# SPFx CI/CD Pipeline: Ultra-Simple Guide

No tech background needed. Copy and paste exactly what’s between the code fences.

## 1. ONE-TIME SETUP (DO ONCE EVER)

### 1.1 Create and Export Your Certificate (Your Secure Key)

1. Open PowerShell 7: press Win, type pwsh, press Enter.  
  
2. \*\*Step A\*\*: Create the certificate. Copy & paste, then Enter:

```powershell  
$cert = New-SelfSignedCertificate -Subject "CN=SPFx Deployer" -KeyExportPolicy Exportable -CertStoreLocation "Cert:\CurrentUser\My" -KeyLength 2048  
```

3. \*\*Step B\*\*: Set a password for the certificate file. Copy & paste:

```powershell  
$pwd = ConvertTo-SecureString "MyPfxPassword123!" -AsPlainText -Force  
```

4. \*\*Step C\*\*: Export the certificate files into your current folder. Copy & paste:

```powershell  
Export-PfxCertificate -Cert $cert -FilePath ".\spfx-deployer.pfx" -Password $pwd  
Export-Certificate -Cert $cert -FilePath ".\spfx-deployer.cer"  
```

5. \*\*Verify\*\*: You should now see \*spfx-deployer.pfx\* and \*spfx-deployer.cer\* in this folder:  
```powershell  
Get-ChildItem .\spfx-deployer.\*  
```

### 1.2 Register the Certificate in Azure AD (Get Your CLIENT\_ID)

In the same PowerShell window, copy & paste:

```powershell  
Register-PnPAzureADApp -ApplicationName "SPFx Cert Deployer" -Tenant "kibebe101.onmicrosoft.com" -CertificatePath ".\spfx-deployer.pfx" -CertificatePassword $pwd -SharePointApplicationPermissions "Sites.FullControl.All"  
```

Copy the \*\*App ID\*\* printed on screen (a GUID). This is your \*\*CLIENT\_ID\*\*. You can also find it in the Azure Portal under Azure AD → App registrations → SPFx Cert Deployer → Application (client) ID.

### 1.3 Prepare GitHub Secrets

1. Base64‑encode your .pfx so GitHub can store it. Copy & paste:

```powershell  
[Convert]::ToBase64String([IO.File]::ReadAllBytes(".\spfx-deployer.pfx")) > pfx-base64.txt  
```

This creates \*\*pfx-base64.txt\*\* in the \*\*same folder\*\* where you ran PowerShell (your current directory).

2. Open the file to copy its contents:

```powershell  
notepad .\pfx-base64.txt  
```

Press \*\*Ctrl+A\*\* to select all, then \*\*Ctrl+C\*\* to copy the entire Base64 string.

3. In GitHub repo Settings → Secrets, add these 5 secrets:

| Secret Name | Value |  
|---------------|----------------------------------------|  
| CLIENT\_ID | \*Your App ID from step 1.2\* |  
| TENANT\_ID | `kibebe101.onmicrosoft.com` |  
| PFX\_BASE64 | \*Text copied from pfx-base64.txt\* |  
| PFX\_PASSWORD | `MyPfxPassword123!` |  
| SPO\_SITE\_URL | `https://kibebe101-admin.sharepoint.com`|

## 2. DEPLOY FROM ANY COMPUTER OR ACCOUNT

1. Copy \*spfx-deployer.pfx\* to the new machine (e.g. `C:\certs`).  
2. Open \*\*PowerShell 7\*\* and run:  
```powershell  
Install-Module PnP.PowerShell -Scope CurrentUser -Force -AllowClobber  
Import-Module PnP.PowerShell  
```

3. Connect and deploy (replace paths):

```powershell  
$pwd = ConvertTo-SecureString "MyPfxPassword123!" -AsPlainText -Force  
Connect-PnPOnline -Url "https://kibebe101-admin.sharepoint.com" -ClientId "11164c9d-02ea-478f-afb1-dae768844ea7" -Tenant "kibebe101.onmicrosoft.com" -CertificatePath "C:\certs\spfx-deployer.pfx" -CertificatePassword $pwd  
Add-PnPApp -Path "C:\path\to\your.sppkg" -Scope Tenant -Publish -Overwrite  
```

## 3. FULL AUTOMATION WITH GITHUB ACTIONS

Create a file `.github/workflows/spfx-pipeline.yml` with exactly this content:

```yaml  
name: SPFx CI/CD  
on: [push]  
jobs:  
 build:  
 runs-on: ubuntu-latest  
 steps:  
 - uses: actions/checkout@v3  
 - uses: actions/setup-node@v3  
 with: {node-version: '18.18.1'}  
 - run: npm install  
 - run: npm install gulp gulp-cli  
 - run: gulp bundle --ship  
 - run: gulp package-solution --ship  
 - uses: actions/upload-artifact@v4  
 with: {name: spfx-package, path: sharepoint/solution/\*.sppkg}  
 deploy:  
 needs: build  
 runs-on: windows-latest  
 steps:  
 - uses: actions/checkout@v3  
 - uses: actions/download-artifact@v4  
 with: {name: spfx-package, path: sharepoint/solution/}  
 - name: Install PnP.PowerShell  
 shell: pwsh  
 run: |  
 Install-Module PnP.PowerShell -Scope CurrentUser -Force -AllowClobber  
 Import-Module PnP.PowerShell  
 - name: Deploy via Certificate Auth  
 shell: pwsh  
 env:  
 SPO\_SITE\_URL: ${{ secrets.SPO\_SITE\_URL }}  
 CLIENT\_ID: ${{ secrets.CLIENT\_ID }}  
 TENANT\_ID: ${{ secrets.TENANT\_ID }}  
 PFX\_BASE64: ${{ secrets.PFX\_BASE64 }}  
 PFX\_PASSWORD:${{ secrets.PFX\_PASSWORD }}  
 run: |  
 $pfxPath = "$env:RUNNER\_TEMP\\spfx-deployer.pfx"  
 [IO.File]::WriteAllBytes($pfxPath, [Convert]::FromBase64String($env:PFX\_BASE64))  
 $pwd = ConvertTo-SecureString $env:PFX\_PASSWORD -AsPlainText -Force  
 Connect-PnPOnline -Url $env:SPO\_SITE\_URL -ClientId $env:CLIENT\_ID -Tenant $env:TENANT\_ID -CertificatePath $pfxPath -CertificatePassword $pwd  
 Add-PnPApp -Path (Get-ChildItem sharepoint/solution/\*.sppkg).FullName -Scope Tenant -Publish -Overwrite  
```