Building Bots with Microsoft Teams

Lab Manual

Office365 Dev Bootcamp, Chennai.

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Hands on Lab:

Creating an Intelligent Bot using QnA Maker Service and Azure Bot Service

Microsoft Bot

Chat bots are services that people interact with through conversation and messaging. It can perform automated tasks varying from simple to complex in nature. A very simple example of a Bot is a chatbot – which answers user queries based on keywords typed in by users.

Microsoft Teams

Microsoft Teams is the digital hub that brings conversations, content, assignments, and apps together in one place.

- ✓ Communicate through chat, meetings, and calls
- ✓ Collaborate together with integrated Office 365 apps
- ✓ Customize your workplace and achieve more
- ✓ Make calls in Office 365 and Teams
- ✓ Connect across devices

1.Getting Started

We'll be running through an example of how to build, train, and deploy a question-and-answer bot based on FAQs. We will be using Microsoft's Cognitive Services and Web App Bot Service, both of which can be found in the Azure portal (**portal.azure.com**).

Then integrate it within Microsoft Teams. It will go over the complete start to finish process and show a working bot in MS Teams that answers Azure Bot Service FAQs.

2.Prerequisites

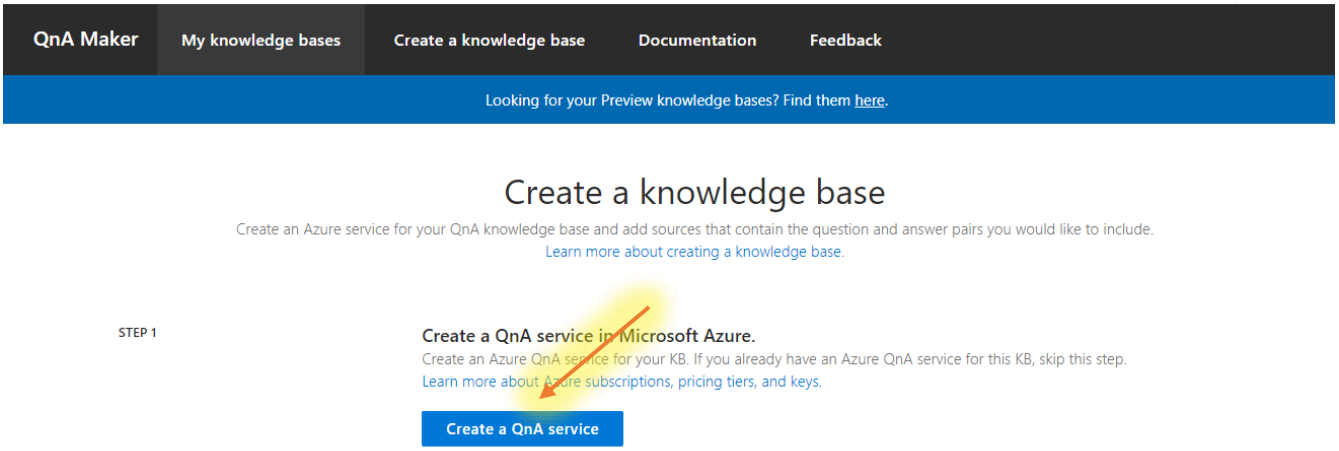
We will need the below tools/apps to get started

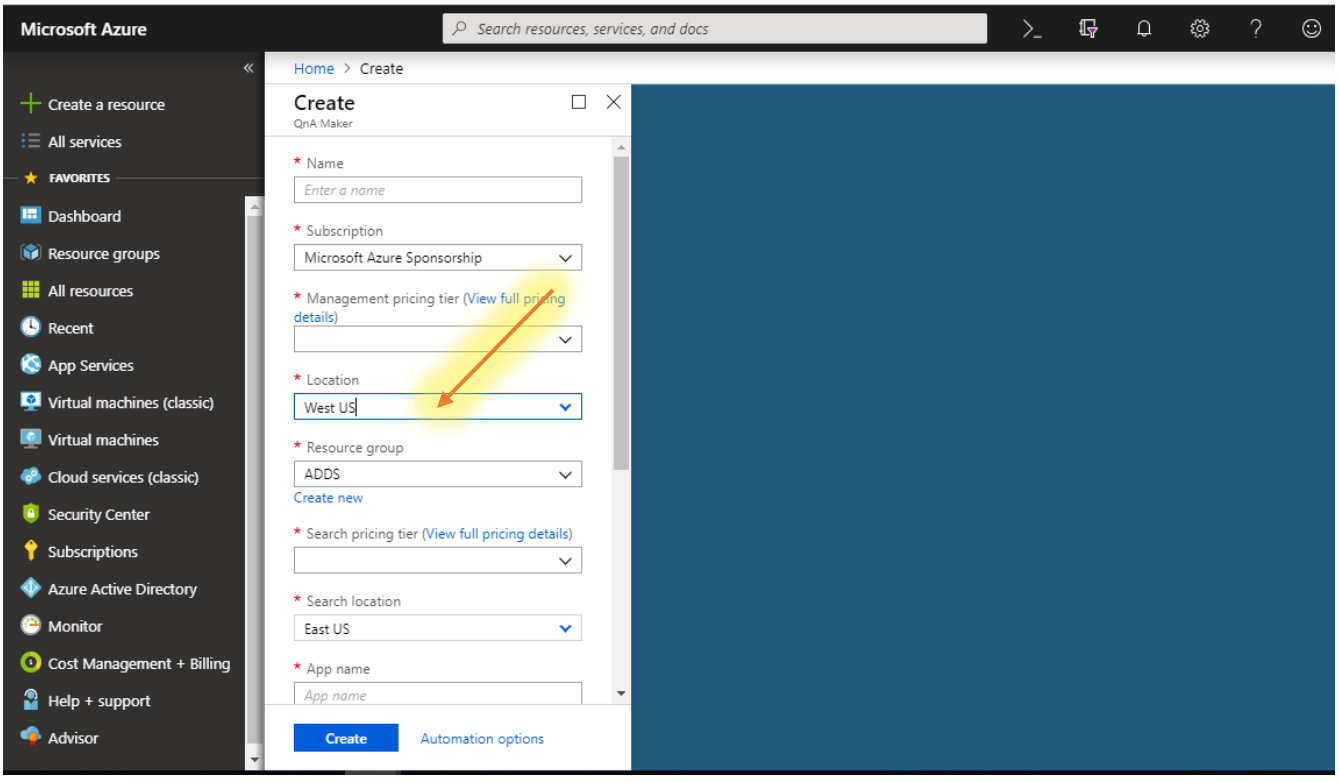
- ✓ Visual Studio
- ✓ Azure Subscription
- ✓ Access to an MS Account
- ✓ MS Teams app installed

3.Creating a QnA Service

QnA Maker allows you to quickly create a knowledge base to which you can link existing data sources to be used as a data repository for your bot. Before you can create a knowledge base, however, you have to create a QnA Service.

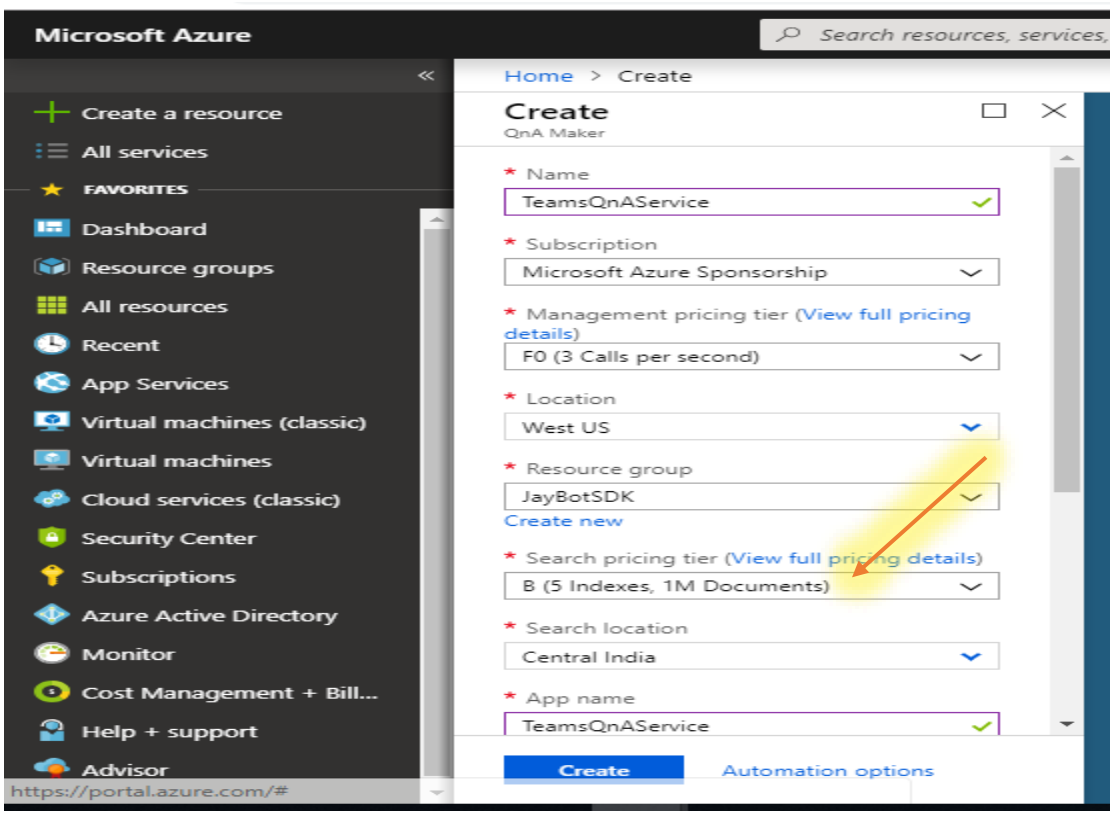
Navigate **here**, sign in with you Azure credentials, then select Create a QnA Service

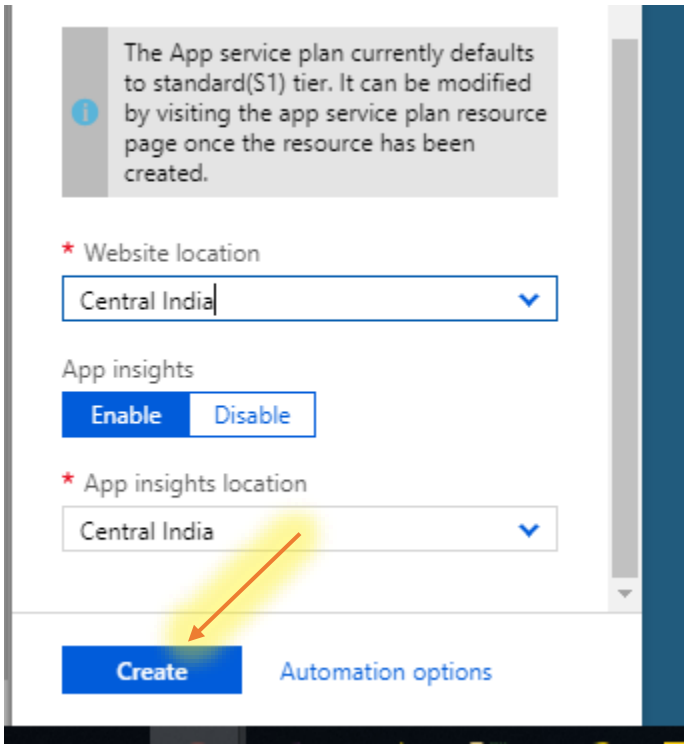




In the QnA Maker, fill out the required fields:

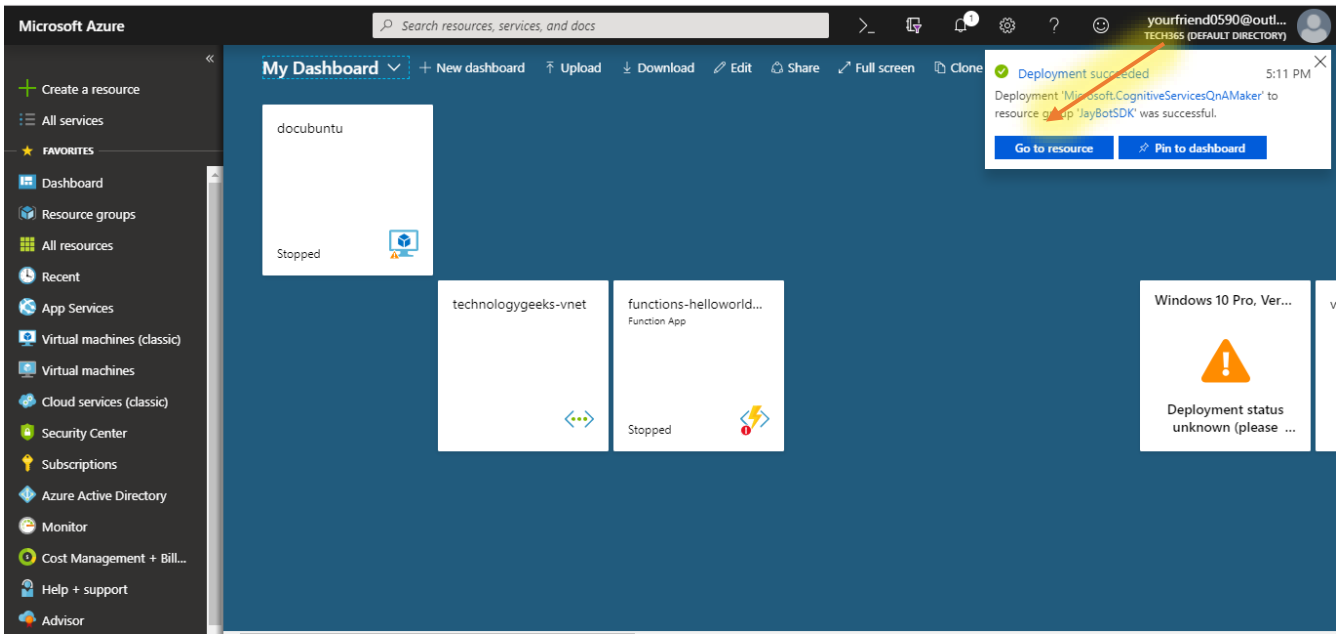
- Fill in the Name with a unique name to identify this service. I will be using the name **TeamsQnAService**
- Select **Free Trial** as the Subscription
- Select **F0 (3 calls per second)** as the Management Pricing Tier
- Create a new Resource Group
- Choose the **Free tier** for the Search pricing tier option. If this option is greyed out, it means you already have a Free Azure Search tier deployed and you will need to use the Basic Azure Search Tier.
- Select **East US or West US** as the Search Location. This is where your Azure Search data will be deployed.
- Choose an **App Name** for your service
- Choose **East US or West US or Central India(**based on your region**)** for both the Website Location and App Insights Location. (Note: the search location can be different from the website location.)

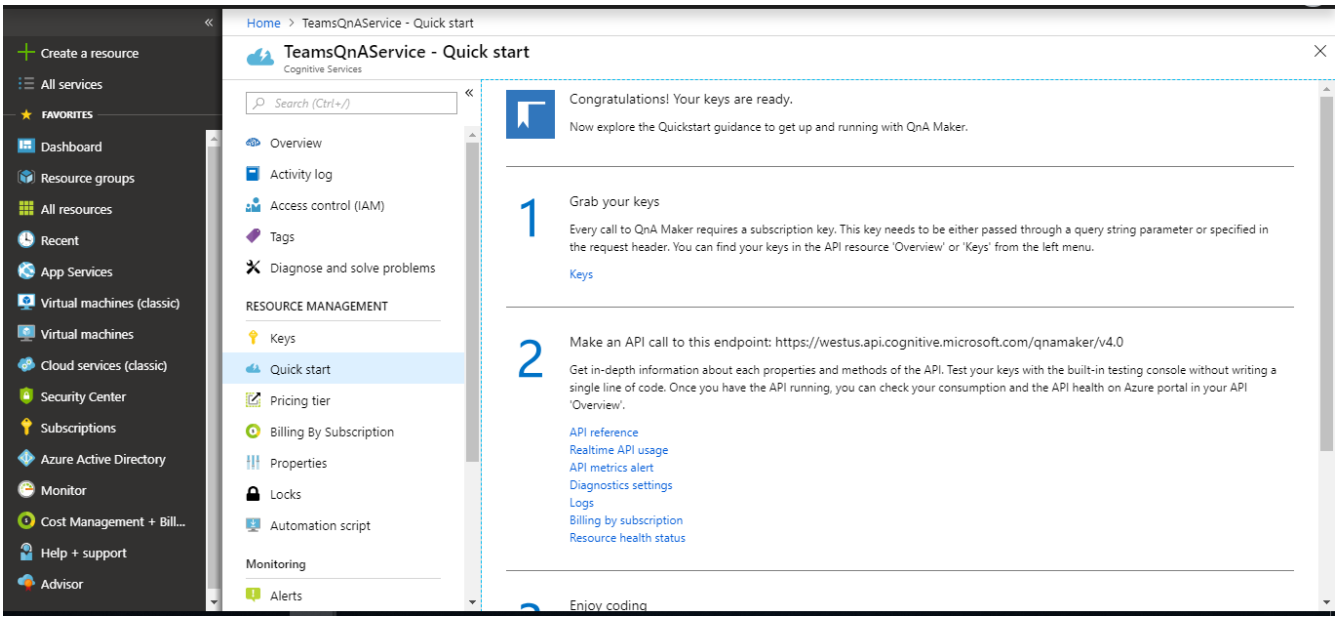




Once all the fields are filled out and validated, click on **Create** to start deploying these services.

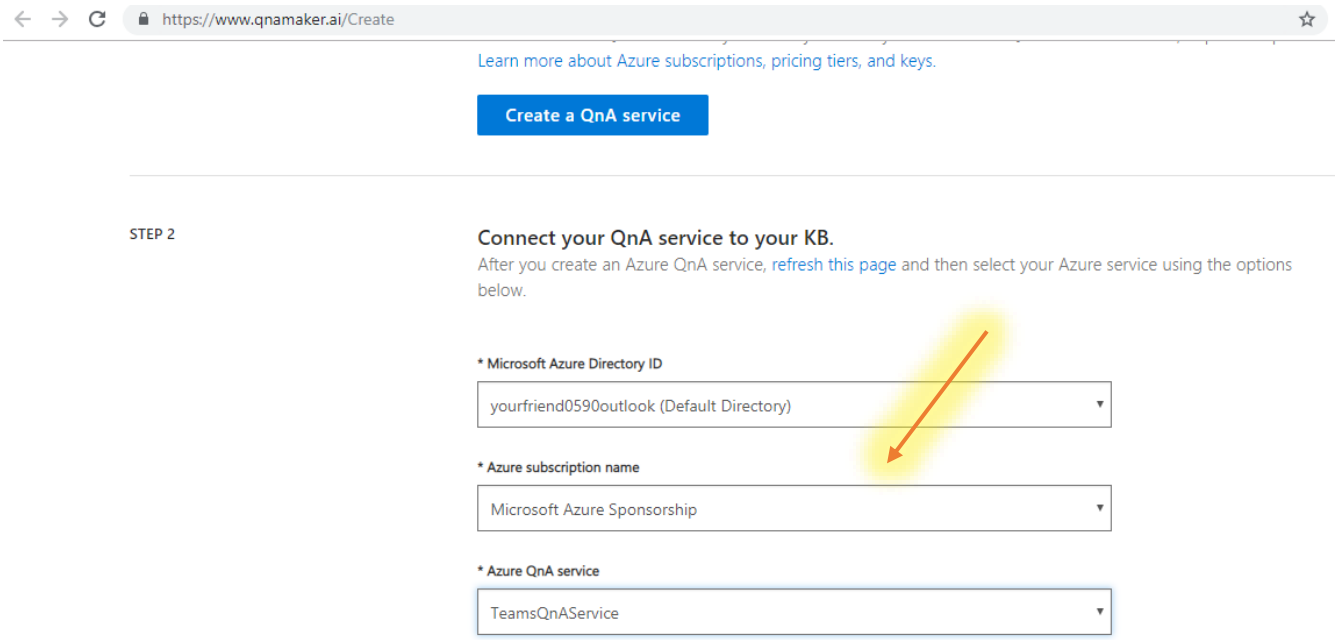
You will see your new QnA Service show up in your list of subscriptions once the deployment is complete (this usually takes a few minutes).





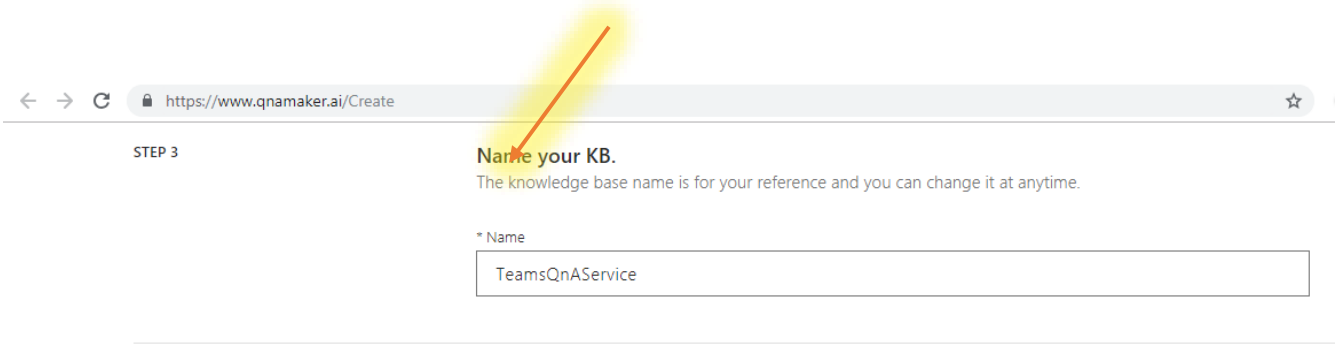
4.Creating a QnA Maker Knowledge Base

Now that your QnA Service has been created, return **here** and scroll down to **Step 2: Connect your QnA Service to your KB**



- Select the same tenant as your Microsoft Azure account for the Microsoft Azure Directory ID
- Choose the **Free Tier** option for the Azure Subscription Name
- Finally, select the name of the QnA Service you created in the previous step from the Azure QnA Service dropdown, which should now be available

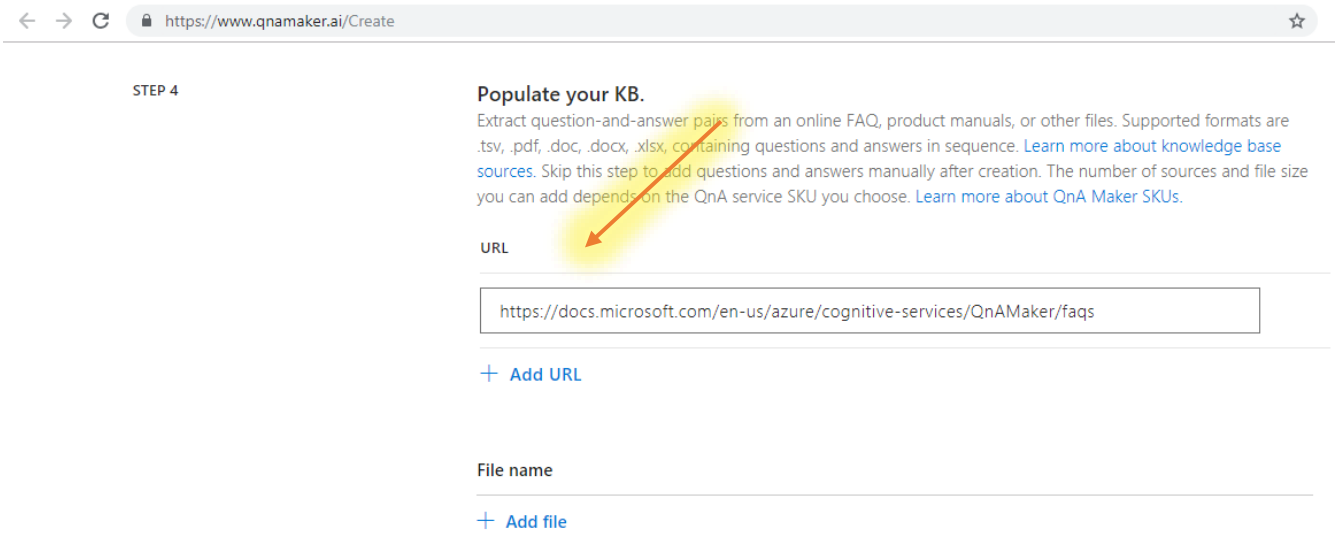
In **Step 3**, name your KB for your reference (you can change it anytime). I have named my KB **Test QnA KB**.



In **Step 4**, choose a source to populate your KB. Microsoft's QnA Maker supports formats including .pdf, .doc, .docx, .xlsx, and others. For this demo, enter

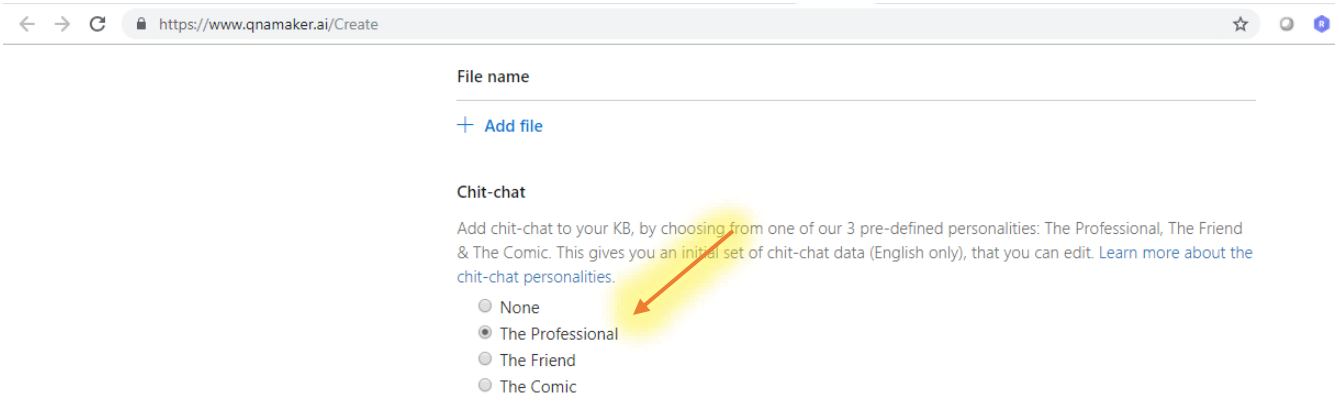
https://azure.microsoft.com/en-us/support/faq/

into the URL field. This is the FAQ page for Microsoft Azure. When complete, your bot will be able to answer all the questions listed in this FAQ page.

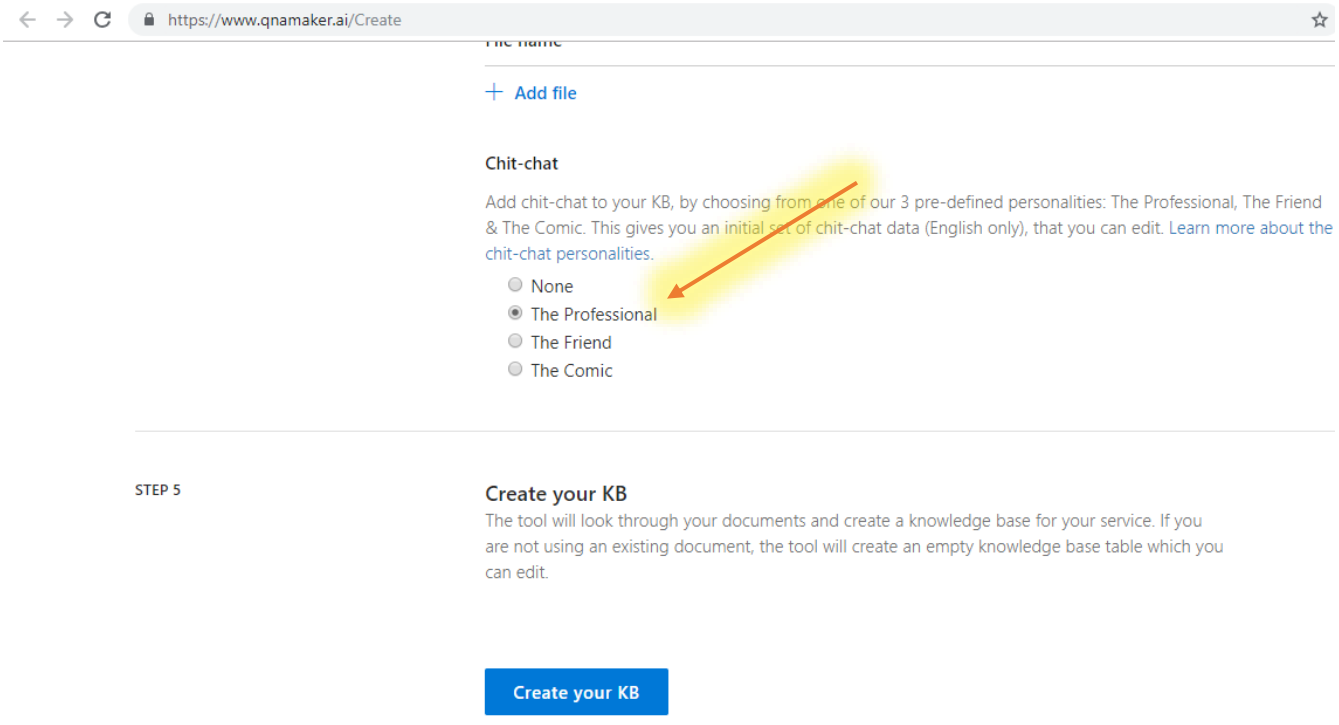


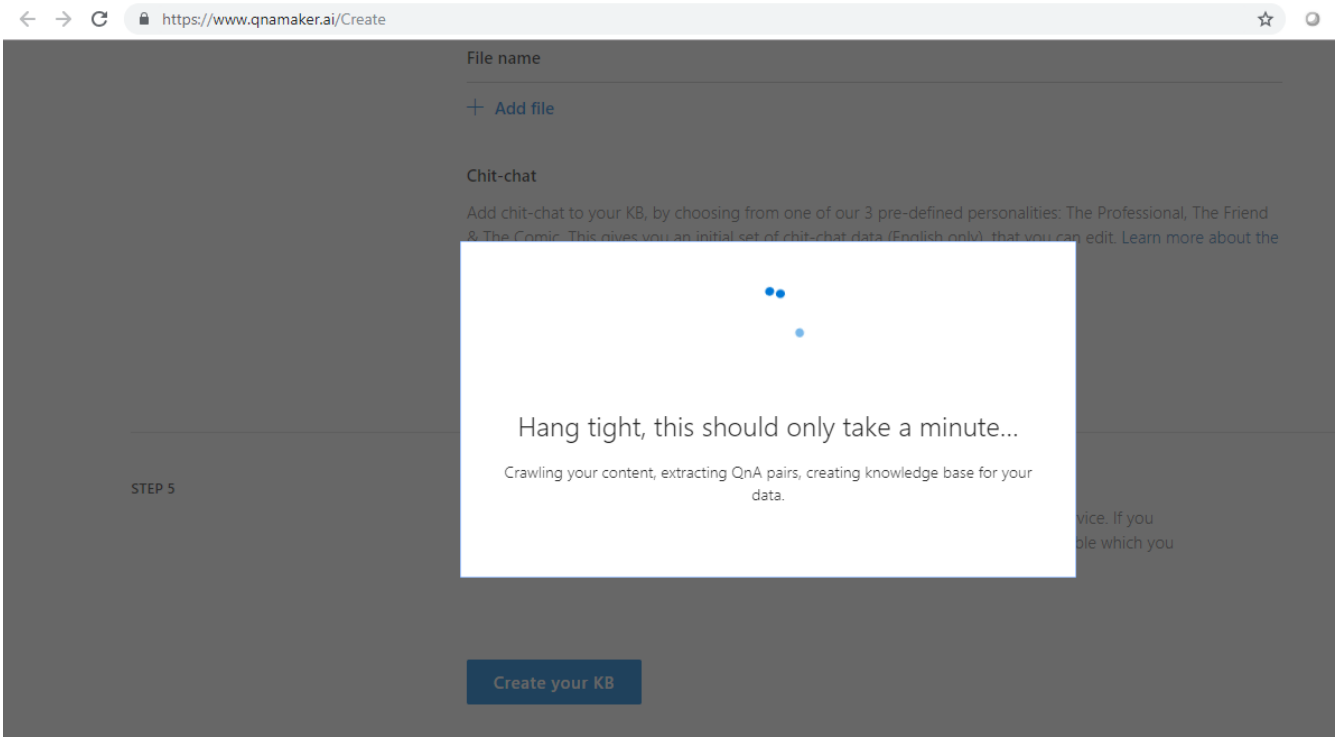
5. Adding Chit Chat to your KB.

- Adding chit-chat to your bot makes it more conversational and engaging. The chit-chat feature in QnA maker allows you to easily add a pre-populated set of the top chit-chat, into your knowledge base (KB).
- This can be a starting point for your bot's personality, and it will save you the time and cost of writing them from scratch.
- This dataset has about 100 scenarios of chit-chat in the voice of three personas - The Professional, The Friend, The Comic. Choose the persona that most closely resembles your bot's voice. Given a user query, QnA Maker tries to match it with the closest known chit-chat QnA.



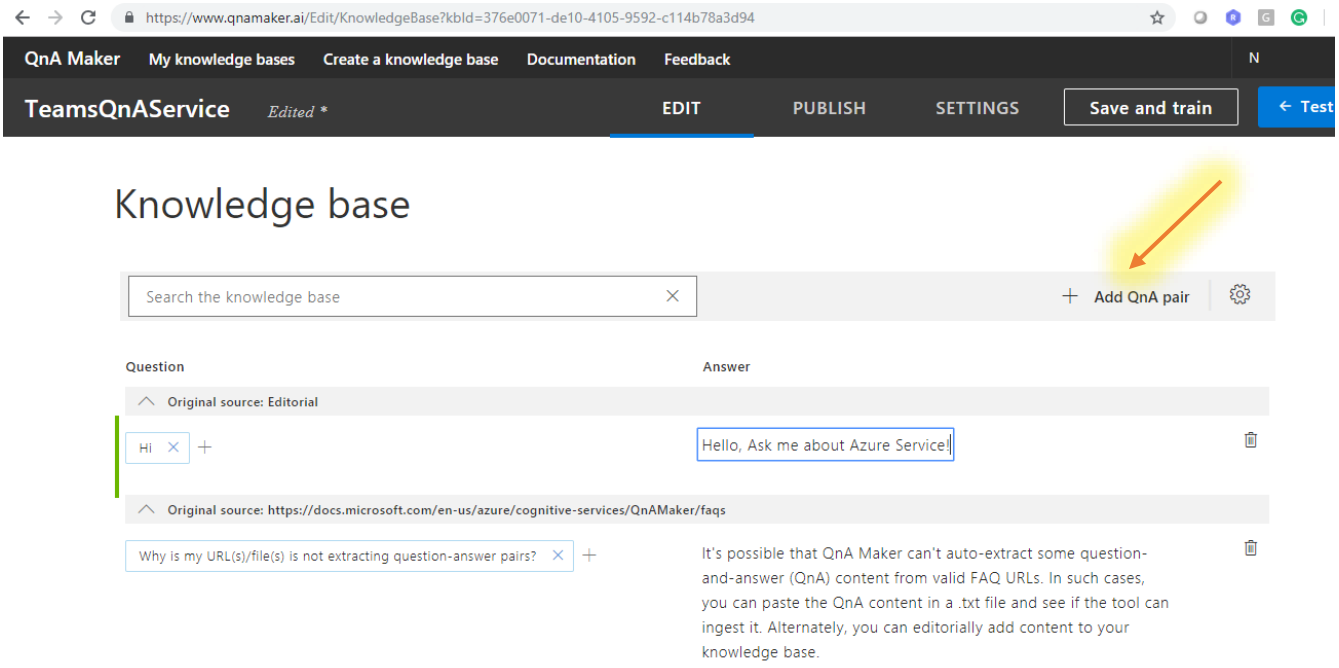
Finally, select **Create your KB** in **step 5.** This will go through the link you provided and create a knowledge base for your service. When the KB is created, it opens the **Knowledge Base** page from which you can edit the contents of your KB.





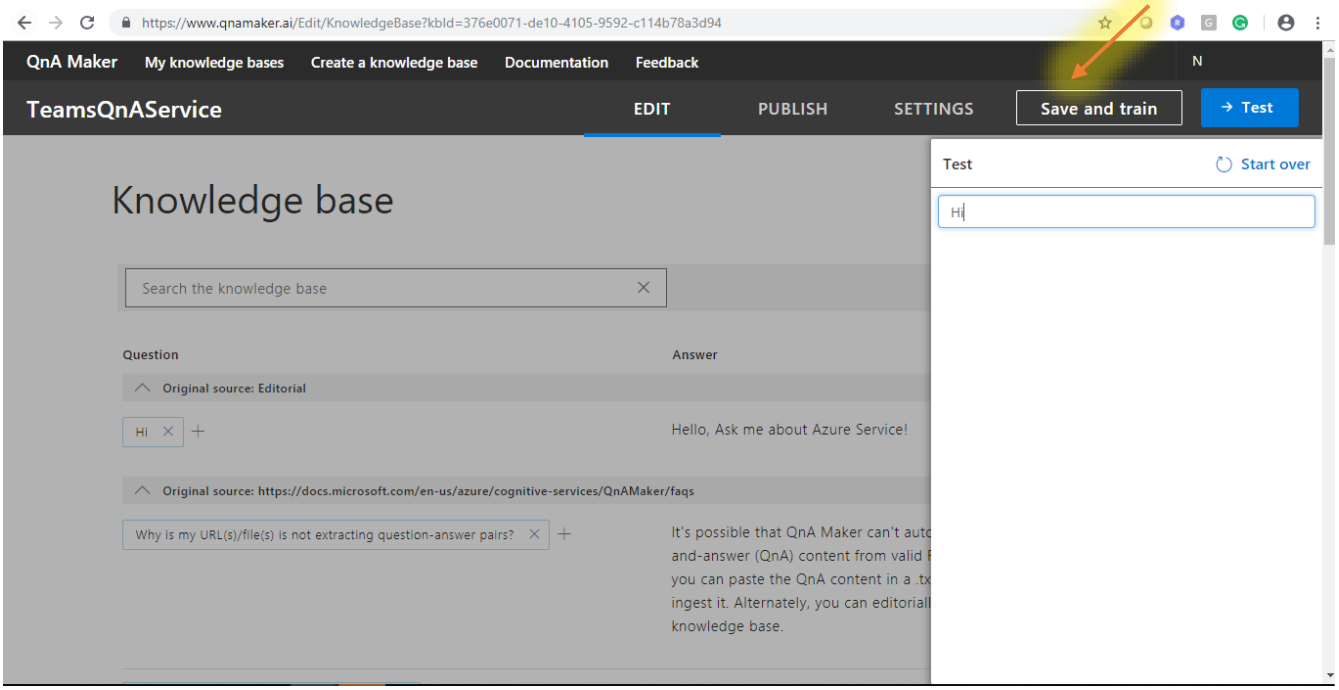
Now you can see the list of questions and answers which is pulled from the FAQ URL

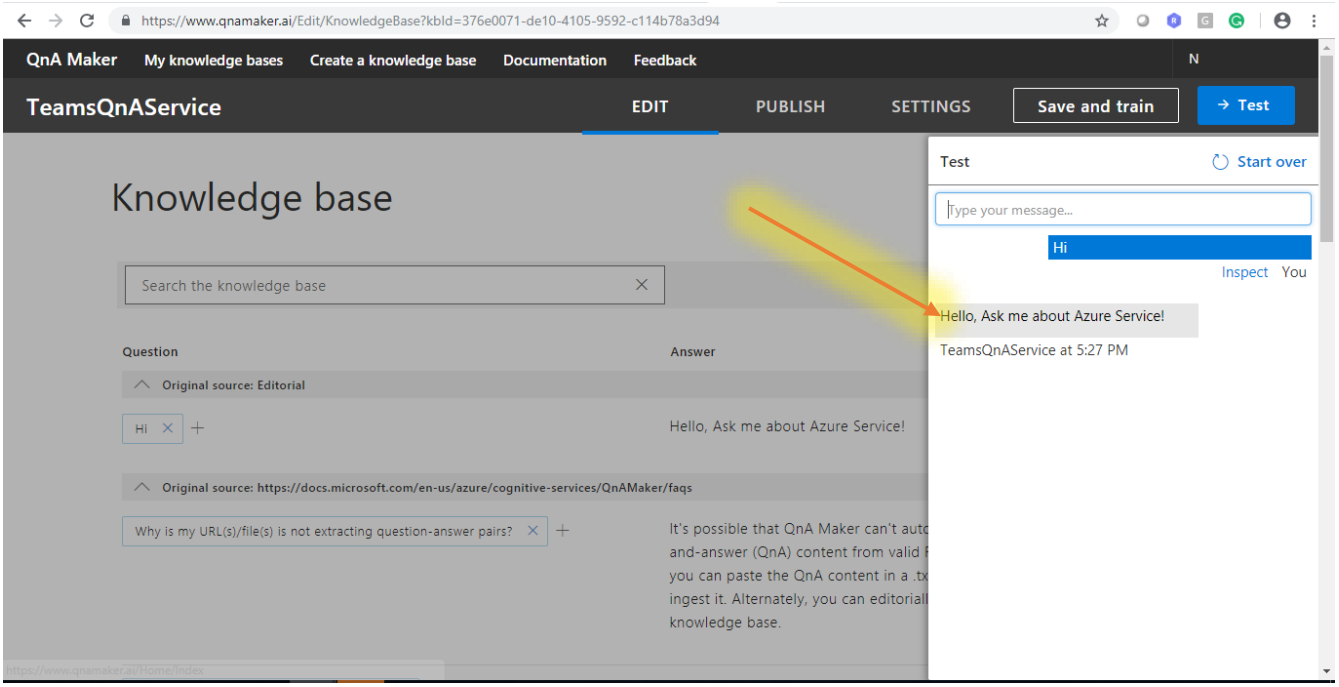
Click on Add QnA Pair **to add a new row to the KB and enter the following.**



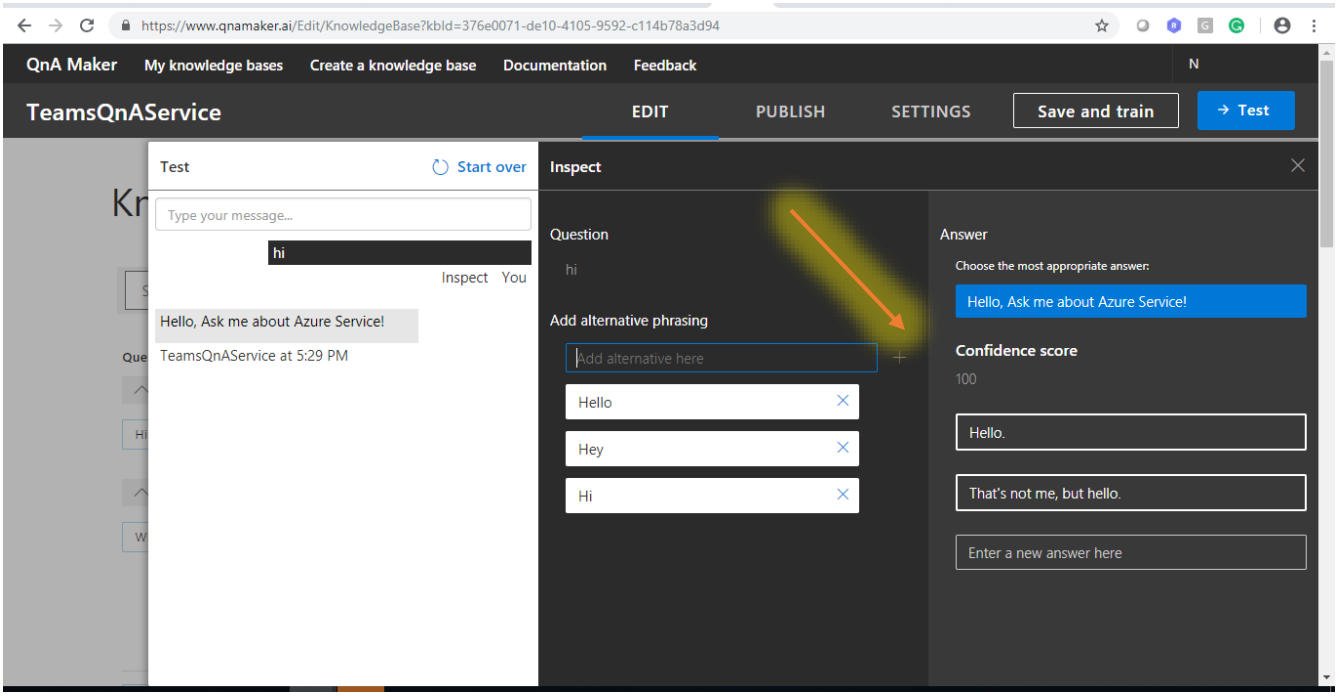
Select **Save and train** to save your changes and train the QnA Maker model.

You can test your KB by choosing **Test** from the top bar. If you enter "Hi", the KB should respond with the answer you just entered.

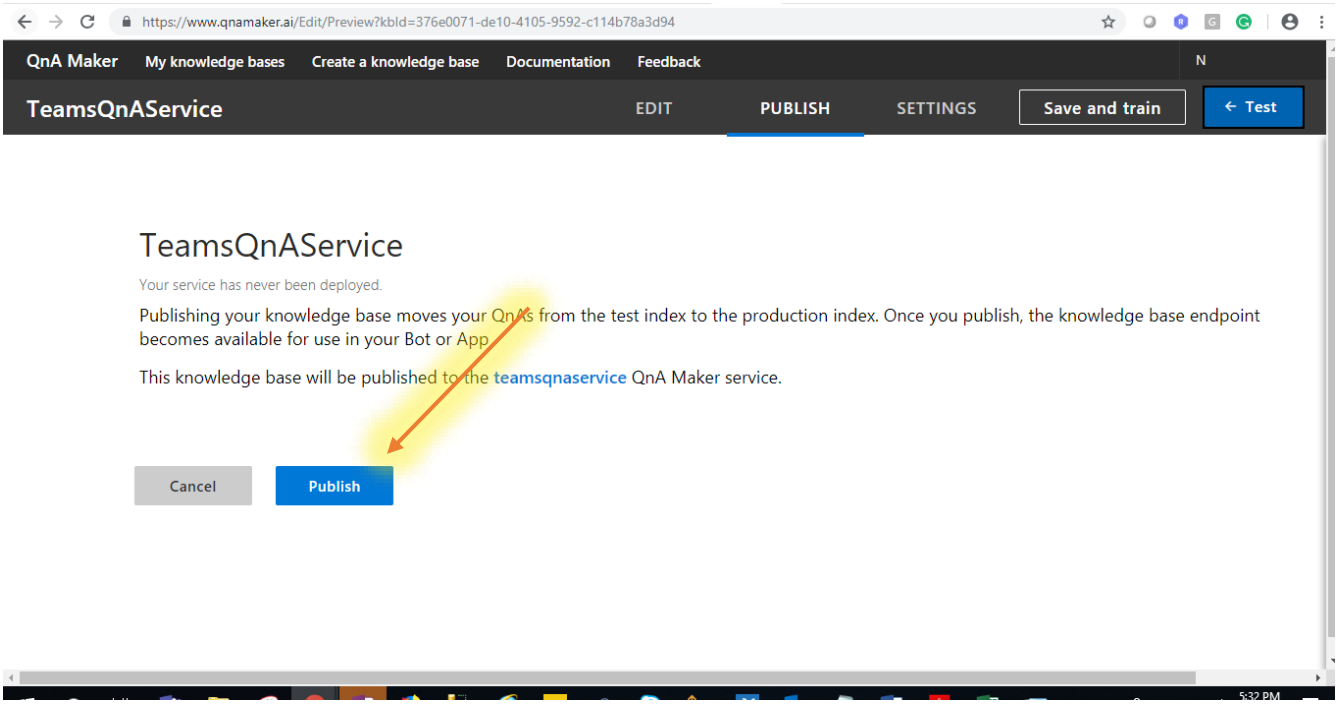


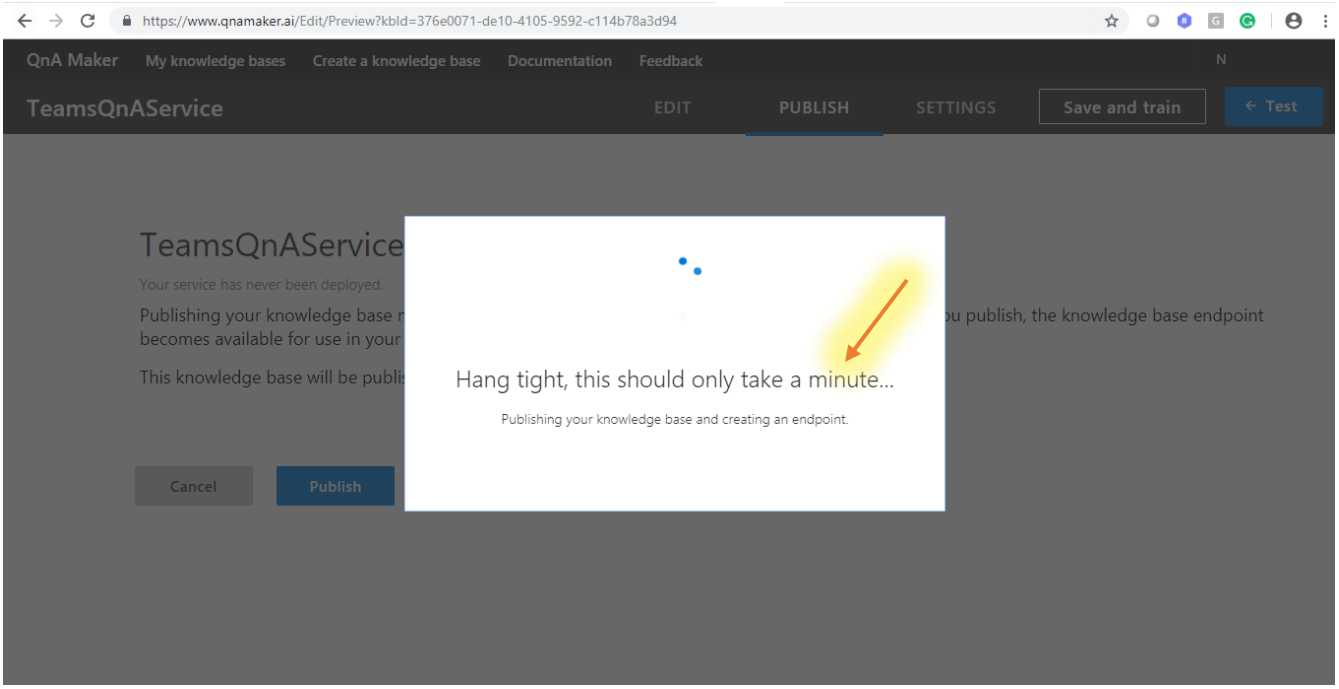


You also have the option of Inspecting this response by selecting the **Inspect** link. From here, you can add different phrasings for the same question and also view the **Confidence Score** the service assigned to the answer it returned. Remember to select **Save and train** to save your changes.

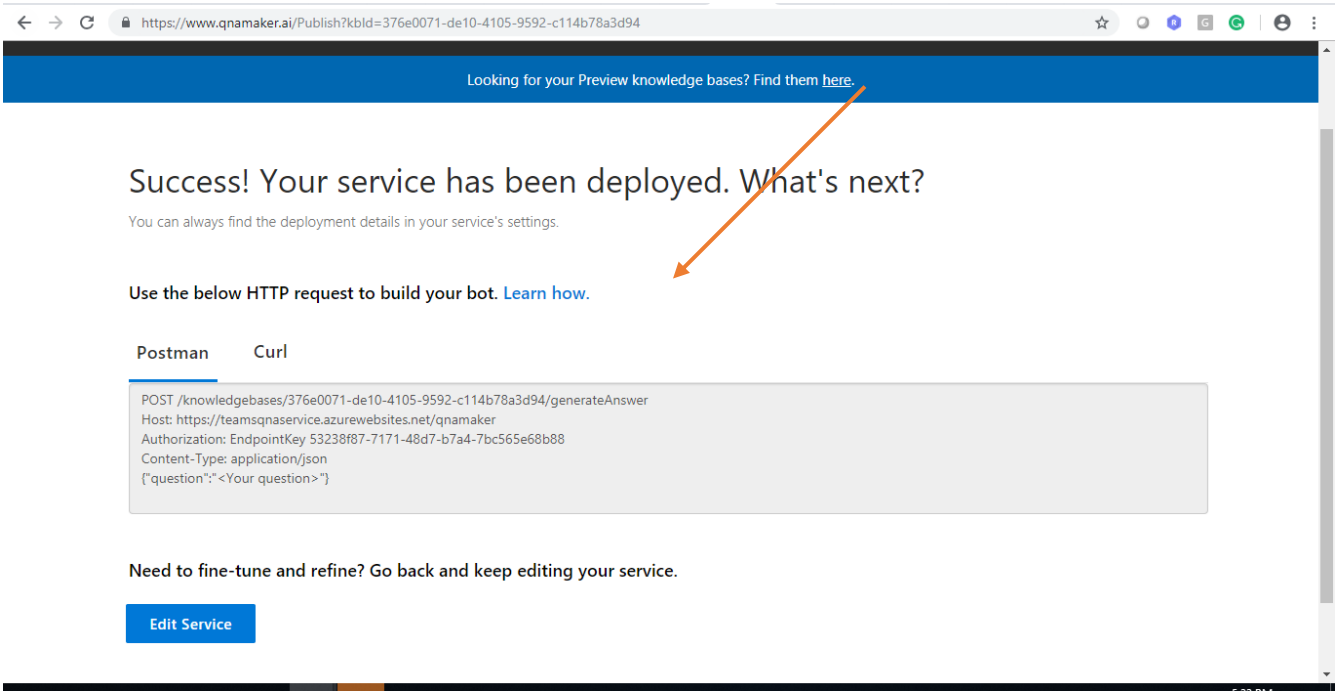


You can now select **Publish** from the top bar. This will deploy your service to an endpoint that, once published successfully, can be used to feed your QnA Bot! You can always select **Edit Service** to return to your KB and make changes.





In just a few minutes, you have easily created a QnA Maker Service using Microsoft's Cognitive Services without writing a single line of code!

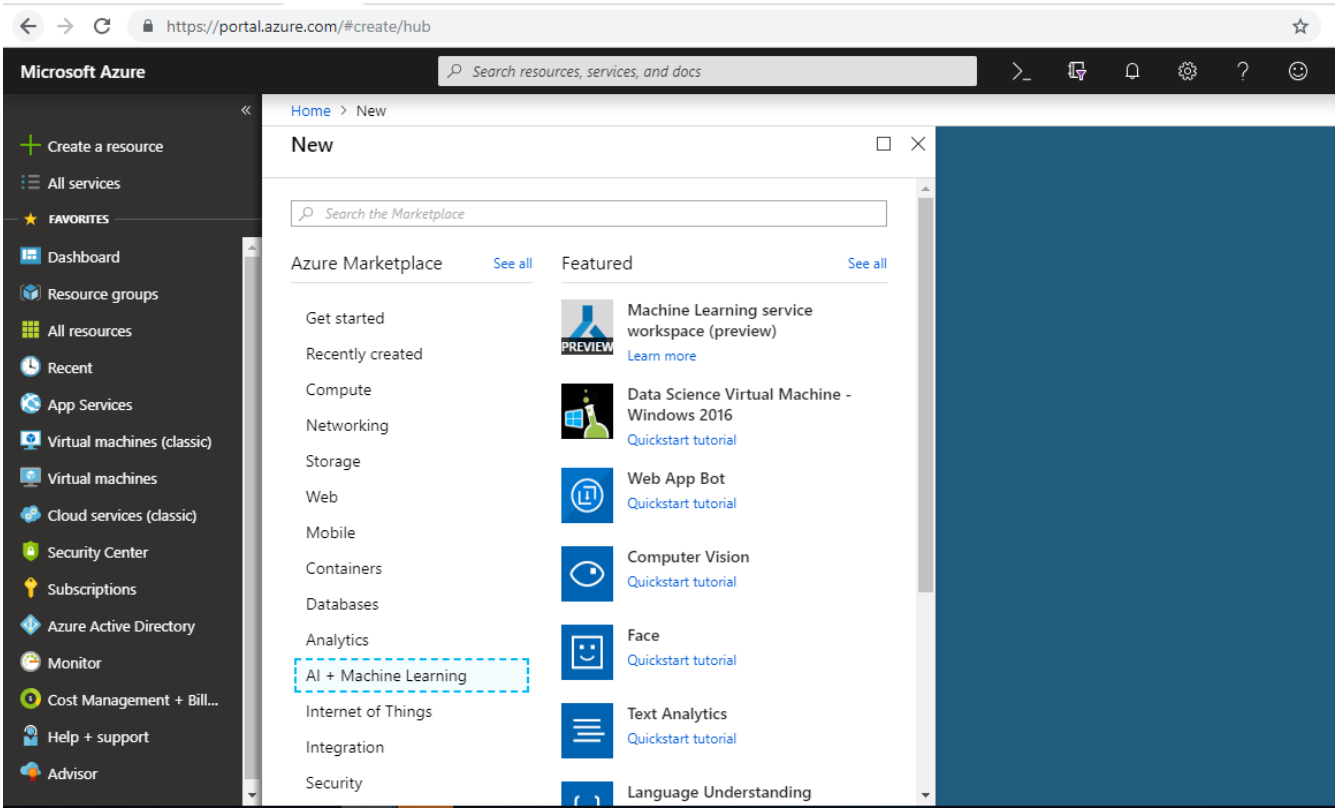


6. Creating a QnA Bot with Azure Bot Service

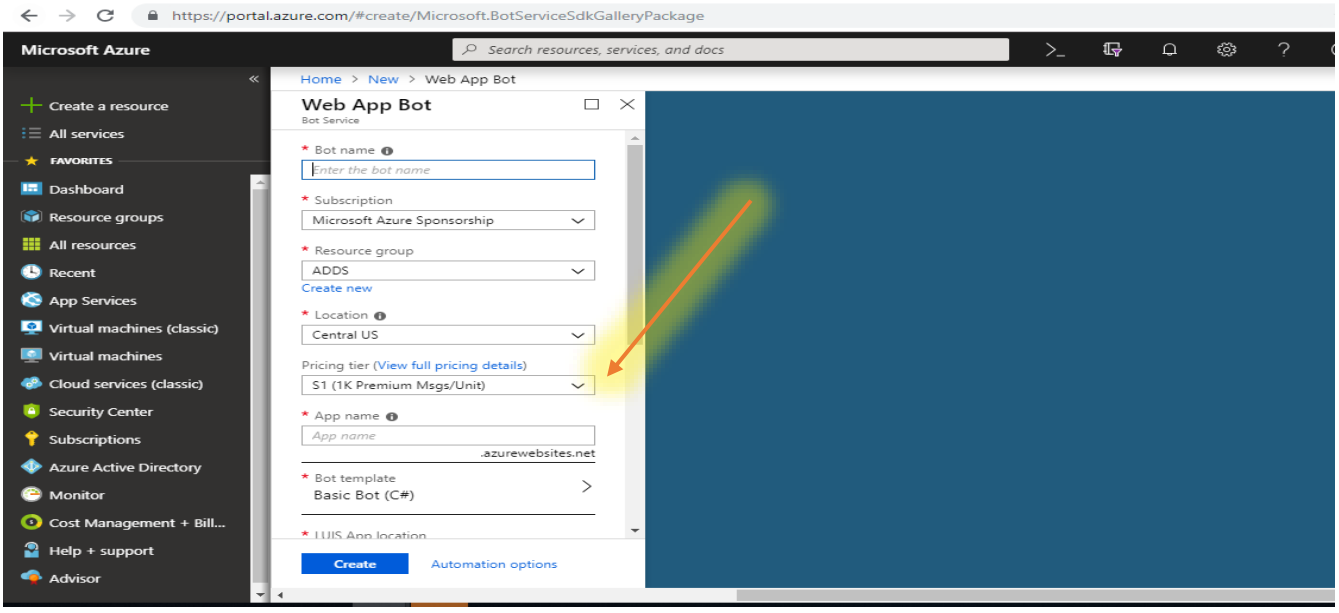
Now that you've successfully created a QnA Maker Service, you can create a bot that uses the KB you created to respond to questions via the QnAMakerDialog.

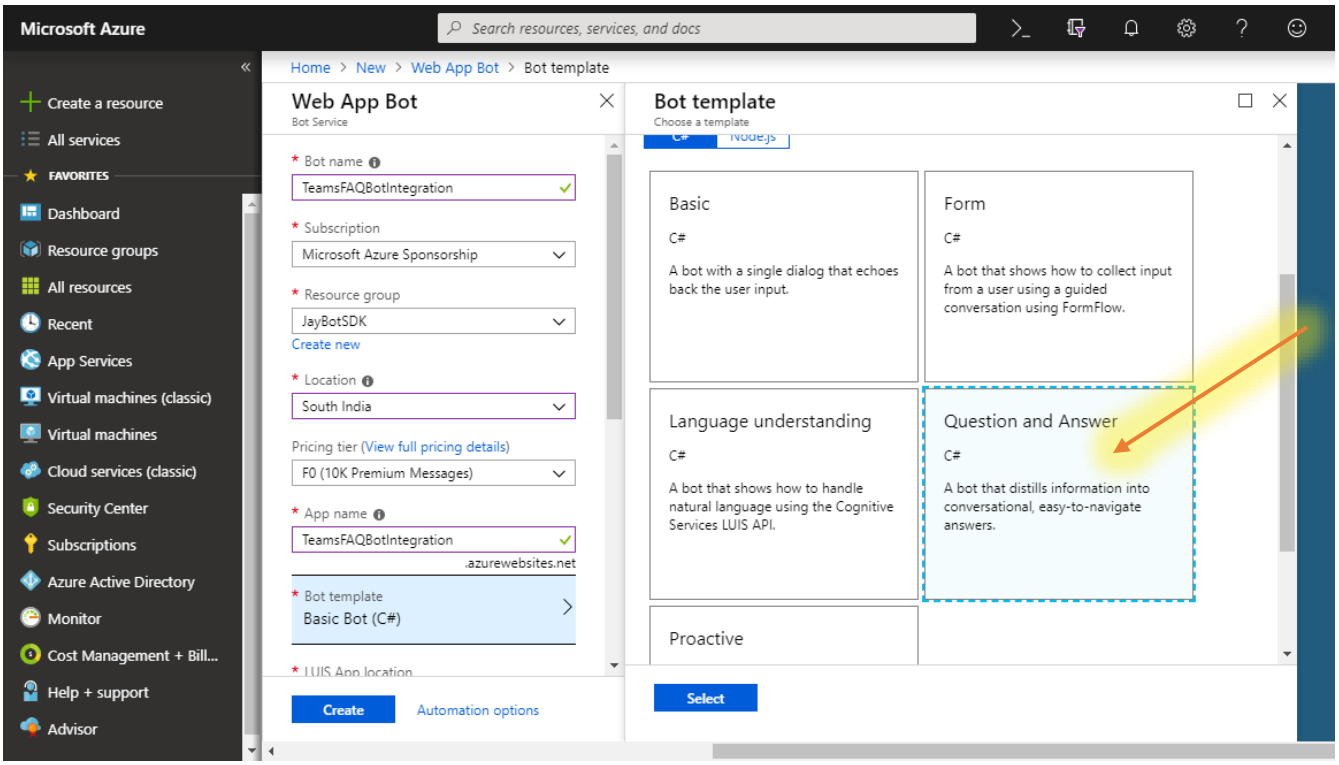
From the Azure Portal, Create a new bot service

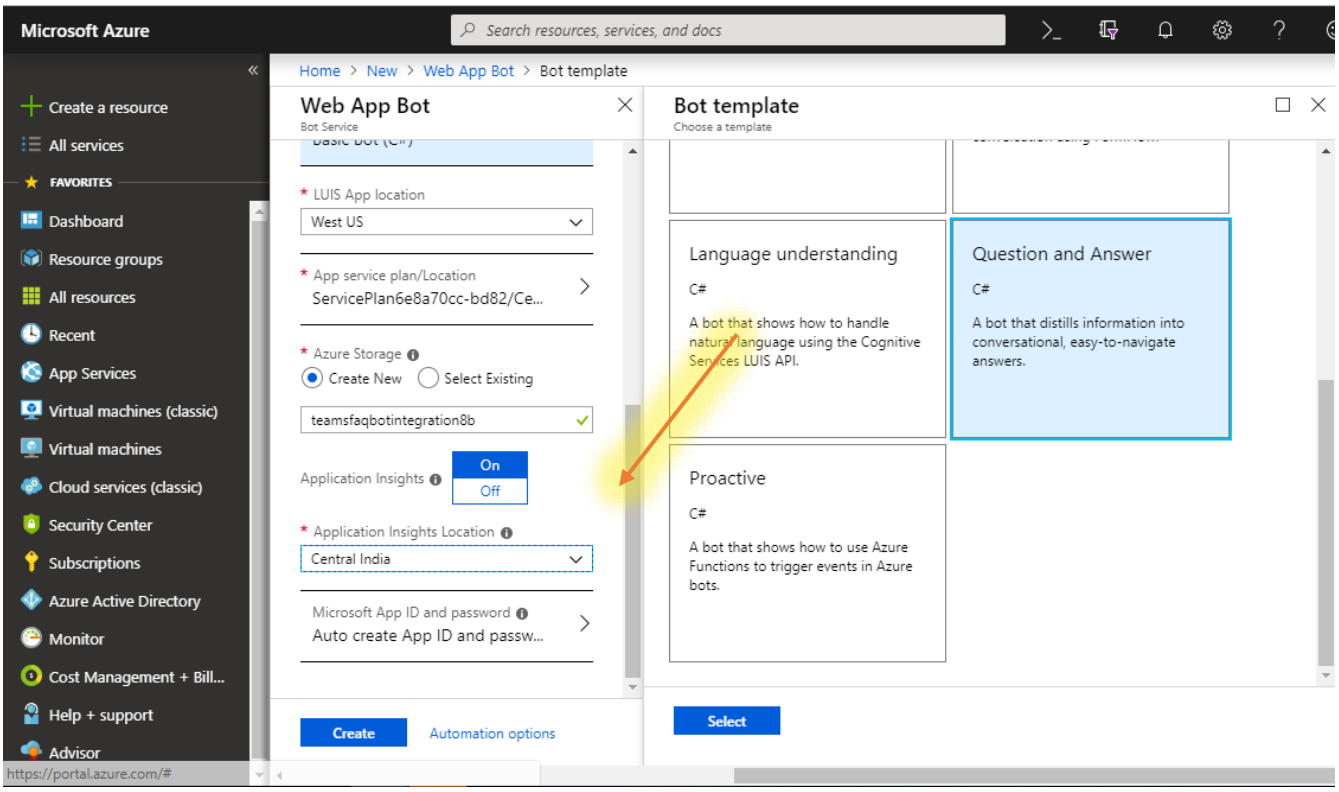
1. Click **Create new resource** link found on the upper left-hand corner of the Azure portal, then select **AI + Machine Learning > Web App bot**.
2. A new blade will open with information about the **Web App Bot**.



3. In the **Bot Service** blade, provide the requested information about your bot as specified in the table below the image.




Microsoft Azure
Search resources, services, and docs
Create a resource
All services
FAVORITES
Dashboard
Resource groups
All resources
Recent
App Services
Virtual machines (classic)
Virtual machines
Cloud services (classic)
Security Center
Subscriptions
Azure Active Directory
Monitor
Cost Management + Bill...
Help + support
Advisor
Home > New > Web App Bot > Bot template
Web App Bot
Bot Service
* Bot name
TeamsFAQBotIntegration
* Subscription
Microsoft Azure Sponsorship
* Resource group
JayBotSDK
Create new
* Location
South India
Pricing tier (View full pricing details)
F0 (10K Premium Messages)
* App name
TeamsFAQBotIntegration
.azurewebsites.net
* Bot template
Basic Bot (C#)
Create
Automation options
Bot template
Choose a template
Basic
C#
A bot with a single dialog that echoes back the user input.
Form
C#
A bot that shows how to collect input from a user using a guided conversation using FormFlow.
Language understanding
C#
A bot that shows how to handle natural language using the Cognitive Services LUIS API.
Question and Answer
C#
A bot that distills information into conversational, easy-to-navigate answers.
Proactive
Select



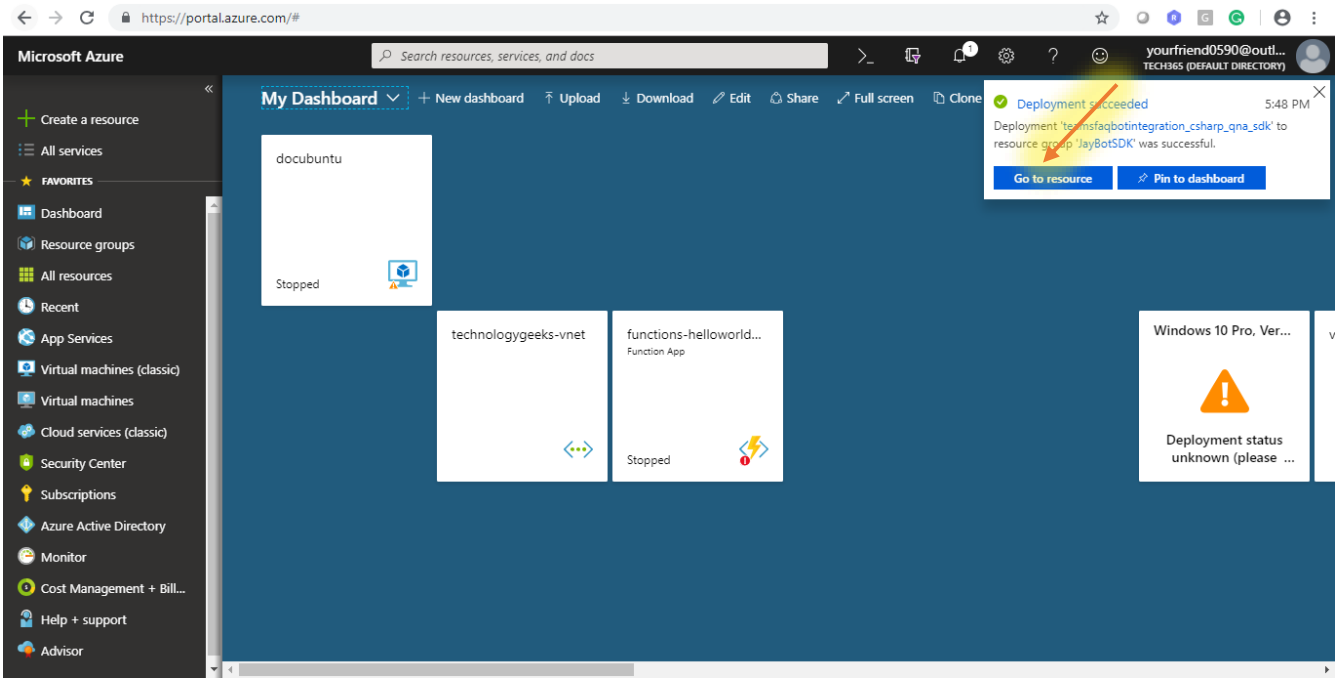
- ✓ Set **Bot Name** to your bot's desired name. I will be using TeamsFAQBotIntegration for mine.
- ✓ Choose **Free Trial** for the Subscription
- ✓ Select **Create new** for Resource Group
- ✓ Choose Location
- ✓ Choose **F0 (10K Premium Messages)** for the Pricing Tier
- ✓ Select **Question and Answer C#** for the Bot template and hit **Select**
- ✓ Choose **Create New** for Azure Storage
- ✓ Choose App Insights Location
- ✓ Select **Create**

Reference

Setting	Suggested value	Description
Bot name	Your bot's display name	The display name for the bot that appears in channels and directories. This name can be changed at anytime.
Subscription	Your subscription	Select the Azure subscription you want to use.
Resource Group	myResourceGroup	You can create a new resource group or choose from an existing one.
Location	The default location	Select the geographic location for your resource group. Your location choice can be any location listed, though it's often best to choose a location closest to your customer. The location cannot be changed once the bot is created.
Pricing tier	F0	Select a pricing tier. You may update the pricing tier at any time. For more information, see Bot Service pricing.
App name	A unique name	The unique URL name of the bot. For example, if you name your bot *myawesomebot*, then your bot's URL will be `http://myawesomebot.azurewebsites.net`. The name must use alphanumeric and underscore characters only. There is a 35 character limit to this field. The App name cannot be changed once the bot is created.

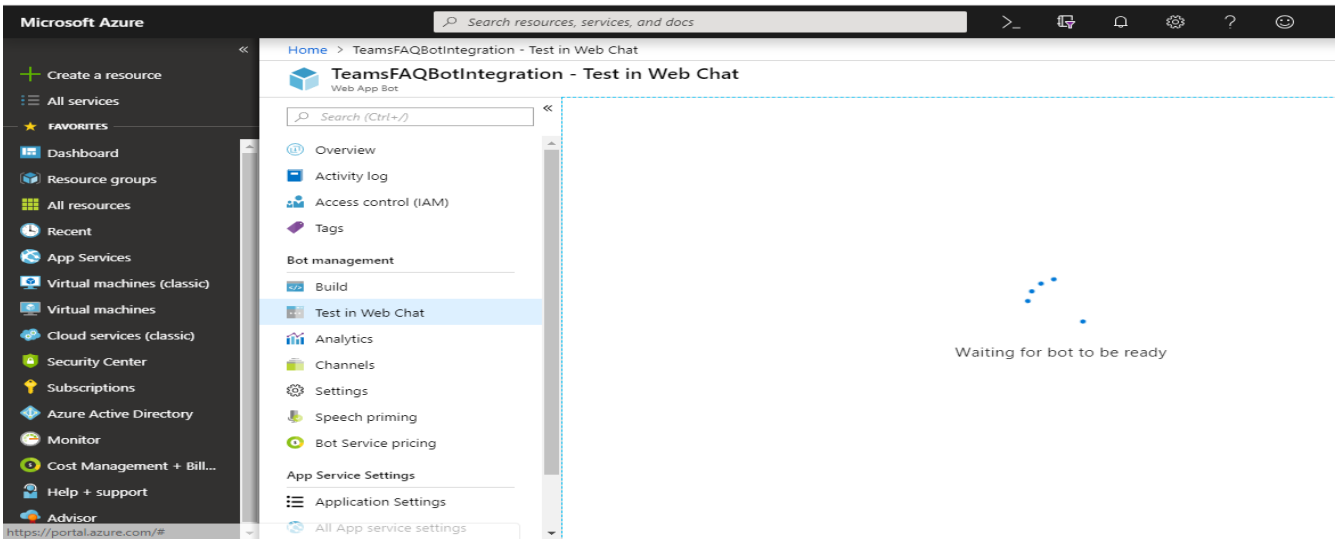
Setting	Suggested value	Description
Bot template	Echo bot	Choose **SDK v4**. Select either C# or Node.js for this quickstart, then click **Select**.
App service plan/Location	Your app service plan	Select an app service plan location. Your location choice can be any location listed, though it's often best to choose the same location as the bot service.
Azure Storage	Your Azure storage account	You can create a new data storage account or use an existing one. By default, the bot will use Table Storage.
Application Insights	On	Decide if you want to turn Application Insights **On** or **Off**. If you select **On**, you must also specify a regional location. Your location choice can be any location listed, though it's often best to choose the same location as the bot service.
Microsoft App ID and password	Auto create App ID and password	Use this option if you need to manually enter a Microsoft App ID and password. Otherwise, a new Microsoft App ID and password will be created for you in the bot creation process.

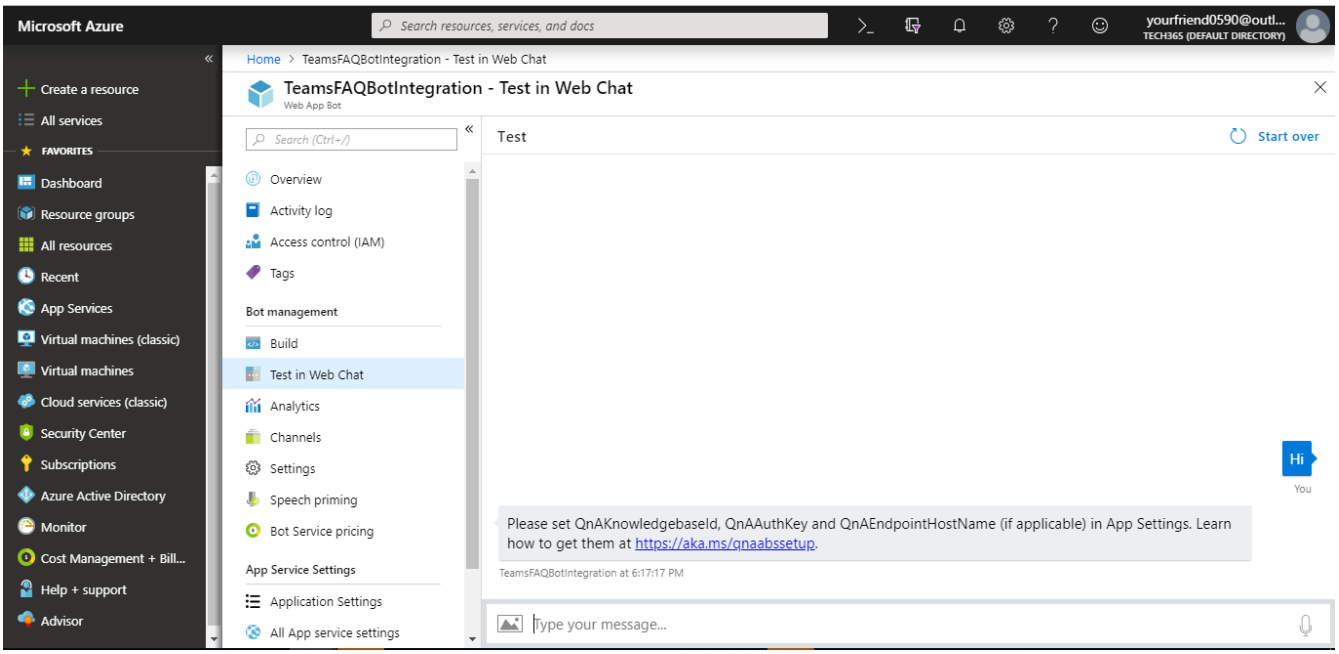
The deployment will take a few minutes. Once the notification displays **Deployment Succeeded**, select **Go To Resource** on that notification.



7.Testing the Bot

Once the bot's resource window is open, click **Test in Web Chat** and type "hi" into the chat box.

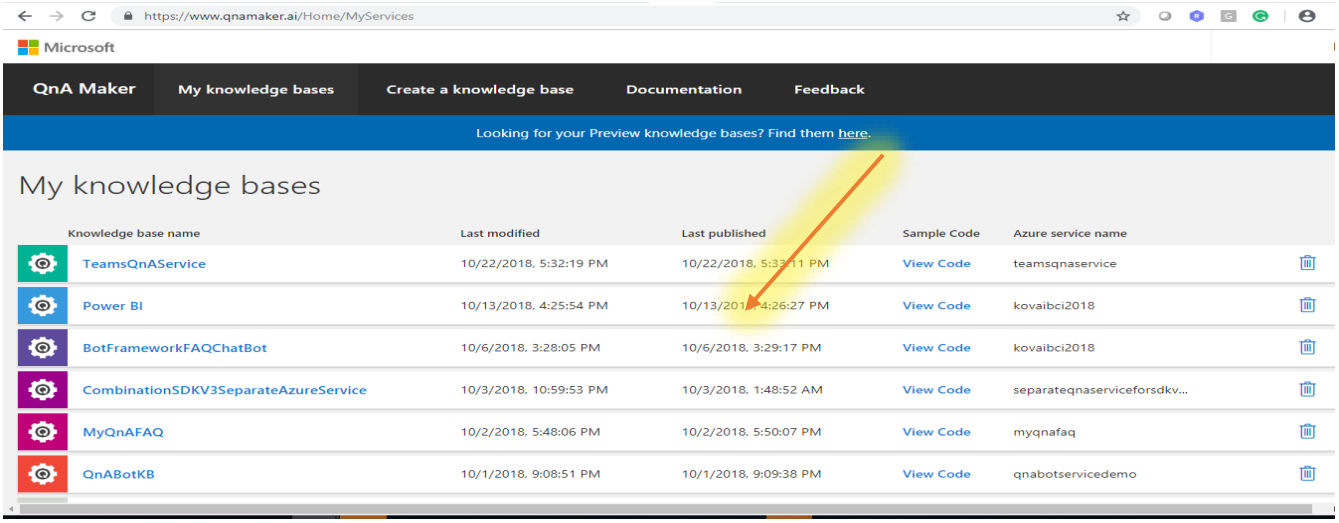




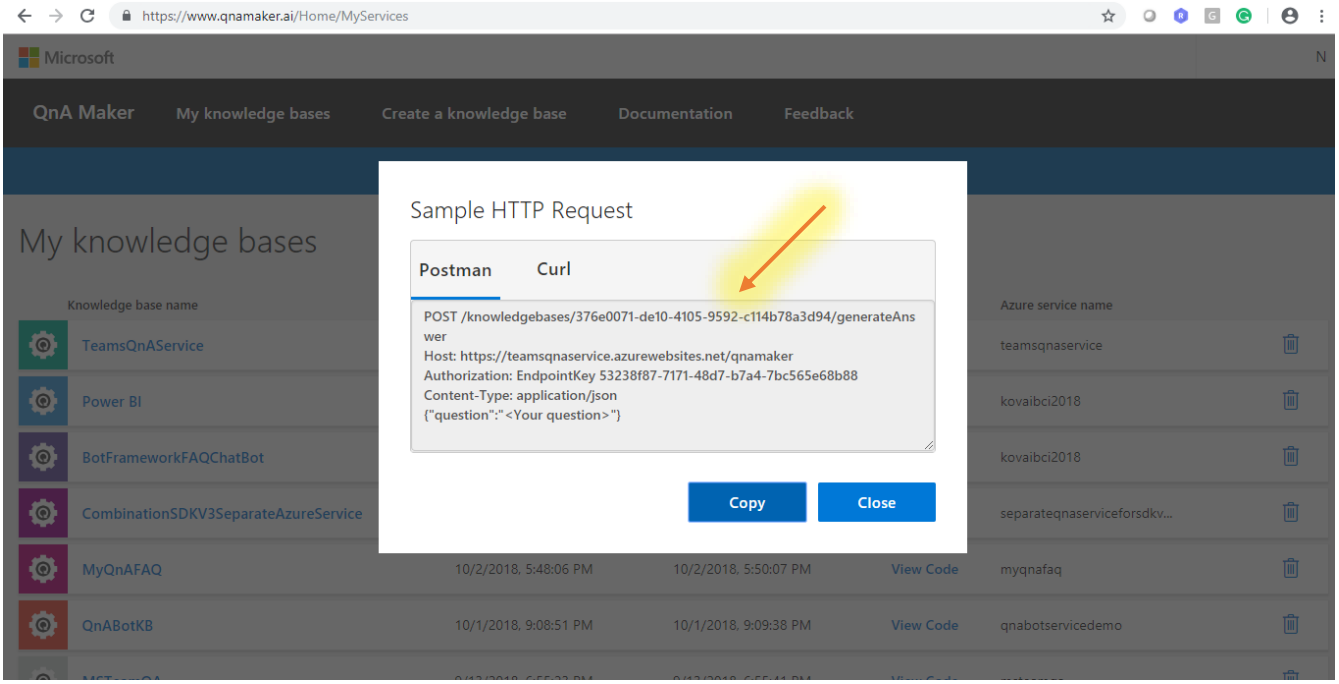
The bot should respond with "Please set **QnAKnowledgebaseId** and **QnASubscriptionKey** in App Settings. Get them at https://qnamker.ai. This is letting you know that your bot is not yet linked to the KB you created earlier. Let's do that next.

8.Connecting your QnA KB to your QnA Bot

Navigate back to the QnA Maker page and select the "My Knowledge Bases" tab.

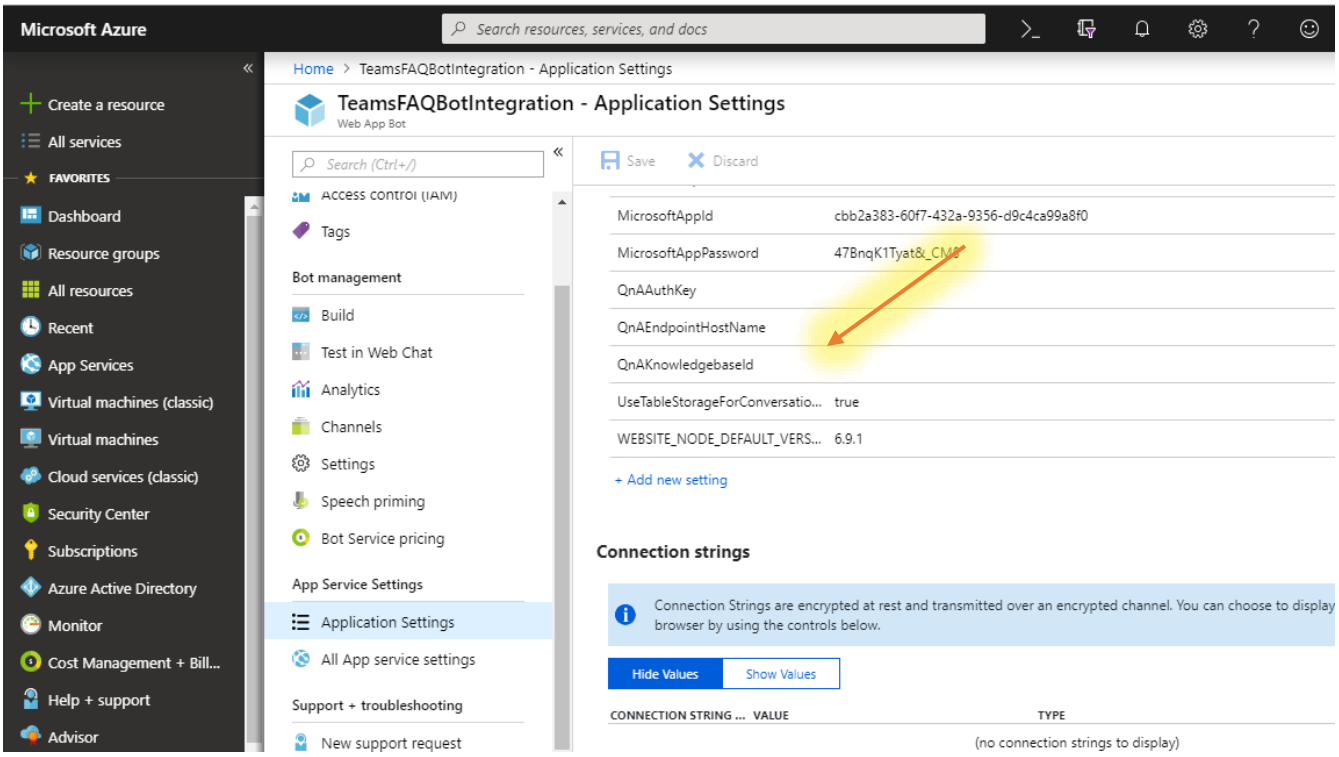


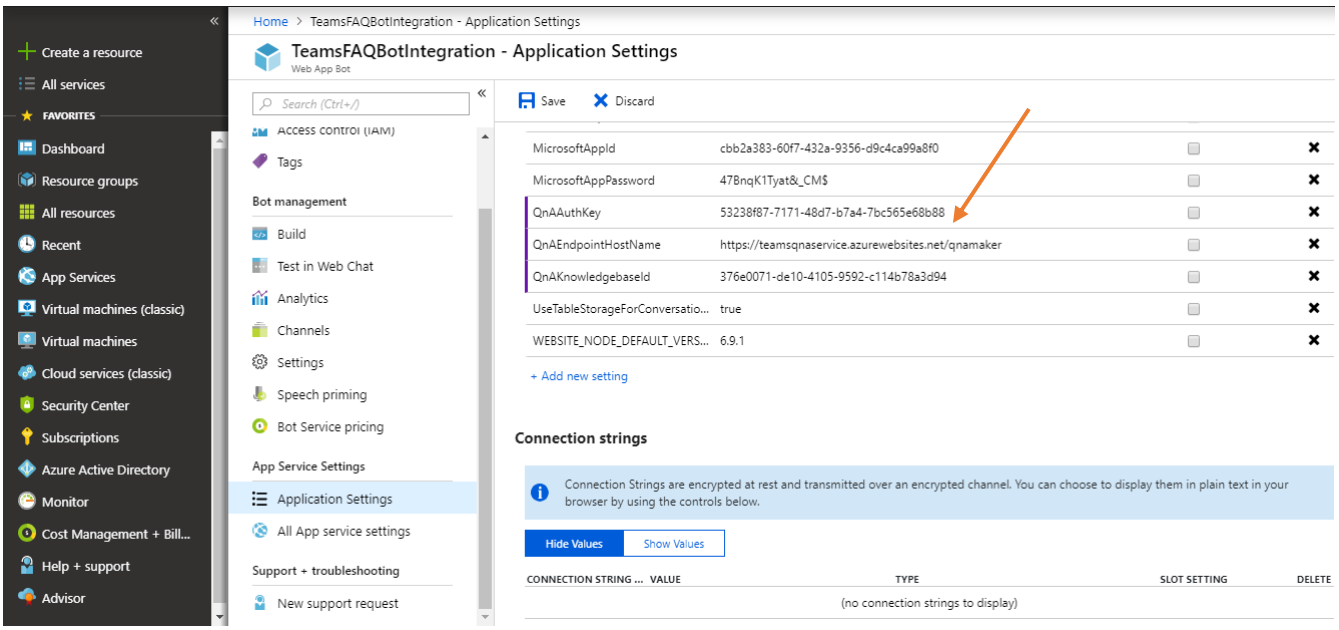
Select View Code **from the row that lists the KB you created earlier to locate the appropriate values.**



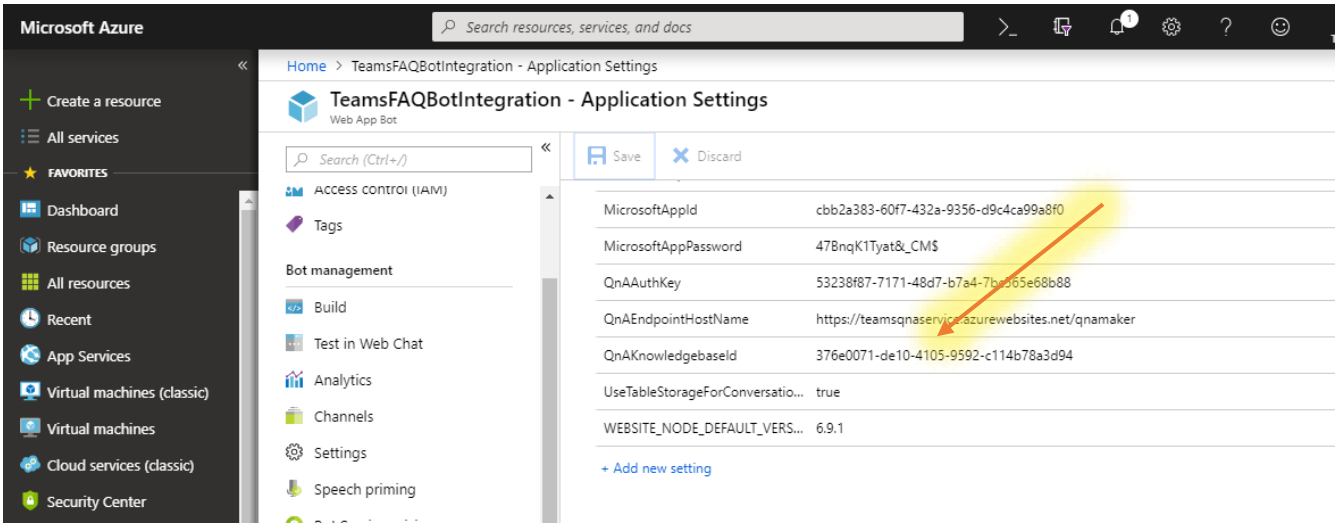
Now navigate back to the Azure portal and select the Web App bot you just created.

Select the **Application Settings** tab under **App Service Settings** and edit the QnAKnowledgebaseId, QnAAuthKey, and the QnAEndpointHostName fields to add the values of the QnA KB that you previously created.


Microsoft Azure
Search resources, services, and docs
Create a resource
All services
FAVORITES
Dashboard
Resource groups
All resources
Recent
App Services
Virtual machines (classic)
Virtual machines
Cloud services (classic)
Security Center
Subscriptions
Azure Active Directory
Monitor
Cost Management + Bill...
Help + support
Advisor
Home > TeamsFAQBotIntegration - Application Settings
TeamsFAQBotIntegration - Application Settings
Web App Bot
Search (Ctrl+/)
Access control (IAM)
Tags
Bot management
Build
Test in Web Chat
Analytics
Channels
Settings
Speech priming
Bot Service pricing
App Service Settings
Application Settings
All App service settings
Support + troubleshooting
New support request
Save
Discard
MicrosoftAppId cbb2a383-60f7-432a-9356-d9c4ca99a8f0
MicrosoftAppPassword 47BnqK1Tyat&_CM$
QnAAuthKey
QnAEndpointHostName
QnAKnowledgebaseId
UseTableStorageForConversatio... true
WEBSITE_NODE_DEFAULT_VERS... 6.9.1
+ Add new setting
Connection strings
Connection Strings are encrypted at rest and transmitted over an encrypted channel. You can choose to display
browser by using the controls below.
Hide Values
Show Values
CONNECTION STRING ... VALUE
TYPE
(no connection strings to display)


Home > TeamsFAQBotIntegration - Application Settings
TeamsFAQBotIntegration - Application Settings
Web App Bot
Save
Discard
MicrosoftAppId cbb2a383-60f7-432a-9356-d9c4ca99a8f0
MicrosoftAppPassword 47BnqK1Tyat&_CM$
QnAAuthKey 53238f87-7171-48d7-b7a4-7bc565e68b88
QnAEndpointHostName https://teamsqnaservice.azurewebsites.net/qnamaker
QnAKnowledgebaseId 376e0071-de10-4105-9592-c114b78a3d94
UseTableStorageForConversatio... true
WEBSITE_NODE_DEFAULT_VERS... 6.9.1
+ Add new setting
Connection strings
Connection Strings are encrypted at rest and transmitted over an encrypted channel. You can choose to display them in plain text in your
browser by using the controls below.
Hide Values
Show Values
CONNECTION STRING ... VALUE
TYPE
SLOT SETTING
DELETE
(no connection strings to display)

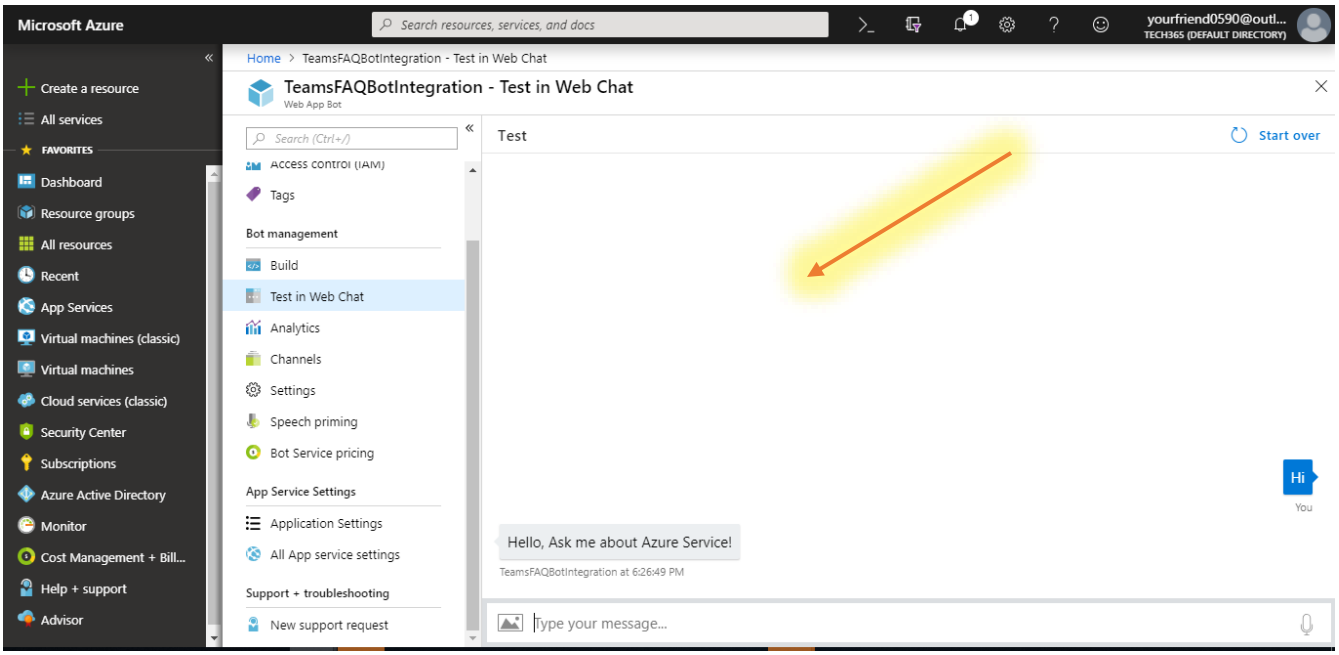
Click **Save**



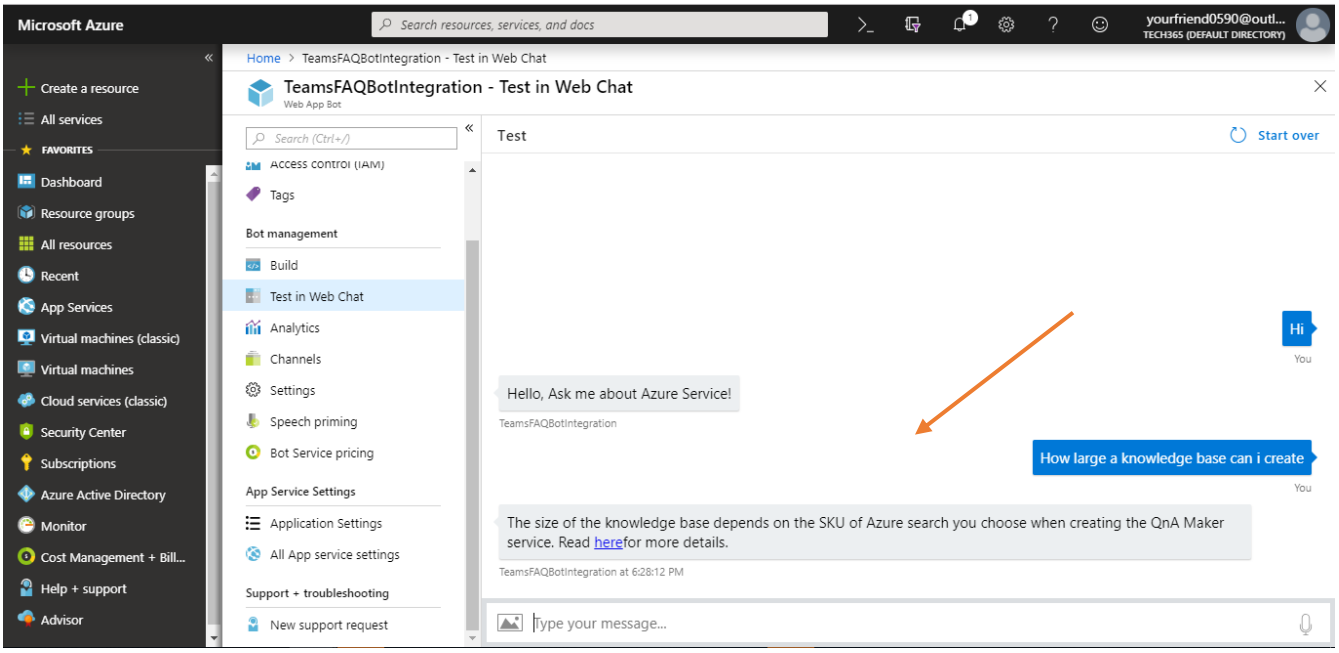
9.Testing the FAQ Bot

Once again in the Azure Portal, select the QnA Bot you created and hit **Test in Web Chat** and type “hi” into the chat box.

The bot should respond with “Hello, ask me about Microsoft Azure!” as expected.



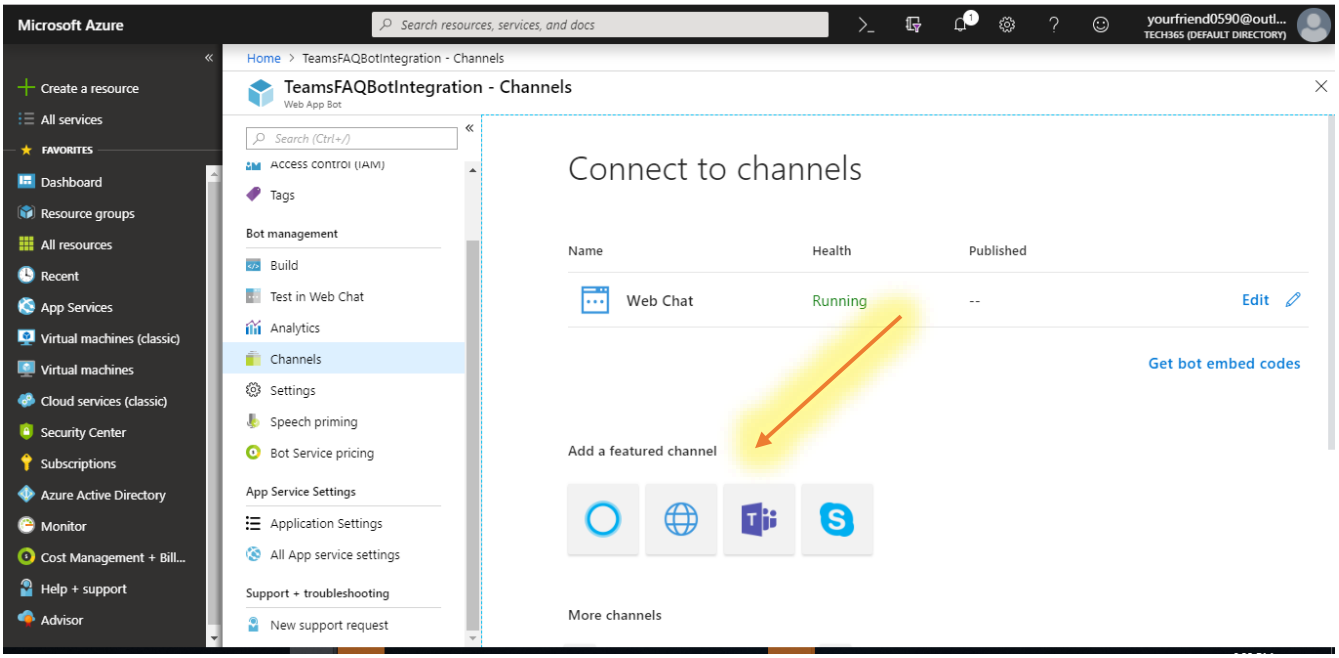
This bot is now fully connected to your knowledge base! You can continue asking questions normally found in the FAQ directly through this bot.



10.Adding the Bot to teams

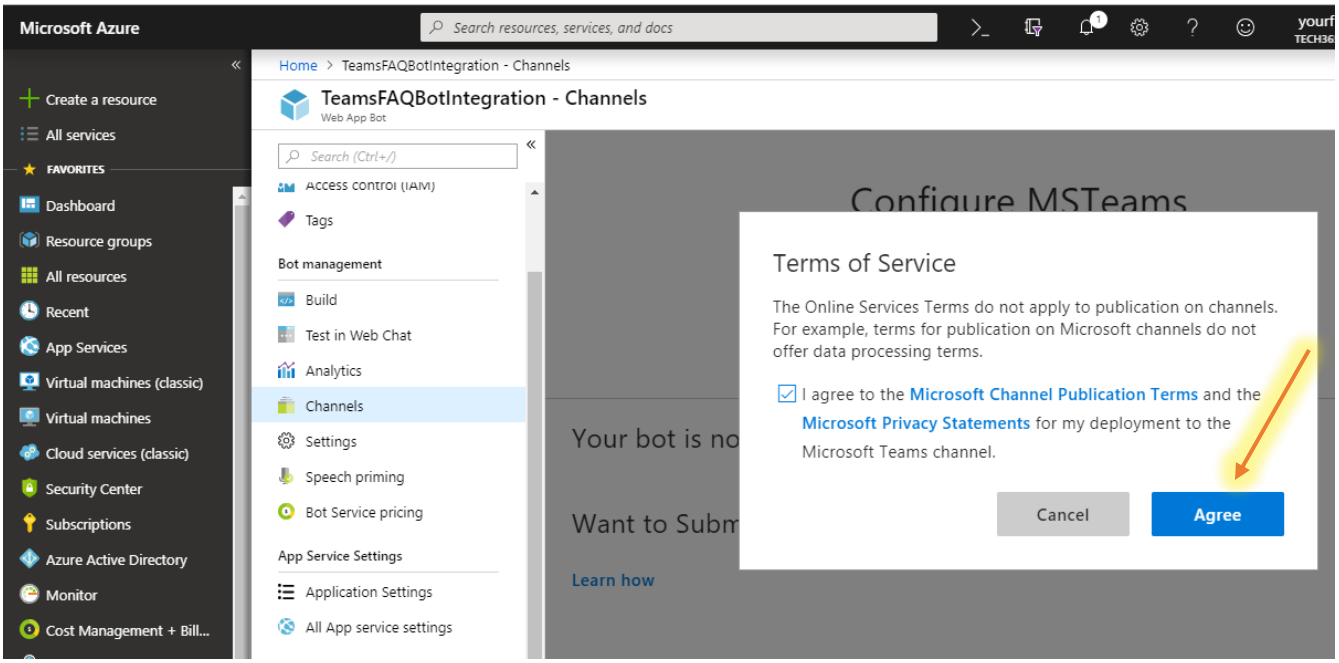
This section will describe how to add the Bot that has been created into teams.

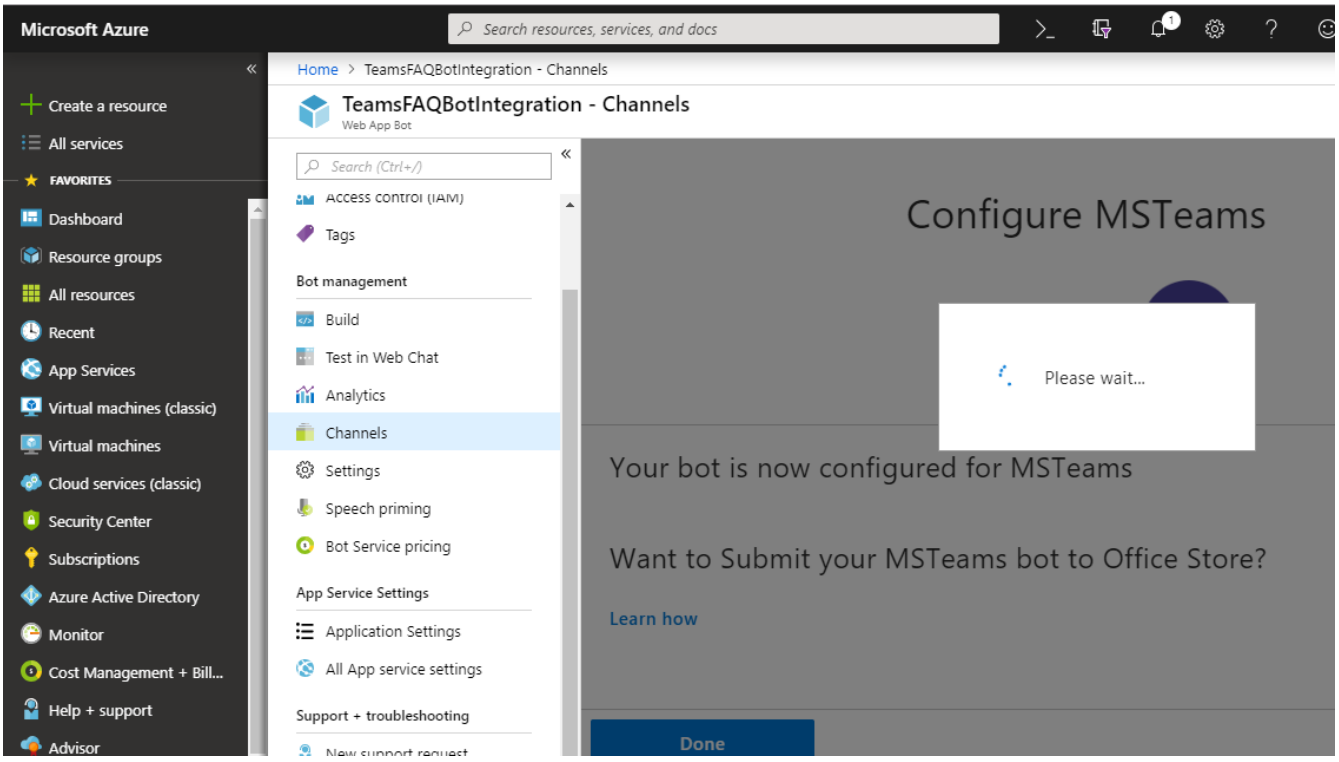
1. Navigate to the Channels tab.

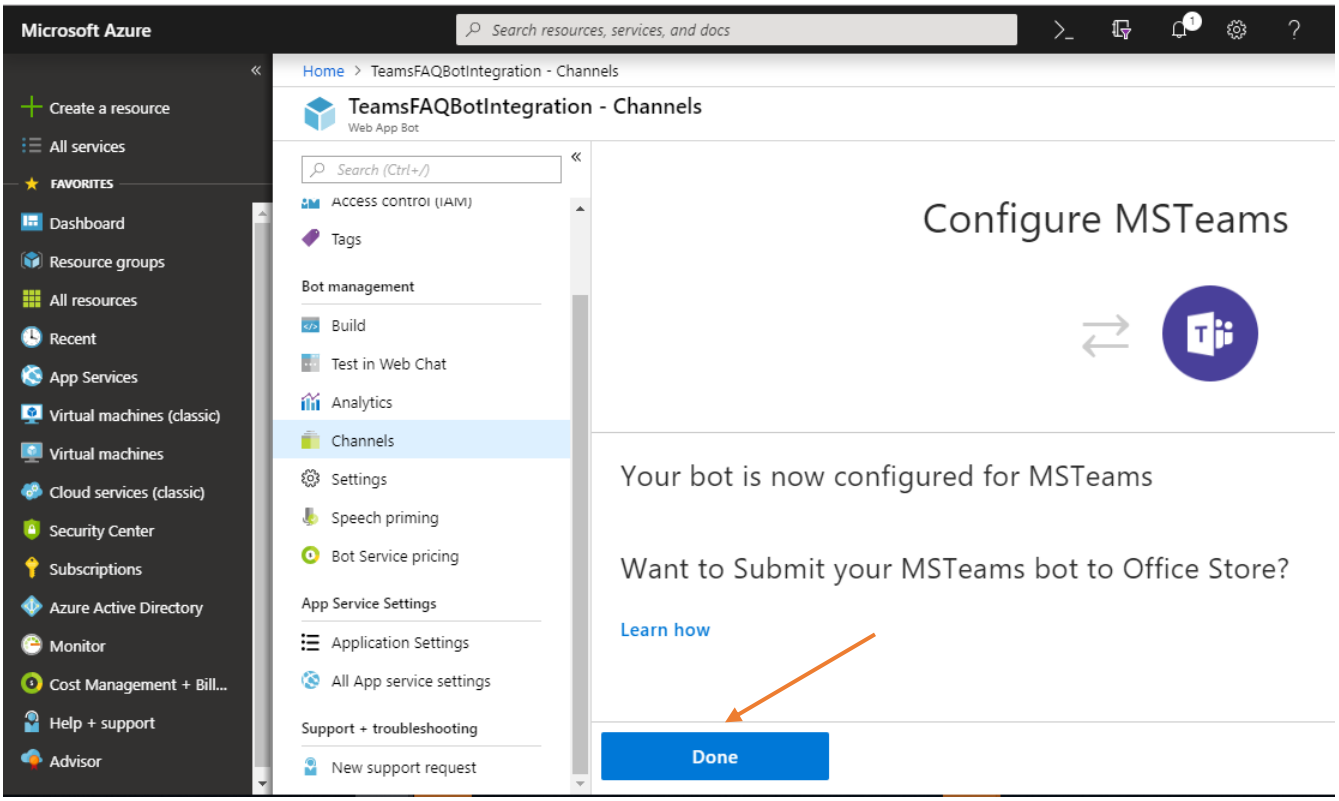


This shows all the supported channels that the Bot can be added to. In this demo, the Bot will be added to MS Teams. Select the team's icon. Once selected select the Done. The Microsoft Teams now appears under connect to channels section.

Agree to the terms and Conditions

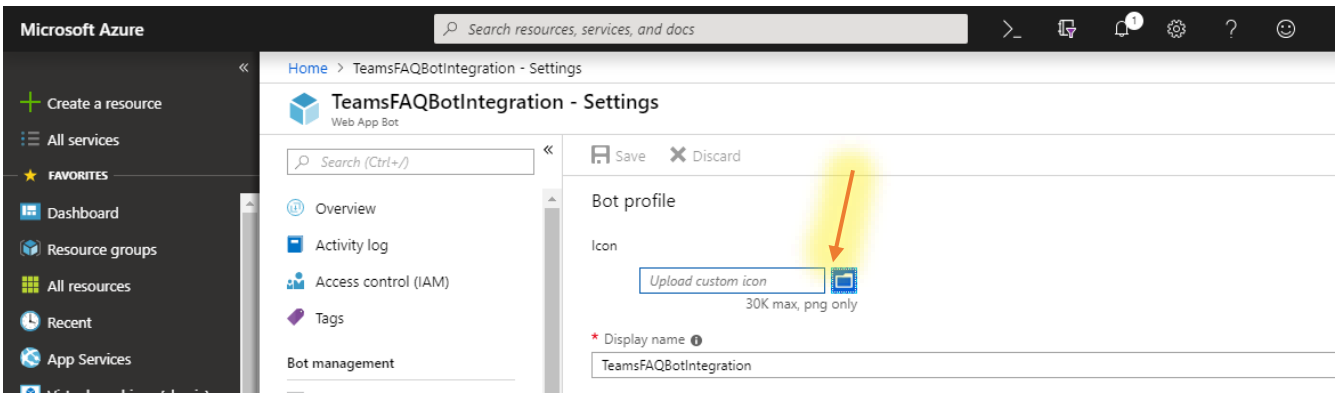

Microsoft Azure
Search resources, services, and docs
Create a resource
All services
FAVORITES
Dashboard
Resource groups
All resources
Recent
App Services
Virtual machines (classic)
Virtual machines
Cloud services (classic)
Security Center
Subscriptions
Azure Active Directory
Monitor
Cost Management + Bill...
Home > TeamsFAQBotIntegration - Channels
TeamsFAQBotIntegration - Channels
Web App Bot
Search (Ctrl+/)
Access control (IAM)
Tags
Bot management
Build
Test in Web Chat
Analytics
Channels
Settings
Speech priming
Bot Service pricing
App Service Settings
Application Settings
All App service settings
Configure MSTeams
Terms of Service
The Online Services Terms do not apply to publication on channels. For example, terms for publication on Microsoft channels do not offer data processing terms.
I agree to the Microsoft Channel Publication Terms and the Microsoft Privacy Statements for my deployment to the Microsoft Teams channel.
Cancel
Agree
Your bot is no
Want to Subm
Learn how


Microsoft Azure
Search resources, services, and docs
Create a resource
All services
FAVORITES
Dashboard
Resource groups
All resources
Recent
App Services
Virtual machines (classic)
Virtual machines
Cloud services (classic)
Security Center
Subscriptions
Azure Active Directory
Monitor
Cost Management + Bill...
Help + support
Advisor
Home > TeamsFAQBotIntegration - Channels
TeamsFAQBotIntegration - Channels
Web App Bot
Search (Ctrl+/)
Access control (IAM)
Tags
Bot management
Build
Test in Web Chat
Analytics
Channels
Settings
Speech priming
Bot Service pricing
App Service Settings
Application Settings
All App service settings
Support + troubleshooting
Configure MSTeams
Please wait...
Your bot is now configured for MSTeams
Want to Submit your MSTeams bot to Office Store?
Learn how
Done



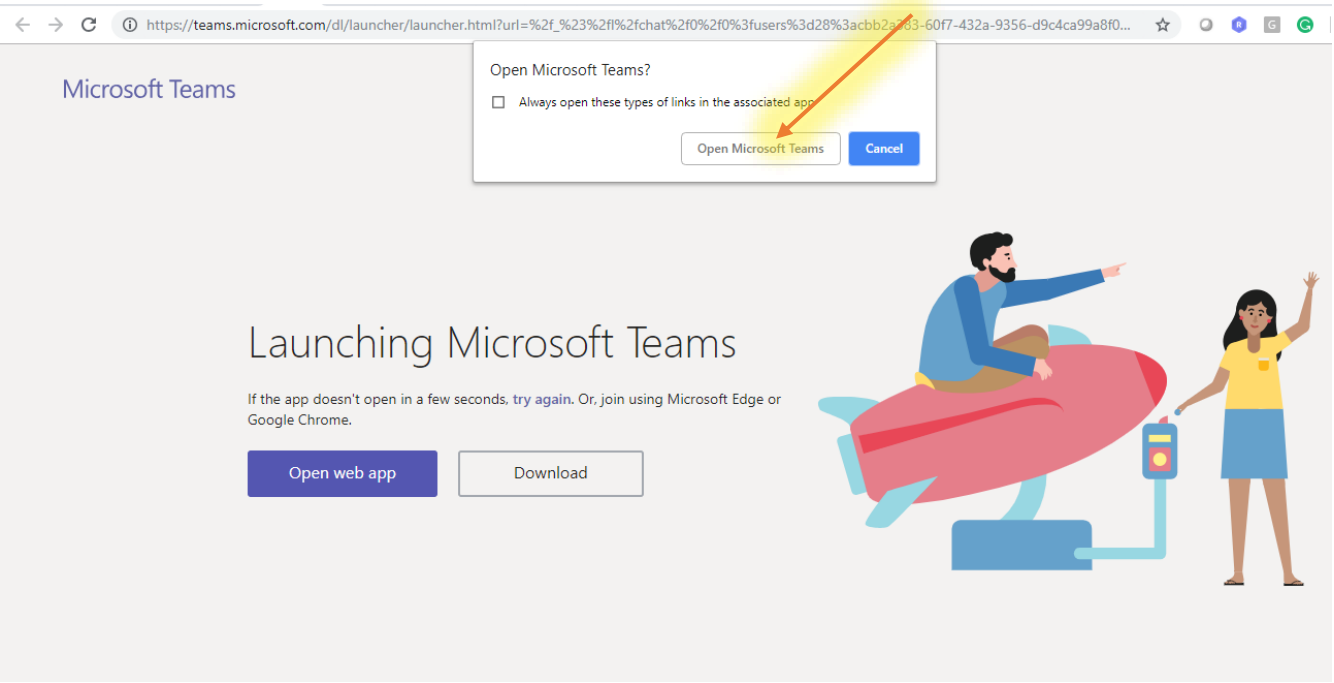
Now you can find the Teams channel added under Channels list

2. Click Settings Tab and Upload Icon for Bot

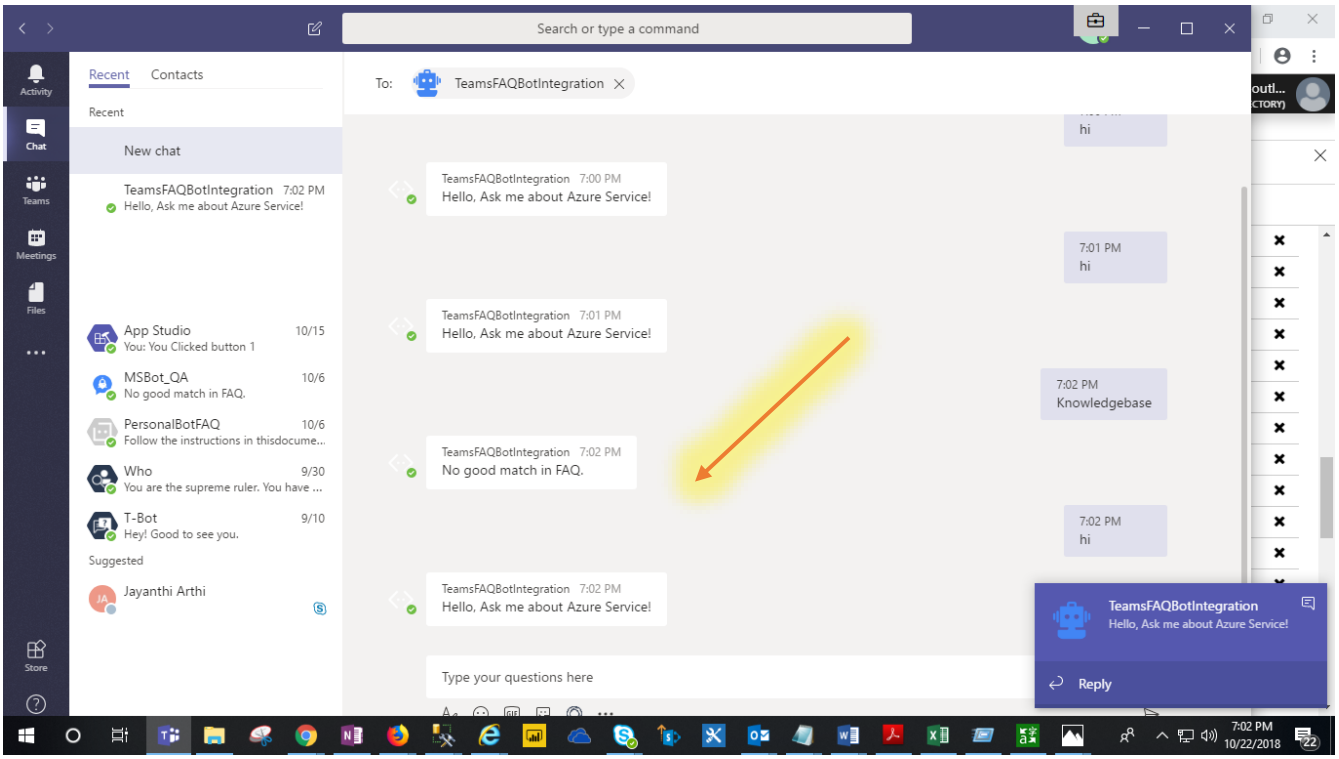


3. Now click the Microsoft Teams Text.

This will open a new tab asking you to open the bot in Microsoft Teams. Depending on the browser being used the dialogue may be different. If using Chrome select 'Open Microsoft Teams'. The bot will then open in MS Teams.



Now try and type something else and see what the response is



11. Conclusion

Hopefully this provides enough information in a clear and concise way to create a Bot and surfacing the Bot in Microsoft Teams.

The one key point from using the QnA bots service is the more time you spend in the test and knowledge base sections the more reliable the answer would be.

For more information on the QnA Maker visit:

https://docs.microsoft.com/en-us/azure/cognitive-services/qnamaker/overview/overview