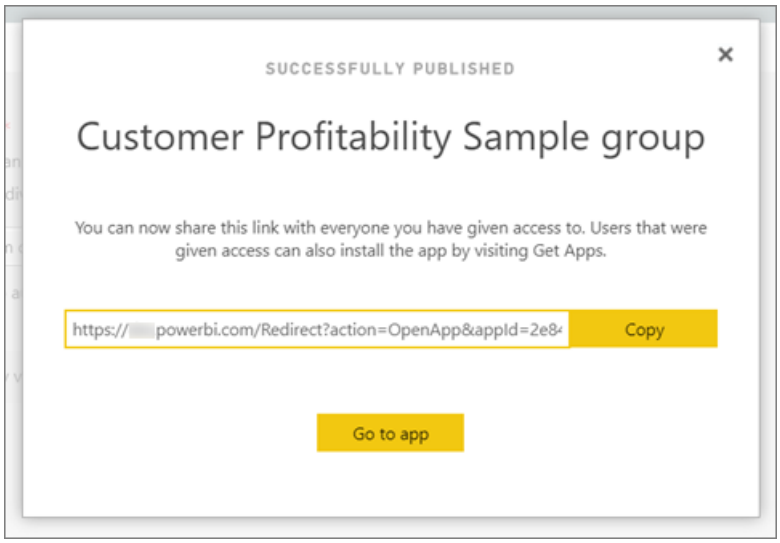
- Users with Build permission can also have permission to copy reports from this app to another workspace. Read more about allowing users to copy reports in the app, in this article.

> **IMPORTANT**
> If your app relies on datasets from other workspaces, it is your responsibility to ensure all app users have access to the underlying datasets.

6. You can install the app automatically for the recipients, if your Power BI admin has enabled this setting for you in the Power BI Admin Portal. Read more about automatically installing an app in this article.



7. When you select **Publish app**, you see a message confirming it's ready to publish. In the **Share this app** dialog box, you can copy the URL that's a direct link to this app.

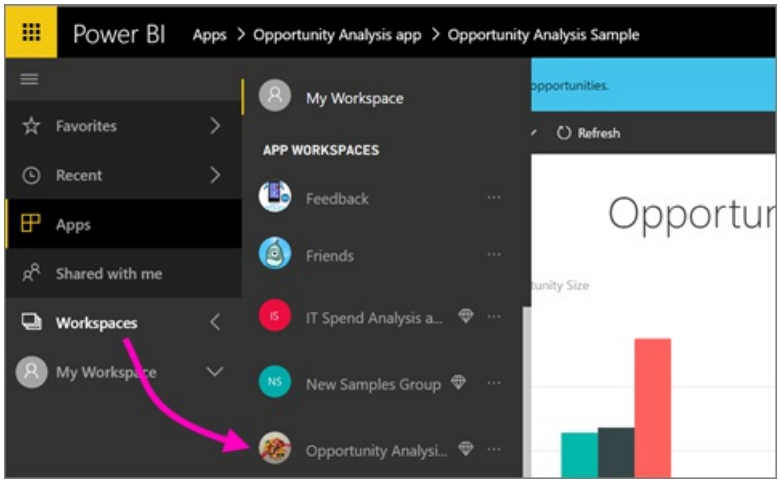


You can send that direct link to the people you've shared it with, or they can find your app on the Apps tab by going to **Download and explore more apps from AppSource**. Read more about the app experience for business users.

Change your published app

After you publish your app, you may want to change or update it. It's easy to update it if you're an admin or member in the new workspace.

1. Open the workspace that corresponds to the app.



2. Make any changes you want to the dashboards or reports.

   The workspace is your staging area, so your changes aren't live in the app until you publish again. This lets you make changes without affecting the published apps.

   > **IMPORTANT**
   > If you remove a report and update the app, even if you add the report back to the app, your app consumers lose all customizations such as bookmarks, comments, etc.

3. Go back to the workspace list of contents and select **Update app** in the upper-right corner.

4. Update **Setup**, **Navigation**, and **Permissions**, if you need to, then select **Update app**.

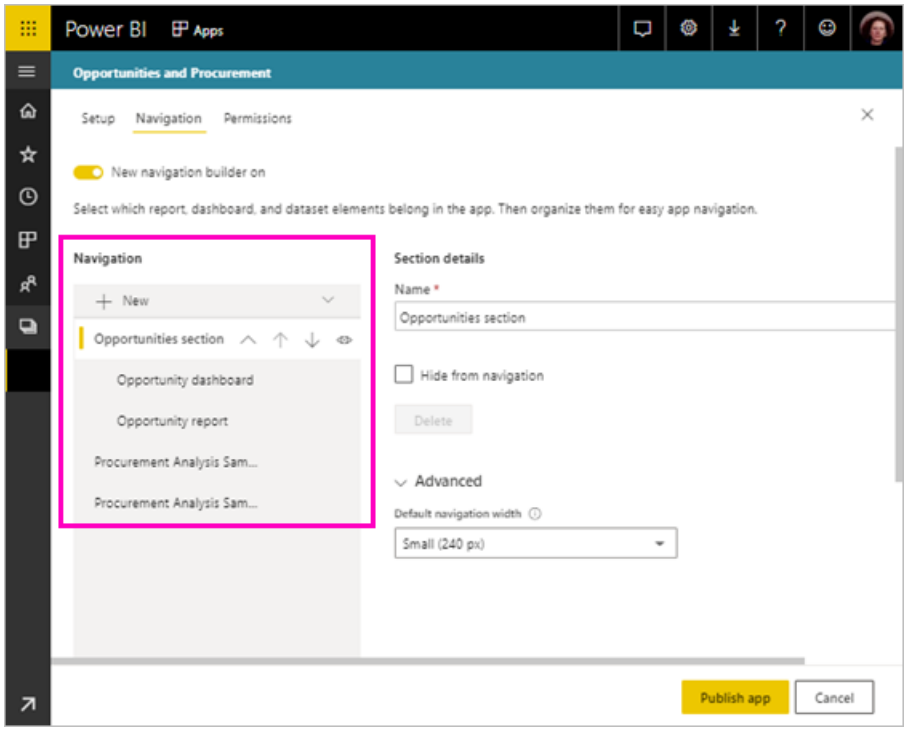
The people you've published the app to automatically see the updated version of the app.

Design the navigation experience

The **New navigation builder** option allows you to build a custom navigation for your app. The custom navigation makes it easier for your users to find and use content in the app. Existing apps have this option turned off and new apps default to the option being on.

When the option is off, you can select the **App landing page** to be either **Specific content**, for example a dashboard or report, or select **None** to show a basic list of content to the user.

When you turn on **New navigation builder**, you can design a custom navigation. By default all the reports, dashboards, and Excel workbooks you included in your app are listed as a flat list.



You can further customize the app navigation by:

- Reordering the items using the up / down arrows.
- Renaming items in the **Report details**, **Dashboard details**, and **Workbook details**.
- Hiding certain items from the navigation.
- Using the **New** option to add **sections** to group related content.
- Using the **New** option to add a **link** to an external resource to the nav pane.

When you add a **link**, in **Link details** you can choose where the link opens. By default links open in the **Current tab**, but you can select **New tab**, or **Content area**.

Considerations for using the new navigation builder option

Here are general things to keep in mind when using the new navigation builder:

- Report pages are shown in the app navigation area as an expandable section. When a report has one visible page, only the report name is shown. Clicking the report name in the navigation opens the first page of the report.

  > **NOTE**
  > Your report might have only one visible page because you've set up navigation to the rest of the pages with buttons or drillthrough actions.

- If you turn off the new navigation builder and then publish or update your app, you lose the customizations you've made. For example, sections, ordering, links, and custom names for navigation items are all lost.
- The option to not use the app builder is available.

When adding links to your app navigation and selecting the Content area option:

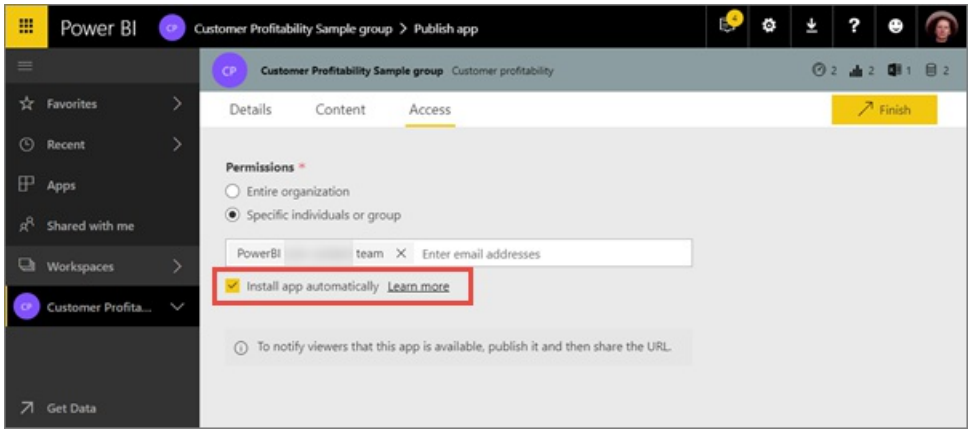
- Ensure the link can be embedded. Some services block the embedding of their content in third-party sites like Power BI.
- Embedding Power BI service content like reports or dashboards in other workspaces isn't supported.
- Embed Power BI Report Server content through its native embed URL content from an on premises deployment. Use the steps in creating the Power BI Report Server URL to get the URL. Be aware that regular authentication rules apply, so viewing the content requires a VPN connection to the on-premises server.
- A security warning is shown at the top of the embedded content to indicate the content isn't in Power BI.

Automatically install apps for end users

If an admin gives you permissions, you can install apps automatically, *pushing* them to end users. This push functionality makes it easier to distribute the right apps to the right people or groups. Your app appears automatically in your end users' Apps content list. They don't have to find it from Microsoft AppSource or follow an installation link. See how admins enable pushing apps to end users in the Power BI admin portal article.

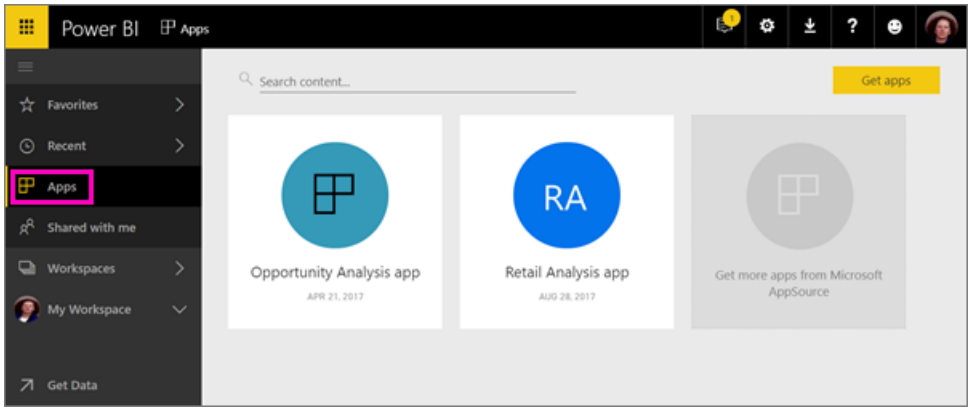
How to push an app automatically to end users

Once the admin has assigned you permissions, you have a new option to **install the app automatically**. When you check the box and select **Publish app** (or **Update app**), the app is pushed to all users or groups defined in the **Permissions** section of the app on the **Access** tab.



How users get the apps that you push to them

After you push an app, it shows up in their Apps list automatically. In this way, you can curate the apps that specific users or job roles in your organization need to have at their fingertips.



Considerations for automatically installing apps

Here are things to keep in mind when pushing apps to end users:

- Installing an app automatically to users can take time. Most apps install immediately for users, but pushing apps can take time. It depends on the number of items in the app and the number of people given access. We recommend pushing apps during off hours with plenty of time before users need them. Verify with several users before sending broad communication about the apps' availability.
- Refresh the browser. Before seeing the pushed app in the Apps list, the user may need to refresh, or close and reopen their browser.
- If users don't immediately see the app in the Apps list, they should refresh or close and reopen their browser.
- Try not to overwhelm users. Be careful not to push too many apps so your users perceive the pre-installed apps are useful to them. It's best to control who can push apps to end users to coordinate timing. Establish a point of contact for getting apps in your organization pushed to end users.
- Guest users who haven't accepted an invite don't get apps automatically installed for them.

Allow users to connect to datasets

When you check the option to **Allow users to connect to the app's underlying datasets**, you're giving app users *Build permission* on those datasets. With this permission, they can do several key actions:

- Use the app datasets as the basis for their reports.
- Search for these datasets in Power BI Desktop and in the get-data experience in the Power BI service.
- Create reports and dashboards based on these datasets.

When you clear this option, new users you add to the app don't get Build permission. However, for existing app users, permissions on the underlying datasets don't change. You can remove Build permission manually from app users who should no longer have it. Read more about the Build permission.

Allow users to copy reports

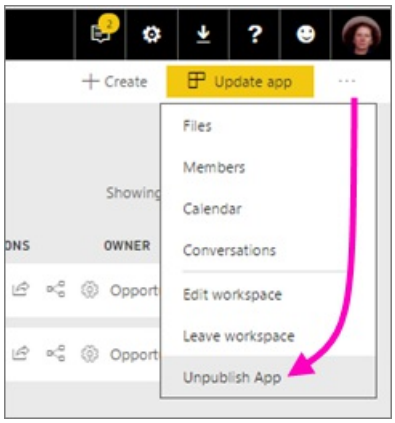
When you check the option to **Allow users to make a copy of the reports in this app**, your users can save any of the reports in the app to their My Workspace or another workspace. To make a copy, users need a Pro license, even if the original report is in a workspace in a Premium capacity. They can then customize the reports to their unique needs. You have to select the **Allow all users to connect to the app's underlying datasets using Build permission** option first. By selecting these options, you're enabling the new copy reports from other workspaces capability.

Unpublish an app

Any member of a workspace can unpublish the app.

> **IMPORTANT**
> When you unpublish an app, app users lose their customizations. They lose any personal bookmarks, comments, or subscriptions associated with content in the app. Only unpublish an app if you need to remove it.

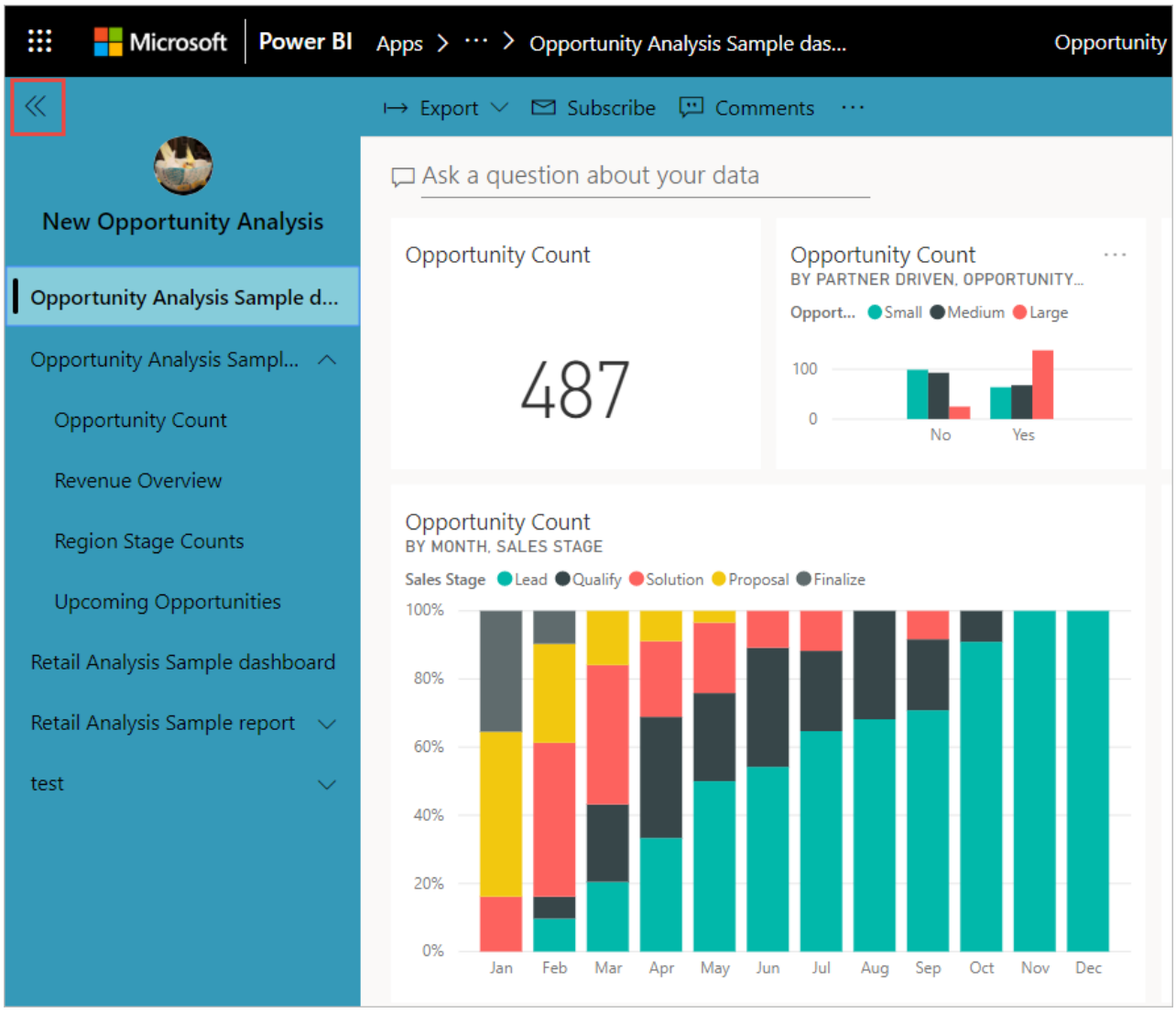
- In a workspace, select the ellipsis (...) in the upper-right corner > **Unpublish app**.



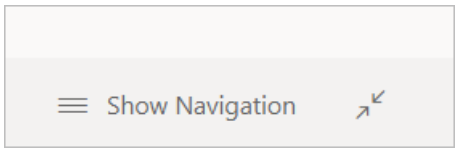
This action uninstalls the app for everyone you've published it to, and they no longer have access to it. It doesn't delete the workspace or its contents.

View your published app

When your app consumers open your app, they see the navigation you created, instead of the standard Power BI nav pane. The app navigation lists the reports and dashboards in the sections you've defined. It also lists the individual pages in each report, rather that just the report name. You can expand and collapse the left navigation by using the arrows in the menu bar.



In full-screen mode, you can show or hide the navigation by selecting the option in the corner.



Considerations and Limitations

Things to keep in mind about publishing apps:

- The permissions page doesn't change permission on datasets in other workspaces. You do see a warning reminding you to grant access to those datasets independently. A best practice is to contact the dataset owner before starting to build your app to ensure it is OK to give all your app users access those datasets.
- You can have at most 100 users or groups in the access list for the app. However, you can give more than 100 users access to the app. To do so, use one or more user groups that contain all the desired users.
- For the new workspace experience, if the user added to the app access list already has access to the app through the workspace, they will not be shown in the access list for the app.
- When using the new look for the Power BI service, the support site URL is shown in the item information card. Read more about the 'new look' in Power BI.
- Apps have an option to allow users to share the app and the app's underlying datasets by using the share permission. For new apps, this option is off by default. We recommend turning this option off for your existing apps and updating permission on the underlying datasets. The option was enabled for existing apps because apps were initially designed to replace content packs, which had this behavior.

Next steps

- Create a workspace
- Install and use apps in Power BI
- Power BI apps for external services
- Power BI Admin Portal
- Questions? Try asking the Power BI Community

Manage data storage in Power BI workspaces

5/13/2020 • 3 minutes to read • Edit Online

Learn how to manage data storage in your individual or workspace so you can keep publishing reports and datasets.

Capacity limits

Workspace storage limits, whether for My Workspace or an app workspace, depend on whether the workspace is in shared or Premium capacity.

Shared capacity limits

For workspaces in shared capacity:

- There is a per-workspace storage limit of 100 GB.
- For app workspaces, the total usage can't exceed the tenant storage limit of 10 GB multiplied by the number of Pro licenses in the tenant.

Premium capacity limits

For workspaces in Premium capacity:

- There is a limit of 100 TB per Premium capacity.
- There is no per-user storage limit.

Read about other features of the Power BI pricing model.

What's included in storage

Included in your data storage are your own datasets and Excel reports, and those items that someone has shared with you. Datasets are any of the data sources you've uploaded or connected to. These data sources include Power BI Desktop files and Excel workbooks you're using. The following are also included in your data capacity.

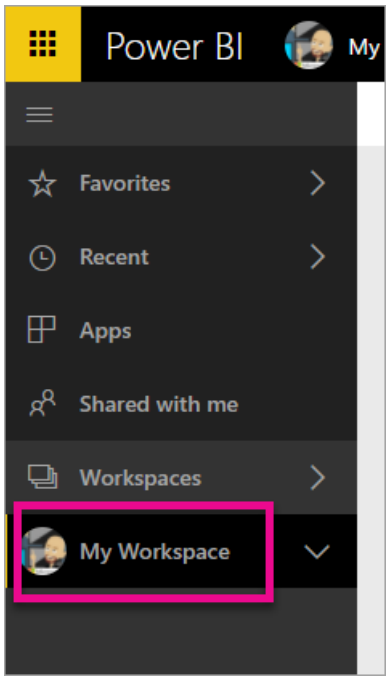
- Excel ranges pinned to a dashboard.
- Reporting Services on-premises visualizations pinned to a Power BI dashboard.
- Uploaded images.

The size of a dashboard that you share varies, depending on what's pinned to it. For example, if you pin items from two reports that are part of two different datasets, the size includes both datasets.

Manage items you own

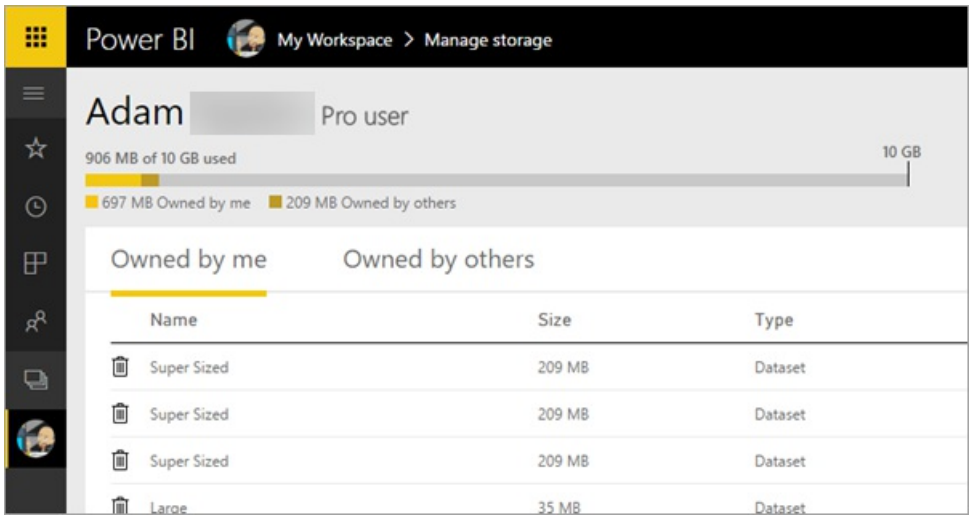
See how much data storage you're using in your Power BI account, and manage your account.

1. To manage your own storage, go to **My Workspace** on the navigation pane.



2. Select the gear icon in the upper-right corner > **Manage personal storage**.

   The top bar shows how much of your storage limit you've used.



   The datasets and reports are separated onto two tabs:

   Owned by me: You've uploaded these reports and datasets to your Power BI account, including service datasets such as Salesforce and Dynamics CRM.

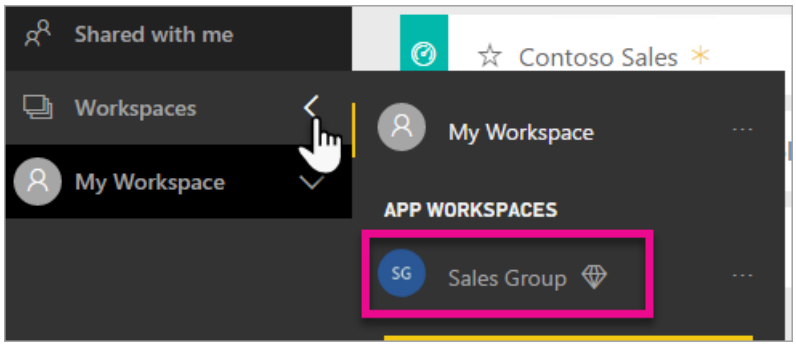
   Owned by others: Others have shared these reports and datasets with you.

3. To delete a dataset or report, select the trash can icon .

Keep in mind that you or someone else may have reports and dashboards based on a dataset. If you delete the dataset, those reports and dashboards won't work anymore.

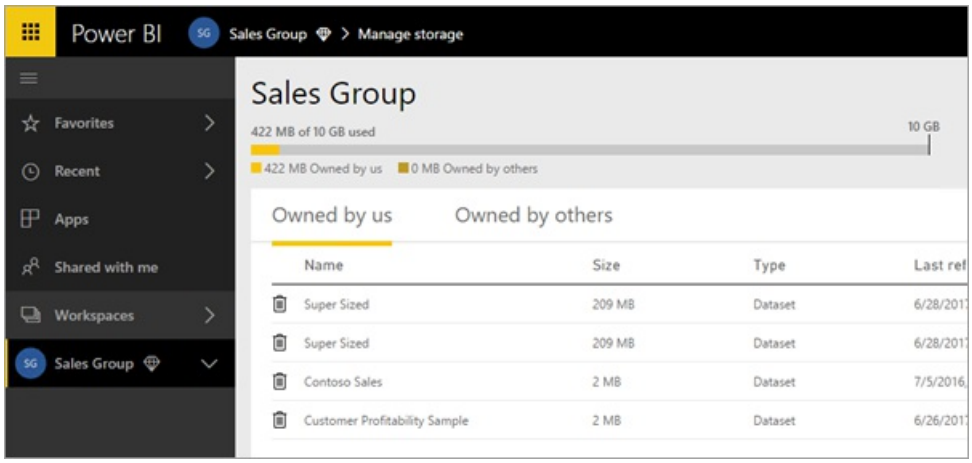
Manage your workspace

1. Select the arrow next to **Workspaces** > select the name of the workspace.



2. Select the gear icon in the upper-right corner > **Manage group storage**.

   The top bar shows how much of the group's storage limit is used.



   The datasets and reports are separated onto two tabs:

   Owned by us: You or someone else has uploaded these reports and datasets to the group's Power BI account, including service datasets such as Salesforce and Dynamics CRM.

   Owned by others: Others have shared these reports and datasets with your group.

3. To delete a dataset or report, select the trash can icon .

   > **NOTE**
   > Keep in mind that you or someone else in the group may have reports and dashboards based on a dataset. If you delete the dataset, those reports and dashboards won't work anymore.

   Any member in a workspace with the admin, member, or contributor role has permissions to delete datasets and reports from the workspace.

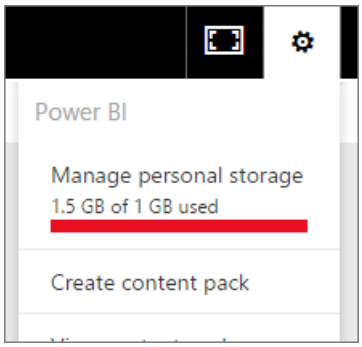
Dataset limits

There is a 1 GB limit per dataset that is imported into Power BI. If you have chosen to keep the Excel experience, instead of importing the data, the limit is 250 MB for the dataset.

What happens when you reach a limit

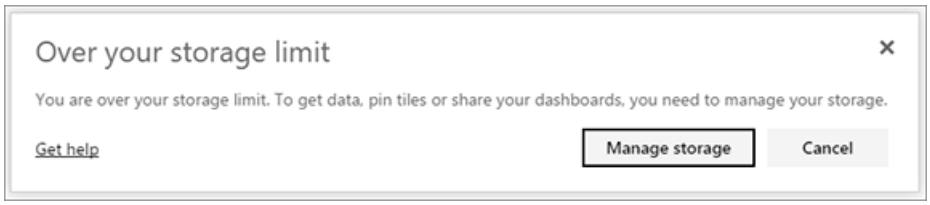
When you reach the data capacity limit of what you can do, you see prompts within the service.

When you select the gear icon , you see a red bar indicating you are over your data capacity limit.



This limit also is indicated within **Manage personal storage**.

When you try to perform an action that will reach one of the limits, you see a message you are over the limit. You can manage your storage to reduce your storage amount and get past the limit.



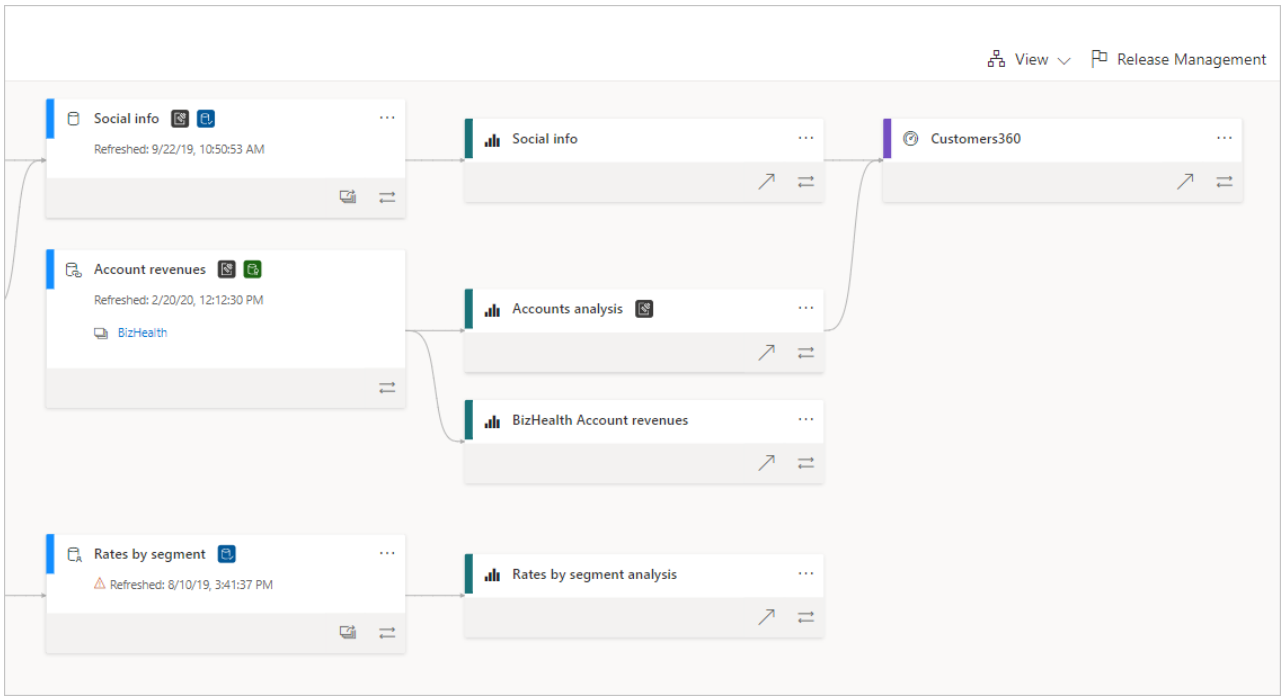
Next steps

More questions? Try asking the Power BI Community

Data lineage

5/13/2020 • 3 minutes to read • Edit Online

In modern business intelligence (BI) projects, understanding the flow of data from the data source to its destination can be a challenge. The challenge is even bigger if you have built advanced analytical projects spanning multiple data sources, artifacts, and dependencies. Questions like "What happens if I change this data?" or "Why isn't this report up to date?" can be hard to answer. They may require a team of experts or deep investigation to understand. We designed a data lineage view to help you answer these questions.



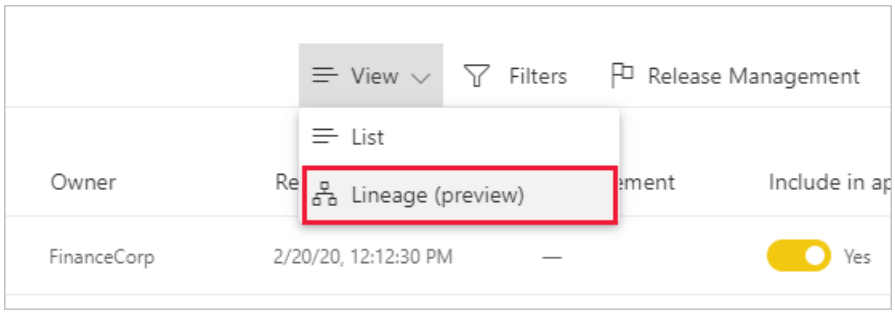
Power BI has several artifact types, such as dashboards, reports, datasets, and dataflows. Many datasets and dataflows connect to external data sources such as SQL Server, and to external datasets in other workspaces. When a dataset is external to a workspace you own, it may be in a workspace owned by someone in IT or another analyst. External data sources and datasets make it harder to know where the data is coming from, ultimately. For complex projects and for simpler ones, we introduce lineage view.

In lineage view, you see the lineage relationships between all the artifacts in a workspace, and all its external dependencies. It shows connections between all workspace artifacts, including connections to dataflows, both upstream and downstream.

Explore lineage view

Every workspace, whether new or classic, automatically has a lineage view. You need at least a Contributor role in the workspace to view it. See Permissions in this article for details.

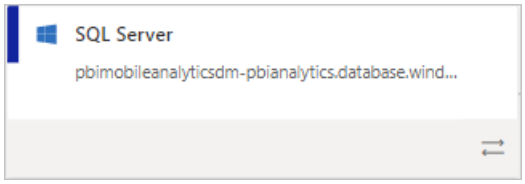
- To access lineage view, go to the workspace list view. Tap the arrow next to **List view** and select **Lineage view**.



In this view, you see all the workspace artifacts and how the data flows from one artifact to another.

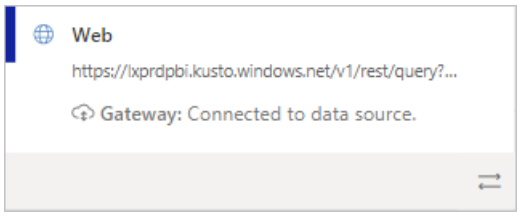
Data sources

You see the data sources from which the datasets and dataflows get their data. On the data source cards, you see more information that can help identify the source. For example, for Azure SQL server you also see the database name.



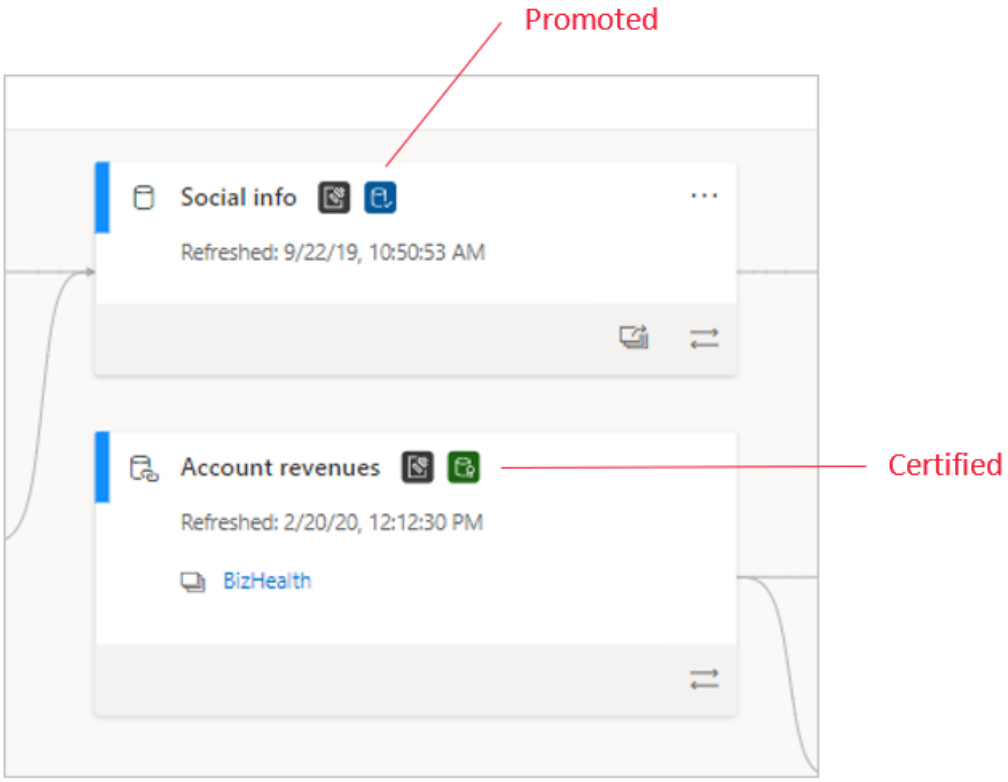
Gateways

If a data source is connected via an on-premises gateway, the gateway information is added to the data source card. If you have permissions, either as a gateway admin or as a data source user, you see more information, such as the gateway name.



Datasets and dataflows

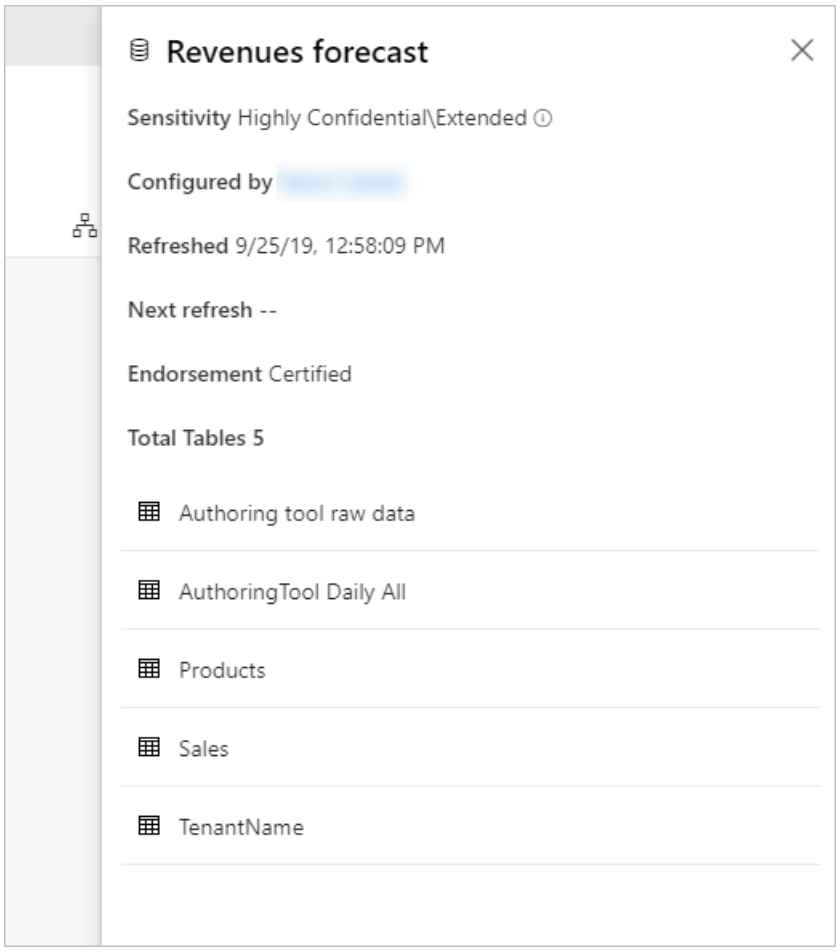
On datasets and dataflows, you see the last refresh time, as well as if the dataset or dataflow is certified or promoted.



If a report in the workspace is built on a dataset or a dataflow that is located in another workspace, you see the source workspace name on the card of that dataset or dataflow. Select the name of the source workspace to go to that workspace.

- For any artifact, select **More options (...)** to view the options menu. It features all the same actions that are available in list view.

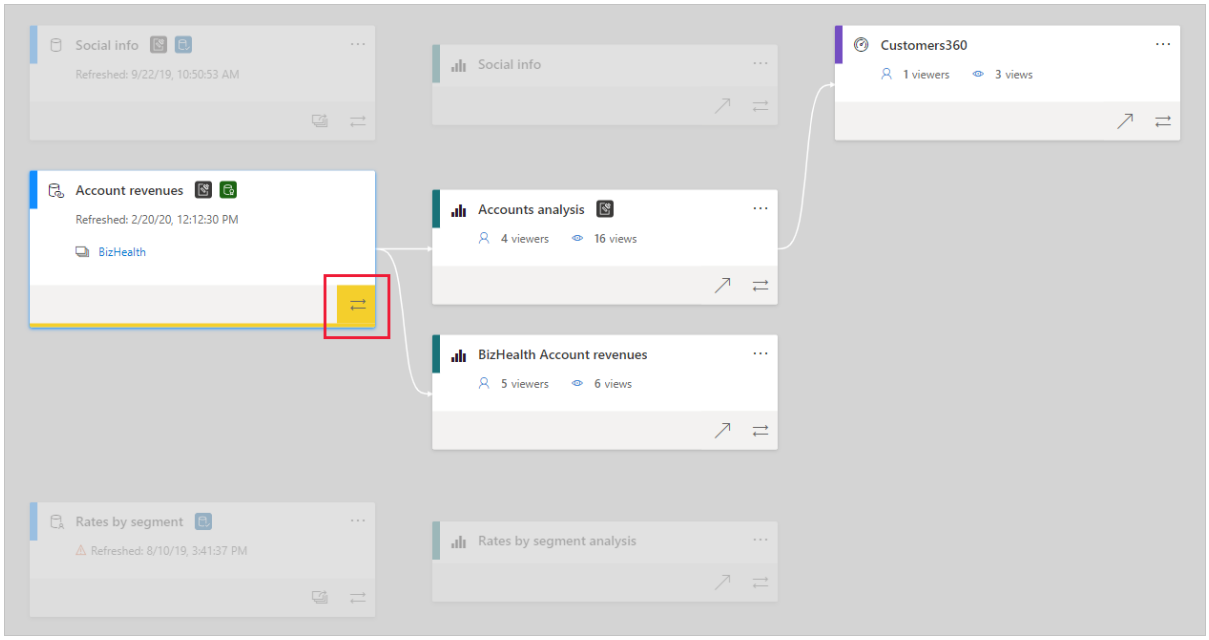
To see more metadata on any artifact, select the artifact card itself. Additional information about the artifact is displayed in a side pane. In the image below, the side pane displays the metadata of a selected dataset.



Show lineage for any artifact

Say you want to see the lineage for a specific artifact.

- Select the double arrows under the artifact.

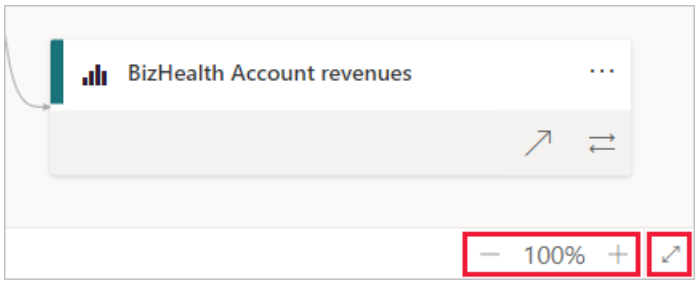


Power BI highlights all the artifacts related to that artifact, and dims the rest.

Navigation and full screen

Lineage view is an interactive canvas. You can use the mouse and touchpad to navigate in the canvas, as well as to zoom in or out.

- To zoom in and out, use either the menu in the bottom-right corner or your mouse or touchpad.
- To have more room for the graph itself, use the full screen option at the bottom-right corner.



Permissions

- You need a Power BI Pro license to see lineage view.
- Lineage view is available only to users with access to the workspace.
- Users must have an Admin, Member, or Contributor role in the workspace. Users with a Viewer role can't switch to lineage view.

Considerations and limitations

- Lineage view isn't available on Internet Explorer. See Supported browsers for Power BI for details.

Next steps

- Intro to datasets across workspaces (preview)
- Dataset impact analysis

Dataset impact analysis

5/28/2020 • 4 minutes to read • Edit Online

When you make changes to a dataset, or are considering making changes, it is important to be able to assess the impact those changes will have on downstream reports and dashboards that depend on that dataset. **Dataset impact analysis** provides you with information that can help you make this assessment.

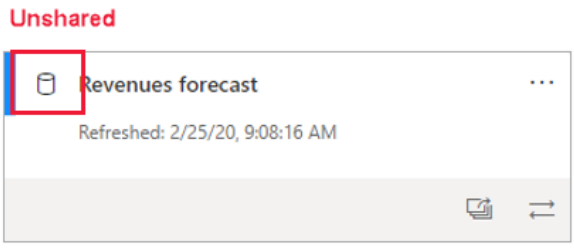
- It shows you how many workspaces, reports, and dashboards might be affected by your change, and provides easy navigation to the workspaces where the affected reports and dashboards are located so that you can investigate further.
- It shows you how many unique visitors and the number of views there are on the potentially affected items. This helps you determine the overall impact of the change for the downstream item. For instance, it is probably more important to investigate the effect of a change on a report that has 20,000 unique viewers than it is to investigate the effect of the change on a report that has three viewers.
- It provides an easy way of notifying the relevant people about a change you made or are thinking about making.

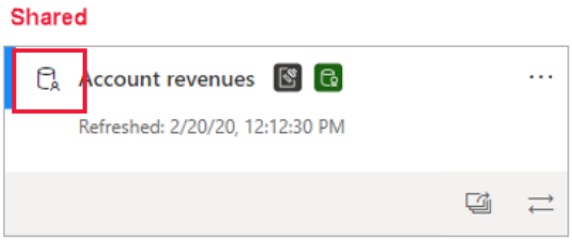
Dataset impact analysis is easily launched from within data lineage view.

Identifying shared datasets

You can perform dataset impact analysis on both shared and unshared datasets. However, it is particularly useful for datasets which are shared across workspaces, where it is much more complicated to get a clear picture of downstream dependencies than it is with unshared datasets, all of whose dependencies are located in the same workspace as the dataset itself.

In lineage view, you can tell the difference between shared datasets and unshared datasets by the icon that appears in the upper left-hand corner of the dataset's card.

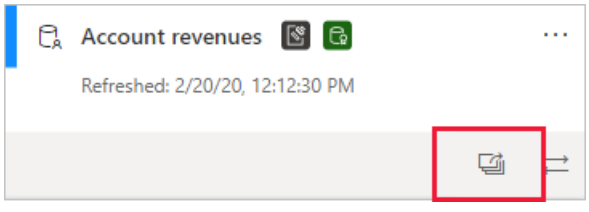




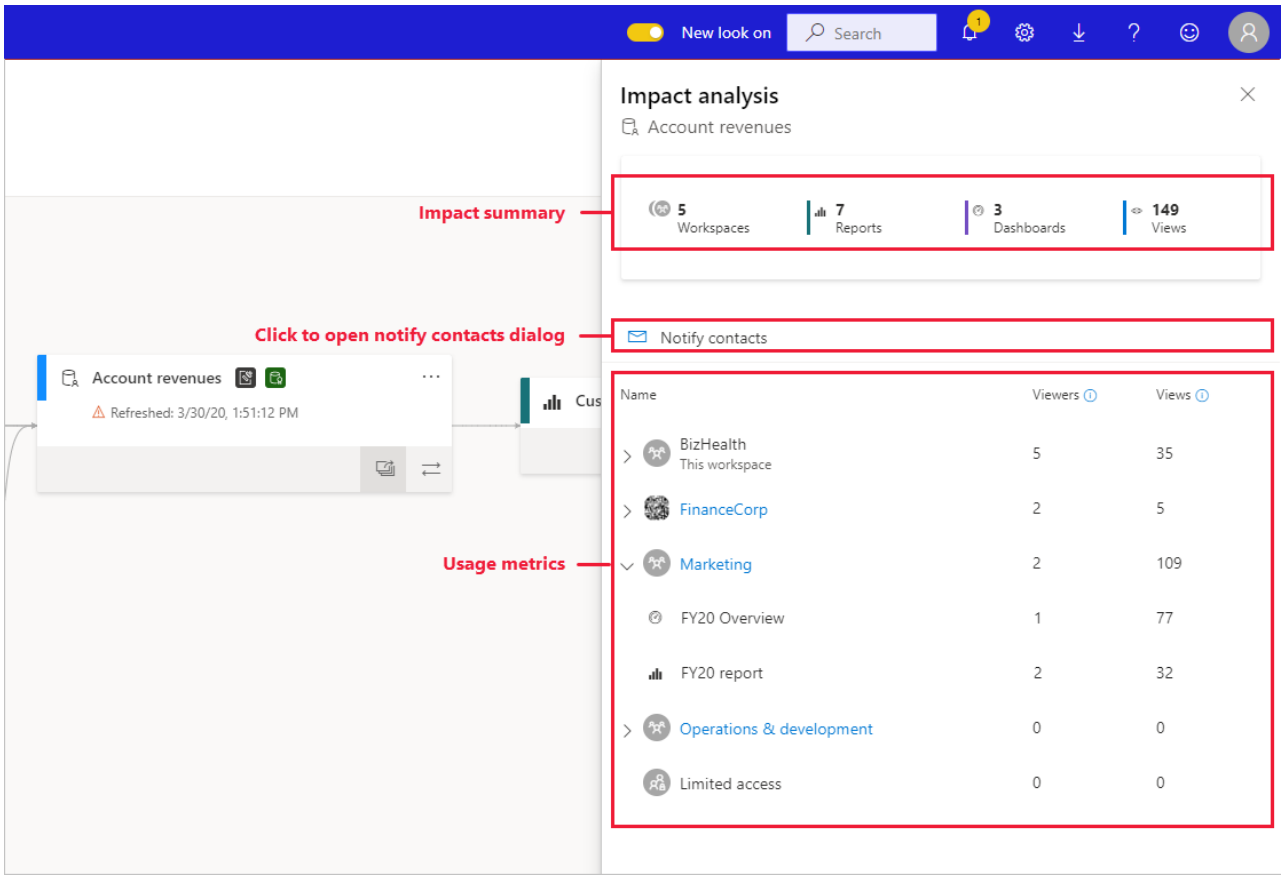
Perform dataset impact analysis

You can perform impact analysis on any dataset in the workspace, whether it is shared or not. You cannot perform impact analysis on external datasets that are displayed in lineage view but are in fact located in another workspace. To perform impact analysis on an external dataset, you need to navigate to the source workspace.

To perform dataset impact analysis, click the impact analysis button on the dataset card.



The impact analysis side panel opens.



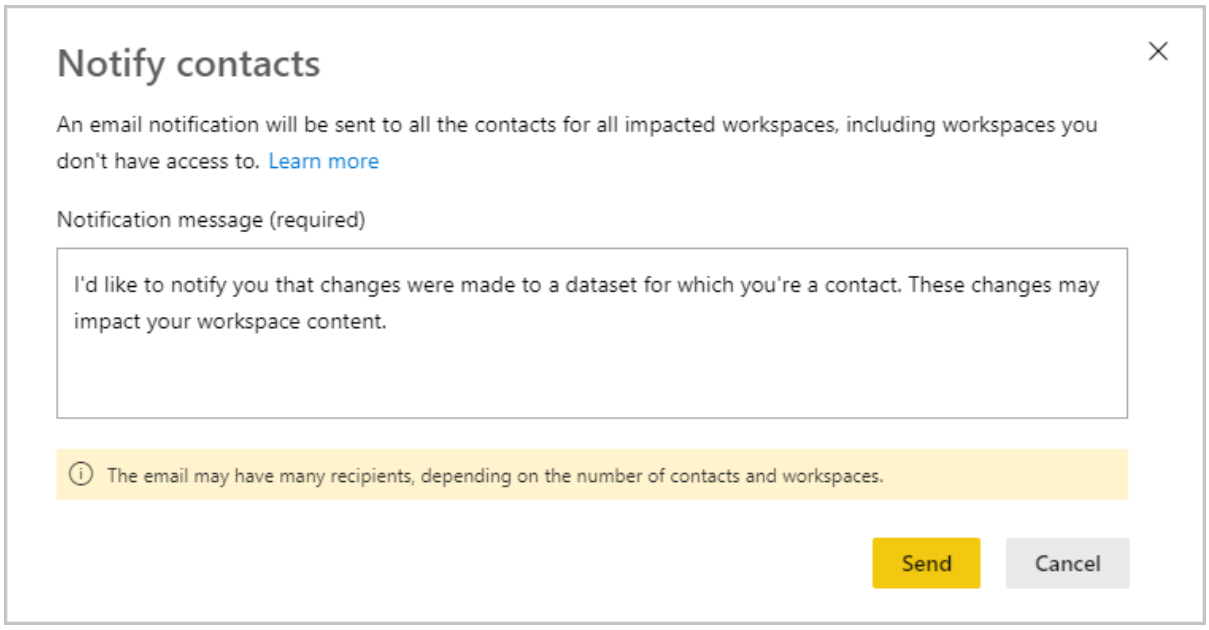
- The **impact summary** shows you the number of potentially impacted workspaces, reports, and dashboards, as well as the total number of views for all the downstream reports and dashboards that are connected to the dataset.
- The **notify contacts** link opens a dialog where you can create and send a message about any dataset changes you make to the contact lists of the affected workspaces.
- The **usage breakdown** that shows you, for each workspace, the total number of views for the potentially impacted reports and dashboards it contains, and for each report and dashboard, the total number of viewers and views, where
  - Viewers: The number of distinct users that viewed a report or dashboard.
  - Views: The number of views for a report or dashboard

The usage metrics relate to the last 30 days, excluding the current day. The count includes usage coming via related apps. The metrics help you understand dataset use across the tenant, as well as assess the impact any changes to your dataset may have.

Notify contacts

If you've made a change to a dataset or are thinking about making a change, you might want to contact the relevant users to tell them about it. When you notify contacts, an email is sent to the contact lists of all the impacted workspaces. Your name appears on the email so the contacts can find you and reply back in a new email thread.

1. Click **Notify contacts** in the impact analysis side pane. The notify contacts dialog will appear.



2. In the text box, provide some detail about the change.

3. When the message is ready, click **Send**.

> **NOTE**
> Notify contacts is not available if the dataset you are performing impact analysis on is located in a classic workspace.

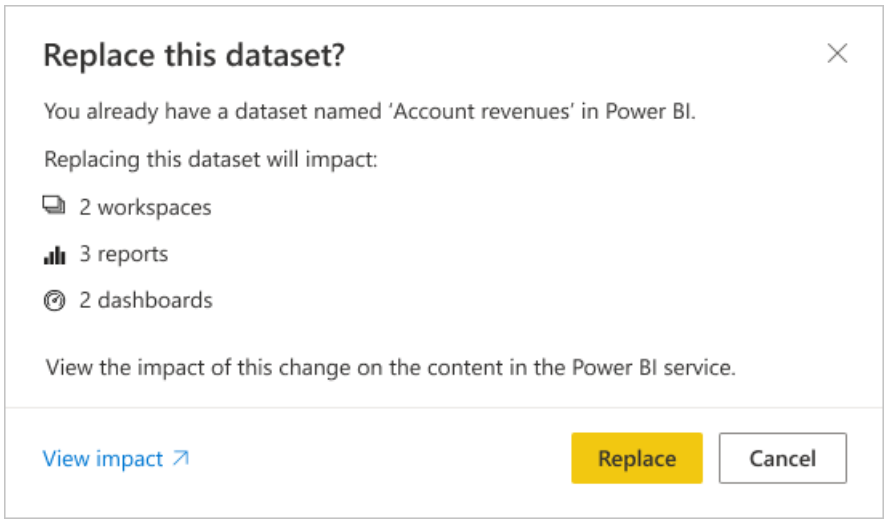
Privacy

In order to perform impact analysis on a dataset, you must have write permissions to it. In the impact analysis side pane, you only see real names for workspaces, reports, and dashboards that you have access to. Items that you don't have access to are listed as **Limited access**. This is because some item names may contain personal information.

Even if you don't have access to some workspaces, you will still see summarized usage metrics for those workspaces, and your notify contacts messages will reach the contact lists of those workspaces.

Impact analysis from Power BI Desktop

When you make a change to a dataset in Power BI Desktop and then republish it to the Power BI service, a message shows you how many workspaces, reports, and dashboards are potentially impacted by the change, and asks you to confirm that you want to replace the currently published dataset with the one you modified. The message also provides a link to the full dataset impact analysis in the Power BI service, where you can see more information and take action to mitigate the risks of your change.



NOTE

The information shown in the message only indicates potential impact - it does not necessarily indicate that anything has broken. Oftentimes dataset changes have no adverse effect on their downstream reports and dashboards - still, you'll get this message that gives you clarity concerning potential impact.

In the message, the number of workspaces is only shown if more than one workspace contains impacted reports and dashboards.

Limitations

- Usage metrics are currently not supported for classic and personal workspaces.

Next steps

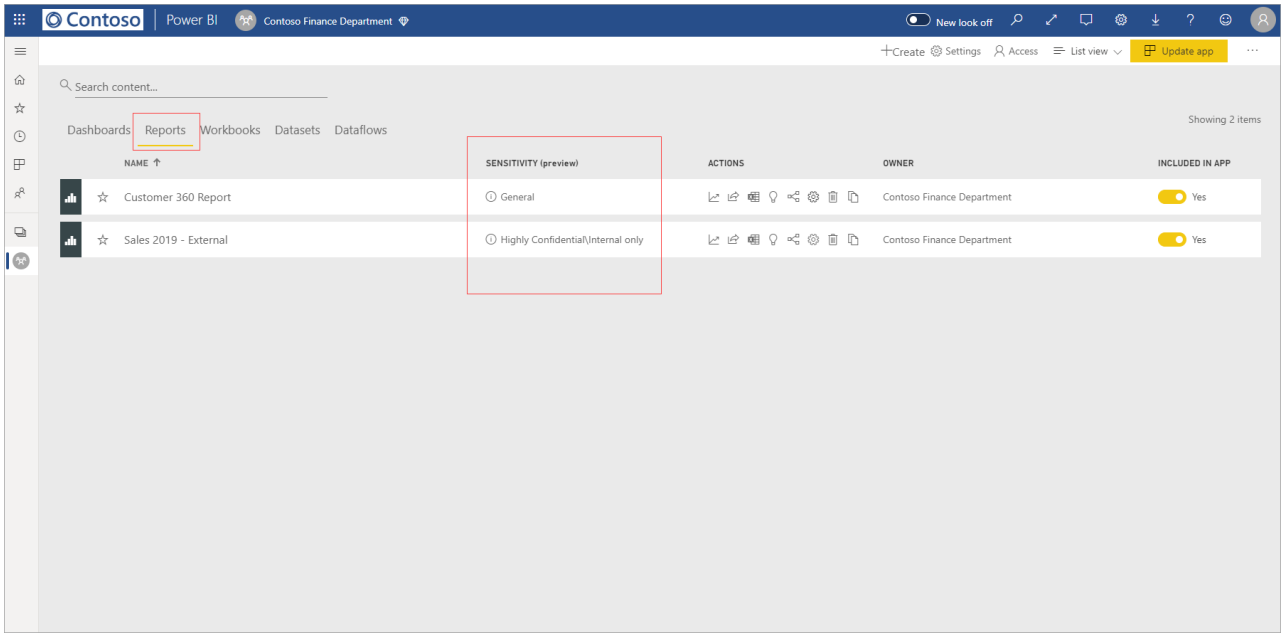
- Intro to datasets across workspaces (preview)
- Data lineage

Apply data sensitivity labels in Power BI (preview)

5/11/2020 • 4 minutes to read • Edit Online

When sensitivity labels are enabled in the Power BI service, you can protect your dashboards, reports, datasets, and dataflows against unauthorized access and leakage by applying data sensitivity labels to them. Labeling your data correctly with data sensitivity labels ensures that only authorized people can access your data.

When data protection is enabled, sensitivity labels appear in the sensitivity column in the list view of dashboards, reports, datasets, and dataflows.



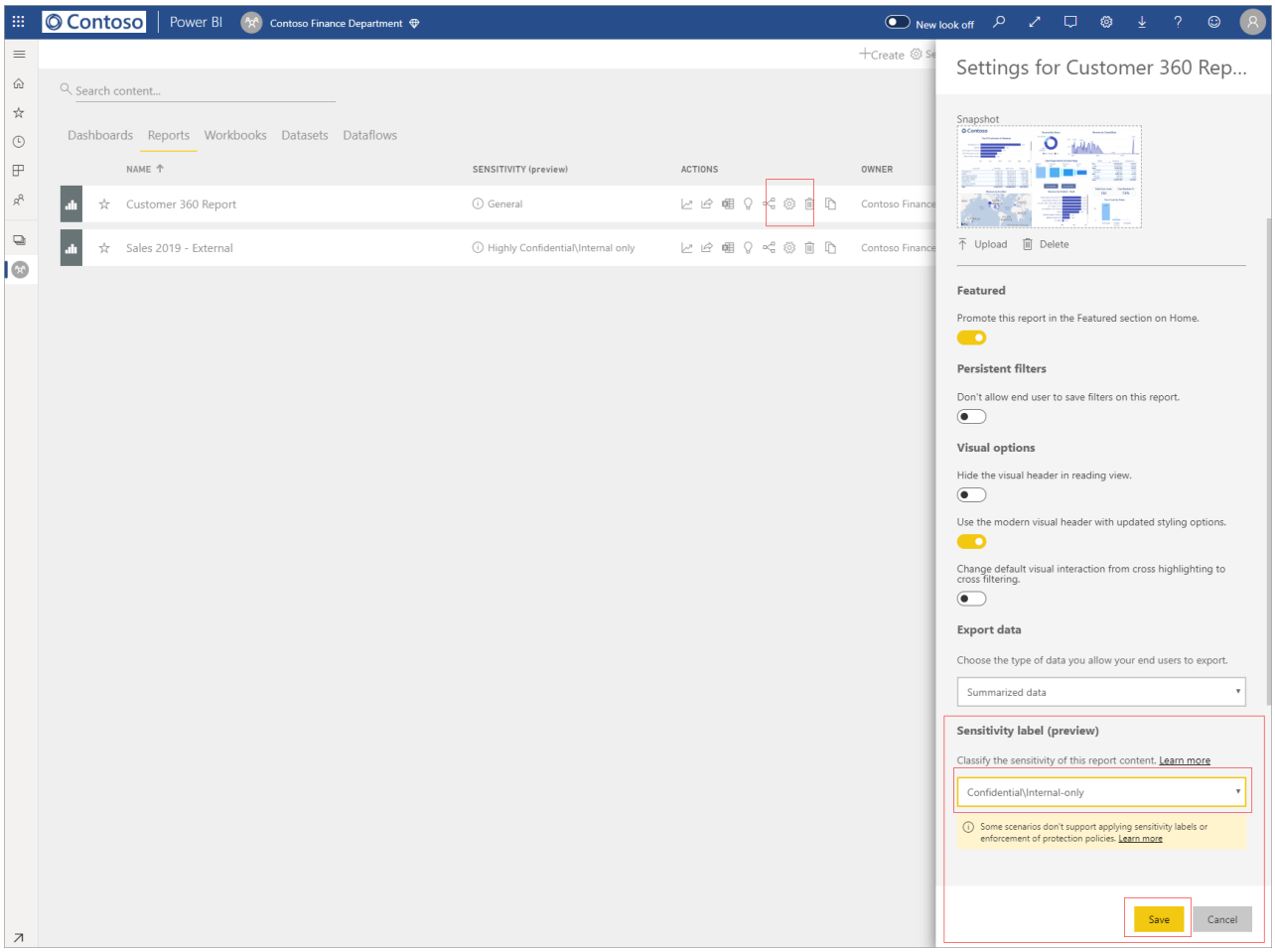
> **NOTE**
>
> Applying sensitivity labels to Power BI dashboards, reports, datasets, and dataflows, requires certain licenses and permissions. See Applying sensitivity labels for details.

Applying sensitivity labels

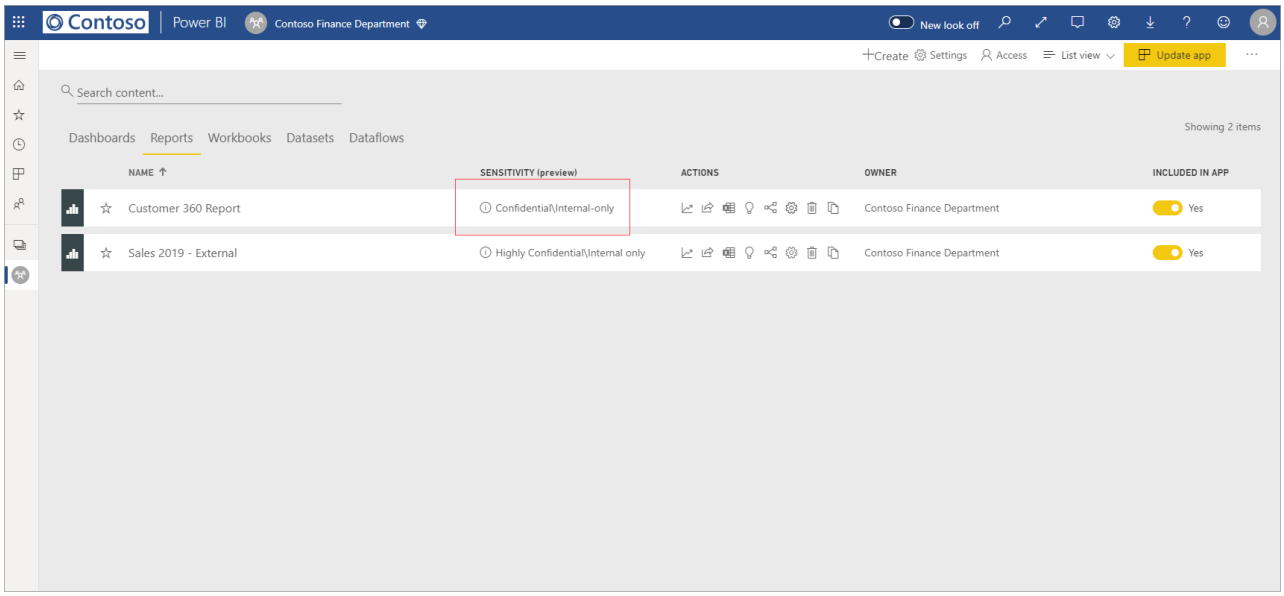
In order to apply sensitivity labels in Power BI, you and your organization must have the following requirements in place:

- Your organization must have defined sensitivity labels in either the Microsoft 365 security center or the Microsoft 365 compliance center.
- You must belong to a security group that has permissions to apply data sensitivity labels, as described in the article titled Enable data sensitivity labels in Power BI (preview).
- You must have a Power BI Pro license and edit permissions on the resources you wish to label.
- You must have an Azure Information Protection Premium P1 or Premium P2 license. Microsoft Azure Information Protection can be purchased either standalone or through one of the Microsoft licensing suites. See Azure Information Protection pricing for detail.

To apply or change a sensitivity label on a report, click the report settings icon on the workspace list item and then go to the data sensitivity section in the settings side pane. Choose the appropriate sensitivity label and save the settings.



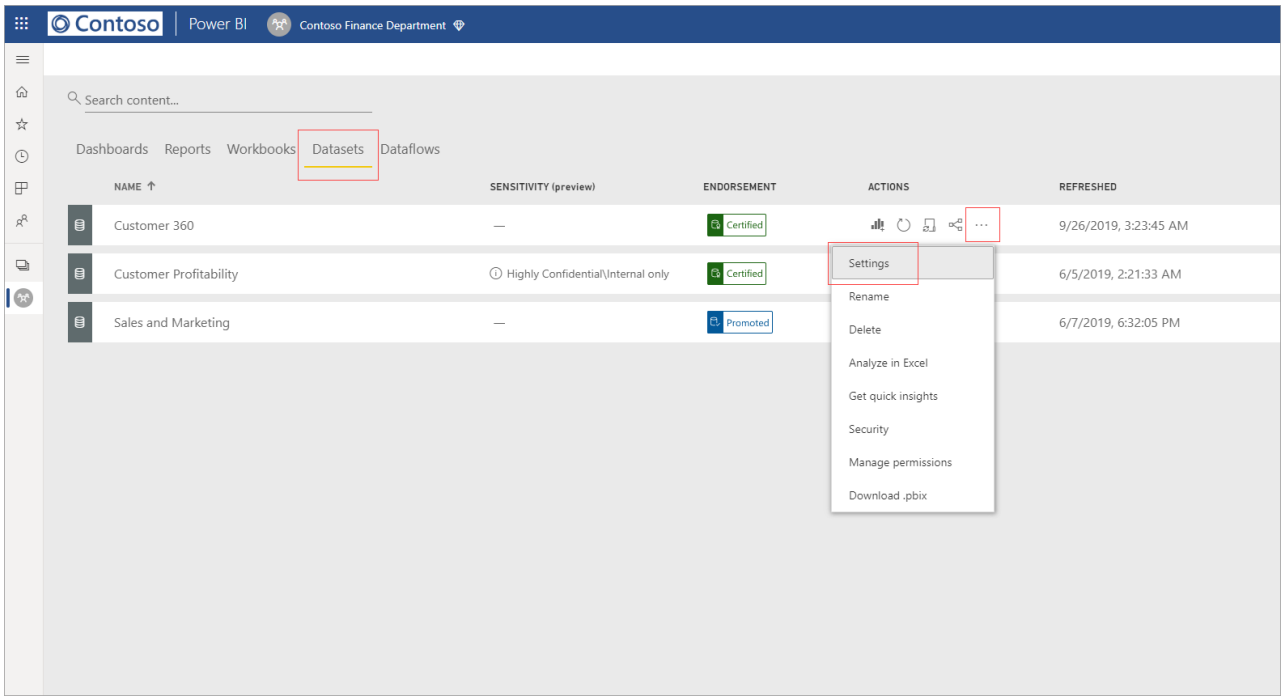
The updated sensitivity label appears in the sensitivity column.



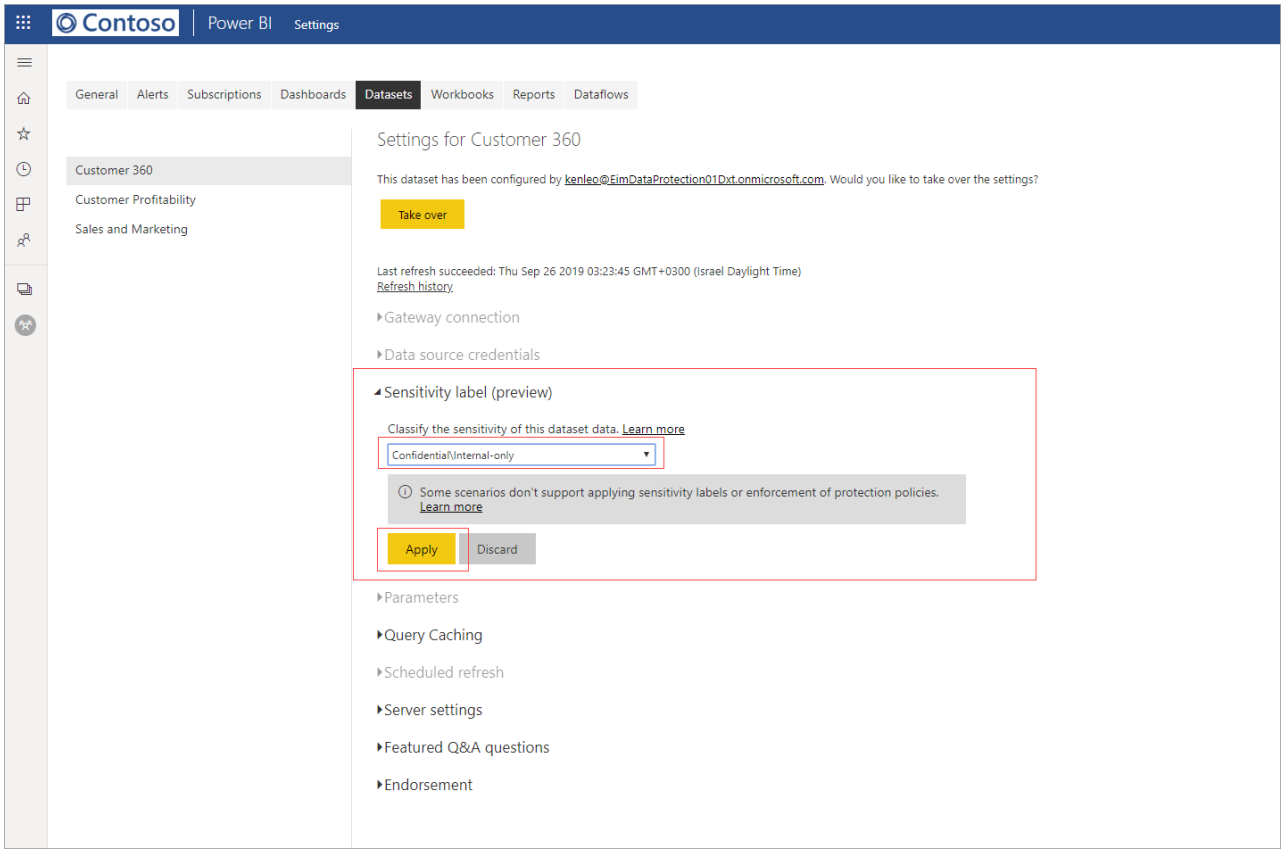
Applying or changing a sensitivity label on a dashboard follows the same process as described for reports.

You can also set sensitivity labels on datasets and dataflows. The following image shows how to set a sensitivity label on a dataset; the steps for dataflows are similar.

To set a sensitivity label on a dataset, select the datasets tab, click the three dots on the dataset you want to apply a label to, and choose **Settings**.



On the settings page for the dataset, open the sensitivity label section, choose the desired sensitivity label, and click **Apply**.



Applying or changing a sensitivity label on a dataflow follows the same process as described for datasets.

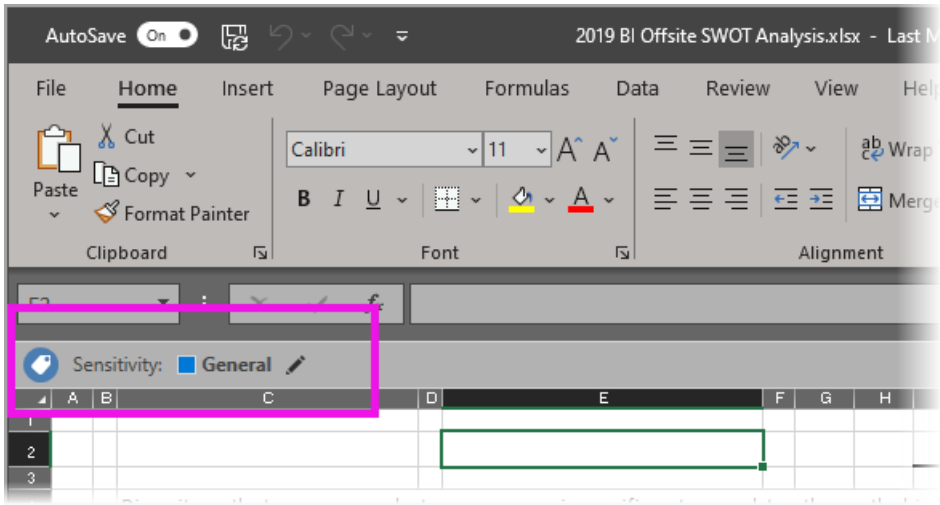
Removing sensitivity labels

To remove a sensitivity label from a report, dashboard, dataset, or dataflow, follow the same procedure used for applying labels, but choose **(None)** when prompted to classify the sensitivity of the data.

Data protection in exported files

When you export data from a report that has a sensitivity label, the sensitivity label is inherited by the generated

file (Excel, PowerPoint, and PDF; CSV is not supported). The sensitivity label will be visible in the file, and access to the file will be restricted to those who have sufficient permissions.



Considerations and limitations

Applying data sensitivity labels has the following considerations:

- Applying and viewing Microsoft Information Protection sensitivity labels in Power BI requires an Azure Information Protection Premium P1 or Premium P2 license. Microsoft Azure Information Protection can be purchased either standalone or through one of the Microsoft licensing suites. See Azure Information Protection pricing for detail.
- Sensitivity labels can be applied only on dashboards, reports, datasets and dataflows.
- Label and protection controls enforcement on exported files is supported only for Excel, PowerPoint and PDF files. Label and protection are not enforced when data is exported to .CSV files, Subscribe to email, Embed visuals and print.
- A user who exports a file from Power BI has permissions to access and edit that file according to the sensitivity label settings. The user who exports the data does not get owner permissions to the file.
- Sensitivity labels are currently not available for paginated reports and workbooks.
- Sensitivity labels on Power BI assets are visible only in the workspace list and lineage views; labels are not currently visible in the favorites, shared with me, recents, or app views. Note, however, that a label applied to a Power BI asset, even if not visible, will always persist on data exported to Excel, PowerPoint, and PDF files.
- The sensitivity label *file Encryption setting*, configured in either the Microsoft 365 security center or the Microsoft 365 compliance center, applies only on files that are *exported from* Power BI; it is not enforced *within* Power BI.
- HYOK protection is not supported for labels applied in Power BI.
- Viewing and applying labels in Office apps has licensing requirements.
- Sensitivity labels are only supported for tenants in the global (public) cloud. Sensitivity labels are not supported for tenants in other clouds.
- Sensitivity labels are not supported for external users (Azure Active Directory B2B guest users). This means that external users cannot view labels and will be blocked from exporting data to Excel, PDF, and PPTX files. Remove the label to enable external users to export data to those file types.

Next steps

This article described how to apply data sensitivity labels in Power BI. The following articles provide more details about data protection in Power BI.

- Overview of data protection in Power BI
- Enable data sensitivity labels in Power BI

- Using Microsoft Cloud App Security controls in Power BI

Connect to files stored in OneDrive for your Power BI workspace

5/18/2020 • 2 minutes to read • Edit Online

After you've created a workspace in Power BI, you can store your Excel, CSV, and Power BI Desktop files on the OneDrive for Business for your Power BI workspace. You can continue updating the files you store in OneDrive. Those updates are automatically reflected in the Power BI reports and dashboards based on the files.

> **NOTE**
> The new workspace experience changes the relationship between Power BI workspaces and Microsoft 365 groups. You don't automatically create a Microsoft 365 group every time you create one of the new workspaces. Read about creating the new workspaces

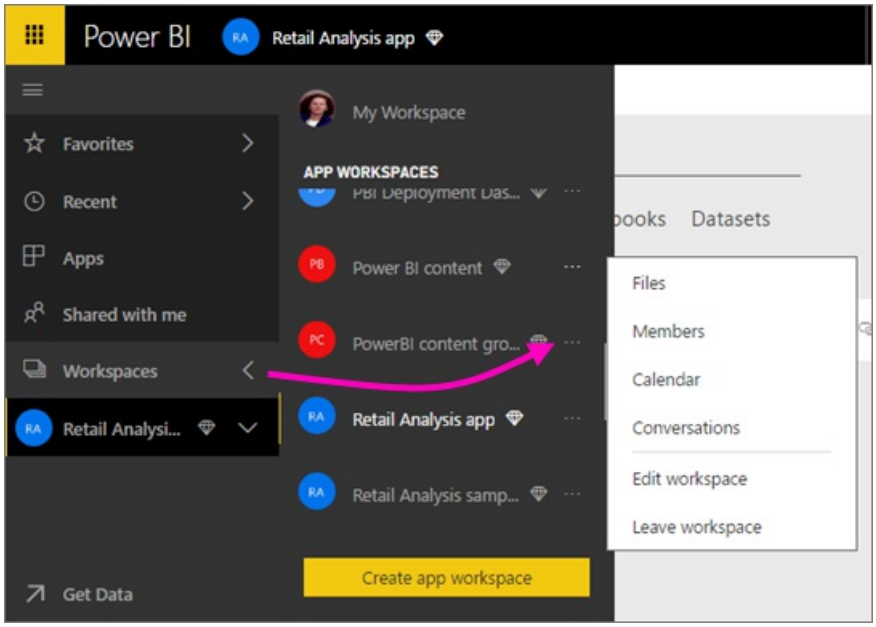
Adding files to your workspace is a two-step process:

1. First you upload files to the OneDrive for Business for your workspace.
2. Then you connect to those files from Power BI.

> **NOTE**
> Workspaces are only available with Power BI Pro.

1 Upload files to the OneDrive for Business for your workspace

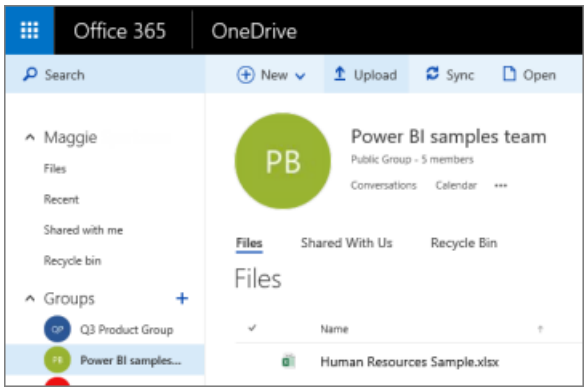
1. In the Power BI service, select the arrow next to Workspaces > select the ellipsis (...) next to your workspace name.



2. Select **Files** to open the OneDrive for Business for your workspace on Microsoft 365.

> **NOTE**
>
> If you don't see **Files** on the workspace menu, select **Members** to open the OneDrive for Business for your workspace. There, select **Files**. Microsoft 365 sets up a OneDrive storage location for your app's group workspace files. This process may take some time.

3. Here, you can upload your files to the OneDrive for Business for your workspace. Select **Upload**, and navigate to your files.



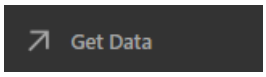
2 Import Excel files as datasets or as Excel Online workbooks

Now that your files are in the OneDrive for Business for your workspace, you have a choice. You can:

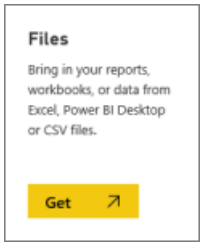
- Import the data from the Excel workbook as a dataset. Then use the data to build reports and dashboards you can view in a web browser and on mobile devices.
- Or connect to a whole Excel workbook in Power BI and display it exactly as it appears in Excel Online.

Import or connect to the files in your workspace

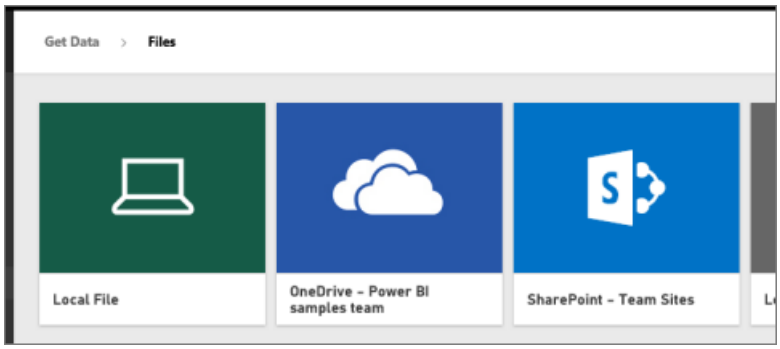
1. In Power BI, switch to the workspace, so the workspace name is in the top-left corner.
2. Select **Get Data** at the bottom of the nav pane.



3. In the **Files** box, select **Get**.



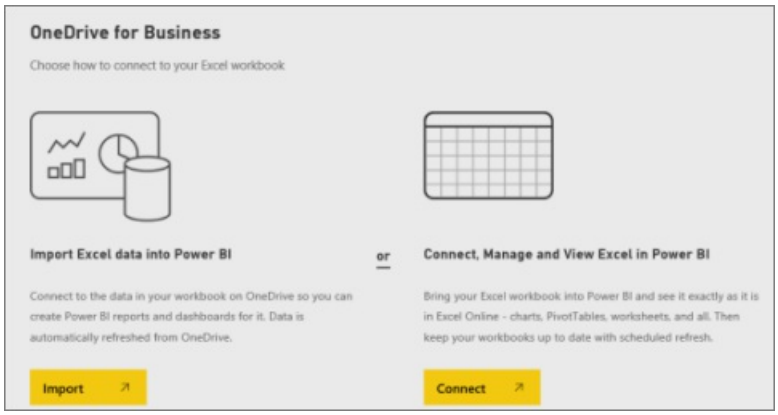
4. Select **OneDrive** - *Your Workspace Name*.



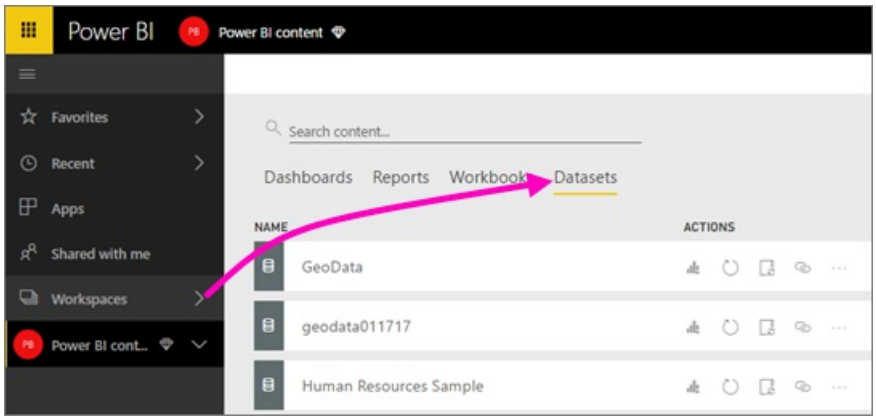
5. Select the file you want > **Connect**.

   At this point, you decide whether to import the data from the Excel workbook, or connect to the whole Excel workbooks.

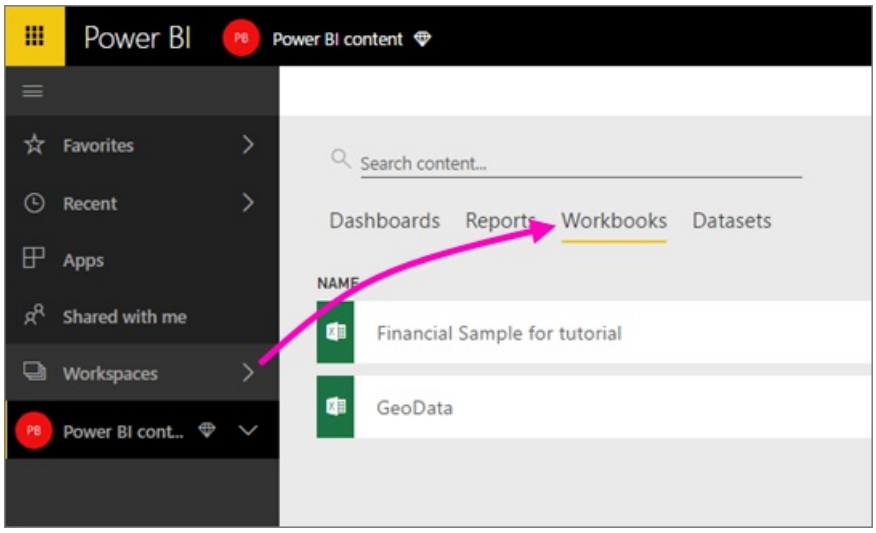
6. Select **Import** or **Connect**.



7. If you select **Import**, then the workbook appears on the **Datasets** tab.



   If you select **Connect**, then the workbook is on the **Workbooks** tab.



Next steps

- Create apps and workspaces in Power BI
- Import data from Excel workbooks
- Connect to whole Excel workbooks
- More questions? Try the Power BI Community
- Feedback? Visit Power BI Ideas

Collaborate in a classic workspace

5/20/2020 • 2 minutes to read • Edit Online

Power BI workspaces are great places to collaborate with your colleagues on dashboards, reports, and datasets to create *apps*. This article is about the original, *classic* workspaces.

Collaboration doesn't end with workspaces in Power BI. When you create one of the classic workspaces in Power BI, you're automatically creating a Microsoft 365 group in the background. Microsoft 365 offers other group services, such as sharing files on OneDrive for Business, conversations in Exchange, shared calendar and tasks, and so on. Read more about groups in Microsoft 365.

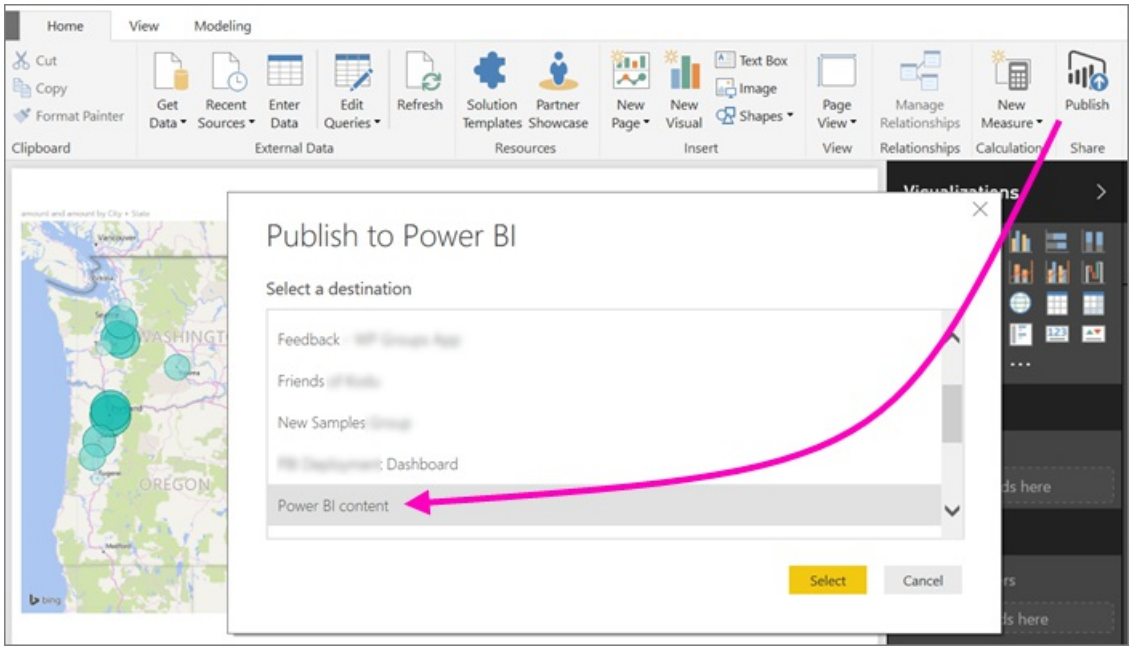
> **NOTE**
> The new workspace experience changes the relationship between Power BI workspaces and Microsoft 365 groups. When you create one of the new workspaces in Power BI, you no longer automatically create a Microsoft 365 group in the background. For more information, see Create the new workspaces in Power BI.

You need a Power BI Pro license to create a workspace.

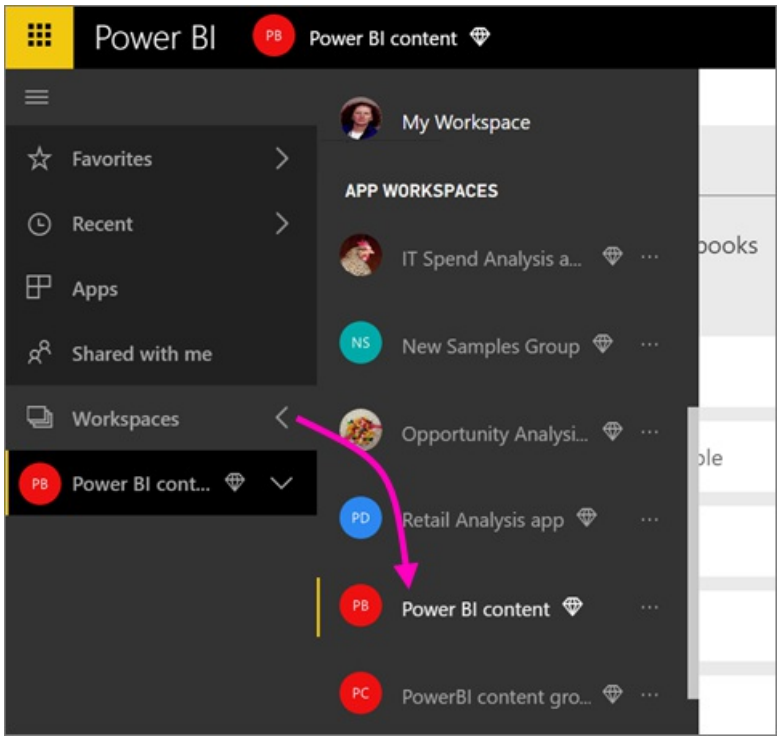
Collaborate on Power BI Desktop files in a workspace

After you create a Power BI Desktop file, you can publish it to a workspace so everyone in the workspace can collaborate on it.

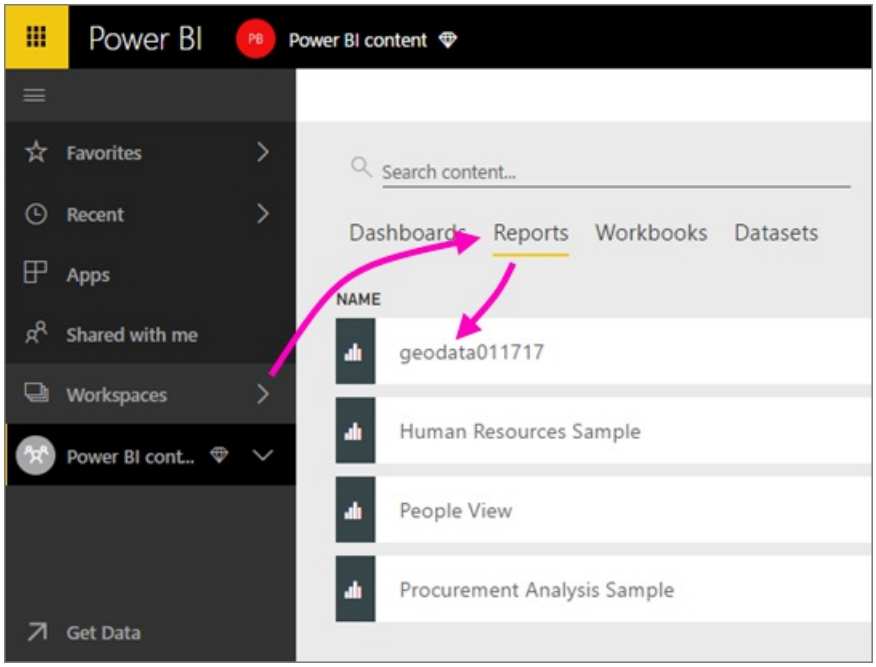
1. In Power BI Desktop, select **Publish** on the **Home** ribbon, then select the workspace in the **Select a destination** box.



2. In the Power BI service, select the arrow next to **Workspaces** > select the workspace.



3. Select the **Reports** tab, then choose your report.

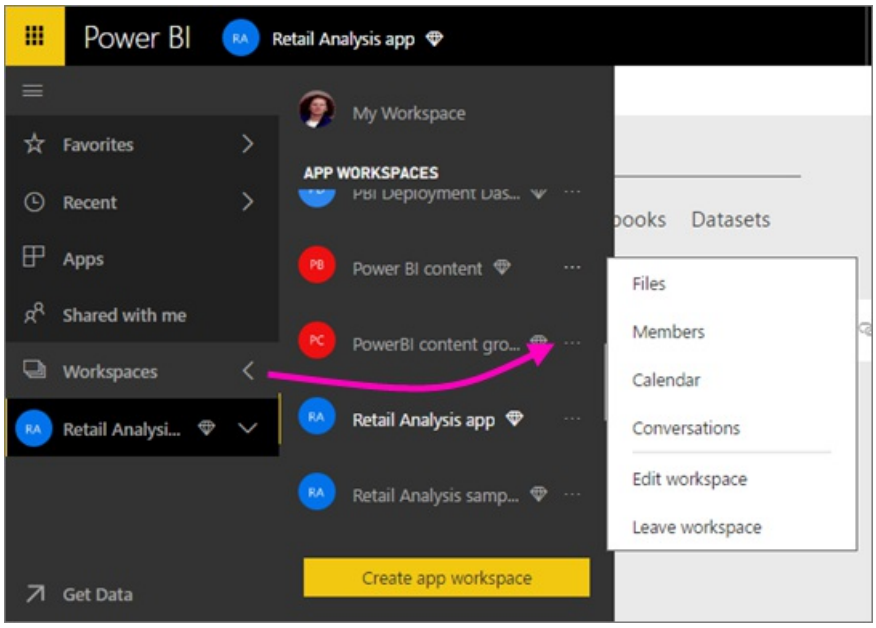


From here, it's like any other report in Power BI. You and others in the workspace can modify the report and save tiles to a dashboard of your choosing.

Collaborate in Microsoft 365

Collaborating in Microsoft 365 starts from the classic workspace in Power BI.

1. In the Power BI service, select the arrow next to **Workspaces** > select **More options** (...) next to your workspace name.



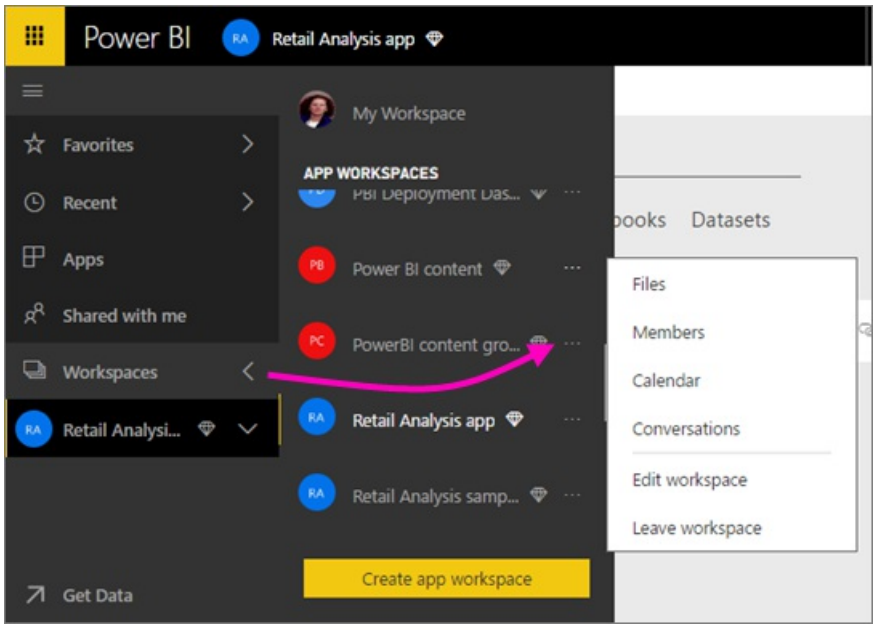
2. From this menu, you can collaborate with your group in a few ways:

   - Have a group conversation in Microsoft 365.
   - Schedule an event on the group workspace calendar.

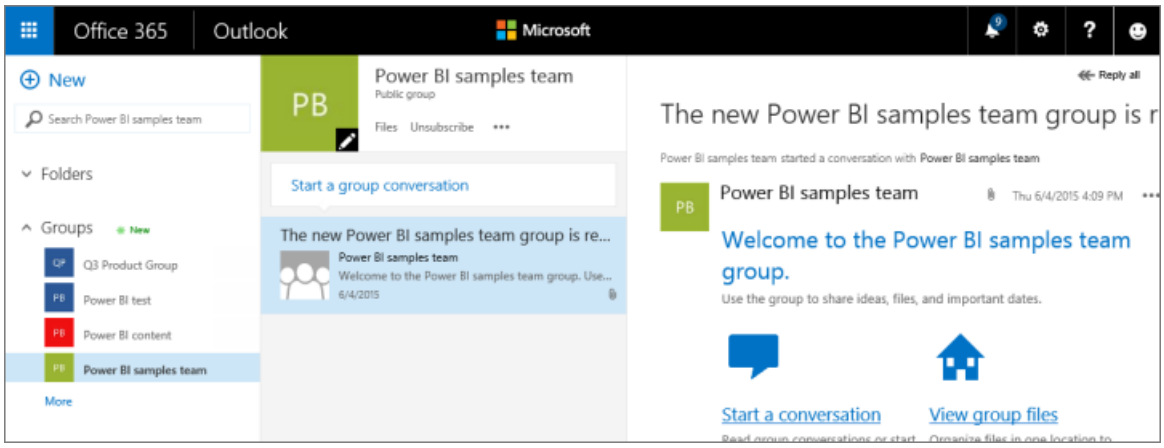
   The first time you go to your group workspace in Microsoft 365, it may take some time. Give it 15 to 30 minutes, then refresh your browser.

Have a group conversation in Microsoft 365

1. Select **More options** (...) next to your workspace name > **Conversations**.



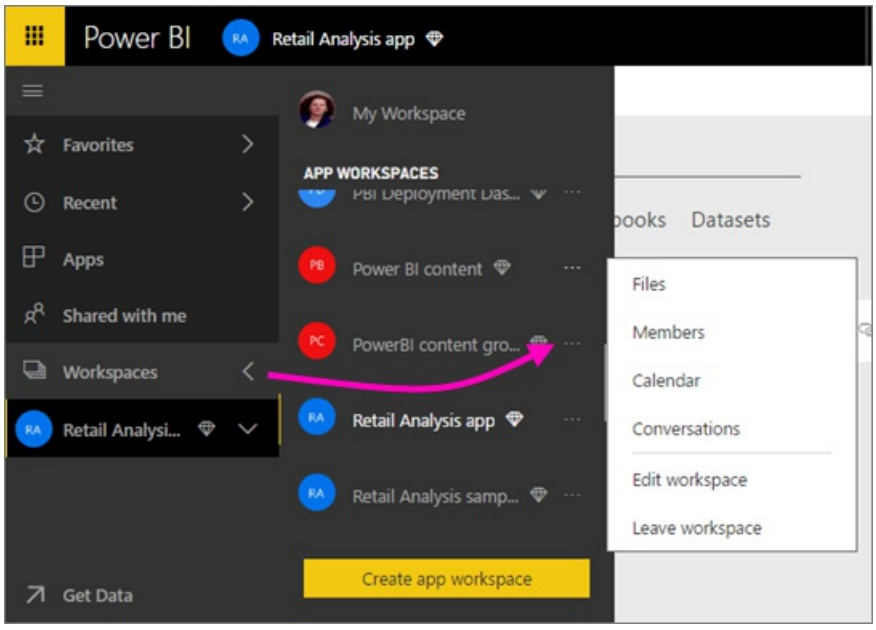
   The email and conversation site for your group workspace opens in Outlook for Microsoft 365.



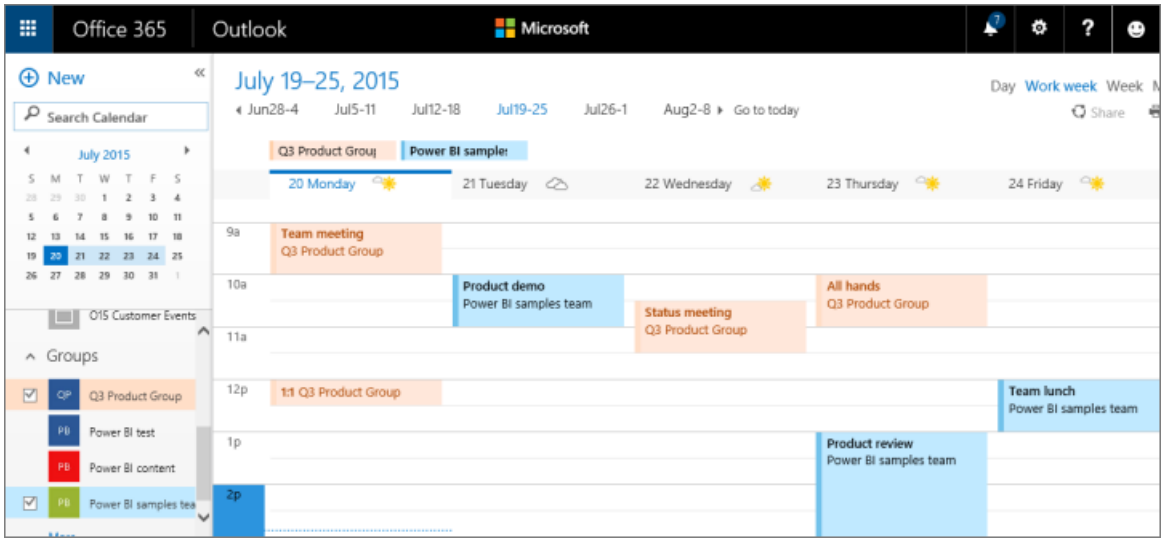
2. Read more about group conversations in Outlook for Microsoft 365.

Schedule an event on the group workspace calendar

1. Select **More options** (...) next to the workspace name > **Calendar**.



The calendar for your group workspace opens in Outlook for Microsoft 365.



2. Read more about group calendars in Outlook in Microsoft 365.

Manage a classic workspace

If you're an owner or administrator for a workspace, you can also add or remove workspace members. Read more about managing a Power BI workspace.

Next steps

- Publish apps in Power BI.
- More questions? Try the Power BI Community.
- Feedback? Visit Power BI Ideas.

Manage your workspace in Power BI and Microsoft 365

5/20/2020 • 2 minutes to read • Edit Online

As creator or admin of a workspace in Power BI or in Microsoft 365, you manage some aspects of the workspace in Power BI. Other aspects you manage in Microsoft 365.

> **NOTE**
> The new workspace experience changes the relationship between Power BI workspaces and Microsoft 365 groups. You aren't automatically creating a Microsoft 365 group every time you create one of the new workspaces. Read about creating the new workspaces.

In **Power BI** you can:

- Add or remove workspace members, including making a workspace member an admin.
- Edit the workspace name.
- Delete the workspace, which also deletes the Microsoft 365 group.

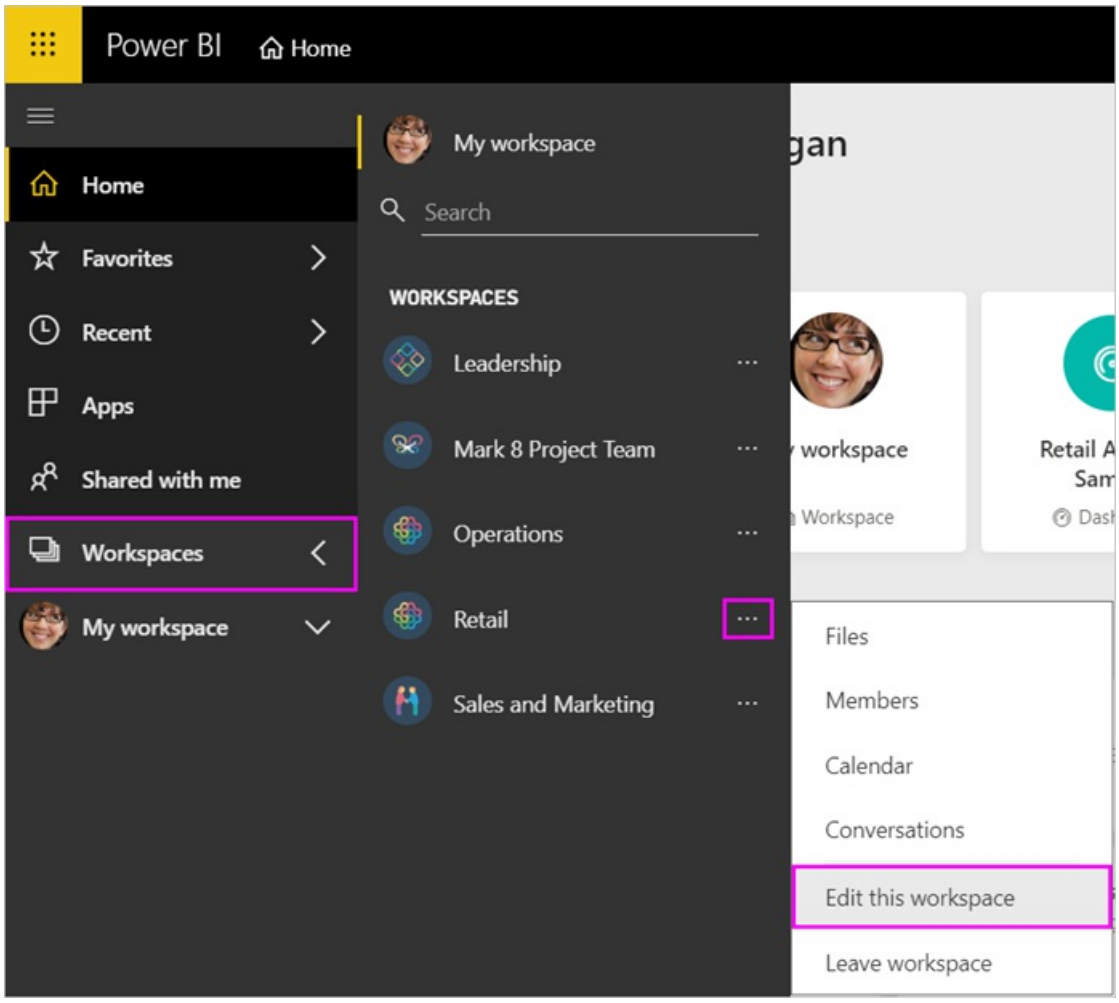
In **Microsoft 365** you can:

- Add or remove your workspace's group members, including making a member an owner.
- Edit the group name, image, description, and other settings.
- See the group email address.
- Delete the group.

You need a Power BI Pro license to be an admin or member of a workspace. Your app users need a Power BI Pro license, too, unless your workspace is in a Power BI Premium capacity. Read What is Power BI Premium? for details.

Edit your workspace in Power BI

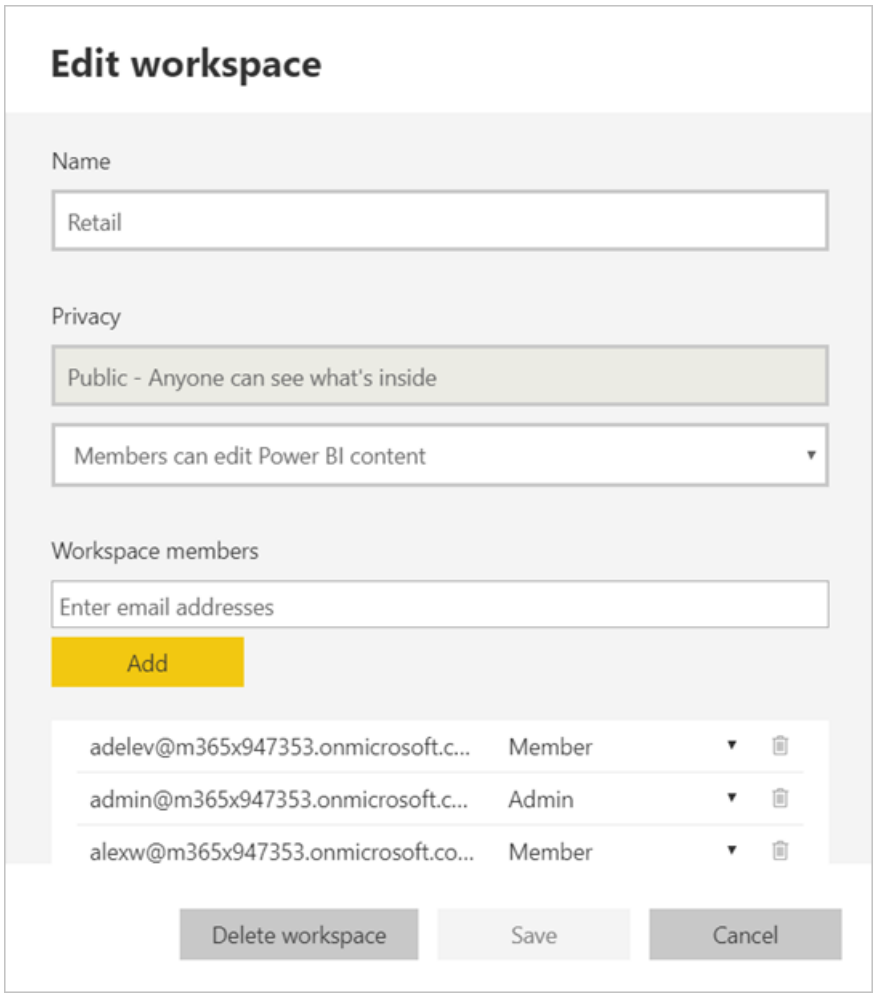
1. In the Power BI service, select the arrow next to **Workspaces** > select **More options** (...) next to your workspace name > **Edit this workspace**.



NOTE

You only see **Edit this workspace** if you're a workspace admin.

2. Here you can rename the workspace, add or remove members, or delete the workspace.



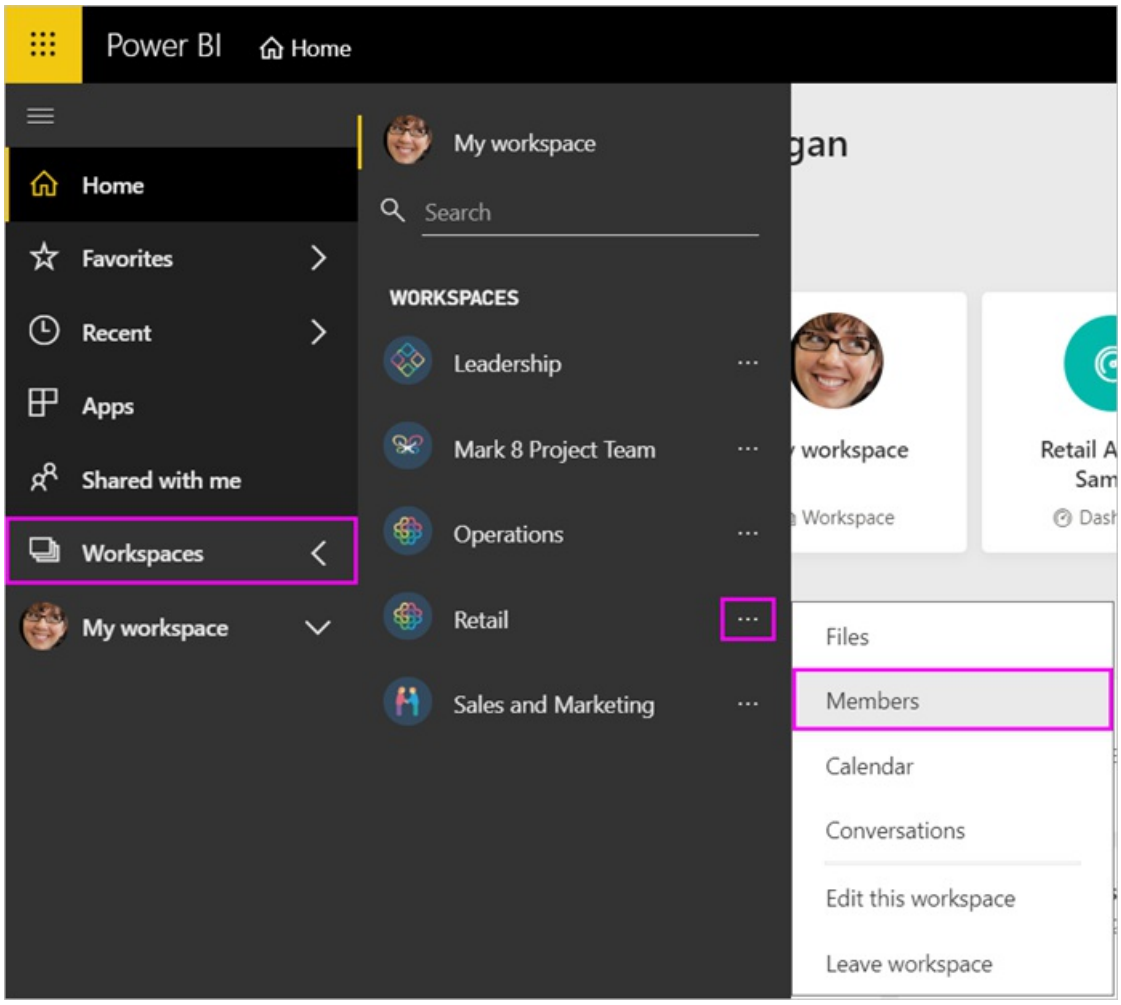
3. Select **Save** or **Cancel**.

Edit Power BI workspace properties in Microsoft 365

You can also edit aspects of a workspace directly in Outlook for Microsoft 365.

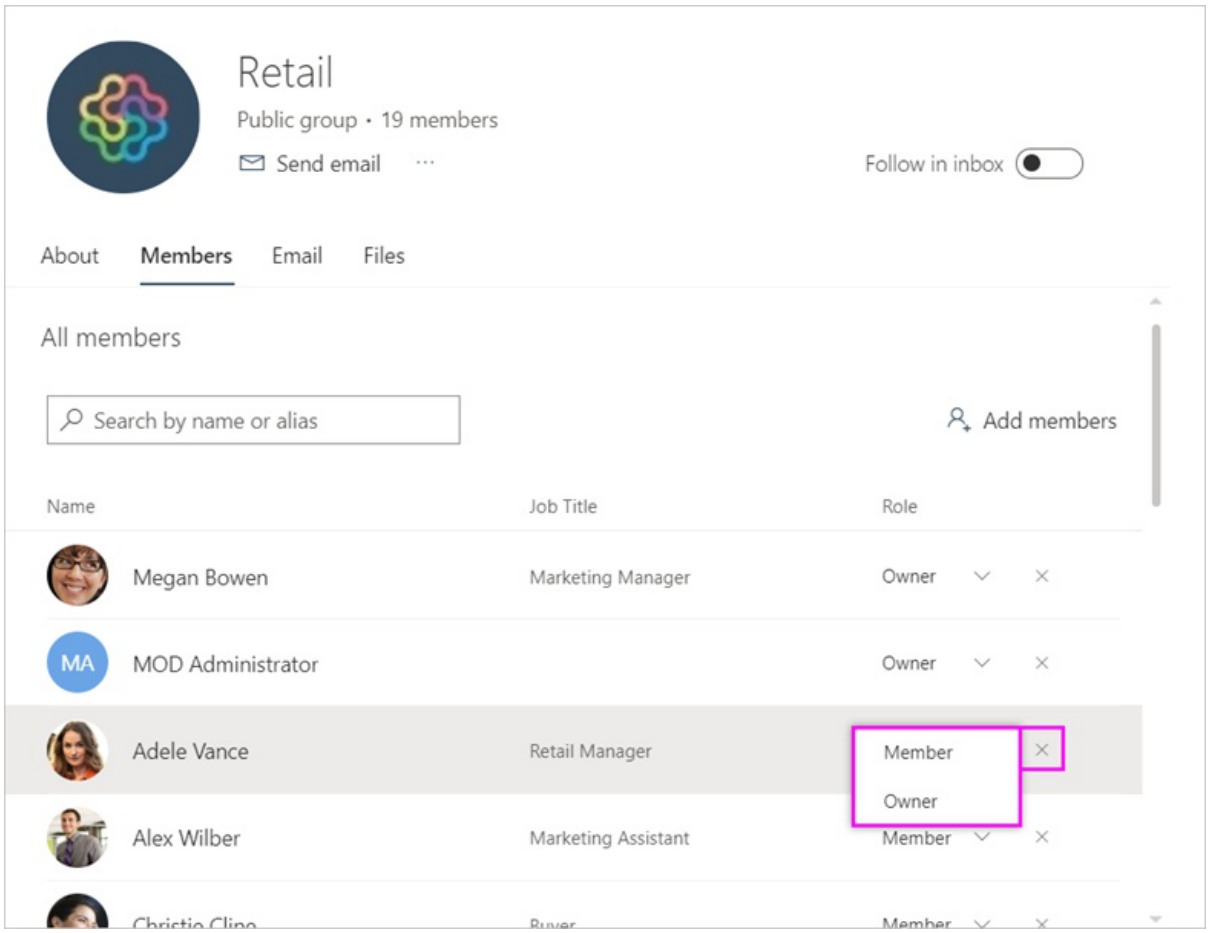
Edit the members of the workspace group

1. In the Power BI service, select the arrow next to **Workspaces** > select **More options** (...) next to your workspace name > **Members**.



This opens the Outlook for Microsoft 365 group view of your workspace. You may need to sign in to your corporate account.

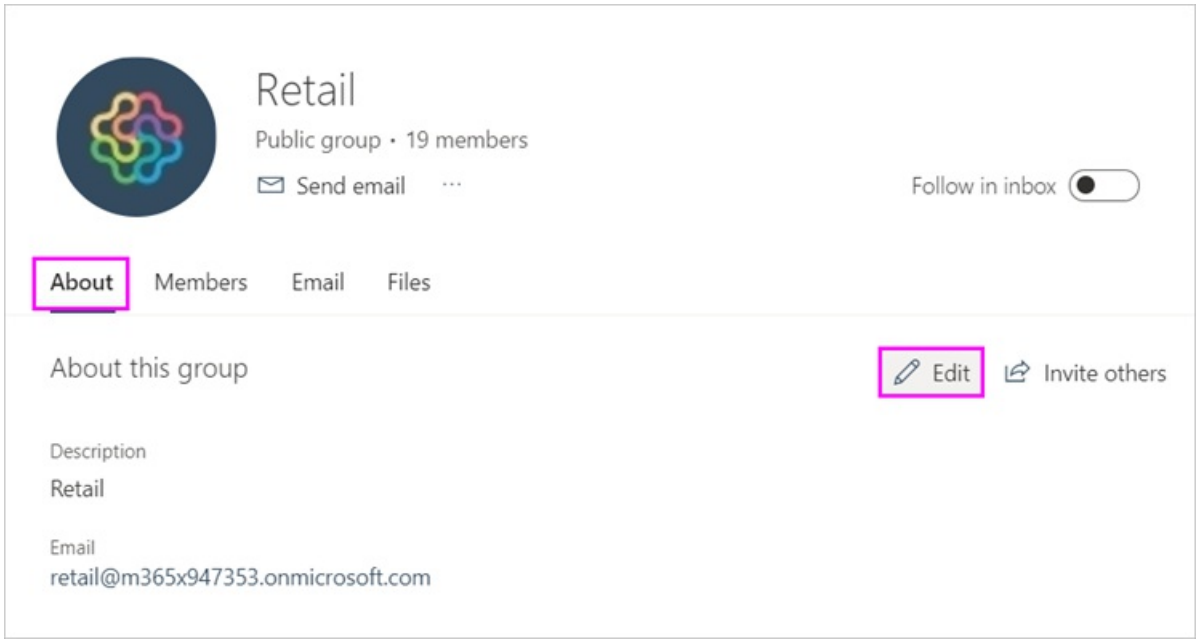
2. Select the role next to a teammate's name to make the person a **Member** or an **Owner**. Select the **X** to remove the person from the group.



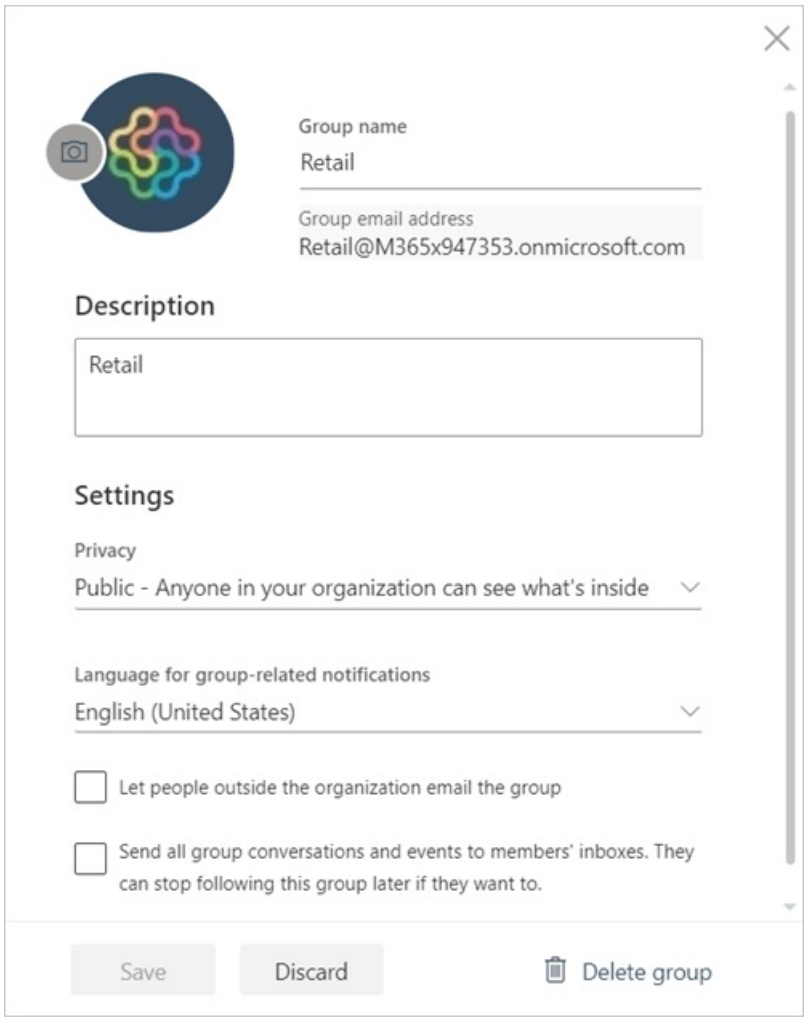
Add an image and set other workspace properties

When you distribute your app from the workspace, the image you add here is the image for your app. See Add an image to your Microsoft 365 workspace in the **Create the new workspaces** article.

1. In the Outlook for Microsoft 365 view of your workspace, go to the **About** tab and select **Edit**.



2. You can edit the name, description, and language for group-related notifications. You can also add an image, and set other properties here.



3. Select **Save** or **Discard**.

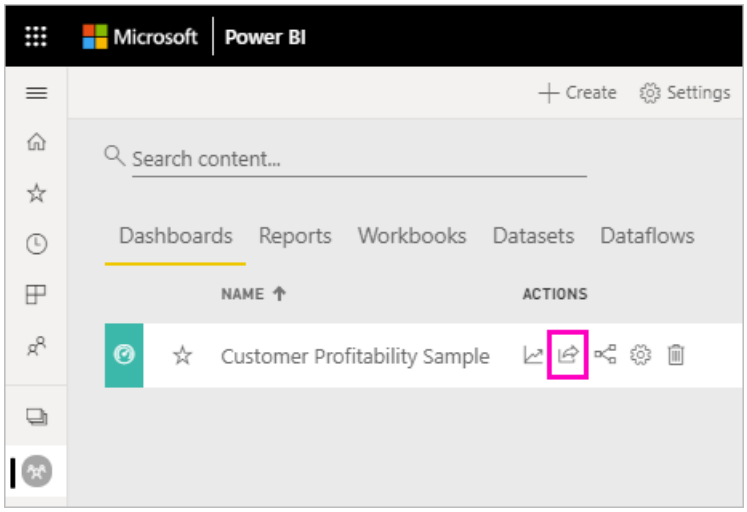
Next steps

- Publish an app in Power BI
- More questions? Try the Power BI Community

Share Power BI dashboards and reports with coworkers and others

5/20/2020 • 8 minutes to read • Edit Online

Sharing is a good way to give a few people access to your dashboards and reports. Power BI also offers several other ways to collaborate and distribute dashboards and reports.



With sharing, whether you share content inside or outside your organization, you need a Power BI Pro license. Your recipients also need Power BI Pro licenses, unless the content is in a Premium capacity.

You can share dashboards and reports from most places in the Power BI service: Favorites, Recent, My Workspace, and Shared with me, if the owner allows it. You can share from other workspaces, too, if you have the Admin, Member, or Contributor role in the workspace.

When you share a dashboard or report, the people you share it with can view it and interact with it, but can't edit it. They see the same data that you see in the dashboard or report, unless row-level security (RLS) is applied. The coworkers you share with can also share with their coworkers, if you allow them to. The people outside your organization can view and interact with the dashboard or report, but can't share it.

You can't *share* directly from Power BI Desktop. You publish reports from Power BI Desktop to the Power BI service. However, you can share a dashboard from the Power BI mobile apps.

Video: Share a dashboard

Watch Amanda share the dashboard with colleagues inside and outside Amanda's company. Then follow the step-by-step instructions below the video to try it out yourself.

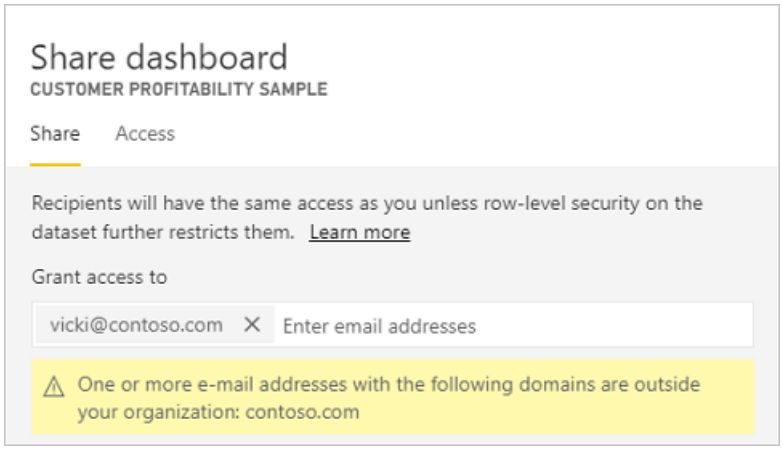
https://www.youtube.com/embed/0tUwn8DHo3s?list=PL1N57mwBHtN0JFoKSR0n-tBkUJHeMP2cP

Share a dashboard or report

1. In a list of dashboards or reports, or in an open dashboard or report, select **Share** .
2. In the top box, enter the full email addresses for individuals, distribution groups, or security groups. You can't share with dynamic distribution lists.

   You can share with people whose addresses are outside your organization, but you'll see a warning. Read

more about sharing outside your organization in this article.



> **NOTE**
>
> The input box supports, at most, 100 separate users or groups. See Share with more than 100 users in this article for ways to share with more people.

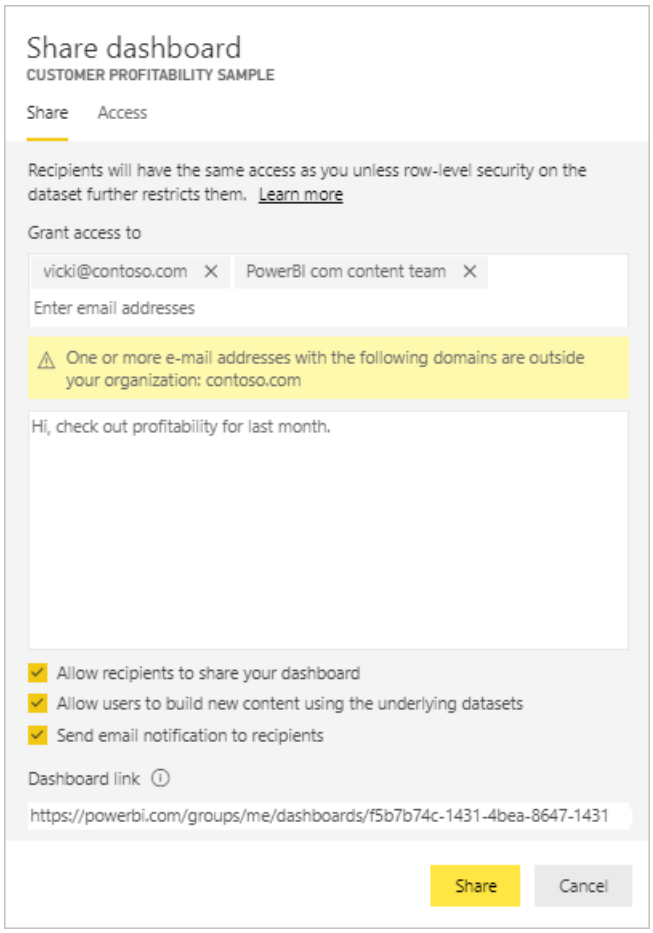
3. Add a message if you want. It's optional.

4. To let your coworkers share your content with others, check **Allow recipients to share your dashboard (or report)**.

   Allowing others to share is called *resharing*. If you let them, they can reshare from the Power BI service and the mobile apps, or forward the email invitation to others in your organization. The invitation expires after one month. People outside your organization can't reshare. As the owner of the content, you can turn off resharing, or revoke resharing on an individual basis. See Stop or change sharing in this article.

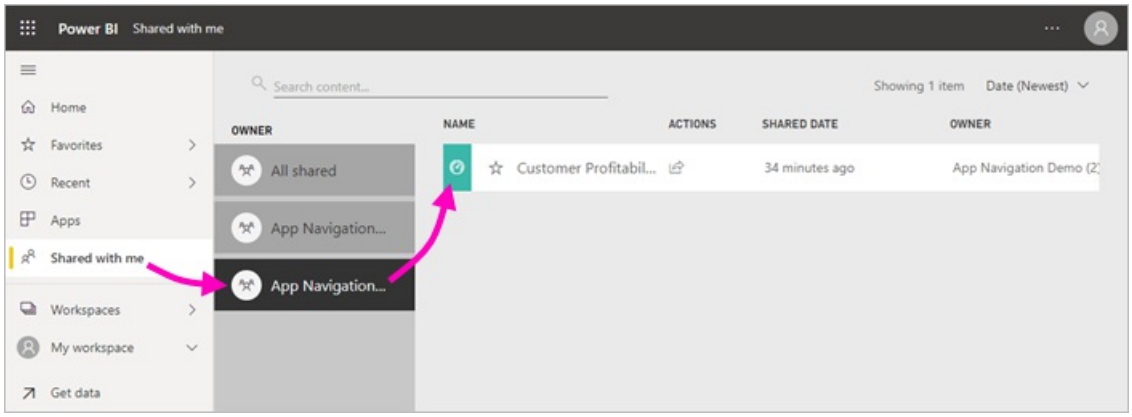
5. If you select **Allow users to build new content using the underlying datasets**, they can create their own reports in other workspaces based on the dataset for this dashboard. Read more about creating reports based on datasets from different workspaces.

6. Select **Share**.



Power BI sends an email invitation to the individuals, but not to groups, with a link to the shared content. You see a **Success** notification.

When recipients in your organization click the link, Power BI adds the dashboard or report to their **Shared with me** list page. They can select your name to see all the content you've shared with them.

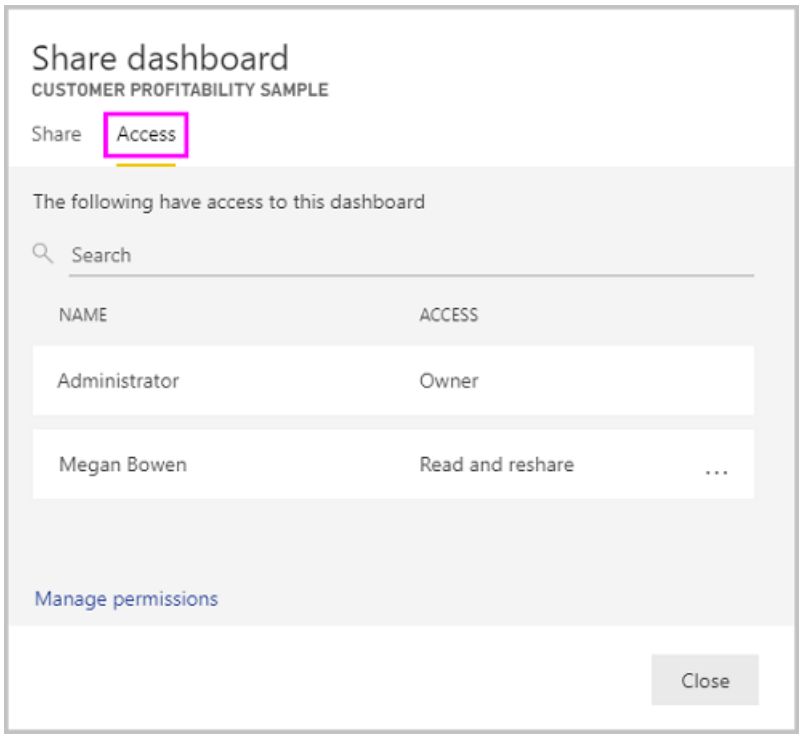


When recipients outside your organization click the link, they see the dashboard or report, but not in the usual Power BI portal. Read more about sharing with people outside your organization in this article.

See who has access to a dashboard or report

Sometimes you need to see the people you've shared with, and see who they've shared it with.

1. In the list of dashboards and reports, or in the dashboard or report itself, select **Share** .
2. In the **Share dashboard** or **Share report** dialog box, select **Access**.



People outside your organization are listed as **Guest**.

In this view, you can stop or change sharing permissions in this article.

Share a dashboard or report outside your organization

When you share with people outside your organization, they receive an email with a link to the shared dashboard or report. They must sign in to Power BI to see what you shared. If they don't have a Power BI Pro license, they can sign up for a license when they click the link.

After they sign in, they see the shared dashboard or report in its own browser window, not in the usual Power BI portal. To access this dashboard or report later, they must bookmark the link.

They can't edit any content in this dashboard or report. They can interact with the charts and change filters or slicers, but can't save their changes.

Only your direct recipients see the shared dashboard or report. For example, if you sent the email to Vicki@contoso.com, only Vicki sees the dashboard. No one else can see the dashboard, even if Vicki forwards them the link. Vicki must use the same email address to access it; if Vicki signs in with any other email address, Vicki won't have access to the dashboard.

People outside your organization don't see any data at all if role- or row-level security is implemented on on-premises Analysis Services tabular models.

Use a security group, not a distribution group, to share with a group that includes people with external email addresses. People with external emails in a distribution group can't see the content you share, unless they are Azure Active Directory (Azure AD) B2B guest users. Learn more about Azure AD B2B guest users.

If you send a link from a Power BI mobile app to people outside your organization, clicking the link opens the dashboard in a browser, not in the Power BI mobile app.

Allow external users to edit content

Your Power BI admin can allow external guest users to edit and manage content in your organization. If so, your external users won't have that consumption-only experience. They can edit and manage content within your organization. Learn more about distributing Power BI content to external guest users with Azure AD B2B.

Stop or change sharing

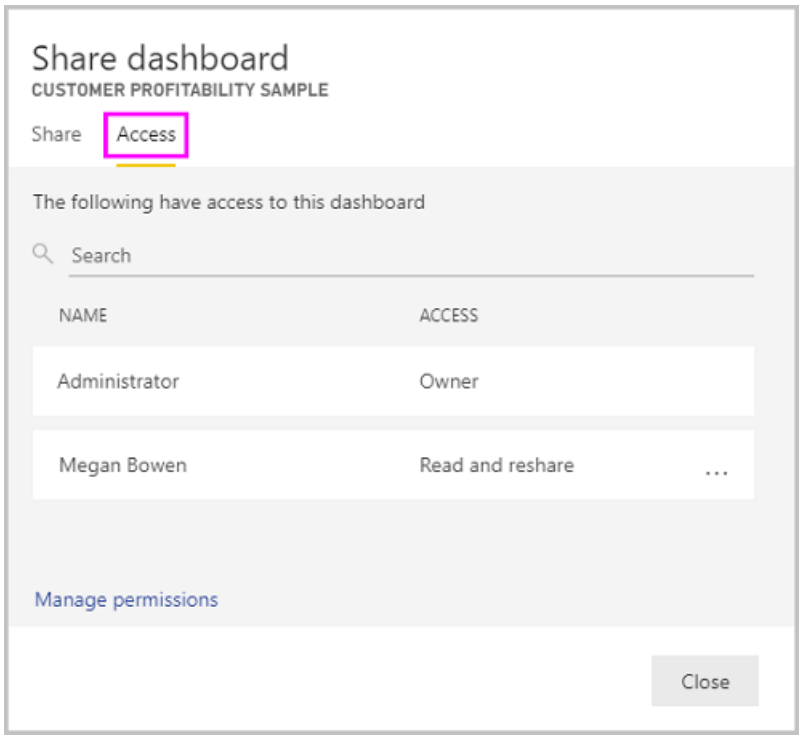
Only the dashboard or report owner can turn resharing on and off.

If you haven't sent the sharing invitation yet

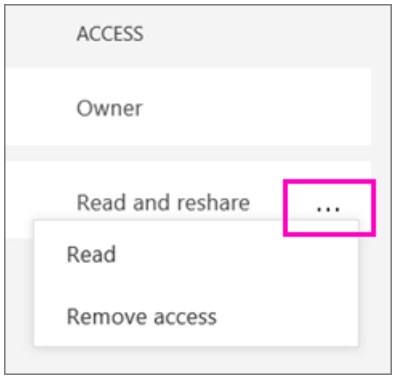
- Clear the **Allow recipients to share your dashboard (or report)** check box at the bottom of the invitation before you send it.

If you've already shared the dashboard or report

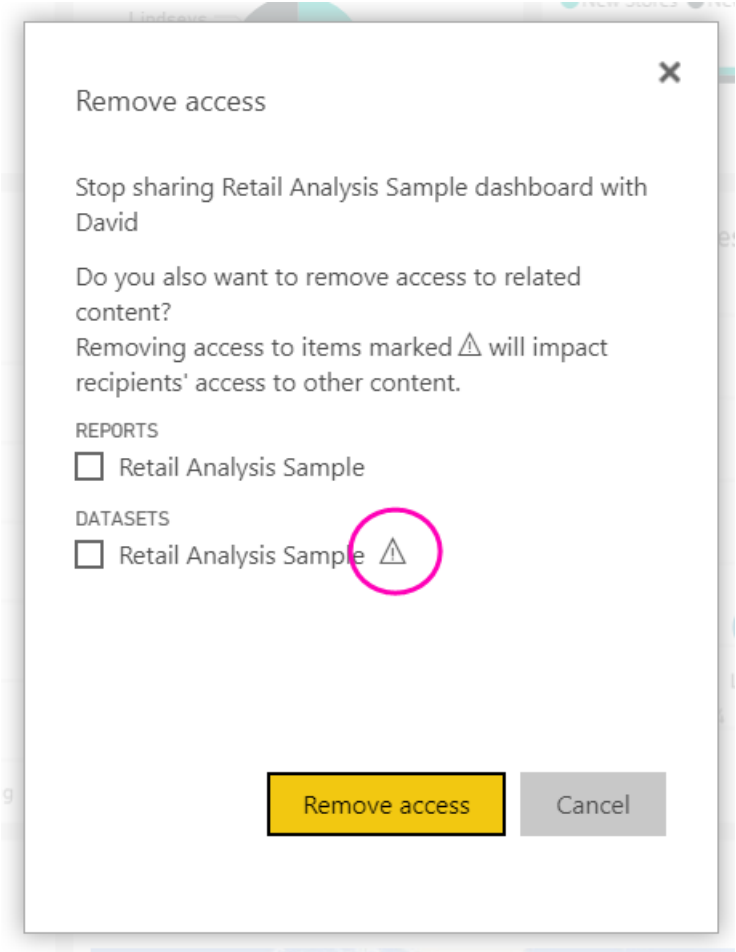
1. In the list of dashboards and reports, or in the dashboard or report itself, select **Share** .
2. In the **Share dashboard** or **Share report** dialog box, select **Access**.



3. Select the ellipsis (...) next to **Read and reshare** and select:



   - **Read** to keep that person from sharing with anyone else.
   - **Remove access** to keep that person from seeing the shared content at all.
4. In the **Remove access** dialog box, decide if you also want to remove access to related content, such as reports and datasets. If you remove items with a warning icon ⚠, it's best to also remove related content. Otherwise, it won't display properly.



Limitations and considerations

Things to keep in mind about sharing dashboards and reports:

- In general, you and your colleagues see the same data in the dashboard or report. Thus, if you have permissions to see more data than they do, they see all your data in the dashboard or report. However, if row-level security (RLS) is applied to the dataset underlying a dashboard or report, then each person's credentials determine which data they can access.
- Everyone you share your dashboard with can see it and interact with the related reports in Reading view. In general, they can't create reports or save changes to existing reports. However, if you select **Allow users to build new content using the underlying datasets**, they can create their own reports in other workspaces based on the dataset for this dashboard or report.
- Although no one can see or download the dataset, they can access the dataset directly by using the Analyze in Excel feature. An admin can restrict the ability to use Analyze in Excel for everyone in a group. However, the restriction is for everyone in that group and for every workspace the group belongs to.
- Everyone can manually refresh the data.
- If you use Microsoft 365 for email, you can share with members of a distribution group by entering the email address associated with the distribution group.
- Coworkers who share your email domain, and coworkers whose domain is different but registered within the same tenant, can share the dashboard with others. For example, say the domains contoso.com and contoso2.com are registered in the same tenant and your email address is konrads@contoso.com. Both ravali@contoso.com and gustav@contoso2.com can share your dashboard, as long as you give them permission to share.
- If your coworkers already have access to a specific dashboard or report, you can send a direct link by copying the URL when you're on the dashboard or report. For example: `https://powerbi.com/dashboards/g12466b5-a452-4e55-8634-xxxxxxxxxxxx`.
- Likewise, if your coworkers already have access to a specific dashboard, you can send a direct link to the

underlying report.

Share with more than 100 separate users

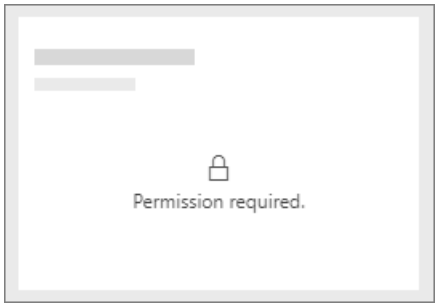
At most, you can share with 100 users or groups in a single share action. However, you can give more than 500 users access to an item. Here are some suggestions:

- Share multiple times by specifying the users individually.
- Share with a user group that contains all the users.
- Create the report or dashboard in a workspace, then create an app from the workspace. You can share the app with many more people. Read more about publishing apps in Power BI.

Troubleshoot sharing

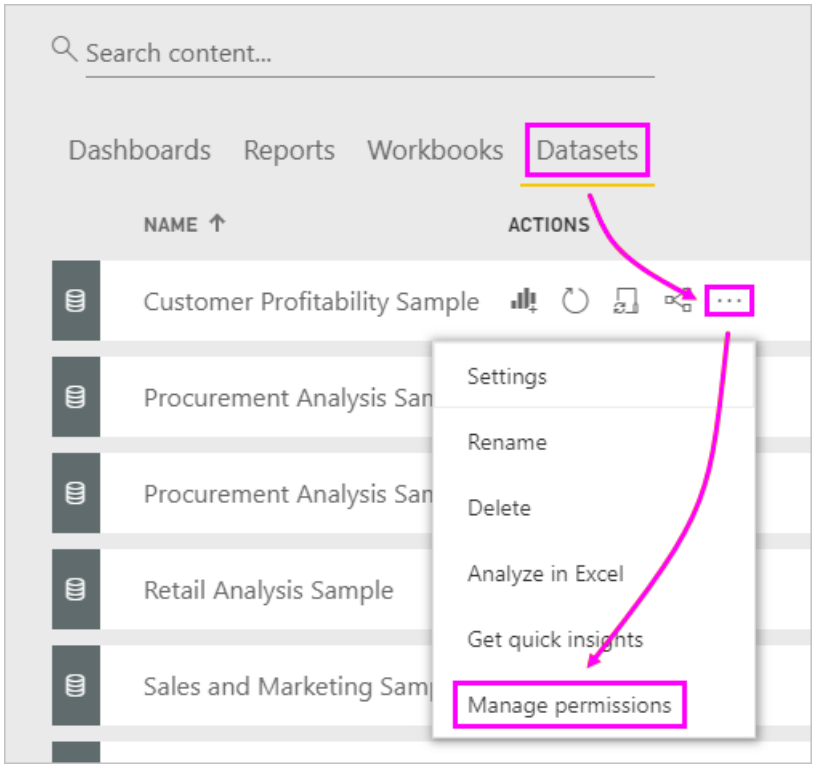
My dashboard recipients see a lock icon in a tile or a "Permission required" message

The people you share with may see a locked tile in a dashboard, or a "Permission required" message when they try to view a report.

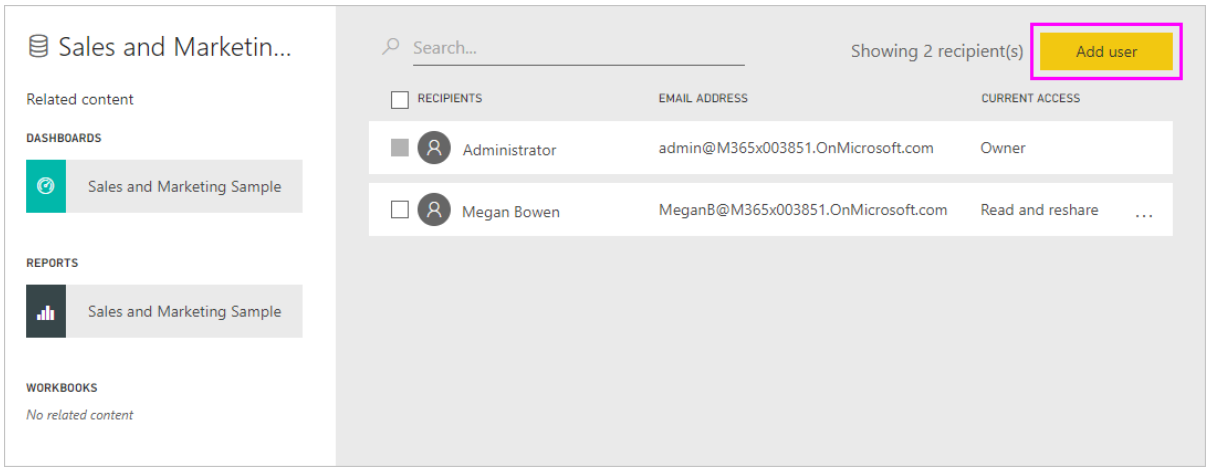


If so, you need to grant them permission to the underlying dataset.

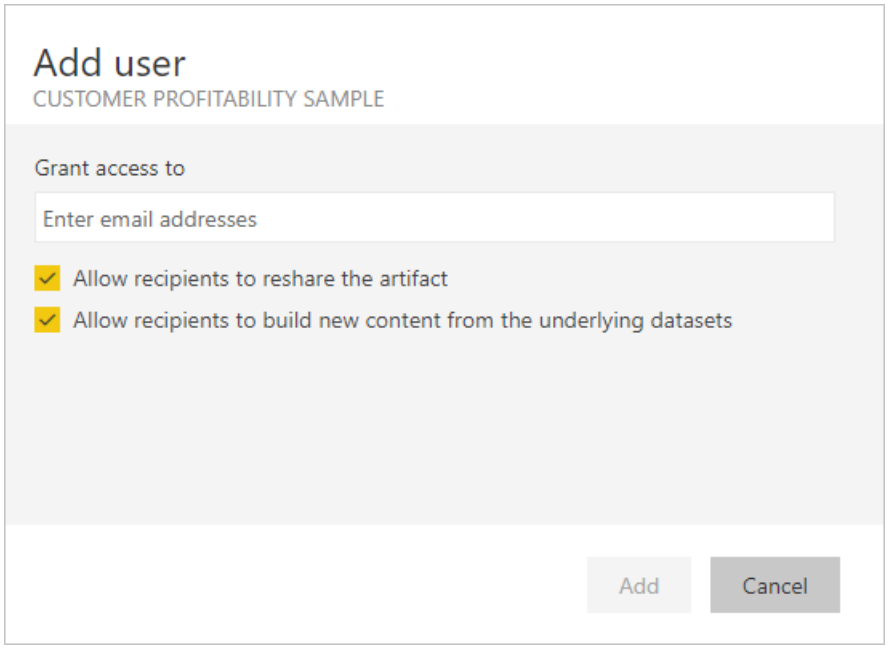
1. Go to the **Datasets** tab in your content list.
2. Select the ellipsis (...) next to the dataset, then select **Manage permissions**.



3. Select **Add user**.



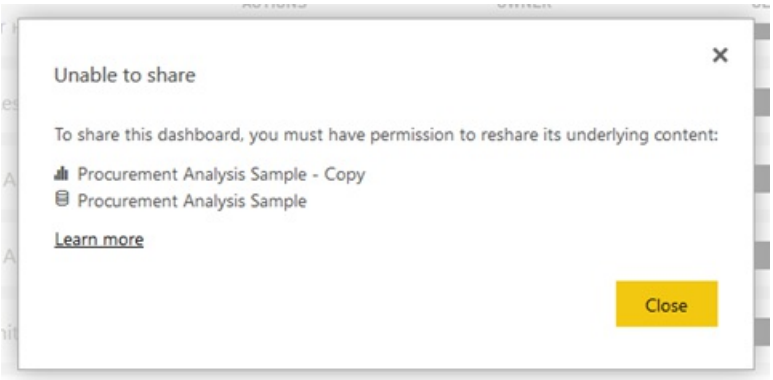
4. Enter the full email addresses for individuals, distribution groups, or security groups. You can't share with dynamic distribution lists.



5. Select **Add**.

I can't share a dashboard or report

To share a dashboard or report, you need permission to reshare the underlying content; that is, any related reports and datasets. If you see a message saying you can't share, ask the report author to give you reshare permission for those reports and datasets.



Next steps

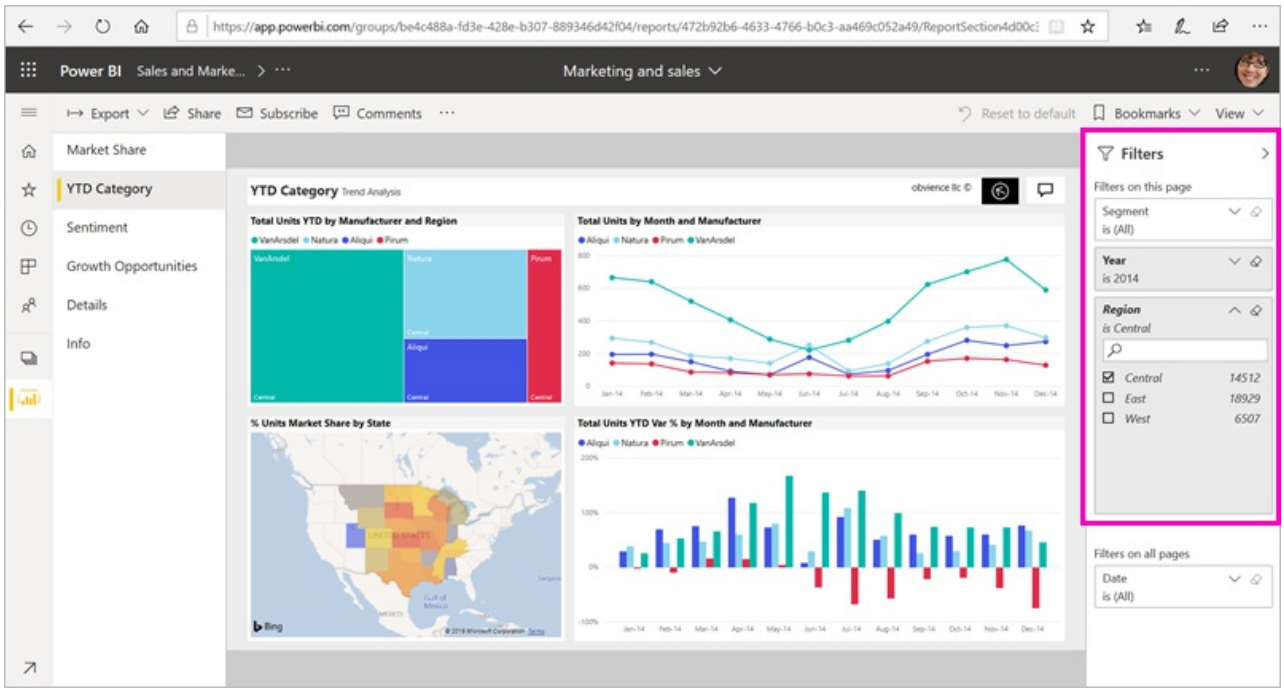
- How should I collaborate on and share dashboards and reports?

- Share a filtered Power BI report
- Questions? Try the Power BI Community

Filter and share a Power BI report

5/13/2020 • 2 minutes to read • Edit Online

Sharing is a good way to give a few people access to your dashboards and reports. What if you want to share a filtered version of a report? Maybe you want the report to show only data for a specific city or salesperson or year. This article explains how to filter a report and share the filtered version of the report. Another way to share a filtered report is to add query parameters to the report URL. In both cases, the report is filtered when recipients first open it. They can clear the filter selections in the report.

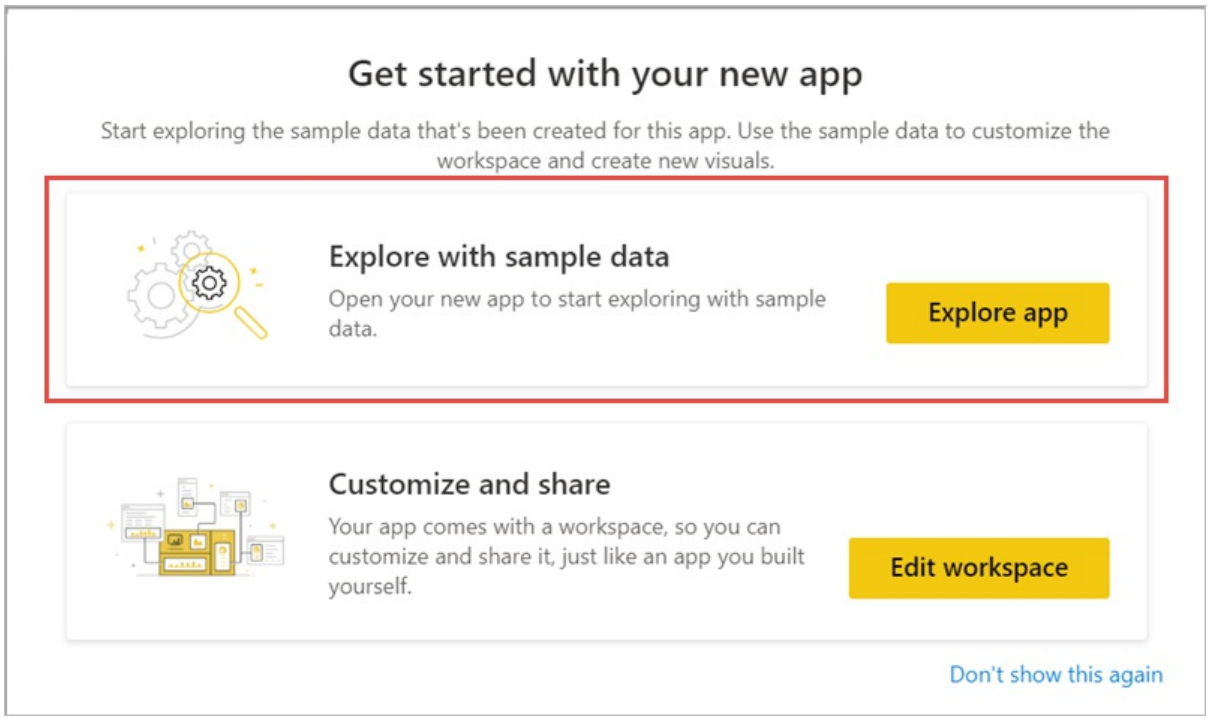


Power BI also offers other ways to collaborate and distribute your reports. With sharing, you and your recipients need a Power BI Pro license, or the content needs to be in a Premium capacity.

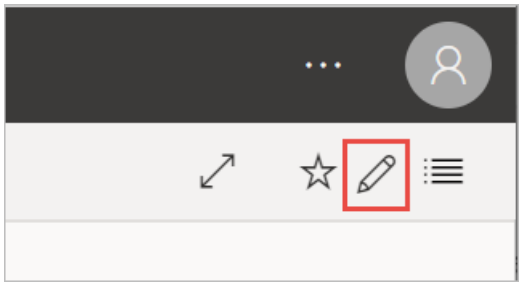
Follow along with sample data

This article uses the Marketing and Sales sample template app. Want to try it?

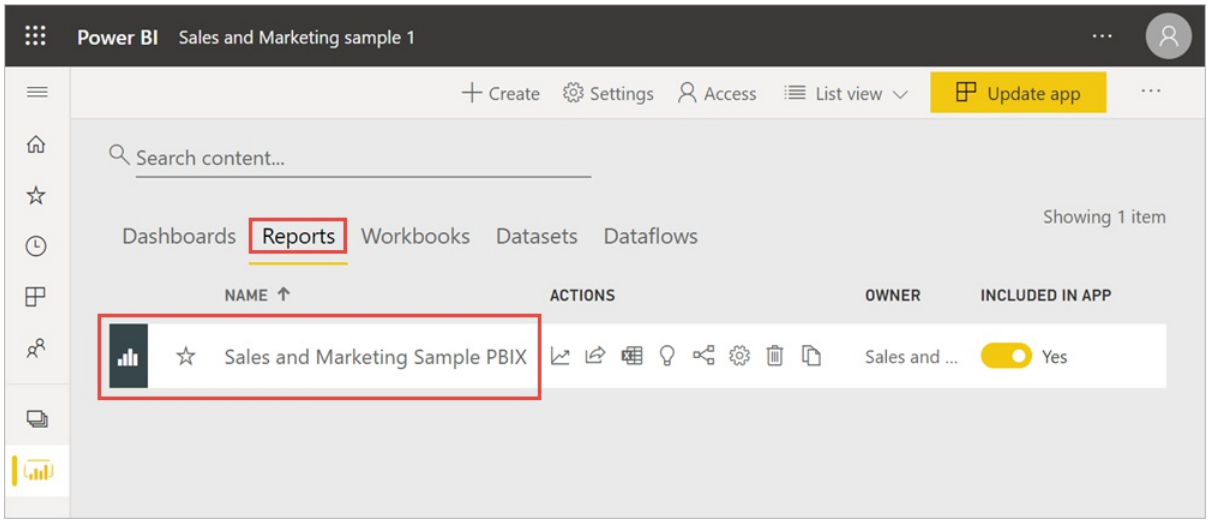
1. Install the Marketing and Sales sample template app.
2. Select the app and select **Explore app**.



3. Select the pencil icon to open the workspace that you installed with the app.



4. In the workspace content list, select **Reports**, then select the report **Sales and Marketing Sample PBIX**.

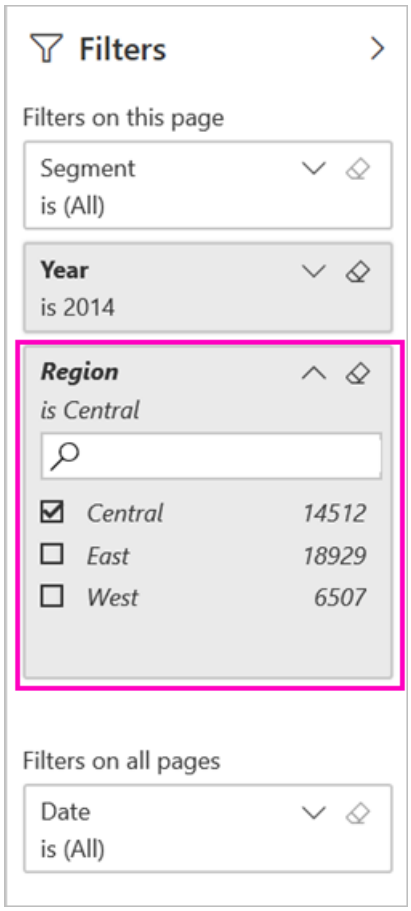


Now you're ready to follow along.

Set a filter in the report

Open a report in Editing view and apply a filter.

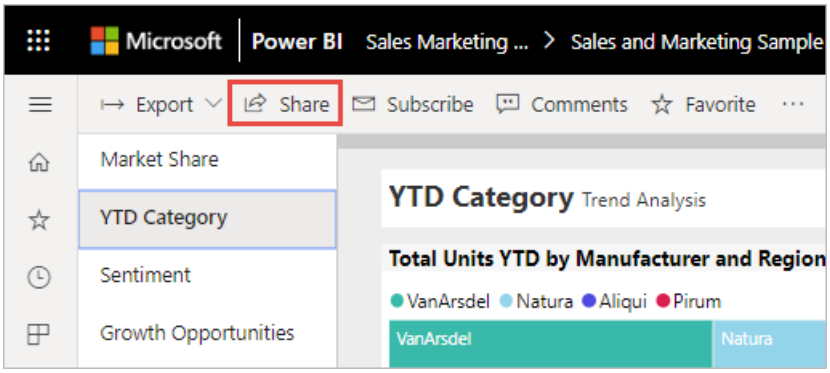
In this example, we're filtering the YTD Category page of the Marketing and Sales sample template app to show only values where **Region** equals **Central**.



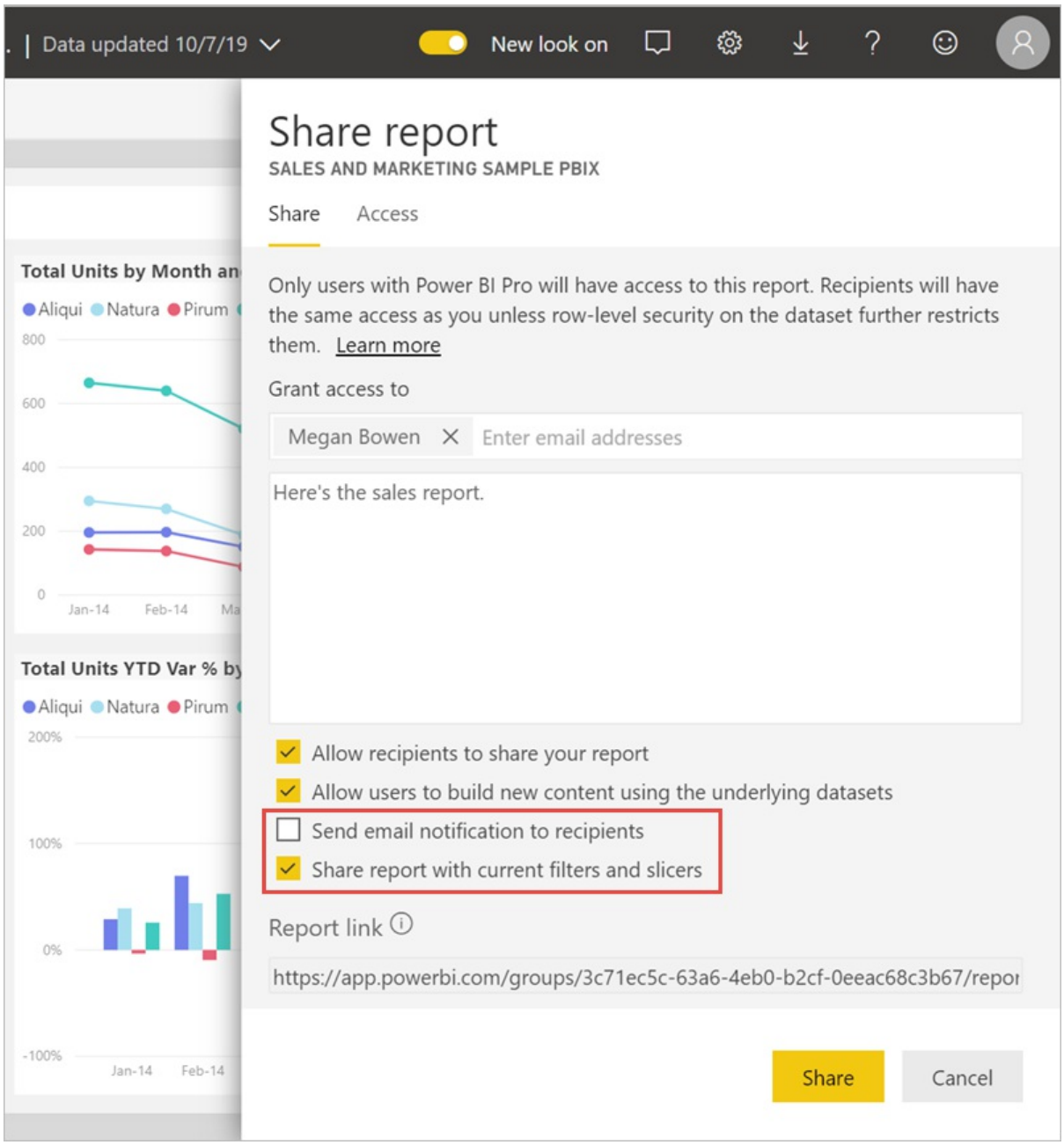
Save the report.

Share the filtered report

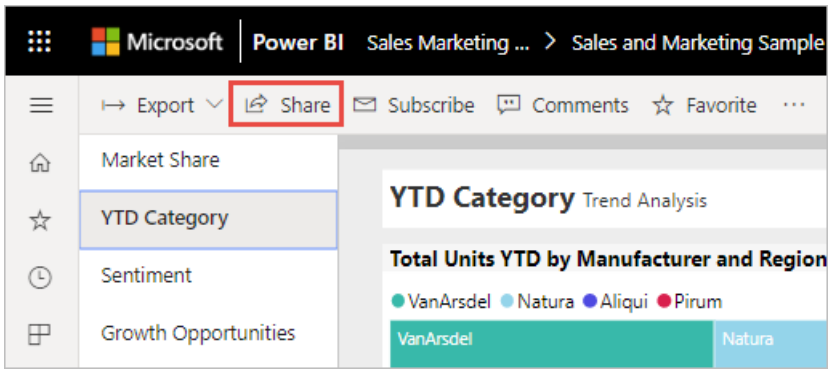
1. Select **Share**.



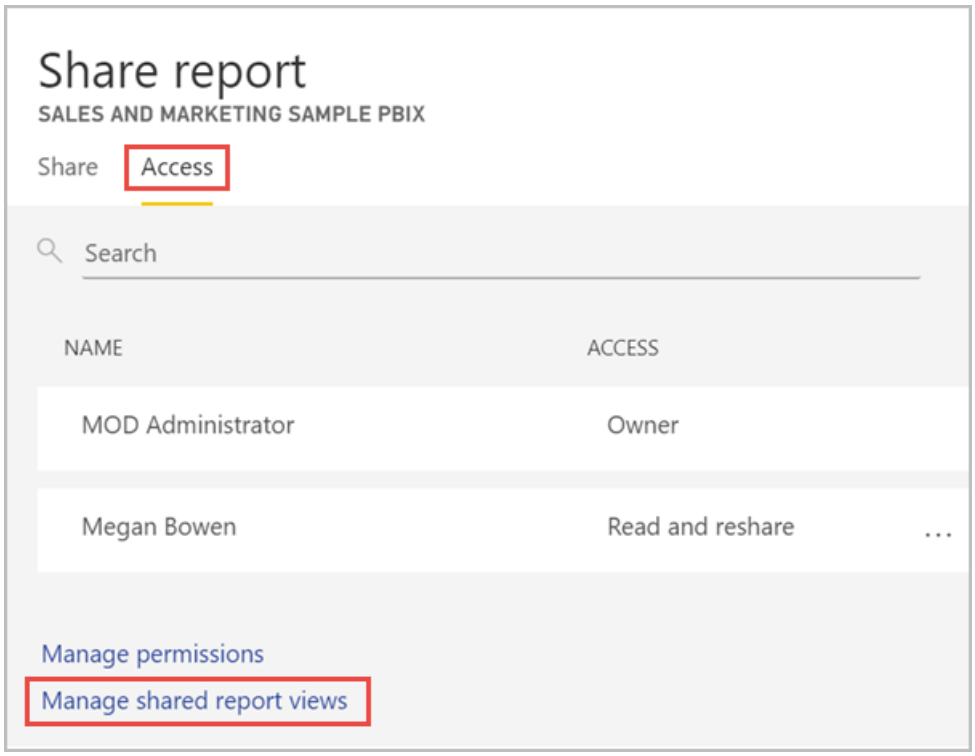
2. Clear **Send email notification to recipients**, so you can send a filtered link instead, select **Share report with current filters and slicers**, then select **Share**.



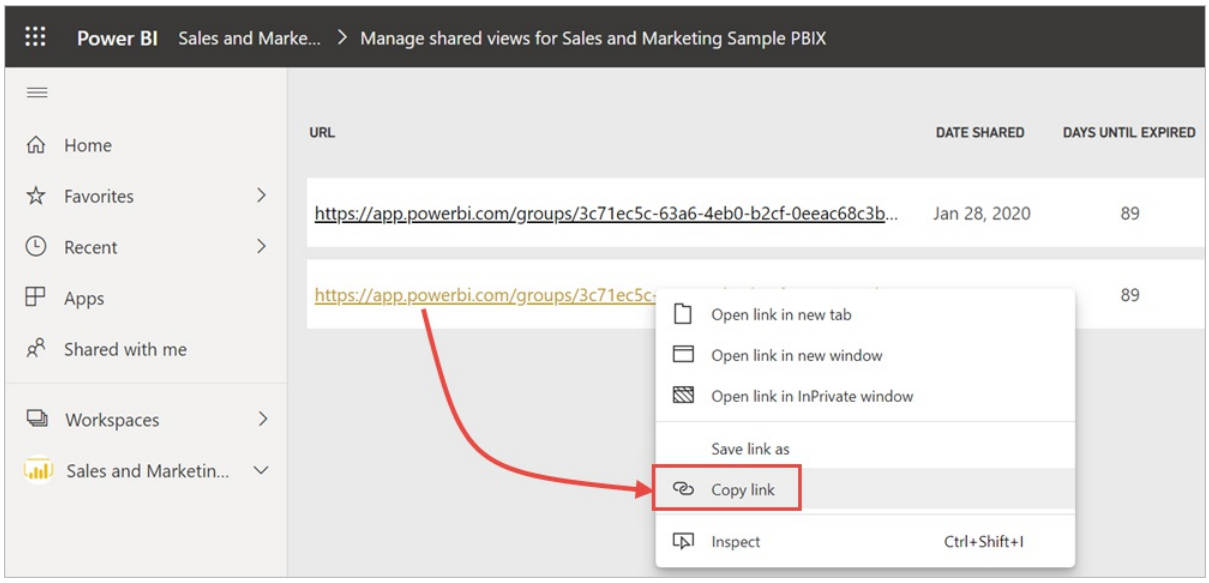
3. Select **Share** again.



4. Select the **Access** tab, then select **Manage shared report views**.



5. Right-click the URL you want, and select **Copy link**.



6. When you share this link, recipients will see your filtered report.

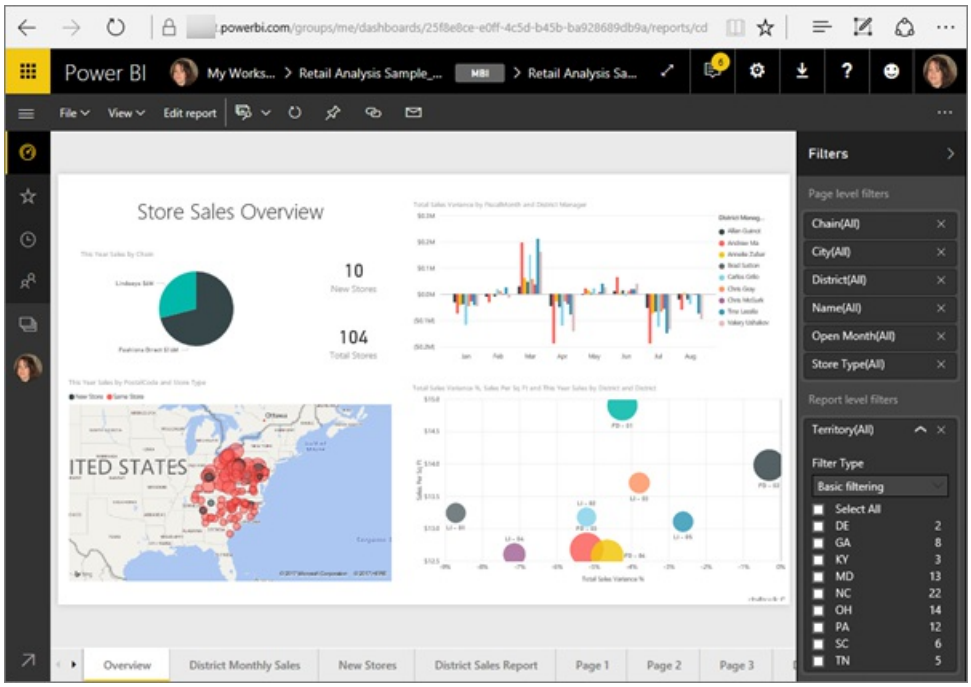
Next steps

- Ways to share your work in Power BI
- Share a dashboard
- More questions? Try the Power BI Community.
- Have feedback? Go to the Power BI Community site with your suggestions.

Filter a report using query string parameters in the URL

5/13/2020 • 8 minutes to read • Edit Online

When you open a report in Power BI service, each page of the report has its own unique URL. To filter that report page, you could use the Filters pane on the report canvas. Or you could add query string parameters to the URL to pre-filter the report. Perhaps you have a report you'd like to show colleagues and you want to pre-filter it for them. One way to filter it is to start with the default URL for the report, add the filter parameters to the URL, and then email them the entire new URL.



Uses for query string parameters

Say you're working in Power BI Desktop. You want to create a report that has links to other Power BI reports, but you want to show only some of the information in the other reports. First, filter the reports using query string parameters and save the URLs. Next, create a table in Desktop with these new report URLs. Then publish and share the report.

Another use for query string parameters is for someone creating an advanced Power BI solution. Using DAX, they create a report that generates a filtered report URL dynamically based on the selection their customer makes in the current report. When customers select the URL, they see only the intended information.

Query string parameter syntax for filtering

With parameters, you can filter the report for one or more values, even if those values contain spaces or special characters. The basic syntax is fairly straightforward; start with the report URL, add a question mark, and then add your filter syntax.

URL?filter=*Table/Field* eq '*value*'

```
https://app.powerbi.com/groups/me/reports/cd153328-ccb5-4c1f-8539-33dec14c4d28/ReportSection3?filter=Store/Territory eq 'NC'
```

- **Table** and **Field** names are case-sensitive, **value** isn't.

- Fields that are hidden from report view can still be filtered.

Reports in apps

If you want to add a URL filter to a report in an app, the formatting is a little different. Links to reports in an app have a query parameter (ctid) that gets added to the URL. Separate the query parameters with an ampersand (&). Keep "?filter=" and move the ctid parameter to the end of the URL, preceded by an ampersand (&).

Like this example:

app.powerbi.com/groups/me/apps/*app-id*/reports/*report-id*/ReportSection?filter=*Table/Field* eq '*value*'&ctid=*ctid*

Field types

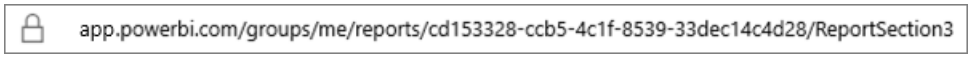
Field type can be a number, datetime, or string and the type used must match the type set in the dataset. For example, specifying a table column of type "string" won't work if you're looking for a datetime or numeric value in a dataset column set as a date, such as Table/StringColumn eq 1.

- **Strings** must be enclosed with single quotes, as in 'manager name'.
- **Numbers** require no special formatting. See Numeric data types in this article for details.
- **Dates and times** See Date data types in this article.

If it's still confusing, continue reading and we'll break it down.

Filter on a field

Let's assume that the URL to our report is the following.

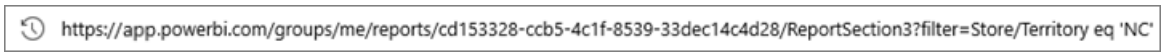


And we see in our map visualization (above) that we have stores in North Carolina.

> **NOTE**
> This example is based on the Retail Analysis sample.

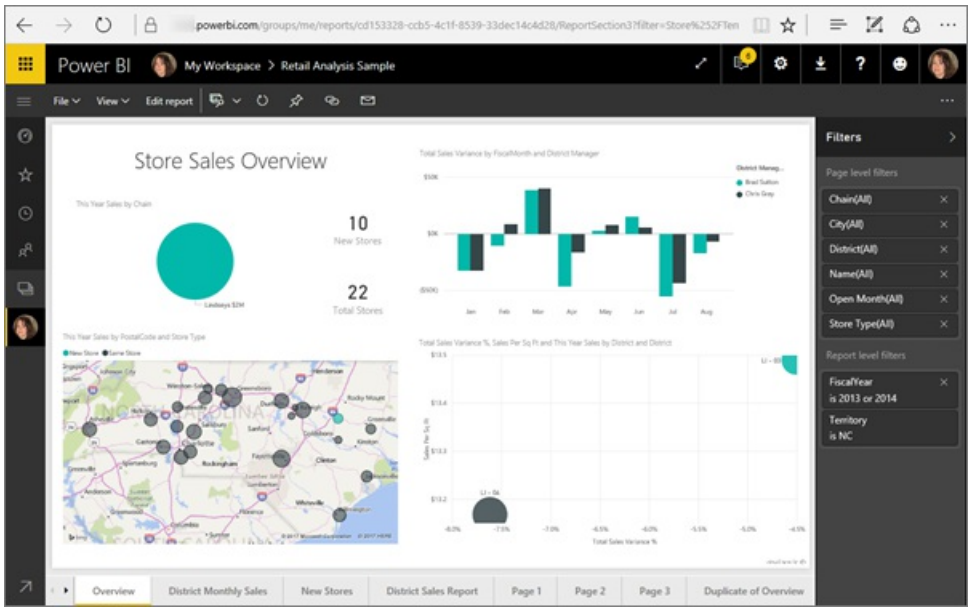
To filter the report to show data only for stores in "NC" (North Carolina), append the URL with the following;

?filter=Store/Territory eq 'NC'



> **NOTE**
> *NC* is a value stored in the **Territory** field of the **Store** table.

Our report is filtered for North Carolina; all the visualizations on the report page show data for only North Carolina.



Filter on more than one value in a field

To filter on more than one value in a single field, you use the **in** operator instead of the **and** operator. The syntax is:

URL?filter=*Table/Field* **in** ('*value1*', '*value2*')

Using the same example, to filter the report to show data only for stores in "NC" (North Carolina) or "TN" (Tennessee), append the URL with the following;

?filter=Store/Territory in ('NC', 'TN')

See the Operators table later in the article for a list of other useful operators.

Filter on multiple fields

You can also filter on multiple fields by adding additional parameters to your URL. Let's go back to our original filter parameter.

```
?filter=Store/Territory eq 'NC'
```

To filter on additional fields, add an '**and**' and another field in the same format as above. Here is an example.

```
?filter=Store/Territory eq 'NC' and Store/Chain eq 'Fashions Direct'
```

Operators

Power BI supports many operators in addition to '**and**'. The table below lists those operators along with the content type they support.

OPERATOR	DEFINITION	STRING	NUMBER	DATE	EXAMPLE
and	and	yes	yes	yes	product/price le 200 and price gt 3.5
eq	equals	yes	yes	yes	Address/City eq 'Redmond'

OPERATOR	DEFINITION	STRING	NUMBER	DATE	EXAMPLE
ne	not equal	yes	yes	yes	Address/City ne 'London'
ge	greater than or equal	no	yes	yes	product/price ge 10
gt	greater than	no	yes	yes	product/price gt 20
le	less than or equal	no	yes	yes	product/price le 100
lt	less than	no	yes	yes	product/price lt 20
in**	including	yes	yes	yes	Student/Age in (27, 29)

** When using **in**, the values to the right of **in** can be a comma-separated list enclosed in parentheses, or a single expression that returns a collection.

Numeric data types

A Power BI URL filter can include numbers in the following formats.

NUMBER TYPE	EXAMPLE
integer	5
long	5 L or 5 l
double	5.5 or 55e-1 or 0.55e+1 or 5D or 5d or 0.5e1D or 0.5e1d or 5.5D or 5.5d or 55e-1D or 55e-1d
decimal	5 M or 5 m or 5.5 M or 5.5 m
float	5 F or 5 f or 0.5e1 F or 0.5e-1 d

Date data types

Power BI supports both OData V3 and V4 for **Date** and **DateTimeOffset** data types. For OData V3, dates must be enclosed in single quotes and be preceded by the word datetime. Single quotes and the word datetime aren't needed in OData V4.

Dates are represented using the EDM format (2019-02-12T00:00:00): When you specify a date as 'YYYY-MM-DD', Power BI interprets it as 'YYYY-MM-DDT00:00:00'. Make sure month and day are two digits, MM and DD.

Why does this distinction matter? Let's say you create a query string parameter **Table/Date gt '2018-08-03'**. Will the results include August 3, 2018 or start with August 4, 2018? Power BI translates your query to **Table/Date gt '2018-08-03T00:00:00'**. So, your results include any dates that have a non-zero time part, because those dates would be greater than **'2018-08-03T00:00:00'**.

There are other differences between V3 and V4. OData V3 does not support Dates, only DateTime. So if you use the V3 format, you must qualify it with the full date time. Date literals like "datetime'2019-05-20'" aren't supported in V3 notation. But you can just write it as "2019-05-20" in V4 notation. Here are two equivalent filter queries in V3

and V4:

- OData V4 format: filter=Table/Date gt 2019-05-20
- OData V3 format: filter=Table/Date gt datetime'2019-05-20T00:00:00'

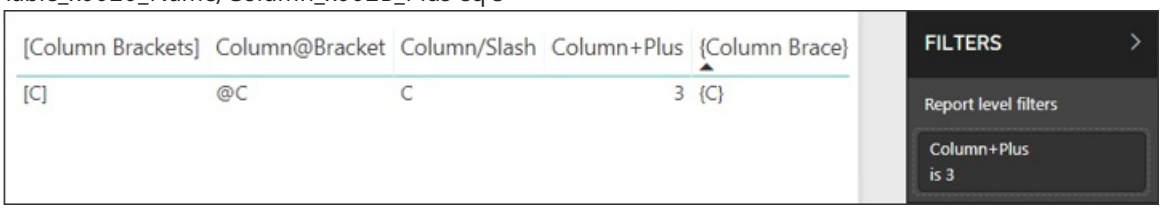
Special characters in URL filters

Special characters in table and column names

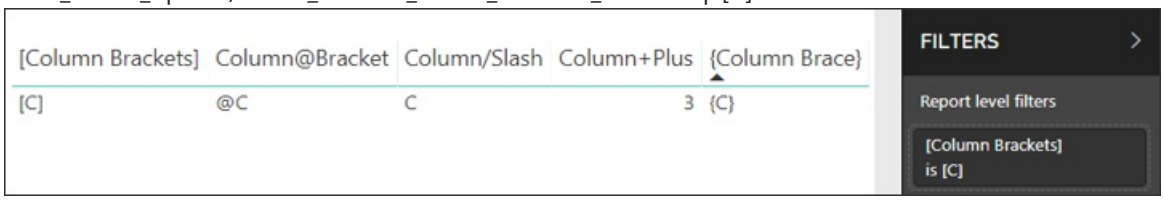
Special characters and spaces in table and column names require some additional formatting. When your query contains spaces, dashes, or other non-ASCII characters, prefix those special characters with an *escape code* starting with an underscore and an X (_**x**), then the four-digit **Unicode**, then another underscore. If the Unicode is fewer than four characters, you need to pad it with zeroes. Here are some examples.

IDENTIFIER	UNICODE	CODING FOR POWER BI
Table Name	Space is 0x20	Table_x0020_Name
Column@Number	@ is 0x40	Column_x0040_Number
[Column]	[is 0x005B] is 0x005D	*x005B_Column_x005D*
Column+Plus	+ is 0x2B	Column_x002B_Plus

Table_x0020_Name/Column_x002B_Plus eq 3



Table_x0020_Special/*x005B_Column_x0020_Brackets_x005D* eq '[C]'



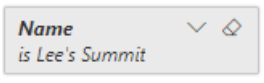
Special characters in values

URL filters already support all special characters in field values, except the single quote ('). That's the only character you need to escape. To search for a single quote character, use two single quotes ('').

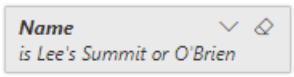
For example:

- `?filter=Table/Name eq 'O''Brien'` becomes:

- `?filter=Table/Name eq 'Lee''s Summit'` becomes:



- The `in` operator supports this escaping as well: `?filter=Table/Name in ('Lee''s Summit', 'O''Brien')` becomes:



Use DAX to filter on multiple values

Another way to filter on multiple fields is by creating a calculated column that concatenates two fields to a single value. Then you can filter on that value.

For example, we have two fields: Territory and Chain. In Power BI Desktop, create a new Calculated column (Field) called TerritoryChain. Remember that the **Field** name can't have any spaces. Here is the DAX formula for that column.

TerritoryChain = [Territory] & " - " & [Chain]

Publish the report to Power BI service and then use the URL query string to filter to display data for only Lindseys stores in NC.

```
https://app.powerbi.com/groups/me/reports/8d6e300b-696f-498e-b611-41ae03366851/ReportSection3?
filter=Store/TerritoryChain eq 'NC – Lindseys'
```

Pin a tile from a filtered report

Once you've filtered the report using query string parameters, you can pin visualizations from that report to your dashboard. The tile on the dashboard displays the filtered data and selecting that dashboard tile opens the report that was used to create it. However, the filtering you did using the URL isn't saved with the report. When you select the dashboard tile, the report opens in its unfiltered state. Thus, the data displayed in the dashboard tile doesn't match the data displayed in the report visualization.

This discrepancy is helpful when you want to see different results; filtered on the dashboard and unfiltered in the report.

Considerations and troubleshooting

There are a couple of things to be aware of when using the query string parameters.

- When using the *in* operator, the values to the right of *in* must be a comma-separated list enclosed in parentheses.
- Power BI Report Server also supports the ability to specify additional filters using the "filter" URL parameter. Here's an example of what the URL might look like in Power BI Report Server:
  ```
  https://reportserver/reports/powerbi/Store Sales?rs:Embed=true&filter= Store/Territory eq 'NC' and
  Store/Chain eq 'Fashions Direct'
  ```
- Report URL filters have a 10-expression limit (10 filters connected by AND).
- The long data type is (2^53-1) due to JavaScript limitations.

URL filters are supported in some embedding scenarios and not in others.

- Embedding a report in a secure portal or website is supported.
- URL filters are supported in Power BI Embedded. See Power BI Embedded advanced URL filtering capabilities for details.
- Query string filtering doesn't work with Publish to web or Export to PDF.
- Embed with report web part in SharePoint Online doesn't support URL filters.
- Teams doesn't allow specifying a URL.

Next steps

Pin a visualization to a dashboard
Sign up for a free trial

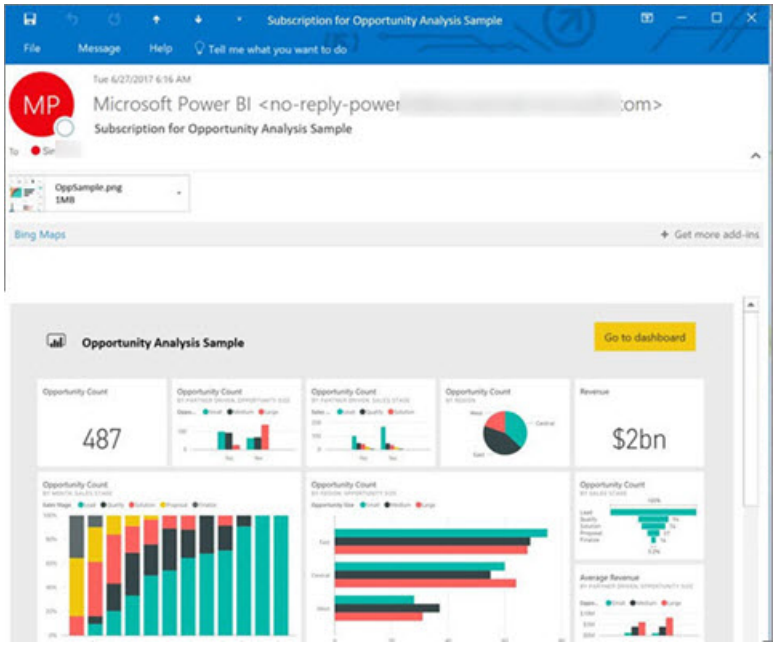
More questions? Try asking the Power BI Community

Subscribe yourself and others to reports and dashboards in the Power BI service

5/28/2020 • 9 minutes to read • Edit Online

You can subscribe yourself and your colleagues to the report pages, dashboards, and paginated reports that matter most to you. Power BI e-mail subscriptions allow you to:

- Decide how often you want to receive the emails: daily, weekly, hourly, monthly, or once a day after the initial data refresh.
- Choose the time you want to receive the email, if you choose daily, weekly, hourly, or monthly.
- Set up 24 different subscriptions per Power BI report or dashboard. There is no limit to the number of subscriptions you can set up for paginated reports.
- Have a mail sent with an image of the report and link to the report in the service. On mobile devices with Power BI apps installed, selecting this link launches the Power BI app, instead of opening the report or dashboard in the Power BI web site.
- Include an attachment of the full report, if you're subscribing to a paginated report.
- Send email to users outside your tenant, if your Power BI content is hosted in a Premium capacity. Administrators can control access to who can send email subscriptions to external users by leveraging the existing external sharing control settings in the Power BI admin center.



Requirements

Creating a subscription can be done by:

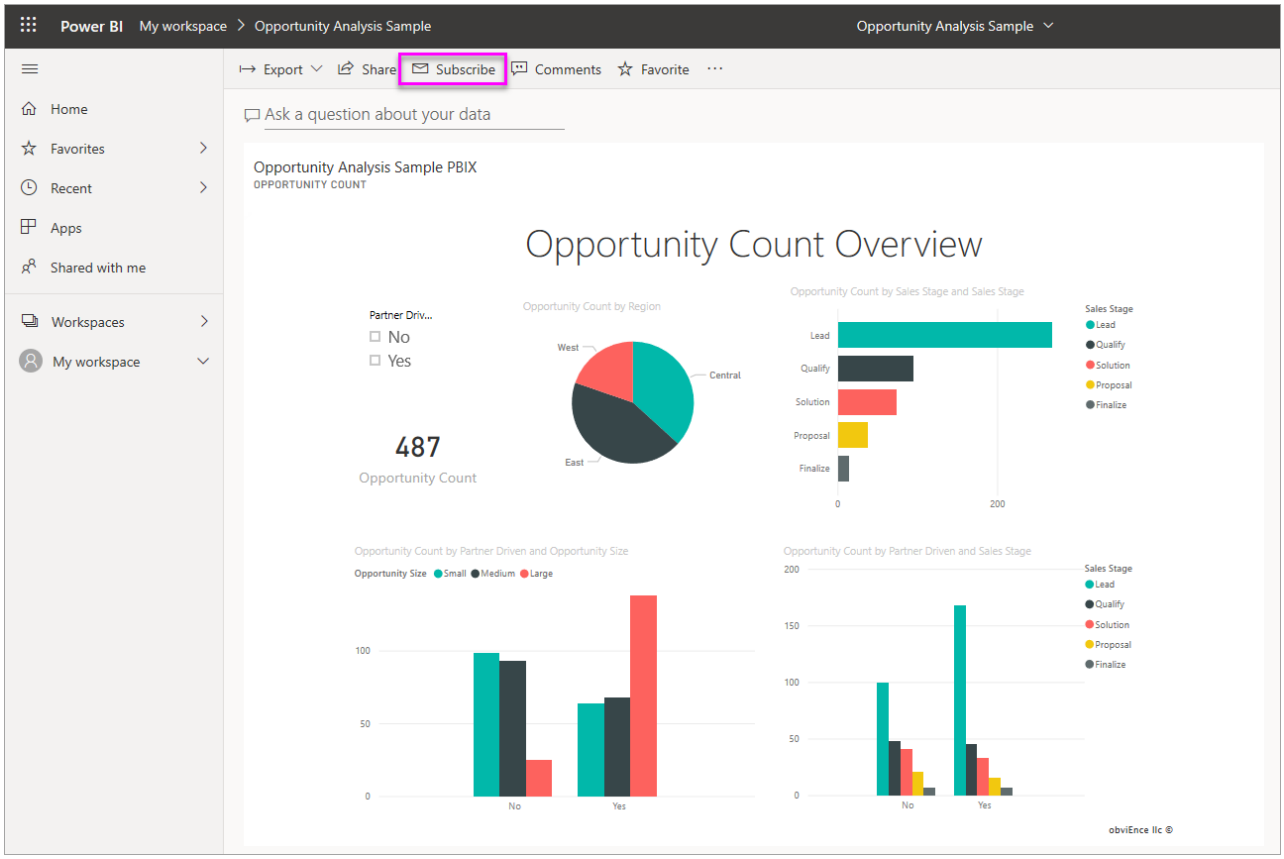
- Users with a Power BI Pro license
- Users viewing content in a Premium workspace or app may also subscribe to content located there, even without a Power BI Pro license.

You don't need edit permissions to the content (dashboard or report) to create a subscription for yourself, but you must have edit permissions to create one for someone else.

Subscribe to a dashboard, report page, or paginated report

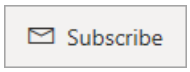
Whether you're subscribing to a dashboard, report, or paginated report, the process is similar. The same button allows you to subscribe to Power BI service dashboards and reports.

Subscribing to paginated reports is a little different. See Subscribe yourself and others to a paginated report in the Power BI service for details.



.

1. Open the dashboard or report.
2. From the top menu bar, select **Subscribe** or select the envelope icon .

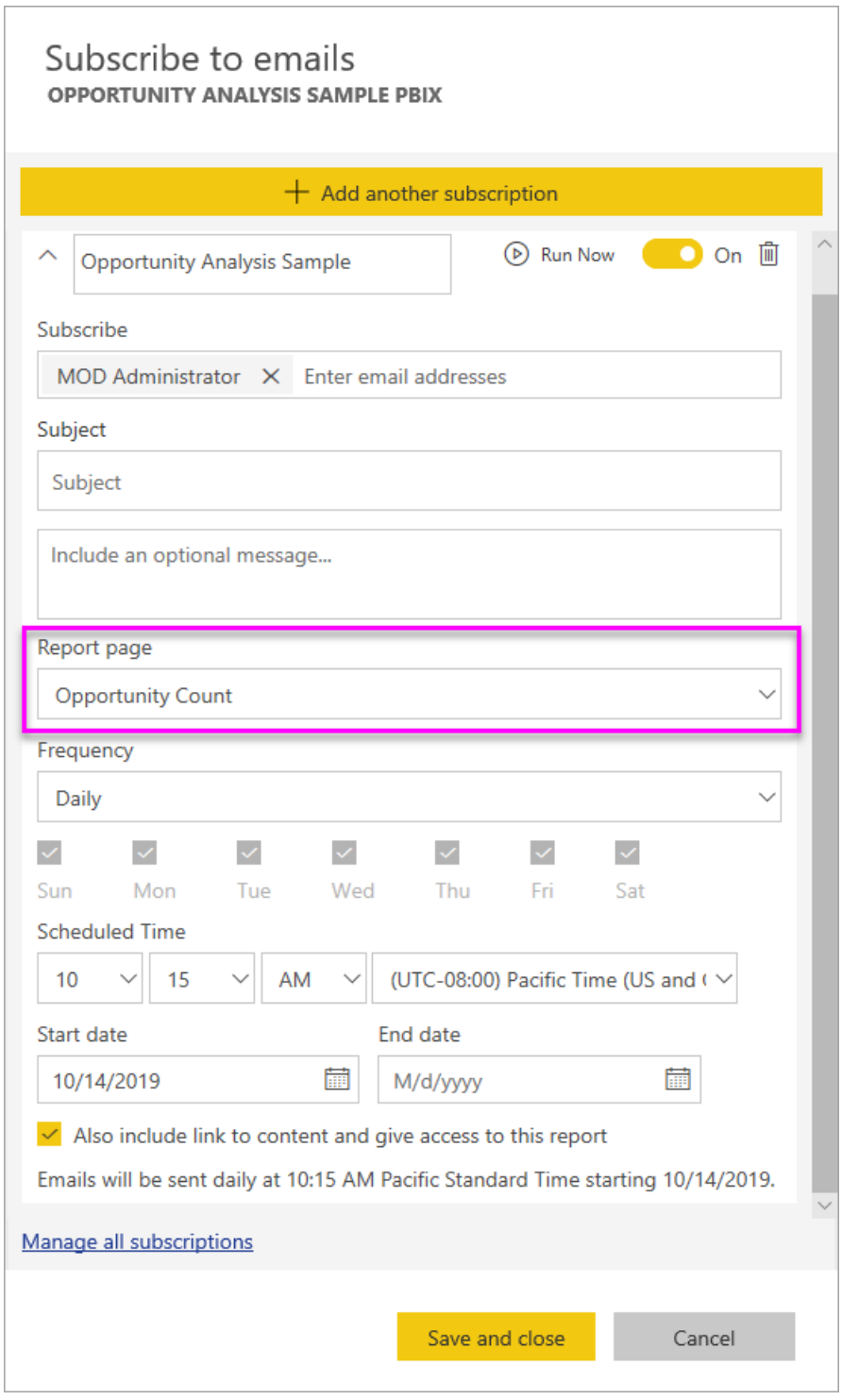
   

3. Use the yellow slider to turn the subscription on and off. Setting the slider to **Off** doesn't delete the subscription. To delete the subscription, select the trashcan icon.
4. Your email is already in the **Subscribe** box. You can add other email addresses in the same domain to the subscription as well. If the report or dashboard is hosted in a Premium capacity, you can subscribe other individual email addresses and group aliases, whether they're in your domain or not. If the report or dashboard isn't hosted in a Premium capacity, you can subscribe other individuals, but they too must have Power BI Pro licenses. See Considerations and troubleshooting below for details.
5. Fill in the email **Subject** and **Message** details.
6. Select a **Frequency** for your subscription: **Daily**, **Hourly**, **Weekly**, **Monthly**, or **After Data Refresh (Daily)**. To receive the subscription email only on certain days, select **Hourly** or **Weekly** and select the days you'd like to receive it. For example, if you'd like to receive the subscription email only on weekdays, select **Weekly** and clear the boxes for **Sat** and **Sun**. If you select **Monthly**, enter the day(s) of the month you wish to receive the subscription mail.
7. If you choose **Daily**, **Hourly**, **Monthly**, or **Weekly**, you can also choose a **Scheduled Time** for the

subscription. You have it run on the hour, or at 15, 30, or 45 minutes past. Select morning (AM) or afternoon/evening (PM). You can also specify the time zone. If you choose **Hourly**, select the **Scheduled Time** you want the subscription to start, and it will run every hour after that.

8. By default, the start date for your subscription is the date you create it. You have the option to select an end date. If you don't set an end date, the end date is automatically one year after the start date. You can change it to any date in the future (up to the year 9999) at any time before the subscription ends. When a subscription reaches an end date, it stops until you re-enable it. You'll receive notification(s) before the scheduled end date to ask if you'd like to extend it.

   In the screenshot below, notice that when you subscribe to a report, you're actually subscribing to a report *page*. To subscribe to more than one page in a report, select **Add another subscription** and select a different page.



9. (Optional) Select whether to include a link back to the content in Power BI and whether to give users access to the content you're subscribing them to. If you choose to include a link, for the best experience, ensure that

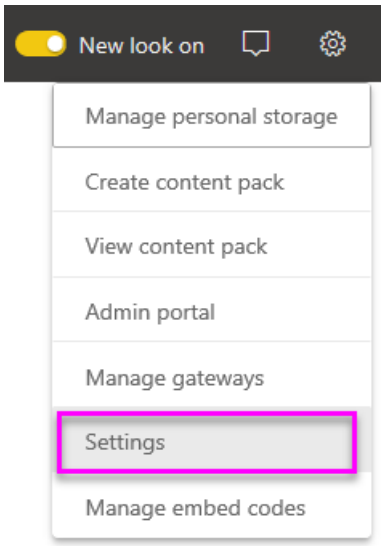
all users have access to the report.

10. Select **Save and close**. Those subscribed receive an email and snapshot of the dashboard or report page for the frequency and time you selected. In all, you may create up to 24 subscriptions per report or dashboard, and can provide unique recipients, times, and frequencies for each subscription. All subscriptions set to **After Data Refresh** for your dashboard or report will still only send an email after the first scheduled refresh.

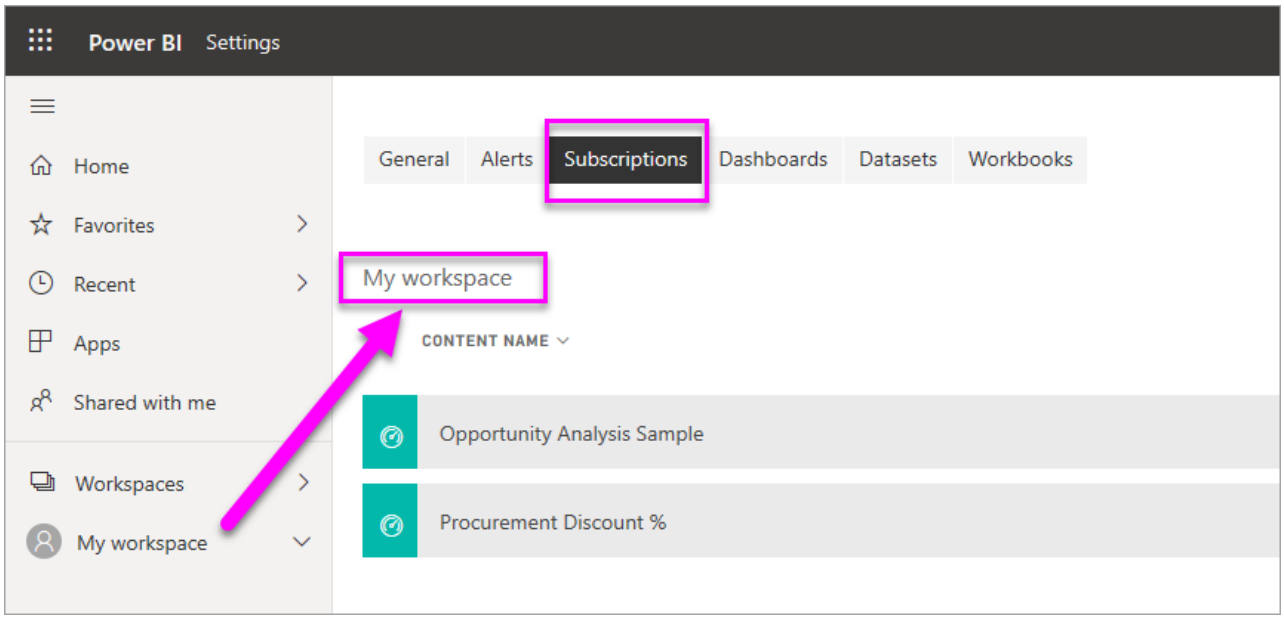
> **TIP**
> Want to send the email from a subscription right away or on-demand at any time? Select **Run Now** for the subscriptions for the dashboard or report you want to send. You'll see a notification that an e-mail is on its way to everyone for that particular subscription. Taking this action doesn't count against your limit of 24 scheduled subscription runs per day per report or dashboard. It does NOT trigger a data refresh of the underlying dataset.

Manage your subscriptions

Only the person who created the subscription can manage it. There are two paths to the screen for managing your subscriptions. The first is to select **Manage all subscriptions** from the **Subscribe to emails** dialog (see step 4 above). The second is to select the Power BI cog icon from the top menu bar and choose **Settings**.



The subscriptions displayed depend on which workspace is currently active. To see all of your subscriptions at once for all workspaces, be sure that **My Workspace** is active. For help understanding workspaces, see Workspaces in Power BI.



A subscription ends in any of these cases:

- The Pro license expires.
- The owner deletes the dashboard or report.
- The user account used to create the subscription is deleted.

Power BI administrators can use the Power BI audit logs to view details around subscriptions. These details include:

- Created By
- Creation Date
- Content Subscribed to
- Recipients
- Frequency
- Modified By/
- Modified Date

Considerations and troubleshooting

General

- Like other BI products, the time you set your subscription for is when the subscription begins processing. When the report processing is complete, the subscription is queued and sent to the e-mail recipients. We strive to process and deliver all subscriptions as quickly as possible. However, sometimes at peak demand you may see a longer delay due to the number of subscriptions that Power BI can send at once. Most customers shouldn't see a delay of more than 15 minutes to process and send reports. It may take up to 30 minutes for certain times and tenants that have significant usage. We never expect any delay in delivery to be more than 60 minutes from the time the subscription is scheduled. If you experience a delay that long, first ensure that the address `no-reply-powerbi@microsoft.com` is whitelisted by your e-mail provider. If it is, contact Power BI support for assistance.
- Currently, email subscriptions for reports and dashboards using live connection datasets aren't supported when subscribing users other than yourself, except for paginated reports. You can subscribe others to a paginated report, using your security context. Read more about subscribing to paginated reports.
- Power BI automatically pauses refresh on datasets associated with dashboards and reports that haven't been visited in more than two months. However, if you add a subscription to a dashboard or report, it doesn't pause even if it goes unvisited.
- If you aren't receiving the subscription emails, ensure that your User Principal Name (UPN) can receive emails.
- If your dashboard or report is in Premium capacity, you can use group email aliases for subscriptions, instead of

subscribing colleagues one email address at a time. The aliases are based on the current active directory.

- If your content isn't in a Premium capacity, only Power BI Pro users can receive email subscriptions.
- Subscriptions don't currently support bookmarks.
- The option to provide access to the report/dashboard always shows as enabled when you edit an existing subscription. If you clear this option and save the subscription, it saves that state. However, when you go to edit the report again it will be checked by default.

Dashboards

- Dashboards with over 25 pinned tiles, or 4 pinned live report pages, may not render fully in subscription e-mails sent to users. Subscriptions to dashboards over these numbers of tiles aren't blocked. However, they're considered unsupported if you encounter issues. Consider modifying them accordingly to fall within a supported range.
- On rare occasions, e-mail subscriptions may take longer than fifteen minutes to be delivered to their recipients. If this happens, we recommend running your data refresh and e-mail subscription at different times to ensure timely delivery. If the issue persists, contact Power BI support.
- For dashboard email subscriptions, if any tiles have row-level security (RLS) applied, those tiles don't display.
- For dashboard subscriptions, certain types of tiles aren't yet supported. These include: streaming tiles, video tiles, and custom web content tiles.
- If you share a dashboard with a colleague outside of your tenant, you can't also create a subscription for that colleague *unless* the dashboard sits in a Premium workspace or app. So if you are `aaron@contoso.com`, you can share with `anyone@fabrikam.com`, but you can't yet subscribe `anyone@fabrikam.com` and they can't subscribe to shared content.

Reports

- For report email subscriptions, if the dataset uses RLS, you can create a subscription for yourself. You can't subscribe others to a report with row-level security (RLS) applied, except for paginated reports. You can subscribe others to a paginated report, using your security context. Read more about subscribing to paginated reports.
- Report page subscriptions are tied to the name of the report page. If you subscribe to a report page and then rename it, you have to re-create your subscription.
- Your organization may configure certain settings in Azure Active Directory that limit the ability to use email subscriptions in Power BI. These limitations include, but aren't limited to, having multi-factor authentication or IP range restrictions when accessing resources.
- Email subscriptions don't support most custom visuals. The one exception is those custom visuals that have been certified.
- Email subscriptions don't support R-powered custom visuals at this time.
- Email subscriptions are sent with the report's default filter and slicer states. Any changes to the defaults that you make after subscribing don't show up in the email. Paginated reports do support this capability and allow you to set the specific parameter values per subscription.

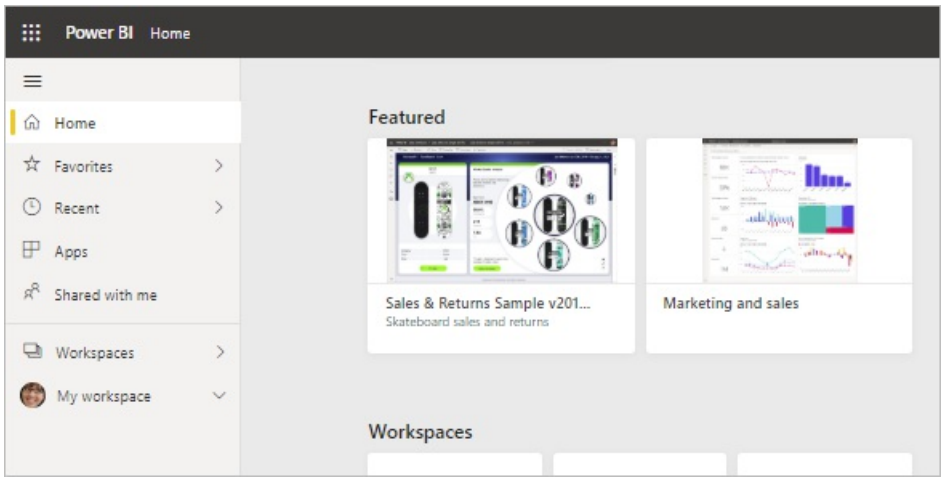
Next steps

- Subscribe yourself and others to a paginated report in the Power BI service
- More questions? Try asking the Power BI Community
- Read the blog post

Feature content on colleagues' Power BI Home page

5/11/2020 • 2 minutes to read • Edit Online

You can feature dashboards, reports, and apps so they appear in the Featured section of your colleagues' Power BI Home page. Featuring content is especially useful for onboarding new employees to Power BI. You can decide which content they see first. You can add descriptions and small thumbnail images to help users find what they need. The content has to be in a new workspace.



Who can feature content

It's up to your Power BI tenant admin to enable the ability to feature content on your tenant. The admin also chooses who can feature content. See the admin portal article for details.

If you're one of the select group in your organization with that responsibility, you need to have a Power BI Pro license. To feature dashboards and reports, you need the Admin, Member, or Contributor role in the workspace. To feature the app itself, you need to have the Admin or Member role in the workspace. See Roles in the new workspaces for details.

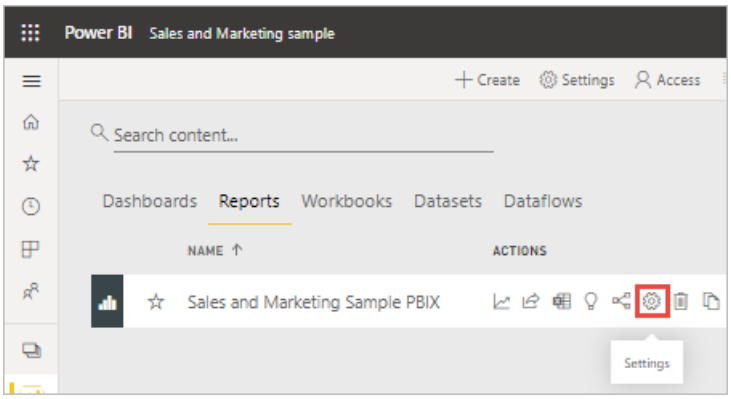
Who sees featured content

If you feature a dashboard or report from a workspace, then the people who have at least a Viewer role in that workspace will see it featured. If you feature a dashboard or report from an app, or the app itself, then the people you distribute the app to will see it featured.

Feature a dashboard or report

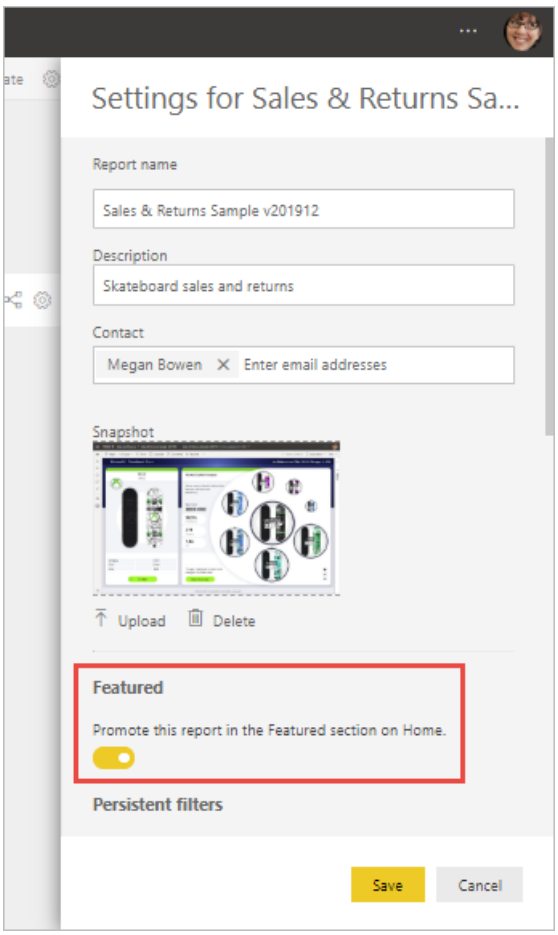
The procedure for featuring either a dashboard or report is similar.

1. In either the **Dashboards** or **Reports** list for a workspace, select the **Settings** icon.



2. In the **Settings** pane, check or change the name. Add a **Description** and upload a **Snapshot**, if you want them. They're useful because they help your users find your content.

3. Select **Featured**.



4. Select **Save**.

   Now all users who have access to this dashboard or report will see it in the **Featured** section on **Home**.

Feature an app

- To feature an app, open the workspace for the app, select the **Options** menu (...) > **Feature this app on Home**.

Now everyone who has access to this app will also see it in the **Featured** section on **Home**.

Next steps

- How should I collaborate on and share dashboards and reports?

- Manage featured content in the Admin portal
- Questions? Try the Power BI Community

Embed reports in Microsoft Teams with the Power BI tab

5/28/2020 • 4 minutes to read • Edit Online

With the updated Power BI tab for Microsoft Teams, you can easily embed interactive reports in Microsoft Teams channels and chats. Use the Power BI tab for Microsoft Teams to help your colleagues find the data your team uses and to discuss the data within your team channels. When you paste a link to your reports, dashboards, and apps into the Microsoft Teams message box, the link preview shows information about them. Your users can more easily understand which item the link takes them to.

Requirements

For the **Power BI tab for Microsoft Teams** to work, ensure:

- Your users have a Power BI Pro license, or the report is contained in a Power BI Premium capacity (EM or P SKU) with a Power BI license.
- Microsoft Teams has the Power BI tab.
- Users have signed in to the Power BI service to activate their Power BI license to consume the report.
- To add a report in Microsoft Teams with the Power BI tab, you must have at least a Viewer role in the workspace hosting the report. See Roles in the new workspaces for information about the different roles.
- To see the report in the Power BI tab in Microsoft Teams, users must have permission to view the report.

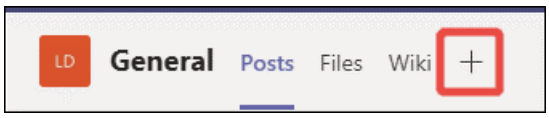
Additionally, for the **link previews** to work, ensure:

- Users meet the requirements to use the Power BI tab for Microsoft Teams.
- Users have signed in to the Power BI service.

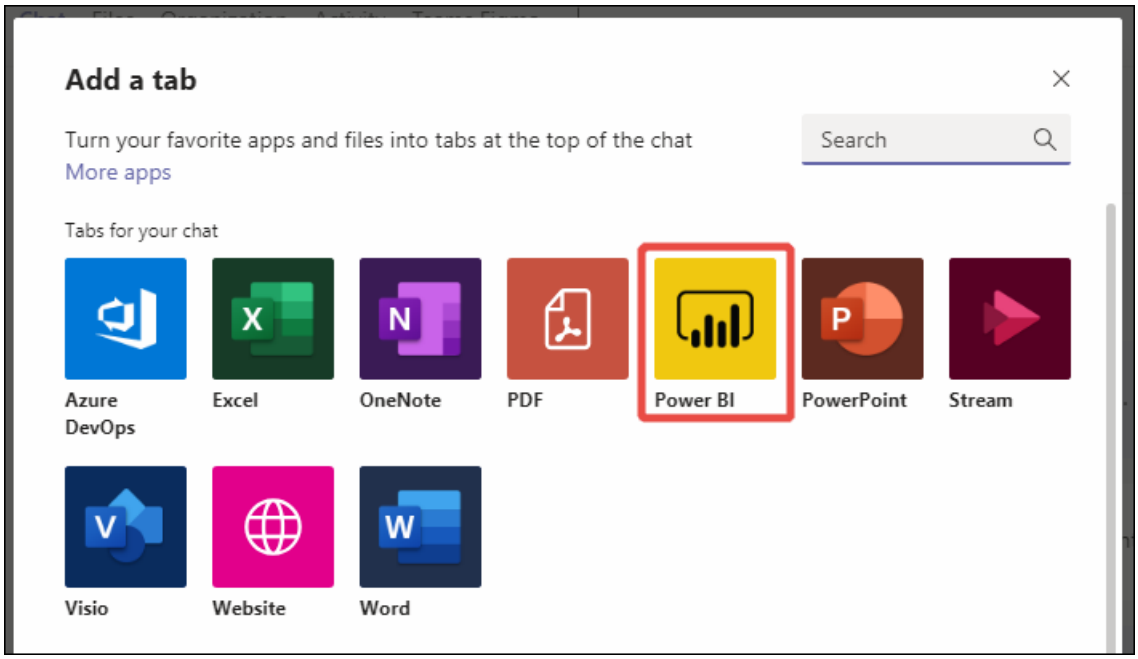
Embed your report

Follow these steps to embed your report in a Microsoft Teams channel or chat.

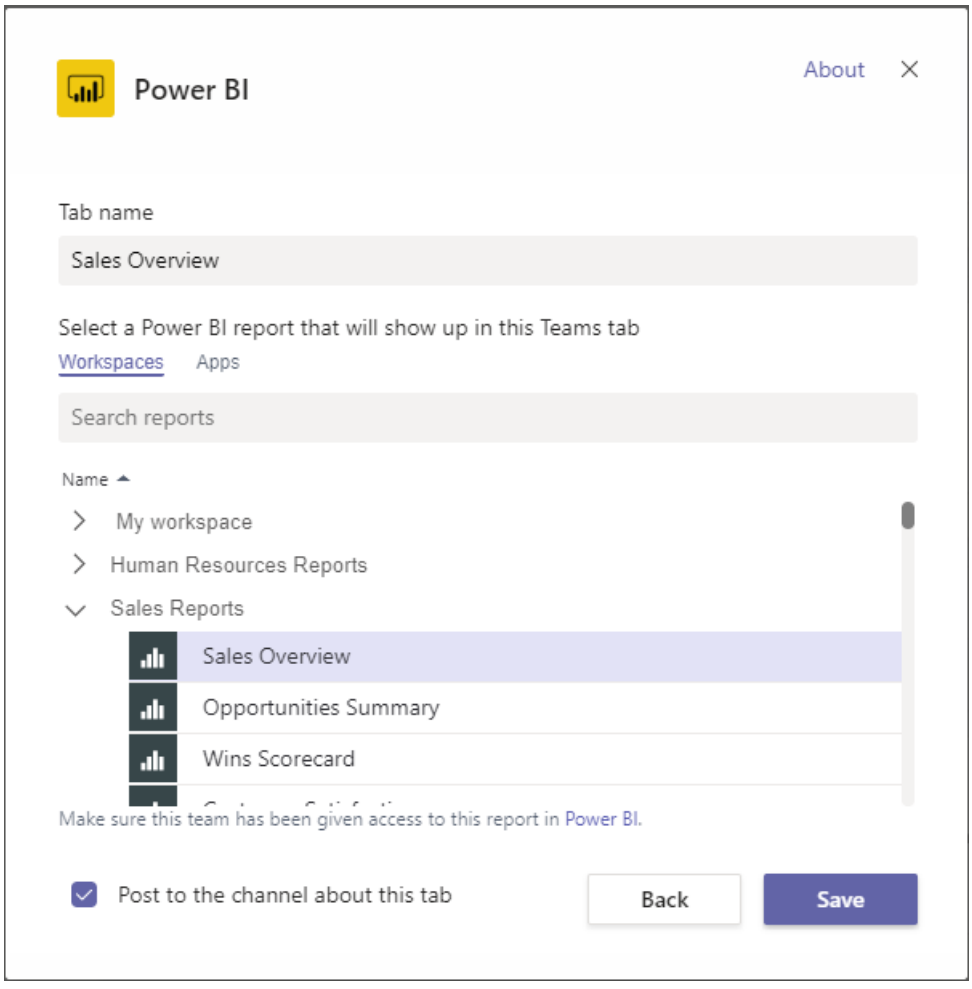
1. Open a channel or chat in Microsoft Teams and select the + icon.



2. Select the Power BI tab.



3. Use the provided options to pick a report from a workspace or a Power BI app.



4. The Tab name is updated automatically to match the name of the report name, but you can change it.

5. Press **Save**.

Supported reports for embedding the Power BI tab

You can embed the following types of reports on the Power BI tab:

- Interactive and paginated reports.

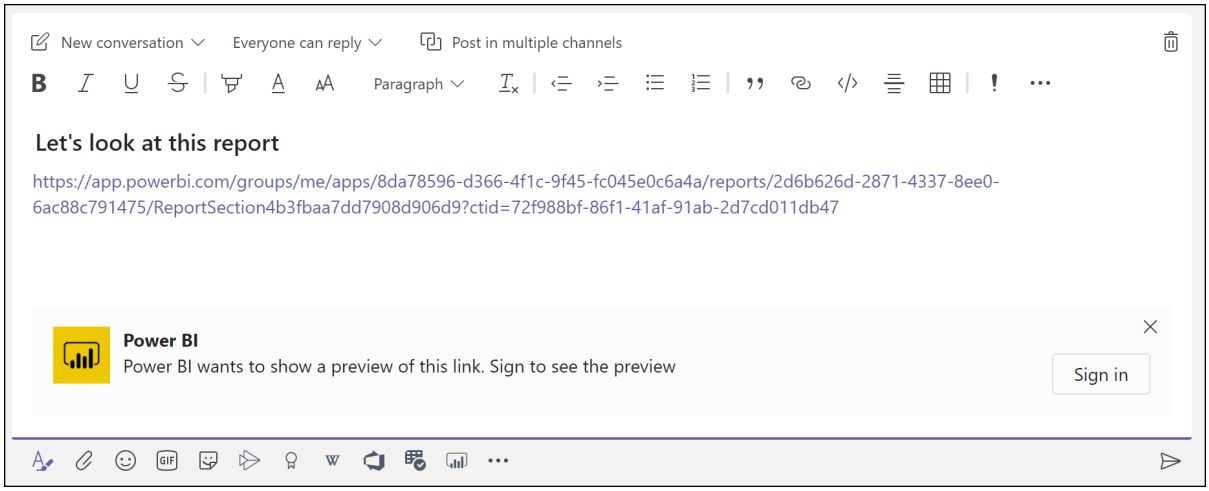
- Reports in My workspace, new workspace experiences, and classic workspaces.
- Reports in Power BI apps.

Get a link preview

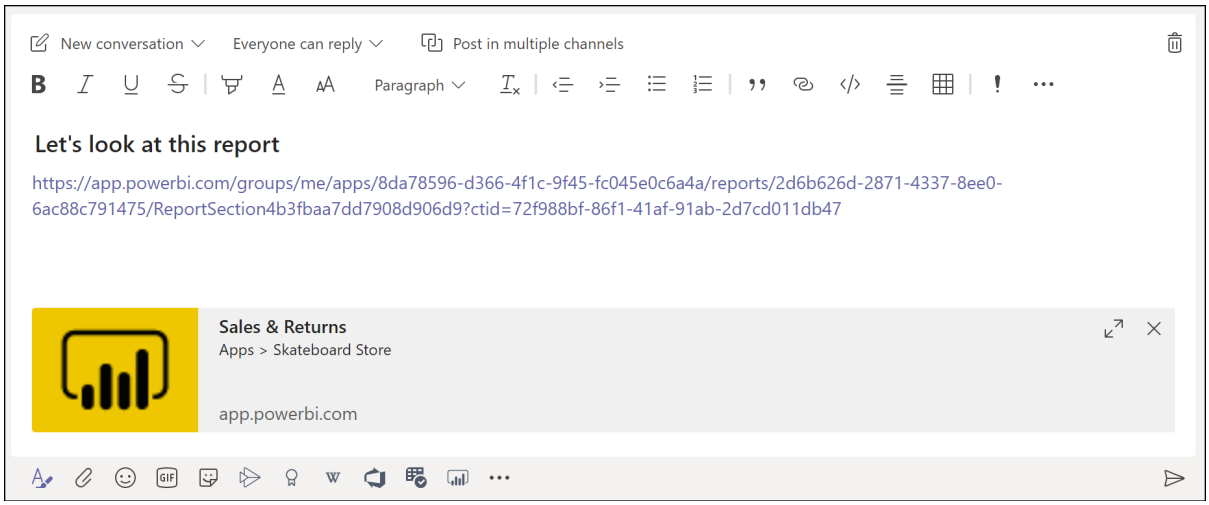
Follow these steps to get a link preview for content in the Power BI service.

1. Copy a link to a report, a dashboard, or an app in the Power BI service. For example, copy the link from the browser address bar.

2. Paste the link to the Microsoft Teams message box. Sign in to the link preview service if prompted. You may need to wait a few seconds for the link preview to load.

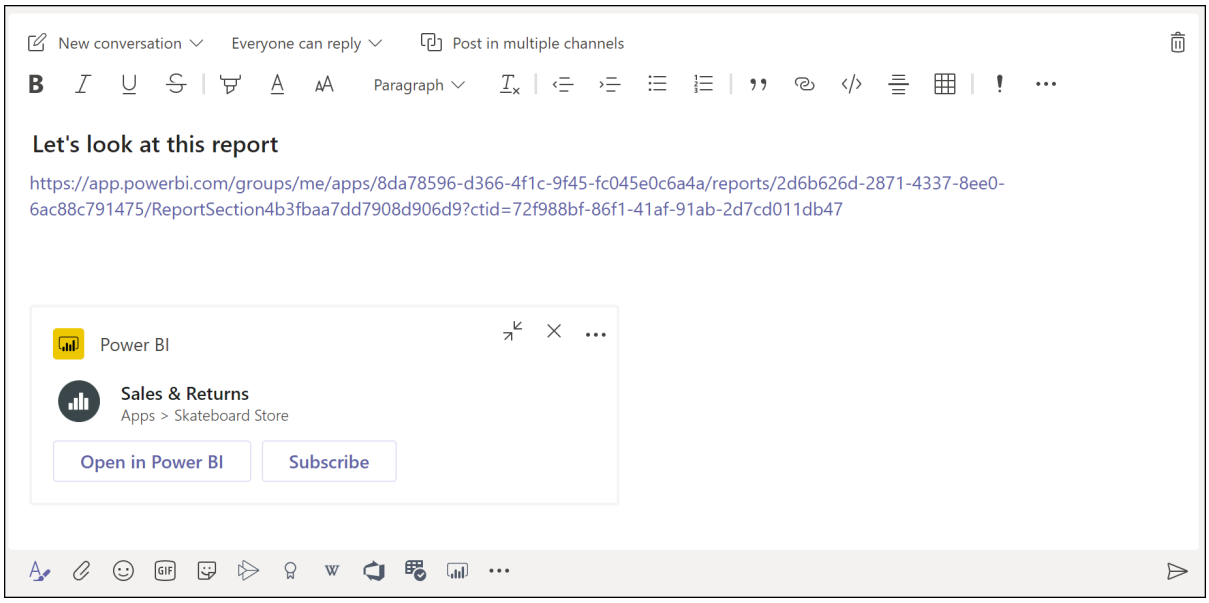


3. The basic link preview is shown after successful sign in.



4. Select the expand icon to show the rich preview card.

5. The rich link preview card shows the link and relevant action buttons



6. Send the message.

Grant access to reports

Embedding a report in Microsoft Teams or sending a link to an item doesn't automatically give users permission to view the report - you need to allow users to view the report in Power BI. You can use a Microsoft 365 Group for your Team to make it easier.

> **IMPORTANT**
> Make sure to review who can see the report within the Power BI service and grant access to those not listed.

One way to ensure everyone on your team has access to reports is to place the reports in a single workspace in Power BI and give the Microsoft 365 Group for your team access to the workspace.

Link previews

Link previews are provided for the following items in Power BI:

- Reports
- Dashboards
- Apps

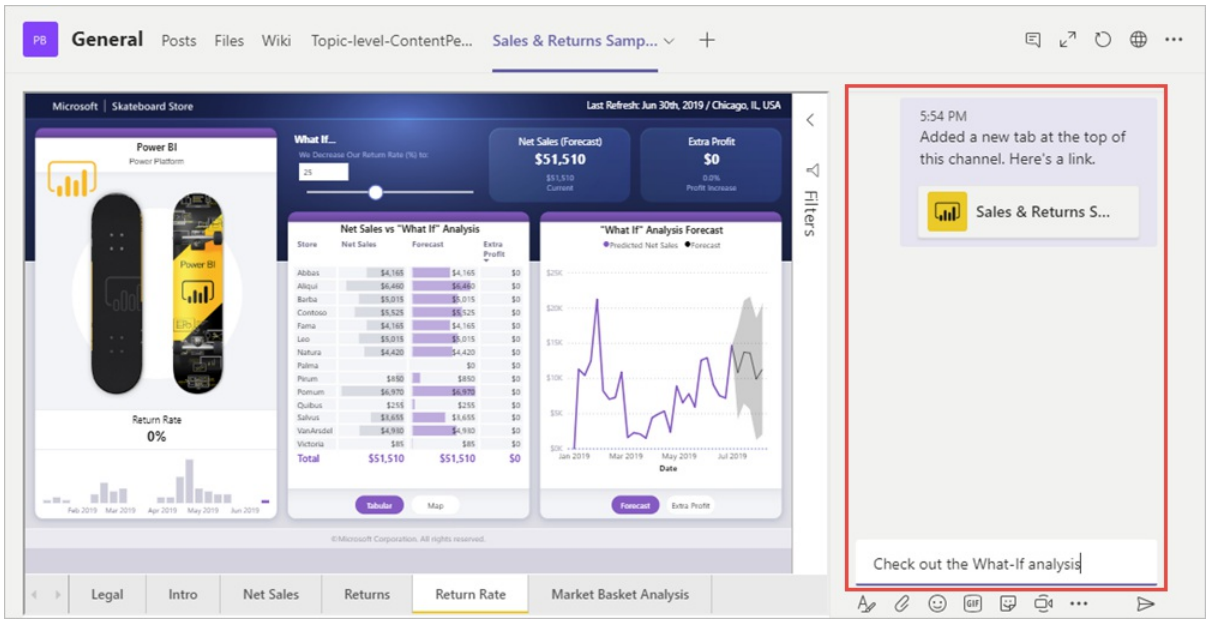
The link preview service requires your users to sign in. To sign out, select the Power BI icon at the bottom of the message box, then select sign out.

Start a conversation

When you add a Power BI report tab to Teams, Teams automatically creates a tab conversation for the report.

- Select **Show tab conversation** in the upper-right corner.

The first comment is a link to the report. Everyone in that Teams channel can see and discuss the report in the conversation.



Known issues and limitations

- Power BI doesn't support the same localized languages that Microsoft Teams does. As a result, you may not see proper localization within the embedded report.
- Power BI dashboards can't be embedded in the Power BI tab for Microsoft Teams.
- Users without a Power BI license or permission to the report see a "Content is not available" message.
- You may have issues if using Internet Explorer 10.
- URL filters aren't supported with the Power BI tab for Microsoft Teams.
- In national clouds, the new Power BI tab isn't available. An older version may be available that doesn't support new workspace experience workspace or reports in Power BI apps.
- After you save the tab, you can't change the tab name through the tab settings. Use the rename option to change it.
- Single Sign-on isn't supported for the link preview service.
- Link previews don't work in meeting chat or private channels.

Next steps

- Share a dashboard with colleagues and others
- Create and distribute an app in Power BI
- What is Power BI Premium?

More questions? Try asking the Power BI Community

Embed a report web part in SharePoint Online

5/20/2020 • 5 minutes to read • Edit Online

With Power BI's new report web part for SharePoint Online, you can easily embed interactive Power BI reports in SharePoint Online pages.

When using the new **Embed in SharePoint Online** option, the embedded reports are fully secure, so you can easily create secure internal portals.

Requirements

For **Embed in SharePoint Online** reports to work, the following is required:

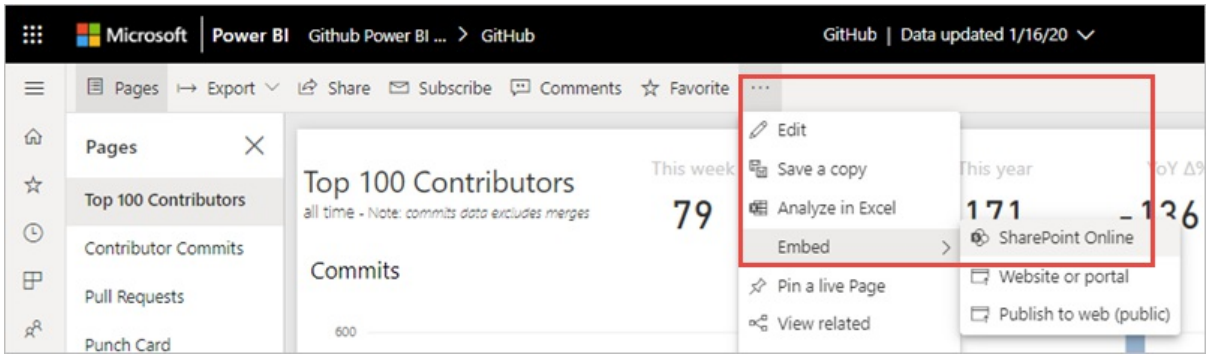
- A Power BI Pro license or a Power BI Premium capacity (EM or P SKU) with a Power BI license.
- The Power BI web part for SharePoint Online requires Modern Pages.
- To consume an embedded report, users must sign in to Power BI service to activate their Power BI license.

Embed your report

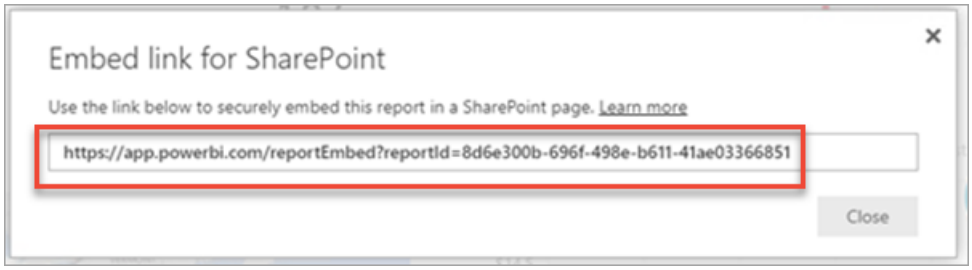
To embed your report into SharePoint Online, you need to get the report URL and use it with SharePoint Online's Power BI web part.

Get a report URL

1. Within Power BI, view the report.
2. On the **More options (...)** dropdown menu, select **Embed** > **SharePoint Online**.

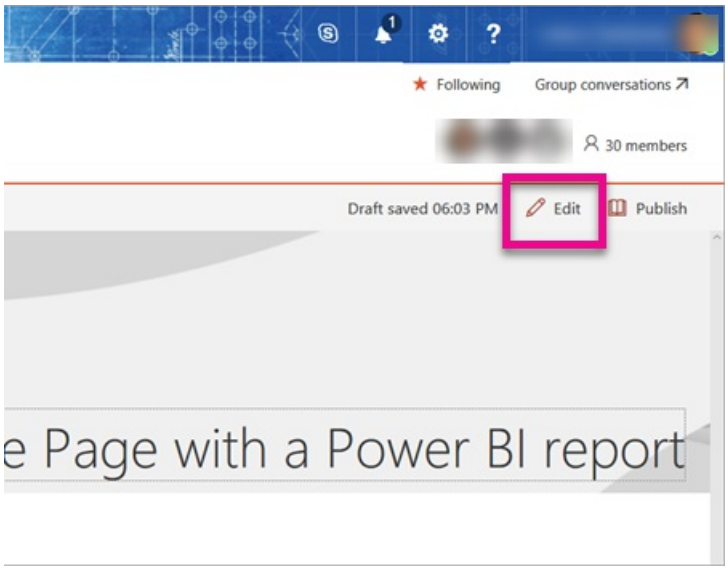


3. Copy the report URL from the dialog.

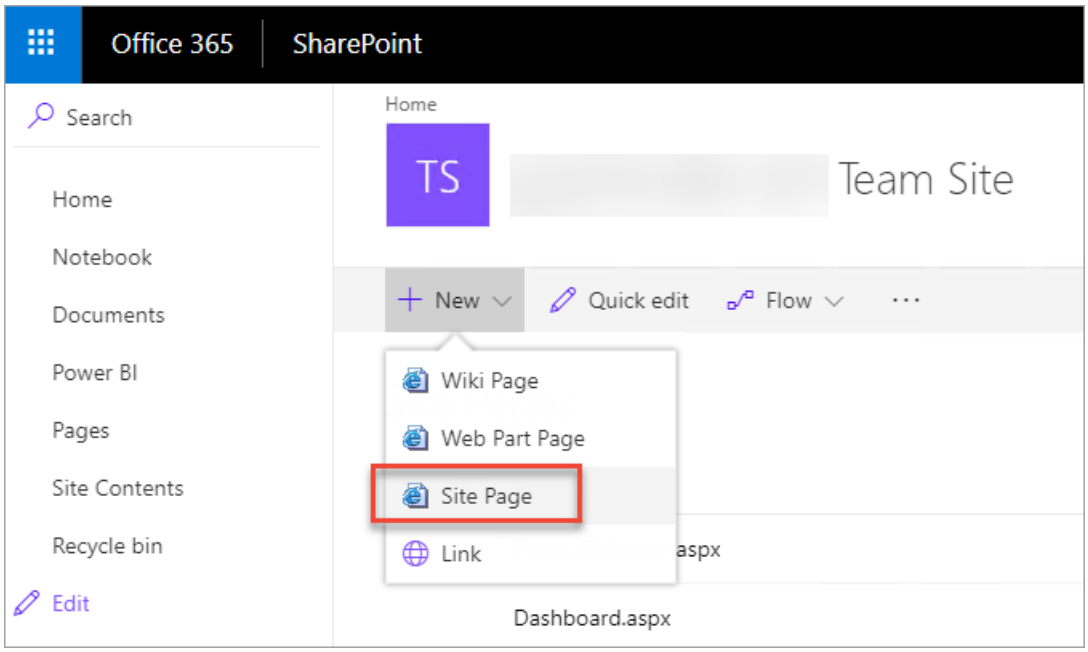


Add the Power BI report to a SharePoint Online page

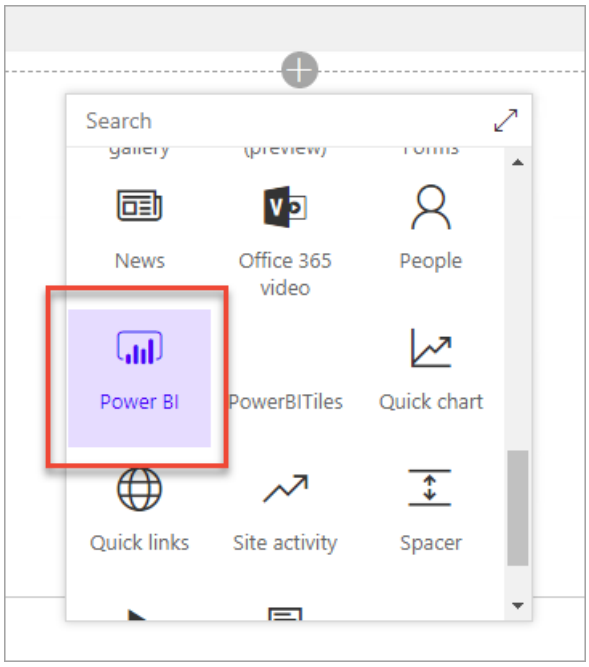
1. Open the target page in SharePoint Online and select **Edit**.



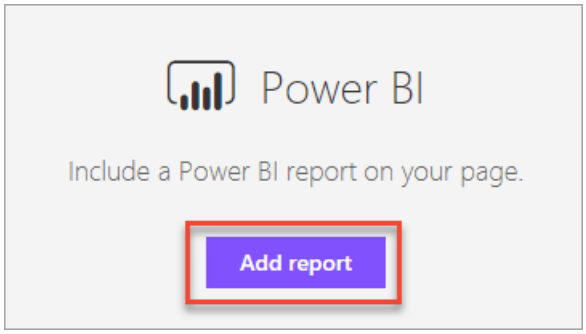
Or, in Sharepoint Online, select **+ New** to create a new modern site page.



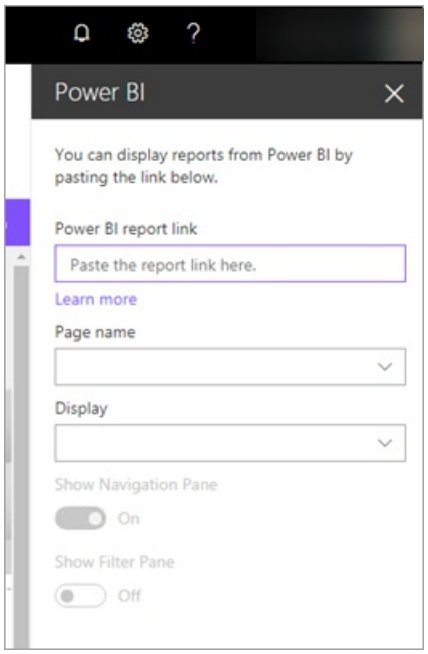
2. Select the **+** dropdown and then select the **Power BI** web part.



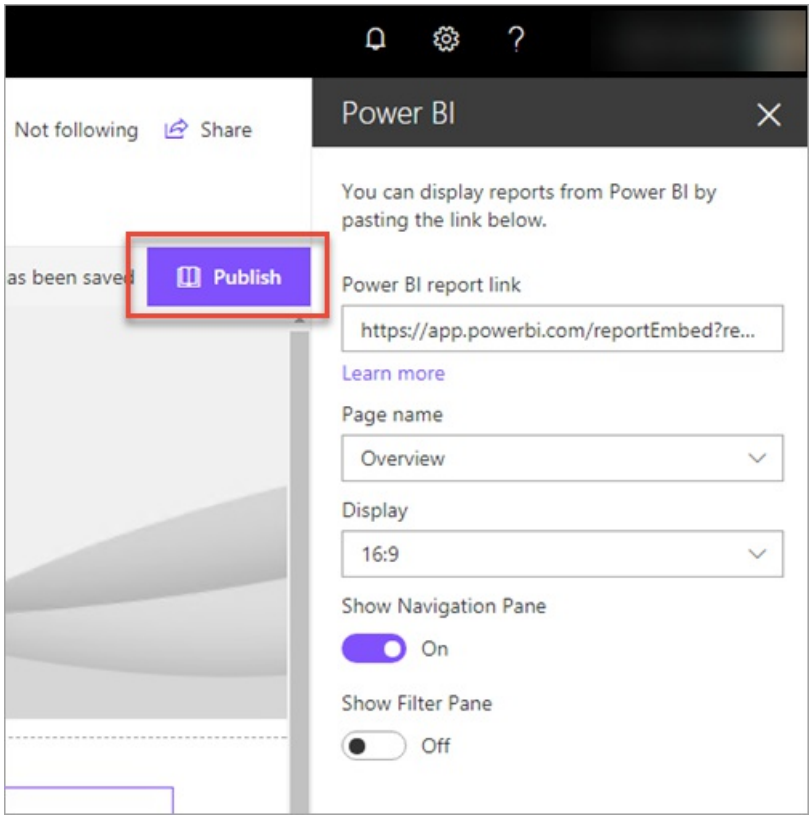
3. Select **Add report**.



4. Paste the previously-copied report URL into the **Power BI report link** pane. The report loads automatically.



5. Select **Publish** to make the change visible to your SharePoint Online users.



Grant access to reports

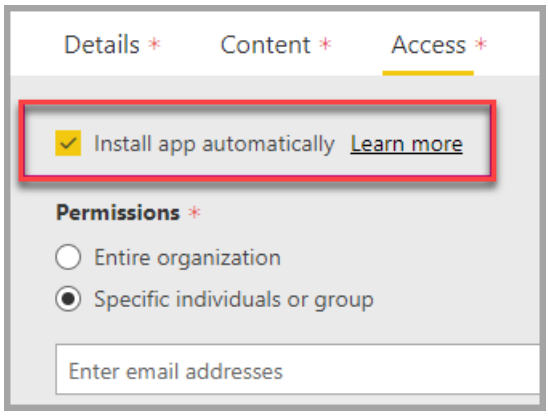
Embedding a report in SharePoint Online doesn't automatically give users permission to view the report - you need to set view permissions in Power BI.

> **IMPORTANT**
> Make sure to review who can see the report within the Power BI service and grant access to those not listed.

There are two ways to provide report access in Power BI. The first way, if you're using a Microsoft 365 Group to build your SharePoint Online team site, is to list the user as a member of the **workspace within the Power BI service** and the **SharePoint page**. For more information, see how to manage a workspace.

The second way is to embed a report within an app and share it directly with users:

1. The author, who must be a Pro user, creates a report in a workspace. To share with *Power BI free users*, the workspace needs to be set as a *Premium workspace*.
2. The author publishes the app and installs it. The author must install the app so it has access to the report URL that is used for embedding in SharePoint Online.
3. Now all end users need to install the app too. You can also use the **Install app automatically** feature, which you can enable in the Power BI admin portal, to have the app pre-installed for end users.



4. The author opens the app and goes to the report.
5. The author copies the embed report URL from the report the app installed. Don't use the original report URL from the workspace.
6. Create a new team site in SharePoint Online.
7. Add the previously-copied report URL to the Power BI web part.
8. Add all end users and/or groups who are going to consume the data on the SharePoint Online page and in the Power BI app you created.

> **NOTE**
> **Users or groups need access to both the SharePoint Online page and the report in the Power BI app to see the report on the SharePoint page.**

Now the end user can go to the team site in SharePoint Online and view the reports on the page.

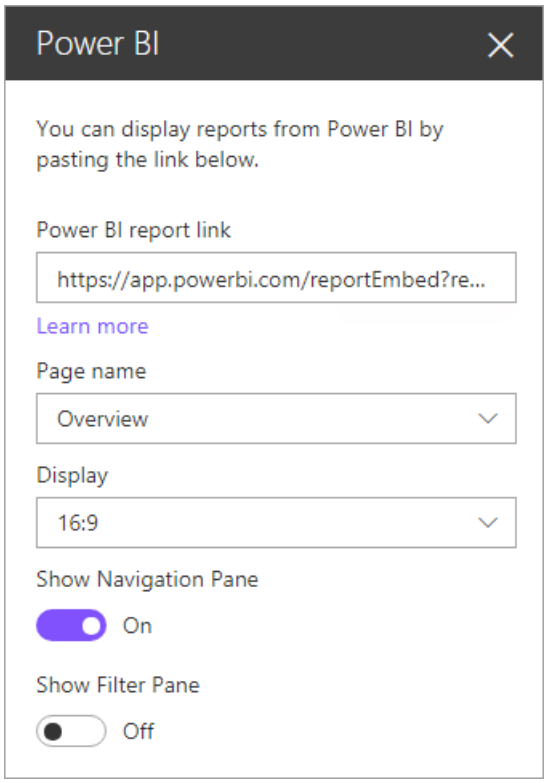
Multi-factor authentication

If your Power BI environment requires you to sign in using multi-factor authentication, you may be asked to sign in with a security device to verify your identity. This occurs if you did not sign in to SharePoint Online using multi-factor authentication, but your Power BI environment requires a security device to validate an account.

> **NOTE**
> Power BI does not yet support multi-factor authentication with Azure Active Directory 2.0 - users will see an error message. If the user signs in again to SharePoint Online using their security device, they may be able to view the report.

Web part settings

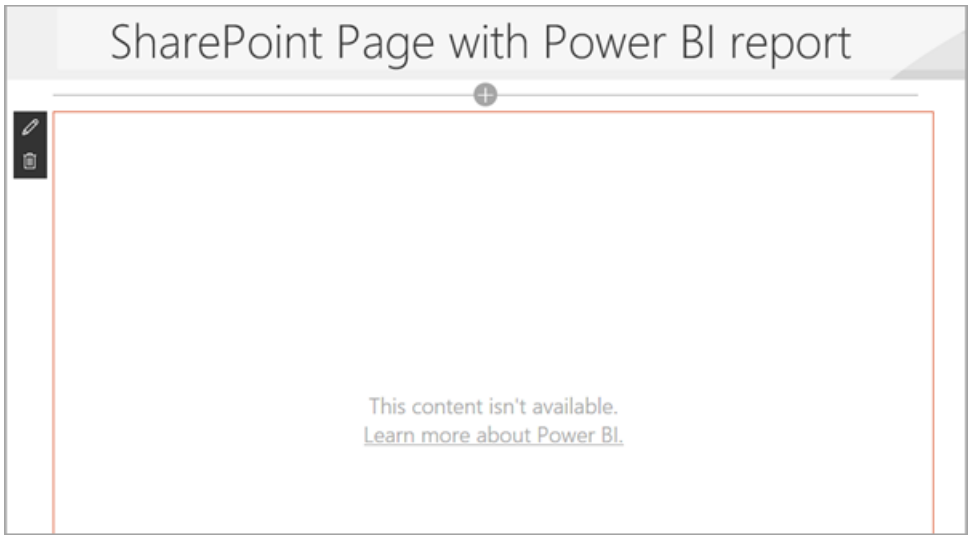
Below are the settings you can adjust for the Power BI web part for SharePoint Online.



PROPERTY	DESCRIPTION
Page name	Sets the web part's default page. Select a value from the drop-down. If no pages are displayed, either your report has one page, or the URL you pasted contains a page name. Remove the report section from the URL to select a specific page.
Display	Adjusts how the report fits within the SharePoint Online page.
Show Nav Pane	Shows or hides the page nav pane.
Show Filter Pane	Shows or hides the filter pane.

Reports that do not load

If your report does not load within the Power BI web part, you may see the following message:



There are two common reasons for this message.

1. You do not have report access.
2. The report was deleted.

Contact the SharePoint Online page owner to help resolve the issue.

Licensing

Users viewing a report in SharePoint need either a **Power BI Pro license** or the content needs to be in a workspace that's in a **Power BI Premium capacity (EM or P SKU)**.

Known issues and limitations

- Error: "An error occurred, please try logging out and back in and then revisiting this page. Correlation ID: undefined, http response status: 400, server error code 10001, message: Missing refresh token"

  If you receive this error, try one of the troubleshooting steps below.

  1. Sign out of SharePoint and sign back in. Be sure to close all browser windows before signing back in.
  2. If your user account requires multi-factor authentication (MFA), then sign in to SharePoint using your MFA device (phone app, smart card, etc.).
  3. Azure B2B Guest users accounts are not supported. Users see the Power BI logo that shows the part is loading, but it doesn't show the report.

- Power BI does not support the same localized languages that SharePoint Online does. As a result, you may not see proper localization within the embedded report.
- You may encounter issues if using Internet Explorer 10.
- The Power BI web part is not available for national clouds.
- The classic SharePoint Server is not supported with this web part.
- URL filters are not supported with the SPO web part.

Next steps

- Allow or prevent creation of modern site pages by end users
- Create and distribute an app in Power BI
- Share a dashboard with colleagues and others

- What is Power BI Premium?
- Embed report in a secure portal or website

More questions? Try asking the Power BI Community

Embed a report in a secure portal or website

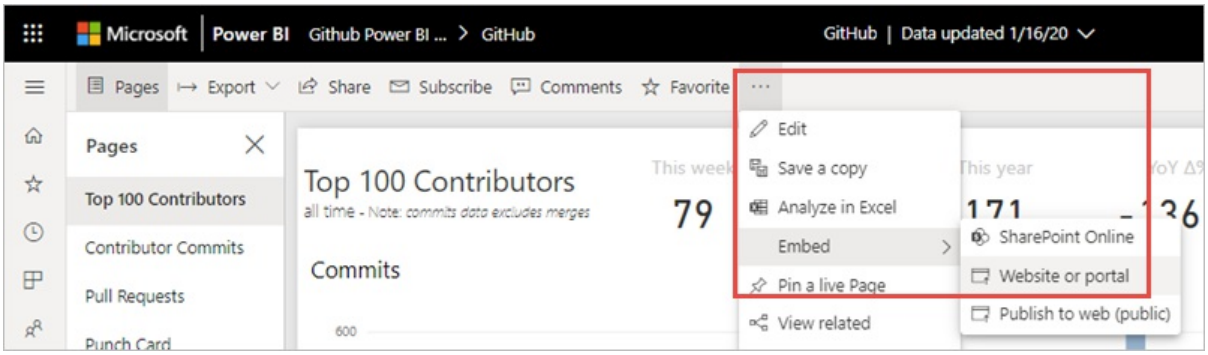
5/20/2020 • 4 minutes to read • Edit Online

With the new **Embed** option for Power BI reports, you can easily and securely embed reports in internal web portals. These portals can be **cloud-based** or **hosted on-premises**, such as SharePoint 2019. Embedded reports respect all item permissions and data security through row-level security (RLS). They provide no-code embedding into any portal that accepts a URL or iFrame.

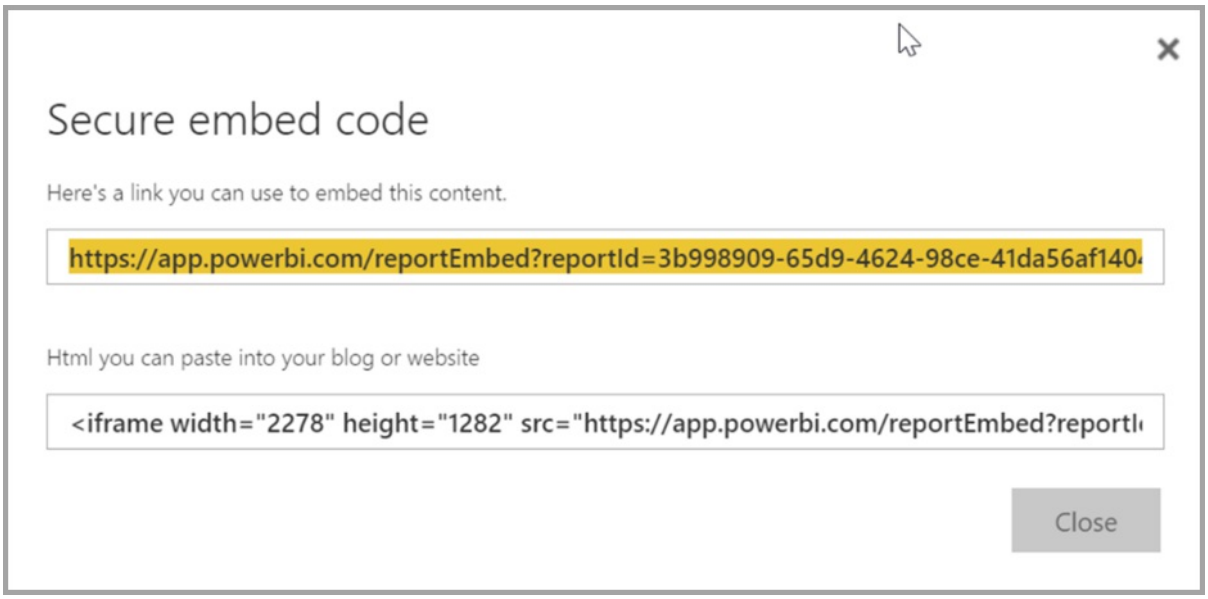
The **Embed** option supports URL filters and URL settings. It allows you to integrate with portals using a low-code approach requiring only basic HTML and JavaScript knowledge.

How to embed Power BI reports into portals

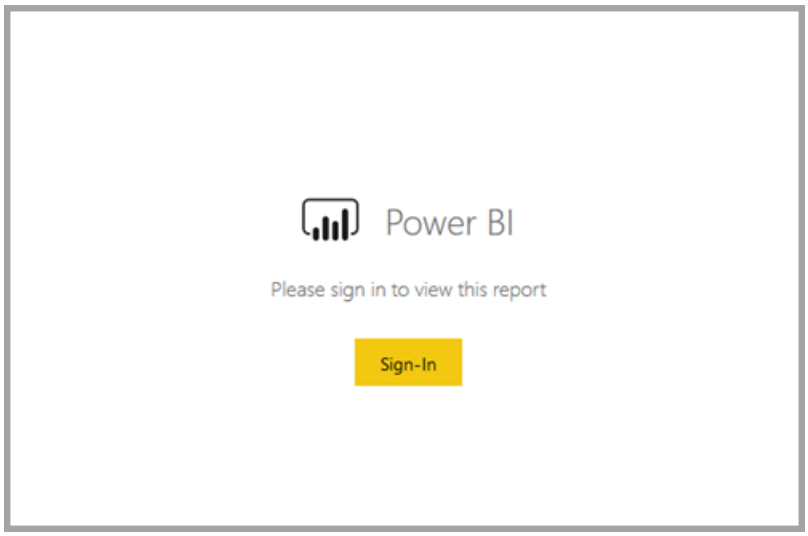
1. Open a report in the Power BI service.
2. On the **More options (...)** menu, select **Embed** > **Website or portal**.



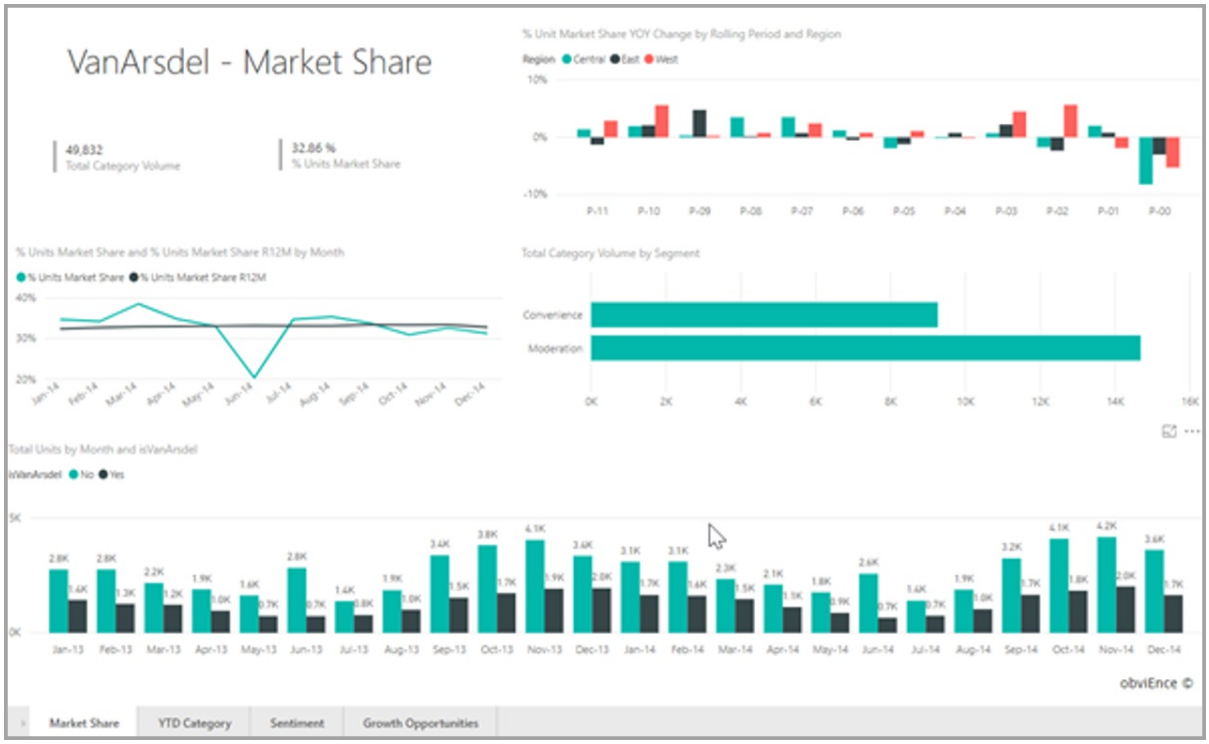
3. Select the **Embed** option to open a dialog that provides a link and an iFrame you can use to embed the report securely.



4. Whether a user opens a report URL directly, or one embedded in a web portal, report access requires authentication. The following screen appears if a user has not signed-in to Power BI in their browser session. When they select **Sign-In**, a new browser window or tab could open. Have them check for pop-up blockers if they don't get prompted to sign in.



5. After the user has signed in, the report opens, showing the data and allowing page navigation and filter setting. Only users who have view permission can see the report in Power BI. All row-level security (RLS) rules are also applied. Lastly, the user needs to be correctly licensed – either they need a Power BI Pro license, or the report must be in a workspace that is in a Power BI Premium capacity. The user needs to sign in each time they open a new browser window. However, once signed in, other reports load automatically.



6. When using an iFrame, you may need to edit the **height** and **width** to have it fit in your portal's web page.

```
<iframe width="1080" height="760"
src="https://app.powerbi.com/reportEmbed?reportId=3b998909
-65d9-4624-98ce-41da56af1404&autoAuth=true"
frameborder="0" allowFullScreen="true"></iframe>
```

Granting report access

The **Embed** option doesn't automatically permit users to view the report. View permissions are set in the Power BI service.

In the Power BI service, you can share embedded reports with users requiring access. If you're using a Microsoft 365 Group, you can list the user as a workspace member. For more information, see how to manage your workspace in Power BI and Microsoft 365.

Licensing

To view the embedded report, users need either a Power BI Pro license or the content needs to be in a workspace that's in a Power BI Premium capacity (EM or P SKU).

Customize your embed experience using URL settings

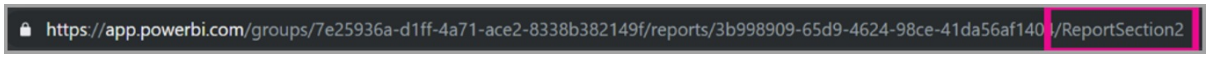
You can customize the user experience using the embed URL's input settings. In the provided iFrame, you can update the URL's **src** settings.

PROPERTY	DESCRIPTION			
pageName	You can use the **pageName** query string parameter to set which report page to open. You can find this value at the report URL's end when viewing a report in the Power BI service, as shown below.			
URL Filters	You can use URL Filters in the embed URL you received from the Power BI UI to filter the embed content. This way you can build low-code integrations with only basic HTML and JavaScript experience.			

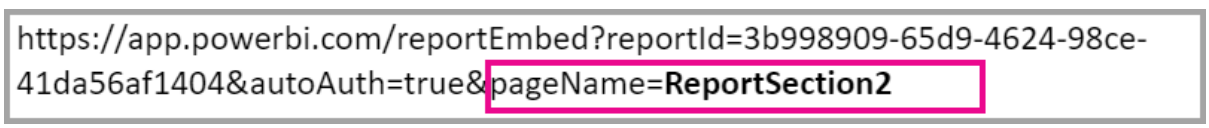
Set which page opens for an embedded report

You can find the **pageName** value at the report URL's end when viewing a report in the Power BI service.

1. Open the report from the Power BI service in your web browser, and then copy the address bar URL.



2. Append the **pageName** setting to the URL.



Filter report content using URL filters

You can use URL Filters to provide different report views. For example, the URL below filters the report to show data for the Energy industry.

Using the combination of **pageName** and URL Filters can be powerful. You can build experiences using basic HTML and JavaScript.

For example, here's a button you can add to an HTML page:

```
<button class="textLarge" onclick='show("ReportSection", "Energy");' style="display: inline-block;">Show Energy</button>
```

When selected, the button calls a function to update the iFrame with an updated URL, which includes the Energy industry filter.

```
function show(pageName, filterValue)

{

var newUrl = baseUrl + "&pageName=" + pageName;

if(null != filterValue && "" != filterValue)

{

newUrl += "&$filter=Industries/Industry eq '" + filterValue + "'";

}

//Assumes there's an iFrame on the page with id="iFrame"

var report = document.getElementById("iFrame")

report.src = newUrl;

}
```

```
https://app.powerbi.com/reportEmbed?reportId=3b998909-65d9-4624-98ce-41da56af1404&autoAuth=true&pageName=ReportSection&$filter=Industries/Industry eq 'Energy'
```

You can add as many buttons as you'd like to create a low-code custom experience.

Considerations and limitations

- Paginated reports are supported with secure embed scenarios, and paginated reports with URL parameters are also supported. Read more about passing report parameters in a URL for a paginated report.
- Doesn't support external guest users with Azure business to business (B2B).
- Secure embed works for reports published to the Power BI service.
- The user needs to sign in to view the report whenever they open a new browser window.
- Some browsers require you to refresh the page after sign-in, especially when using InPrivate or Incognito modes.
- You may encounter issues if using unsupported browser versions. Power BI supports the following list of browsers.
- The classic SharePoint Server isn't supported, as it requires Internet Explorer versions earlier than 11, or enabling the compatibility view mode.
- To achieve a single sign-on experience, use the Embed in SharePoint Online option, or build a custom

integration using the user owns data embedding method.

- The automatic authentication capability provided with the **Embed** option doesn't work with the Power BI JavaScript API. For the Power BI JavaScript API, use the user owns data embedding method.
- The authentication token lifetime is controlled based on your AAD settings. When the authentication token expires, the user will need to refresh their browser to get an updated authentication token. The default lifetime is one hour, but it could be shorter or longer in your organization.

Next steps

- Ways to share your work in Power BI
- Filter a report using query string parameters in the URL
- Embed with report web part in SharePoint Online
- Publish to Web from Power BI

Publish to web from Power BI

5/13/2020 • 9 minutes to read • Edit Online

With the Power BI **Publish to web** option, you can easily embed interactive Power BI content in blog posts, websites, emails, or social media. You can also easily edit, update, refresh, or stop sharing your published visuals.

WARNING

When you use **Publish to web**, anyone on the Internet can view your published report or visual. Viewing requires no authentication. It includes viewing detail-level data that your reports aggregate. Before publishing a report, make sure it's okay for you to share the data and visualizations publicly. Don't publish confidential or proprietary information. If in doubt, check your organization's policies before publishing.

NOTE

You can embed your content securely in an internal portal or website. Use the Embed or Embed in SharePoint Online options. These options ensure that all permissions and data security are enforced when your users view your internal data.

Create embed codes with Publish to web

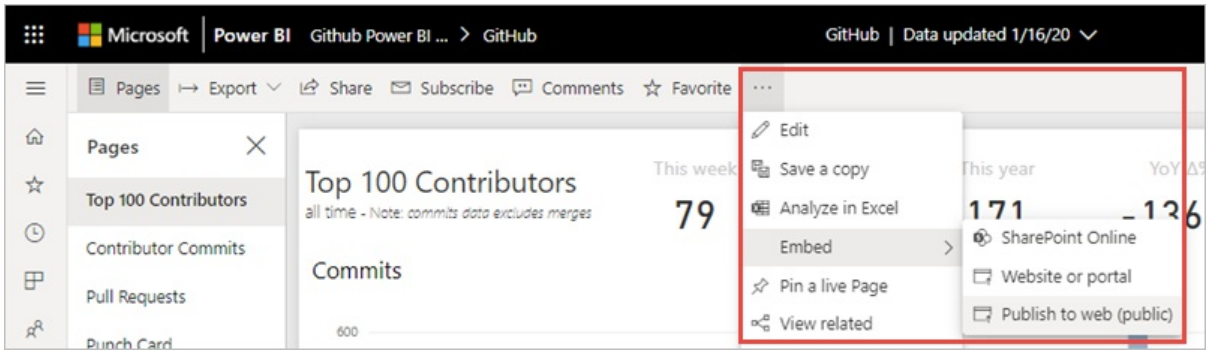
Publish to web is available for reports you can edit in your personal and group workspaces. It isn't available for reports shared with you, or ones relying on row-level security to secure data. See the **Limitations** section below for a complete list of cases where **Publish to web** isn't supported. Review the **Warning** earlier in this article before using **Publish to web**.

The following short video shows how this feature works. Then, try it yourself in the steps below.

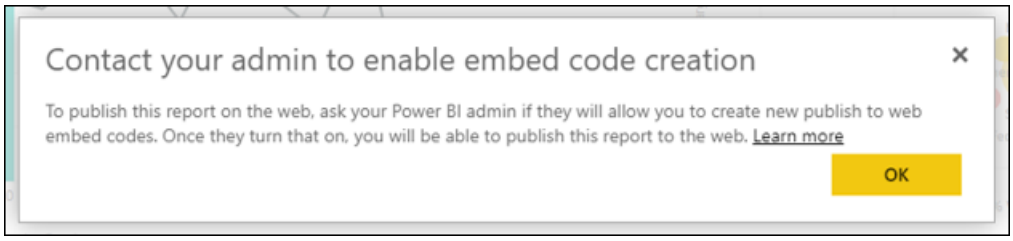
https://www.youtube.com/embed/UF9QtqE7s4Y

The following steps describe how to use **Publish to web**.

1. Open a report in a workspace that you can edit, and select **More options (...)** > **Embed** > **Publish to web (public)**.



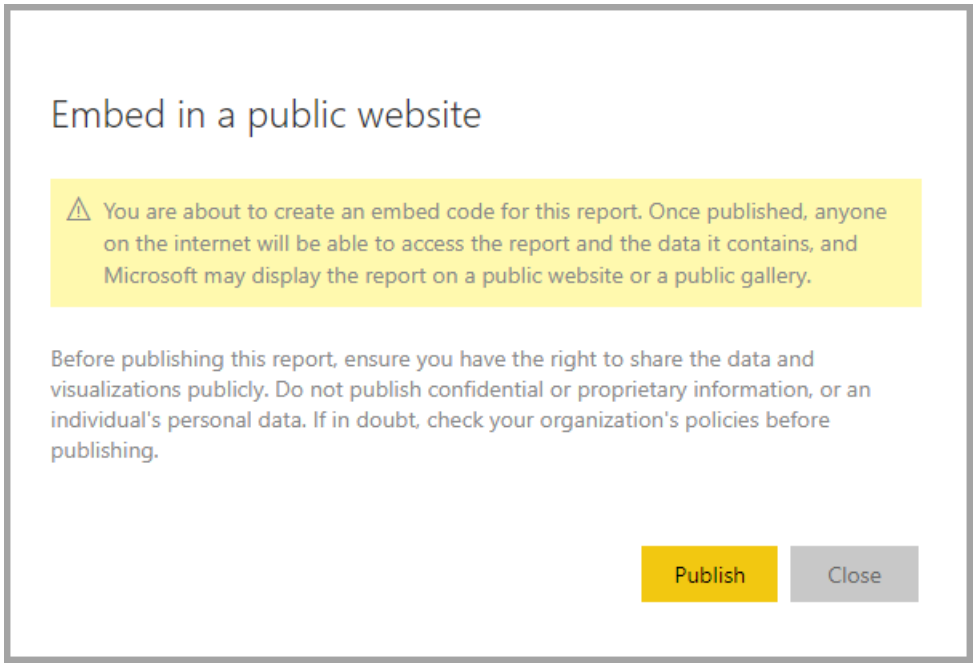
2. If your Power BI admin hasn't allowed you to create embed codes, you may need to contact them.



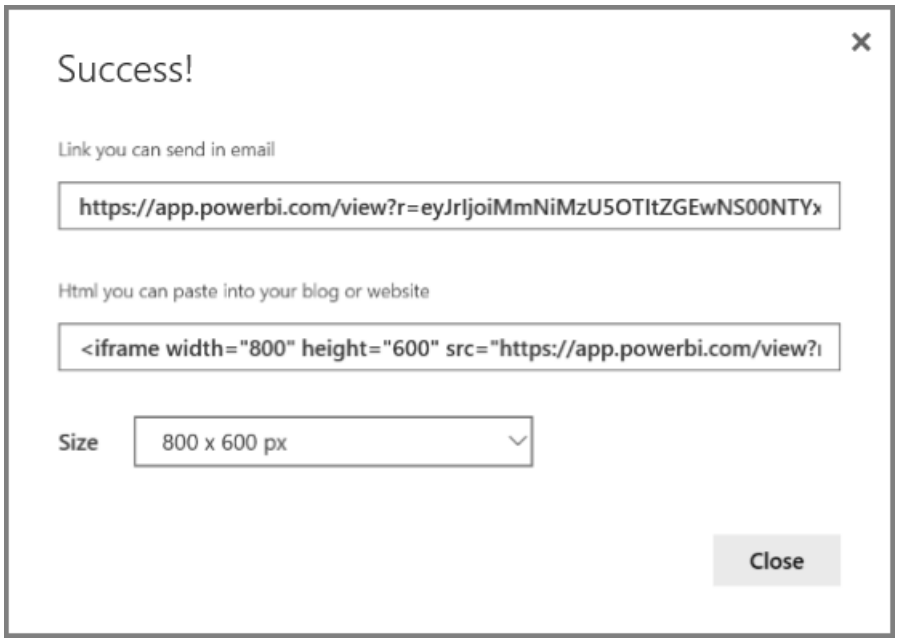
For help finding the person who can enable Publish to web in your organization, see How to find your Power BI administrator later in this article.

3. Review the dialog content and select **Create embed code**.

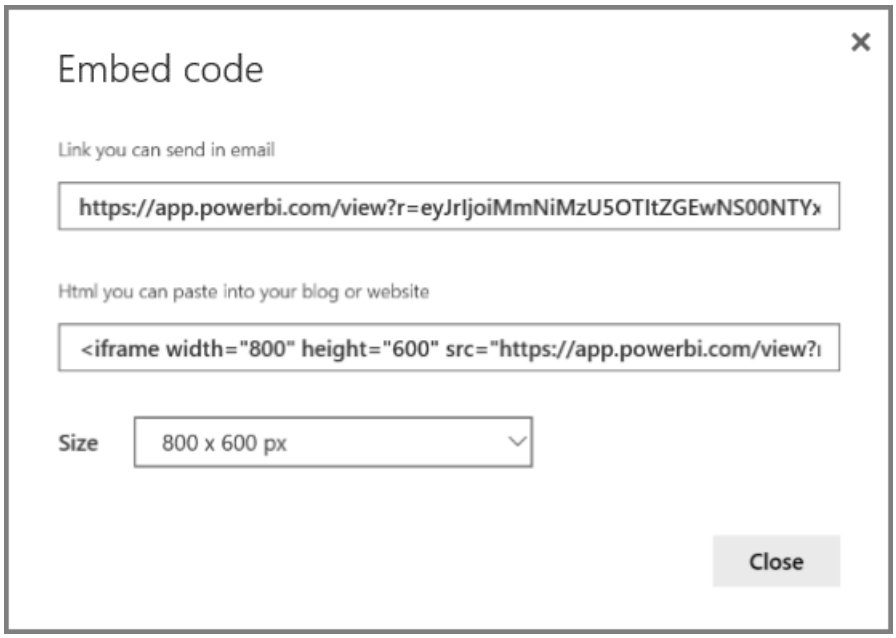
4. Review the warning, as shown here, and confirm that the data is okay to embed in a public website. If it is, select **Publish**.



5. A dialog appears with a link. Select the link to send it in email, or copy the HTML. You can embed it in code such as an iFrame, or paste it directly into a web page or blog.



6. If you previously created an embed code for a report and you select **Publish to web**, you won't see the dialogs in steps 2-4. Instead, the **Embed code** dialog appears:

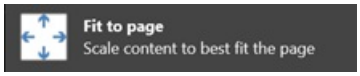


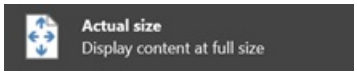
You can only create one embed code for each report.

Tips for view modes

When you embed content within a blog post, you typically need to fit it within a specific screen size. You can adjust the height and the width in the iFrame tag as needed. However, you need to ensure your report fits within the given iFrame area, so you also need to set an appropriate View Mode when editing the report.

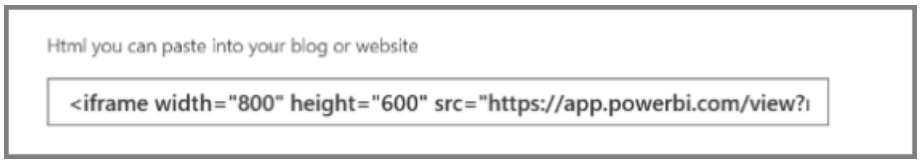
The following table provides guidance about the View Mode, and how it will appear when embedded.

VIEW MODE	HOW IT LOOKS WHEN EMBEDDED
	**Fit to page** respects your report's page height and width. If you set your page to *dynamic* ratios like 16:9 or 4:3, your content scales to fit within the iFrame. When embedded in an iFrame, using **Fit to page** can result in *letterboxing*, where a gray background is shown in iFrame areas after the content is scaled to fit within the iFrame. To minimize letterboxing, set the height and width of the iFrame appropriately.

VIEW MODE	HOW IT LOOKS WHEN EMBEDDED
	**Actual size** ensures the report preserves its size as set on the report page. This can result in scrollbars appearing in your iFrame. Set the iFrame height and width to avoid scrollbars.
	**Fit to width** ensures the content fills the horizontal area of the iFrame. A border is still shown, but the content scales to use all the horizontal space available.

Tips for iFrame height and width

A **Publish to web** embed code looks like the following example:



You can edit the width and height manually to ensure it's precisely how you want it to fit in the page where you're embedding it.

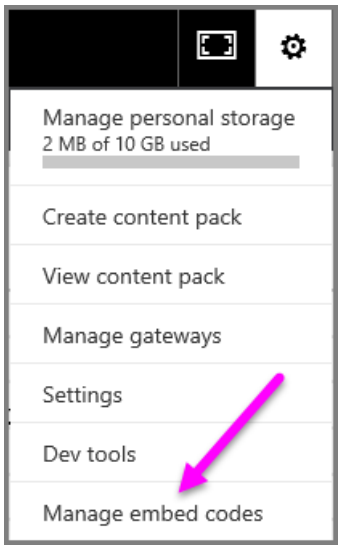
To achieve a more perfect fit, you can try adding 56 pixels to the height of the iFrame to accommodate the current size of the bottom bar. If your report page uses the dynamic size, the table below provides some sizes you can use to achieve a fit without letterboxing.

RATIO	SIZE	DIMENSION (WIDTH X HEIGHT)
16:9	Small	640 x 416 px
16:9	Medium	800 x 506 px
16:9	Large	960 x 596 px
4:3	Small	640 x 536 px
4:3	Medium	800 x 656 px
4:3	Large	960 x 776 px

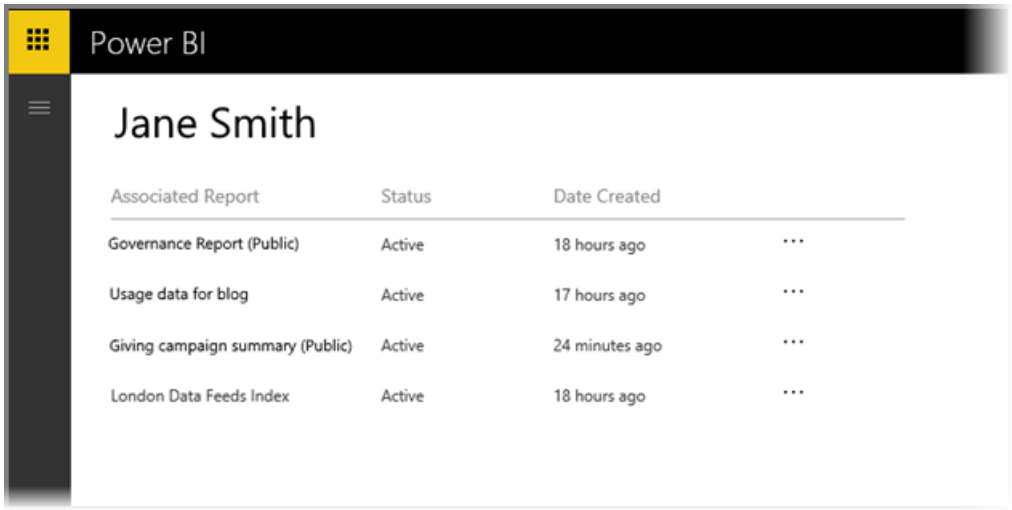
Manage embed codes

Once you create a **Publish to web** embed code, you can manage your codes from the **Settings** menu in Power BI. Managing embed codes includes the ability to remove the destination visual or report for a code (rendering the embed code unusable), or getting the embed code.

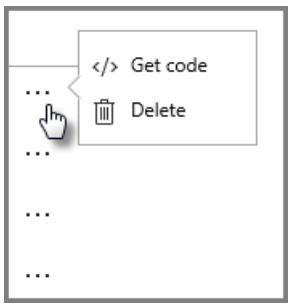
1. To manage your **Publish to web** embed codes, open the **Settings** gear and select **Manage embed codes**.



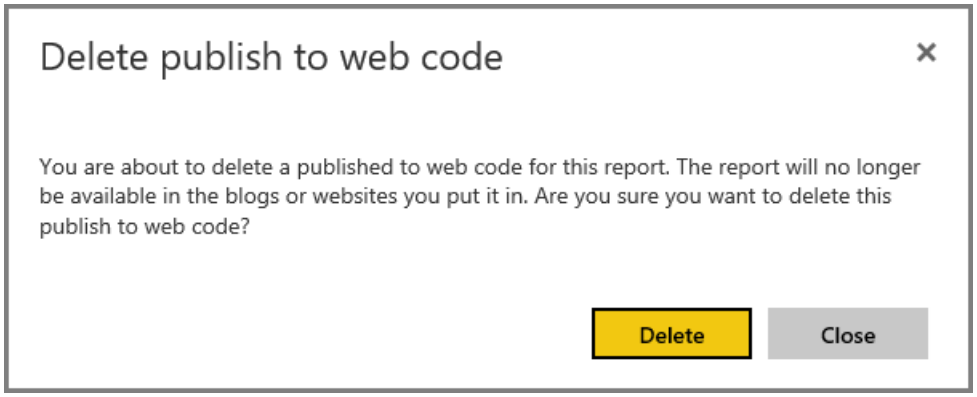
2. Your embed codes appear.



3. You can either retrieve or delete an embed code. Deleting it disables any links to that report or visual.



4. If you select **Delete**, you're asked for a confirmation.



Updates to reports, and data refresh

After you create your **Publish to web** embed code and share it, the report is updated with any changes you make, and the embed code link is immediately active. Anyone who opens the link can view it. After this initial action, however, updates to reports or visuals may take two to three hours before becoming visible to your users. To learn more, see the **How it works** section later in this article.

Data refresh

Data refreshes are automatically reflected in your embedded report or visual. It can take approximately one hour for refreshed data to be visible from embed codes. To disable automatic refresh, select **don't refresh** on the schedule for the dataset the report uses.

Power BI visuals

Power BI visuals are supported in **Publish to web**. When you use **Publish to web**, users with whom you share your published visual don't need to enable Power BI visuals to view the report.

Understanding the embed code status column

> **NOTE**
> Review the embed codes you've published often. Remove any that no longer need to be available publicly.

The **Manage embed codes** page includes a status column. By default, embed codes are **Active**, but could also be one of the statuses listed below.

STATUS	DESCRIPTION
Active	The report is available for Internet users to view and interact with.
Blocked	The report content violates the Power BI Terms of Service. Microsoft has blocked it. Contact support if you believe the content was blocked in error.
Not supported	The report's dataset is using row-level security, or another unsupported configuration. See the **Limitations** section for a complete list.
Infringed	The embed code is outside the defined tenant policy. This status typically occurs when an embed code was created and then the **Publish to web** tenant setting was changed to exclude the user owning the embed code. If the tenant setting is disabled, or the user is no longer allowed to create embed codes, existing embed codes show an **Infringed** status. See the Find your Power BI administrator section in this article for details.

Report a concern with Publish to web content

To report a concern related to **Publish to web** content embedded in a website or blog, select the **Flag** icon in the bottom bar of the **Publish to web** report.

You're asked to send an email to Microsoft explaining your concern. Microsoft evaluates the content based on the Power BI Terms of Service and takes appropriate action.

Licensing

You need to be a Microsoft Power BI user to use **Publish to web**. Your report viewers don't need to be Power BI users.

How it works (technical details)

When you create an embed code using **Publish to web**, the report is made visible to Internet users. It's publicly available, so you can expect viewers to easily share the report through social media in the future. As users view the report, either by opening the direct public URL or viewing it embedded in a web page or blog, Power BI caches the report definition and the results of the queries required to view the report. This caching ensures that thousands of concurrent users can view the report without impacting performance.

The cache is long-lived. If you update the report definition (for example, if you change its View mode) or refresh the report data, it can take approximately one hour before changes are reflected in the version of the report that your users view. Since each element and data value is cached independently, when a data update occurs a mix of current and previous values can be shown to a user. Therefore, we recommend staging your work ahead of time, and creating the **Publish to web** embed code only when you're satisfied with the settings. If your data will refresh, minimize the number of refreshes and perform the refreshes at off hours.

Find your Power BI administrator

The Power BI admin portal has settings that control who can publish to the web. Work with your organization's Power BI administrator to change the Publish to web tenant settings in the admin portal.

For smaller organizations or individuals who signed up for Power BI, you may not have a Power BI administrator yet. Follow our process for tenant admin takeover. Once you have a Power BI administrator, they can enable creating embed codes for you.

Established organizations usually already have a Power BI administrator. People in any of the following roles can act as a Power BI administrator:

- Office 365 administrators
- Azure Active Directory administrators
- Users with the Power BI service admin role in Azure Active Directory

You need to find one of these people in your organization and ask them to update the Publish to web tenant settings in the admin portal.

Limitations

Publish to web is supported for the vast majority of data sources and reports in the Power BI service. However, the following kinds of reports aren't currently supported or available with **Publish to web**:

- Reports using row-level security.
- Reports using any Live Connection data source, including Analysis Services Tabular hosted on-premises, Analysis Services Multidimensional, and Azure Analysis Services.
- Reports using a shared dataset that is stored in a different workspace from the report.
- Shared and certified datasets.
- Reports shared to you directly or through an organizational content pack.
- Reports in a workspace in which you aren't an edit member.

- "R" visuals aren't currently supported in **Publish to web** reports.
- Exporting data from visuals in a report that has been published to the web.
- ArcGIS Maps for Power BI visuals.
- Reports containing report-level DAX measures.
- Single sign-on data query models.
- Secure confidential or proprietary information.
- The automatic authentication capability provided with the **Embed** option doesn't work with the Power BI JavaScript API. For the Power BI JavaScript API, use the user owns data approach to embedding.

Next steps

- SharePoint Online report web part
- Embed report in a secure portal or website

More questions? Try the Power BI Community

Share a Power BI dashboard that links to an Excel file in OneDrive

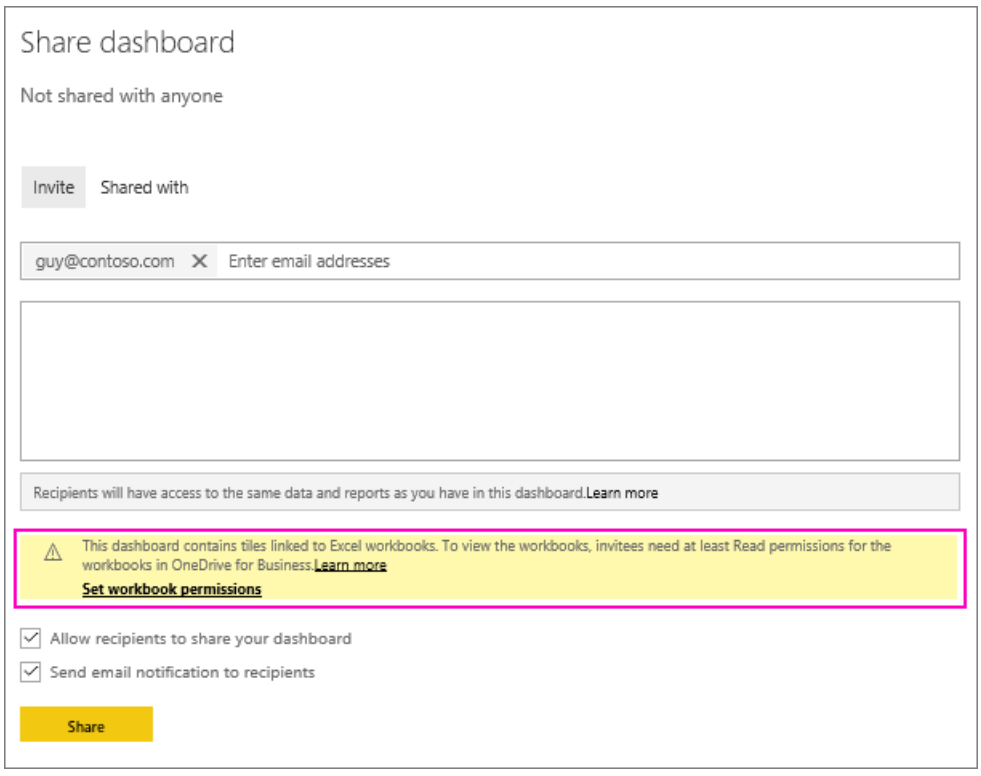
5/20/2020 • 2 minutes to read • Edit Online

In Power BI, you can connect to Excel workbooks on OneDrive for Business and pin tiles to a dashboard from that workbook. When you share that dashboard, or create a content pack that includes that dashboard:

- Your colleagues can view the tiles without needing permissions for the workbook itself. So you can create a content pack and know that your colleagues can see the tiles created from the Excel workbook on OneDrive.
- Clicking the tile opens the workbook inside of Power BI. The workbook will only open if your colleagues have at least read permissions to the workbook on OneDrive for Business.

Share a dashboard that contains workbook tiles

To share a dashboard that links back to an Excel workbook on OneDrive for Business, see Share a dashboard. The difference is that you have the option to modify the permissions for the linked Excel workbook before sharing.



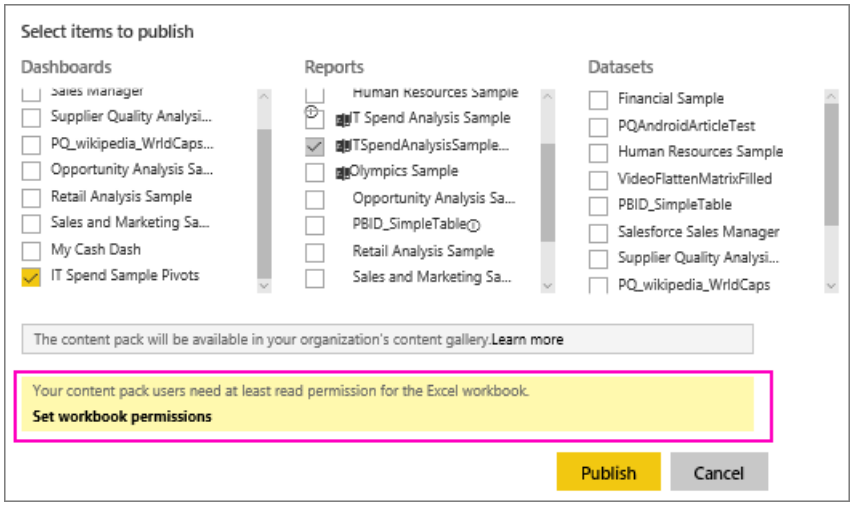
1. Enter the email addresses for your colleagues.
2. To enable your colleagues to view the Excel workbook from Power BI, select **Go to OneDrive for Business to set workbook permissions**.
3. On OneDrive, modify the permissions as needed.
4. Select **Share**.

> **NOTE**
> Your colleagues won't be able to pin additional tiles from that workbook, or make changes to the Excel workbook from Power BI.

Create an organizational content pack with a dashboard that contains workbook tiles

When you publish a content pack you give access to individual colleagues or groups. When you publish a content pack that contains workbook links, you'll have the option to modify the permissions for the linked Excel workbook before publishing.

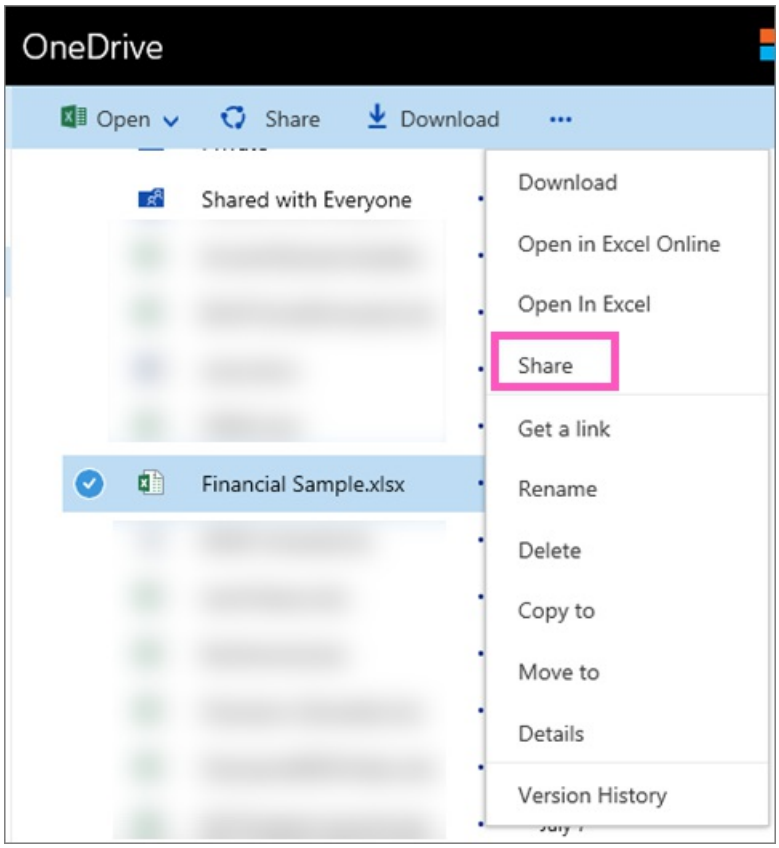
1. In the **Create content pack** screen, enter email addresses, give the content pack a title and description, and upload an image.
2. Select the dashboard and/or report that is linked to the Excel workbook on OneDrive for Business.



3. Select **Go to OneDrive for Business to set workbook permissions**.
4. On OneDrive, modify the permissions as needed.
5. Select **Publish**.

Share a dashboard from a Power BI workspace

Sharing a dashboard from a Power BI workspace is similar to sharing a dashboard from your own workspace, except that the files are located in a Microsoft 365 workspace site, instead of your private OneDrive for Business. Modify the permissions for the Excel workbook before sharing the dashboard with people outside the workspace.



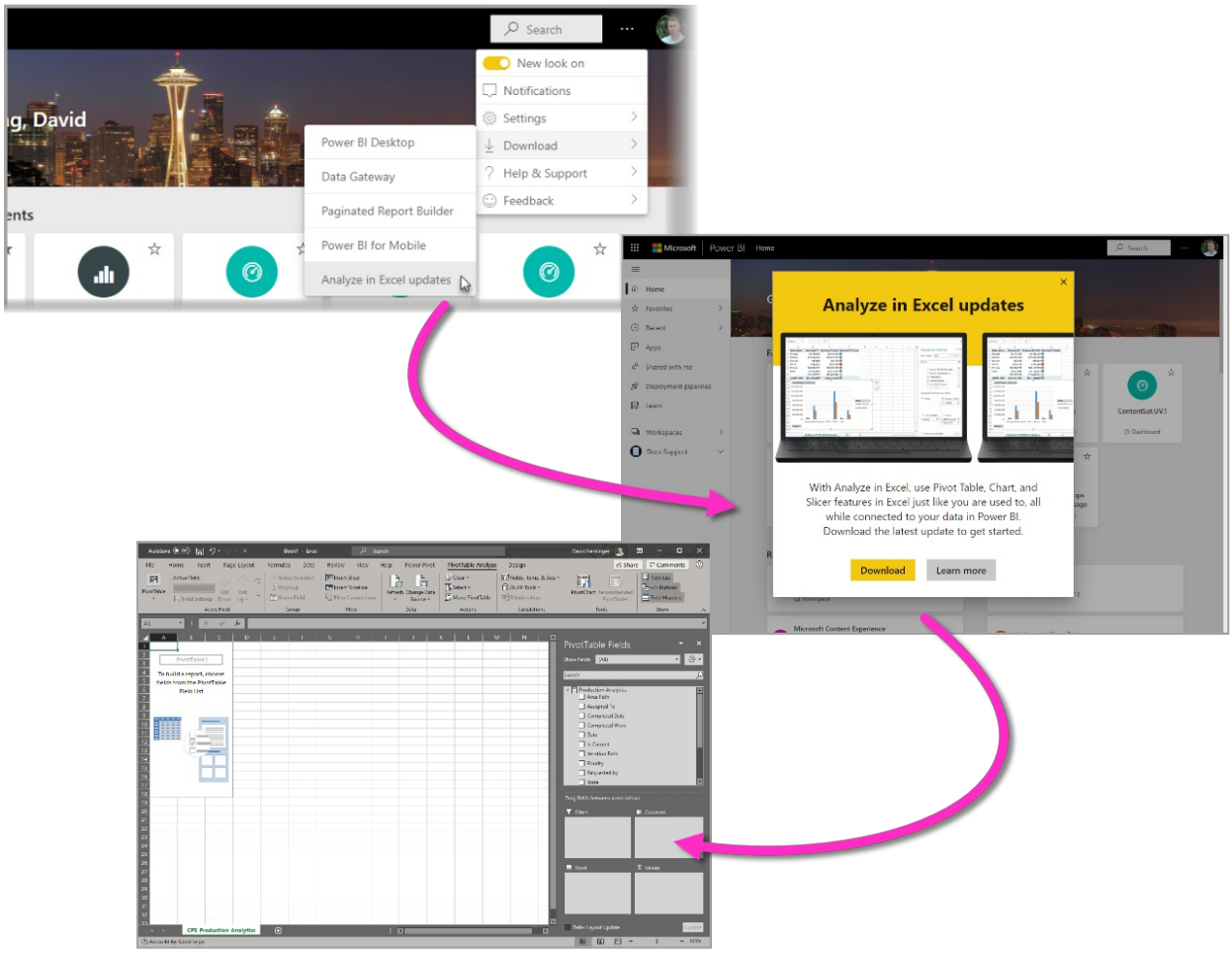
Next steps

- Pin a tile to a Power BI dashboard from Excel
- Basic concepts for designers in the Power BI service
- More questions? Try the Power BI Community

Analyze in Excel

5/28/2020 • 8 minutes to read • Edit Online

With **Analyze in Excel**, you can bring Power BI datasets into Excel, and then view and interact with them using PivotTables, charts, slicers, and other Excel features. To use **Analyze in Excel** you must first download the feature from Power BI, install it, and then select one or more datasets to use in Excel.



This article shows you how to install and use Analyze in Excel, describes its limitations, then provides some next steps. Here's what you'll learn:

- Install Analyze in Excel
- Connect to Power BI data
- Use Excel to analyze the data
- Saving and sharing your workbook
- Requirements

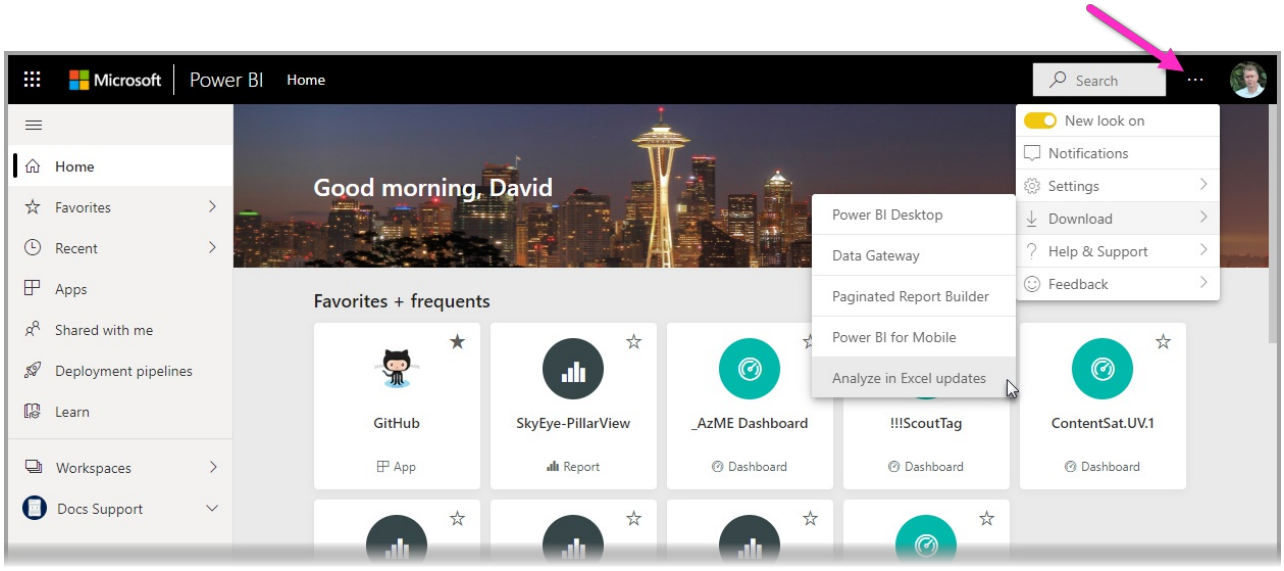
Let's jump in, and get the installation process started.

Install Analyze in Excel

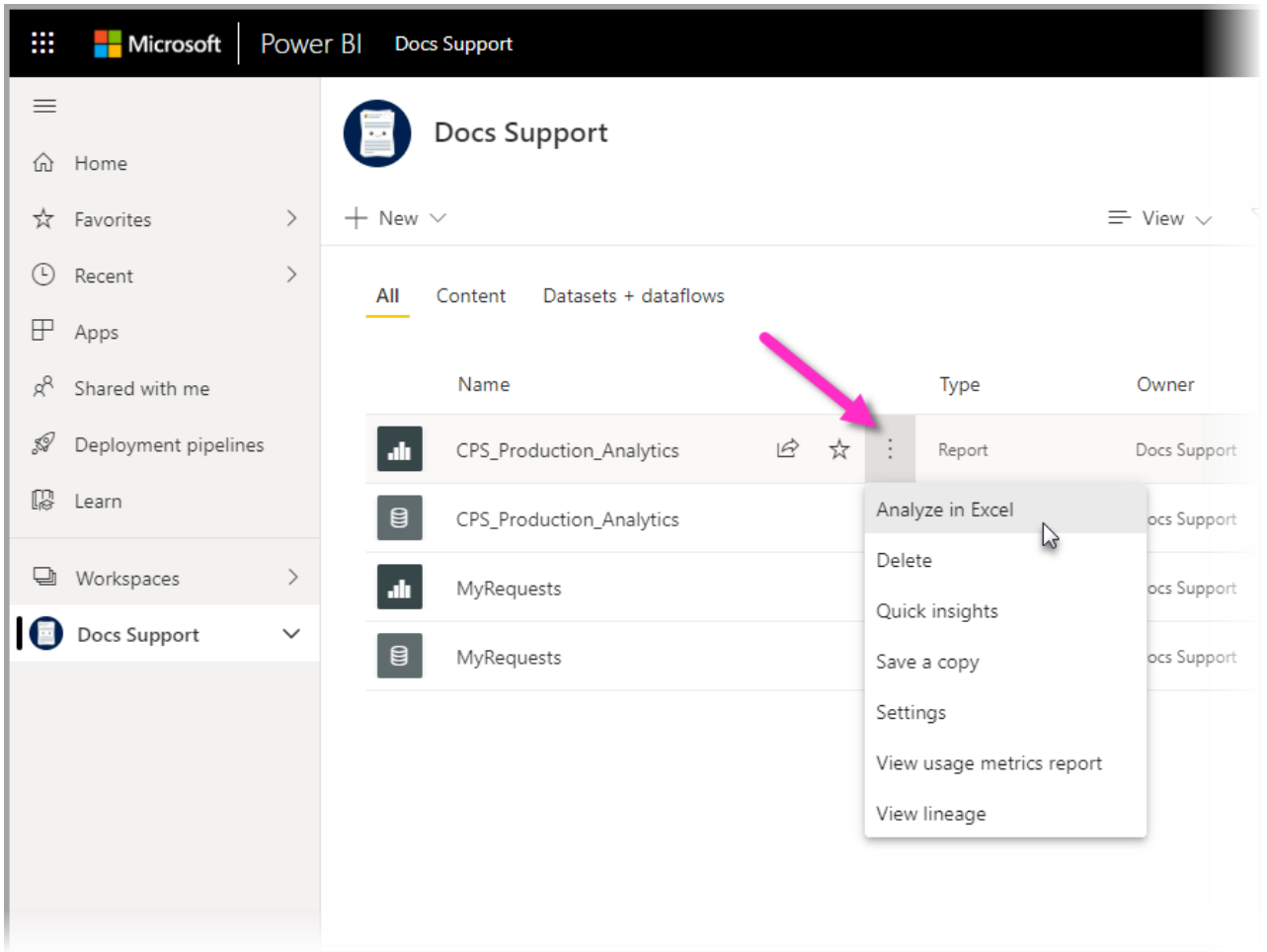
You must install **Analyze in Excel** from links provided in the Power BI service. Power BI detects the version of Excel you have on your computer, and automatically downloads the appropriate version (32-bit or 64-bit). The Power BI service runs in a browser. You can sign in to the Power BI using the following link:

- Sign in to Power BI

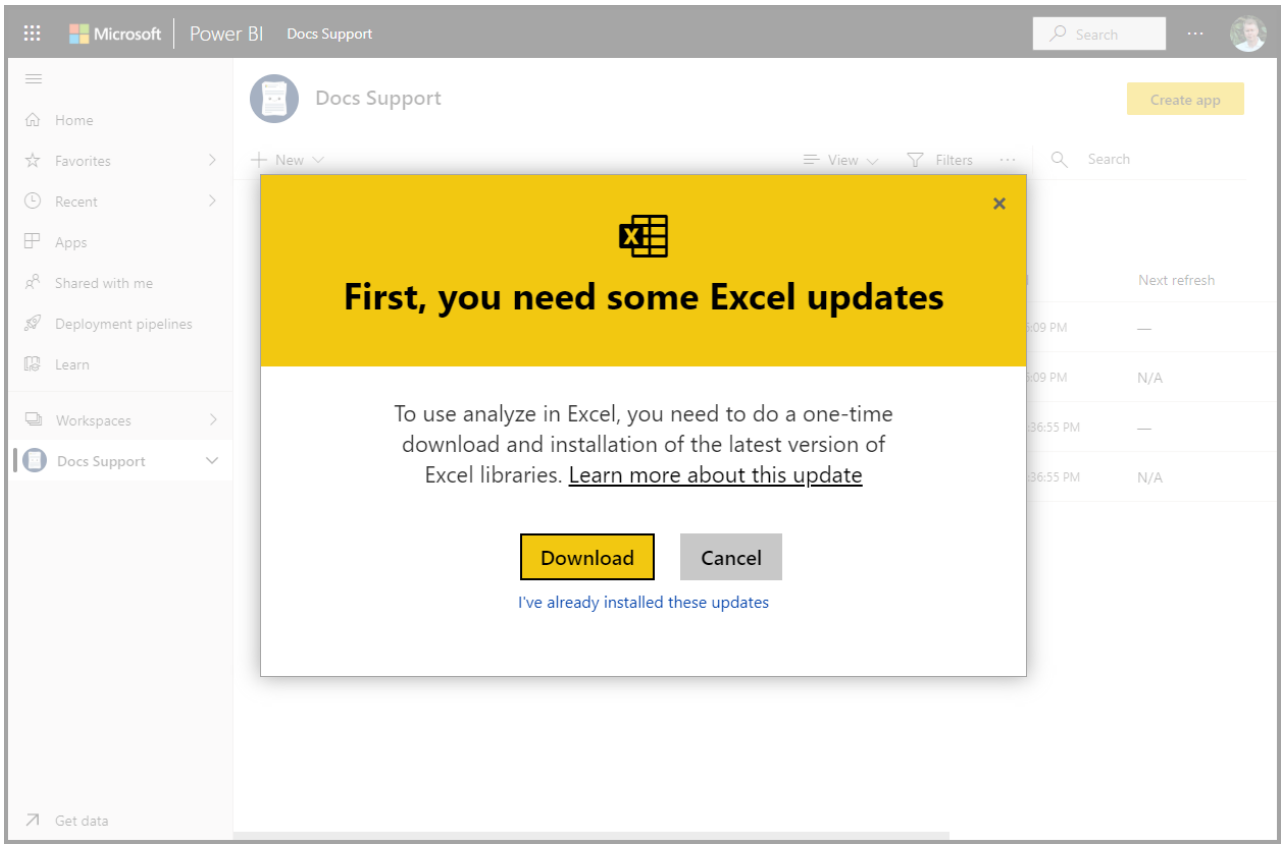
Once you've signed in and the Power BI service is running in your browser, select the **More options** item (the ...) in the upper-right corner and then select **Download > Analyze in Excel updates**. This menu item applies to new installations of updates of Analyze in Excel.



Alternatively, you can navigate in the Power BI service to a dataset you want to analyze, and select the **More options** item for a dataset, report, or other Power BI item. From the menu that appears, select the **Analyze in Excel** option, as shown in the following image.

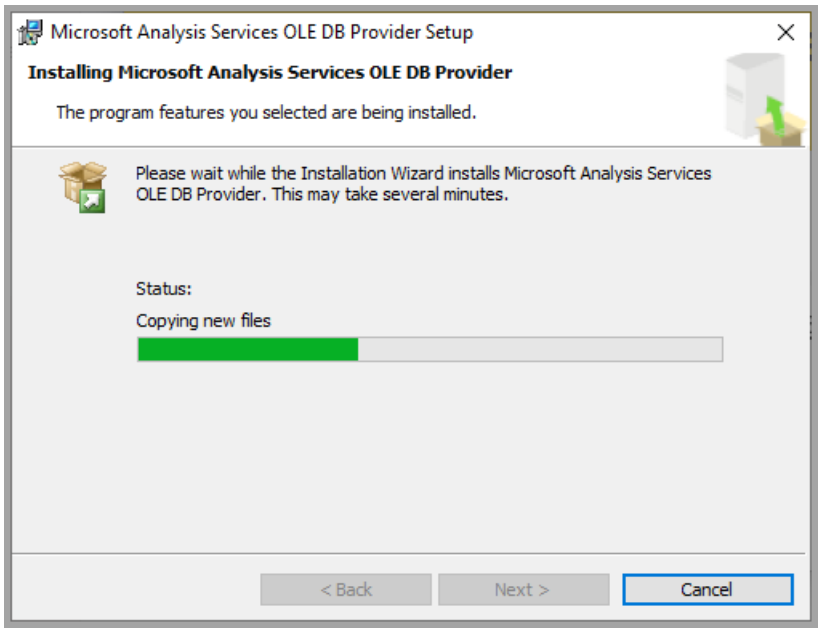


Either way, Power BI detects whether you have Analyze in Excel installed, and if not, you're prompted to download.



When you select download, Power BI detects the version of Excel you have installed and downloads the appropriate version of the Analyze in Excel installer. You see a download status in the bottom of your browser, or wherever your browser displays download progress.

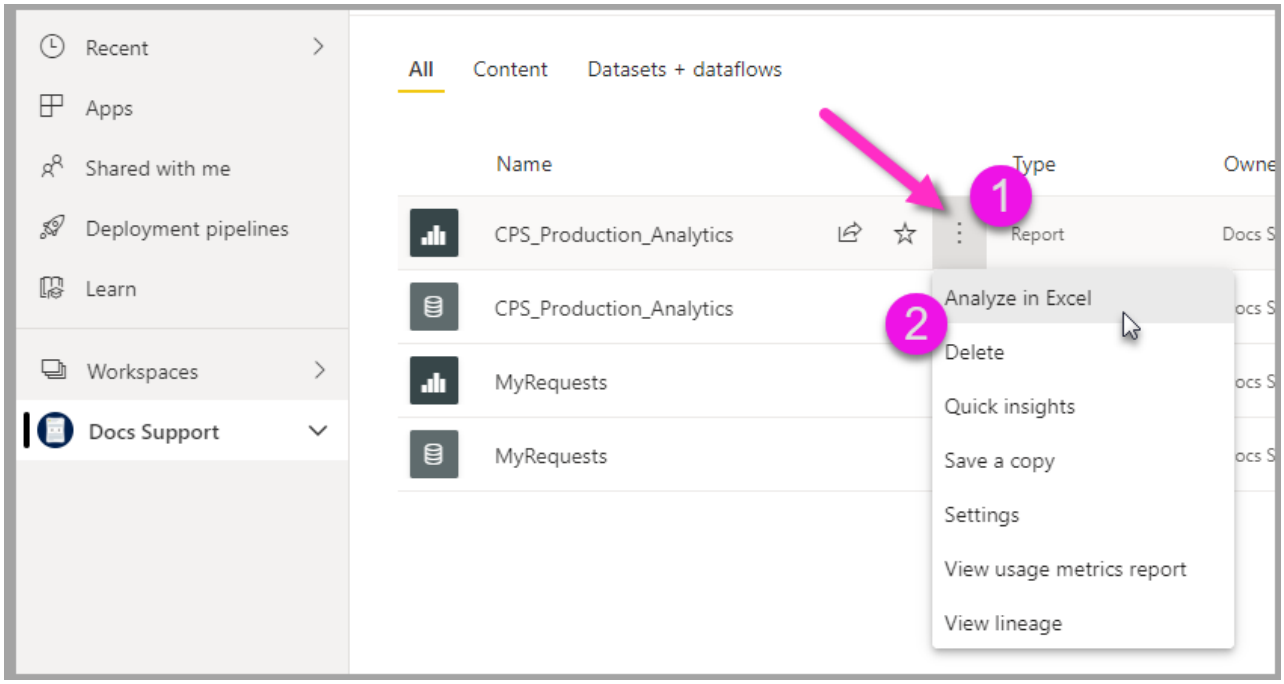
When the download completes, run the installer (.msi) to install Analyze in Excel. The name of the installation process is different from Analyze in Excel; the name will be **Microsoft Analysis Services OLE DB Provider** as shown in the following image, or something similar.



Once it completes, you're ready to select a report in the Power BI service (or other Power BI data element, like a dataset), and then analyze it in Excel.

Connect to Power BI data

In the Power BI service, navigate to the dataset or report you want to analyze in Excel, and select the **More options** menu (the ...) to find the **Analyze in Excel** menu option. The following image shows selecting a report.



There are a few steps to getting a dataset from the Power BI service into Excel:

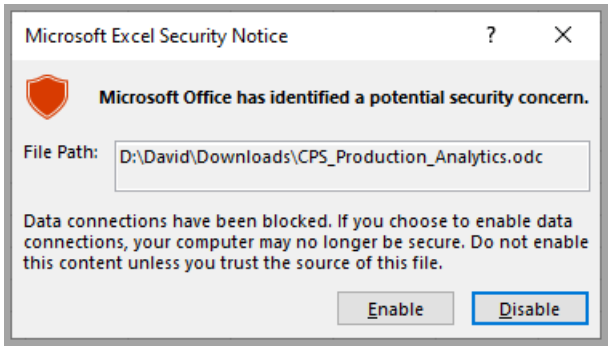
1. Select the **More options** menu.
2. Select **Analyze in Excel** from the menu items that appear.

   The Power BI service then creates a file of the dataset that's designed (and structured) for use with **Analyze in Excel** that has the .ODC file extension. The file is created and then automatically begins a download process in your browser.

The file name matches the dataset (or report, or other data source) from which it was derived. So if the report was called *Latest-Sales*, then the downloaded file would be **Latest-Sales.ODC**.

3. Launch the .ODC file

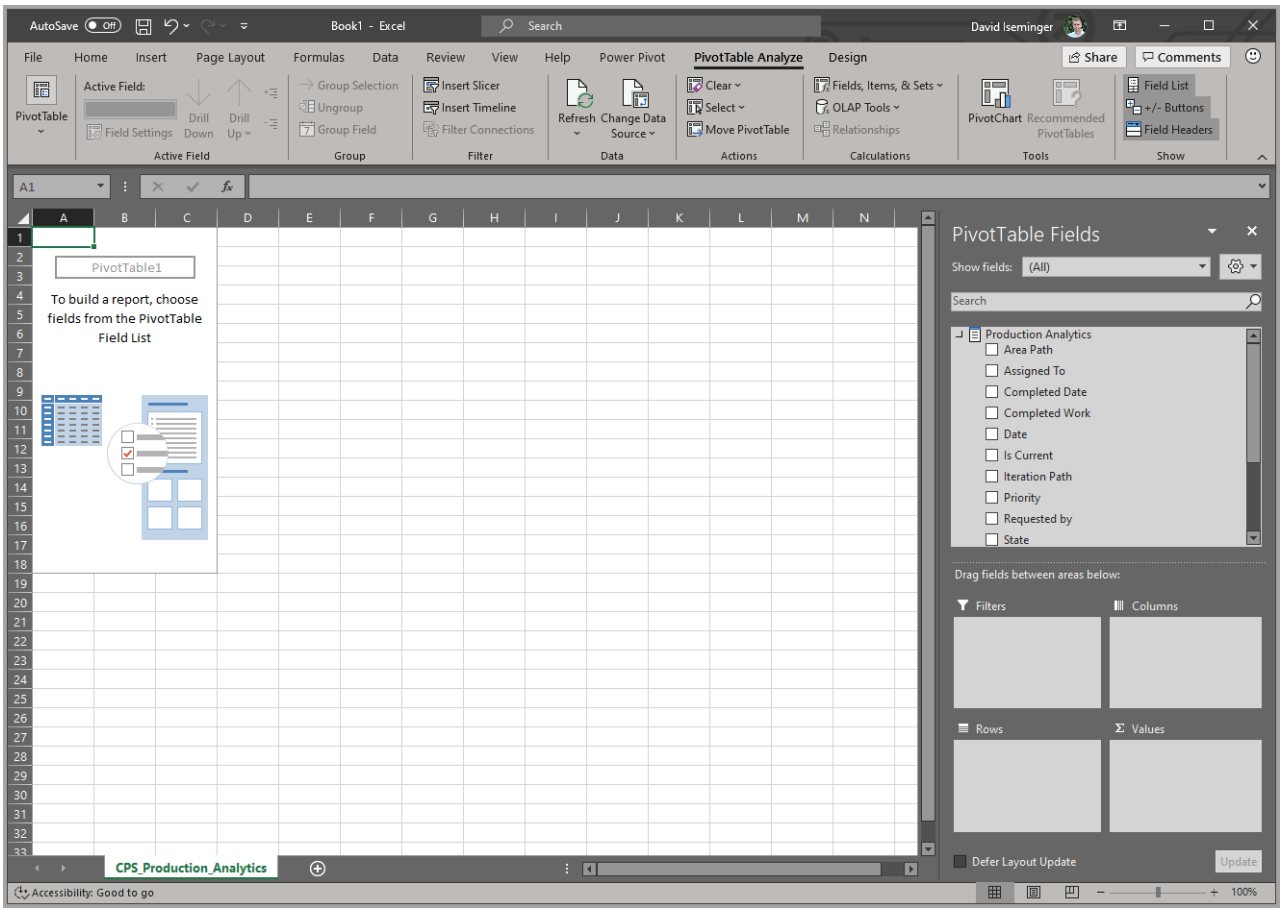
The file is already associated with **Analyze in Excel**, so when you select or launch that .ODC file, Excel is launched and automatically begins loading the .ODC file. However, you'll likely see a warning appear about an external data source threat:



Select **Enable** to load the .ODC file for **Analyze in Excel** and Excel loads the file.

Use Excel to analyze the data

Once you allow the .ODC file to load by selecting **Enable** from the Security Notice, Excel presents you with an empty **PivotTable** and **Fields** list from the Power BI dataset, ready to be analyzed.



The .ODC file has an MSOLAP connection string that connects to your dataset in Power BI. When you analyze or work with the data, Excel queries that dataset in Power BI and returns the results to Excel. If that dataset connects to a live data source using DirectQuery, Power BI queries the data source and returns the result to Excel.

With that connection to the data in Power BI now established, you can create PivotTables, charts, and analyze that dataset just as you would work with a local dataset in Excel.

Analyze in Excel is especially useful for datasets and reports that connect to the following data sources:

- *Analysis Services Tabular* or *Multidimensional* databases
- Power BI Desktop files or Excel workbooks with data models that have model measures created using Data Analysis Expressions (DAX).

> **IMPORTANT**
> Using **Analyze in Excel** exposes all detail-level data to any users with permission to the dataset.

There are a handful of things to consider when you begin using Analyze in Excel, which might require an extra step or two to reconcile. These possibilities are described in the following sections.

Sign in to Power BI

Although you're signed in to Power BI in your browser, the first time you open a new .ODC file in Excel you may be asked to sign in to Power BI with your Power BI account. This authenticates the connection from Excel to Power BI.

Users with multiple Power BI accounts

Some users have multiple Power BI accounts. If that's you, you might be signed in to Power BI with one account, but your other account has access to the dataset being used in Analyze in Excel. In that case, you might see a **Forbidden** error, or a sign-in failure when attempting to access a dataset that's being used in an Analyze in Excel workbook.

If that happens, you'll be provided an opportunity to sign in again, at which time you can sign in with the Power BI account that has access to the dataset being accessed by Analyze in Excel. You can also select your name in the top ribbon in Excel, which identifies which account is currently signed in. Sign out and sign back in with the other account.

Saving and sharing your new workbook

You can **Save** the Excel workbook you create with the Power BI dataset, just like any other workbook. However, you cannot publish or import the workbook back into Power BI, because you can only publish or import workbooks into Power BI that have data in tables, or that have a data model. Since the new workbook simply has a connection to the dataset in Power BI, publishing or importing it into Power BI would be going in circles!

Once your workbook is saved, you can share it with other Power BI users in your organization.

When a user with whom you've shared your workbook opens it, they'll see your PivotTables and data as they appeared when the workbook was last saved, which may not be the latest version of the data. To get the latest data, users must use the **Refresh** button on the **Data** ribbon. And since the workbook is connecting to a dataset in Power BI, users attempting to refresh the workbook must sign in to Power BI and install the Excel updates the first time they attempt to update using this method.

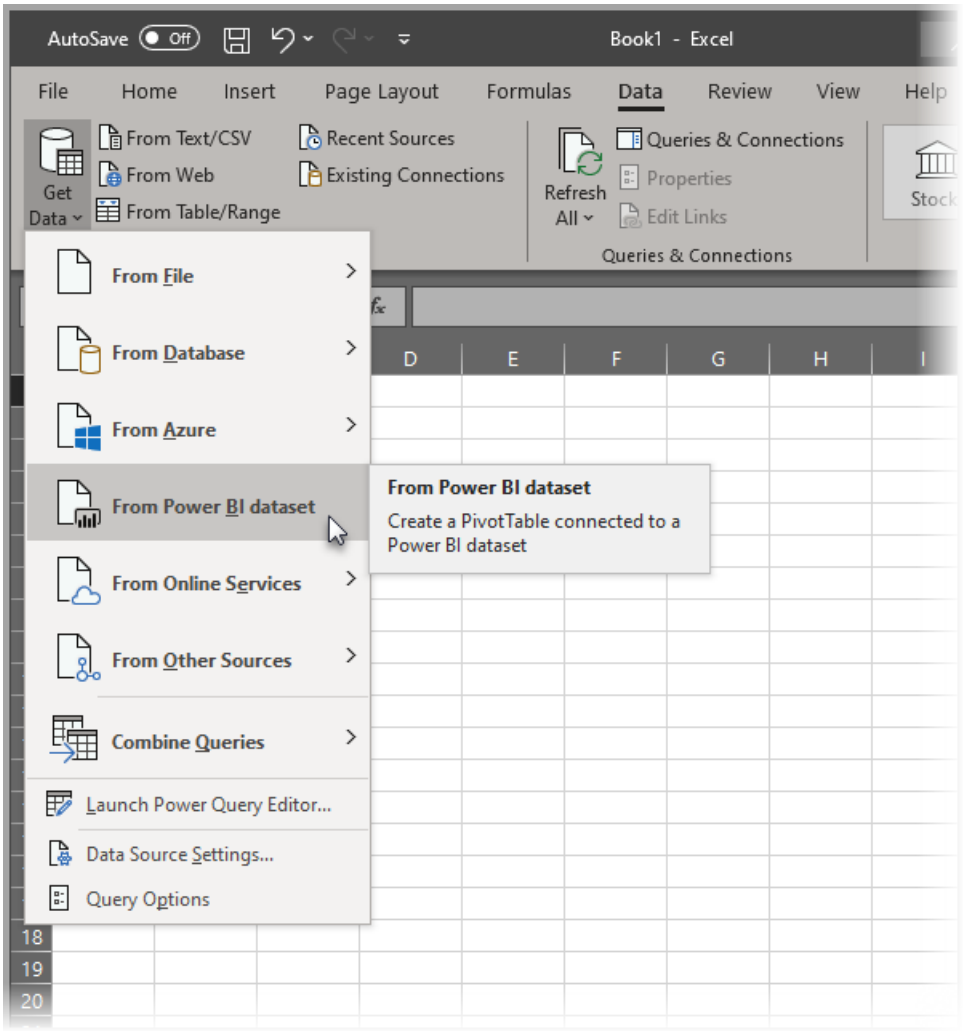
Since users need to refresh the dataset, and refresh for external connections is not supported in Excel Online, it's recommended that users open the workbook in the desktop version of Excel on their computer.

> **NOTE**
> Administrators for Power BI tenants can use the *Power BI Admin Portal* to disable the use of **Analyze in Excel** with on-premises datasets housed in Analysis Services (AS) databases. When that option is disabled, **Analyze in Excel** is disabled for AS databases, but continues to be available for use with other datasets.

Other ways to access Power BI datasets from Excel

Users with specific Office SKUs can also connect to Power BI datasets from within Excel by using the **Get Data** feature in Excel. If your SKU does not support this feature, the **Get Data** menu option does not appear.

From the **Data** ribbon menu, select **Get Data > From Power BI dataset** as shown in the following image.



A pane appears, in which you can browse datasets to which you have access, see if datasets are certified or promoted, and determine whether data protection labels have been applied to those datasets.

For more information about getting data into Excel in this way, see Create a PivotTable from Power BI datasets in the Excel documentation.

You can also access **featured tables** in Excel, in the **Data Types** gallery. To learn more about featured tables, and how to access them, see Access Power BI featured tables in Excel (preview).

Requirements

There are a few requirements for using **Analyze in Excel**:

- **Analyze in Excel** is supported for Microsoft Excel 2010 SP1 and later.
- Excel PivotTables do not support drag-and-drop aggregation of numeric fields. Your dataset in Power BI *must have pre-defined measures*. Read about creating measures.
- Some organizations may have Group Policy rules that prevent installing the required **Analyze in Excel** updates to Excel. If you're unable to install the updates, check with your administrator.
- **Analyze in Excel** requires that the dataset be in Power BI Premium or that the user have a Power BI Pro license. To learn more about the differences in functionality between license types, take a look at the *Power BI features comparison* section of Power BI pricing.
- Users can connect to datasets through Analyze in Excel if they have permission for the underlying dataset. A user could have this permission in several ways, such as having the Member role in the workspace containing the dataset, having a report or dashboard shared to them that uses the dataset, or having Build permission for the dataset, in either a workspace or an app that contains the dataset. Read more about Build

permission for datasets.

- Guest users cannot use **Analyze in Excel** for datasets sent from (originating from) another tenant.
- **Analyze in Excel** is a Power BI service feature, and is not available in Power BI Report Server or Power BI Embedded.
- **Analyze in Excel** is only supported on computers running Microsoft Windows.

For users who need to uninstall the **Analyze in Excel** feature, you can do so using the **Add or remove programs** system setting on your Windows computer.

Troubleshooting

There may be times when using Analyze in Excel that you get an unexpected result, or the feature doesn't work as you expected. This page provides solutions for common issues when using Analyze in Excel.

Next steps

You might also be interested in the following articles:

- Use cross-report drillthrough in Power BI Desktop
- Using slicers Power BI Desktop
- Troubleshooting Analyze in Excel
- Access Power BI featured tables in Excel (preview).

Access Power BI featured tables in Excel (preview)

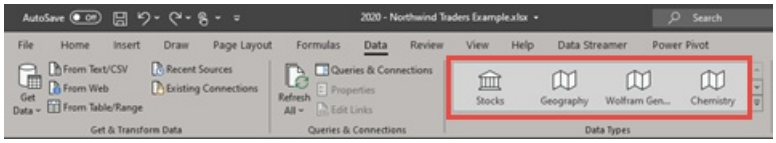
5/21/2020 • 8 minutes to read • Edit Online

In Excel, you can find data from featured tables in Power BI datasets in the Data Types Gallery. Featured tables make it easier to add enterprise data to your Excel sheets. By using Power BI certified and promoted datasets capabilities, organizations enable more users to find and use relevant and refreshable data to make better decisions. Read more about using Excel data types from Power BI in the Excel documentation.

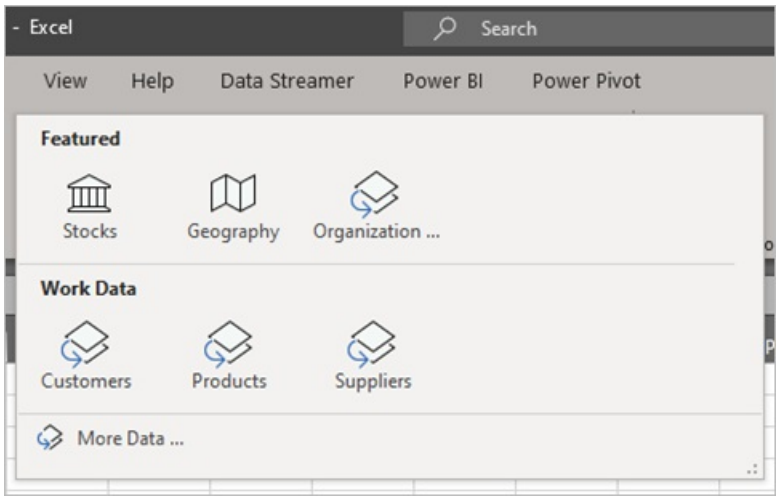
The Data Types Gallery only shows featured tables that a modeler has curated in Power BI datasets. You can also browse any dataset in Excel that you can access in Power BI. In Excel, select the **Power BI Datasets** option under **Get Data** on the **Data** ribbon.

Access Power BI data through the Excel Data Types Gallery

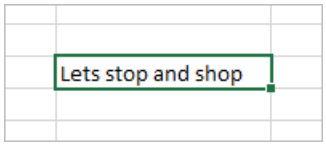
Featured tables in Power BI datasets appear in the Excel Data Types gallery in the Data ribbon.



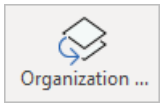
When expanded, the gallery shows the top available data types.



To look up data in a Power BI featured table, select a cell or a range in your Excel sheet.

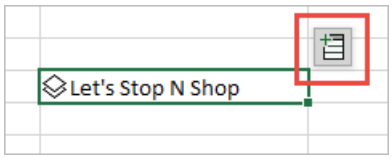


Select the **Organizational data** option from the gallery to search for data in featured tables in certified datasets you have access to.

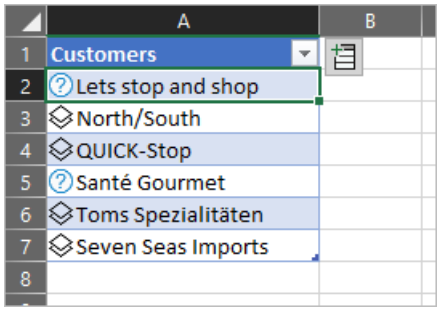


Select a specific data type if you know what kind of data you're searching for, or you don't find matching rows using the Organizational data option.

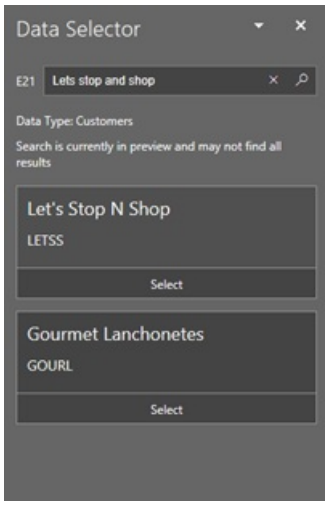
When you search, if a matching row is found with high confidence, the cell is immediately linked to that row. The linked item icon indicates the cell is linked to the row in Power BI.



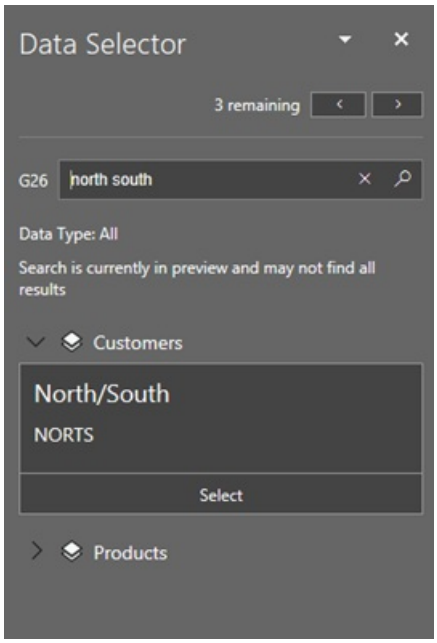
If a cell has multiple potential matching rows, a data selector pane is shown. The cell shows the question mark icon, which opens the data selector pane to that row. Here's an example after the user selected a range from A2:A7 and searched a Power BI feature table.



The **Data Selector** pane shows the potentially matching rows.

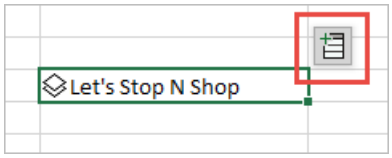


The Organizational data option can return rows from multiple data types. Excel groups the potentially matching rows by the data type they came from. Excel sorts the data types based on their strongest potential matching row. Use the chevron arrows to collapse and expand the data types to matching rows.

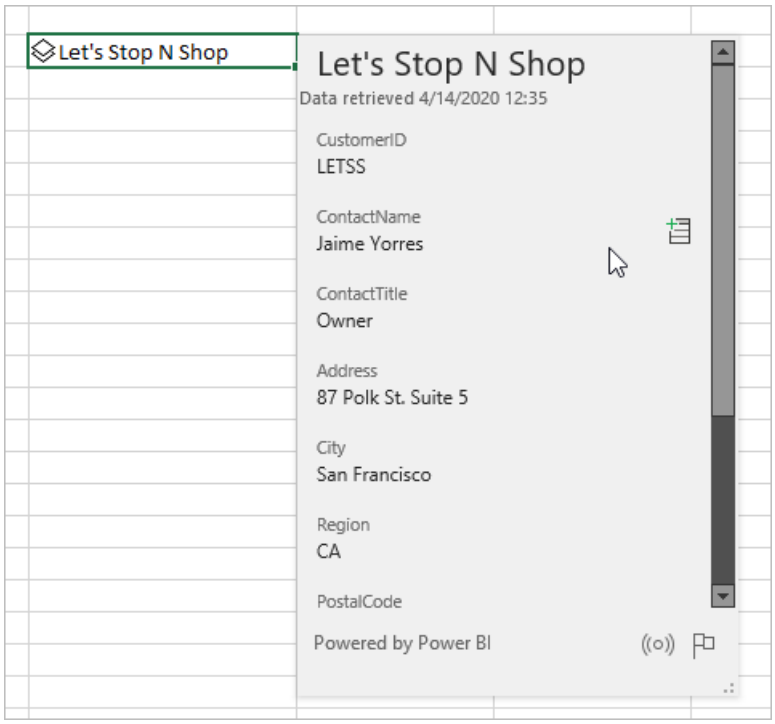


For each row, select the row name to see more details within the row to help you pick the right row. Once you've found a row, press **Select** to link the row to the cell in Excel.

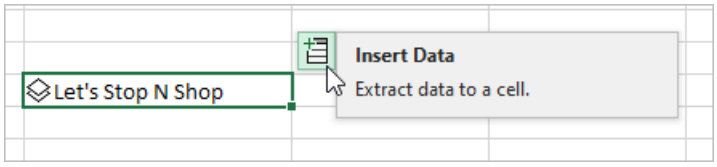
When a row is selected, the cell is linked to the row and its value is with the value of the **Row Label** field in the Power BI featured table.



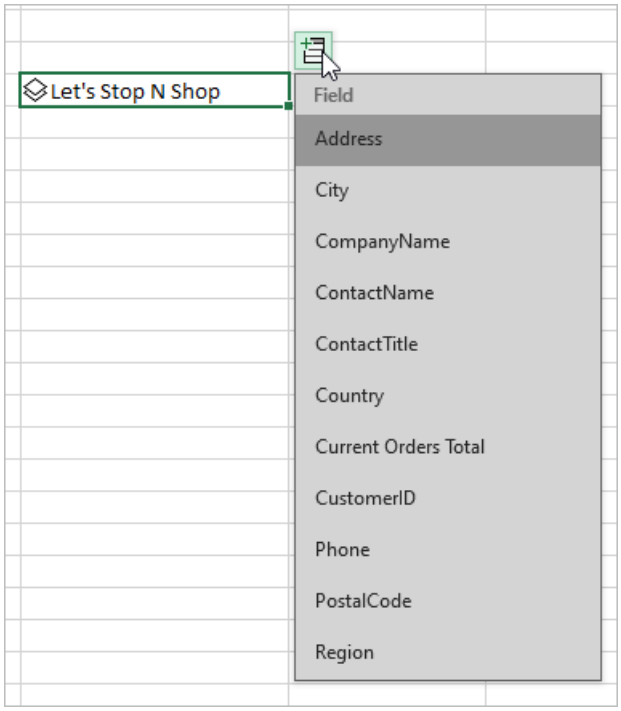
Selecting the **Linked Cell** icon shows a card with data from any fields and calculated fields in the featured table. The title of the card shows the value of the row label field in the featured table.



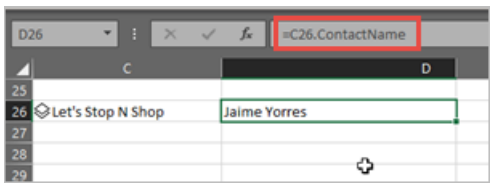
Select the **Insert Data** icon to add field values to the grid.



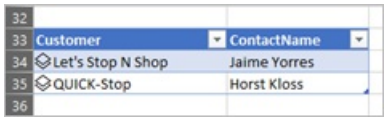
Select a field name from the list of fields to add its value to the grid.



The field value is placed in the adjacent cell. The cell formula refers to the linked cell and the field name, so you can use the data in Excel functions.

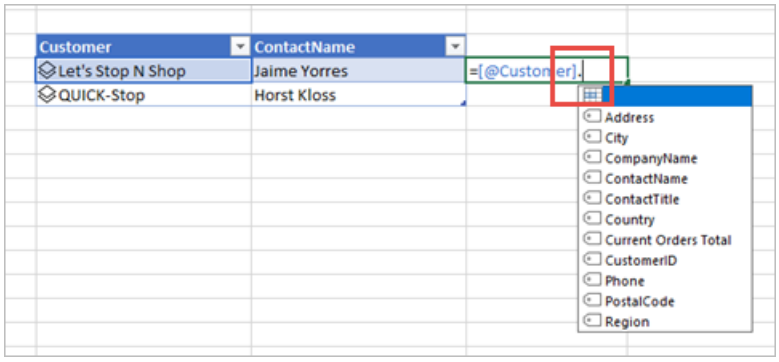


When you format your data as an Excel table, adding fields expands the table and sets the column header to match the field name. Rows linked to the same data types are also populated with their respective values.

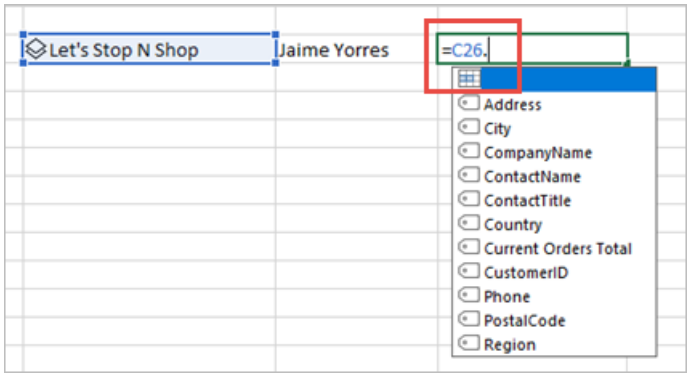


Cell formulas

When you use an Excel table, you can refer to the linked table column and then add data fields using the `.` (period) reference.



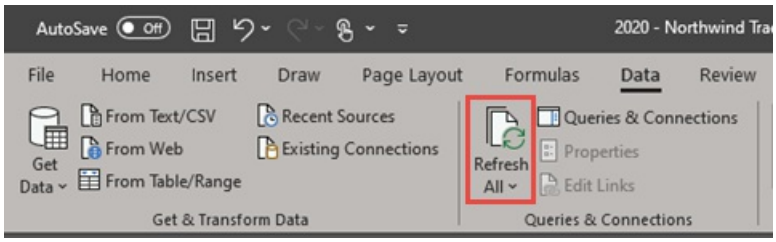
Likewise when you use a cell, you can refer to the cell and use the `.` (period) reference to retrieve fields.



Data caching and refresh

When Excel links a cell to a row in a Power BI featured table, it retrieves and saves all the field values in the Excel file. Anyone you share the file with can refer to any of the fields, without requesting data from Power BI.

Use the **Refresh All** button in the **Data** ribbon to refresh data in linked cells.



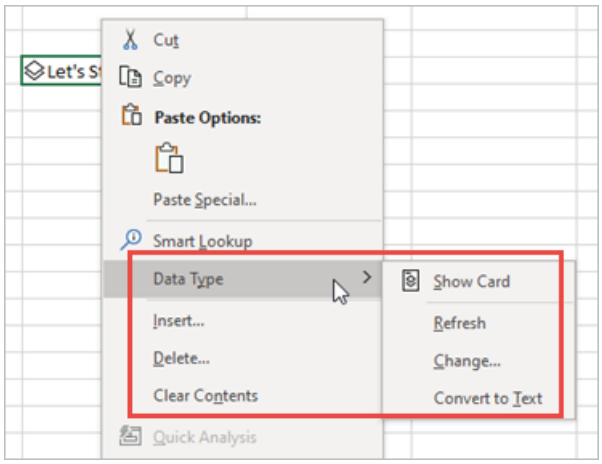
You can also refresh individual cells. Right-click the cell and select **Data Types** > **Refresh**.

Show a card, change, or convert to text

Linked cells have added right-click menu options. Right-click a cell > select **Data Type** >

- **Show Card**

- **Refresh**
- **Change**
- **Convert to Text**.



Convert to Text removes the link to the row in the Power BI featured table. Importantly, the text in the cell will be the row label value of the linked cell. If you linked a cell to a row you didn't intend to, select **Undo** in Excel to restore the initial cell values.

Licensing

The Excel Data Types Gallery and connected experiences to Power BI featured tables is only available for Excel E5 and G5 customers.

Security

You see only featured tables from datasets you have permission to in Power BI. When refreshing data, you must have permission to access the dataset in Power BI to retrieve the rows. This requires the Build or Write permission on the dataset. Excel caches the data returned for the entire row. Anyone you share the Excel file with can see the data for all the fields in all the linked cells.

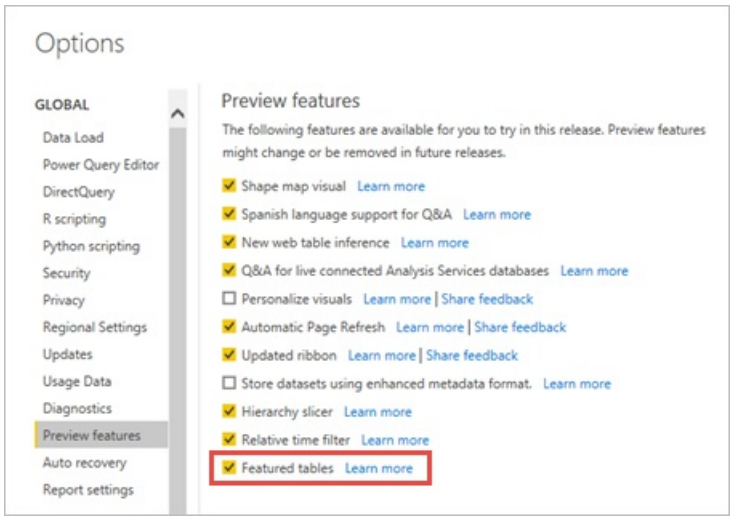
If a Power BI dataset has row-level security or a Microsoft Information Protection sensitivity label applied to it, featured tables from that dataset aren't included in the Excel Data Types Gallery. This is a limitation of the initial preview.

Curate a featured table in Power BI Desktop

The Excel Data Types Gallery shows featured tables in datasets uploaded to the Power BI service. Use Power BI Desktop to curate featured tables in the data model, then upload them to the Power BI service.

Turn on the featured table preview

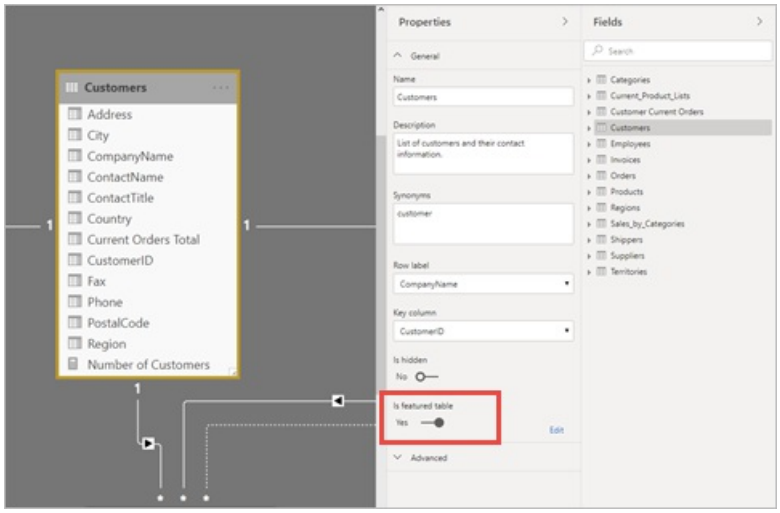
1. In Power BI Desktop, select **File** > **Options and Settings** > **Options** > **Preview Features**.
2. Select the **Featured tables** check box.



Select a table

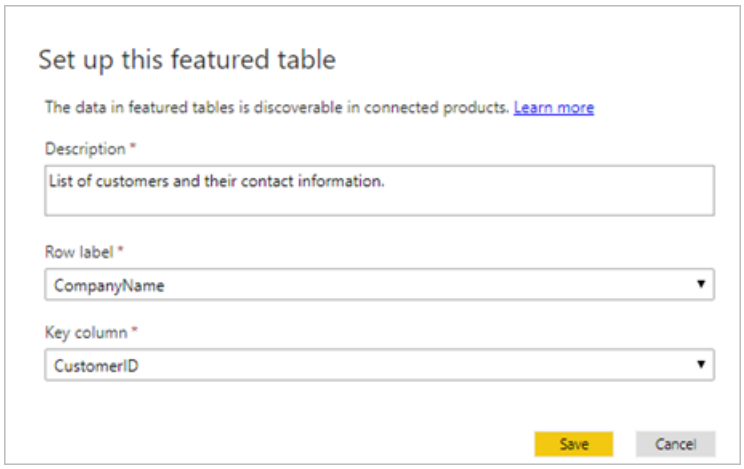
1. In Power BI Desktop, go to Model view.

2. Select a table, and set **Is featured table** to **Yes**.



3. In **Set up this featured table**, provide the required fields:

   - A **Description**.
   - The **Row label** field value is used in Excel so users can easily identify the row. It appears as the cell value for a linked cell, in the **Data Selector** pane, and in the **Information** card.
   - The **Key column** field value provides the unique ID for the row. This value enables Excel to link a cell to a specific row in the table.



After you publish or import the dataset to the Power BI service, the featured table is displayed in the Excel Data Types Gallery.

- Excel caches the list of data types so you need to restart Excel to see newly published featured tables.
- Some datasets aren't supported in the preview, featured tables defined in those datasets won't appear in Excel. See considerations and limitations for details.

Administrative control

Power BI admins can control who in the organization can use featured tables in the Excel Data Types Gallery. See Featured tables settings in the Admin portal article for details.

Auditing

Administration audit logs show these events for featured tables:

- **AnalyzedByExternalApplication**: Gives admins visibility into which users are accessing which featured tables.
- **UpdateFeaturedTables**: Gives admins visibility into which users are publishing and updating featured tables.

For a complete list of audit log events, see Track user activities in Power BI.

Considerations and limitations

Here are limitations for the initial preview:

- The integration is available in Excel Insiders Builds.
- The Excel Data Types Gallery includes featured tables for users with the appropriate license in Power BI Desktop and the Power BI service. Support for the Power BI service may not be available at the launch of the preview but will be added.
- Featured tables in Power BI datasets that use the following capabilities aren't shown in Excel:
  - Row-level security datasets.
  - Microsoft Information Protection enabled datasets.
  - DirectQuery datasets.
  - Datasets with a live connection.
- Excel shows only data in columns and calculated columns in the featured table. The following aren't provided in the initial preview:
  - Measures defined on the feature table.
  - Measures defined on related tables, and implicit measures calculated from relationships.
- Excel only displays featured tables that are stored in the new Power BI workspaces. Featured tables stored in the classic workspaces, or My Workspace, aren't shown as data types in Excel. You can upgrade classic

workspaces to the new workspaces in Power BI.

The Data Types experience in Excel is similar to a lookup function. It takes a cell value provided by the Excel sheet, and searches for matching rows in Power BI featured tables. The search experience has the following behaviors:

- When using the **Organizational Data** button to search, Excel only searches featured tables in Certified datasets.
- Row matching is based on text columns in the featured table. It uses the same indexing as Power BI Q&A capability, which is optimized for English-language search. Searching in other languages may not result in accurate matches. Numerical columns aren't considered for matching.
- Matching is based on Exact and Prefix matches for individual search terms. A cell's value is split based on spaces or other whitespace characters like tabs. Then each word is considered a search term. A row's text field values are compared to each search term for Exact and Prefix matches. A Prefix match is returned if the row's text field starts with the search term. For example, if a cell contains "Orange County", then "Orange" and "County" are distinct search terms.
  - Rows with text columns whose value exactly match "Orange" or "County" are returned.
  - Rows with text column whose value starts with "Orange" or "County" are returned.
  - Importantly, rows that contain "Orange" or "County" but don't start with them aren't returned.
- Power BI returns at most 100 row suggestions for each cell.
- Setting or updating the featured table is not supported in the XMLA endpoint
- Excel files with a data model can be used to publish featured tables. Load the data into Power BI desktop and then publish the featured table.
- Changing the Table name, Row Label, or Key Column the featured table may impact Excel users with linked cells to rows in the table.
- Excel shows when the data was retrieved from the Power BI dataset. This isn't necessarily the time that the data was refreshed in Power BI, or the time of the most recent data point in a dataset. For example, say a dataset in Power BI was refreshed a week ago, but the underlying source data was a week old when the refresh happened. The actual data would be 2 weeks old, but Excel would show data retrieved as the date/time at which the data was pulled into Excel.

Next steps

- Questions? Try the Power BI Community

Troubleshooting Analyze in Excel

5/28/2020 • 4 minutes to read • Edit Online

There may be times when using Analyze in Excel that you get an unexpected result, or the feature doesn't work as you expected. This page provides solutions for common issues when using Analyze in Excel.

> **NOTE**
>
> There's a separate page dedicated to describing and enabling Analyze in Excel.
>
> If you encounter a scenario that is not listed below, and it is causing you issues, you can ask for further assistance on the community site, or you can create a support ticket.

This article contains the following troubleshooting sections:

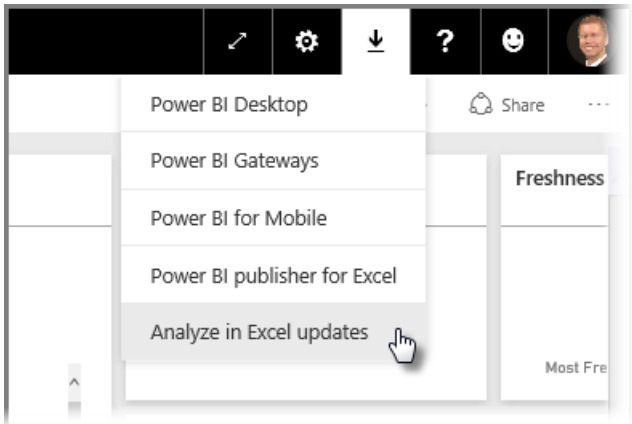
- Update Excel libraries for the OLE DB provider
- Determining whether you need to update your Excel libraries
- Connection cannot be made error
- Forbidden error
- No data models
- Token expired error
- Unable to access on-premises Analysis services
- Can't drag anything to the PivotTable Values area (no measures)

Update Excel libraries for the OLE DB provider

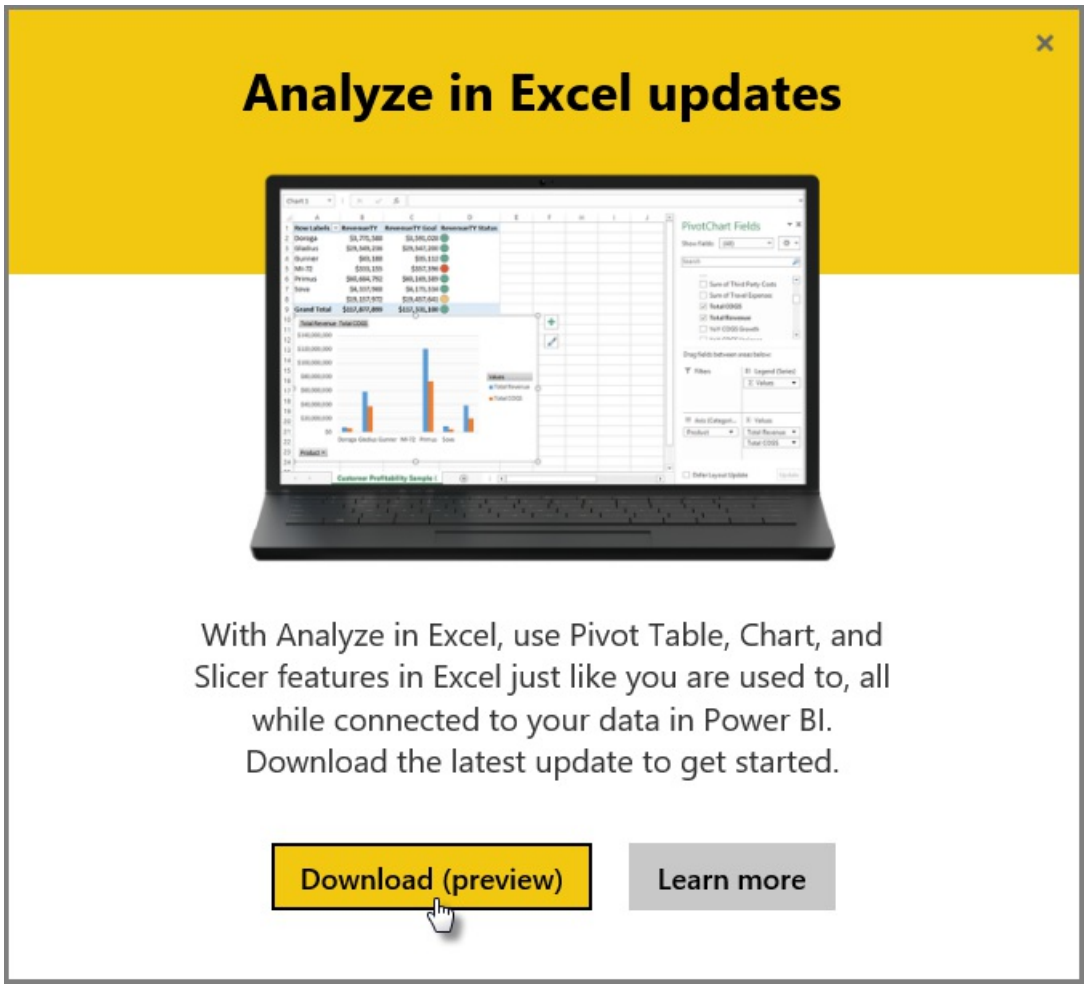
To use **Analyze in Excel**, your computer must have a current AS OLE DB provider installed. This community post is a great source to verify your installation of the OLE DB provider, or to download a recent version.

The Excel libraries need to match your version of Windows in terms of its bit-level. If you have 64-bit Windows installed, you need to install the 64-bit OLE DB provider.

To download the latest Excel libraries, visit Power BI and select the **down arrow** in the upper right corner of the Power BI service, then select **Analyze in Excel updates**.



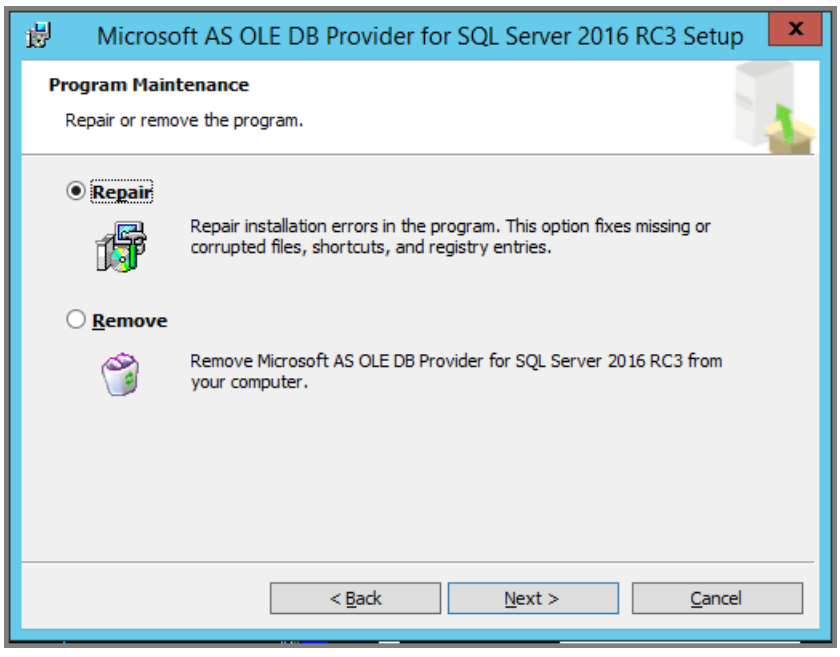
In the dialog that appears, select **Download (preview)**.



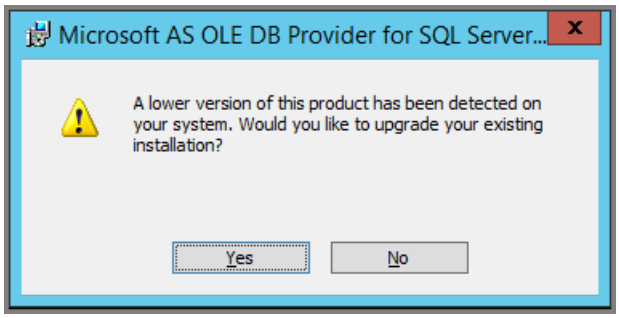
Determining whether you need to update your Excel libraries

You can download the most recent version of the Excel OLE DB provider libraries from the links in the previous section. Once you download the appropriate OLD DB provider library and begin installation, checks are performed against your current installed version.

If your Excel OLE DB provider client libraries are up to date, you'll be presented with a dialog that looks like the following:



Alternatively, if the new version you are installing is newer than the version on your computer, the following dialog appears:



If you see the dialog prompting you to upgrade, you should continue with the installation to get the most recent version of the OLE DB provider installed in your computer.

Connection cannot be made error

The primary cause for a *connection cannot be made* error is that your computer's OLE DB provider client libraries are not current. For information about how to determine the correct update, and for download links, see **Update Excel libraries for the OLE DB provider** earlier in this article.

Forbidden error

Some users have more than one Power BI account, and when Excel attempts to connect to Power BI using existing credentials, it may use credentials that do not have access to the dataset or report you want to access.

When this occurs, you may receive an error titled **Forbidden**, which means you may be signed into Power BI with credentials that do not have permissions to the dataset. After encountering the **forbidden** error, when prompted to enter your credentials, use the credentials that have permission to access the dataset you're trying to use.

If you still run into errors, log into Power BI with the account that has permission, and verify that you can view and access the dataset in Power BI that you're attempting to access in Excel.

No data models

If you encounter an error that states **Can't find OLAP cube model**, then the dataset you're trying to access has no data model, and therefore cannot be analyzed in Excel.

Token expired error

If you receive a **token expired** error, it means you haven't recently used the **Analyze in Excel** feature on the computer you're using. Simply re-enter your credentials, or reopen the file, and the error should go away.

Unable to access on-premises Analysis Services

If you're trying to access a dataset that has connections to on-premises Analysis Services data, you may receive an error message. **Analyze in Excel** does support connecting to datasets and reports on on-premises **Analysis Services** with a connection string, as long as your computer is on the same domain as the **Analysis Services** server, and your account has access to that **Analysis Services** server.

Can't drag anything to the PivotTable Values area (no measures)

When **Analyze in Excel** connects to an external OLAP model (which is how Excel connects to Power BI), the *PivotTable* requires **measures** to be defined in the external model, since all calculations are performed on the server. This is different than when you work with a local data source (such as tables in Excel, or when you're working with datasets in **Power BI Desktop** or the **Power BI service**), in which case the tabular model is available locally, and you can use implicit measures, which are measures that are generated dynamically and are

not stored in the data model. In these cases, the behavior in Excel is different from the behavior in **Power BI Desktop** or the **Power BI service**: there may be columns in the data that can be treated as measures in Power BI, but can't be used as values (measures) in Excel.

To address this issue, you have a few options:

1. Create measures in your data model in **Power BI Desktop**, then publish the data model to the **Power BI service** and access that published dataset from Excel.
2. Create measures in your data model from Excel PowerPivot.
3. If you imported data from an Excel workbook that had only tables (and no data model), then you can add the tables to the data model, then follow the steps in option 2, directly above, to create measures in your data model.

Once your measures are defined in the model in the Power BI service, you'll be able to use them in the **Values** area in Excel PivotTables.

Next steps

Analyze in Excel

Tutorial: Create your own measures in Power BI Desktop

Measures in PowerPivot

Create a Measure in PowerPivot

Add worksheet data to a Data Model using a linked table

Error: We couldn't find any data in your Excel workbook

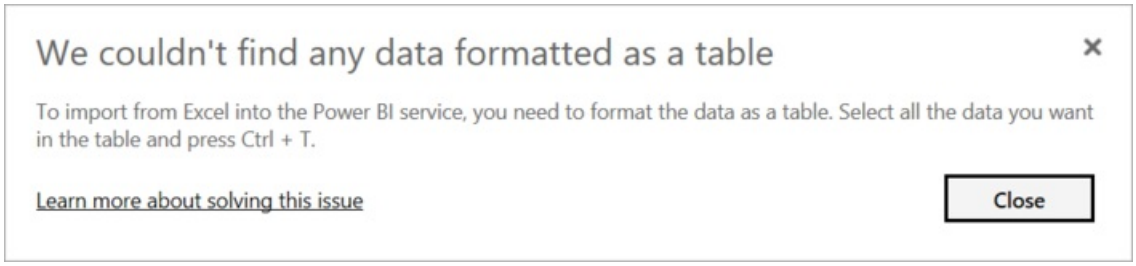
5/13/2020 • 2 minutes to read • Edit Online

NOTE

This article applies to Excel 2007 and later.

When you import an Excel workbook into Power BI, you may see the following error:

Error: We couldn't find any data formatted as a table. To import from Excel into the Power BI service, you need to format the data as a table. Select all the data you want in the table and press Ctrl+T.



Quick solution

1. Edit your workbook in Excel.
2. Select the range of cells that contain your data. The first row should contain your column headers (the column names).
3. Press **Ctrl + T** to create a table.
4. Save your workbook.
5. Return to Power BI and import your workbook again, or if you're working in Excel 2016 and you've saved your workbook to OneDrive for Business, in Excel, click File > Publish.

Details

Cause

In Excel, you can create a **table** out of a range of cells, which makes it easier to sort, filter, and format data.

When you import an Excel workbook, Power BI looks for these tables and imports them into a dataset; if it doesn't find any tables, you'll see this error message.

Solution

1. Open your workbook in Excel.

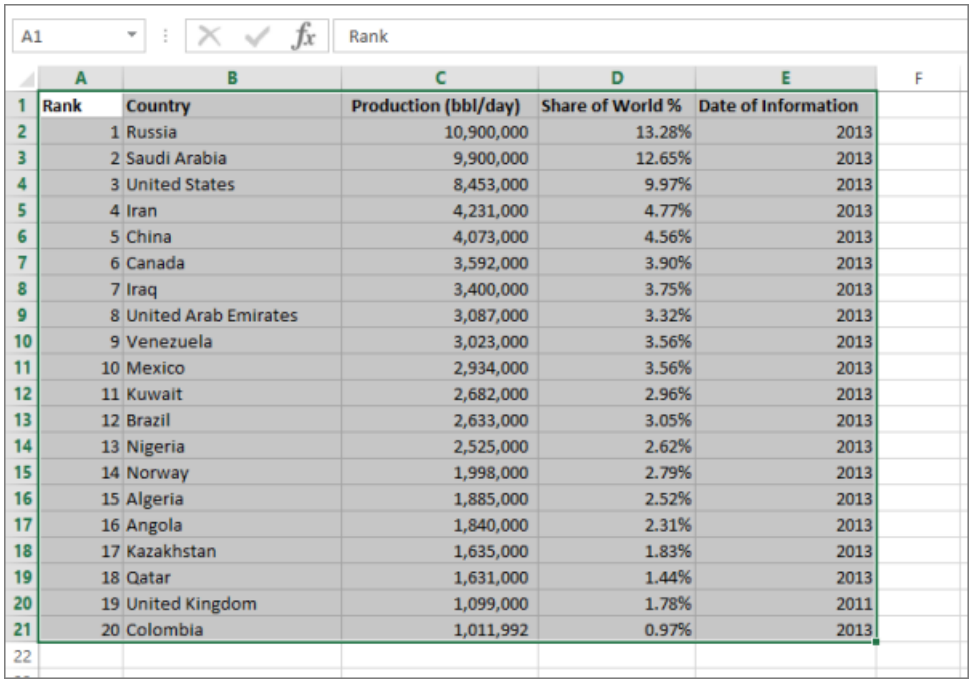
   NOTE

   The pictures here are of Excel 2013. If you're using a different version, things may look a little different, but the steps are the same.

J1

	A	B	C	D	E	F
1	Rank	Country	Production (bbl/day)	Share of World %	Date of Information	
2	1	Russia	10,900,000	13.28%	2013	
3	2	Saudi Arabia	9,900,000	12.65%	2013	
4	3	United States	8,453,000	9.97%	2013	
5	4	Iran	4,231,000	4.77%	2013	
6	5	China	4,073,000	4.56%	2013	
7	6	Canada	3,592,000	3.90%	2013	
8	7	Iraq	3,400,000	3.75%	2013	
9	8	United Arab Emirates	3,087,000	3.32%	2013	
10	9	Venezuela	3,023,000	3.56%	2013	
11	10	Mexico	2,934,000	3.56%	2013	
12	11	Kuwait	2,682,000	2.96%	2013	
13	12	Brazil	2,633,000	3.05%	2013	
14	13	Nigeria	2,525,000	2.62%	2013	
15	14	Norway	1,998,000	2.79%	2013	
16	15	Algeria	1,885,000	2.52%	2013	
17	16	Angola	1,840,000	2.31%	2013	
18	17	Kazakhstan	1,635,000	1.83%	2013	
19	18	Qatar	1,631,000	1.44%	2013	
20	19	United Kingdom	1,099,000	1.78%	2011	
21	20	Colombia	1,011,992	0.97%	2013	
22						

2. Select the range of cells that contain your data. The first row should contain your column headers (the column names):



	A	B	C	D	E	F
1	Rank	Country	Production (bbl/day)	Share of World %	Date of Information	
2	1	Russia	10,900,000	13.28%	2013	
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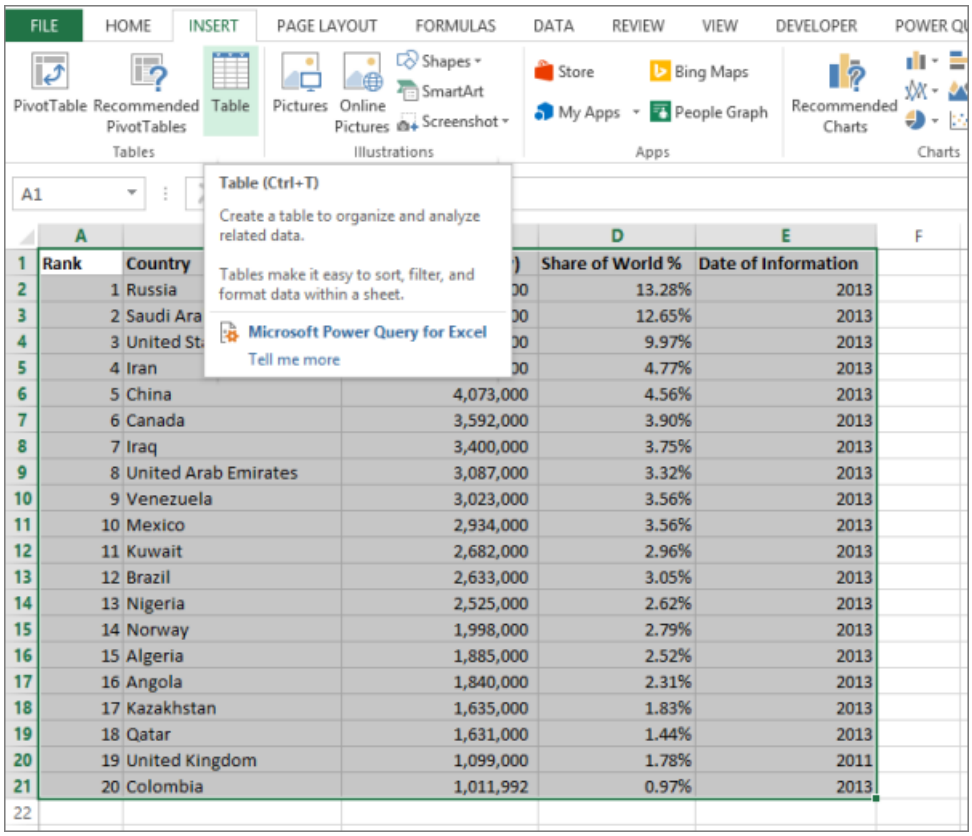
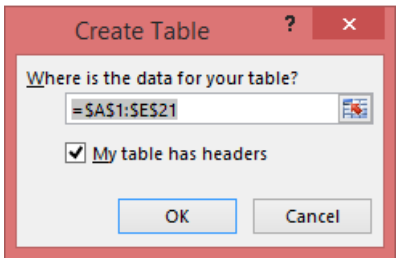
5	4	Iran	4,231,000	4.77%	2013	
6	5	China	4,073,000	4.56%	2013	
7	6	Canada	3,592,000	3.90%	2013	
8	7	Iraq	3,400,000	3.75%	2013	
9	8	United Arab Emirates	3,087,000	3.32%	2013	
10	9	Venezuela	3,023,000	3.56%	2013	
11	10	Mexico	2,934,000	3.56%	2013	
12	11	Kuwait	2,682,000	2.96%	2013	
13	12	Brazil	2,633,000	3.05%	2013	
14	13	Nigeria	2,525,000	2.62%	2013	
15	14	Norway	1,998,000	2.79%	2013	
16	15	Algeria	1,885,000	2.52%	2013	
17	16	Angola	1,840,000	2.31%	2013	
18	17	Kazakhstan	1,635,000	1.83%	2013	
19	18	Qatar	1,631,000	1.44%	2013	
20	19	United Kingdom	1,099,000	1.78%	2011	
21	20	Colombia	1,011,992	0.97%	2013	
22						

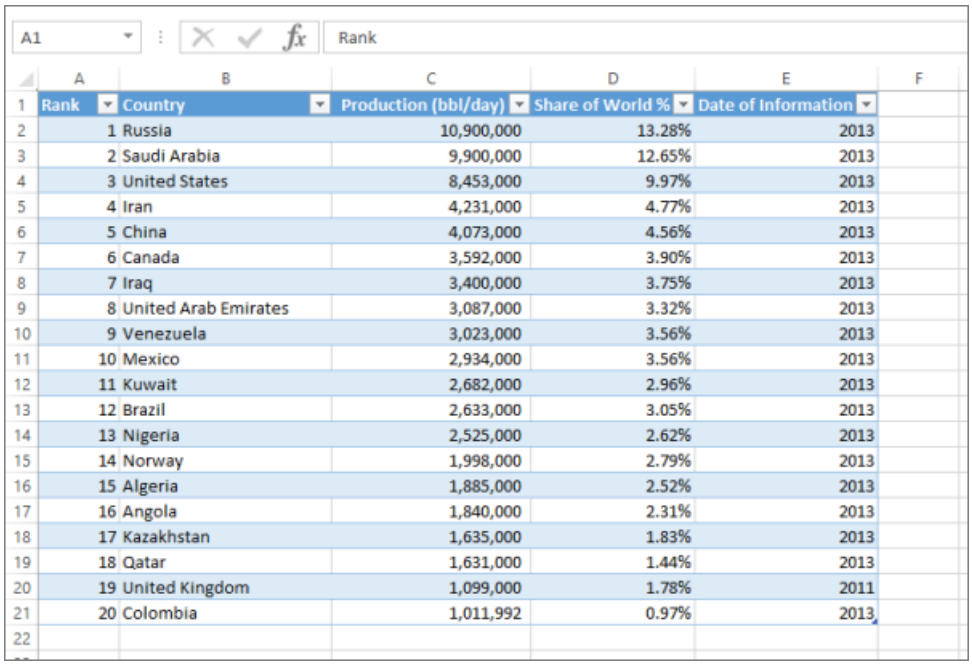
3. In the ribbon on the **INSERT** tab, click **Table**. (Or, as a shortcut, press **Ctrl + T**.)



4. You'll see the following dialog. Make sure **My table has headers** is checked, and select **OK**:



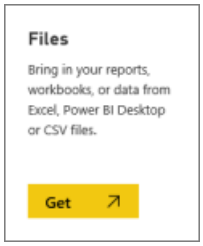
5. Now your data is formatted as a table:



6. Save your workbook.

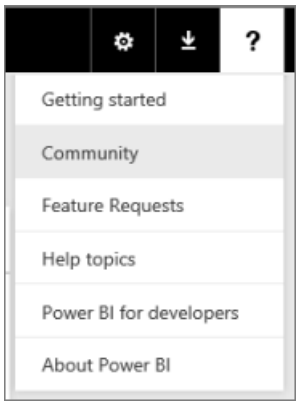
7. Return to Power BI. Select Get Data at the bottom of the nav pane.

8. In the **Files** box, select **Get**.



9. Import your Excel workbook again. This time, the import should find the table and succeed.

   If the import still fails, let us know by clicking **Community **in the help menu:



Power Automate and Power BI

5/13/2020 • 3 minutes to read • Edit Online

Power Automate is a SaaS offering for automating workflows across the growing number of applications and SaaS services that business users rely on. With Power Automate, you can automate tasks by integrating your favorite apps and services (including Power BI) to get notifications, synchronize files, collect data, and more. Repetitive tasks become easy with workflow automation.

Get started using Power Automate now.

Watch Sirui create a Power Automate flow that sends a detailed email to colleagues when a Power BI alert is triggered. Then follow the step-by-step instructions below the video to try it out yourself.

https://www.youtube.com/embed/YhmNstC39Mw

Create a flow that is triggered by a Power BI data alert

Prerequisites

This tutorial will show you how to create two different flows; one from a template and one from scratch. To follow along, create a data alert in Power BI, create a free Slack account, and sign up for Power Automate (it's free!).

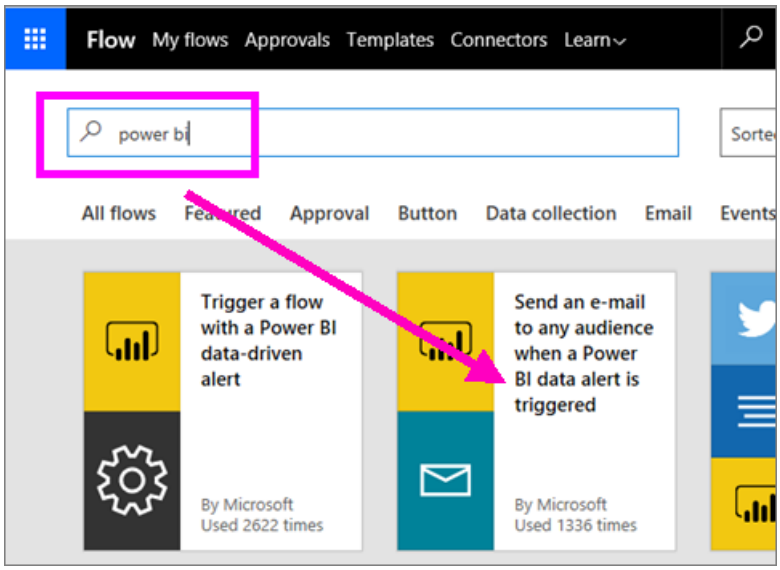
Create a flow that uses Power BI - from a template

In this task, we use a template to create a simple flow that is triggered by a Power BI data alert (notification).

1. Sign in to Power Automate (flow.microsoft.com).
2. Select **My flows**.

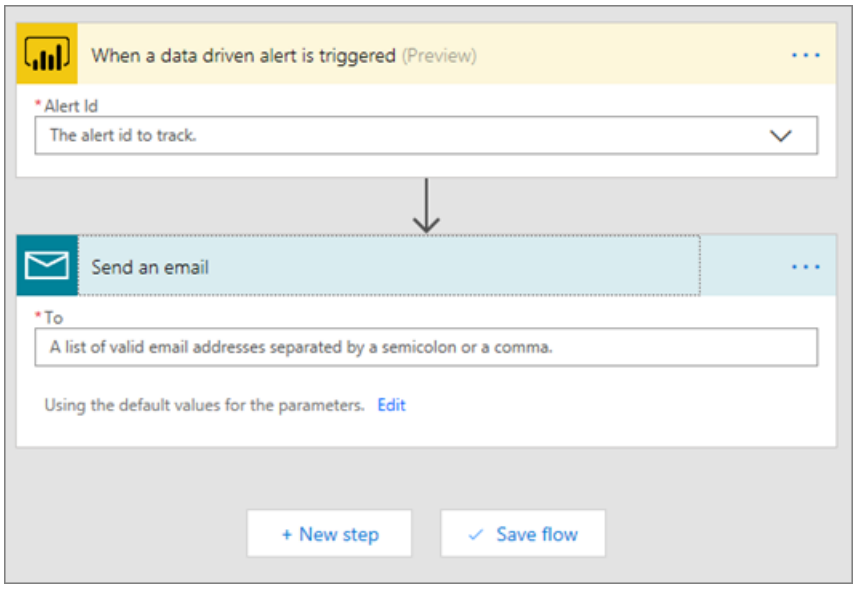
3. Select **Create from template**.

4. Use the Search box to find Power BI templates and select **Send an e-mail to any audience when a Power BI data alert is triggered** > **Continue**.

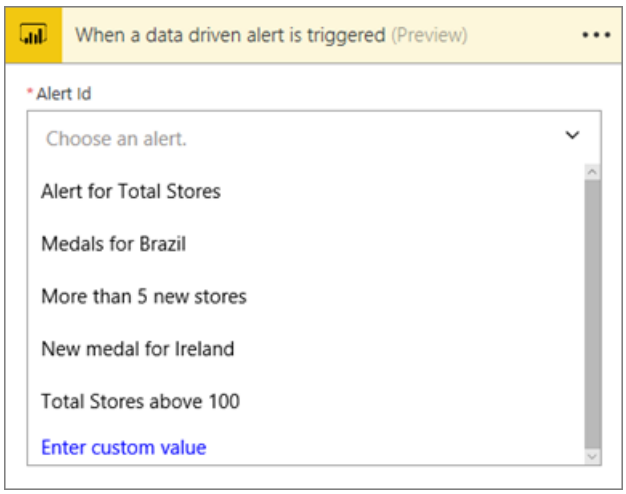


Build the flow

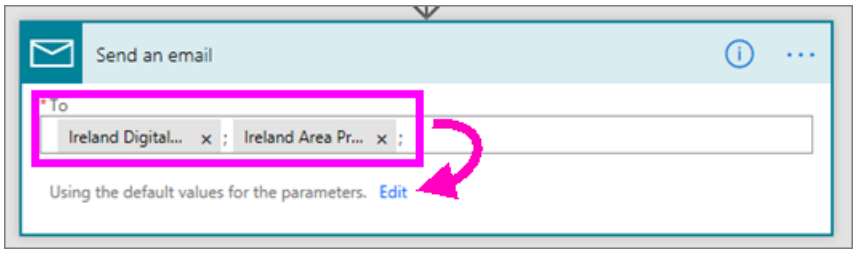
This template has one trigger (Power BI data alert for new Olympic medals for Ireland) and one action (send an email). As you select a field, Power Automate displays dynamic content that you can include. In this example, we include the tile value and the tile URL in the message body.



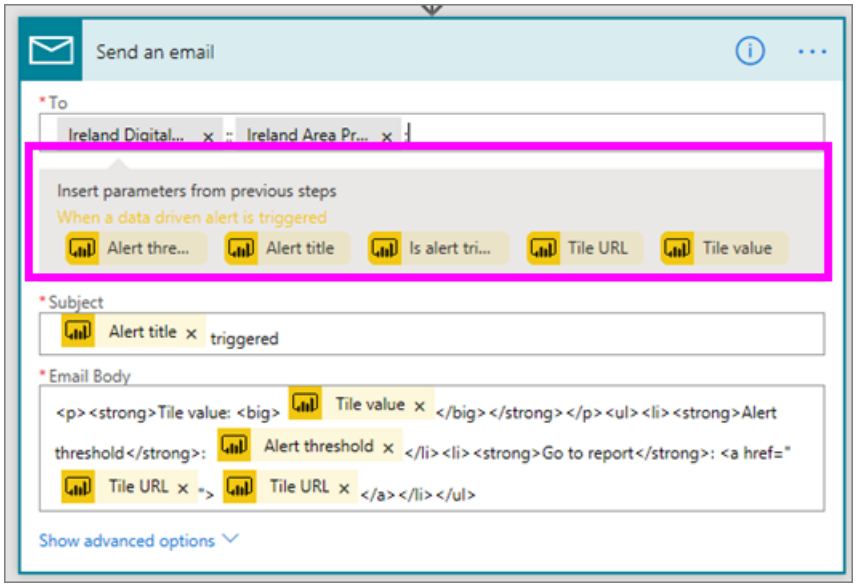
1. From the trigger dropdown, select a Power BI data alert. Select **New medal for Ireland**. To learn how to create an alert, see Data alerts in Power BI.



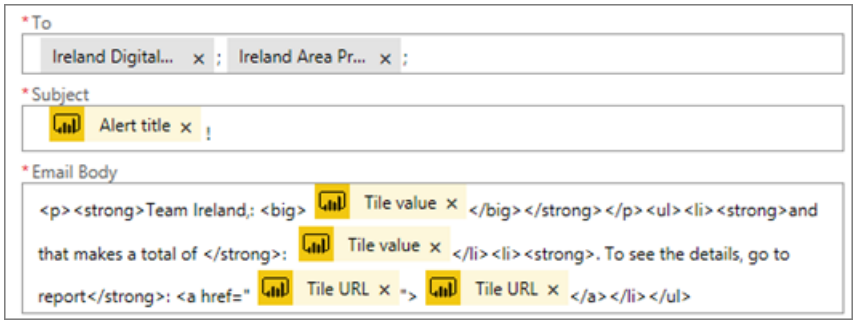
2. Enter one or more valid email addresses and then select **Edit** (shown below) or **Add dynamic content**.



3. Power Automate creates a title and message for you, which you can keep or modify. All the values you set when you created the alert in Power BI are available for your use -- just place your cursor and select from the gray highlighted area.



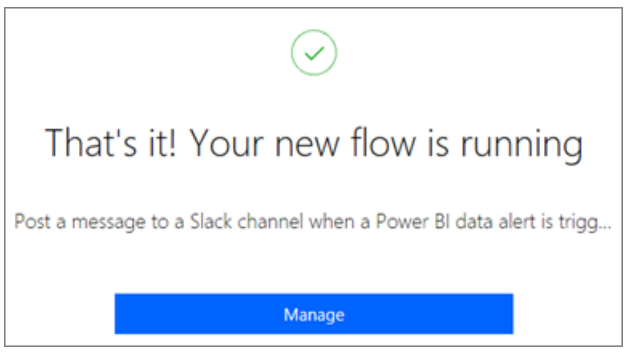
4. For example, if you created an alert title in Power BI of **We won another medal**, you can select **Alert title** to add that text to your email Subject field.



And, you can accept the default Email body or create your own. The example above contains a few modifications to the message.

5. When you're done, select **Create flow** or **Save flow**. The flow is created and evaluated. Power Automate lets you know if it finds errors.

6. If errors are found, select **Edit flow** to fix them, otherwise, select **Done** to run the new flow.



7. When the data alert is triggered, an email will be sent to the addresses you indicated.

Create a Power Automate that uses Power BI - from scratch (blank)

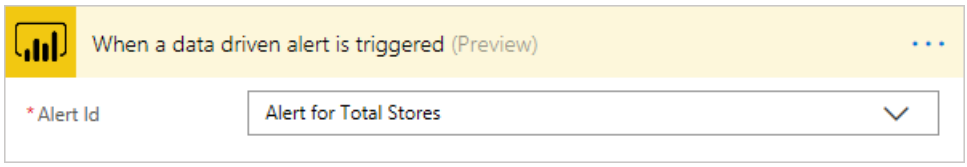
In this task, we create a simple flow from scratch that is triggered by a Power BI data alert (notification).

1. Sign in to Power Automate.
2. Select **My flows** > **Create from blank**.

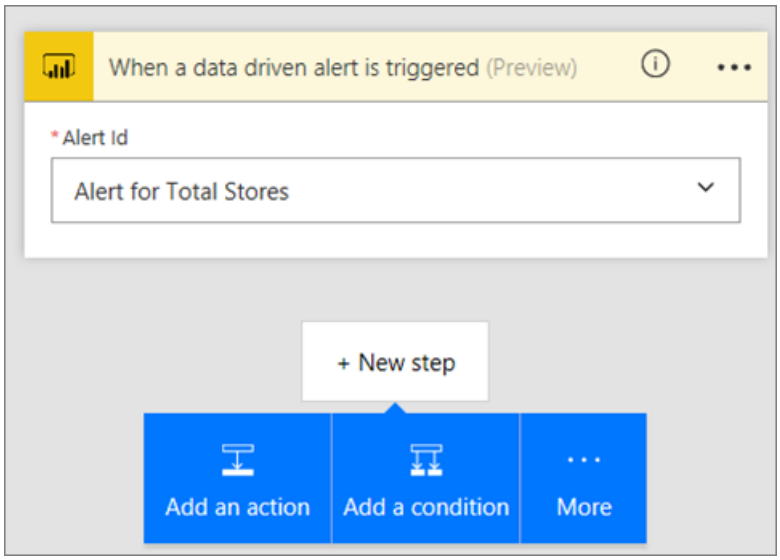
3. Use the Search box to find a Power BI trigger and select **Power BI - when a data driven alert is triggered**.

Build your flow

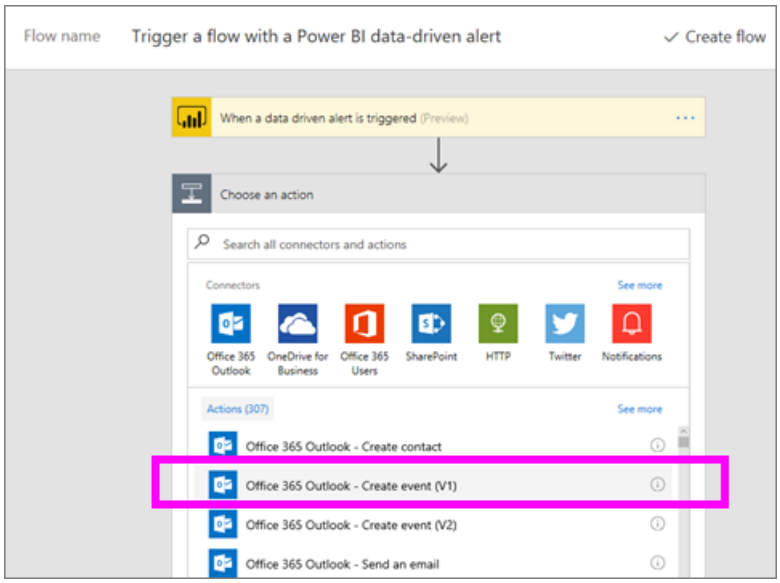
1. From the dropdown, select the name of your alert. To learn how to create an alert, see Data alerts in Power BI.



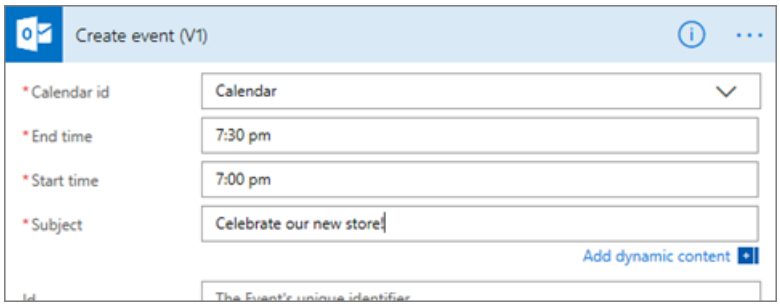
2. Select **New step** > **Add an action**.



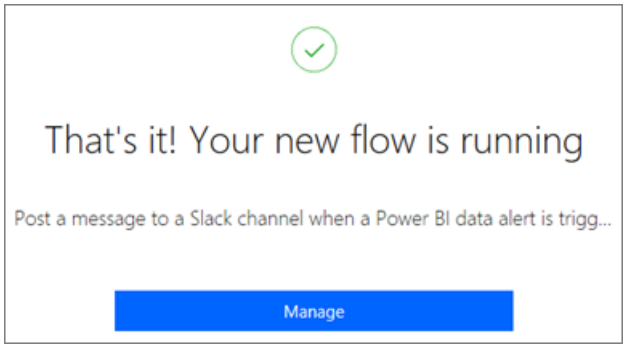
3. Search for **Outlook** and select **Create event**.



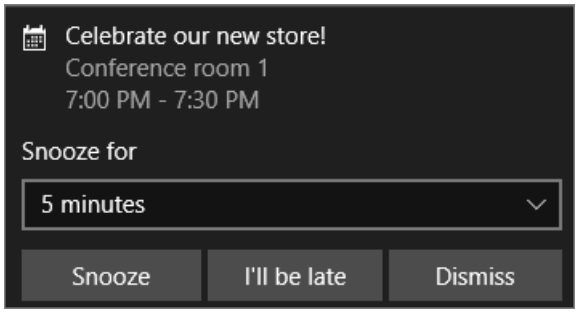
4. Fill in the event fields. As you select a field, Power Automate displays dynamic content that you can include.



5. Select **Create flow** when done. Power Automate saves and evaluates the flow. If there are no errors, select **Done** to run this flow. The new flow is added to your **My flows** page.



6. When the flow is triggered by your Power BI data alert, you'll receive an Outlook event notification similar to this one.



Next steps

- Get started with Power Automate
- Set data alerts in Power BI service

- Set data alerts on your iPhone
- Set data alerts in the Power BI mobile app for Windows 10
- More questions? Try the Power BI Community

Get started with third-party apps

5/11/2020 • 2 minutes to read • Edit Online

With Power BI, you can use an app built by a company or individual other than Microsoft. For example, you might use a third-party app which integrates Power BI tiles into a custom-built web application. When you use a third-party app, you will be asked to grant that application certain permissions to your Power BI account and resources. It is important that you only grant permissions to applications that you know and trust. Permissions to an application can be revoked at any time. See Revoke third party app permissions.

Here are the types of access an application can request.

Power BI App permissions

- **View all Dashboards**
  - This permission gives an application the ability to view all dashboards you have access to. This includes dashboards that you own, have gotten from content packs, and have been shared to you and are in groups that you belong to. The application cannot make any modifications to the dashboard. Among other things, this permission can be used by an application to embed your dashboard content into its experiences.
- **View all Reports**
  - This permission gives an application the ability to view all reports you have access to. This includes reports that you own, have gotten from content packs, and are in groups that you belong to. Part of viewing the report, means that the application can also see the data within it. The application cannot make any modifications to the reports themselves. Among other things, this permission can be used by an application to embed your report content into its experiences.
- **View all Datasets**
  - This permission gives an application the ability to list all datasets that you have access to. This includes datasets that you own, have gotten from content packs, and are in groups that you belong to. An application can see the names of all your datasets as well as their structure including table and column names. This permission gives rights to read the data in a dataset. The permission does not give the application rights to add or make changes to a dataset.
- **Read and Write all Datasets**
  - This permission gives an application the ability to list all datasets that you have access to. This includes datasets that you own, have gotten from content packs, and are in groups that you belong to. An application can see the names of all your datasets as well as their structure including table and column names. This permission gives rights to read and write the data in a dataset. The application can also create new datasets, or make modifications to existing ones. This is commonly used by an application to send to data directly to Power BI.
- **View user's Groups**
  - This permission gives the application the ability to list all groups that you are a member of. It can use this permission along with some of the other permissions listed to view or update content for that particular group. The application cannot make modifications to the group itself.

Revoke third-party app permissions

You revoke permissions for a third-party app by going to the Office 365 My Apps site.

On the **Office 365 My apps** site, here's how to revoke third-party permissions:

1. Go to Office 365 My Apps site.
2. On the **My apps** page, locate the third-party app.
3. Hover over the app tile, click the **(...)** button, and click **Remove**.

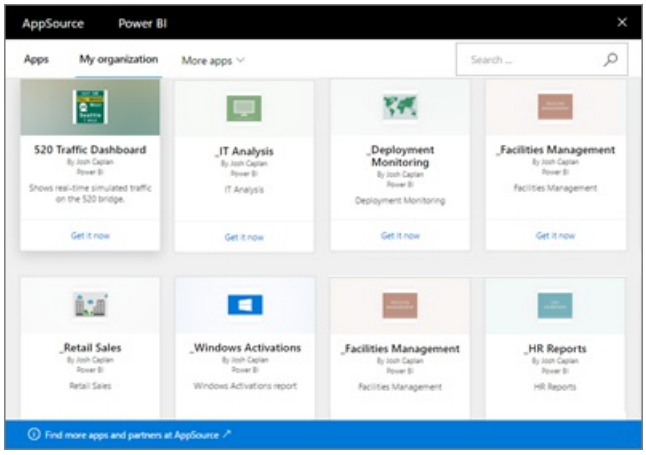
Intro to organizational content packs in Power BI

5/20/2020 • 4 minutes to read • Edit Online

NOTE

You can't create organizational content packs or install them in the new workspace experiences. Now is a good time to upgrade your content packs to apps, if you haven't started yet. Learn more about the new workspace experience.

Do you regularly distribute reports by email to your team? Try this instead: Package up your dashboards, reports, Excel workbooks, and datasets and publish them to your team as an *organizational content pack*. Content packs you create are easy for your team to find they are all in AppSource. Because they're part of Power BI, they leverage all the features of Power BI, including interactive data exploration, new visuals, Q&A, integration with other data sources, data refresh, and more.



Creating content packs is different from sharing dashboards or collaborating on them in a workspace. Read How should I collaborate on and share dashboards and reports? to decide on the best option for your situation.

In AppSource, you can browse or search for content packs published to the entire organization, to distribution or security groups, and to Microsoft 365 groups you belong to. If you aren't a member of a specific group, you won't see content packs shared with that group. All members of the group have the same read-only access to the content pack data, reports, workbooks, and dashboards (unless it's a SQL Server Analysis Services (SSAS) data source, in which case your privileges are inherited with the data source).

The dashboards, reports, and Excel workbooks are read-only, but you can copy and use the dashboards and reports as a starting point for creating your own personalized version of the content pack.

NOTE

Organizational content packs are only available when you and your colleagues have Power BI Pro licenses.

What is *AppSource*?

Publishing an organizational content pack adds it to AppSource. This centralized repository makes it easy for members to browse and discover dashboards, reports, and datasets published for them.

- To view AppSource, select **Get Data** > **My Organization** > **Get**.

The life cycle of an organizational content pack

Any Power BI Pro user can create, publish, and access organizational content packs. Only the content pack creator can modify the workbook and dataset, schedule refresh, and delete it.

The lifecycle looks something like this:

1. In Power BI Pro, Nate creates a content pack and publishes it to the Marketing distribution group. The refresh settings are inherited with the dataset and can only be changed by Nate.

   > **NOTE**
   > If Nate creates the content pack from within a Power BI workspace that Nate belongs to, then even if Nate leaves the workspace, others in the Power BI workspace can take over ownership.

2. Nate sends mail to the distribution group, telling them about the new content pack.
3. In Power BI Pro, Jane, a member of the Marketing distribution group, searches for and connects to a content pack in AppSource. Jane now has a read-only copy. Jane knows it's read-only because in the nav pane, there is a sharing icon to the left of the dashboard name and report name. And when Jane selects the dashboard, a lock icon lets Jane know they are looking at a content pack dashboard.
4. Say Jane decides to customize it. Jane will now have their own copy of the dashboard and reports. Jane's work does not affect the source, the original content pack, or other distribution group members. They are now each working on their own copy of the dashboard and report.
5. Nate makes updates to the dashboard and when it's ready, will publish a new version of the content pack.
   - Julio, another distribution group member, didn't customize the original content pack. The new changes are automatically applied to Julio's version of the content pack.
   - Jane did customize the content pack. Jane then receives a notification that there's a new version. Jane can go to AppSource and get the updated content pack without losing the personalized version. Jane now has two versions: the personalized version and the updated content pack.
6. Say Nate changes the security settings. Julio and Jane no longer have access to the content. Or say they're removed from the Marketing distribution group.
   - Julio didn't customize the original content pack, so the content is automatically removed.
   - Jane did customize the content pack. The next time Jane opens the dashboard all tiles from the original content pack are gone, but tiles pinned from other reports (that Jane still has permission to use) still appear. The associated reports and dataset are no longer available (and don't appear in their nav pane).
7. Or Nate deletes the content pack.
   - Julio didn't customize the original content pack, so the content is automatically removed.
   - Jane did customize the content pack. The next time Jane opens the dashboard all tiles from the original content pack are gone, but tiles pinned from other reports still appear. The associated reports and dataset are no longer available (and don't appear in their nav pane).

Data security

All distribution group members have the same permissions to the data as the content pack creator. The one exception to this is SQL Server Analysis Services (SSAS) on-premises tabular datasets. Because the reports and dashboards are connecting live to the on-premises SSAS model, the credentials of each individual distribution group member are used to determine the data they can access.

Next steps

- Create and publish an organizational content pack
- Create and distribute an app in Power BI
- Basic concepts for designers in the Power BI service
- More questions? Try the Power BI Community

Tutorial: Create and publish a Power BI organizational content pack

5/20/2020 • 3 minutes to read • Edit Online

In this tutorial, you create an organizational content pack, give access to a specific group, and publish it to your organization's content pack library on Power BI.

Creating content packs is different from sharing dashboards or collaborating on them in a group. Read Ways to share your work in Power BI to decide on the best option for your situation.

Creating an organizational content pack requires a Power BI Pro account for you and your colleagues.

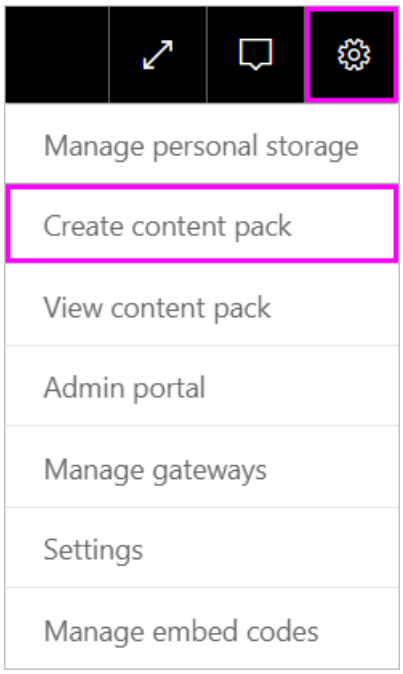
> **NOTE**
> You can't create or install organizational content packs in the new workspace experiences. If you haven't started yet, Now is a good time to upgrade your content packs to apps. Learn more about the new workspace experience.

Create and publish a content pack

Imagine you're the Release Manager at Contoso and you're getting ready for a new product launch. You've created a dashboard with reports that you'd like to share. Other employees managing the launch may find them useful. You want a way to package up the dashboard and reports as a solution for your colleagues to use.

Want to follow along? In the Power BI service, go to your **My Workspace**. Then go to **Get Data** > **Samples** > **Opportunity Analysis Sample** > **Connect** to get your own copy.

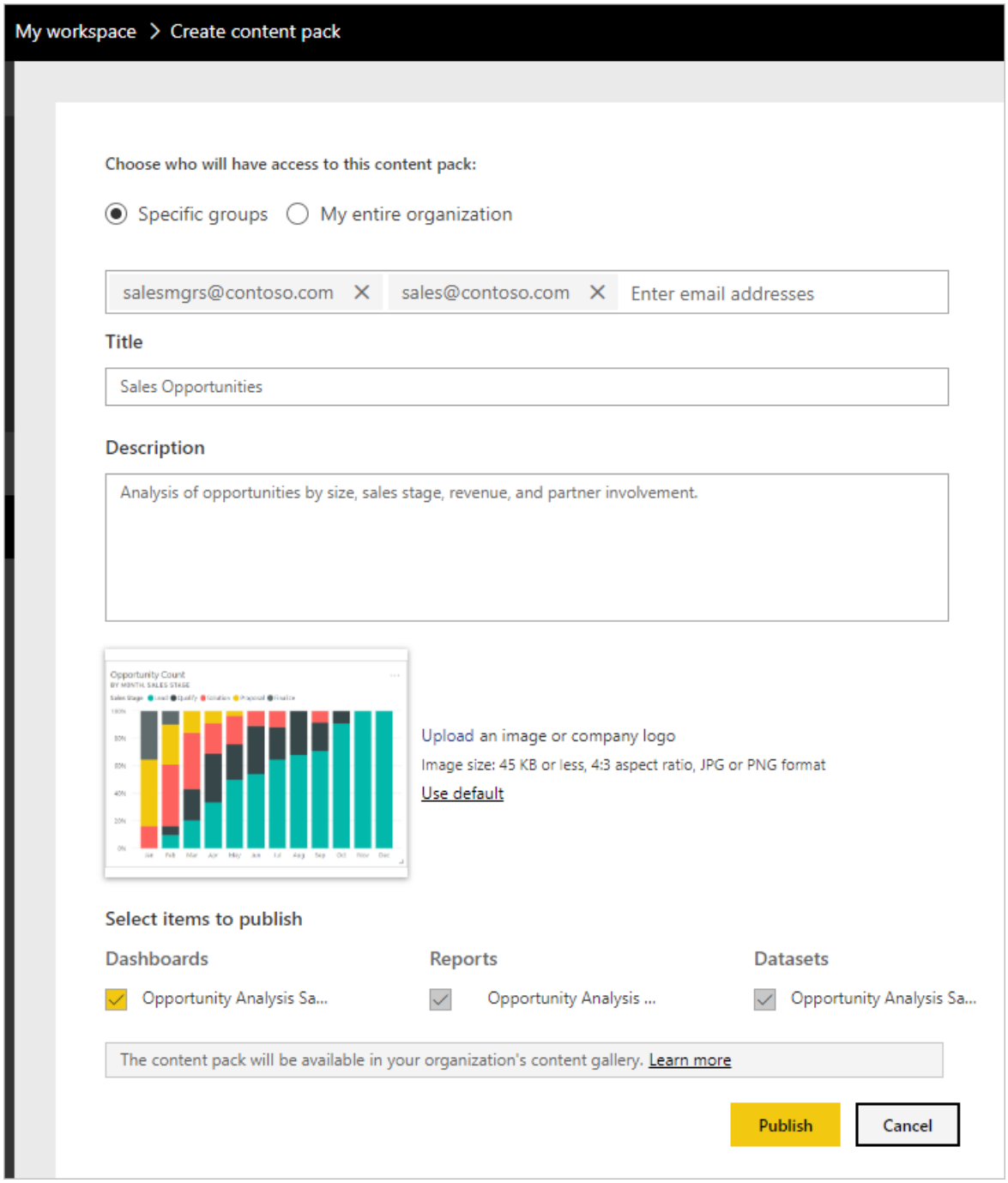
1. In the nav pane, select **Workspaces** > **My workspaces**.
2. From the top nav pane, select the cog icon > **Create content pack**.



3. In the **Create content pack** window, enter the following information.

   Keep in mind that your organization's content pack library might fill up quickly. The library could end up with

hundreds of content packs published for the organization or for groups. Take time to give your content pack a meaningful name, add a good description, and select the right audience. Use words that makes your content pack easy to find via search. It makes it easier to find in the future.



a. Select **Specific Groups**.

b. Enter the full email addresses for individuals, Microsoft 365 groups, distribution groups, or security groups. For example: salesmgrs@contoso.com; sales@contoso.com

   For this tutorial, try using your group's email address.

c. Name the content pack *Sales Opportunities*.

> **TIP**
> Consider including the name of the dashboard in the name of the content pack. That way, your colleagues can find the dashboard more easily after they connect to your content pack.

d. Recommended: Add a description. It helps coworkers more easily find the content packs that they

need. Besides a description, add keywords your coworkers might use to search for this content pack. Include contact information in case your coworkers have a question or need help.

e. Upload an image or logo to make it easier for group members to find the content pack.

   It's faster to scan for an image than to scan for text. The screenshot shows an image of the **Opportunity Count** column chart tile.

f. Select the **Opportunity Analysis Sample** dashboard to add it to the content pack.

   Power BI automatically adds the associated report and dataset. You can add others, if you want.

   > **NOTE**
   > Power BI only lists the dashboards, reports, datasets, and workbooks that you can edit. Thus, the app doesn't display any that were shared with you.

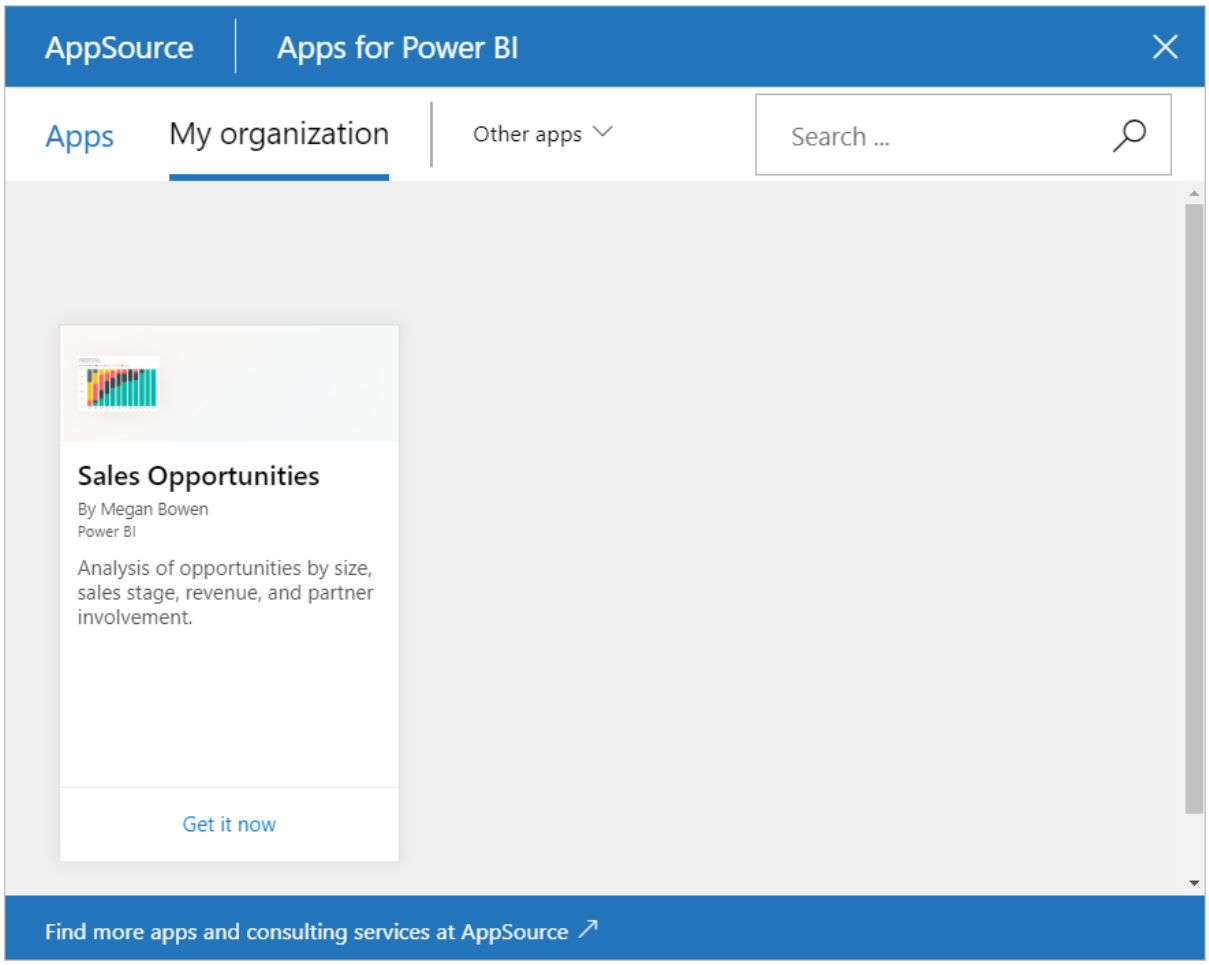
g. If you have Excel workbooks, you see them under **Reports**, with an Excel icon. You can add them to the content pack, too.

   > **NOTE**
   > If members of the group can't view the Excel workbook, you may need to share the workbook with them in OneDrive for Business.

4. Select **Publish** to add the content pack to the group's organizational content pack library.

   You see a success message when it publishes successfully.

5. When members of your group go to **Get Data** > **Organizational Content Packs**, they see your content pack.



TIP

The URL displayed in your browser is an unique address for this content pack. Want to tell your coworkers about this new content pack? Paste the URL into an email.

6. When your group members select **Connect**, they can view and work with your content pack.

Next steps

- Intro to organizational content packs in Power BI.
- Manage, update, and delete organizational content packs.
- Publish an app in Power BI.
- What is OneDrive for Business?
- More questions? Try the Power BI Community

Organizational content packs: Copy, refresh, and get access

5/20/2020 • 2 minutes to read • Edit Online

When an organizational content pack is published, all recipients see the same dashboard, reports, Excel workbooks, datasets, and data (unless it's a SQL Server Analysis Services (SSAS) data source). Only the content pack creator can edit and republish the content pack. However, all recipients can save a copy of the content pack that can live alongside the original.

Creating content packs is different from sharing dashboards or collaborating on them in a group. Read How should I collaborate on and share dashboards and reports? to decide on the best option for your situation.

> **NOTE**
> You can't create or install organizational content packs in the new workspace experiences. Now is a good time to upgrade your content packs to apps, if you haven't started yet. Learn more about the new workspace experience.

Create a copy of an organizational content pack

Create your own copy of the content pack, not visible to others.

1. Select **More options** (...) next to the content pack dashboard > Make a copy.

2. Select **Save**.

Now you have a copy that you can change. Nobody else will see changes you make.

> **NOTE**
> Previously, each time you installed a content pack or created a copy one, a new dataset would appear in the workspace content list. A recent update simplified the experience to show just one item using the new referenced dataset icon:
>
> 

Help! I can no longer access the content pack

This can happen for several reasons:

- **Membership changes**: Content packs are published to email distribution groups, security groups, and Power BI groups based on Microsoft 365. If you are removed from the group, you will no longer have access to the

content pack.

- **Distribution changes**: The content pack creator changes the distribution. For example, if the content pack was originally published to the entire organization but the creator republished it to a smaller audience, you may no longer be included.
- **Security settings changes**: If the dashboard and reports connect to on-premises SSAS data sources and changes are made to the security settings, your permissions to that server may be revoked.

How are organizational content packs refreshed?

When the content pack is created, the refresh settings are inherited with the dataset. When you create a copy of the content pack, the new version retains its link to the original dataset and its refresh schedule.

See Manage, update, and delete organizational content packs.

Next steps

- Introduction to organizational content packs
- Create a group in Power BI
- More questions? Try the Power BI Community

Manage, update, and delete organizational content packs

5/13/2020 • 4 minutes to read • Edit Online

> **NOTE**
> You can't create organizational content packs or install them in the new workspace experiences. Now is a good time to upgrade your content packs to apps, if you haven't started yet. Learn more about the new workspace experience.

You can package up and share your dashboards, reports, Excel workbooks, and datasets with your colleagues as organizational content packs. Your colleagues can use them as-is, or they can create their own copies.

Creating content packs is different from sharing dashboards or collaborating on them in a group. Read How should I collaborate on and share dashboards and reports? to decide on the best option for your situation.

You can only do some organizational content pack tasks if you're the content pack creator:

- Republish.
- Restrict or expand access to the content pack.
- Set and change scheduled refresh.
- Delete the content pack.

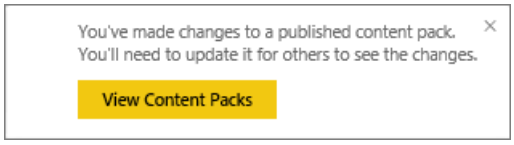
Modify and re-publish an organizational content pack

If you make changes to the original content pack dashboard, report, or Excel workbook, Power BI prompts you to republish. Additionally, as the content pack creator, you can update any of the options you selected in the Create Content Pack window when you were creating the original content pack.

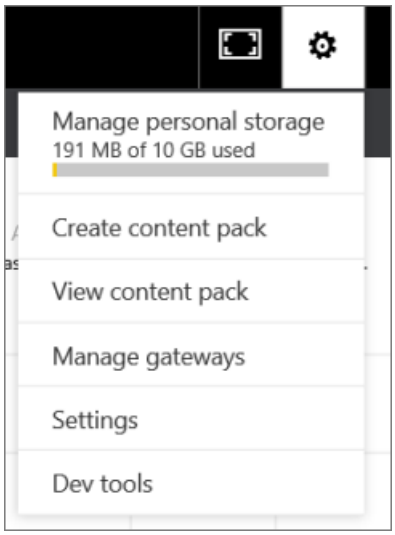
Republish with new content

When you make and save a change to the dashboard that you included in a content pack, Power BI reminds you to update it so others can see the changes. For example, if you pin a new tile or just change the name of the dashboard.

1. Select **View Content Packs** in the message.



2. Or select the cog icon in the upper-right corner and select **View Content Pack**.



Notice the warning icon ⚠. This lets you know that you've modified the content pack in some way and it no longer matches what you published.

3. Select **Edit**.
4. Make any necessary changes in the **Update Content Pack** window and select **Update**. A **Success** message appears.

   - For group members who haven't customized the content pack, the update is automatically applied.
   - Group members who have customized the content pack receive a notification that there is a new version. They can go to AppSource and get the updated content pack without losing their personalized version. They'll now have 2 versions: the personalized version and the updated content pack. In the personalized version, all tiles from the original content pack will be gone. But tiles pinned from other reports will still render. However, if the content pack owner deletes the dataset the content pack is based on, then the whole report will be gone.

Update the audience: expand or restrict access

Another modification available to content pack creators is expanding and restricting access to the content pack. Perhaps you published a content pack to a broad audience and you've decided to restrict access to a smaller group.

1. Select the cog icon and choose **View Content Packs**.
2. Select **Edit**.
3. Make any necessary changes in the **Update Content Pack** window and select **Update**. For example, delete the original distribution group in the **Specific Groups** field and replace it with a different distribution group (that has fewer members).

   A Success message appears.

   For any coworker who isn't part of the new alias:

   - For group members who haven't customized the content pack, the dashboard and reports associated with that content pack are no longer available and the content pack doesn't appear in the nav pane.
   - For group members who have customized the content pack, the next time they open the customized dashboard, all tiles from the original content pack will be gone. But tiles pinned from other reports will still render. The original content pack reports and dataset are no longer available, and the content pack doesn't appear in the nav pane.

Refresh an organizational content pack

As the content pack creator, you can schedule refresh of the datasets. When you create and upload the content pack, that refresh schedule is uploaded with the datasets. If you change the refresh schedule, you need to re-publish the content pack (see above).

Delete an organizational content pack from AppSource

You can only delete a content pack from AppSource if you created it. If you've created an organizational content pack in a workspace, and then decide to delete that workspace, be sure to delete the content pack first. If you delete the workspace without deleting the content pack first, you lose all access to those content packs and will have to contact Microsoft Support for help.

> **TIP**
>
> You can delete your connection to a content pack you didn't create. That doesn't delete the content pack from AppSource.

1. To delete a content pack from AppSource, go to the workspace where you created the content pack, select the cog icon and choose **View Content Packs**.
2. Select **Delete** > **Delete**.
   - For group members who haven't customized the content pack, the dashboard and reports associated with that content pack are automatically removed. They're no longer available, and the content pack doesn't appear in the nav pane.
   - For group members who have customized the content pack, the next time they open the customized dashboard, all tiles from the original content pack will be gone. But tiles pinned from other reports will still render. The original content pack reports and dataset are no longer available, and the content pack doesn't appear in the nav pane.

Next steps

- Introduction to organizational content packs
- Create and distribute an app in Power BI
- More questions? Try the Power BI Community

Remove your connection to a Power BI organizational content pack

5/13/2020 • 2 minutes to read • Edit Online

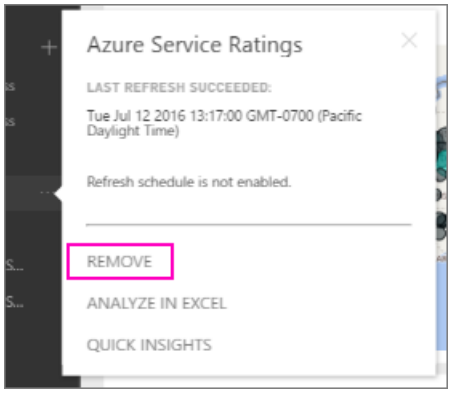
NOTE

You can't create organizational content packs or install them in the new workspace experiences. Now is a good time to upgrade your content packs to apps, if you haven't started yet. Learn more about the new workspace experience.

A coworker created a content pack. You discovered it in AppSource and added it to your Power BI workspace. Now you don't need it any longer. How do you remove it?

To remove a content pack, you remove its dataset.

- In the nav pane, select the ellipsis to the right of the dataset and select **Remove** > **Yes**.



Removing the dataset also removes all associated reports and dashboards. However, removing your connection to the content pack doesn't delete the content pack from your organization's AppSource. You can always return to AppSource and add the content pack back to your workspace. You can only delete a content pack from AppSource if you're the one who created it.

Next steps

- Introduction to organizational content packs
- Create and distribute an app in Power BI
- Basic concepts for designers in the Power BI service
- More questions? Try the Power BI Community