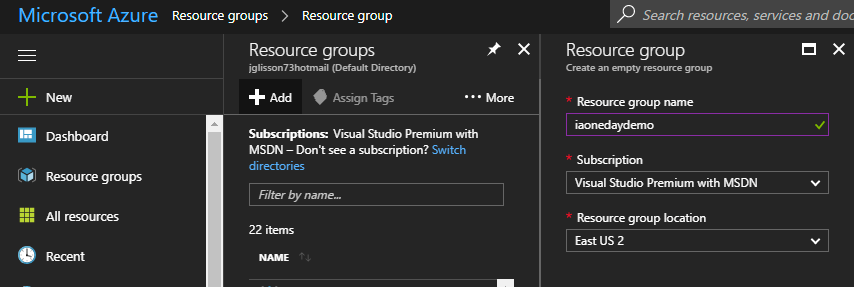


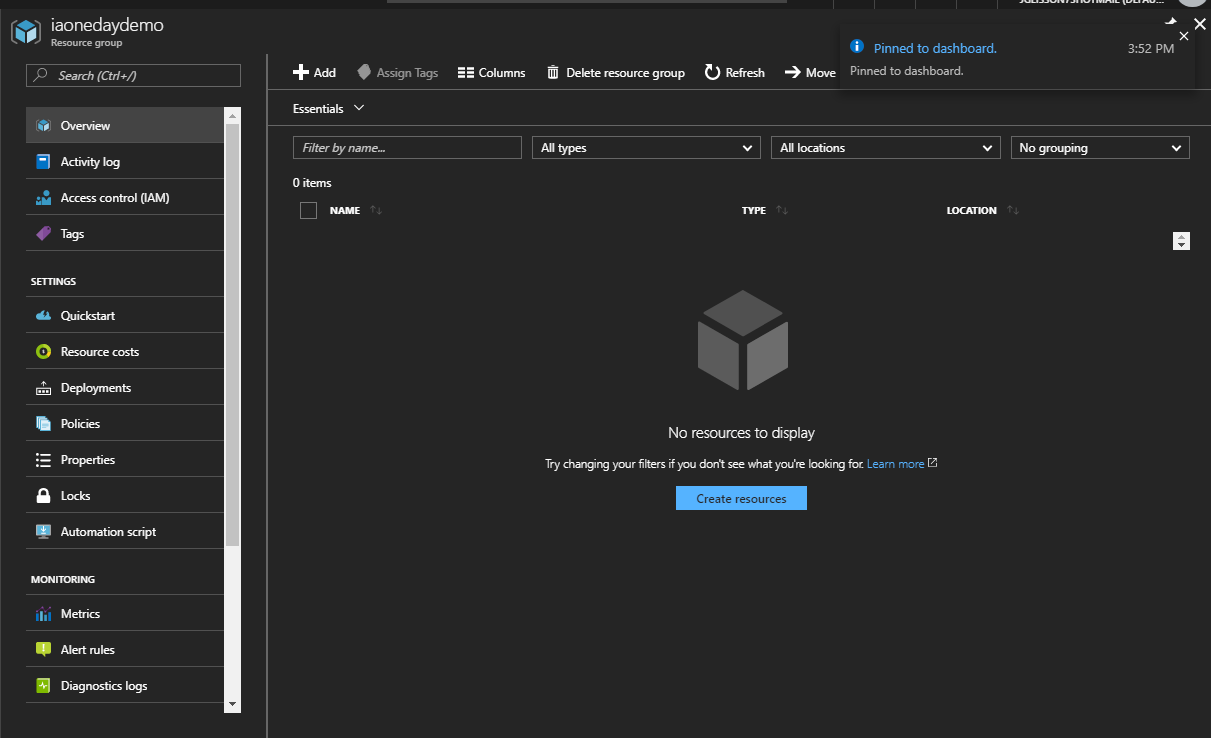
IA One Day Azure Lab Script

# Azure Resource Group Setup

1. Log into <https://portal.azure.com> using the credentials for your Azure trial subscription.
2. Create an Azure Resource Group. The Resource Group is a logical container for your Azure resources for an application.



Once it is created, your empty Resource Group will look like the following. You will add all of your other resources from this screen.



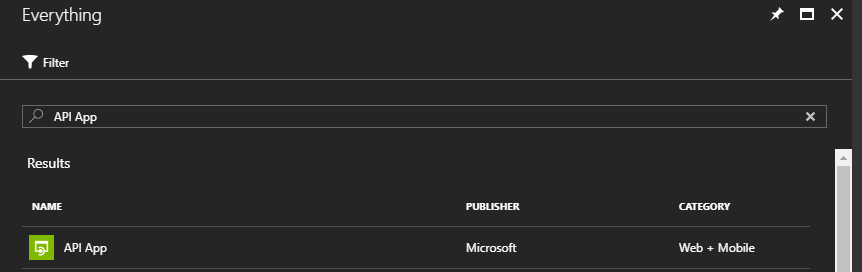
# Azure API App Setup

1. Add an API App within your Resource Group. The API App will be the container for your REST API.

Click the Add button

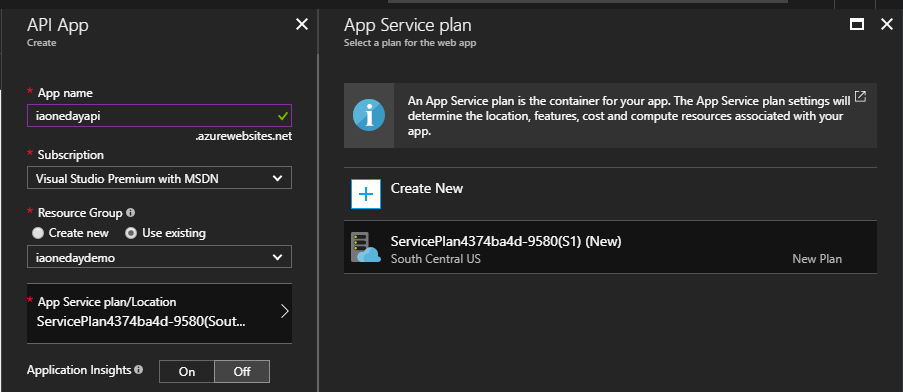


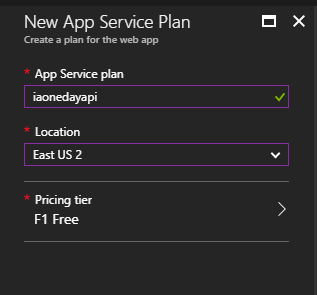
Search for API App



Create new App Service Plan in the F1 Free tier

**NOTE:** You will need to use a unique name for the App Name, such as appending your name or initials

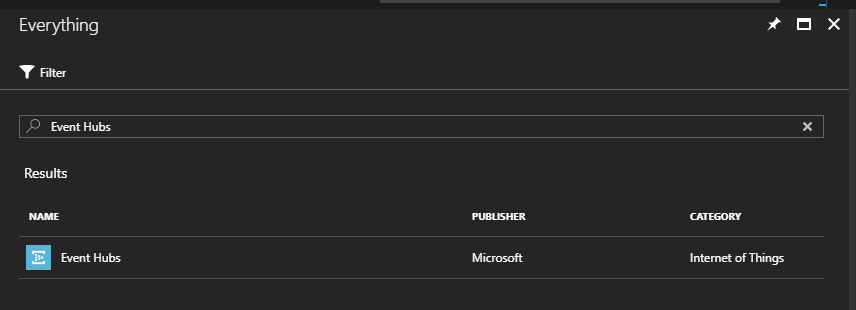




# Azure Event Hub Setup

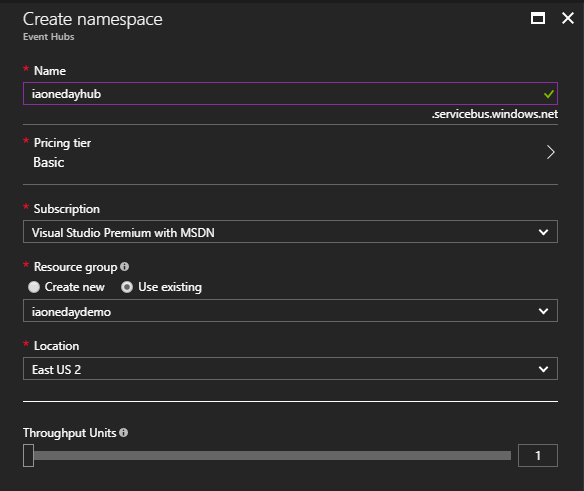
1. Create Event Hub Namespace

Click Add and Search for Event Hubs

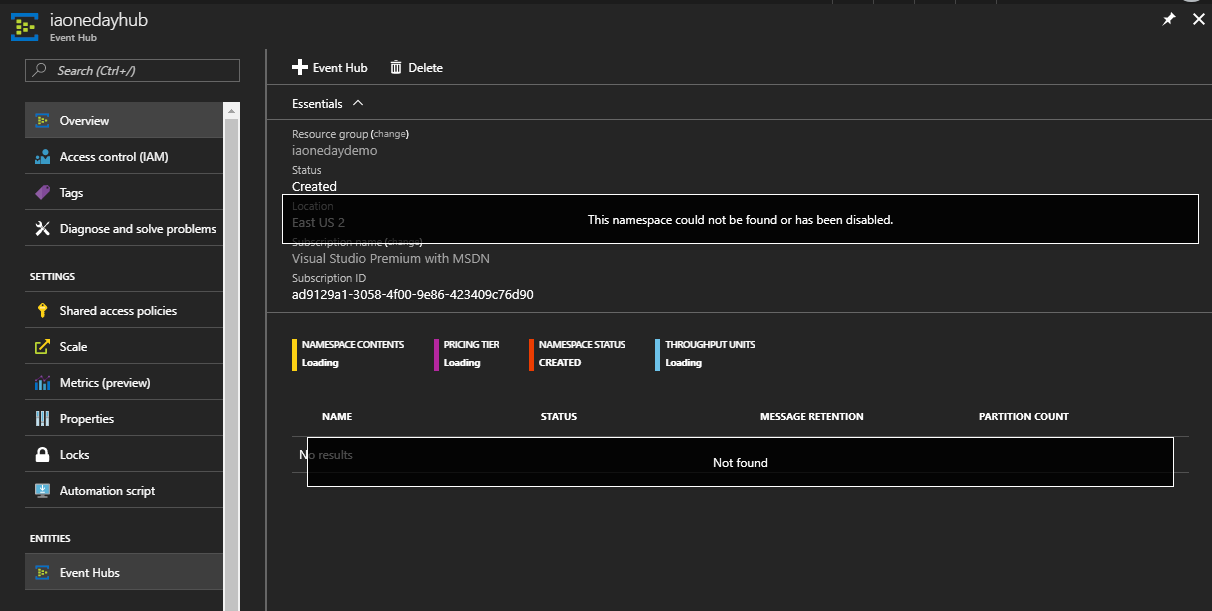


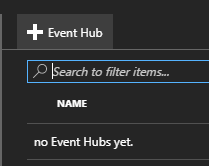
Select the Basic pricing tier

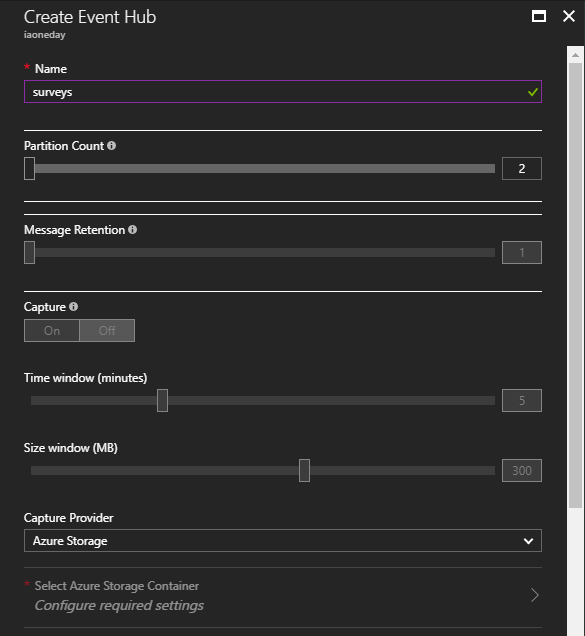
**NOTE:** You will need a unique name for your event hub



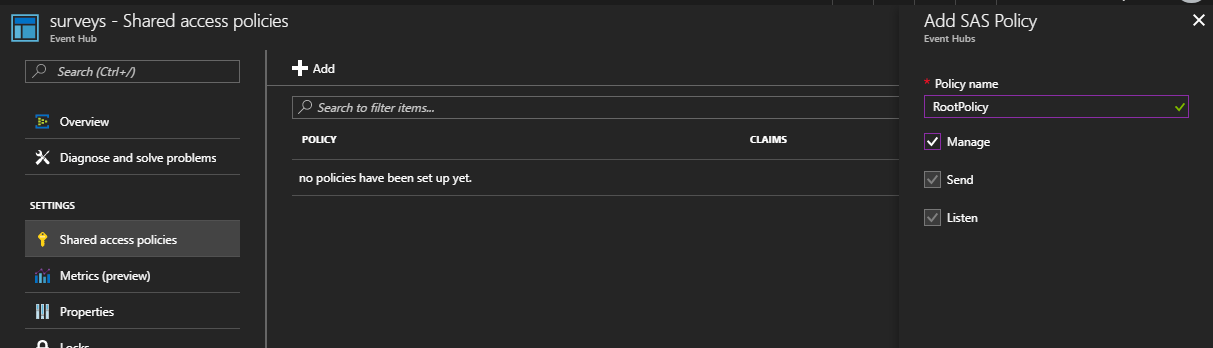
1. Create an Event Hub named “surveys” within the Event Hub namespace you just created



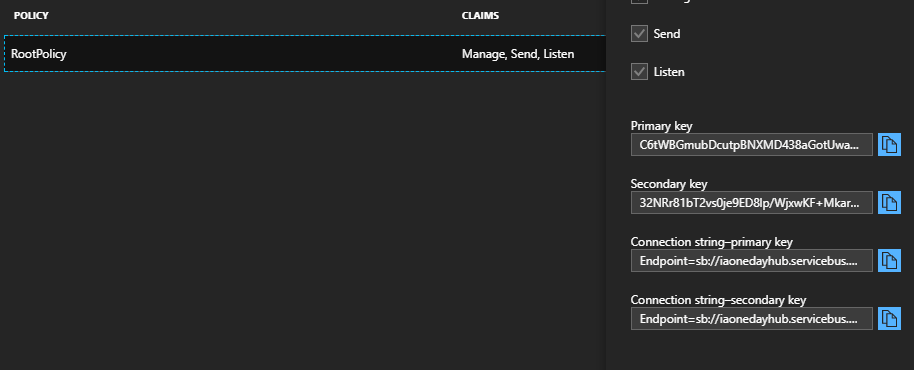




1. Add a SAS Policy named “RootPolicy” to the surveys Event Hub you just created. Give it Manage permissions. In a production app, you would create separate policies for Send and Listen. You may not even need one for Manage.



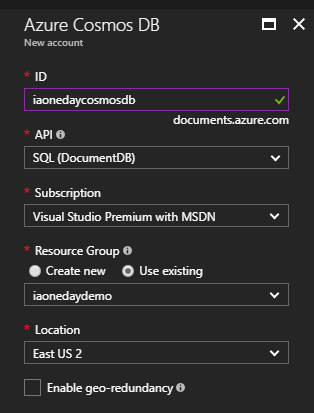
Once created, click on the RootPolicy and take note of the Connection string-primary value. Save this for later.



# Azure Cosmos DB / Document DB Setup

1. Add an Azure CosmosDB. It should be configured to use the SQL (DocumentDB) API. This will take a few minutes to deploy, so we will come back to get the connection information.

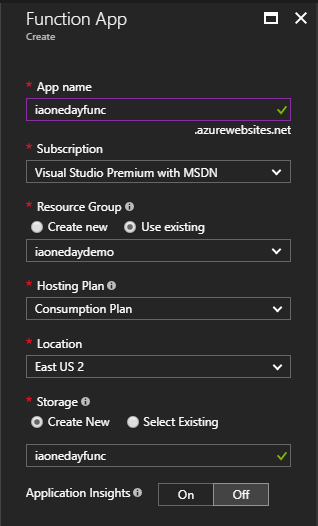
**NOTE:** You will need a unique value for ID



# Azure Function App Setup

1. Add a Function App. Be sure it uses the Consumption Plan hosting. Also, let the Function App go ahead and create a new storage account for use.

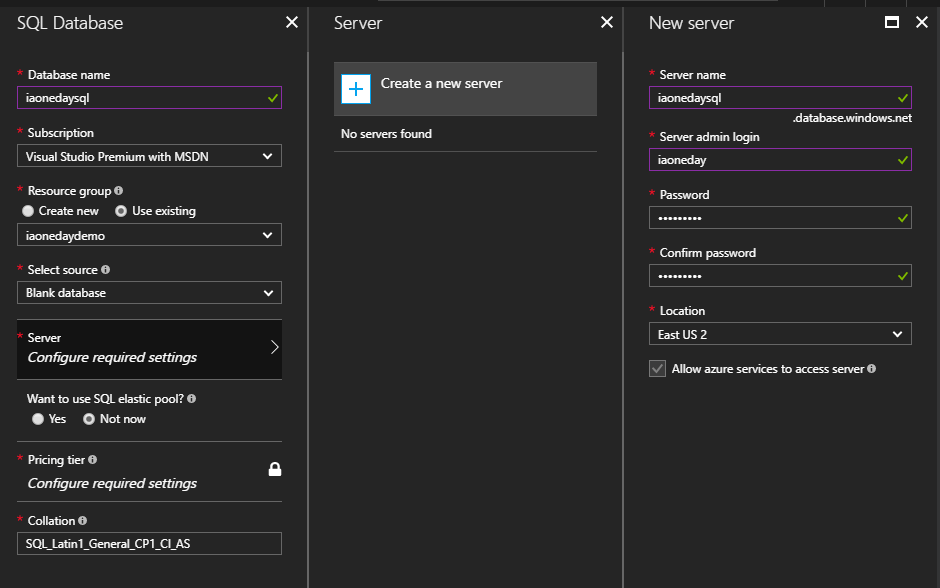
**NOTE:** You will need a unique value for App name and storage account



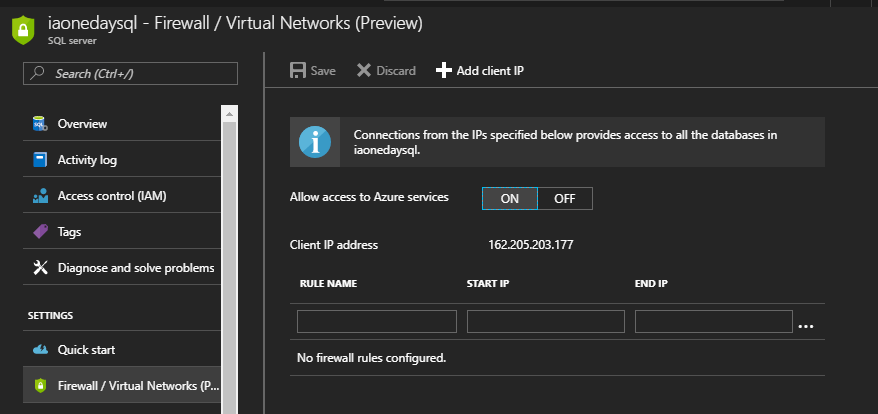
# Azure SQL Database Setup

1. Add an Azure SQL Database and Azure SQL Server. Be sure to choose East US2 as the location for the Azure SQL Server. You also should choose the Basic pricing tier. Take note of the Server name, Server admin login and Password you use when creating your SQL Server. You will need them later.

**NOTE:** You will need a unique Server name

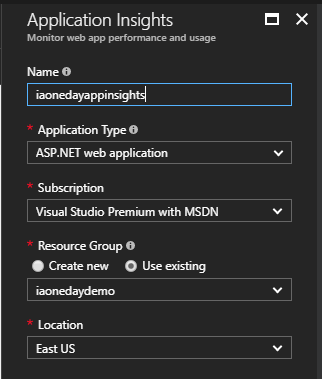


1. Once your Azure SQL Server has been created, navigate to it from the Resource group. Then click on the Firewall settings and Add client IP to add your present IP address to the Firewall and allow you to access the database remotely. Click Save to save this new setting.



# Azure Application Insights Setup

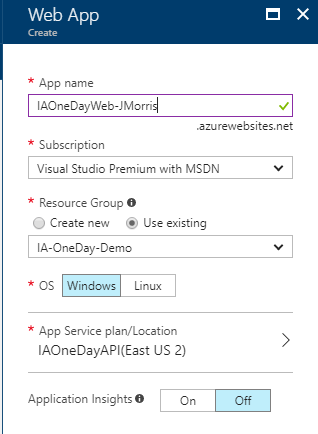
1. Add an Application Insights instance to the Resource Group. Keep the defaults. Once this is provisioned, grab the instrumentation key (Overview > Essentials) and keep it handy.



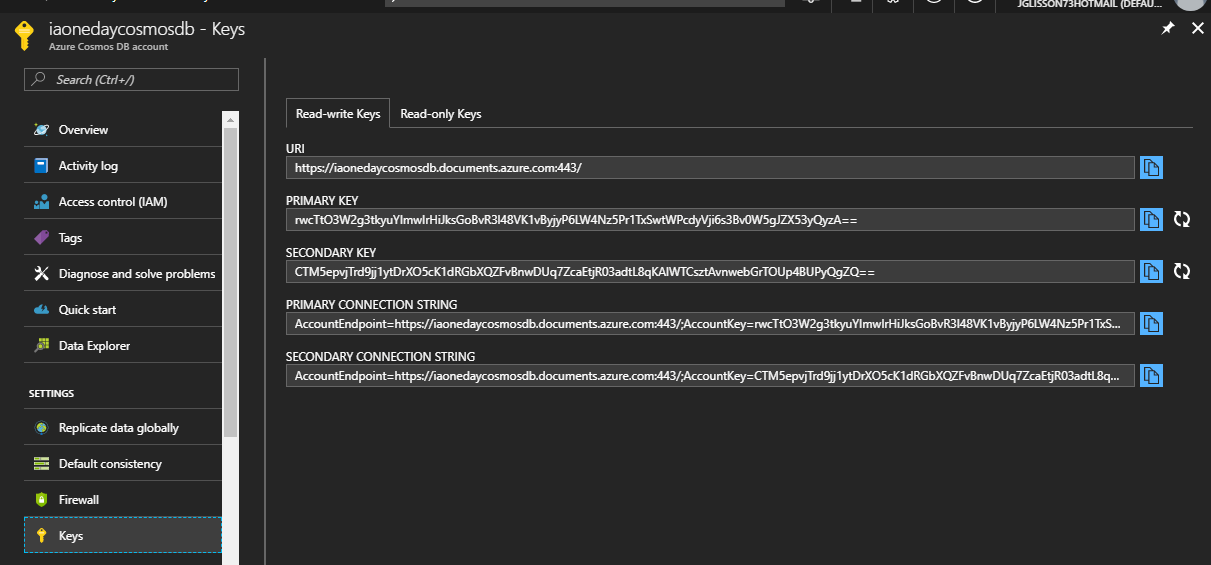
# Azure Client Web App Setup

1. Add a Web App to your Resource Group

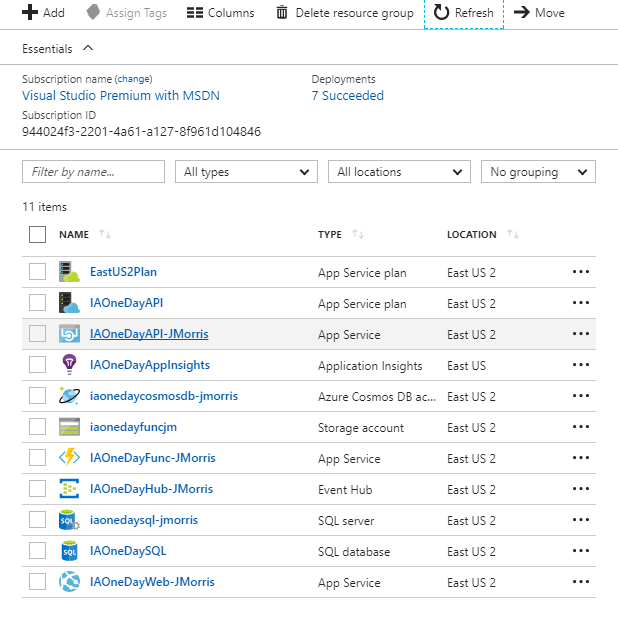
**NOTE:** You will need a unique App name



1. Retrieve the connection information for the Cosmos DB. Select the Cosmos DB from the Resource Group and then click on Keys. Take note of the URI and Primary Key values for later use.

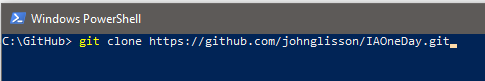


This is what the completed Resource Group should look like.



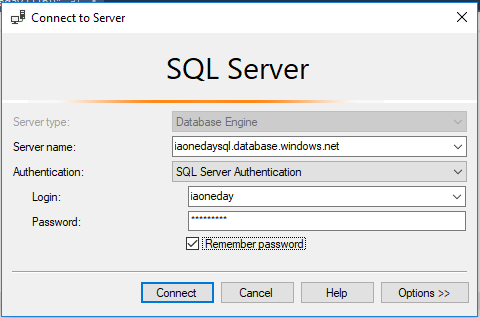
# Retrieve Lab Code from Github

1. Retrieve the demo code from Github by cloning <https://github.com/johnglisson/IAOneDay.git>

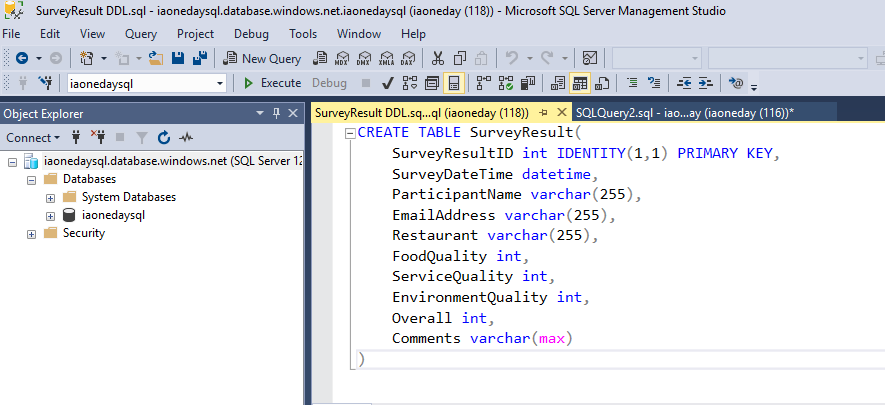


# Deploy Table to Azure SQL Database

1. Create the table needed in the Azure SQL Database. First, connect to the Azure SQL Database in SQL Server Management Studio (SSMS). You will need to use the server name, Login and Password you used when creating your Azure SQL instance.



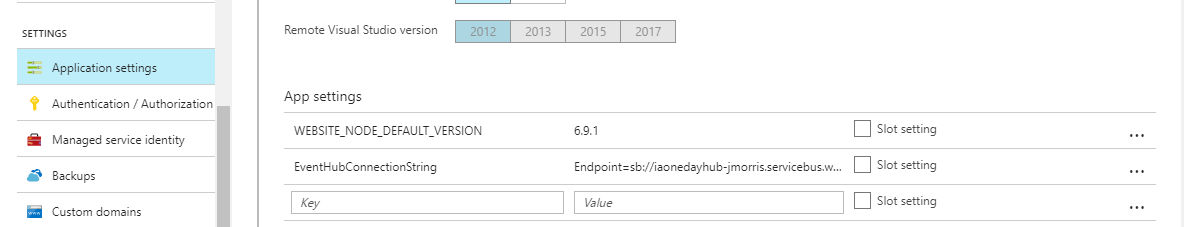
1. Once you are connected, Execute the SurveyResult DDL.sql file in the DB directory of your Git repository against the database you created. Be sure you have your database selected, and not the master database. You can leave SSMS open so you can query the table later and verify results.



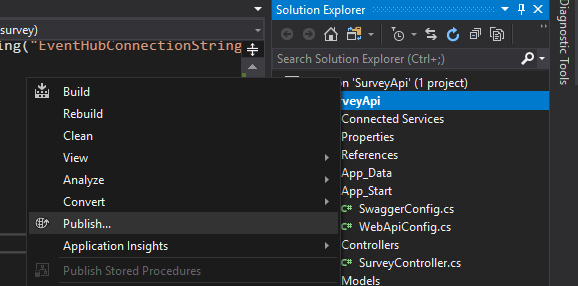
# Configure and Publish SurveyAPI App

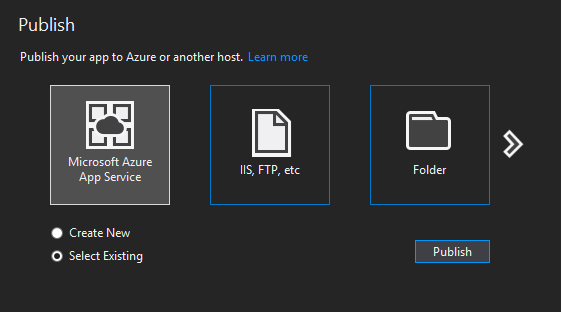
1. Open the SurveyApi application in Visual Studio. Then open the web.config and update the EventHubConnectionString value with the connection string you retrieved from the surveys Event Hub.

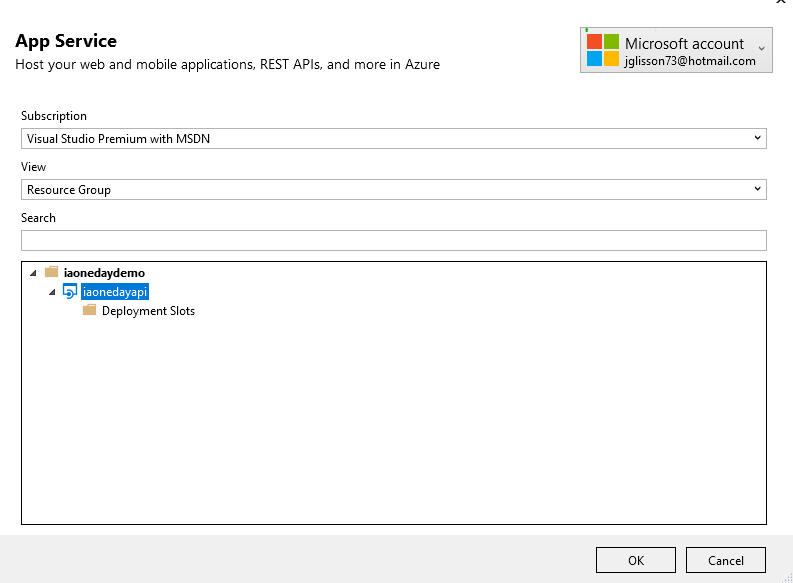
You can also add this value to your API App’s Application Settings, which will override the web.config value:



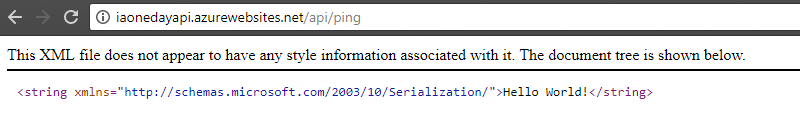
1. Publish the code to the API App container you provisioned in Azure.





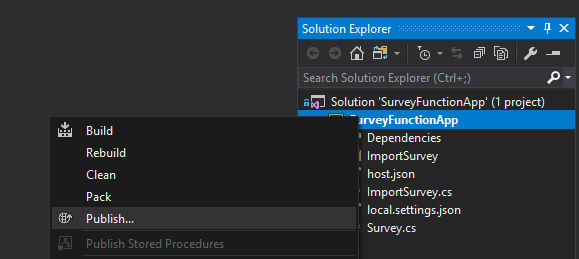


1. When the deployment is complete, your browser will pop up to the URL for your newly deployed API. Take note of the URL in your browser.
2. If you put /api/ping at the end of the URL in your browser, you should get a Hello World response showing you the API has been deployed properly.

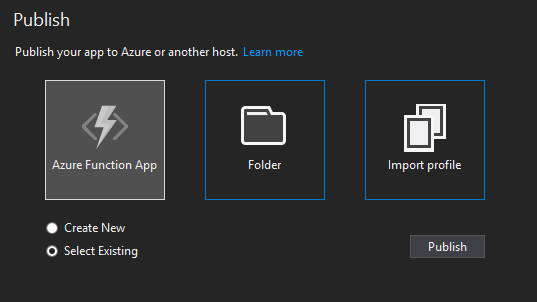


# Publish and Configure SurveyFunctionApp

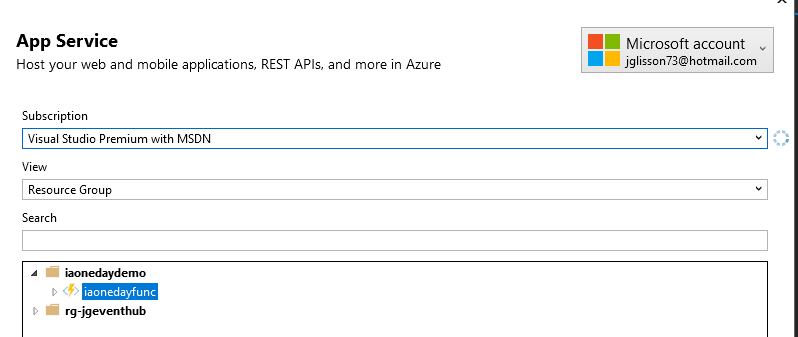
1. Open the SurveyFunctionApp solution from the Git repo in Visual Studio. You can change the application settings in the *local.settings.json* file, but we will also configure them on the Function App in the Azure Portal.
2. Right-click on the project in Visual Studio and click Publish…



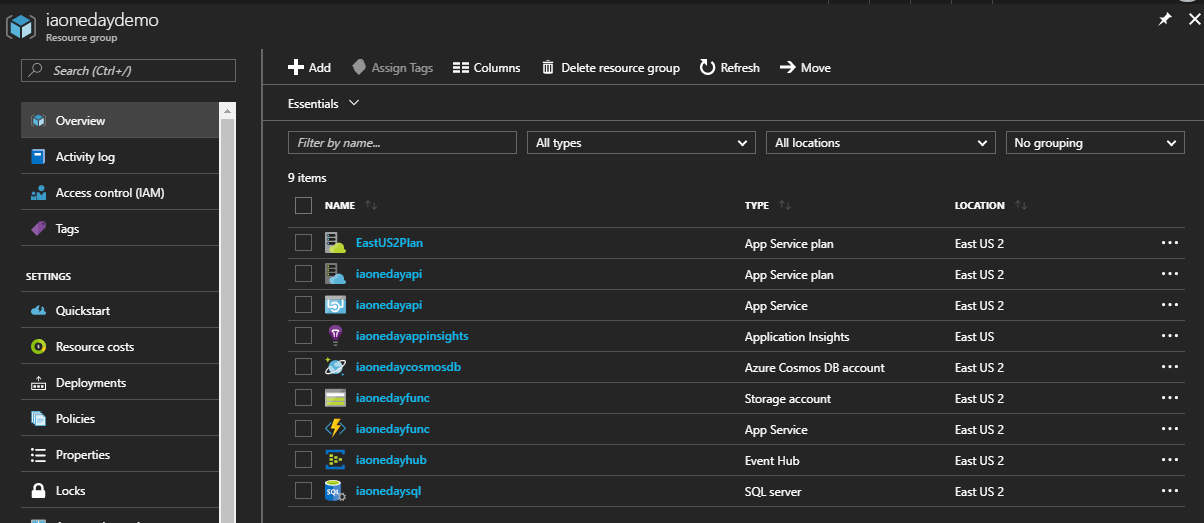
Select Existing Function App



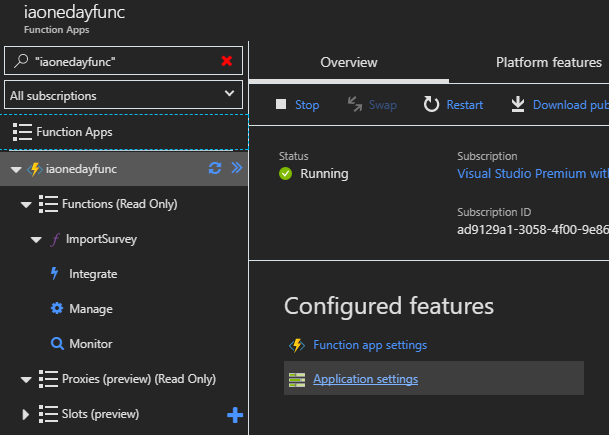
Choose the Azure Function App you provisioned.



1. Now we need to configure the Function App in the Azure Portal. Navigate to the Function App from the Resource Group in the Azure Portal.



Select Application Settings



You will need to add FIVE application settings and ONE connection string



**Application Settings**

eventHubConnectionString = the Event Hub connection string value you collected earler

cosmosDbUri = the Cosmos DB URI value you collected earlier

cosmosDbKey = the Cosmos DB key value you collected earler

cosmosDbCollection = Surveys

cosmosDbName = SurveyArchive

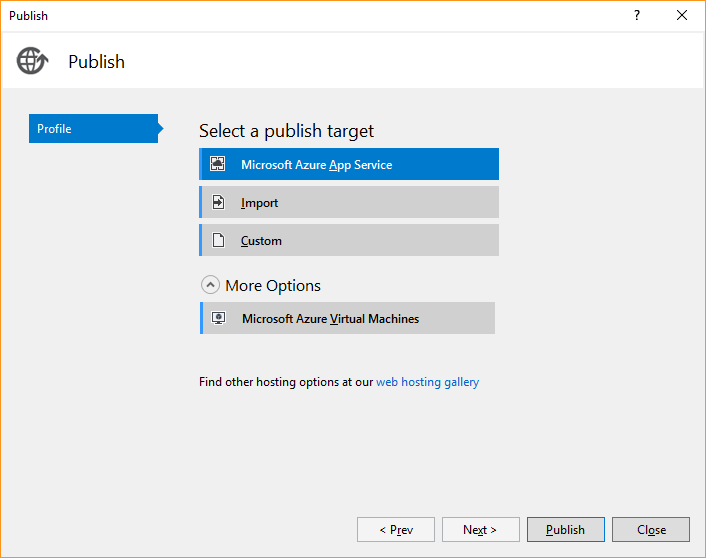
APPINSIGHTS\_INSTRUMENTATIONKEY = {Your Instrumentation Key}

**Connection Strings**

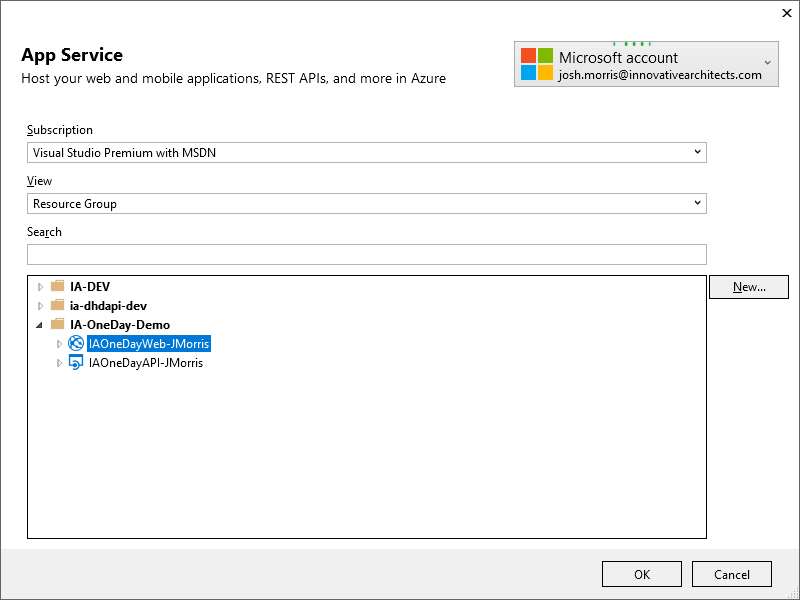
sqlDbConnectionString = Server=tcp:**YOURSERVERNAME**.database.windows.net,1433;Initial Catalog=**YOURDATABASENAME**;Persist Security Info=False;User ID=**YOURUSERNAME**;Password=**YOURPASSWORD**;MultipleActiveResultSets=False;Encrypt=True;TrustServerCertificate=False;Connection Timeout=30;

# Configure and Publish the Survey UI App

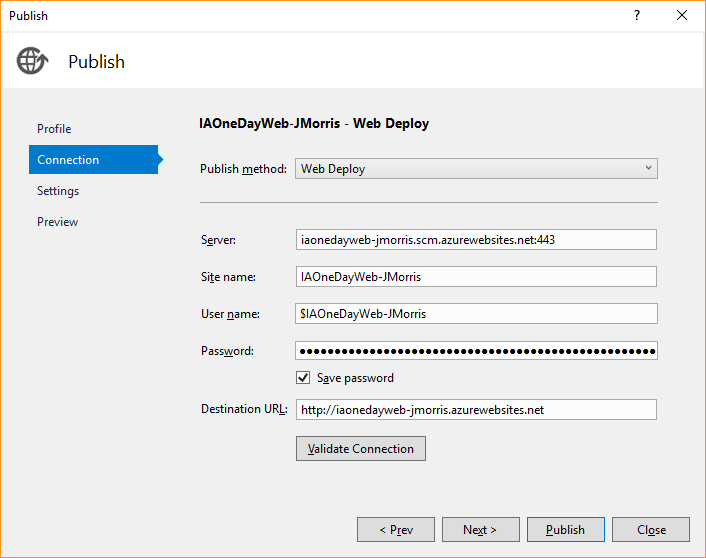
1. Open the SurveyUI solution in Visual Studio. Change the *\_environmentPath* variable in */App/js/httpService.js* to your API App URL. Then right click on the project and select Publish Web App. Select “Microsoft Azure App Service”



Select your Subscription, the Resource Group you created, and your Web App.



Click Publish. Once publishing is complete, your web app will open and you should be able to submit a survey all the way through all of your Azure components!



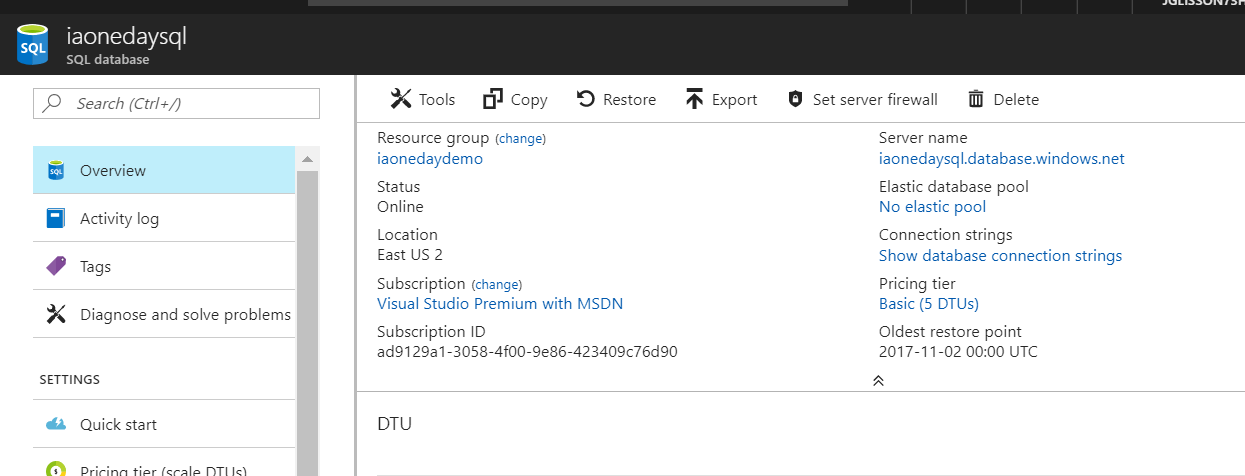
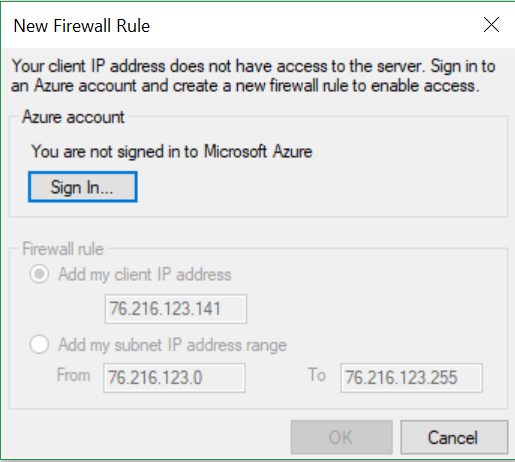
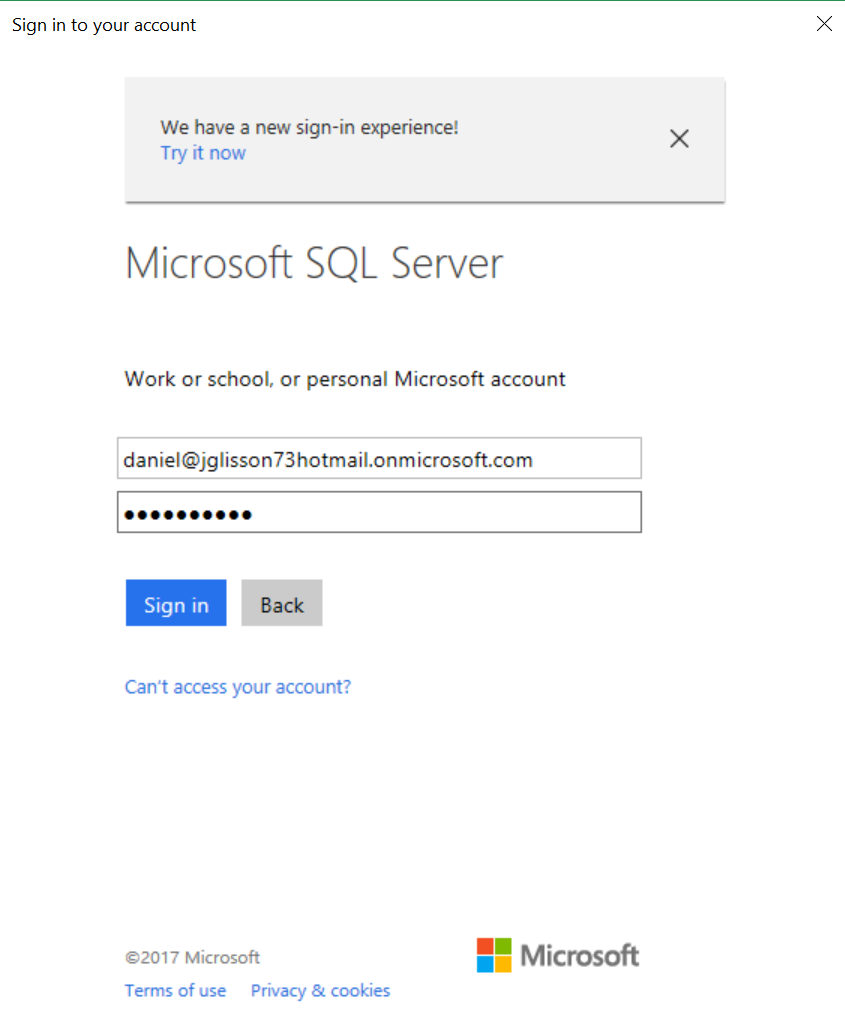
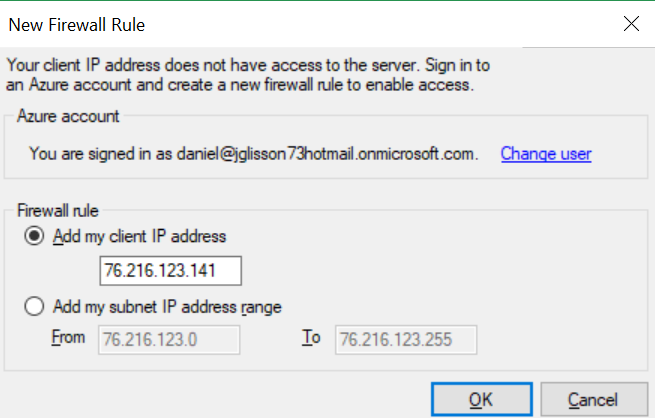
Reference:

<http://www.c-sharpcorner.com/article/working-with-azure-api-apps/>

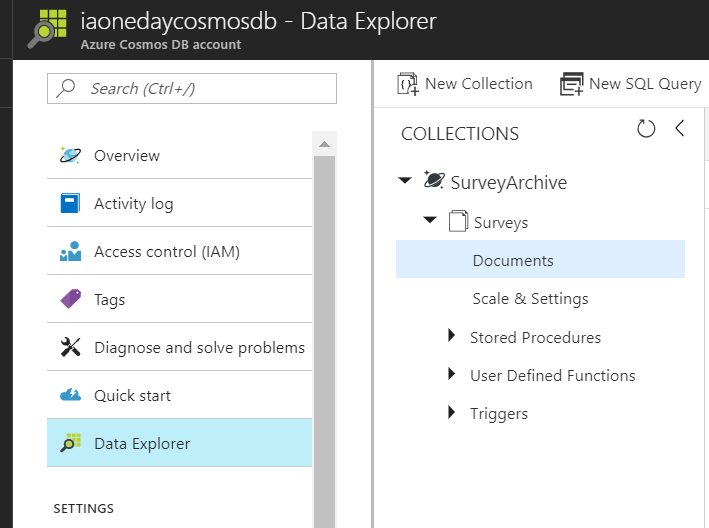
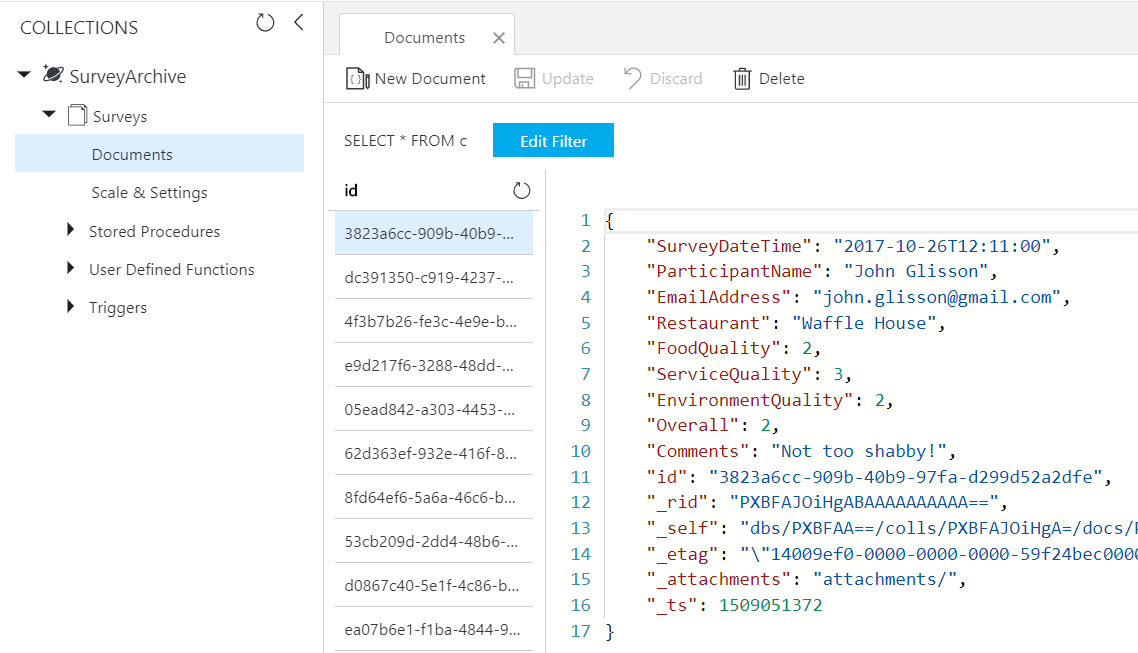
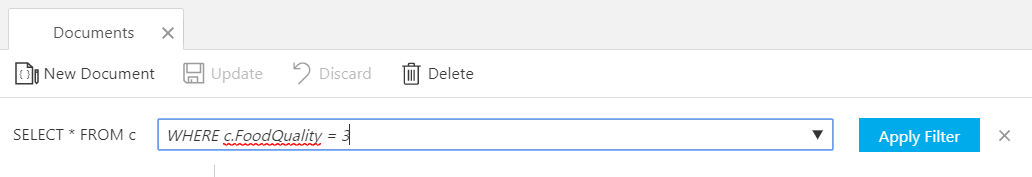
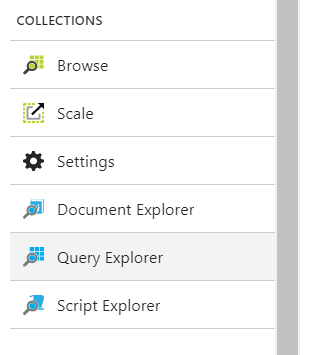
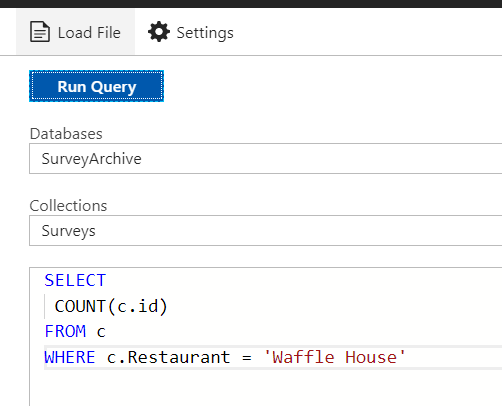
<https://docs.microsoft.com/en-us/azure/event-hubs/event-hubs-dotnet-standard-getstarted-send>

# Querying Your Data

## Azure SQL

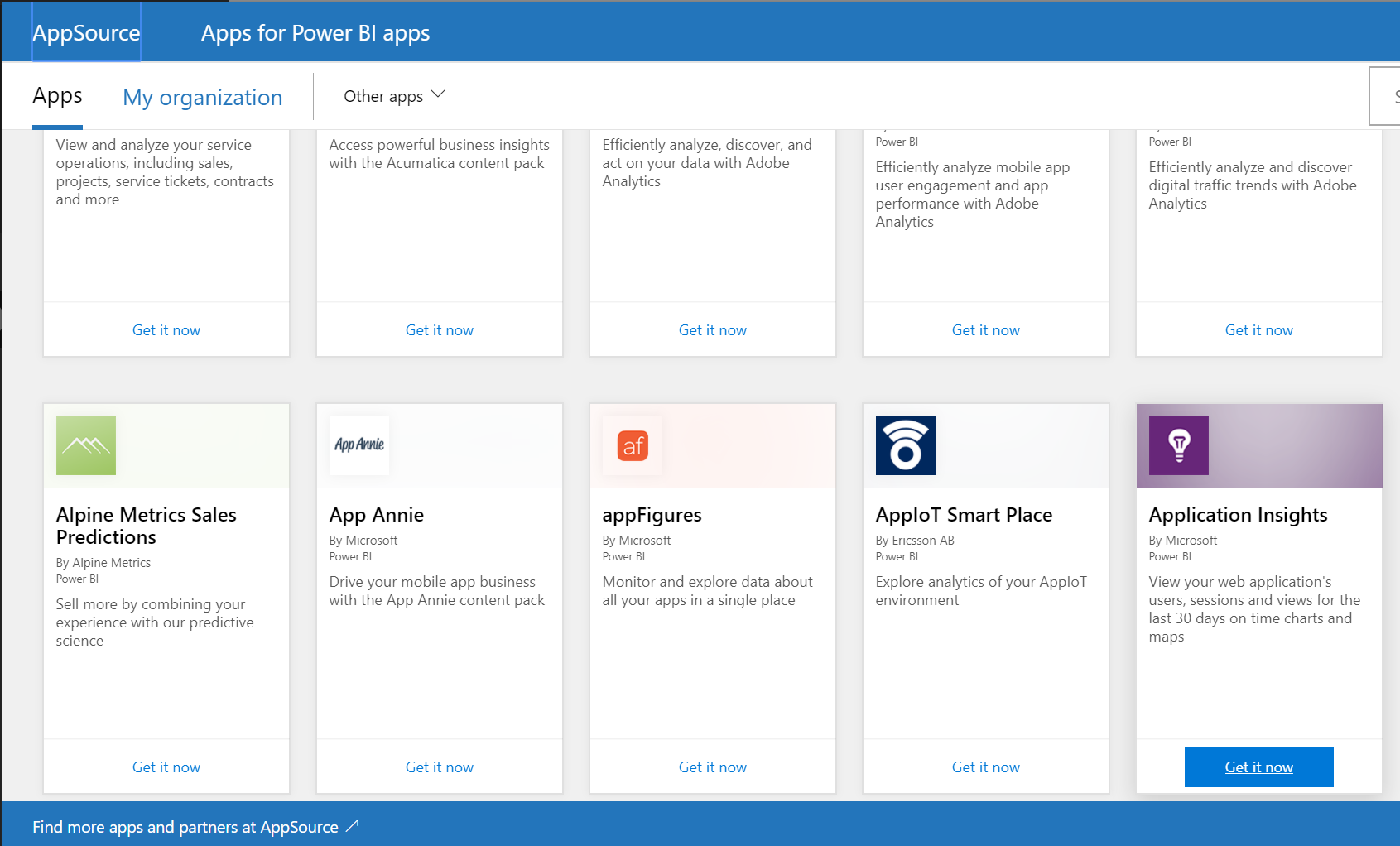
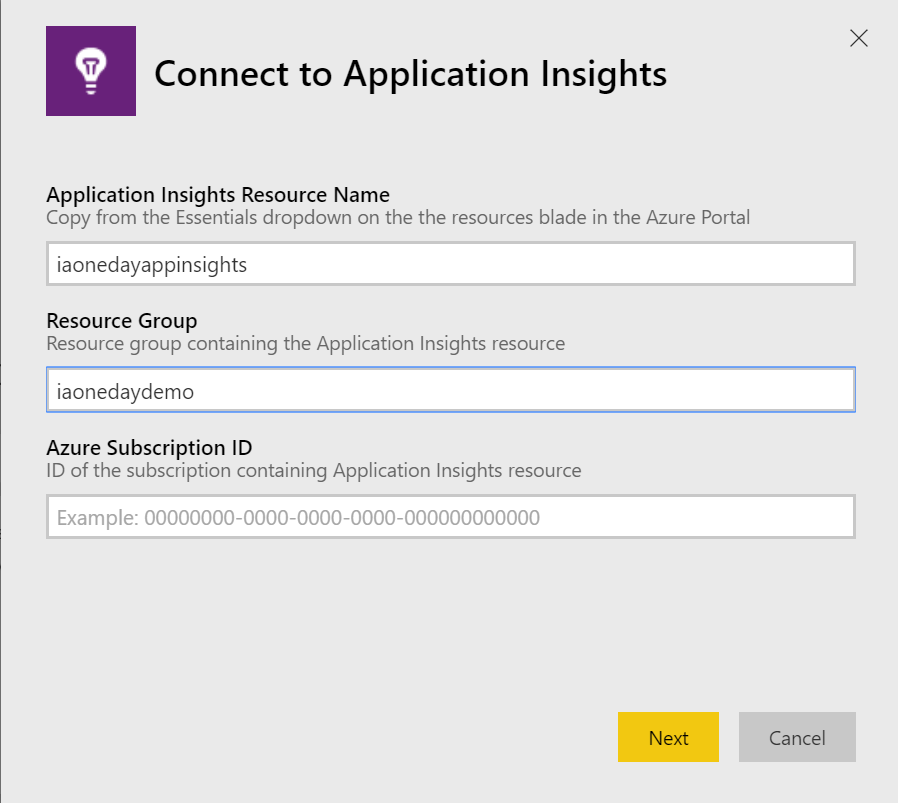
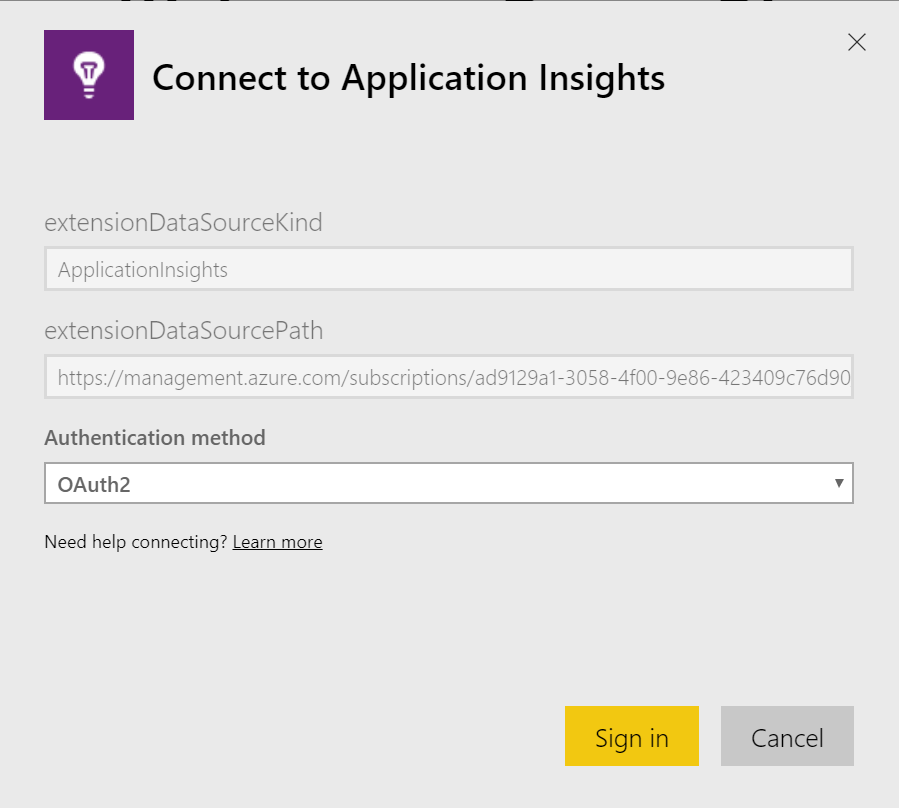
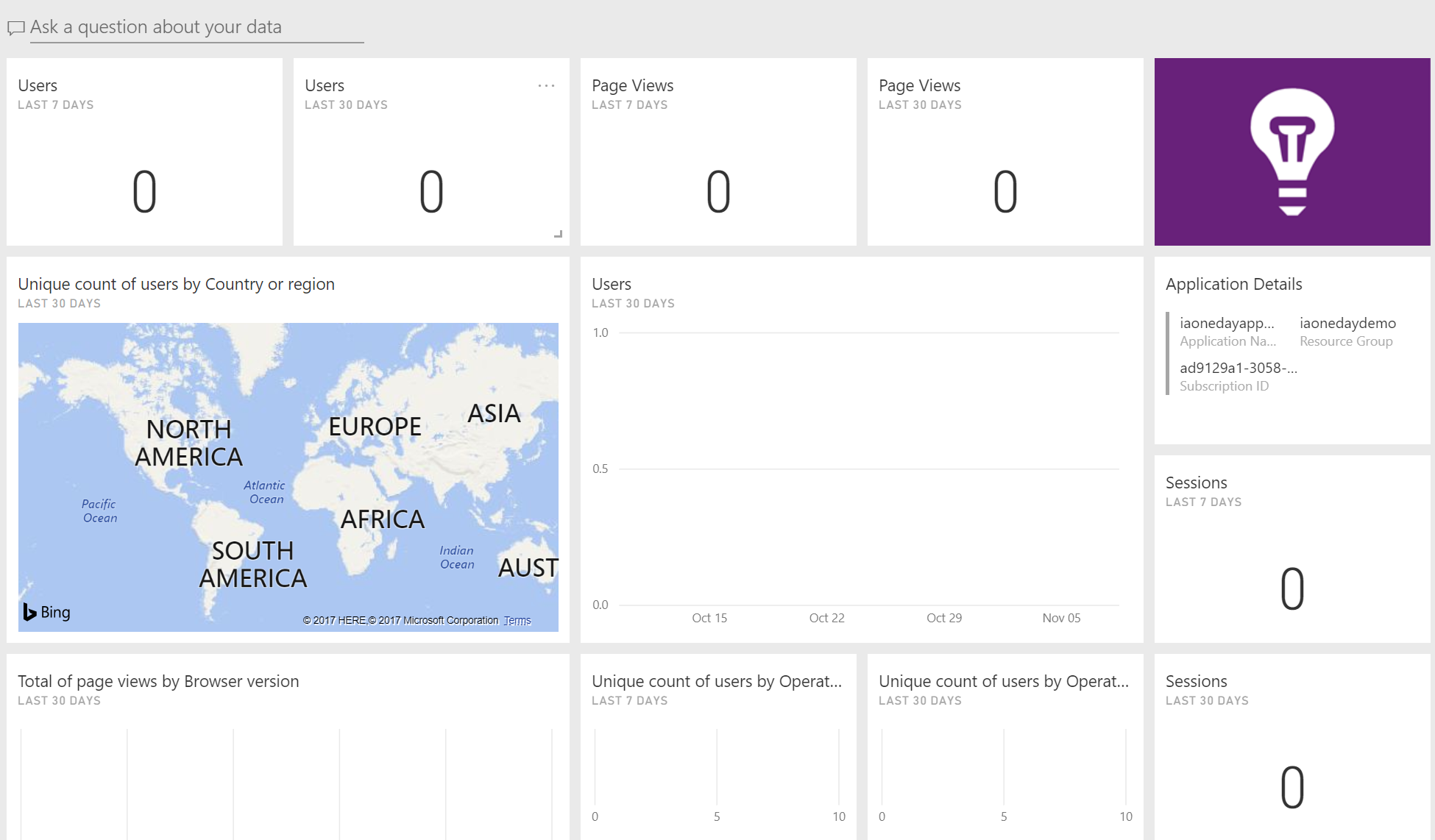
1. Pull your server name from <https://portal.azure.com>
2. Open SSMS 2017 and enter the server name. For authentication, select “SQL Server Authentication” and enter the credentials for the server admin user you created when provisioning the database
3. You will then be prompted to add a rule to the firewall to allow a connection from your current IP address 
4. You will be prompted to sign in to Azure so SSMS can add the rule for you 
5. Finally, confirm the IP address to be added 
6. You can now view database objects via object explorer or run queries as you normally would when connected to an on premises database

## Cosmos DB

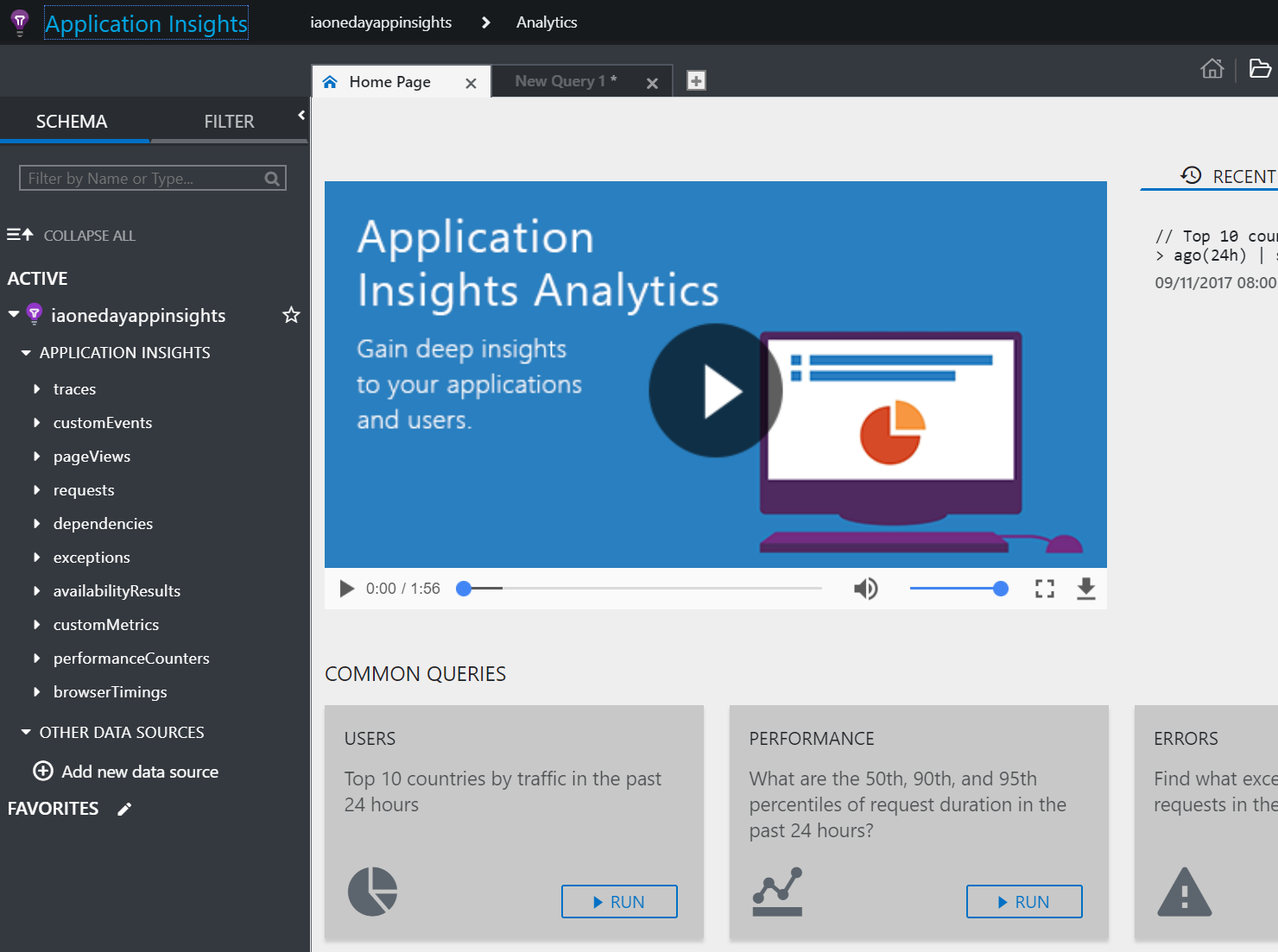
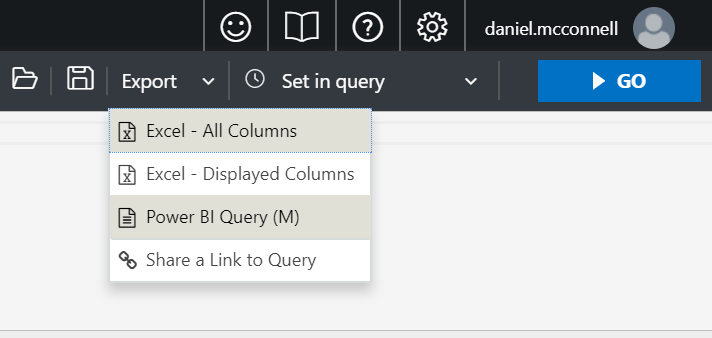
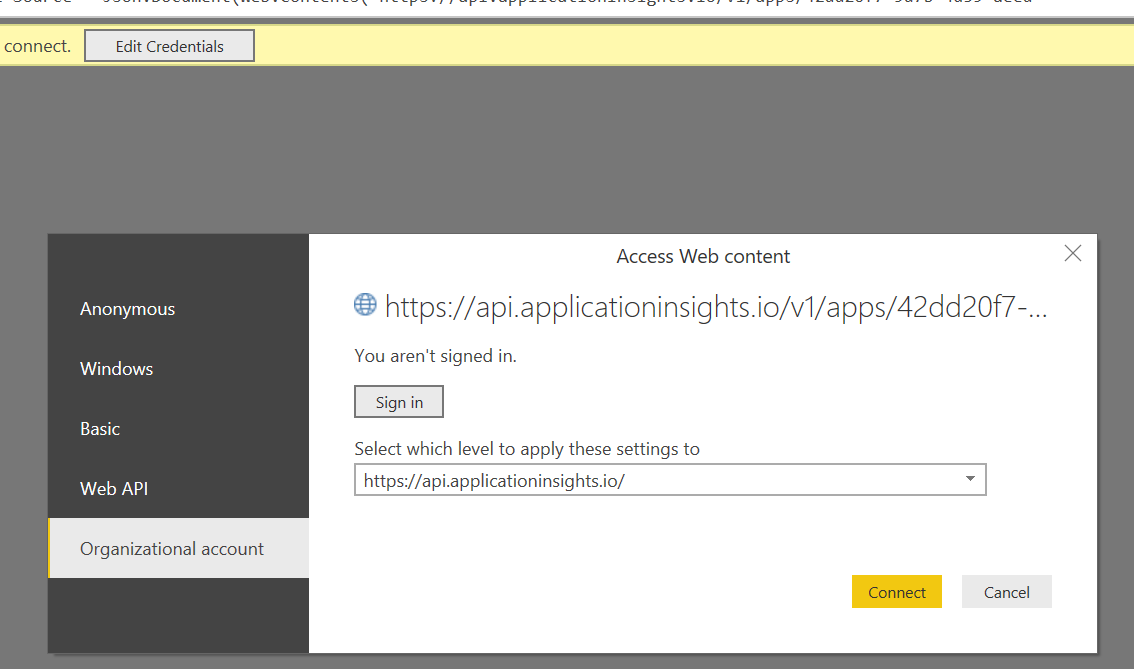
1. From the Azure portal, select your Cosmos DB instance and look for the menu option “Data Explorer” 
2. To view specific documents, select “Documents” and the id of the doc you would like to view 
3. Filters can be applied by selecting “Edit Filter” 
4. For more complex queries, select “Query Explorer” under the Collections menu in the main Cosmos DB blade 
5. And enter your query and get your results 

# Power BI - App Insights

## Pre-built

1. Enable from <https://app.powerbi.com> – Get Data > Services
2. Select Application Insights from the dialog
3. Enter the Resource Name, Resource Group and Subscription Id of your Application Insights instance 
4. Sign in via OAuth
5. Enjoy your new pre-built dashboard 

## Custom Visualizations

1. From Application Insights Analytics, create a custom query or select one of the pre-built ones 
2. After creating your custom query in the UI, select Export to download an M query representation 
3. In Power BI Desktop, select Get Data > Blank Query > Advanced Editor and paste your M query in 
4. Sign In with your appropriate organizational account 
5. Start adding visualizations 