



# ARM Templates

A how to on deploying them

**Portiva.**

# About me

**Hallo!**

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# Agenda

## Azure ARM Templates - Sharing & Sushi

- ARM Templates
- Deployment mogelijkheden
- Vragen

# ARM Templates

## Azure Resource Manager

Infrastructure as Code (IaC)

- ARM Templates zijn JSON files
  - ARM Template
  - Parameters file (optioneel)
- Waarom?
  - Terugkerende deployments
  - Documentatie
  - Updates aan bestaande resources

Voorbeeld: website gehost op Azure uitrollen

# ARM Template

Een voorbeeld

```
{
  "$schema": "https://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
  "contentVersion": "1.0.0.0",
  "parameters": {
    "webAppName": {
      "type": "string",
      "metadata": {
        "description": "Base name of the resource such as web app name and app service plan "
      },
      "minLength": 2
    }
  },
  "variables": {
    "sku": "S1",
    "location": "[resourceGroup().location]",
    "webAppPortalName": "[concat(parameters('webAppName'), '-webapp-', uniqueString(resourceGroup().id))]",
    "appServicePlanName": "[concat('AppServicePlan-', parameters('webAppName'))]"
  },
  "resources": [
    {
      "apiVersion": "2017-08-01",
      "type": "Microsoft.Web/serverfarms",
      "kind": "app",
      "name": "[variables('appServicePlanName')]",
      "location": "[parameters('location')]",
      "properties": {},
      "dependsOn": [],
      "sku": {
        "name": "[variables('sku')]"
      }
    },
    {
      "apiVersion": "2016-08-01",
      "type": "Microsoft.Web/sites",
      "kind": "app",
      "name": "[variables('webAppPortalName')]",
      "location": "[variables('location')]",
      "properties": {
        "serverFarmId": "[resourceId('Microsoft.Web/serverfarms', variables('appServicePlanName'))]"
      },
      "dependsOn": [
        "[resourceId('Microsoft.Web/serverfarms', variables('appServicePlanName'))]"
      ]
    }
  ]
}
```

# ARM Template Parameter File

Een voorbeeld

```
{  
  "$schema": "https://schema.management.azure.com/schemas/2015-01-01/deploymentPa  
  "contentVersion": "1.0.0.0",  
  "parameters": {  
    "webAppName": {  
      "value": "SharingSushi"  
    }  
  }  
}
```

# ARM Templates

## Waar kan ik een goed template vinden?

- Via het Azure Portaal (Automation Options)
- GitHub en andere sites
  - <https://github.com/Azure/azure-quickstart-templates>
  - <https://azure.microsoft.com/en-us/resources/templates>
- Zelf bouwen

# Deployment mogelijkheden

**Welke opties heb ik om een template uit te rollen?**

Opties:

- Azure Portal
- PowerShell
- Command Line Interface – CLI
- Azure DevOps (en andere tools)
- Rest API

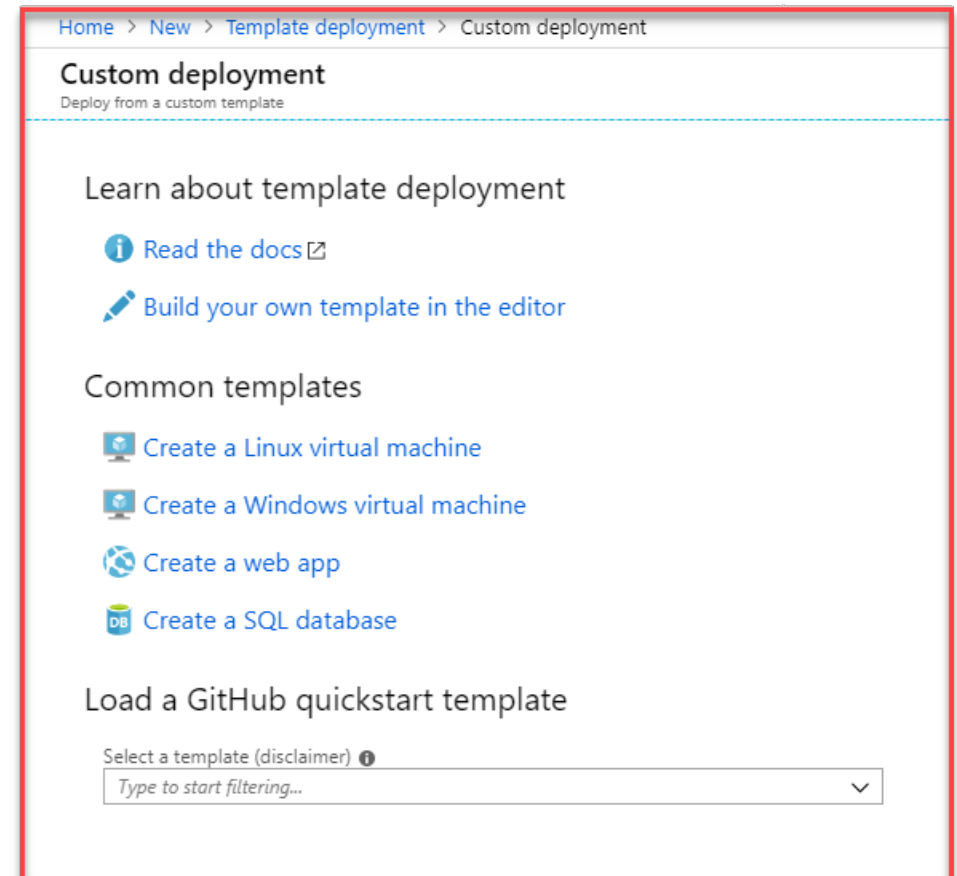
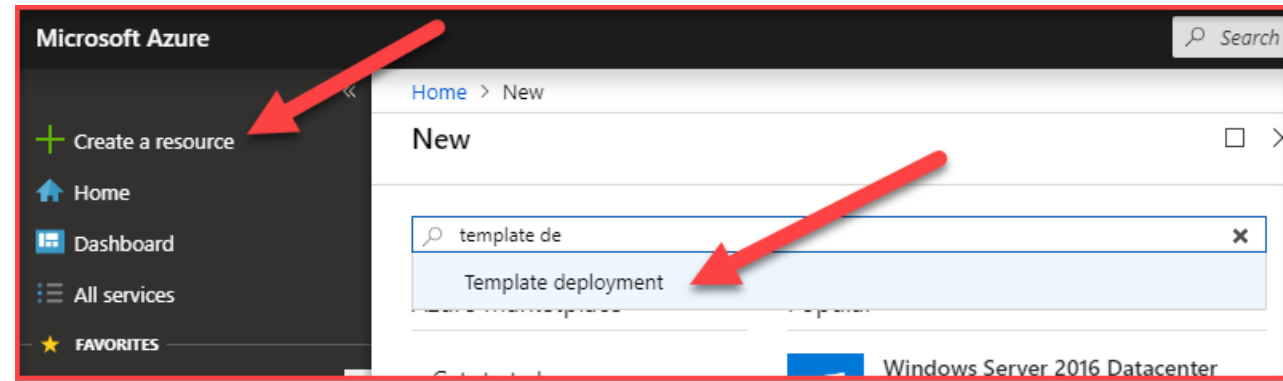
Benodigheden:

- Azure Subscription
- Resource Group (Location)



# Azure Portal

## Template Deployment



# Azure Portal

## Templates (preview)

The screenshot displays the Azure Portal interface for the 'Templates (preview)' feature. The left sidebar shows navigation options like 'Create a resource', 'Home', 'Dashboard', and 'All services'. The main area shows a search bar with 'templates' entered and a list of services, with 'Templates' selected. The right pane shows the details for a specific template named 'webapptemplate', including its description, publisher, and modification date. Red arrows point to the 'Create a resource' button, the search bar, the 'Templates' category, the 'Add' button, the 'webapptemplate' entry in the list, and the 'Edit' button in the details pane.

Microsoft Azure

Search resources, services, and d

All services templates

Everything Templates PREVIEW

General

Compute

Home > Templates > webapptemplate > View Template

Templates Portiva - PREVIEW

webapptemplate Template - PREVIEW

+ Add Edit columns More

Filter by Name...

NAME

webapptemplate

Deploy Edit More

Description

Webapp Template deployed from Azure Portal

Publisher

jscipio@portiva.nl

Modified

3/27/2019

View Template

# PowerShell

## PowerShell AZ module

```
#Login to Azure
Login-AzAccount

#Variables
$resourceGroupName = 'SharingSushiRG'
$resourceGroupLocation = 'West Europe'

#Create a new Resource Group
$resourceGroupName = New-AzResourceGroup -Name $resourceGroupName -Location $resourceGroupLocation

#Test the template (without error)
Test-AzResourceGroupDeployment -ResourceGroupName $resourceGroupName.ResourceGroupName `
-TemplateParameterFile "C:\TEMP\SenS\azuredeploy.parameters.json" `
-TemplateFile "C:\TEMP\SenS\azuredeploy.json" -Verbose

#Test the template (with error)
Test-AzResourceGroupDeployment -ResourceGroupName $resourceGroupName.ResourceGroupName `
-TemplateParameterFile "C:\TEMP\SenS\azuredeployerror.parameters.json" `
-TemplateFile "C:\TEMP\SenS\azuredeployerror.json" -Verbose

#Deploy the template from local resource
New-AzResourceGroupDeployment -Name "DemoDeployment" -ResourceGroupName $resourceGroupName `
-TemplateParameterFile "C:\TEMP\SenS\azuredeploy.parameters.json" `
-TemplateFile "C:\TEMP\SenS\azuredeploy.json"

#Deploy an update with error and rollback
New-AzResourceGroupDeployment -Name "DemoDeployment1" -ResourceGroupName $resourceGroupName `
-TemplateParameterFile "C:\TEMP\SenS\azuredeployerror.parameters.json" `
-TemplateFile "C:\TEMP\SenS\azuredeployerror.json" -RollbackToLastDeployment

#Deploy an update with error and rollback with name
New-AzResourceGroupDeployment -Name "DemoDeployment2" -ResourceGroupName $resourceGroupName `
-TemplateParameterFile "C:\TEMP\SenS\azuredeployerror.parameters.json" `
-TemplateFile "C:\TEMP\SenS\azuredeployerror.json" -RollbackDeploymentName "DemoDeployment"

#Deploy the template from remote resource (without parameters file)
New-AzResourceGroupDeployment -ResourceGroupName $resourceGroupName.ResourceGroupName `
-TemplateUri https://raw.githubusercontent.com/Azure/azure-quickstart-templates/master/azuredeploy.json `
-TemplateParameterUri https://raw.githubusercontent.com/Azure/azure-quickstart-templates/master/azuredeploy.parameters.json
```

# Demo

PowerShell

# CLI

## Command Line Interface

```
#Login to Azure
az login

#Create a Resource Group
az group create --name DemoCLI --location "West Europe"

#Local Deploy with CLI
az group deployment create --name DemoCLIDeployment --resource-group DemoCLI `
--template-file C:\TEMP\SenS\azuredeploy.json `
--parameters @C:\TEMP\SenS\azuredeploy.parameters.json `
--parameters webAppName=DemoLocalWebApp --rollback-on-error

#Remote Deploy with CLI
az group deployment create --name DemoCLIDeploymentRemote --resource-group DemoCLI `
--template-uri "https://raw.githubusercontent.com/Azure/azure-quickstart-templates/main/`
--parameters webAppName=DemoRemoteWebApp
```

# Azure DevOps

## Continues Integration (CI)

Search all pipelines

ARM WebApp Deployment ☆

Site Deployment Production

### ARM WebApp Deployment

Releases Deployments Analytics

Releases	Created	Stages
Release-15 9396f210b  master	2019-04-05 14:15	
Release-13 9396f210b  master	2019-04-04 14:15	

# Azure DevOps

## Continues Integration (CI)

ARM WebApp Deployment > Release-15 ▾

Pipeline Variables History | + Deploy ▾ ⌛ Cancel ↻ Refresh ✎ Edit ▾ ...

### Release

Scheduled trigger  
4/5/2019, 2:15 PM

Artifacts

\_scipiojeroen\_sharingsu...  
9396f210b  
master

### Stages

- WebApp Deployment  
✔ Succeeded  
on 4/5/2019, 2:15 PM
- Site Deployment Stag  
✔ Succeeded  
on 4/7/2019, 2:48 PM
- WebApp Deployment  
✔ Succeeded  
on 4/7/2019, 2:49 PM
- Site Deployment Prod  
✔ Succeeded  
on 4/7/2019, 2:51 PM

### WebApp Deployment Staging

Deployment process

Agent job  
Run on agent

Azure Deployment:Create Or Update Resource Group acti...  
Azure Resource Group Deployment

### Template

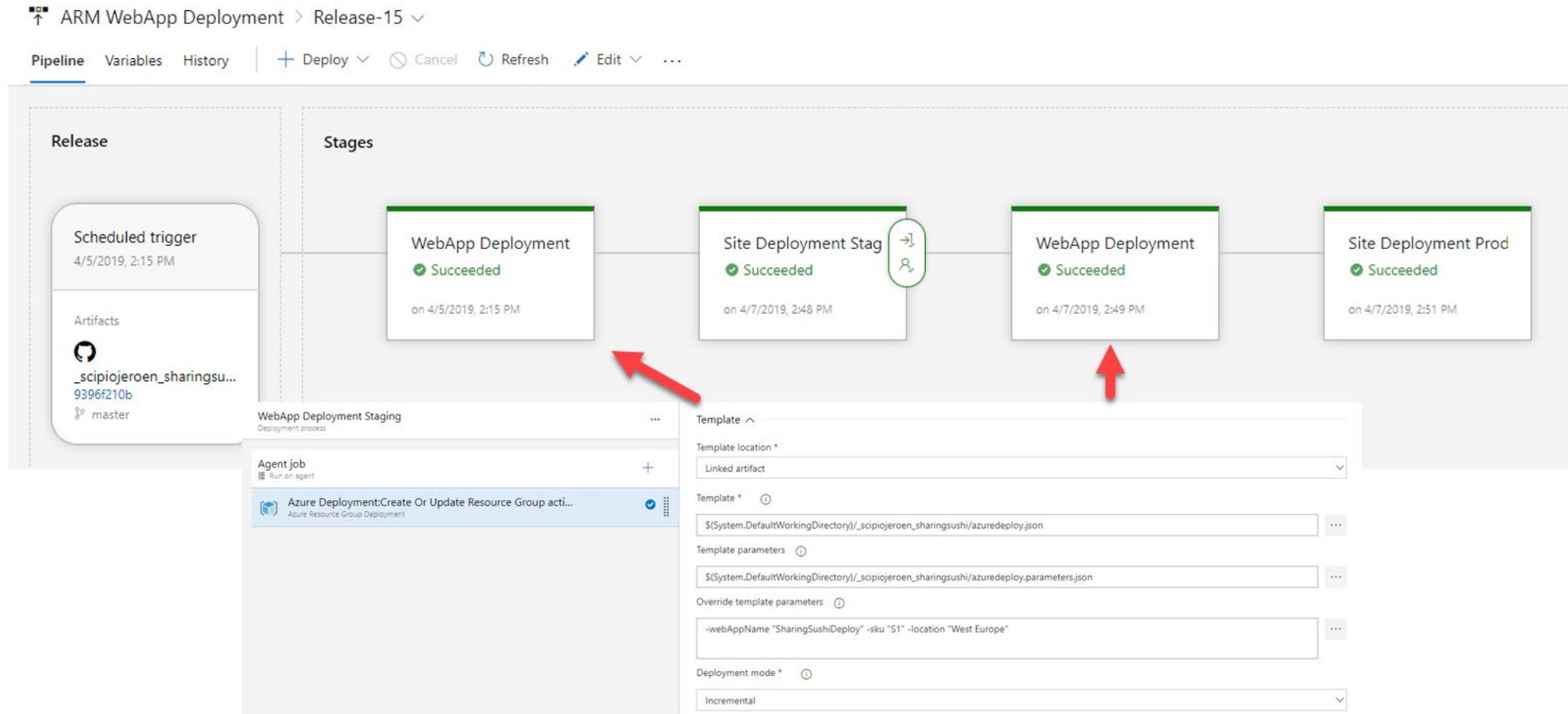
Template location \*  
Linked artifact

Template \*  
\$(System.DefaultWorkingDirectory)/\_scipiojeroen\_sharingsushi/azuredeploy.json

Template parameters ⓘ  
\$(System.DefaultWorkingDirectory)/\_scipiojeroen\_sharingsushi/azuredeploy.parameters.json

Override template parameters ⓘ  
-webAppName "SharingSushiDeploy" -sku "S1" -location "West Europe"

Deployment mode \* ⓘ  
Incremental



The screenshot displays the Azure DevOps interface for a CI pipeline. The pipeline is named 'ARM WebApp Deployment' and is currently in 'Release-15'. The pipeline consists of four stages: 'WebApp Deployment' (Succeeded, 4/5/2019, 2:15 PM), 'Site Deployment Stag' (Succeeded, 4/7/2019, 2:48 PM), 'WebApp Deployment' (Succeeded, 4/7/2019, 2:49 PM), and 'Site Deployment Prod' (Succeeded, 4/7/2019, 2:51 PM). The 'WebApp Deployment' stage on 4/7/2019 is highlighted with a red arrow. Below the pipeline, the configuration for the 'WebApp Deployment Staging' stage is shown, including the template location, template path, parameters, and deployment mode.

# Vragen

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