

# Quarkus - Azure Functions (Serverless) with RESTEasy, Undertow, or Vert.x Web

The `quarkus-azure-functions-http` extension allows you to write microservices with RESTEasy (JAX-RS), Undertow (servlet), or Vert.x Web and make these microservices deployable to the Azure Functions runtime.

One azure function deployment can represent any number of JAX-RS, servlet, or Vert.x Web endpoints.



This technology is considered preview.

In *preview*, backward compatibility and presence in the ecosystem is not guaranteed. Specific improvements might require to change configuration or APIs and plans to become *stable* are under way. Feedback is welcome on our [mailing list](#) or as issues in our [GitHub issue tracker](#).

For a full list of possible extension statuses, check our [FAQ entry](#).

## Prerequisites

To complete this guide, you need:

- less than 15 minutes
- JDK 1.8 (Azure requires JDK 1.8)
- Apache Maven 3.6.3
- [An Azure Account](#). Free accounts work.
- [Azure CLI Installed](#)

## Solution

This guide walks you through running a Maven Archetype to generate a sample project that contains three http endpoints written with JAX-RS APIs, Servlet APIs, and Vert.x Web APIs. After building, you will then be able to deploy to Azure.

## Creating the Maven Deployment Project

Create the azure maven project for your Quarkus application using our Maven Archetype.

```
mvn archetype:generate \  
  -DarchetypeGroupId=io.quarkus \  
  -DarchetypeArtifactId=quarkus-azure-functions-http-archetype \  
  -DarchetypeVersion=1.3.1.Final
```

Running this command will run maven in interactive mode and it will ask you to fill in some build properties:

- **groupId** - The maven groupId of this generated project. Type in **org.acme**.
- **artifactId** - The maven artifactId of this generated project. Type in **quarkus-demo**
- **version** - Version of this generated project.
- **package** - defaults to **groupId**
- **appName** - Use the default value. This is the application name in Azure. It must be a unique subdomain name under **\*.azurewebsites.net**. Otherwise deploying to Azure will fail.
- **appRegion** - Defaults to **westus**. Dependent on your azure region.
- **function** - Use the default which is **quarkus**. Name of your azure function. Can be anything you want.
- **resourceGroup** - Use the default value. Any value is fine though.

The values above are defined as properties in the generated **pom.xml** file.

## Login to Azure

If you don't login to Azure you won't be able to deploy.

```
az login
```

## Build and Deploy to Azure

The **pom.xml** you generated in the previous step pulls in the **azure-functions-maven-plugin**. Running **maven install** generates config files and a staging directory required by the **azure-functions-maven-plugin**. Here's how to execute it.

```
./mvnw clean install azure-functions:deploy
```

If you haven't already created your function up at azure, the will build an uber-jar, package it, create the function at Azure, and deploy it.

If deployment is a success, the azure plugin will tell you the base URL to access your function.

i.e.

```
Successfully deployed the artifact to https://quarkus-demo-123451234.azurewebsites.net
```

The URL to access the service would be

<https://{appName}.azurewebsites.net/api/hello> <https://{appName}.azurewebsites.net/api/servlet/hello> <https://{appName}.azurewebsites.net/api/vertx/hello>

## Extension maven dependencies

The sample project includes the RESTEasy, Undertow, and Vert.x Web extensions. If you are only using one of those APIs (i.e. jax-rs only), respectively remove the maven dependency `quarkus-resteasy`, `quarkus-undertow`, and/or `quarkus-vertx-web`.

You must include the `quarkus-azure-functions-http` extension as this is a generic bridge between the Azure Functions runtime and the HTTP framework you are writing your microservices in.

## Azure Deployment Descriptors

Templates for Azure Functions deployment descriptors (`host.json`, `function.json`) are within the `azure-config` directory. Edit them as you need to. Rerun the build when you are ready.

**NOTE:** If you change the `function.json path` attribute or if you add a `routePrefix`, your jax-rs endpoints won't route correctly. See [Configuring Root Paths](#) for more information.

## Configuring Root Paths

The default route prefix for an Azure Function is `/api`. All of your JAX-RS, Servlet, and Vert.x Web endpoints must explicitly take this into account.

If you modify the `path` or add a `routePrefix` within the `azure-config/function.json` deployment descriptor, your code must also reflect any prefixes you specify for your path.