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Create an Azure Web App with Azure Resource Manager Templates

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Introduction



• [Introduction](#)

Introduction

When creating a resource in Azure, you have two options: manually click buttons or automate the creation. Automating the resources and services to deploy is, of

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to scale and can be used throughout teams as well as departments. When thinking about infrastructure and Azure resource automation, the best player in the game is Infrastructure-as-Code ([IaS](#)), which codifies the way you create infrastructure-related resources.

Azure Resource Manager ([ARM](#)) is the native Infrastructure-as-Code language created by Microsoft. ARM templates are written in a JSON-like format and provide the ability to create Azure resources based on API calls to Azure.

In this guide you will learn how to create an Azure web app using ARM templates. Learning how to deploy web apps with ARM will allow you to completely revamp and scale the way you are using serverless in Azure.

Prerequisites

To follow along with this guide, you should have:

- An Azure subscription. If you don't have one, you can create a 30-day free trial [here](#).
- A text editor, preferably Visual Studio (VS) Community Edition, which you can find [here](#).

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Creating the ARM Template Project in Visual Studio

Figuring out which solution to use to deploy code can be cumbersome.

Although many methods are straight-forward, there are just so many. How do you know which one to choose?

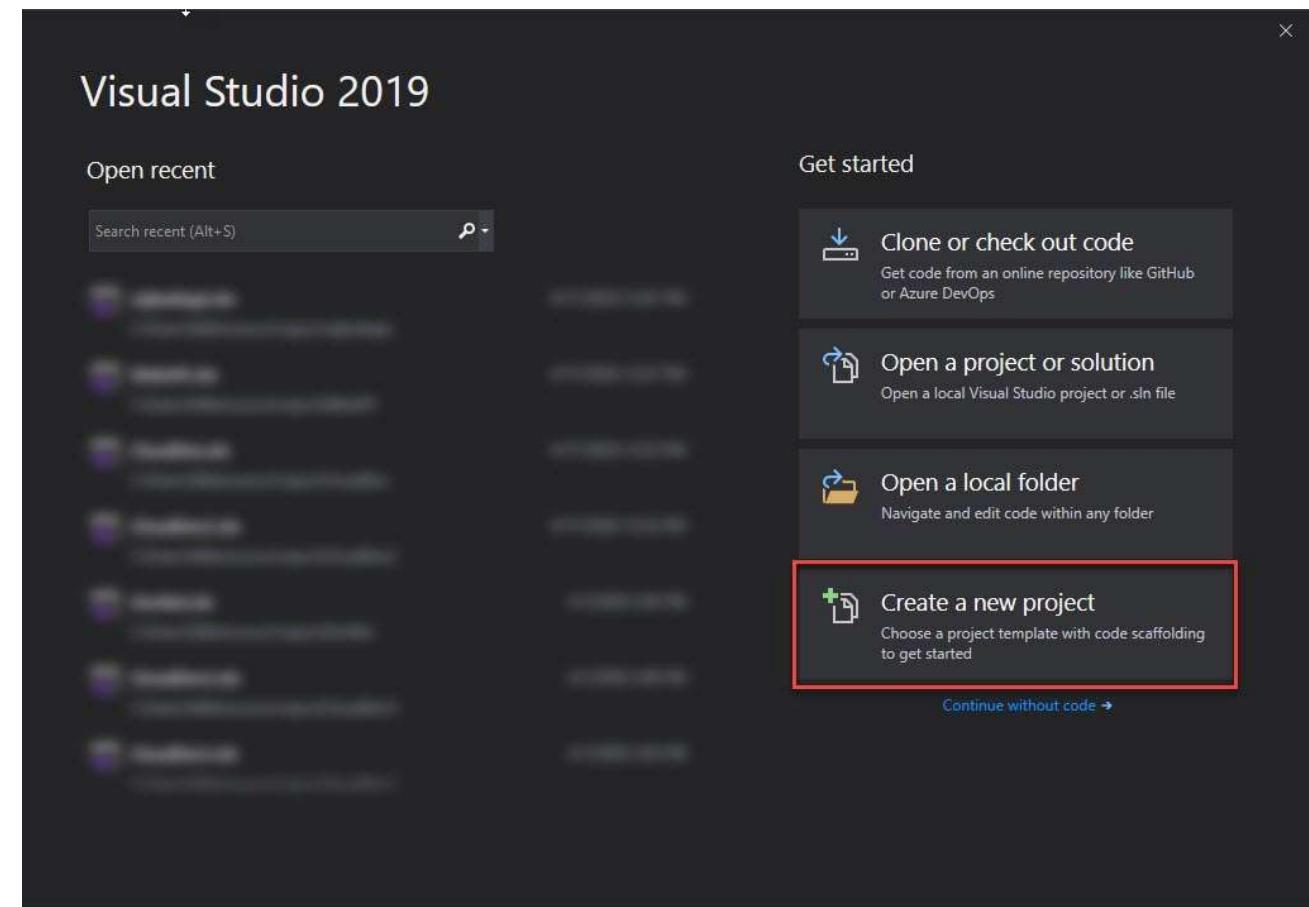
When deploying an ARM template, one of the easiest and most efficient ways is deploying via Visual Studio. Visual Studio has ARM templates built in that you can deploy by simply right-clicking the project and choosing deploy.

Open Visual Studio and create a new project for the ARM template to be created in.

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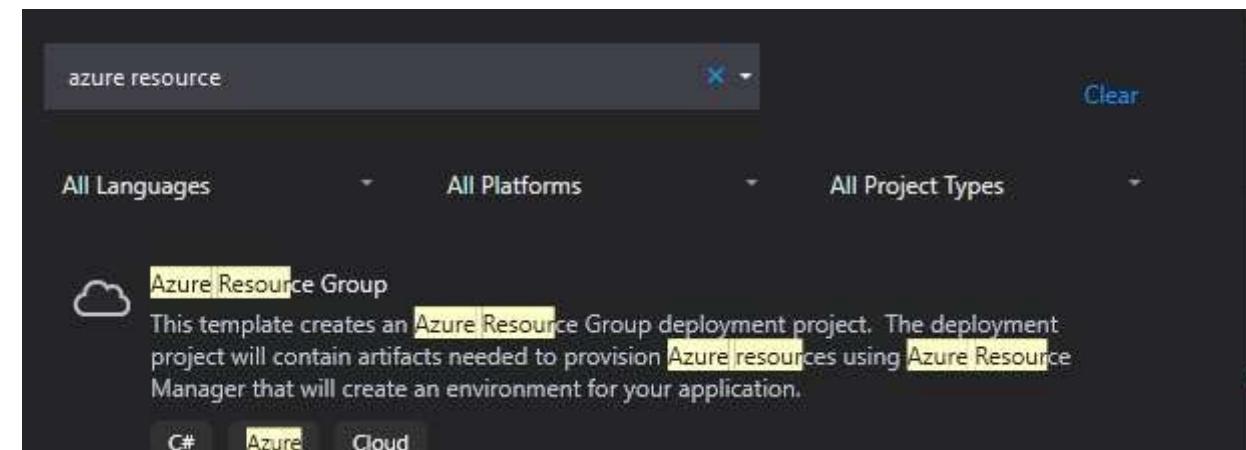


Under **project templates**, look for **Azure Resource Group**, which are templates for interacting with Azure from Visual Studio Code.

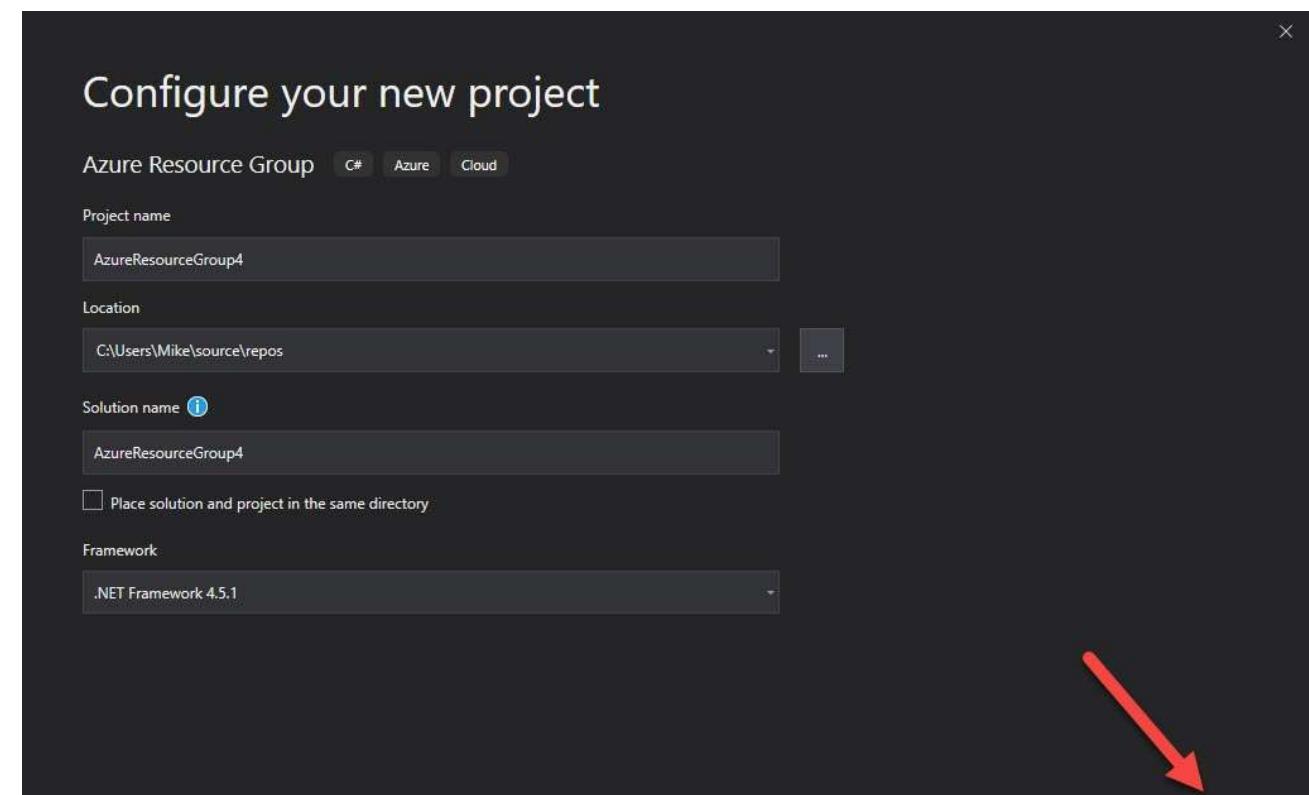
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Give the project a name and click the **Create** button.

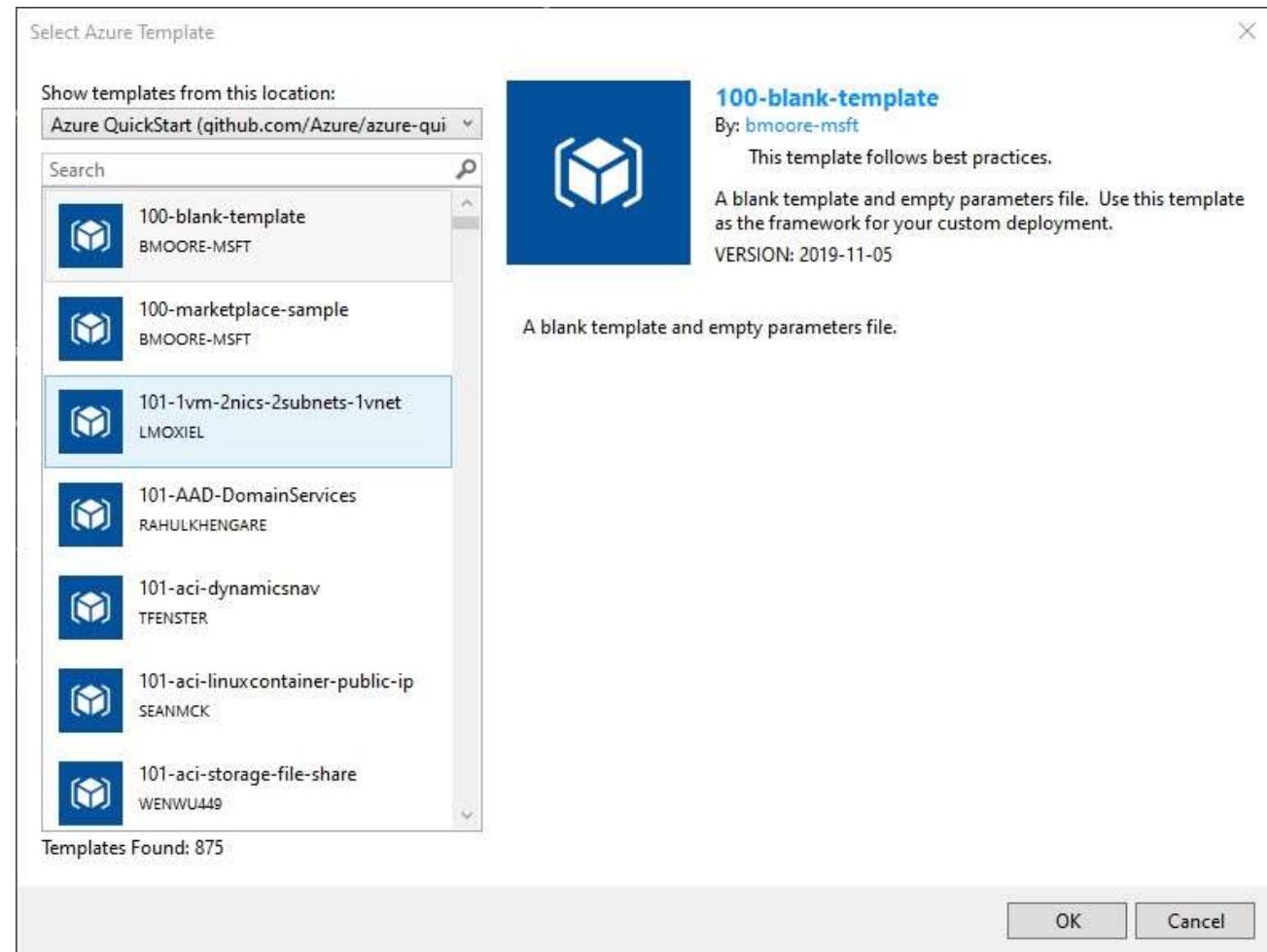


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After clicking the create button, there will be a **Select Azure Template** screenshot that comes up with pre-made ARM templates called QuickStart Templates.

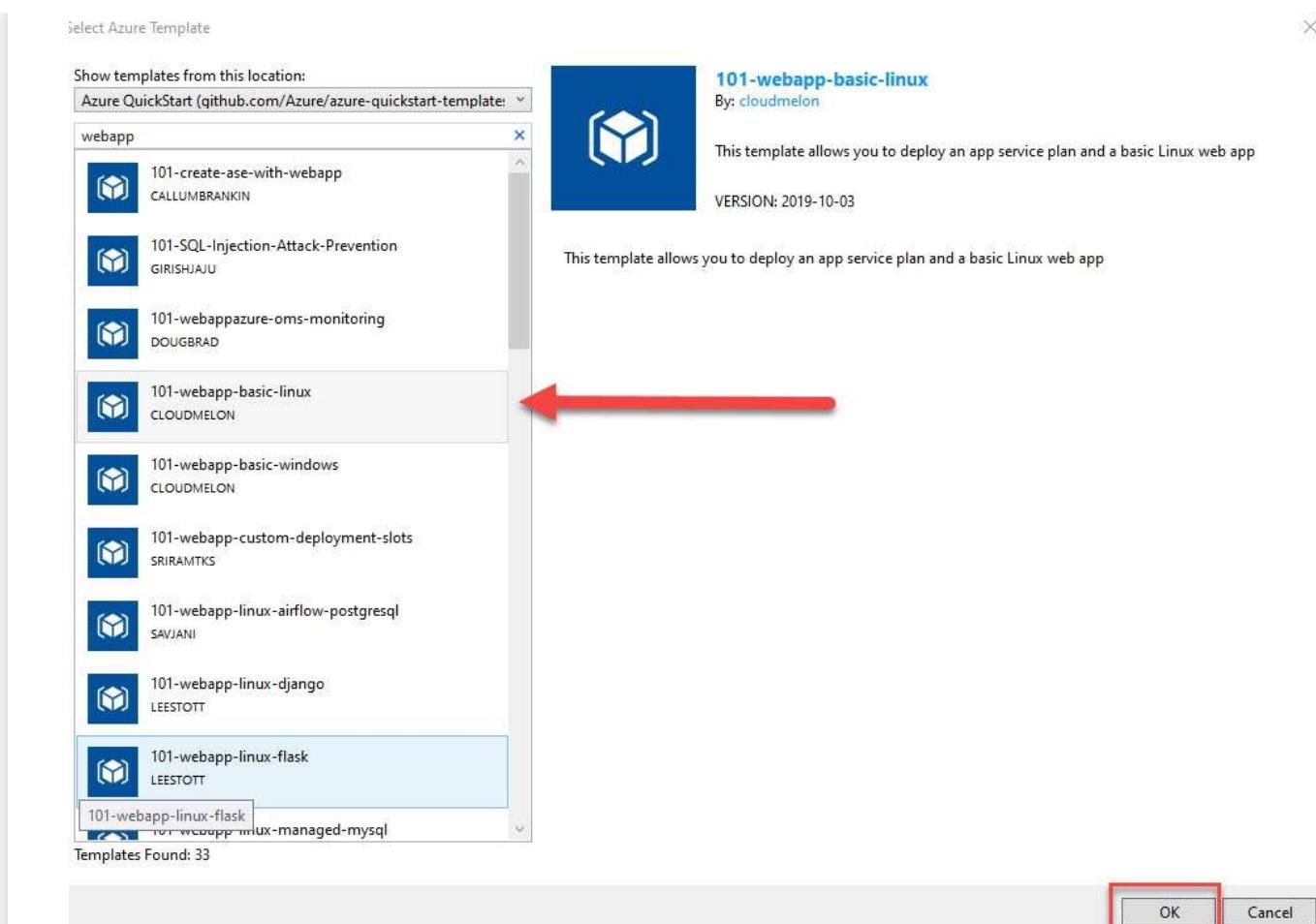


In the **Search** bar, type **webapp**. The webapp template you will want to choose is **101-webapp-basic-linux**, which will create a basic web app template. After

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The solution will now open in Visual Studio. You will see a few configurations in the **Solution Explorer**. Open up the `azuredeploy.json` as shown in the screenshot below.

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```
azureddeploy.json
Schema: https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#
```

```
19   },
20   "linuxFxVersion": {
21     "type": "string",
22     "defaultValue": "php|7.0",
23     "metadata": {
24       "description": "The Runtime stack of current web app"
25     }
26   },
27   "location": {
28     "type": "string",
29     "defaultValue": "[resourceGroup().location]",
30     "metadata": {
31       "description": "Location for all resources."
32     }
33   },
34 },
35 "variables": {
36   "webAppPortalName": "[concat(parameters('webAppName'), '-webapp')]",
37   "appServicePlanName": "[concat('AppServicePlan-', parameters('webAppName'))]"
38 },
39 "resources": [
40   {
41     "type": "Microsoft.Web/serverfarms",
42     "apiVersion": "2018-02-01",
43     "name": "[variables('appServicePlanName')]",
44     "location": "[parameters('location')]",
45     "sku": {
46       "name": "[parameters('sku')]"
47     },
48     "kind": "linux",
49     "properties": {
50       "reserved": true
51     }
52   },
53   {
54     "type": "Microsoft.Web/sites",
55     "apiVersion": "2018-11-01",
56     "name": "[variables('webAppPortalName')]",
57     "location": "[parameters('location')]",
58     "kind": "app",
59     "dependsOn": [
60       "[ resourceId('Microsoft.Web/serverfarms', variables('appServicePlanName'))]"
61     ],
62     "properties": {
63       "serverFarmId": "[ resourceId('Microsoft.Web/serverfarms', variables('appServicePlanName'))]",
64       "siteConfig": {
65         "linuxFxVersion": "[parameters('linuxFxVersion')]"
66       }
67     }
68   }
69 ]
```

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The `azuredeploy.json` configuration is what holds the deployment instructions for the Azure Web App, specifically, the code below which is the API call to Azure App Services. Sometimes the `azuredeploy.json` template is also referred to as the *main template*.

```
1  {
2      "type": "Microsoft.Web/sites",
3      "apiVersion": "2018-11-01",
4      "name": "[variables('webAppPortalName')]",
5      "location": "[parameters('location')]",
6      "kind": "app",
7      "dependsOn": [
8          "[resourceId('Microsoft.Web/serverfarms', variables('appServicePlanName'))]"
9      ],
10     "properties": {
11         "serverFarmId": "[resourceId('Microsoft.Web/serverfarms', variables('appServicePlanName'))]",
12         "siteConfig": {
13             "linuxFxVersion": "[parameters('linuxFxVersion')]"
14         }
15     }
16 }
```

Deploying the ARM Template in Visual Studio

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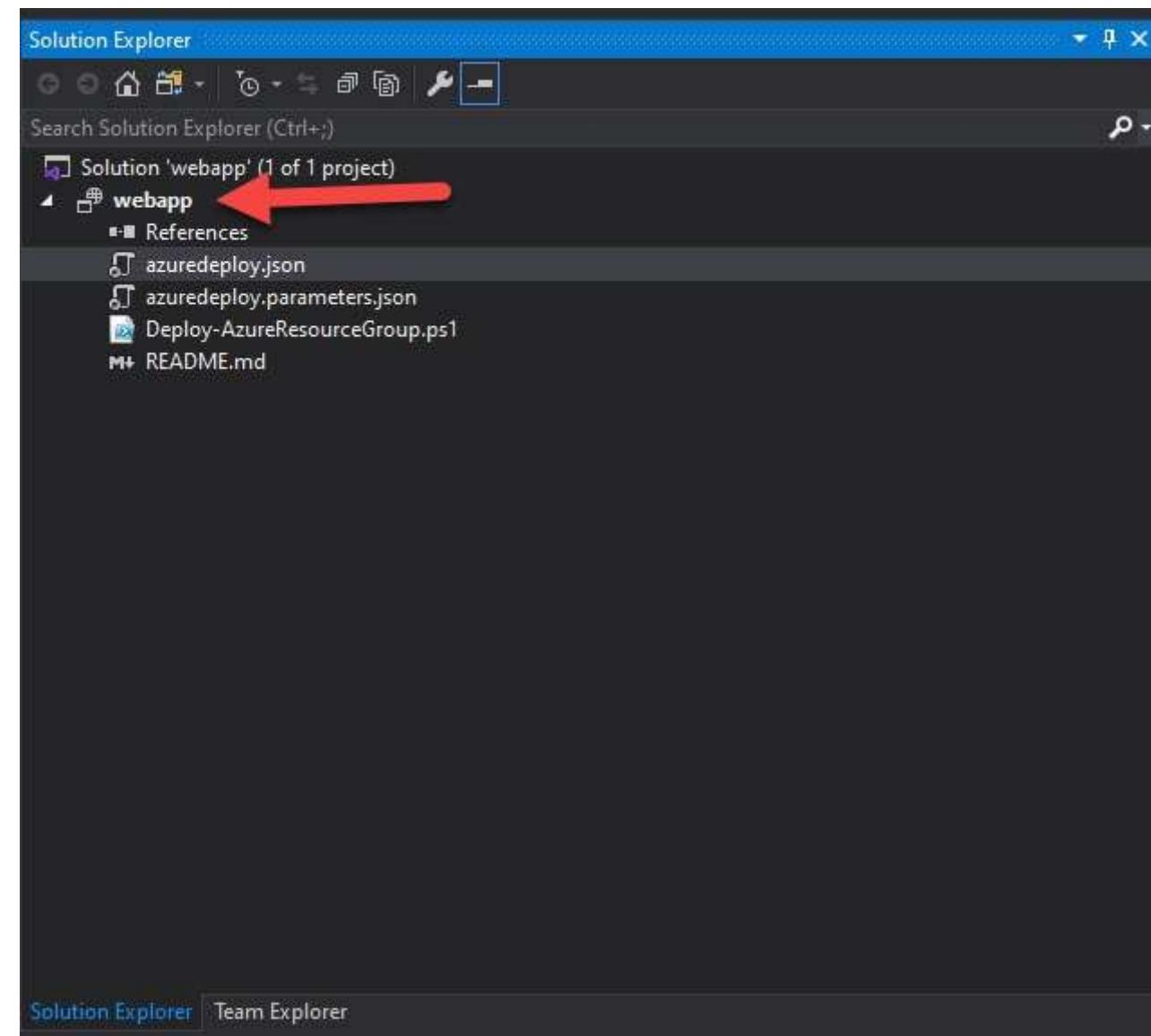
In the previous section you learned how to create an ARM template using the Azure QuickStart templates in Visual Studio. Using the QuickStart templates allows you to have a ready-to-go ARM configuration that you can modify if needed, but you don't have to write it from scratch.

To deploy the ARM template, within Visual Studio, right click on the project name. In the screenshot below, the project name is **webapp**.

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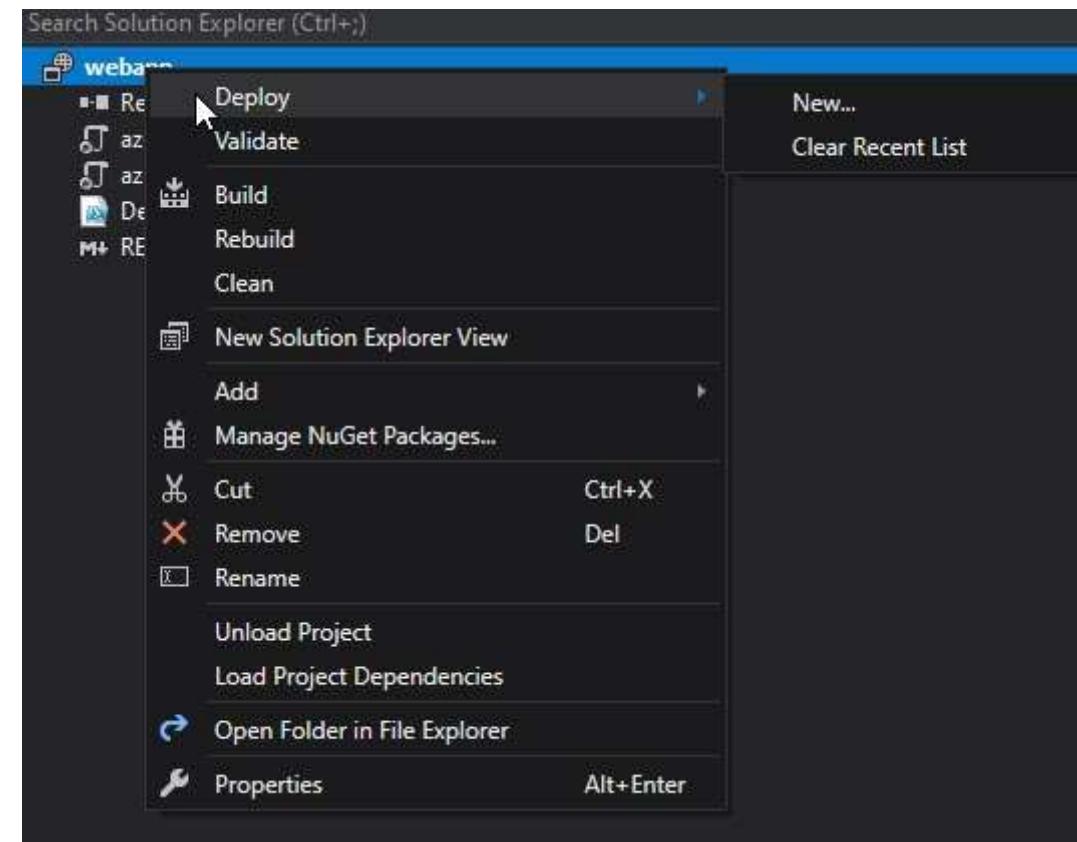


Choose **Deploy → New** to deploy the Azure Web App to Azure.

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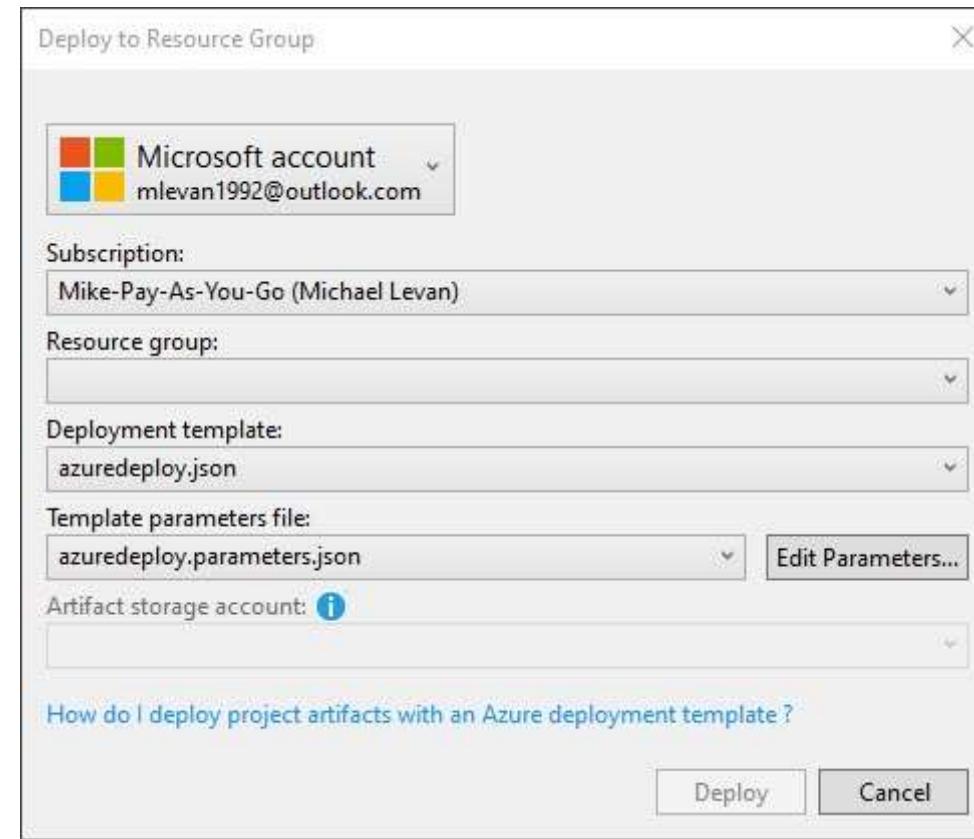


You will be presented with the **Deploy to Resource Group** screen. Choose the appropriate subscription and resource group, and click the grey **Deploy** button.

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After clicking **deploy**, you will see output similar to the screenshot below stating that the deployment is underway.

```
Output
Show output from: Dev10
14:58:16 - The following parameter values will be used for this operation:
14:58:16 - webAppName: AzureLinuxApp
14:58:16 - sku: S1
14:58:16 - linuxFxVersion: php7.0
14:58:16 - location: [resourceGroup()].location
14:58:16 - Build started.
14:58:16 - "webapp.deployproj": ($skipArtifacts target(s));
14:58:16 - Project "webapp.deployproj" (ContentFiles\ProjectOutputGroup target(s));
14:58:16 - Done building project "webapp.deployproj".
14:58:16 - Done building project "webapp.deployproj".
14:58:16 - Build succeeded.
14:58:17 - Launching PowerShell script with the following command:
14:58:17 - "C:\Users\Mike\source\repos\webapp\webapp\bin\Debug\staging\webapp\Deploy-AzureResourceGroup.ps1" -StorageAccountName '' -ResourceGroupName 'Dev10' -ResourceGroupLocation 'eastus2' -TemplateFile 'C:\Users\Mike\source\repos\webapp\webapp\bin\Debug\staging\webapp\Deploy-AzureResourceGroup.ps1'
14:58:20 -
14:58:20 - Account :
14:58:20 - SubscriptionName : Mike-Pay-As-You-Go
14:58:20 - SubscriptionId :
14:58:20 - TenantId :
14:58:20 - Environment : AzureCloud
14:58:20 -
14:58:22 - VERBOSE: Performing the operation "Creating Deployment" on target "Dev10".
```

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Confirming the Deployment in Azure

Now that the Azure web app is deployed, it's time to confirm the successful deployment by logging into the Azure web portal and going to the **App Services** blade.

Open up a web browser and go to the [App Services](#).

As shown in the screenshot below, the new web app has been created.

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The screenshot shows the Azure App Services blade in the portal. At the top, there are buttons for 'Add', 'Manage view', 'Refresh', 'Export to CSV', 'Assign tags', 'Start', 'Restart', and 'Stop'. Below these are filters for 'Subscription == all', 'Resource group == all', 'Location == all', and a dropdown for 'Advanced search'. A search bar says 'Filter by name...'. The main area displays the message 'Showing 1 to 1 of 1 records.' followed by a table with one row. The row contains a checkbox, the name 'mjillinuxapp-webapp', and a small blue circular icon.

Conclusion

In this guide you took a hands-on approach at deploying an Azure web app. You first learned how to create the app by using the Azure QuickStart templates in Visual Studio. After the QuickStart template was selected, you took a look at the Azure Resource Manager code and saw the API that creates the Azure web app. After you created the ARM template and took a look at the code, you deployed the Azure web app from Visual Studio. After the web app was deployed and you saw the successful output from Visual Studio, you confirmed the web app was created by logging into the Azure web portal and going to the App Services

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