

Publishing and Installing Apps in SharePoint Online



Agenda

- Understanding the SharePoint Online App Catalog
 - Publishing and Installing SharePoint Add-ins
 - Packaging SharePoint Framework Projects
 - Deploying Provider-hosted Add-ins



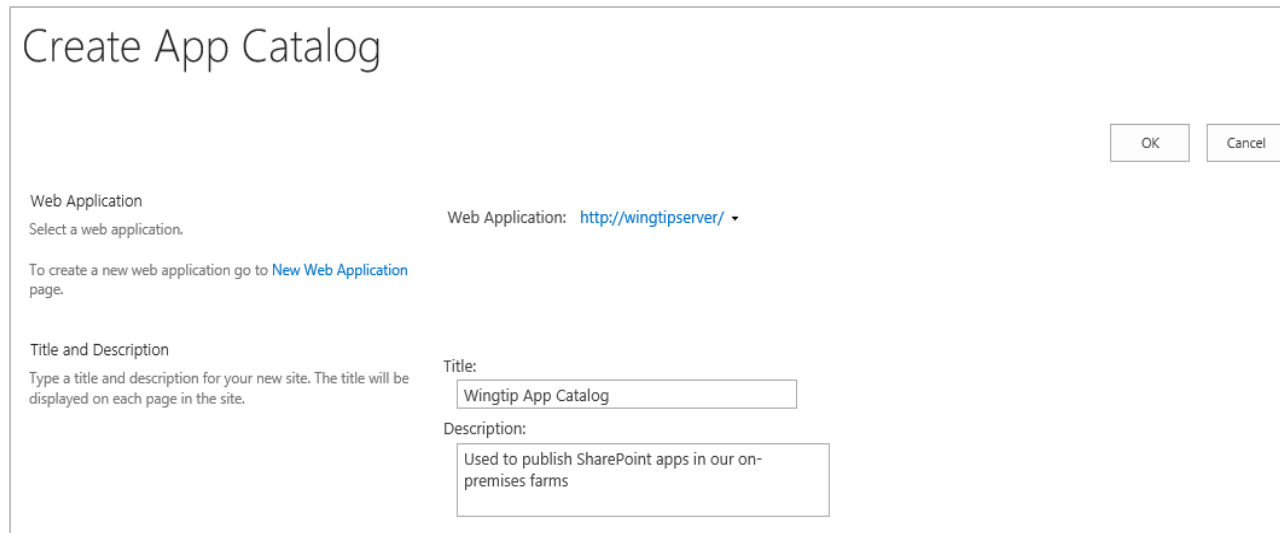
Understanding the App Catalog

- 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 using a PowerShell script
 - You can create it using Central Administration
 - App Catalog site associated with one web application



The screenshot shows a 'Create App Catalog' dialog box. At the top left is the title 'Create App Catalog'. In the top right corner are 'OK' and 'Cancel' buttons. The dialog is divided into two main sections. The top section is for 'Web Application', with the instruction 'Select a web application.' and a dropdown menu showing 'http://wingtipserver/'. Below this is a link: 'To create a new web application go to [New Web Application](#) page.' The bottom section is for 'Title and Description', with the instruction 'Type a title and description for your new site. The title will be displayed on each page in the site.' It contains two text input fields: 'Title' with the value 'Wingtip App Catalog' and 'Description' with the value 'Used to publish SharePoint apps in our on-premises farms'.

Create App Catalog

OK Cancel

Web Application
Select a web application.

Web Application: <http://wingtipserver/> ▼

To create a new web application go to [New Web Application](#) page.

Title and Description
Type a title and description for your new site. The title will be displayed on each page in the site.

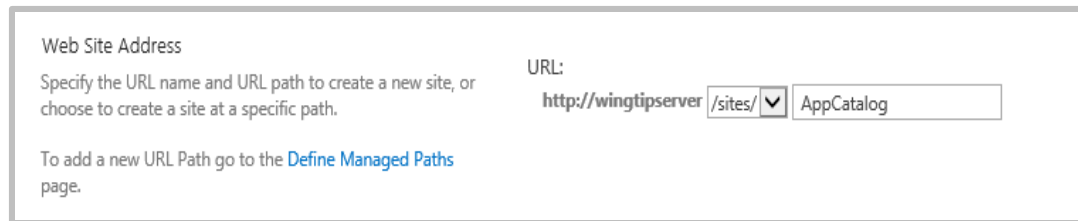
Title:
Wingtip App Catalog

Description:
Used to publish SharePoint apps in our on-premises farms



App Catalog URL and Permissions

- App catalog site created at a specific URL
 - Creating App Catalog site with PowerShell is more flexible
you can create site as top-level domain using host-named site collections (HNSCs)



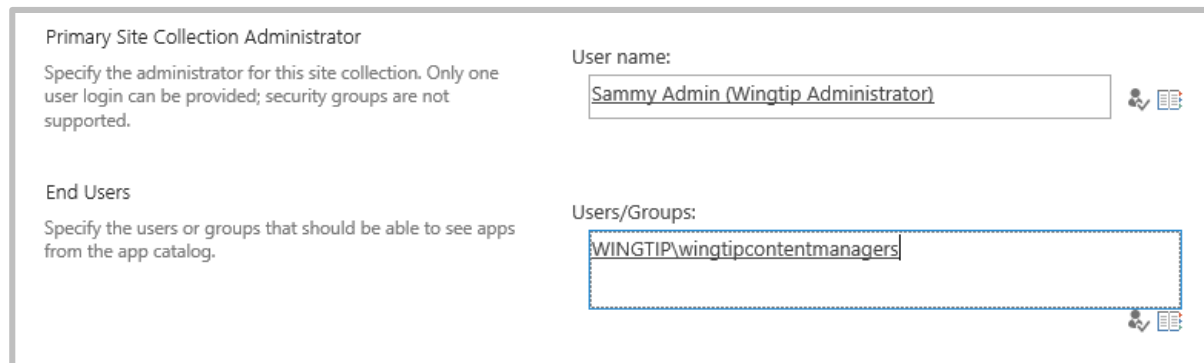
Web Site Address

Specify the URL name and URL path to create a new site, or choose to create a site at a specific path.

URL:

To add a new URL Path go to the [Define Managed Paths](#) page.

- Setting App Catalog permissions
 - Site collection administrator becomes App Catalog administrator
 - End user permissions allows user to discover and install apps



Primary Site Collection Administrator

Specify the administrator for this site collection. Only one user login can be provided; security groups are not supported.

User name:

End Users

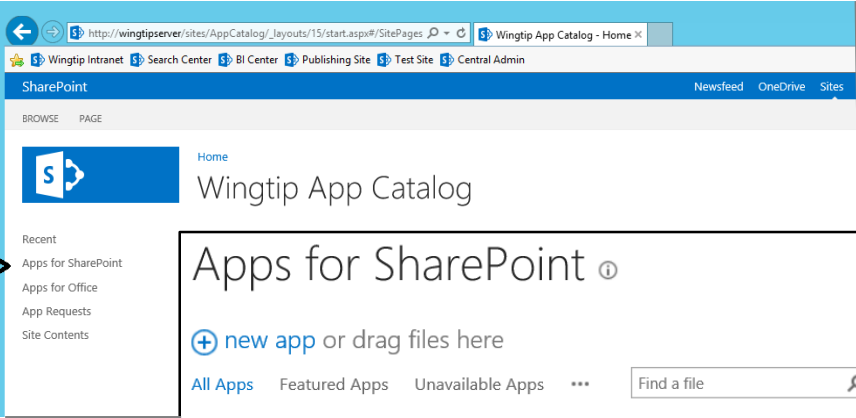
Specify the users or groups that should be able to see apps from the app catalog.

Users/Groups:







Apps for SharePoint Document Library

- Apps for SharePoint is special document library
 - It's the place where you publish SharePoint apps
 - You upload app package and enter the related metadata



The screenshot shows the 'Wingtip App Catalog' interface. On the left, a sidebar lists 'Recent' items: 'Apps for SharePoint', 'Apps for Office', 'App Requests', and 'Site Contents'. An arrow points from 'Apps for SharePoint' to the main content area. The main area is titled 'Apps for SharePoint' and includes a '+ new app or drag files here' button. Below this, there are tabs for 'All Apps', 'Featured Apps', and 'Unavailable Apps'. A search bar labeled 'Find a file' is also present. The main content displays a table of installed apps, grouped by Product ID.

✓	📄	Title	Name	App Version	Edit	Product ID	Metadata Language	Default Metadata Language
Product ID : {921FDA40-576C-48CF-B00B-7285D24372A0} (1)								
	📄	Wingtip Search App	WingtipSearchApp 	1.0.0.0		{921FDA40-576C-48CF-B00B-7285D24372A0}	English - 1033	Yes
Product ID : {2AB41D1E-C8A8-400A-AD6E-7C15FEE6A69A} (1)								
	📄	Calculator App	Calculator 	2.0.0.0		{2AB41D1E-C8A8-400A-AD6E-7C15FEE6A69A}	English - 1033	Yes





DEMO

Creating an App Catalog Site

Agenda

- ✓ Understanding the SharePoint Online App Catalog
- Publishing and Installing SharePoint Add-ins
 - Packaging SharePoint Framework Projects
 - Deploying Provider-hosted Add-ins



App Deployment Overview

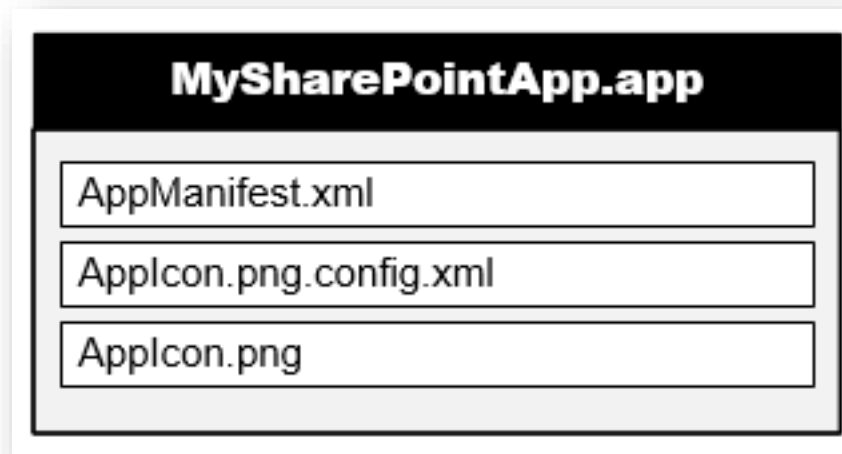
for a SharePoint-hosted App

1. Package the app
 - Package app resources in distributable file
2. Publish the app
 - Make app available for installation and upgrade
3. Install the app
 - Make app available for use
4. Upgrade the app
 - Replace current version of app with newer version



App Package

- SharePoint apps distributed using app packages
 - App package is ZIP archive file with `*.app` extension
 - Built according to Open Package Convention (OPC)
 - Same packaging format used in Apps for Office
 - App package must contain `AppManifest.xml`
 - App package will often contain file for app icon



App Web Solution Package

- App package contains inner WSP for app web
 - Elements deployed to app web using solution package
 - Solution package built into app package as inner WSP



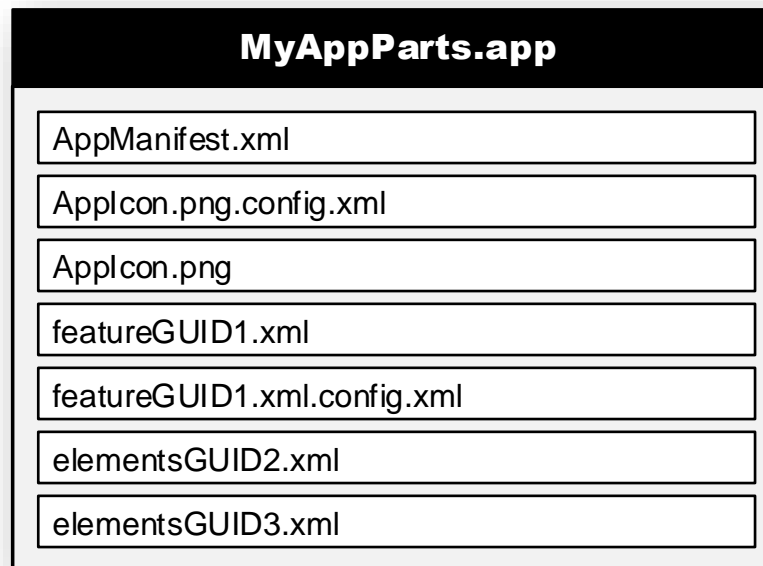
All SharePoint-hosted apps will have an inner WSP in their app package

Cloud-hosted apps will not have an inner WSP in their app package unless they have been implemented to create an app web



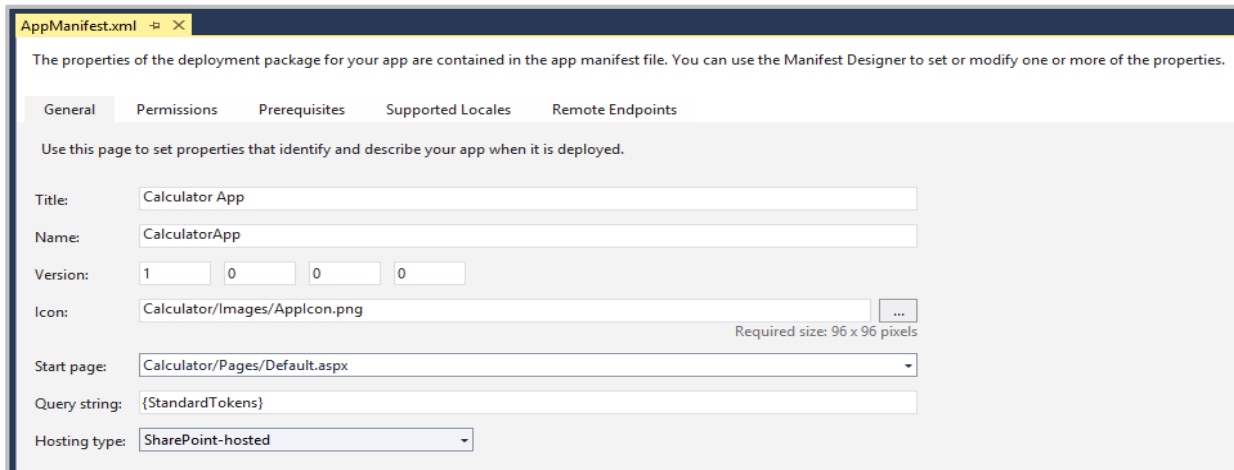
Packaging Host Web Features

- Host web feature elements added at top level
 - `elements.xml` file added for each app part
 - `elements.xml` file added for each UI custom action
 - `features.xml` file added for host web feature
- Visual Studio adds GUID to file names



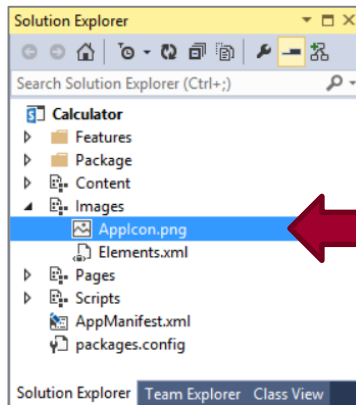
Preparing a Project for Packaging

- Review **AppManifest.xml** and make any required changes



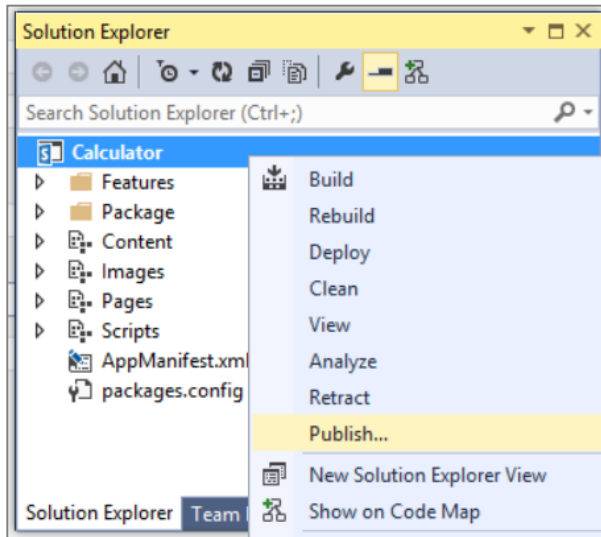
The screenshot shows the 'AppManifest.xml' Manifest Designer window. It has a title bar with 'AppManifest.xml' and standard window controls. Below the title bar is a descriptive text: 'The properties of the deployment package for your app are contained in the app manifest file. You can use the Manifest Designer to set or modify one or more of the properties.' Below this is a tabbed interface with tabs for 'General', 'Permissions', 'Prerequisites', 'Supported Locales', and 'Remote Endpoints'. The 'General' tab is selected. Below the tabs is a text area with the instruction: 'Use this page to set properties that identify and describe your app when it is deployed.' The form contains several fields: 'Title' (text box with 'Calculator App'), 'Name' (text box with 'CalculatorApp'), 'Version' (four text boxes for major, minor, build, and revision numbers, all containing '0'), 'Icon' (text box with 'Calculator/Images/AppIcon.png' and a browse button '...', with a note 'Required size: 96 x 96 pixels' below it), 'Start page' (dropdown menu with 'Calculator/Pages/Default.aspx' selected), 'Query string' (text box with '{StandardTokens}'), and 'Hosting type' (dropdown menu with 'SharePoint-hosted' selected).

- Add a custom App Icon

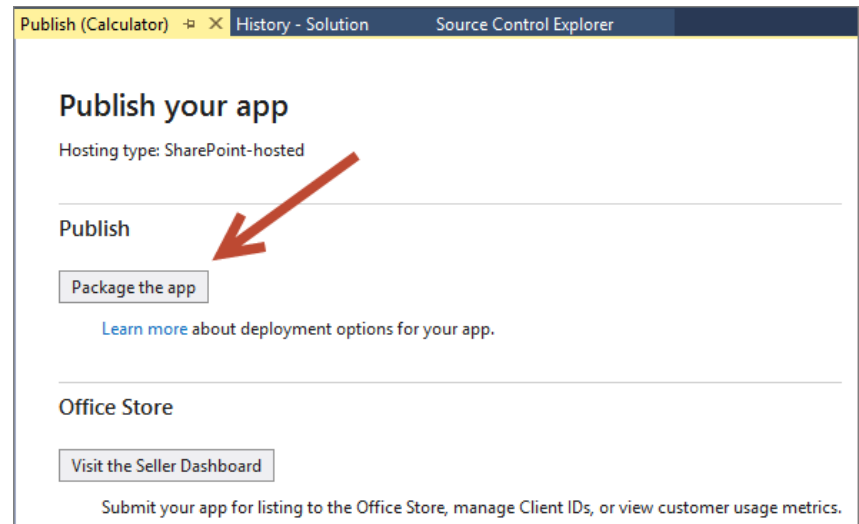


Creating an App Package

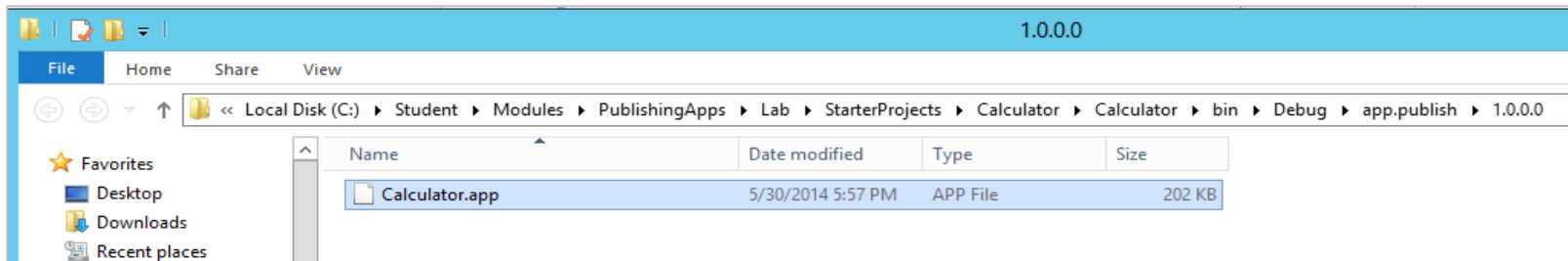
1



2

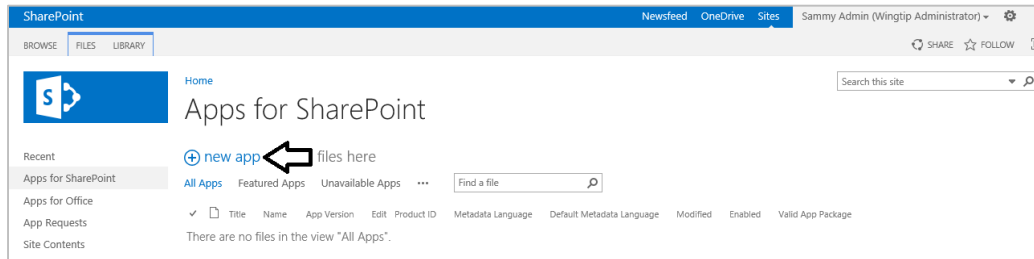


3



Publishing an App

- Upload app package to Apps for SharePoint library

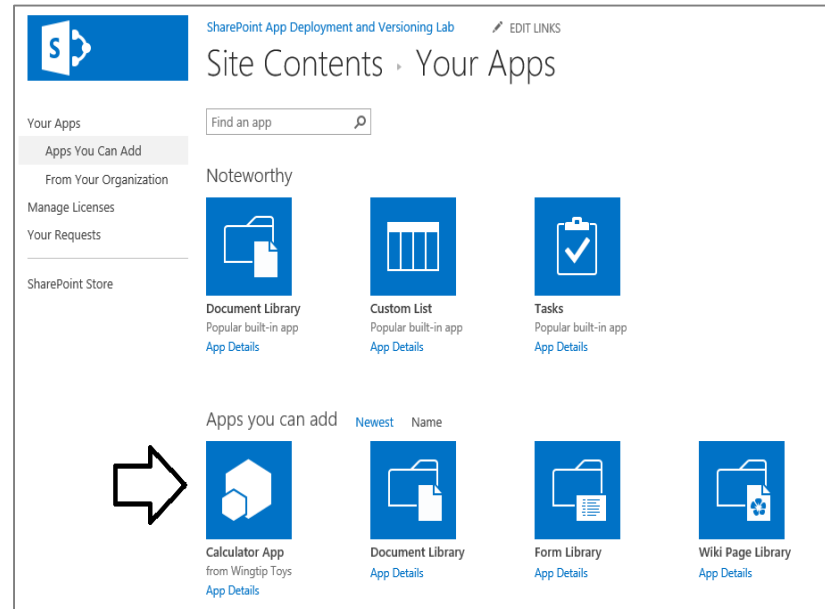
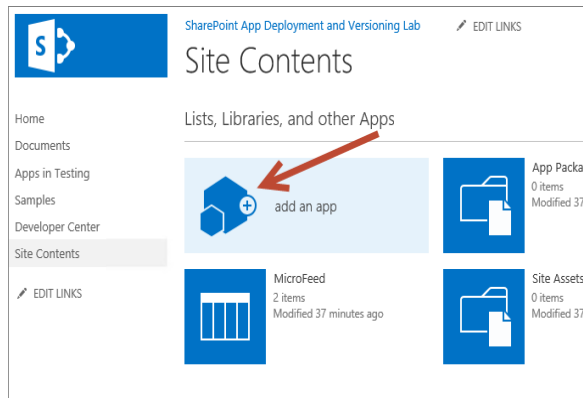


- Enter app metadata to complete publishing process

A screenshot of the 'Apps for SharePoint - Calculator.app' metadata form. The form has a title bar 'Apps for SharePoint - Calculator.app'. Below the title bar is a ribbon with 'EDIT' and 'Commit' tabs. The 'EDIT' tab is active, showing icons for 'Save', 'Cancel', 'Paste', 'Copy', and 'Delete Item'. A yellow message box says: 'The document was uploaded successfully. Use this form to update the properties of the document.' The form fields are: 'Name' (Calculator.app), 'Title' (Calculator App), 'Metadata Language' (English), 'Default Metadata Language' (checked), 'Short Description' (Calculator App), and 'Description' (empty text area).A screenshot of the 'Featured' app settings section. It has a title bar 'Apps for SharePoint - Calculator.app'. Below the title bar is a ribbon with 'EDIT' and 'Commit' tabs. The 'EDIT' tab is active, showing icons for 'Save', 'Cancel', 'Paste', 'Copy', and 'Delete Item'. A yellow message box says: 'The document was uploaded successfully. Use this form to update the properties of the document.' The form fields are: 'Name' (Calculator.app), 'Title' (Calculator App), 'Metadata Language' (English), 'Default Metadata Language' (checked), 'Short Description' (Calculator App), and 'Description' (empty text area).

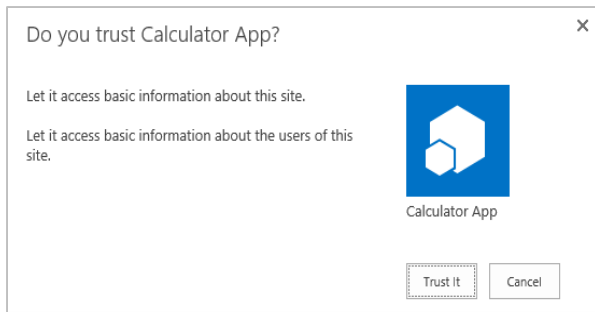
Installing Apps

- App installer must be site administrator
 - Click **add an app** link on **Site Contents** page
 - **add an app** link takes you to app discovery page (*addanapp.aspx*)
 - On **Your apps** page, click on app tile to install that app

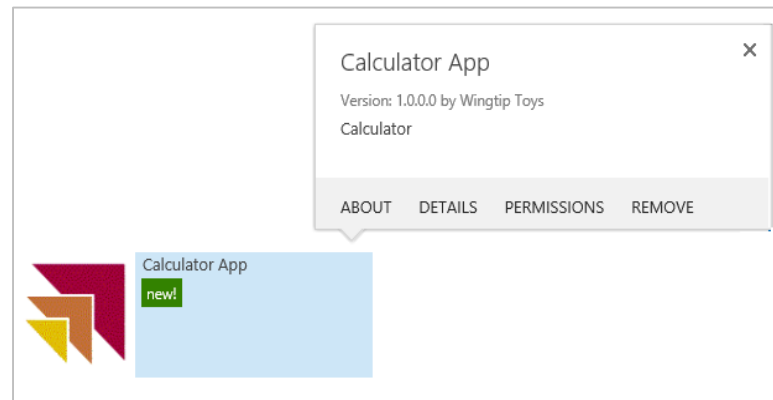
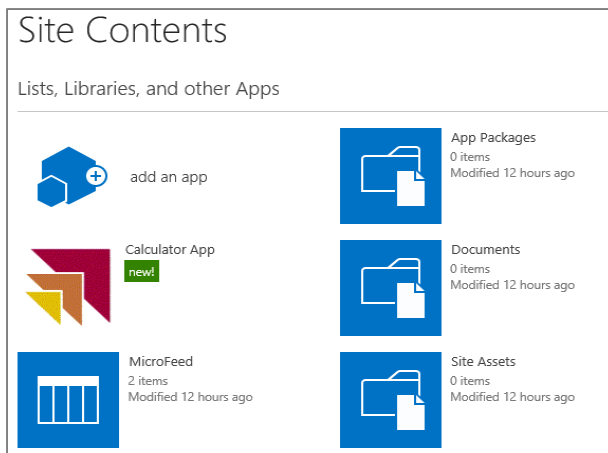


Completing the App installation Process

- App installer is Prompted to Explicitly Trust the app During Installation

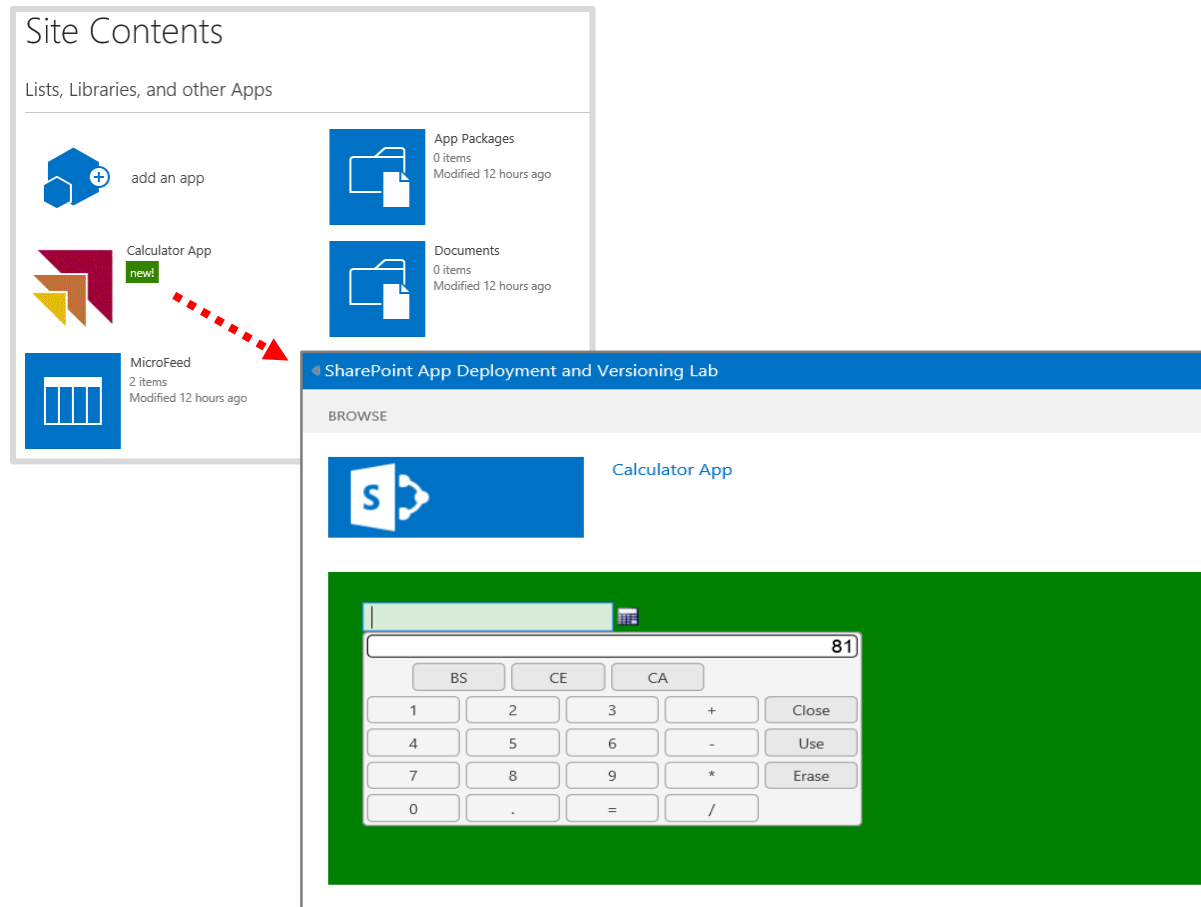


- After installation, app tile added to **Site Contents** page
app tile provides fly-out menu to assist with app management



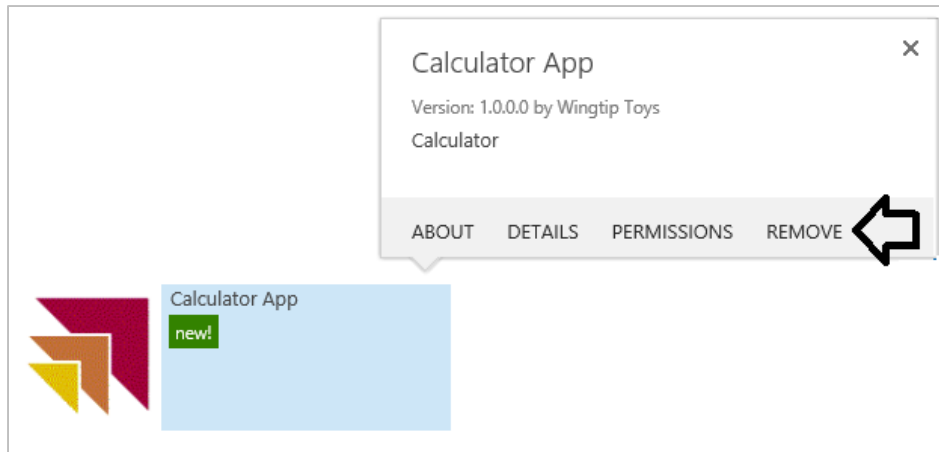
Launching the App After Installation

- Clicking app tile on Site Contents page launches app
 - User is redirected to app start page



Uninstalling an App

- Use Remove command in app tile flyout menu
 - SharePoint deletes App Web if there is one





DEMO

Publishing and Installing a SharePoint-hosted App

Installing Apps at Tenancy Scope

- App catalog site used for tenancy-scoped install
 - Step 1: Publish app to app catalog site
 - Step 2: Install app in same app catalog site
 - Step 3: Configure app to make it available in other sites

The screenshot illustrates the process of configuring app deployments. It features a 'Calculator App' window with 'ABOUT' and 'DEPLOYMENT' tabs. A yellow callout box points to the 'DEPLOYMENT' tab, stating: 'Deployment command only appears for apps installed in app catalog sites'. Below this, a 'Manage App Deployments' dialog for the 'Calculator App' is shown. The dialog includes instructions to select site collections and contains input fields for 'Enter a site collections to deploy to:' and 'Site collections to deploy to:', each with an 'Add' or 'Remove' button respectively.

Calculator App
Version: 1.0.0.0 by Wingtip Toys
Calculator

ABOUT DEPLOYMENT

Deployment command only appears for apps installed in app catalog sites

Calculator App
new!

Manage App Deployments · Calculator App ⓘ

Select the site collections, managed paths, or site templates where you want this app to appear. It may take up to 30 minutes for users to see these changes on their sites.

Site Collections

Use this section to specify what site collections should have this app available.

Enter a site collections to deploy to:

Site collections to deploy to:

Add

Remove

Configuring an App Deployment

- App Deployment can be configured in terms of managed paths...

The 'Managed Paths' configuration dialog is shown. It has three main sections: 'Managed Paths' on the left, 'Available managed paths:' in the center, and 'Managed paths to deploy to:' on the right. The 'Managed Paths' section contains the text: 'Use this section to specify what managed paths should have this app available.' The 'Available managed paths:' section contains a list box with the item 'sites'. Below this list box is the label 'Managed path:'. Between the two list boxes are two buttons: 'Add >' and '< Remove'. The 'Managed paths to deploy to:' section contains a list box with the item '(All Paths)' selected.

- App Deployment can be configured in terms of Site templates...

The 'Site Templates' configuration dialog is shown. It has three main sections: 'Site Templates' on the left, 'Available site templates:' in the center, and 'Site templates to deploy to:' on the right. The 'Site Templates' section contains the text: 'Use this section to specify what site templates should have this app available.' The 'Available site templates:' section contains a list box with the following items: 'Academic Library', 'Basic Search Center', 'Blog', 'Business Intelligence Center', 'Community Portal', 'Community Site', 'Document Center', 'eDiscovery Case', 'eDiscovery Center', and 'Enterprise Search Center'. Below this list box is the label 'Description: A site for developers to build, test and publish apps for Office'. Between the two list boxes are two buttons: 'Add >' and '< Remove'. The 'Site templates to deploy to:' section contains a list box with the items 'Team Site' and 'Developer Site', with 'Developer Site' selected. At the bottom right of the dialog are two buttons: 'OK' and 'Cancel'.



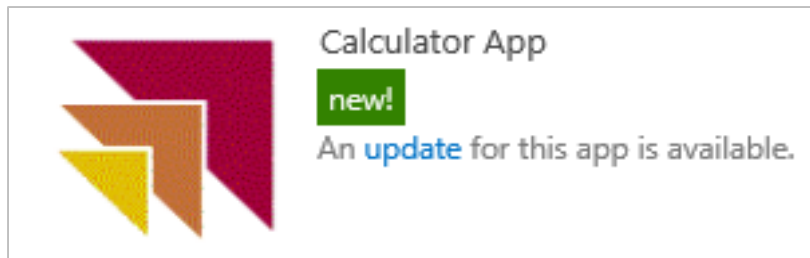


DEMO

Installing an App at Tenancy Scope

Upgrading Apps

- Overview of SharePoint app upgrade process
 - App catalog tracks current version number of app
 - SharePoint host records app version at install time
 - Updated version of app can be uploaded to app catalog
 - SharePoint host notifies user when there's new version

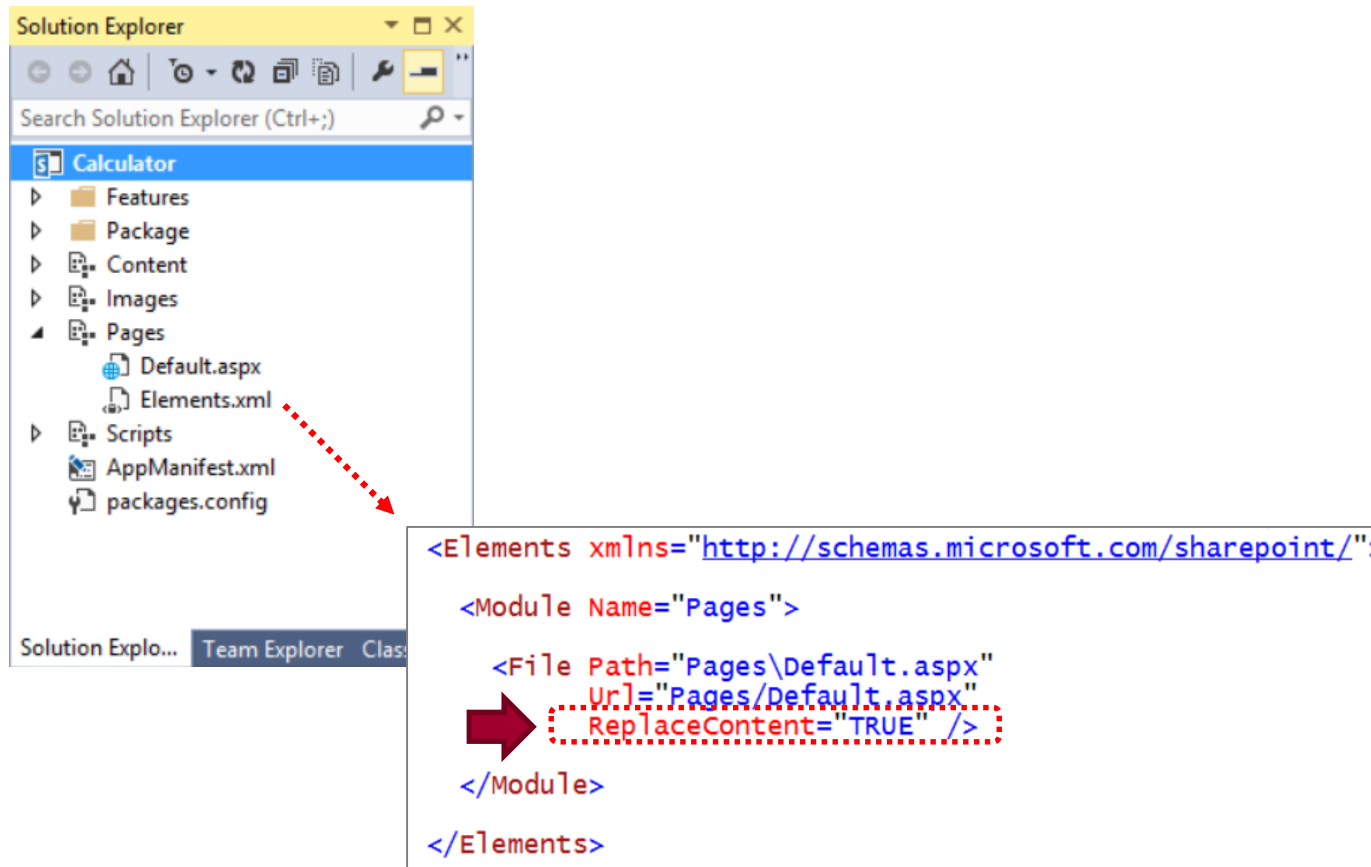


- User makes choice whether upgrade or not
 - User (app installer) is never forced to upgrade
 - If user decides to upgrade, upgrade involves clicking button



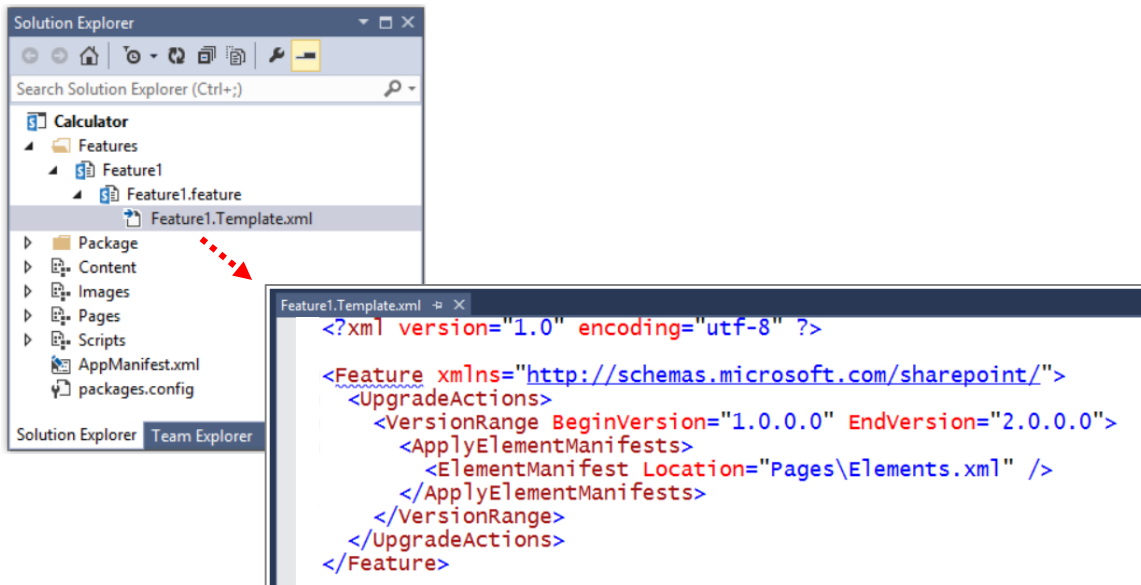
Overwriting Existing Files During Upgrade

- Files to be upgrade required **ReplaceContent** attribute
 - Edit must be made by hand to **Elements.xml** file

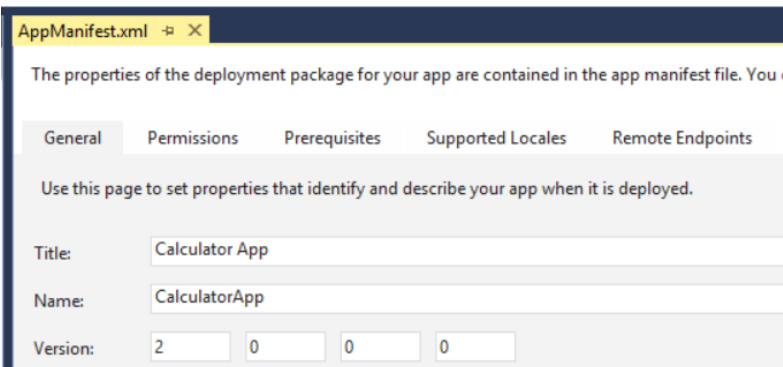


Configuring Feature Upgrade Actions

- Upgrade actions must be entered by hand



- Make sure to update version number in AppManifest.xml





DEMO

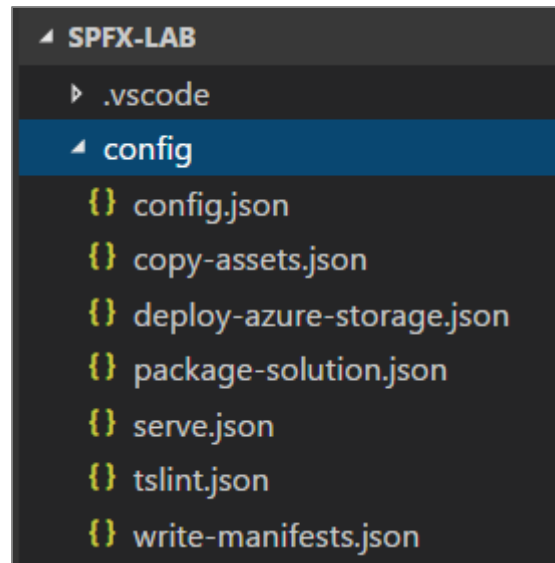
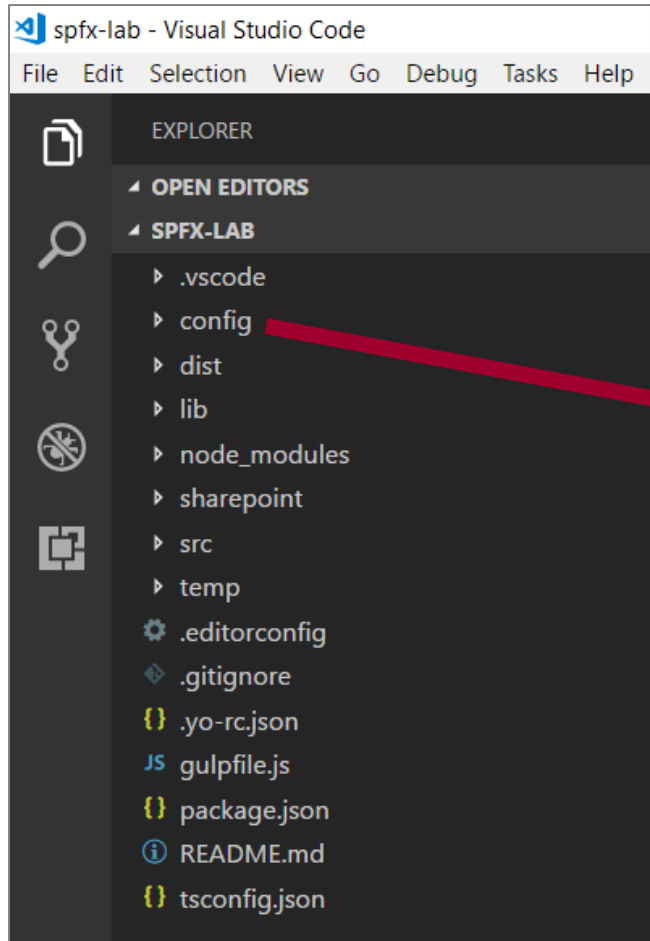
Upgrading the Start Page of a SharePoint-hosted App

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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"  
  }  
}
```

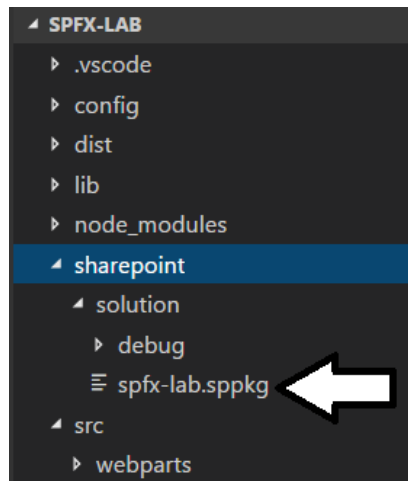


Building a SPFx Solution

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

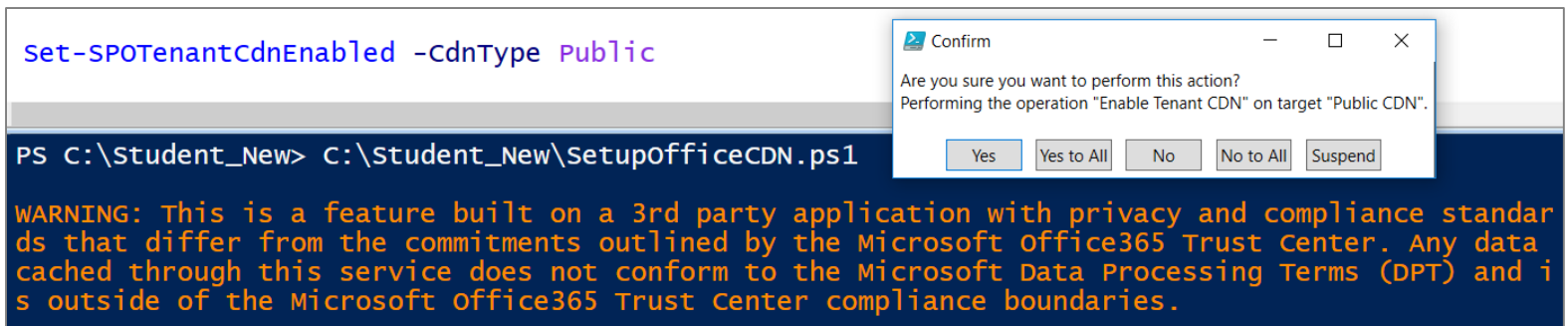
```
PS C:\Demos\spfx-lab> gulp package-solution
Build target: DEBUG
[20:02:30] Using gulpfile C:\Demos\spfx-lab\gulpfile.js
[20:02:30] Starting gulp
[20:02:30] Starting 'package-solution'...
[20:02:30] Starting subtask 'configure-sp-build-rig'...
[20:02:30] Finished subtask 'configure-sp-build-rig' after 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



Enabling the Office 365 CDN

- Office 365 provides CDN for SPFx solution deployment
- Office 365 CDN must be enabled using PowerShell



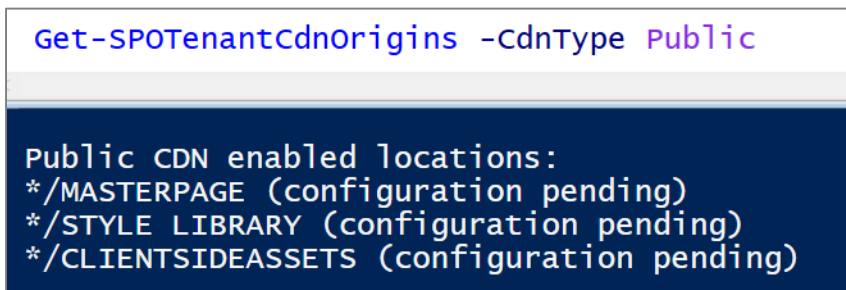
The screenshot shows a PowerShell terminal window with the command `Set-SPOTenantCdnEnabled -cdnType Public` entered. Below the command, a warning message is displayed in orange text: "WARNING: This is a feature built on a 3rd party application with privacy and compliance standards that differ from the 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 right side of the terminal is a "Confirm" dialog box with the text: "Are you sure you want to perform this action? Performing the operation 'Enable Tenant CDN' on target 'Public CDN'." The dialog box has five buttons: "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 the command line, showing the public CDN enabled locations.

```
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



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 }
```



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
```

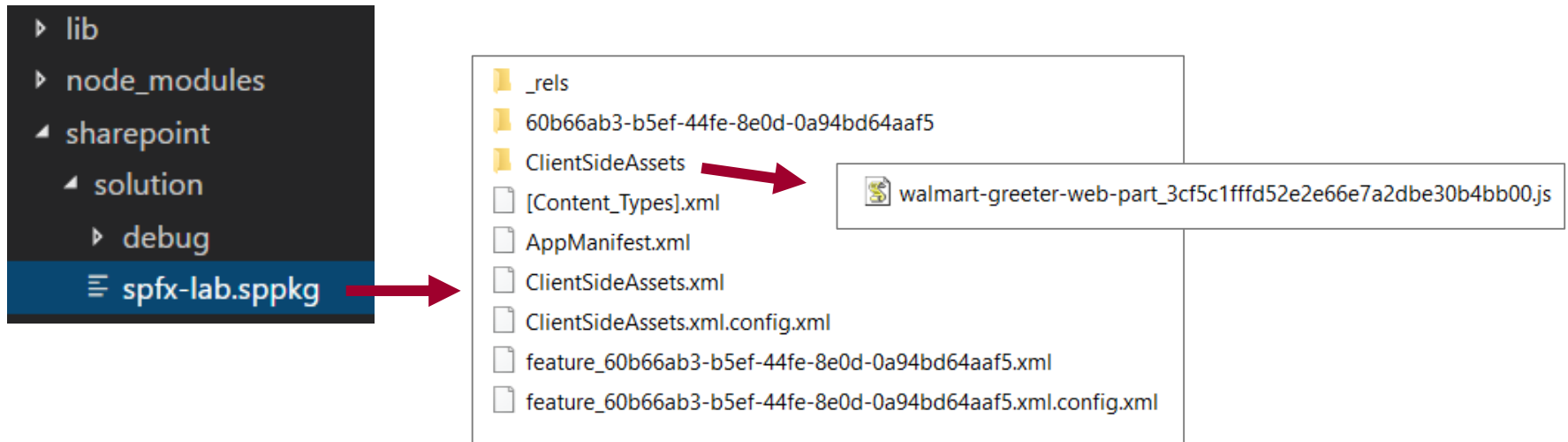
- `gulp package-solution --ship`
 - Uses dynamic URL for assets based on tenant CDN settings

```
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'...
```

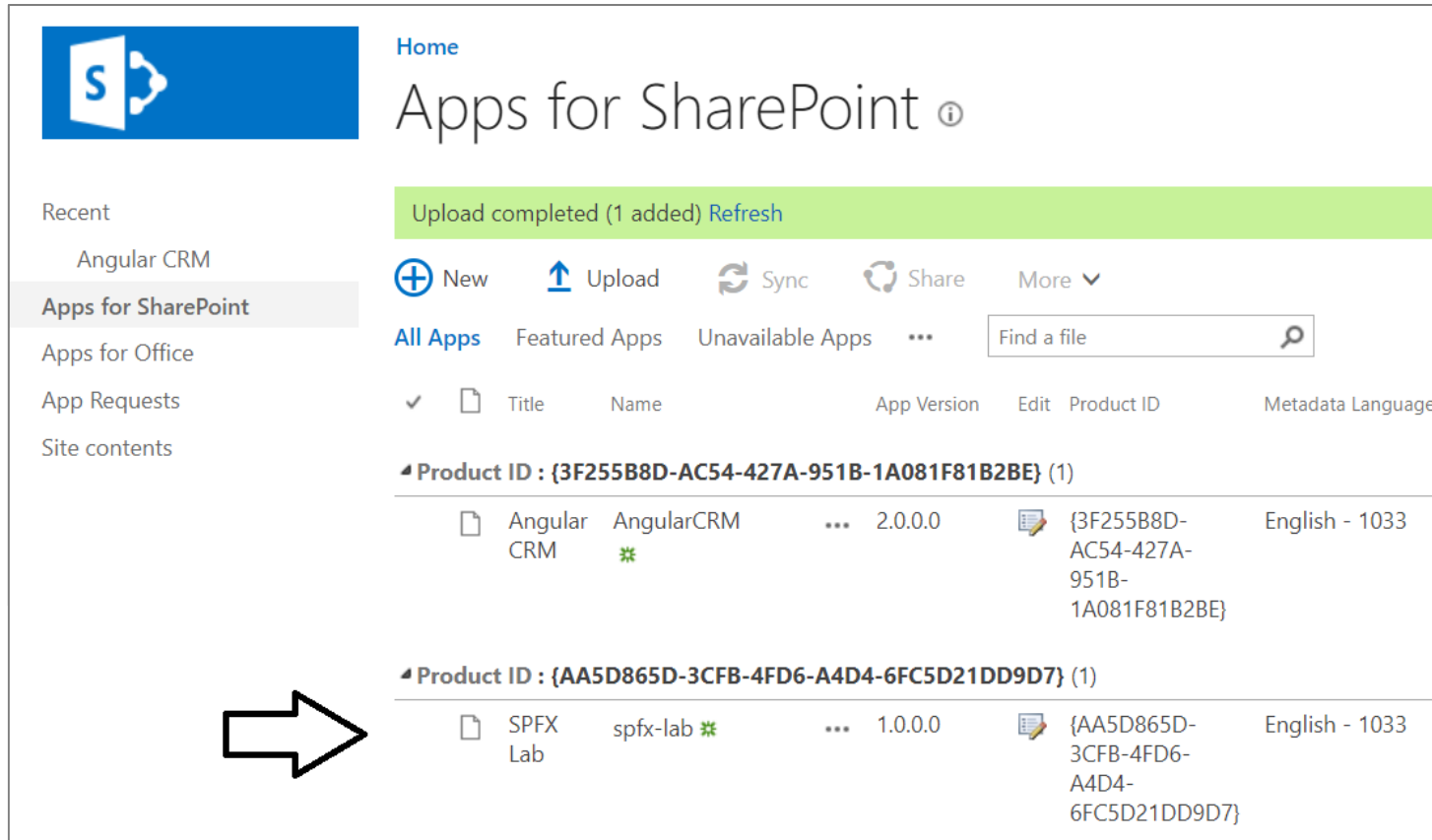


Inside a SPFx Solution Package

- Your .js code is included in ClientSideAssets



Deploying Solution to Office 365 Tenancy



Home

Apps for SharePoint ⓘ

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✓	📄	Title	Name		App Version	Edit	Product ID	Metadata Language
🔑 Product ID : {3F255B8D-AC54-427A-951B-1A081F81B2BE} (1)								
	📄	Angular CRM	AngularCRM ✨	...	2.0.0.0	✎	{3F255B8D-AC54-427A-951B-1A081F81B2BE}	English - 1033
🔑 Product ID : {AA5D865D-3CFB-4FD6-A4D4-6FC5D21DD9D7} (1)								
	📄	SPFX Lab	spfx-lab ✨	...	1.0.0.0	✎	{AA5D865D-3CFB-4FD6-A4D4-6FC5D21DD9D7}	English - 1033



Agenda

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Registering the App Security Principal

- Can be done manually using AppRegNew.aspx page
 - Enter the **App ID** (aka Client ID)
 - Enter an **App Secret** (even in S2S scenario when it is not used)
 - Enter a **Title**
 - Enter an **App Domain**

App Information

The app's information, including app id, secret, title, hosting url and redirect url.

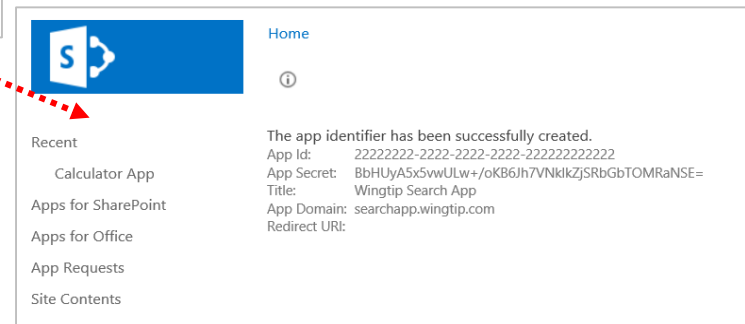
App Id:

App Secret:

Title:

App Domain:
Example: "www.contoso.com"

Redirect URL:
Example: "https://www.contoso.com/default.aspx"



The screenshot shows the SharePoint 'Home' page. On the left, under the 'Recent' section, there is a list of items: 'Calculator App', 'Apps for SharePoint', 'Apps for Office', 'App Requests', and 'Site Contents'. On the right, a confirmation message states: 'The app identifier has been successfully created.' Below this message, the following details are listed: 'App Id: 22222222-2222-2222-2222-222222222222', 'App Secret: BbHUyA5x5vwULw+/oKB6Jh7VNklkZJSRbGbTOMRaNSE=', 'Title: Wingtip Search App', 'App Domain: searchapp.wingtip.com', and 'Redirect URI:'. A red dotted arrow points from the 'Create' button in the 'App Information' form to the 'Recent' list on the 'Home' page.

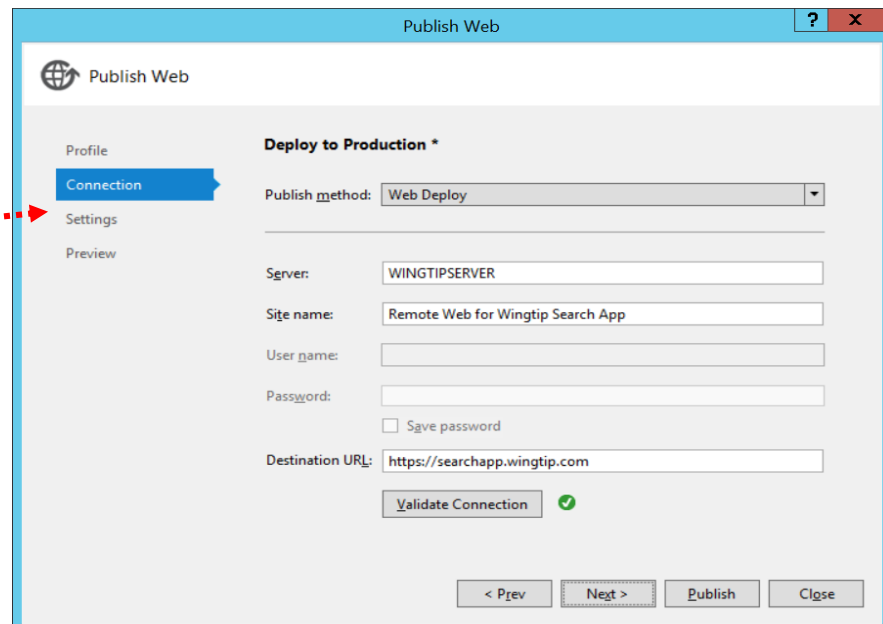
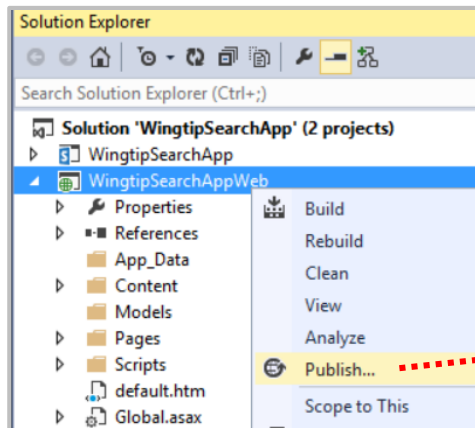


DEMO

Registering the App Security Principal for a Provider-hosted App

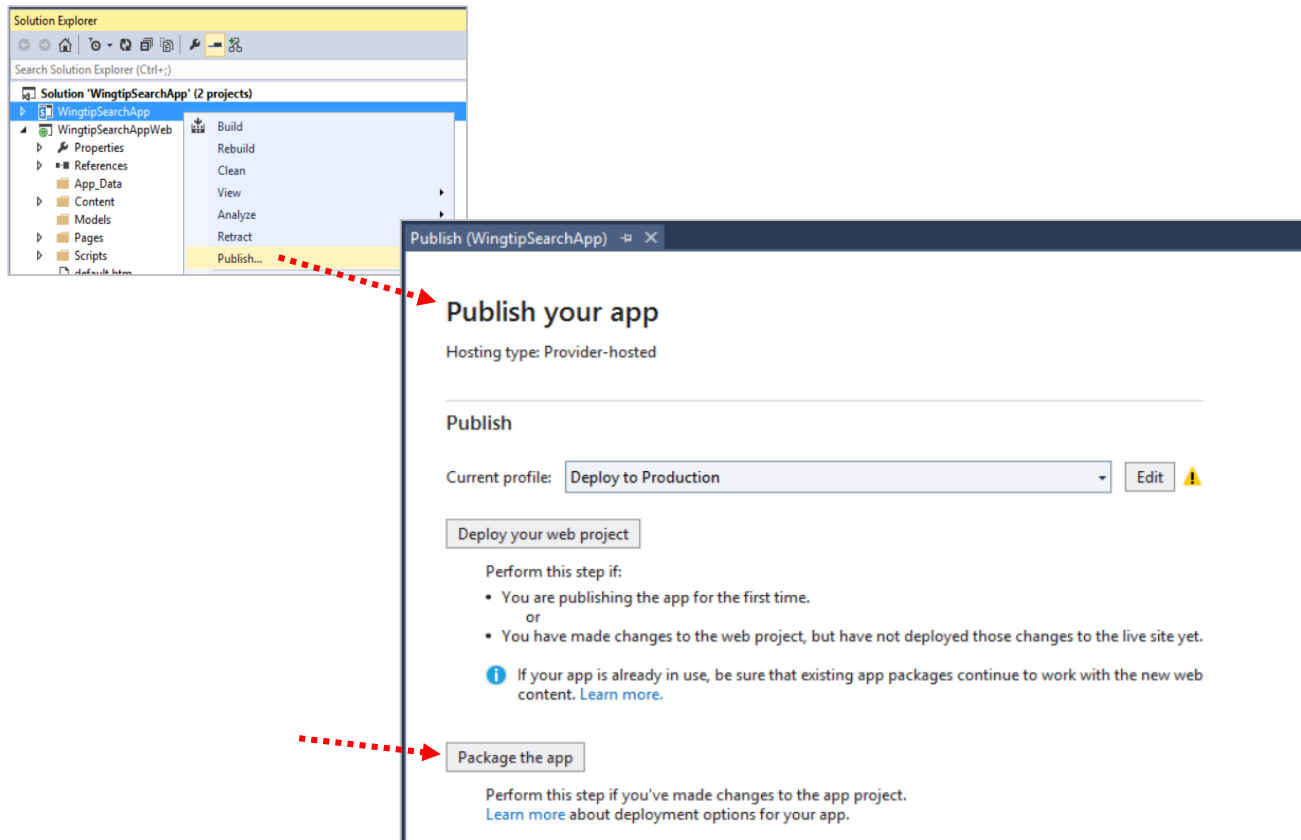
Deploying the App's Remote Web Project

- Visual Studio provides Publish Web wizard
 - Allows you to create one or more deployment configurations
 - Automatically pushes Web Project files into IIS website



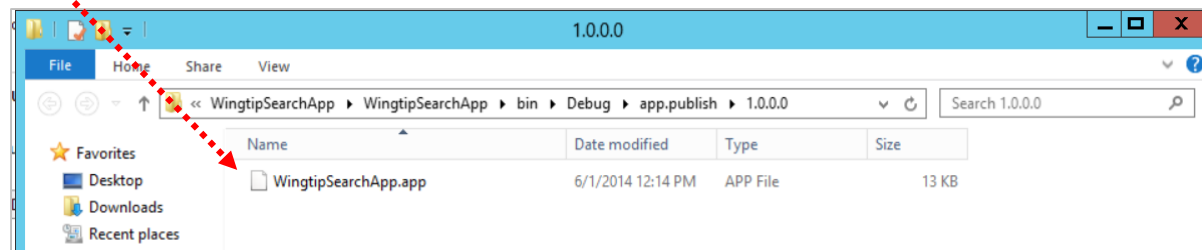
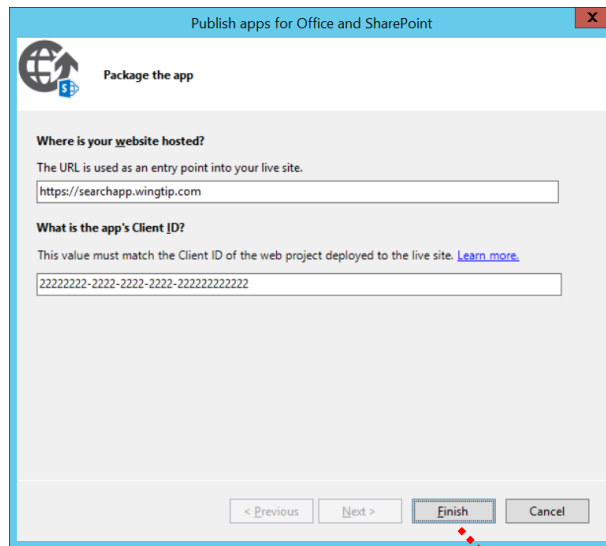
Creating the Provider-hosted App Package

- Visual Studio provides Publish your app page
 - Click **Package the app** to begin packaging process



Enter Information for the App Package

- Provide-hosted App must be published with...
 - SSL-based URL where the remote web has been deployed
 - The App ID (aka Client ID)



Publishing and Installing the App

- Publish the app package *(just like with a SharePoint-hosted app)*

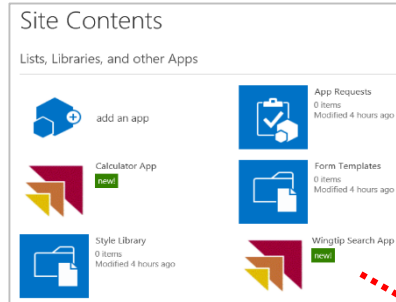
Apps for SharePoint ⓘ

⊕ new app or drag files here

All Apps Featured Apps Unavailable Apps ... ⓘ

✓	□	Title	Name	App Version	Edit	Product ID	Metadata Language	Default Metadata Language
Product ID : {921FDA40-576C-48CF-B00B-7285D24372A0} (1)								
□		Wingtip Search App	WingtipSearchApp	1.0.0.0		{921FDA40-576C-48CF-B00B-7285D24372A0}	English - 1033	Yes
Product ID : {2AB41D1E-C8A8-400A-AD6E-7C15FEE6A69A} (1)								
□		Calculator App	Calculator	2.0.0.0		{2AB41D1E-C8A8-400A-AD6E-7C15FEE6A69A}	English - 1033	Yes

- Install and launch



Host Web

Wingtip Search App

Find Top-level Sites Find Lists Find Tasks General Search ContentClass:STS_SITE

Search Result Title	Search Result URL
Wingtip Intranet	http://intranet.wingtip.com
SharePoint App Deployment and Versioning Lab	http://publishing.wingtip.com
Wingtip Toys	http://www.wingtip.com
Wingtip App Catalog	http://wingtipserver/sites/AppCatalog
Wingtip BI Center	http://intranet.wingtip.com/sites/bicenter
SP_Crawler	http://my.wingtip.com/personal/sp_crawler

The background of the slide is a close-up, low-angle shot of a server rack. The rack is filled with numerous server units, each featuring a grid of small, glowing blue lights. The perspective is looking up the length of the rack, creating a sense of depth and scale. The overall color palette is dominated by deep blues and bright cyan from the lights.

DEMO

Deploying a Provider-hosted App in an Office 365 using Windows Azure

Summary

- ✓ Understanding the SharePoint Online App Catalog
- ✓ Publishing and Installing SharePoint Add-ins
- ✓ Packaging SharePoint Framework Projects
- ✓ Deploying Provider-hosted Add-ins

