

Create a Development Environment for Power BI Embedding

Setup Time: 20-30 minutes

Overview: As you move through this setup guide, you will create a new Azure AD tenant with Office 365 E5 trial licenses and then you will configure this Azure AD tenant to serve as a development environment for building and testing solutions that use Power BI embedding. After creating the tenant, you will be able to log in with a new Azure AD user account configured to run as the tenant Global administrator and as a Power BI Service administrator. That means you will have full control to configure tenant-level settings for the Power BI Service.

You will also be able to create additional user accounts for testing purposes. Remember that any Azure AD user account with an Office 365 E5 subscription is automatically assigned a Power BI Pro license as well. The tenant you create with these instructions can be used as a development environment to write and test PowerShell scripts and to develop custom web applications that use the Power BI Service API and the Power BI JavaScript API implement Power BI embedding.

1. Navigate to the Office 365 trial sign up web page.
 - a) Launch the Chrome browser.
 - b) Copy and paste the following URL into the address bar of the incognito window to navigate to the signup page.

<https://go.microsoft.com/fwlink/p/?LinkID=698279&culture=en-US&country=US>

- c) You should now see the form you need to fill out to create your new **Office 365 E5** trial.
 - d) Enter your email address and click **Next**.

If you enter an email address for an existing organization account such as your work account, the form provides the option to sign in. Do not click **Sign in** because you don't want to sign with an existing organization account. The purpose of this exercise is to create a new organizational account in a new Microsoft 365 tenant.

- e) Click the **Create a new account instead** link.

- f) Enter your **First name** and **Last name**.
 - g) Enter your mobile phone number as the **Business phone number**.
 - h) Provides values for **Company size** and **Country or region** and click **Next**.

Whatever **Company name** you enter will be used as the name of the Azure AD tenant that will be created during the sign up process.

- i) When prompted to prove you're not a robot, select the **Text me** option and ensure Phone number of for your mobile phone.
- j) Click **Send Verification Code**.

- k) Retrieve the access code from your mobile device and use it to complete the validation process.

- l) In the **Create your business identity** step, locate the textbox into which you will enter a domain name.

Note that the company name you enter in this textbox will be used to create an Internet domain name for a new Microsoft 365 tenant. For example, if you were to enter a company name of **cptstudent**, it would result in the creation of a new Office 365 tenant within a domain of **cptstudent.onMicrosoft.com**. The user name you enter will be used to create the first user account which will be given global admin permissions throughout the Azure AD tenant. If you enter a user name of **Student**, then the email address as well as user principal name for this account will be **student@cptstudent.onMicrosoft.com**

- m) Enter a domain name for your new Microsoft 365 tenant.

- n) If the domain name you enter is not available, modify the domain name until you can verify that it is available.
- o) Once you have created a domain name that is available, click **Next**.

- p) Enter a **Name** for your user account, a **Password** that you will remember and then click **Sign up**.

Now create your user ID and password to sign in to your account. ⓘ

Name: student @devcamplabs.onmicrosoft.com

Password: *****

Confirm password: *****

By clicking **Sign up**, you agree to our [trial agreement](#).

I will receive information, tips, and offers about Microsoft Online Services and other Microsoft products and services. [Privacy Statement](#)

☐ I would like Microsoft to share my information with select partners so I can receive relevant information about their products and services. To learn more, or to unsubscribe at any time, view the privacy statement.

Sign up

At this point, the Sign up process should begin to provision your new Microsoft 365 tenant and your new organizational account.

- q) Once the provision process completes, take note of your new **user ID** and click the **Go To Setup** button.

④ You're all set

Save this info. You'll need it later.

Your user ID
student@devcamplabs.onmicrosoft.com

Go to Setup [Manage your subscription](#)

You have just created a new Microsoft 365 tenant with a 30-day trial for 25 Office 365 E5 licenses. Note that some Microsoft cloud services within your new tenant such as the Microsoft 365 admin center, Power BI, PowerApps and Flow can be accessed immediately. Other Office 365 services such as SharePoint Online, OneDrive for Business and your Outlook mailbox will not be ready immediately and can take some time to provision.

- r) If you see the **Personalize your sign-in and email** setup page, click **Exit and continue later**.

● Install Office

○ Add domain

○ Add users

○ Connect domain

○ Share Microsoft Teams

Install Office

You can download and install Office for your device now. Selecting an option below will assign a Office 365 E5 license to you, if you don't have one already. If you want to install a different language, the 64-bit version, or other apps available with your subscription [view other install options](#).

Office apps
Word, Excel, PowerPoint, OneNote, Outlook

Continue **Exit setup**

- s) You should now be located at the home page of the **Microsoft 365 admin center**.

Microsoft 365 admin center

Dev Camp Labs

Search

Dark mode What's new?

Finish setting up Office 365 E5

Now it's time to install your Office apps

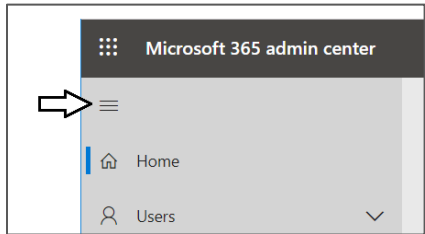
With your Office 365 E5 subscription, you get the latest versions of Word, Excel, PowerPoint and Outlook.

Go to guided setup

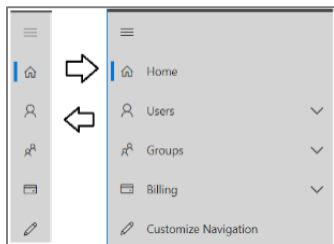
If you don't see the home page of the **Microsoft 365 admin center**, navigate to <https://admin.microsoft.com/Adminportal>.

2. Inspect the set of active users in the current Azure AD tenant.

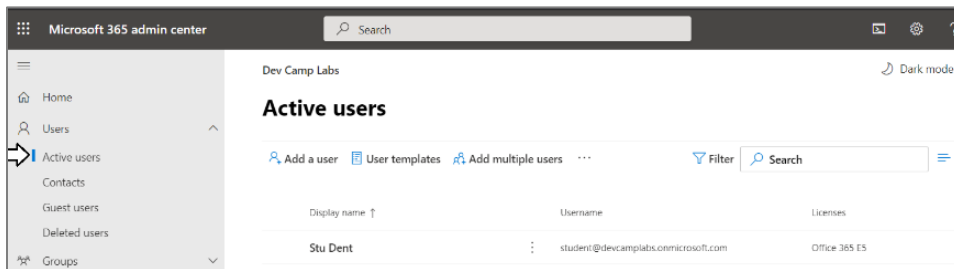
- a) Locate the top **Collapse navigation menu** with the hamburger icon just under the Microsoft 365 App Launcher menu.



- b) Toggle the **Collapse navigation menu** button to see how it collapses and expands the left navigation menu.



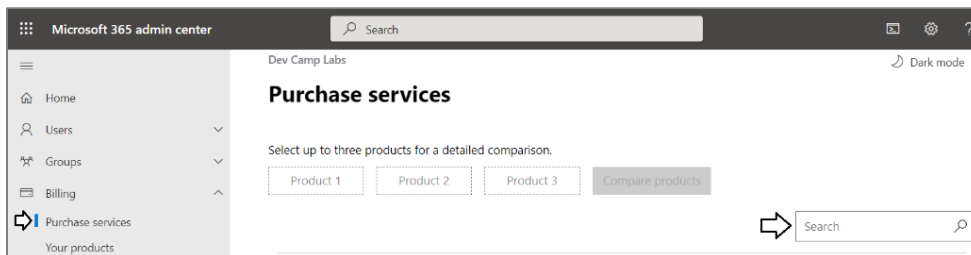
- c) Navigate to the **Active users** view where you should be able to verify that the user account you are currently logged in as is the only user account that exists in the current tenant.



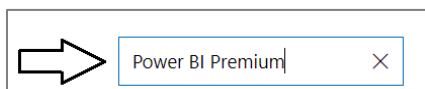
Remember that your account is global tenant administrator. You have permissions to configure any settings throughout the tenant.

3. Create a new subscription for the **Power BI Premium Per User Trial**

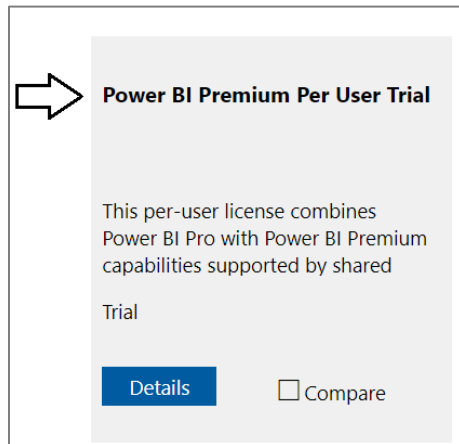
- a) Using the left nav menu, navigate to the **Purchase services** page.
b) Place your cursor in the search box as shown in the following screenshot.



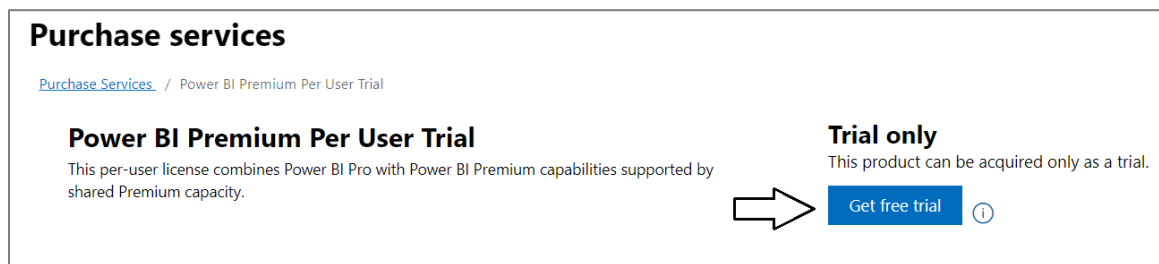
- c) Type **Power BI Premium** and press Enter to begin the search..



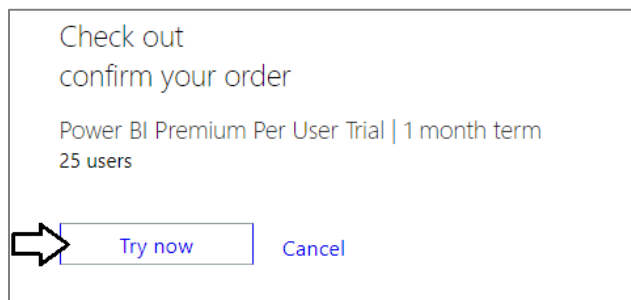
- d) Locate and select **Power BI Premium Per User Trial**.



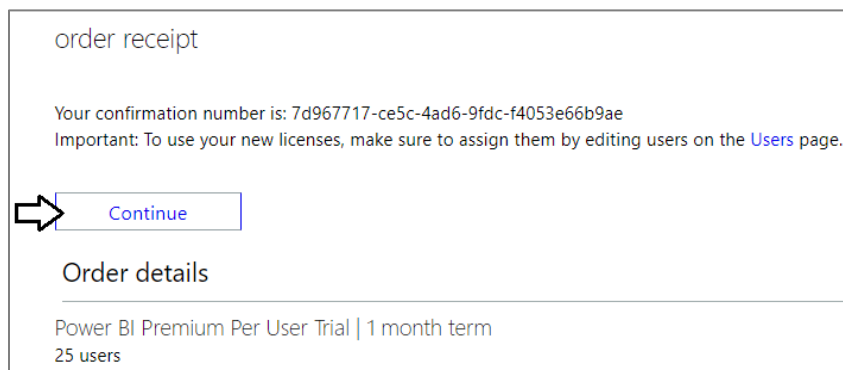
- e) Click **Get free trial**.



- f) Click **Try now**.

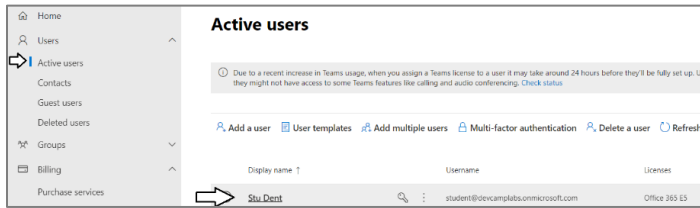


- g) Click **Continue**.

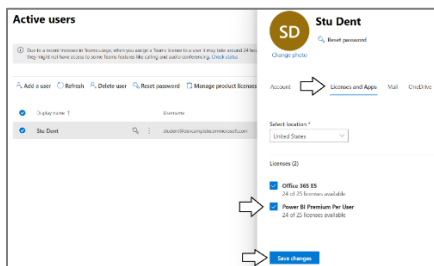


Now that you have created the subscription, you must now assign a **Power BI Premium Per User Trial** license to your user account.

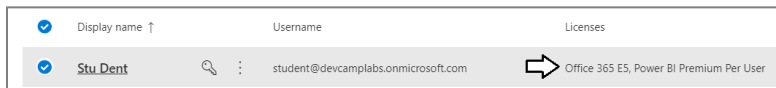
4. Assign a **Power BI Premium Per User** license to your user account.
 - a) Using the left nav menu, navigate to the **Active users** page.
 - b) Click on your user account in the **Active users** list.



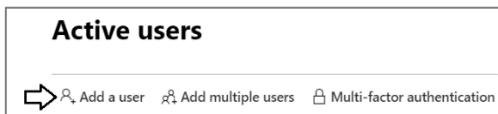
- c) Select the **Licenses and Apps** tab.
- d) Select the license checkbox with the caption **Power BI Premium Per User**.
- e) Click the **Save changes** button.



- f) You should now see your user account has been assigned the **Power BI Premium Per User** license.



5. Create a second Azure AD user account in your new tenant without admin permissions for testing purposes.
 - a) On the **Active Users** page, click the button **Add a user** button to create a new user account



- b) Fill in the **Set up the basics** form with information for a new user account. When creating this account, you can use any name you would like. These lab instructions will demonstrate this by creating a user account for a person named **James Bond** with a user name and email of **JamesB@devcamplabs.onmicrosoft.com**.

- c) Move below to the **Password settings** section.
- d) Select the option for **Let me create the password**.
- e) Enter a password of **pass@word1** into the textbox labeled **Password**.

- f) Uncheck the checkbox for the **Require this user change their password when they first sign in** option.
- g) Click **Next**.

- h) In the **Product licenses** section, make sure the **Office 365 E5** and **Power BI Premium Per User** licenses checked.

Note that the new account is usually assigned a trial license for **Office 365 E5** plan. However, it's a good practice to check and make sure the new user has been assigned a license for **Office 365 E5** which includes the **Power BI Pro** license. The addition of the **Power BI Premium Per User** license makes it possible to try out premium features such as publishing paginated reports and exporting Power BI reports as a PDF file.

- i) Click the **Next** button down below.
- j) On the Optional settings view, click Next.

- k) On the **Finish** view, Click the **Finish adding** button at the bottom to create the new user account.

- l) You should see the **Finish** view with a message indicating that the new user account has been created.

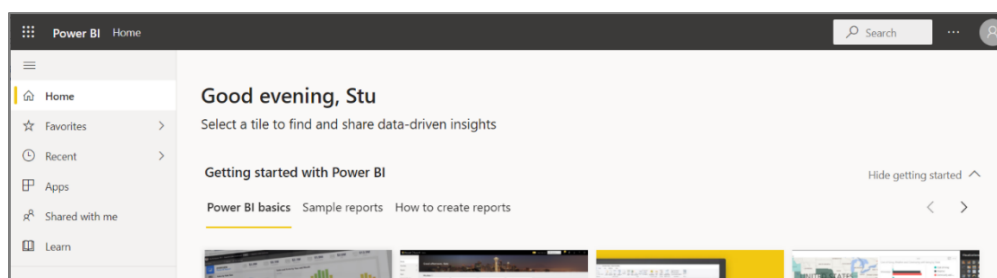
- m) Click the **Close** button at the bottom of the **Finish** view to close the **Add User** pane on the right.
- n) Verify that the new user account has been created and is displayed along with your primary Office 365 user account.

Display name ↑	Username	Licenses
James Bond	JamesB@devcamplabs.onmicrosoft.com	Power BI Premium Per User , Office 365 E5
Stu Dent	student@devcamplabs.onmicrosoft.com	Power BI Premium Per User , Office 365 E5

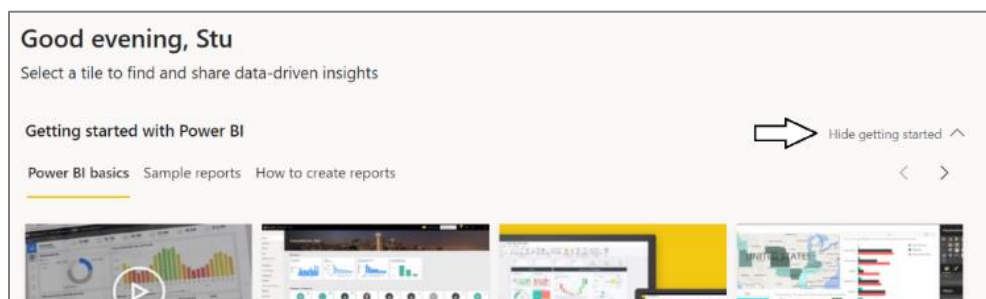
Now you have a secondary user account that does not have any administrative permissions. It's important that you test applications which use first-party embedding with standard user accounts to ensure your application doesn't require users with special permissions.

6. Log into the Power BI Service with your new organizational account.

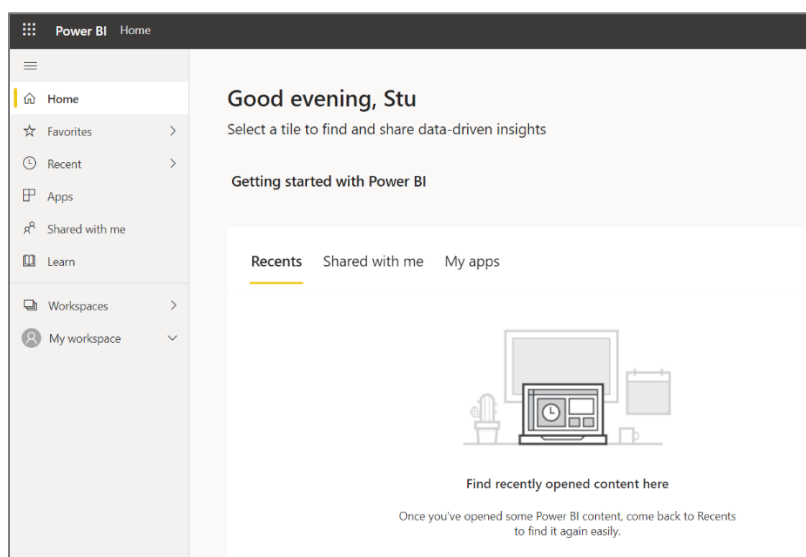
- a) Navigate the Power BI portal at <https://app.powerbi.com> and if prompted, log in using your new organizational account.



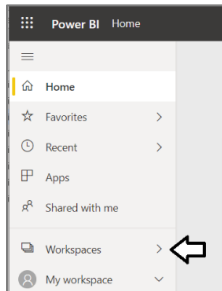
- b) Click the **Hide getting started** link.



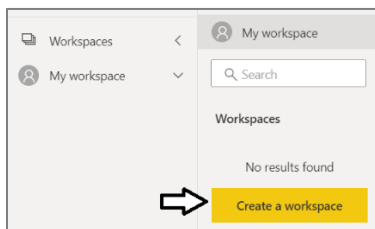
- c) The landing page for the Power BI Service should now look like the following screenshot.



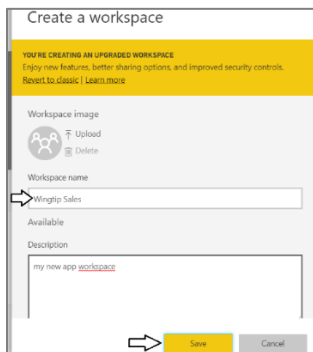
7. Create a new app workspace named **Wingtip Sales**.
- a) Click the **Workspace** flyout menu in the left navigation.



- b) Click the **Create app workspace** button to display the **Create an app workspace** dialog.



- c) In the **Create an app workspace** pane, enter a workspace name of **Wingtip Sales**.
- d) Click the **Save** button to create the new app workspace named **Wingtip Sales**.



- e) When you click **Save**, the Power BI service should create the new app workspace and then switch your current Power BI session to be running within the context of this new app workspace.



You have now created an app workspace which will provide the foundation for publishing and managing the Power BI datasets, reports and dashboards used by a custom solution.

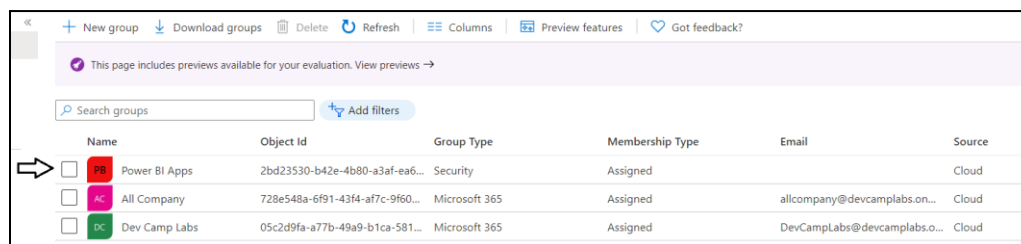
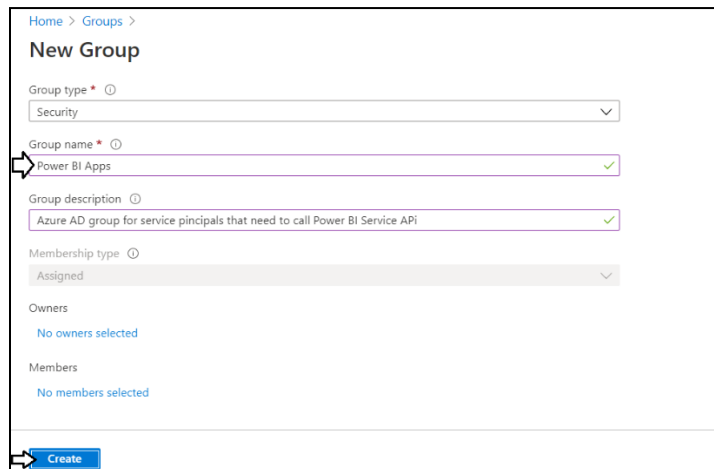
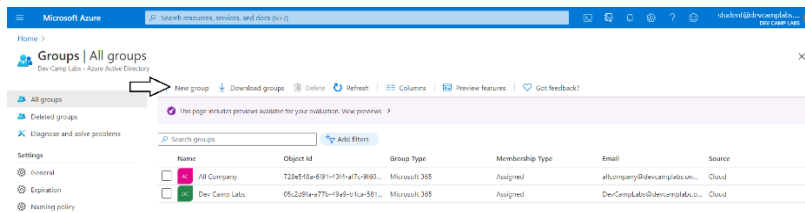
Configure Service Principal Support in your Azure AD Tenant

Ssss

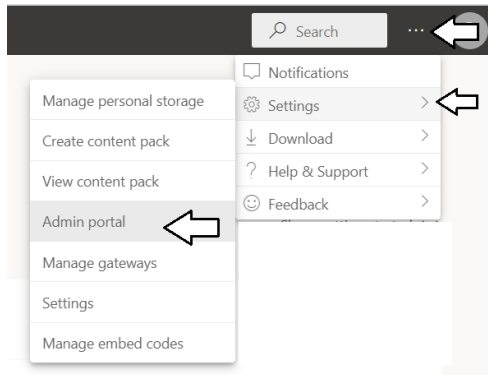
8. Use the Azure portal to create a new Azure AD group named **Power BI Apps**.
 - a) Navigate to the **All groups** blade of the Azure AD portal using the following URL.

https://portal.azure.com/#blade/Microsoft_AAD_IAM/GroupsManagementMenuBlade/AllGroups

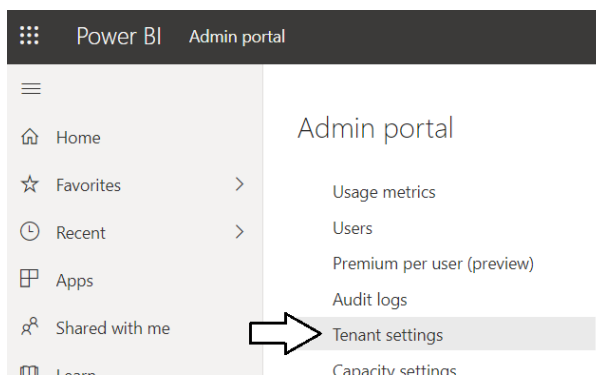
- b) Verify that you can see the new Azure AD security group named **Power BI Apps**.



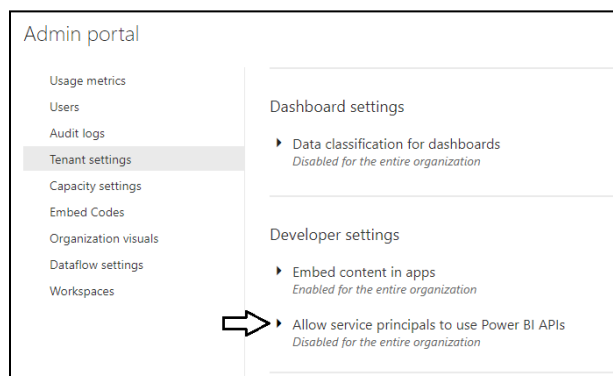
9. Enable the **Allow service principals to use Power BI APIs** setting and configure it with the **Power BI Apps** security group.
 - a) Navigate to the Power BI portal at <https://app.powerbi.com>.
 - b) Drop down the **Settings** menu and select the navigation command for the **Admin portal**.



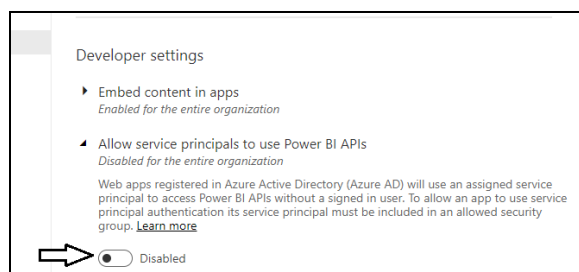
- c) In the Power BI Admin portal, click the **Tenant settings** link on the left.



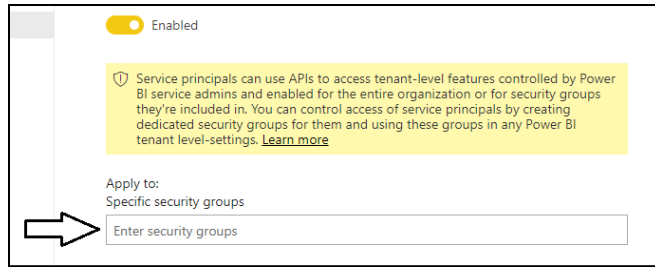
- d) Move down in the **Developer settings** section and expand the **Allow service principals to use Power BI APIs** section.



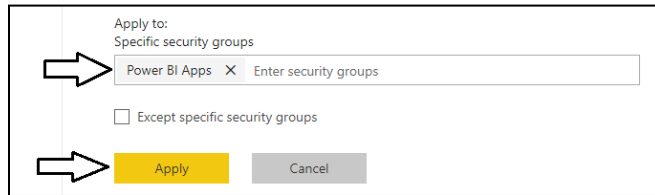
- e) Note that the **Allow service principals to use Power BI APIs** setting is initially set to **Disabled**.



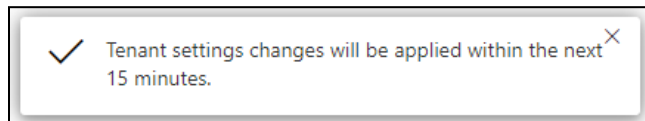
- f) Change the setting to **Enabled** and place your cursor inside the **Apply to: Specific security groups** textbox.



- g) Type in **Power BI Apps** to resolve the Azure AD group and then click **Apply** to save your configuration changes.

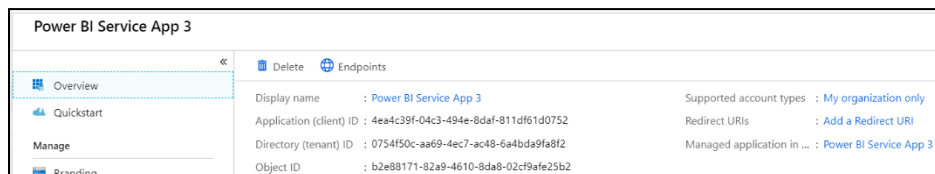


- h) You will see a notification indicating it may take up to 15 minutes until your tenant recognizes your configuration changes.

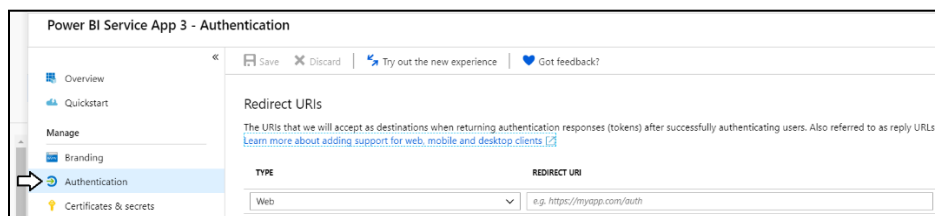


10. Create a new confidential client application in Azure AD with a client secret.

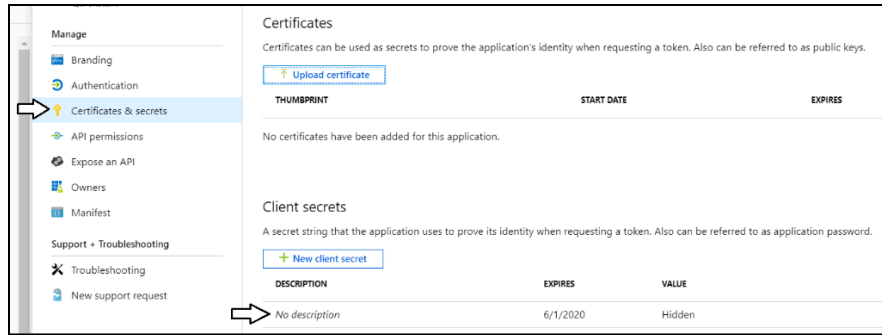
- Navigate to the Azure AD **App registrations** blade in the Azure portal.
- Create a new Azure AD application named **App-Owns-Data Sample App**.
- Examine the **App-Owns-Data Sample App** summary page.



- d) Click on the **Authentication** link on the left and verify that the application has been configured without any **Redirect URIs**.

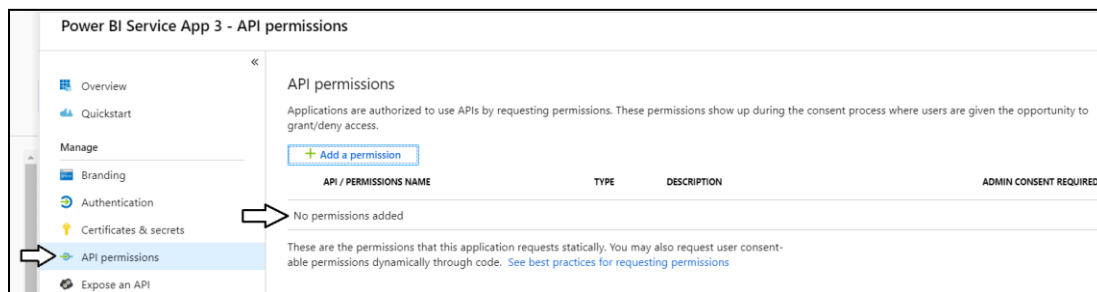


- Click on the **Certificates & secrets** link.
- Create a new app secret. and verify that the application has a client secret that expires in a year.



Note that it's not currently possible to assign a **Description** to a client secret created with PowerShell. However, it will still work fine.

- g) Click on the **API permissions** link on the left and verify that the application has been configured with no **API permissions**.



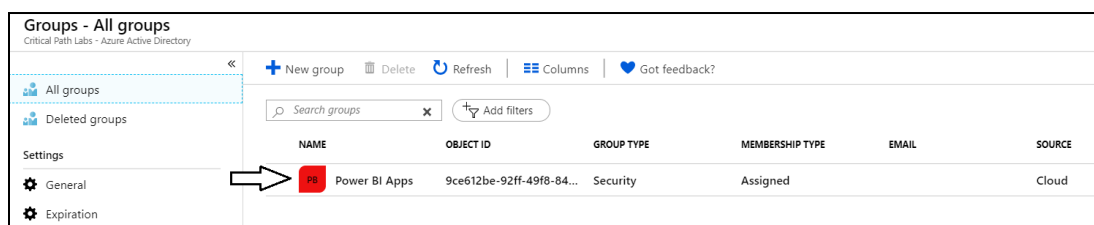
Remember that Power BI Service API permissions are not used on calls made with an app-only token. Instead, access is configured on a workspace-by-workspace basis by adding the confidential application's service principal as a workspace admin.

11. Add the service principal for the **App-Owns-Data Sample App** application as a member of the **Power BI Apps** security group.

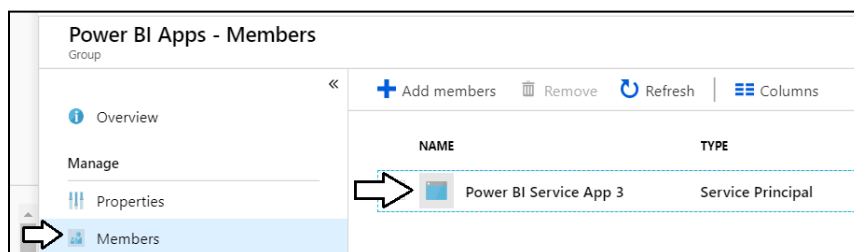
- a) Navigate to the **All groups** blade of the Azure AD portal using the following URL.

https://portal.azure.com/#blade/Microsoft_AAD_IAM/GroupsManagementMenuBlade/AllGroups

- b) Click on the link for the **Power BI Apps** group.



- c) Click the **Members** link on the left and verify that **Power BI Service App 3** has been added as a member.

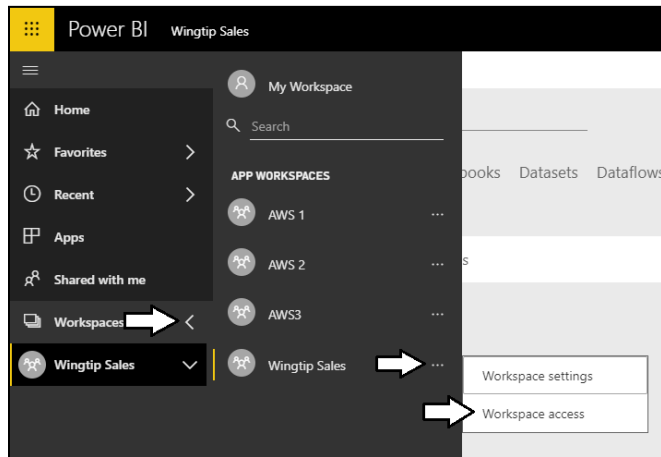


12. Inspect the confidential client application named **Power BI Service App 3** in the Azure portal

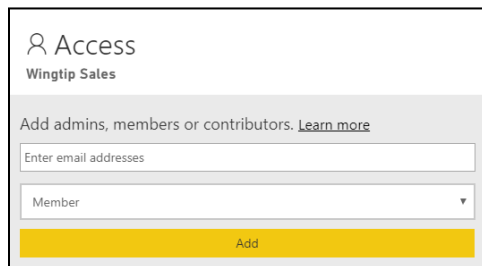
13. Configure the service principal for **Power BI Service App 3** as an admin for the app workspace named **Wingtip Sales**.

- a) Navigate to the Power BI portal.

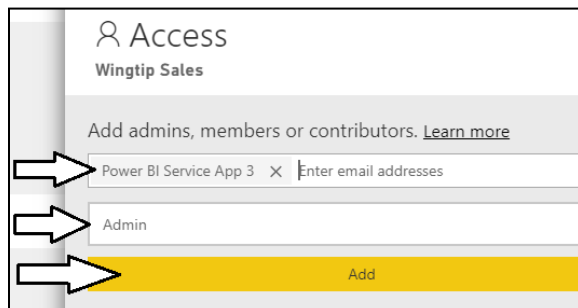
- b) Expand the **Workspaces** flyout menu.
- c) Click the **Wingtip Sales** workspace context menu (...) and select **Workspace access**.



- d) On the right of the page, you should see the **Access** pane for the **Wingtip Sales** workspace.



- e) Place the cursor into the *Enter email address* textbox and type **Power BI Service App 3**.
- f) Change the member type from **Member** to **Admin**.
- g) Click to **Add** button.



- h) Verify that **Power BI Service App 3** has been added as a workspace member with **Admin** permissions.

NAME	PERMISSION	
Ted Pattison	Admin	...
Power BI Service App 3	Admin	...