

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
- Deployment using a Site Collection App Catalog



Understanding the App Catalog



- App publishing scheme based on App Catalog
 - App packages are published (uploaded) to app catalog
 - Provides better app discovery, installation and upgrade
- You can create one tenant-level app catalog
 - Allow tenant admins to control deployment
 - You must explicitly create tenant-wide app catalog
- You can create app catalog for a site collection
 - Provides site collection owners with control
 - App catalog added to site collection using PowerShell



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

Create App Catalog Site Collection

Title	<input type="text" value="App Catalog Site"/>		
Web Site Address	<input type="text" value="https://msd0911.sharepoint.com"/>		
	<input type="text" value="/sites/"/>	<input type="text" value="AppCatalogSite"/>	
Language Selection	Select a language: <input type="text" value="English"/>		
Time Zone	<input type="text" value="(UTC-05:00) Eastern Time (US and Canada)"/>		
Administrator	<input type="text" value="Stu Dent"/>		 
Server Resource Quota	<input type="text" value="0"/>	resources of 5600 resources available	
		<input type="button" value="OK"/>	<input type="button" value="Cancel"/>



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

Apps for SharePoint

Upload completed (1 added) Refresh

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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





DEMO

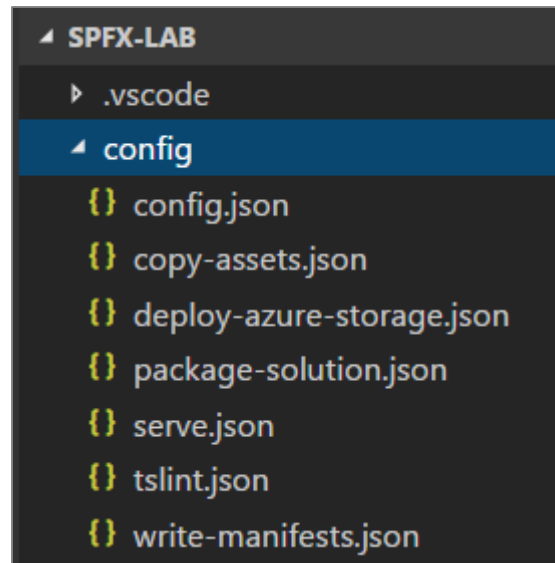
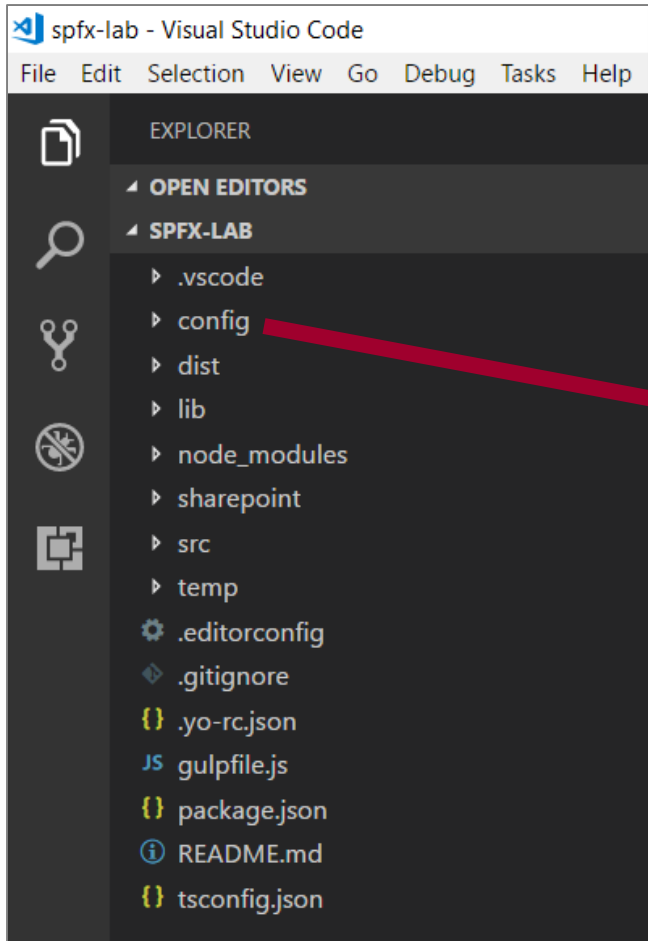
Creating an App Catalog Site

Agenda

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SPFx Project Configuration Files



package-solution.json

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

```
{  
  "$schema": "https://dev.office.com/json-schemas/spfx-build/package-solution.schema.json",  
  "solution": {  
    "name": "SPFX Lab",  
    "id": "aa5d865d-3cfb-4fd6-a4d4-6fc5d21dd9d7",  
    "version": "1.0.0.0",  
    "includeClientSideAssets": true,  
    "skipFeatureDeployment": true  
  },  
  "paths": {  
    "zippedPackage": "solution/spfx-lab.sppkg"  
  }  
}
```

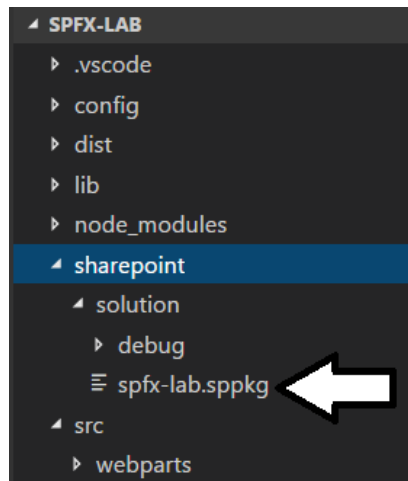


Building a SPFx Solution

- 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
```

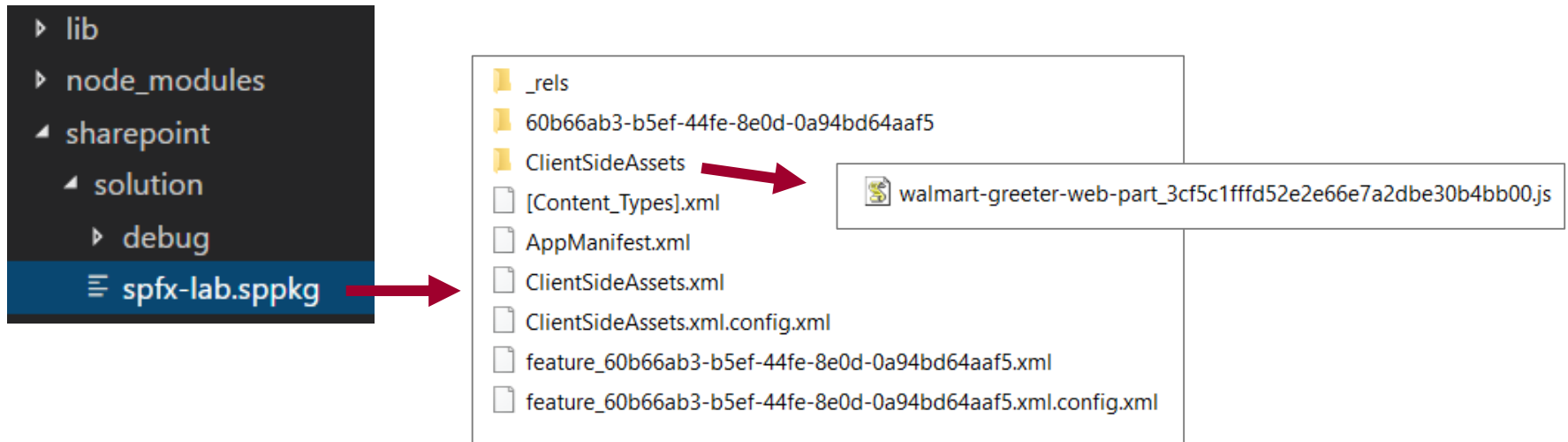
- `gulp package-solution --ship`
 - Uses dynamic URL for assets based on tenant CDN settings

```
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

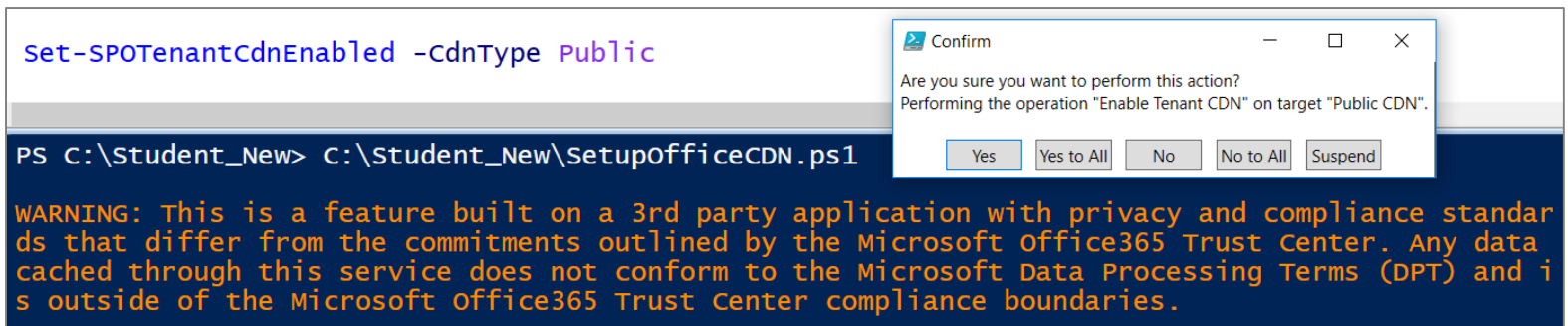
- If Office 365 CDN is enabled...
 - it will be used automatically with default settings.
- If Office 365 CDN is not enabled...
 - assets will be served from app catalog site collection.

```
{ } 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



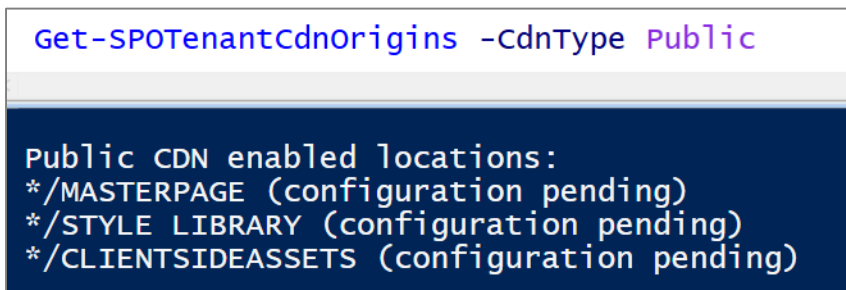
The screenshot shows a PowerShell terminal window with the command `Set-SPOTenantCdnEnabled -cdnType Public` entered. Below the command, a warning message is displayed: "WARNING: This is a feature built on a 3rd party application with privacy and compliance standards that differ from the commitments outlined by the Microsoft Office365 Trust Center. Any data cached through this service does not conform to the Microsoft Data Processing Terms (DPT) and is outside of the Microsoft Office365 Trust Center compliance boundaries." Overlaid on the terminal is a "Confirm" dialog box asking "Are you sure you want to perform this action?" and "Performing the operation 'Enable Tenant CDN' on target 'Public CDN'." The dialog box has buttons for "Yes", "Yes to All", "No", "No to All", and "Suspend".

```
Set-SPOTenantCdnEnabled -cdnType Public
```

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

WARNING: This is a feature built on a 3rd party application with privacy and compliance standards 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 is outside of the Microsoft Office365 Trust Center compliance boundaries.

- Enabling CDN creates `*/CLIENTSIDEASSETS` origin



The screenshot shows a PowerShell terminal window with the command `Get-SPOTenantCdnOrigins -cdnType Public` entered. The output of the command is displayed below: "Public CDN enabled locations: */MASTERPAGE (configuration pending) */STYLE LIBRARY (configuration pending) */CLIENTSIDEASSETS (configuration pending)".

```
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 Version in package-solution.json

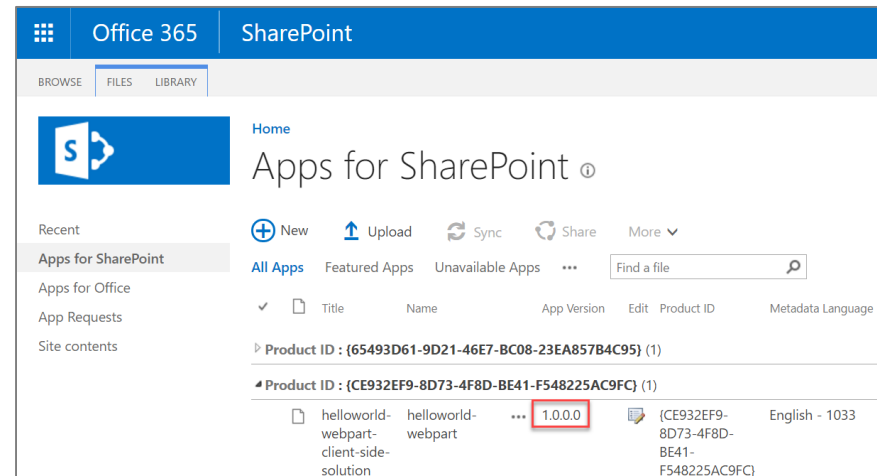
This sets the version for the .sppkg Add-in
This version is displayed in the app catalog



The image shows a Visual Studio Code window with the Explorer sidebar on the left and the package-solution.json file open in the editor. The Explorer sidebar shows the project structure with folders like .vscode, config, and files like package-solution.json. The package-solution.json file contains the following JSON content:

```
{
  "solution": {
    "name": "helloworld-webpart-client-side-solution",
    "id": "bd5dbf97-9507-44f6-9e49-a5547f30e5ec",
    "version": "1.0.0.0"
  },
  "paths": {
    "zippedPackage": "solution/helloworld-webpart.sppkg"
  }
}
```

The "version" field is highlighted with a red box.



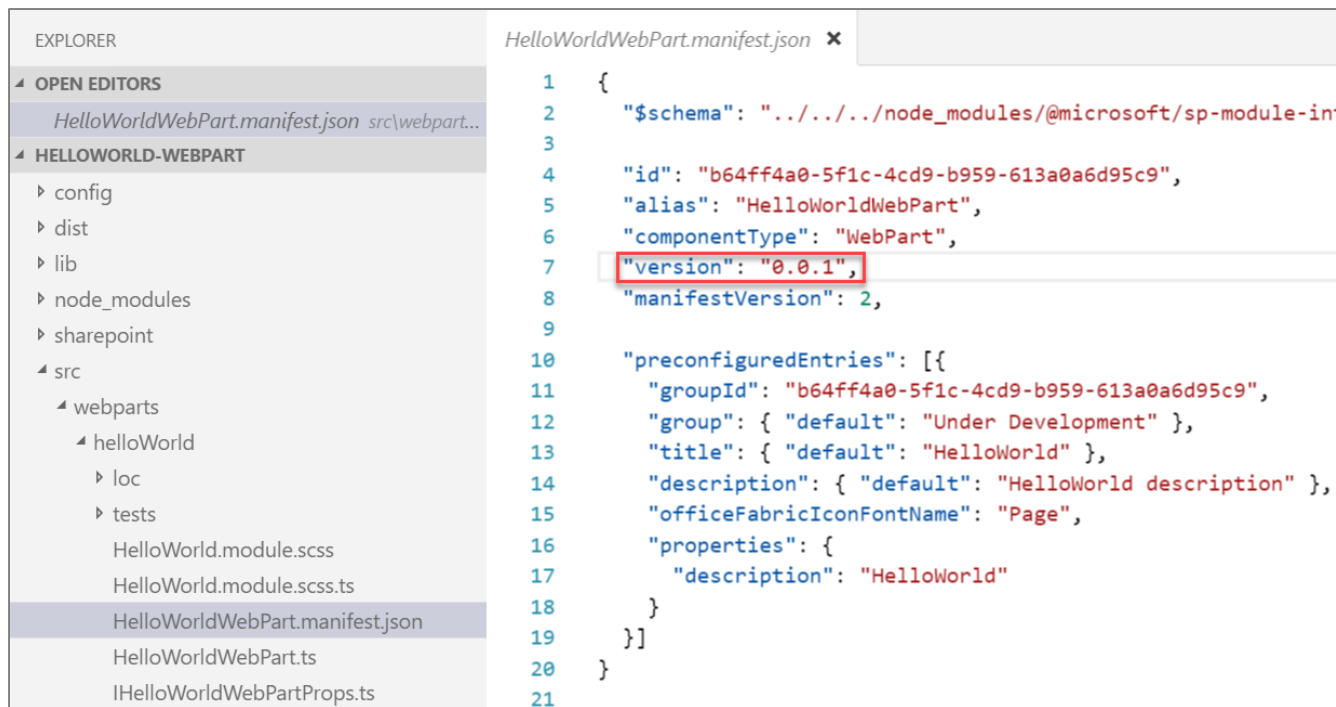
Update Webparts and Increment Version

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

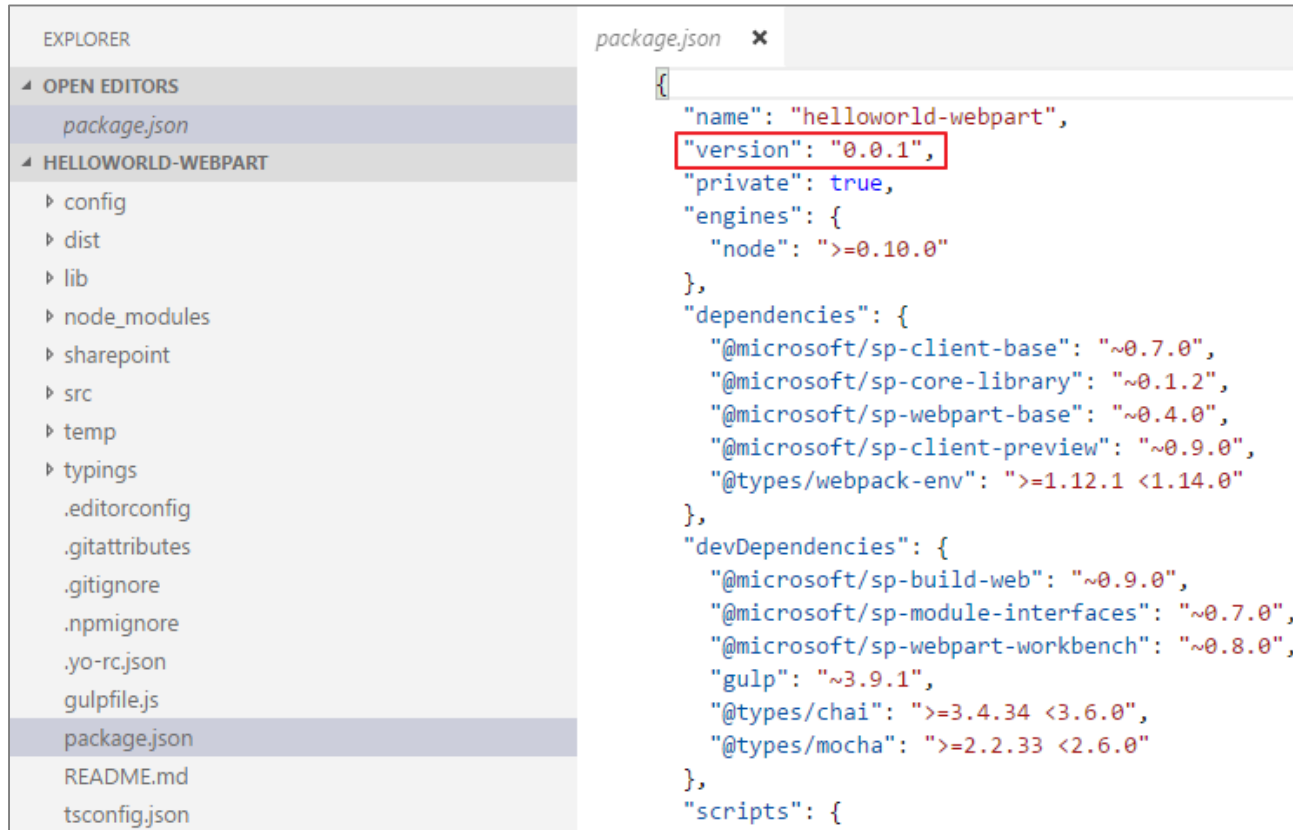


```
1  {
2    "$schema": "../../node_modules/@microsoft/sp-module-int
3
4    "id": "b64ff4a0-5f1c-4cd9-b959-613a0a6d95c9",
5    "alias": "HelloWorldWebPart",
6    "componentType": "WebPart",
7    "version": "0.0.1",
8    "manifestVersion": 2,
9
10   "preconfiguredEntries": [{
11     "groupId": "b64ff4a0-5f1c-4cd9-b959-613a0a6d95c9",
12     "group": { "default": "Under Development" },
13     "title": { "default": "HelloWorld" },
14     "description": { "default": "HelloWorld description" },
15     "officeFabricIconFontName": "Page",
16     "properties": {
17       "description": "HelloWorld"
18     }
19   }]
20 }
21
```



Update the version in the package.json file

- Change the version every time the package changes



The screenshot shows the Visual Studio Code interface. On the left, the Explorer sidebar displays the file structure of a project named 'HELLOWORLD-WEBPART'. The 'package.json' file is selected and highlighted. The main editor area on the right shows the contents of 'package.json'. The 'version' field, which is currently '0.0.1', is highlighted with a red rectangular box. The JSON content is as follows:

```
{
  "name": "helloworld-webpart",
  "version": "0.0.1",
  "private": true,
  "engines": {
    "node": ">=0.10.0"
  },
  "dependencies": {
    "@microsoft/sp-client-base": "~0.7.0",
    "@microsoft/sp-core-library": "~0.1.2",
    "@microsoft/sp-webpart-base": "~0.4.0",
    "@microsoft/sp-client-preview": "~0.9.0",
    "@types/webpack-env": ">=1.12.1 <1.14.0"
  },
  "devDependencies": {
    "@microsoft/sp-build-web": "~0.9.0",
    "@microsoft/sp-module-interfaces": "~0.7.0",
    "@microsoft/sp-webpart-workbench": "~0.8.0",
    "gulp": "~3.9.1",
    "@types/chai": ">=3.4.34 <3.6.0",
    "@types/mocha": ">=2.2.33 <2.6.0"
  },
  "scripts": {
```



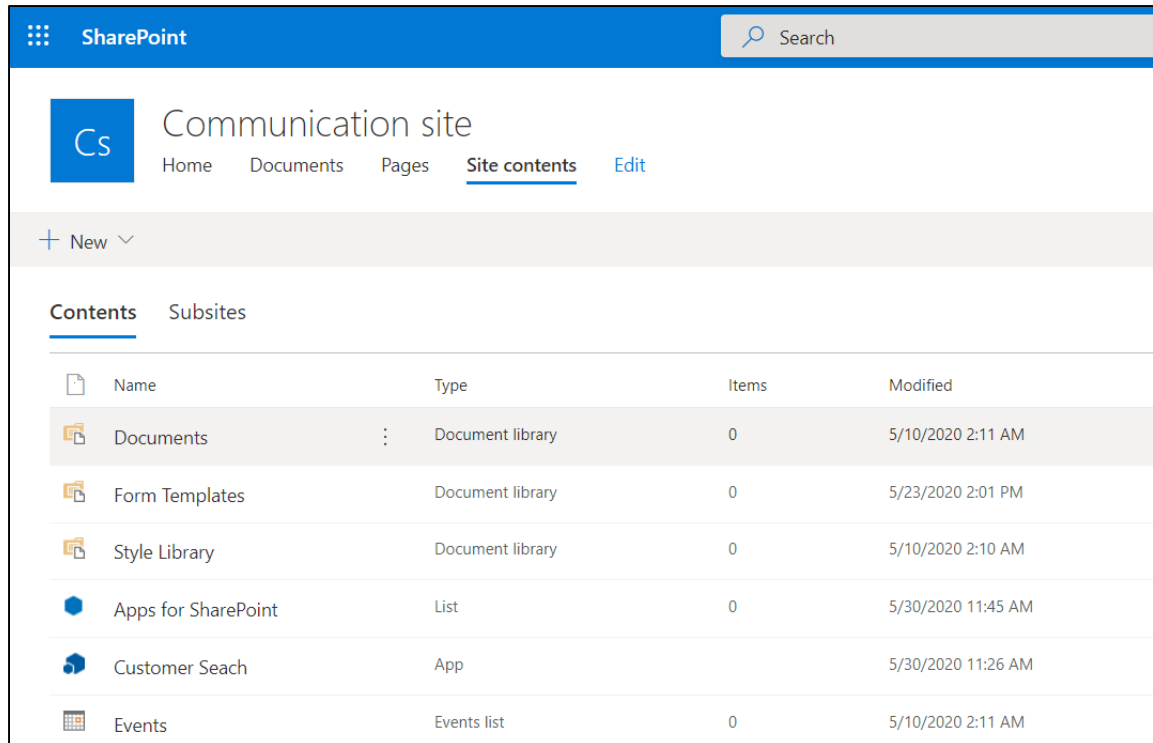
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Site Collection App Catalog

- Site Collection can have its own App Catalog
 - App Catalog must be created using PowerShell
 - Allows for more flexibility in solution deployment



The screenshot displays a SharePoint site interface. At the top, there's a blue header with the 'SharePoint' logo and a search bar. Below the header, the site title 'Communication site' is shown, along with navigation links: 'Home', 'Documents', 'Pages', 'Site contents' (which is underlined), and 'Edit'. A '+ New' button is visible. The main content area is divided into 'Contents' and 'Subsites' tabs. The 'Contents' tab is active, showing a table of site contents.

Name	Type	Items	Modified
Documents	Document library	0	5/10/2020 2:11 AM
Form Templates	Document library	0	5/23/2020 2:01 PM
Style Library	Document library	0	5/10/2020 2:10 AM
Apps for SharePoint	List	0	5/30/2020 11:45 AM
Customer Search	App		5/30/2020 11:26 AM
Events	Events list	0	5/10/2020 2:11 AM



Summary

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