Packaging and Deploying SharePoint Framework Solutions

Agenda

- Creating the App Catalog Site in SharePoint Online

- Packaging SPFX Solutions for Distribution

- Publishing and Updating SPFX Solutions

- Deploying Webpart Assets in Azure Storage

Understanding the App Catalog

- App publishing scheme based on App Catalog
  - App Catalog is site collection with special doc library
  - App packages are published (uploaded) to app catalog
  - Provides better app discovery, installation and upgrade

- App Catalog in on-premises farms
  - One App Catalog site required for each web application
  - End users often play role of App Catalog administrator

- App Catalog in Office 365 & SharePoint Online
  - One App Catalog site used to manage entire tenancy

Creating the App Catalog Site Collection

- You must create the App Catalog site collection
  - You can create it by hand in SharePoint admin center
  - You can create it with PowerShell script if required

Apps for SharePoint Document Library

- Apps for SharePoint is special document library
  - It's the place where you publish SPFx solutions
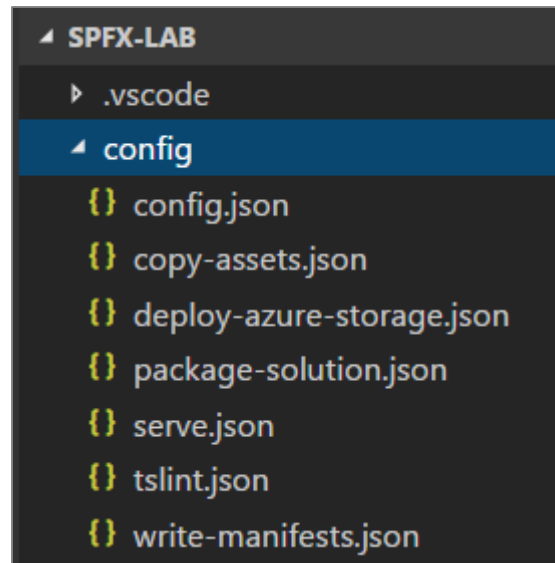 - You upload solution package and enter the related metadata
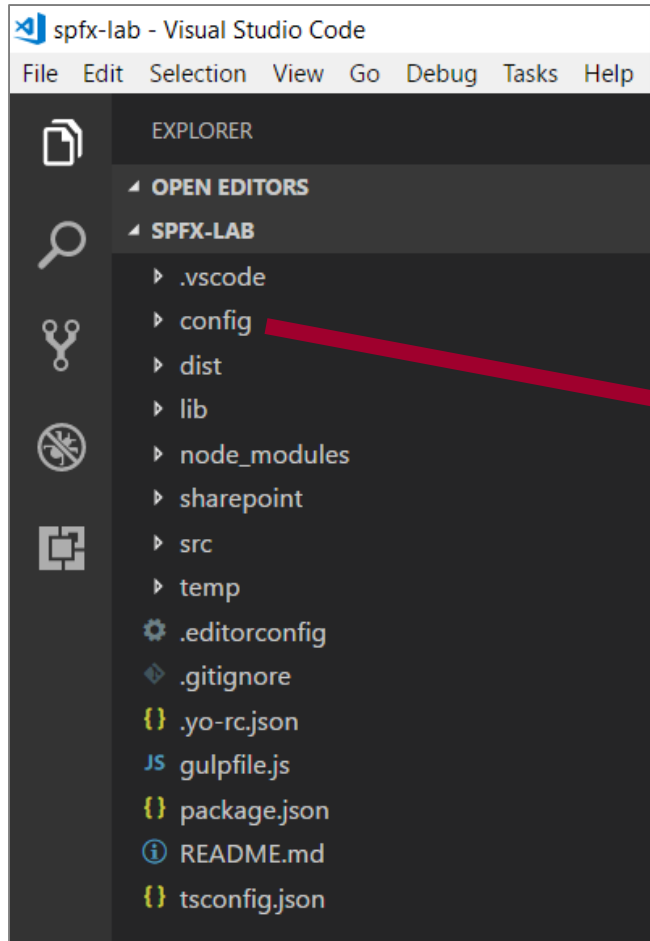
DEMO

Creating an App Catalog Site

Agenda

- ✓ Creating the App Catalog Site in SharePoint Online
- ➤ Packaging SPFX Solutions for Distribution
- • Publishing and Updating SPFX Solutions
- • Deploying Webpart Assets in Azure Storage

SPFx Project Configuration Files

package-solution.json

- package-solution.json
  - Contains top-level project properties (`id, name, version`)
    - `includeClientSideAssets`
    - `skipFeatureDeployment`
    - `zippedPackage`

```json
{} package-solution.json ●
 1  {
 2      "$schema": "https://dev.office.com/json-schemas/spfx-build/package-solution.schema.json",
 3      "solution": {
 4          "name": "SPFX Lab",
 5          "id": "aa5d865d-3cfb-4fd6-a4d4-6fc5d21dd9d7",
 6          "version": "1.0.0.0",
 7          "includeClientSideAssets": true,
 8          "skipFeatureDeployment": true
 9      },
10      "paths": {
11          "zippedPackage": "solution/spfx-lab.sppkg"
12      }
13  }
```
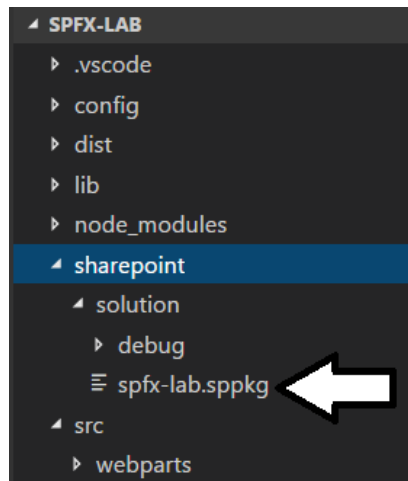
Building a SPFx Solution

- Done by executing gulp package-solution
  - Can be done with or without `--ship` parameter

```
PS C:\Demos\spfx-lab> gulp package-solution
Build target: DEBUG
[20:02:30] Using gulpfile C:\Demos\spfx-lab\gulpfile.js
[20:02:30] Starting gulp
[20:02:30] Starting 'package-solution'...
[20:02:30] Starting subtask 'configure-sp-build-rig'...
[20:02:30] Finished subtask 'configure-sp-build-rig' after 4.95 ms
[20:02:30] Starting subtask 'package-solution'...
[20:02:30] Warning - [package-solution] This is not a production build (--ship or --production)
```

  - Generates zip archive with `.sppkg` extension

Packaging a SPFx Solution for Distribution

- ## gulp bundle --ship
  - ### Uses dynamic URL for assets based on tenant CDN settings

```
PS C:\Demos\spfx-lab> gulp bundle --ship
Build target: SHIP
[20:51:24] Using gulpfile C:\Demos\spfx-lab\gulpfile.js
[20:51:24] Starting gulp
[20:51:24] Starting 'bundle'...
[20:51:24] Starting subtask 'configure-sp-build-rig'...
[20:51:24] Finished subtask 'configure-sp-build-rig' after 4.45 ms
```

- ## gulp package-solution --ship
  - ### Uses dynamic URL for assets based on tenant CDN settings

```
PS C:\Demos\spfx-lab> gulp package-solution --ship
Build target: SHIP
[20:53:42] Using gulpfile C:\Demos\spfx-lab\gulpfile.js
[20:53:42] Starting gulp
[20:53:42] Starting 'package-solution'...
[20:53:42] Starting subtask 'configure-sp-build-rig'...
[20:53:42] Finished subtask 'configure-sp-build-rig' after 5.02 ms
[20:53:42] Starting subtask 'package-solution'...
```

Inside a SPFx Solution Package

- Your .js code is included in ClientSideAssets
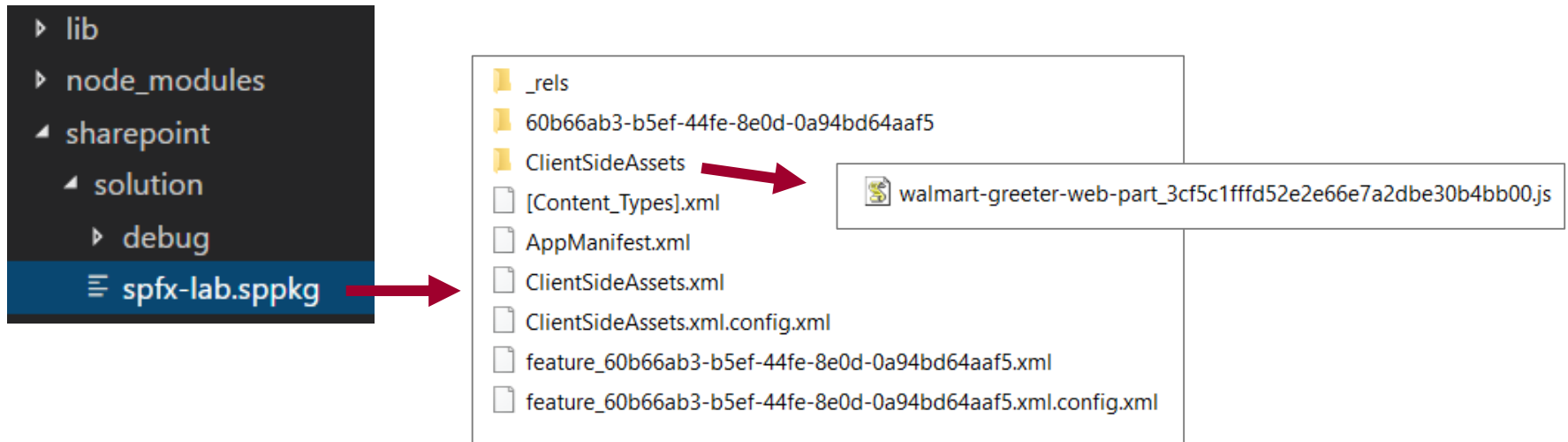
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Deploying Solution to Office 365 Tenancy

Apps for SharePoint ⓘ

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✓	🗋	Title	Name	App Version	Edit	Product ID	Metadata Language	Default Metadata Language	Modified	Enabled	Valid App Package	Deployed	Tenant Deployed
◢ **Product ID : {C6BBEB95-A296-4B4F-A96E-4C72A6177687}** (1)													
	🗋	Global Navigation	global-navigation ✳	1.0.0.0	🖉	{C6BBEB95-A296-4B4F-A96E-4C72A6177687}	English - 1033	Yes	A few seconds ago	Yes	Yes	Yes	No
◢ **Product ID : {D6C9AA37-2D69-4426-B373-7141797A3536}** (1)													
	🗋	Customer Search	customer-search ✳	1.0.0.0	🖉	{D6C9AA37-2D69-4426-B373-7141797A3536}	English - 1033	Yes	17 minutes ago	Yes	Yes	Yes	Yes

includeClientSideAssets = True
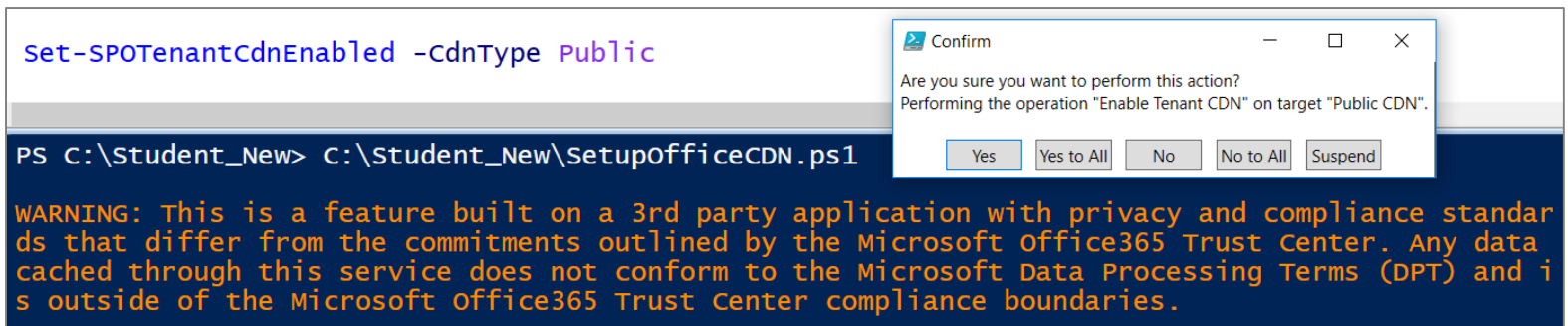
- ## If Office 365 CDN is enabled…
  - it will be used automatically with default settings.
- ## If Office 365 CDN is not enabled…
  - assets will be served from app catalog site collection.

```json
{} package-solution.json  ●
1   {
2     "$schema": "https://dev.office.com/json-schemas/spfx-build/package-solution.schema.json",
3     "solution": {
4       "name": "SPFX Lab",
5       "id": "aa5d865d-3cfb-4fd6-a4d4-6fc5d21dd9d7",
6       "version": "1.0.0.0",
7       "includeClientSideAssets": true,
8       "skipFeatureDeployment": true
9     },
10    "paths": {
11      "zippedPackage": "solution/spfx-lab.sppkg"
12    }
13  }
```

Enabling the Office 365 CDN

- Office 365 provides CDN for SPFx solution deployment
  - Office 365 CDN must be enabled using PowerShell
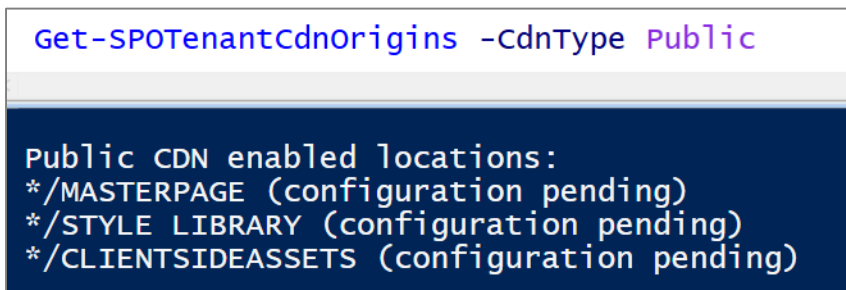
  ```
  Set-SPOTenantCdnEnabled -CdnType Public
  ```

  Confirm
  Are you sure you want to perform this action?
  Performing the operation "Enable Tenant CDN" on target "Public CDN".
  [Yes] [Yes to All] [No] [No to All] [Suspend]

  ```
  PS C:\Student_New> C:\Student_New\SetupOfficeCDN.ps1

  WARNING: This is a feature built on a 3rd party application with privacy and compliance standar
  ds that differ from the commitments outlined by the Microsoft Office365 Trust Center. Any data
  cached through this service does not conform to the Microsoft Data Processing Terms (DPT) and i
  s outside of the Microsoft Office365 Trust Center compliance boundaries.
  ```

  - Enabling CDN creates `*/CLIENTSIDEASSETS` origin

  ```
  Get-SPOTenantCdnOrigins -CdnType Public

  Public CDN enabled locations:
  */MASTERPAGE (configuration pending)
  */STYLE LIBRARY (configuration pending)
  */CLIENTSIDEASSETS (configuration pending)
  ```

  - CDN supports these file type extensions
    `CSS, EOT, GIF, ICO, JPEG, JPG, JS, MAP, PNG, SVG, TTF, WOFF`
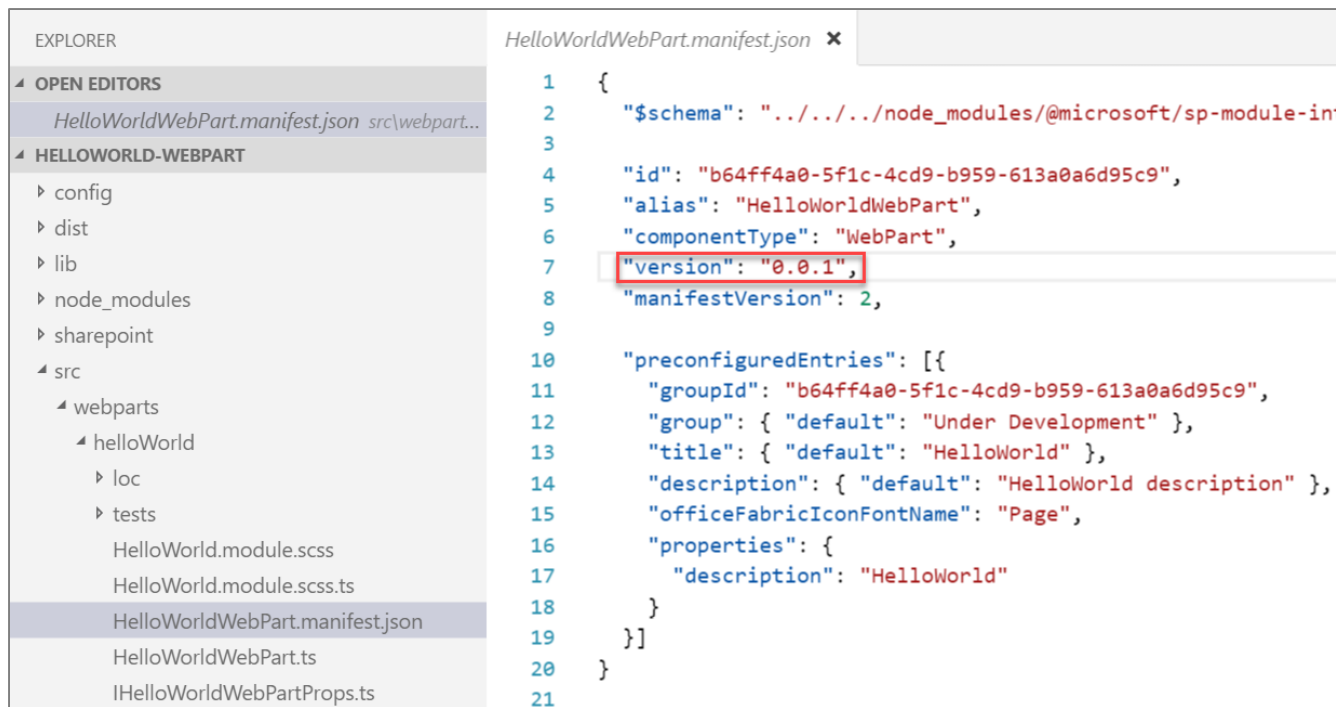
Update Webparts and Increment Version

Update the code or configuration for your web part

Increment the version in the <web part name>.manifest.json file

This sets the version for the web part

Multiple web parts in the same solution may be versioned independently

Update Version in package-solution.json

This sets the version for the .sppkg Add-in
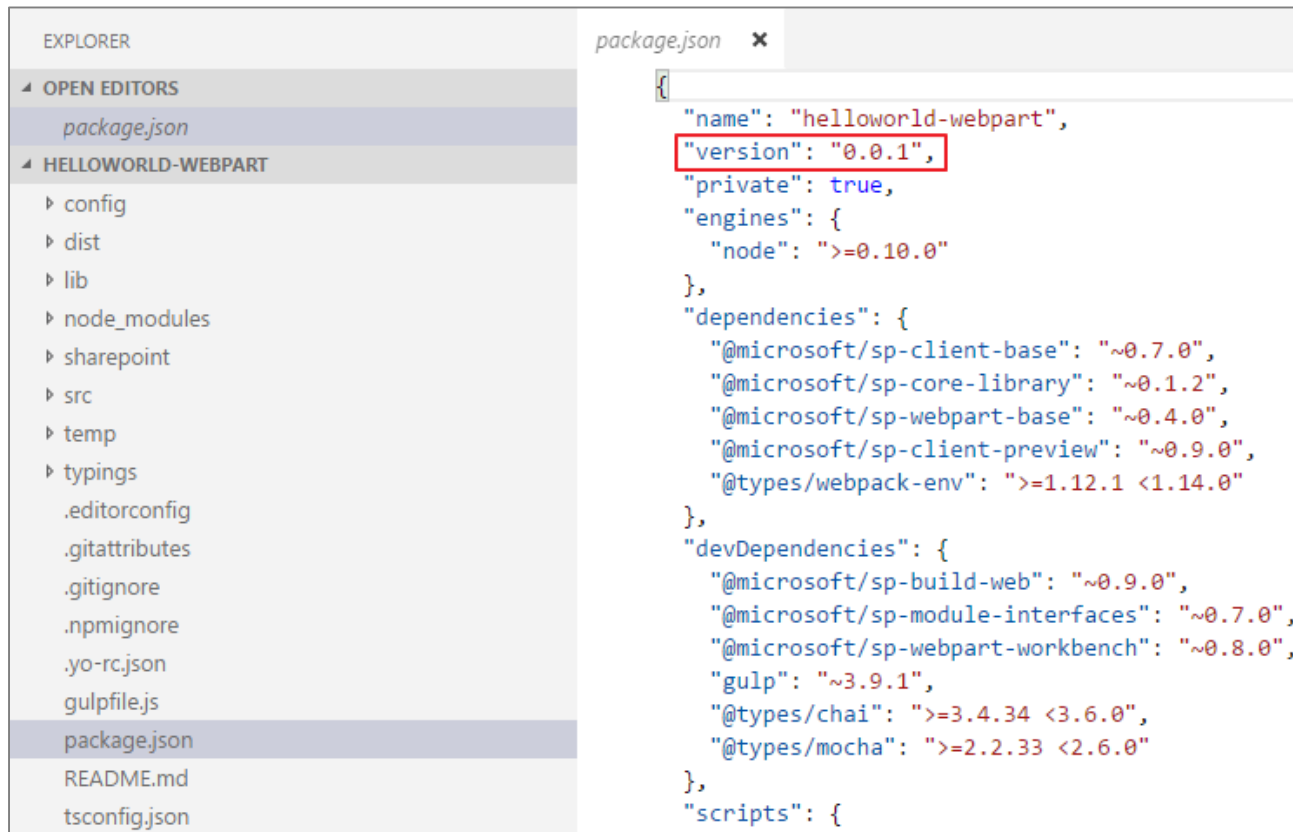
This version is displayed in the app catalog
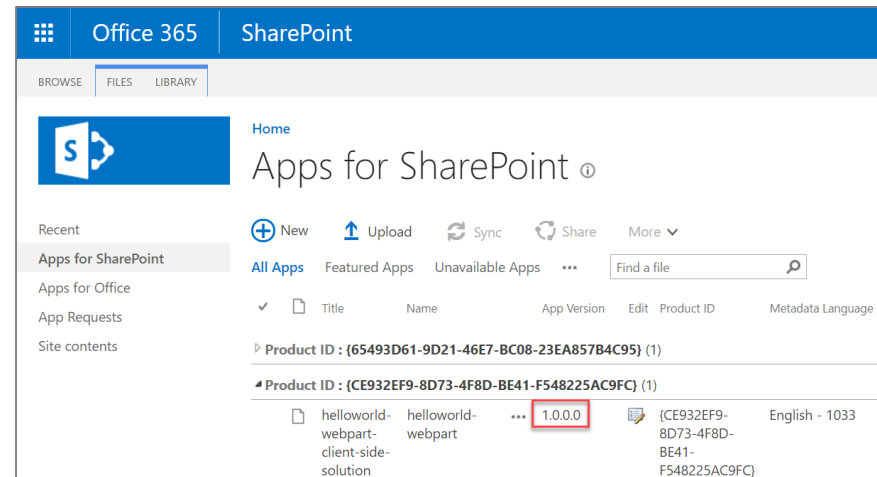
Update the version in the package.json file

- Change the version every time the package changes

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Deploying Client-side Assets to a CDN

- What happens when **includeClientSideAssets** is false?
  - You must deploy the web part assets to a CDN location
  - You must update the cdnBasePath in the write-manifests.json file

```json
package-solution.json
 1  {
 2    "$schema": "https://developer.microsoft.com/json-schemas/spfx-build/package-solution.schema.json",
 3    "solution": {
 4      "name": "spfx-lab",
 5      "id": "ab2ff8d9-ddbc-430f-adab-20011ff4e840",
 6      "version": "1.0.0.0",
 7      "includeClientSideAssets": false,
 8      "skipFeatureDeployment": true
 9    },
10    "paths": {
11      "zippedPackage": "solution/spfx-lab.sppkg"
12    }
13  }
```

Create Azure Storage Account

- Go to the Azure Management Portal
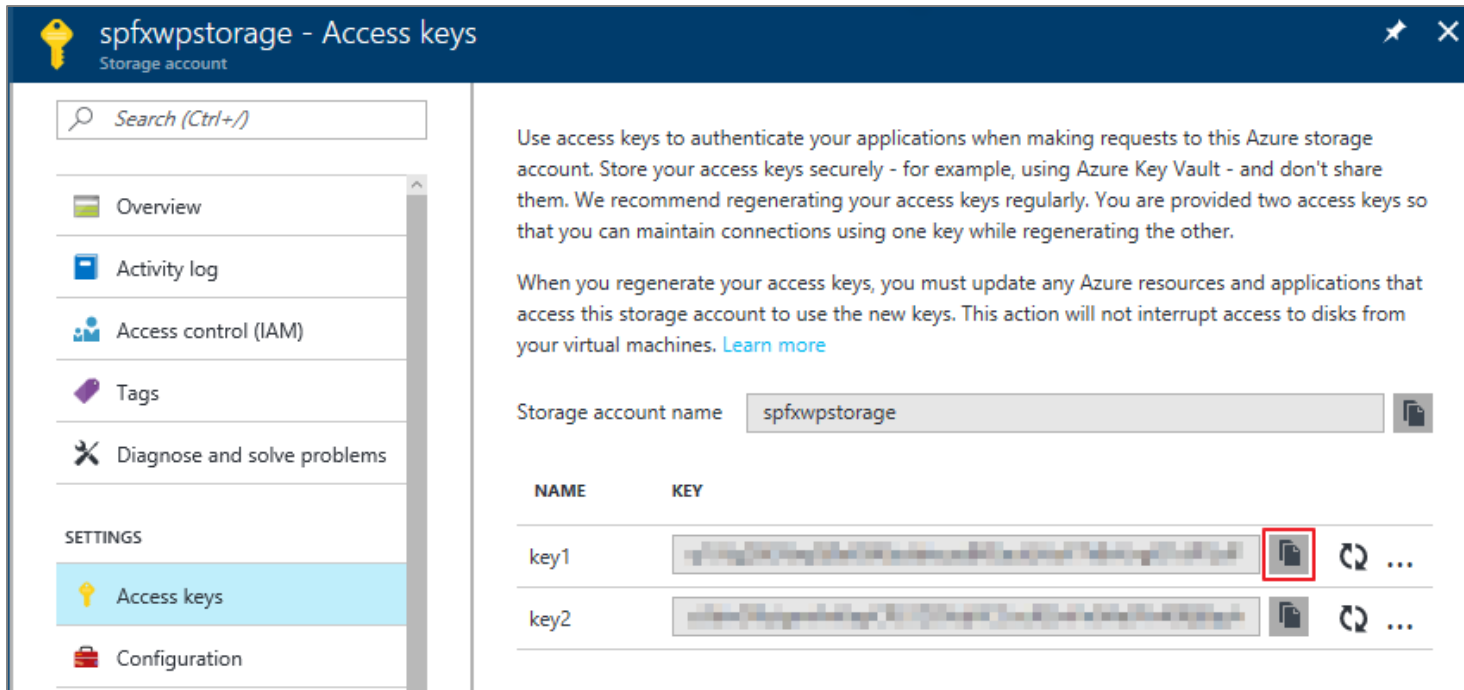
- Create a new Storage Account

Create Blob Container in Storage Account

- Create a Blob Container and copy the URL
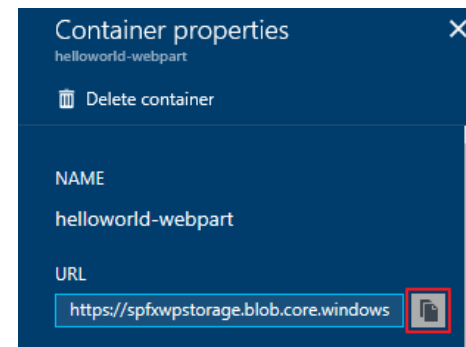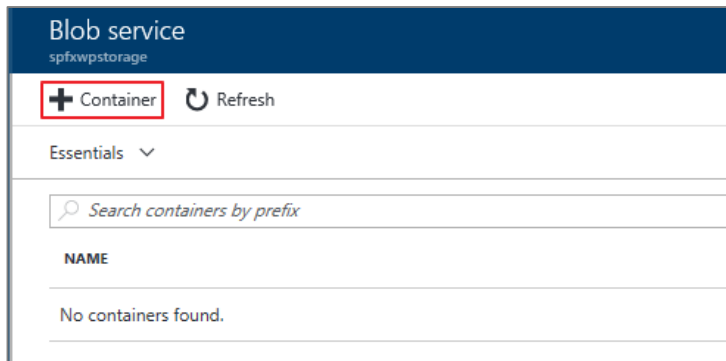
Obtain Storage Account Access Key

- The Storage Account Access Key is used to automate deployments to the Azure Storage CDN, copy one of the keys

Create CDN Profile

- In the Azure Management Portal, create a new CDN Profile
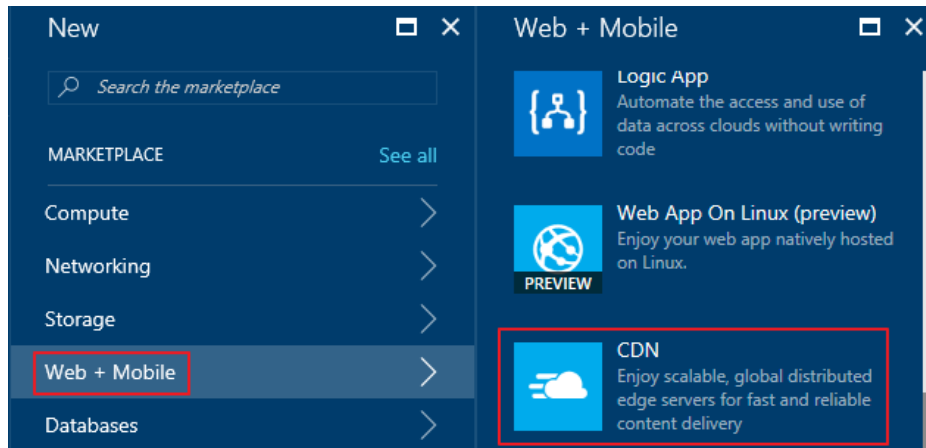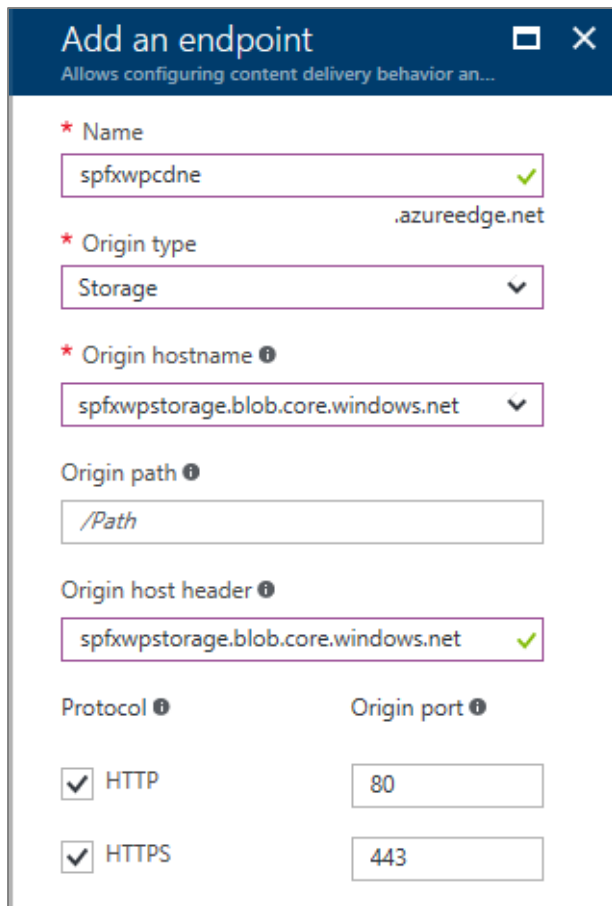
Create CDN Endpoint

- In the CDN Profile, create a new CDN endpoint

Configure Webpart to Deploy Assets to CDN

- Update the account, container, and accessKey in the deploy-azure-storage.json file
  - account – Storage account name
  - container – Name of the container you wish to use for the web part
  - accessKey – Storage Account Access Key

```json
{
  "workingDir": "./temp/deploy/",
  "account": "spfxwpstorage",
  "container": "helloworld-webpart",
  "accessKey": "hL2503 … "
}
```

Configure the web part to use the CDN

- Create CDN base path

    `https://<Storage Account Name>.blob.core.windows.net/<Container Name>`

- Update the **cdnBasePath** in the **write-manifests.json** file

```
{} write-manifests.json  ●
{
    "$schema": "https://developer.microsoft.com/json-schemas/spfx-build/write-manifests.schema.json",
    "cdnBasePath": "https://spfxwpstorage.blob.core.windows.net/helloworld-webpart"
}
```

Deploy web part assets to Azure

- ## Use the deploy-azure-storage gulp task to deploy the assets to the Azure Storage Account

```
> gulp deploy-azure-storage
```

> gulp deploy-azure-storage
Build target: DEBUG
[11:56:24] Using gulpfile C:\SPFx\helloworld-webpart\gulpfile.js
[11:56:24] Starting gulp
[11:56:24] Starting 'deploy-azure-storage'...
[11:56:24] Starting subtask 'deploy-azure-storage'...
[11:56:24] [deploy-azure-storage] Uploading files '**/*.*' from directory './temp/deploy/' to Azure
[11:56:25] [deploy-azure-storage] Created container: helloworld-webpart
[11:56:25] [deploy-azure-storage] Uploading [3] files...
[11:56:26] [deploy-azure-storage] Uploaded file: helloworld-webpart-helloworldstrings_en-us_536e65149b0acf4d52c0043073b9fc59.js
[11:56:26] [deploy-azure-storage] Uploaded file: hello-world.bundle_b8a80975dedeb31de300b580fab61182.js
[11:56:26] [deploy-azure-storage] Uploaded file: dd331d09-a9cd-448d-a687-7e43060191e2.json
[11:56:26] [deploy-azure-storage] Upload complete!
[11:56:26] [deploy-azure-storage] Access your files at: https://spfxwpstorage.blob.core.windows.net/helloworld-webpart
[11:56:26] Finished subtask 'deploy-azure-storage' after 1.92 s
[11:56:26] Finished 'deploy-azure-storage' after 1.93 s
[11:56:26] ==================[Finished]==================
[11:56:27] Project helloworld-webpart version: 0.0.1
[11:56:27] Build tools version: 2.4.0
[11:56:27] Node version: v6.10.0
[11:56:27] Total duration: 5.94 s

Summary

- ✓ Creating the App Catalog Site in SharePoint Online
- ✓ Packaging SPFX Solutions for Distribution
- ✓ Publishing and Updating SPFX Solutions
- ✓ Deploying Webpart Assets in Azure Storage