HCL Digital Experience

HDX-DEV-100
Script Application for Beginners

HCLSoftware Academy
for Digital Solutions

Creating a new generation of experts

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Authors

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Authors

Introduction

This hands-on lab guides you through creating an application on HCL Digital Experience (DX), using its advanced script application capabilities. You will experience how quick and easy it is to create and update applications.

In this DX developer lab, you play the role of Gene, a developer for the fictitious Woodburn Studio company.

Gene Hayes, Developer, based in Chicago (USA)

As a Web Developer you will create a new Script Application to promote HCL Digital Experience. You will first use the Script Editor to create a first version in a dedicated Promotion page that shows 'HCL Digital Experience' in a special style. Then you will export it locally, so you can use your favorite IDE to further enhance it. You will add a logo to your application and then import it back into the DX server.

You will then use the DXClient (and optionally the Web Developer Toolkit) to deploy your local development efforts more easily. You will again make some improvements locally that allows the user to show and hide the logo. And finally use the DXClient to deploy (and optionally the Web Developer Toolkit with the Web Developer Dashboard and sp command to synchronize (push and pull)) your local Script Application to the DX server.

Prerequisites

1. Completion of HDX-INTRO and HDX-BUS-100 courses, including the labs
2. Access to download the Lab Resources. In the same place where you have found this lab, you will find corresponding resources which you may download and unzip in your Desktop. This helps you to run the lab more easily, and you may later replace them by your own ones.
3. A local code editor. This lab provides instructions with Visual Studio Code (VSC): https://code.visualstudio.com
4. DXClient deployed and configured. See HDX-DEV-100 Introduction lesson to learn how to set this up.
5. Optionally, HCL Digital Experience Web Developer Toolkit installed locally. Download and installation instructions are provided here: https://github.com/HCL-TECH-SOFTWARE/WebDevToolkitForDx.
6. Optionally, HCL File Store (dxsync) installed locally. Download and installation instructions are provided here: https://github.com/HCL-TECH-SOFTWARE/dxsync.

You will be using the following user IDs and passwords:

Purpose	User	Password
SoFy Login	Your official email id	Your password
SoFy Solution Console Login	sol-admin	pass
Developer Gene Hayes	ghayes (or wpsadmin)	HCL-Dem0 (or wpsadmin)

Lab Overview

In this lab you will create a new 'HCL Digital Experience Promotion' Script Application in various ways.
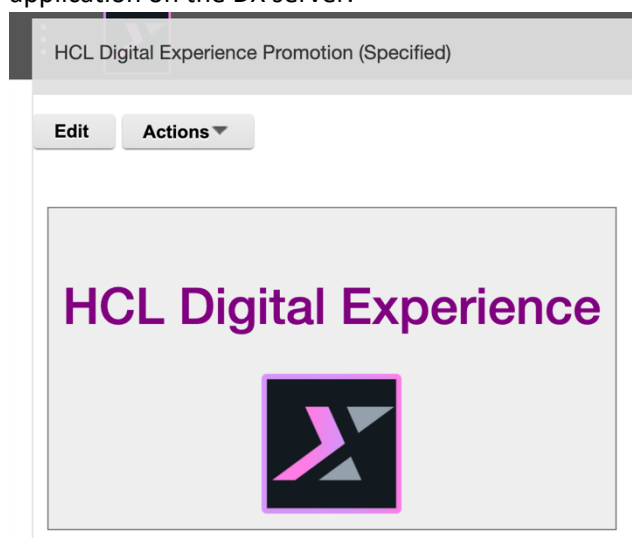
Part 1: Create a new Script Application on DX Server using Script Editor

You will create a new 'HCL Digital Experience Promotion' Script Application using the Script Editor in a DX page and discover it is a special Web Content.
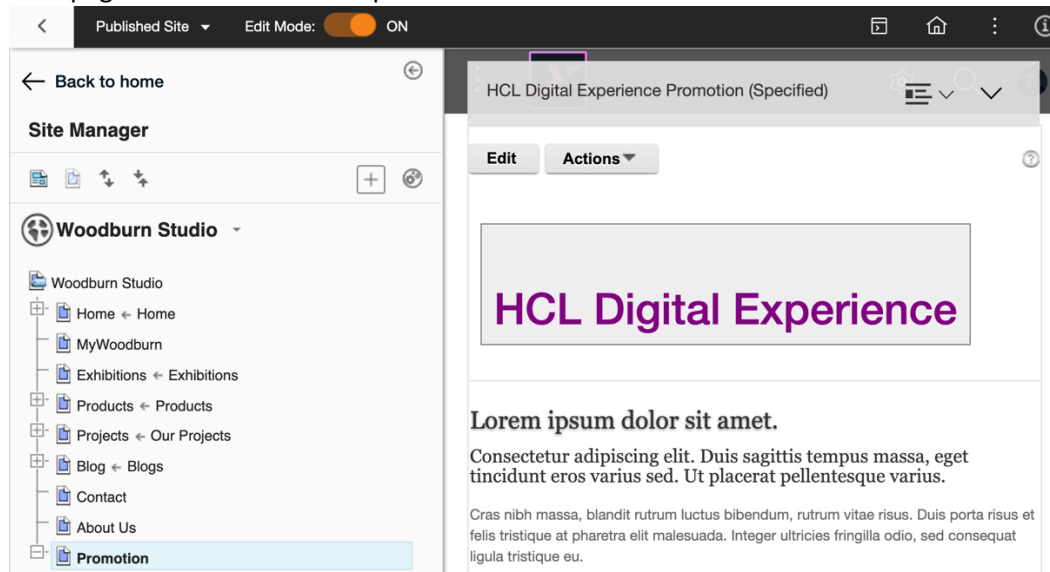

Part 2: Export the Script Application to Local, Update and Import into DX Server

You will export this application from the DX server to your local system and update it using your choice of code Editor, by adding an HCL DX logo image to it and then import into and test this application on the DX server.

Part 3: Update the Script Application locally, Run and Deploy Changes

And you will update the Script Application on your local system to provide buttons that show/hide the logo image. This time you will test and synchronize (push and pull) the application with the DX server using the DXClient (and optionally the DX Web Developer Toolkit with its Web Developer Dashboard and sp command).
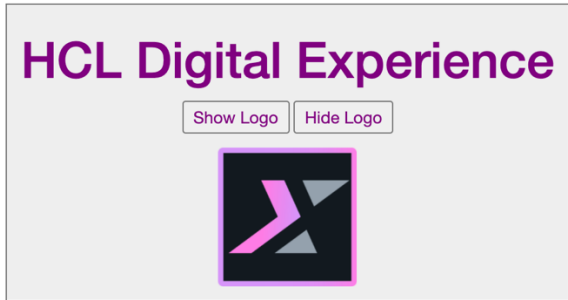
Part 1: Create a new Script Application on DX Server using Script Editor

You will login as a developer, and you will be guided through the task of creating a **HCL Digital Experience Promotion** Script Application showing the "**HCL Digital Experience**" heading with a special style. You will create a new Script Application using the **Script Editor** and discover it is a special Web Content.

1. Start by adding the Script Application to a DX page under WoodBurn Studio site. Log on to the DX server as Gene Hayes. Click **Log in**.
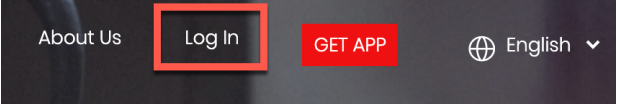

2. Then use the credentials of Gene (User ID: **ghayes**, Password: **HCL-Dem0** – if you do not have these, you may use the default administrator account with User ID: **wpsadmin,** Password: **wpsadmin)**
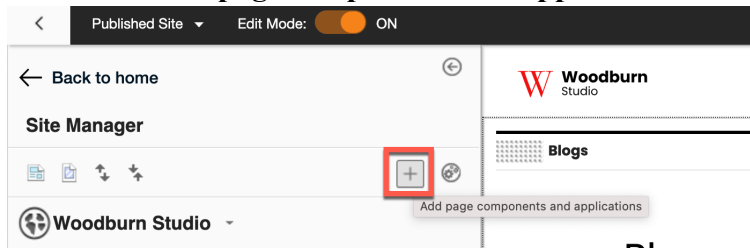

3. If you have created a Promotion page in the Theme Development lab, you may use that, otherwise use the existing Blog page. We'll show instructions with the Promotion page. Click **Promotion** (otherwise Blog).
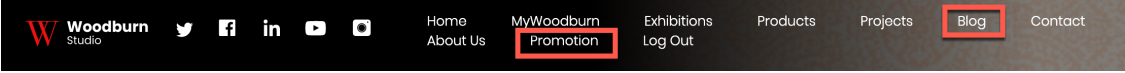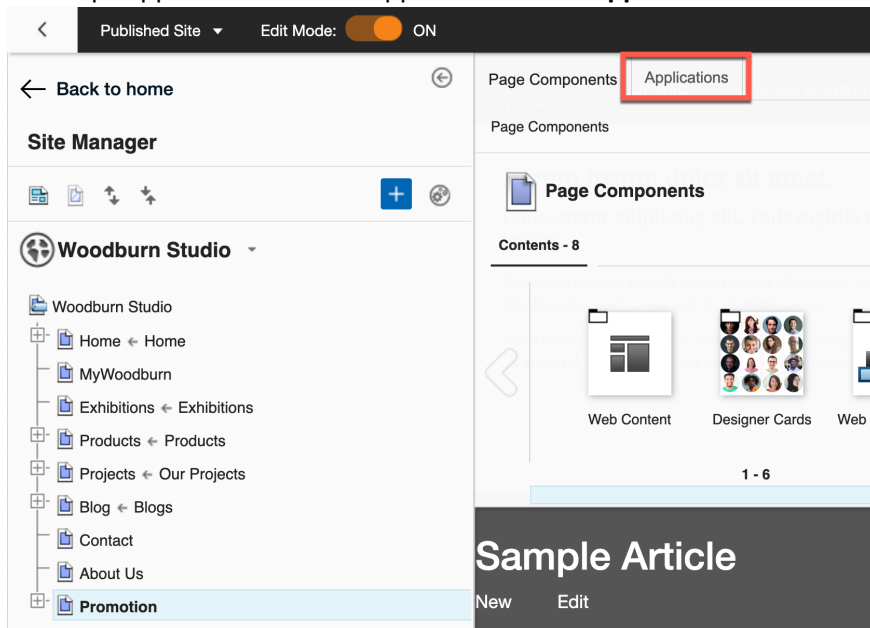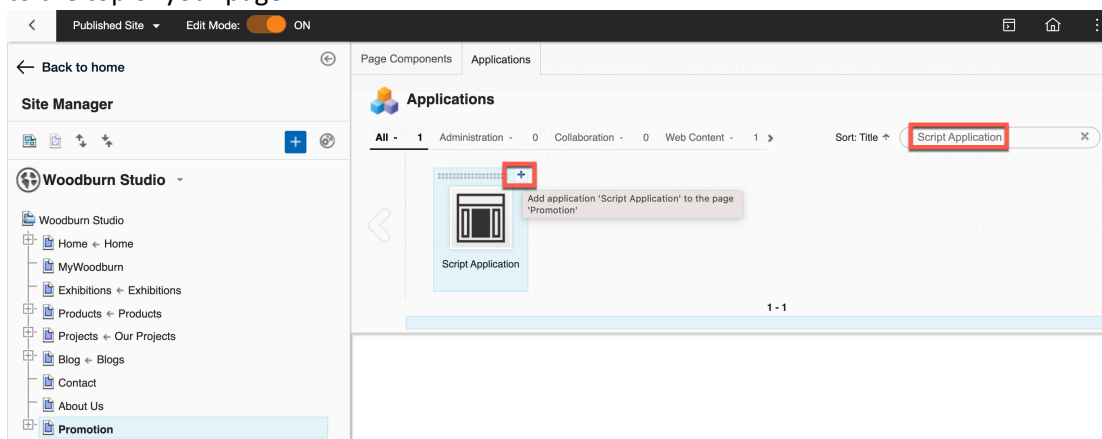

4. Turn the Edit Mode on.
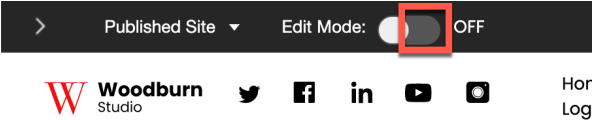
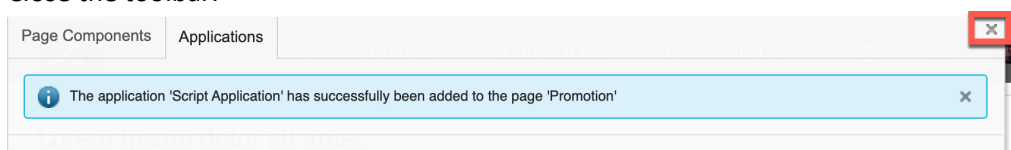5. Then click **Add page components and applications**.

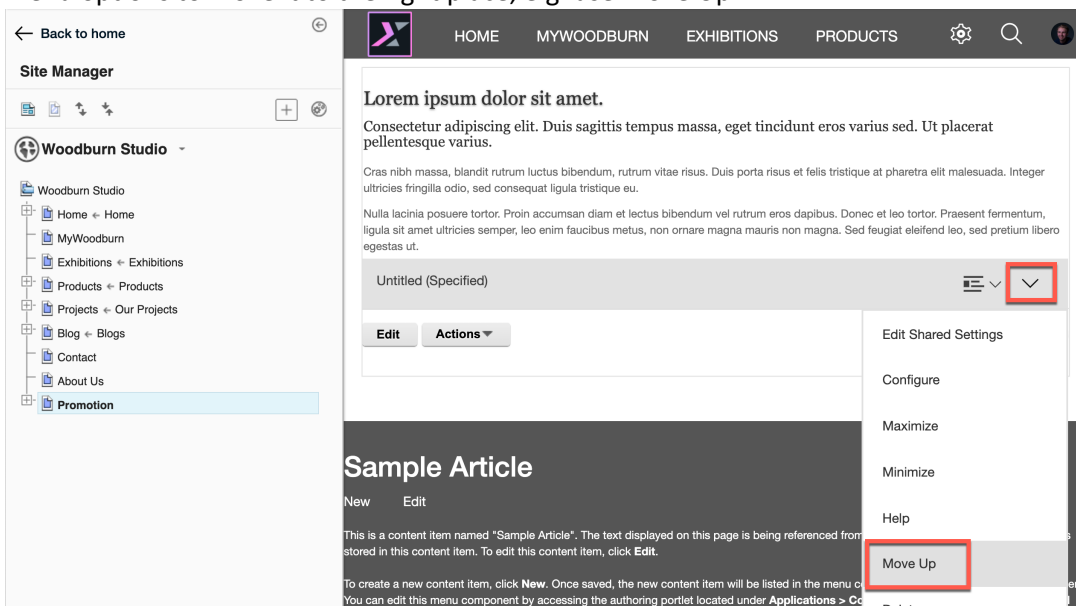6. The Script Application is under Applications. Click **Applications**.

7. Then search for **Script Applications** and add it to your page. Either use the **+** or drag & drop it to the top of your page.
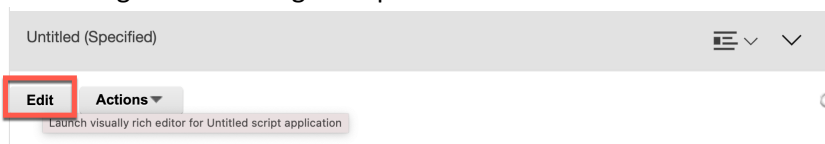

8. Close the toolbar.

9. Ensure the Script Application is on the top of the page. If it is not yet on the top, use the menu options to move it to the right place, e.g. use Move Up.


10. Then add the code. Hover over your Script Application and notice its name, now 'Untitled'. Now change it to 'HCL Digital Experience Promotion'. Click **Edit.**

11. The **Script Application Editor** window will open. Notice that you are on the **HTML** tab. There are additional ones for CSS and JavaScript. Also notice the preview pane on the right and location where this application is stored. Name the application first. Click on the **pencil** button next to **Untitled**.
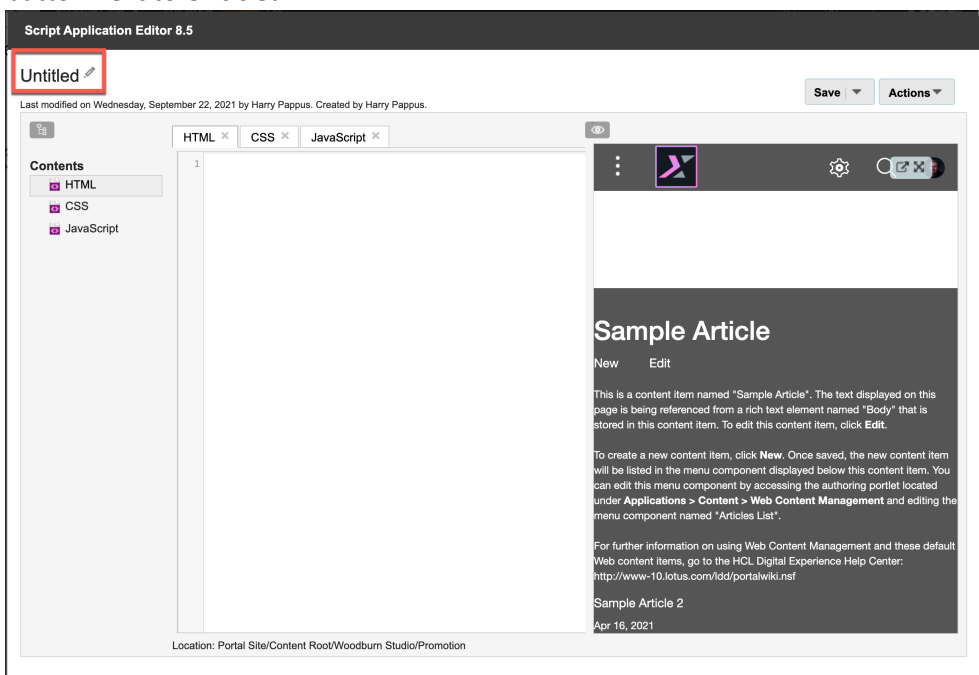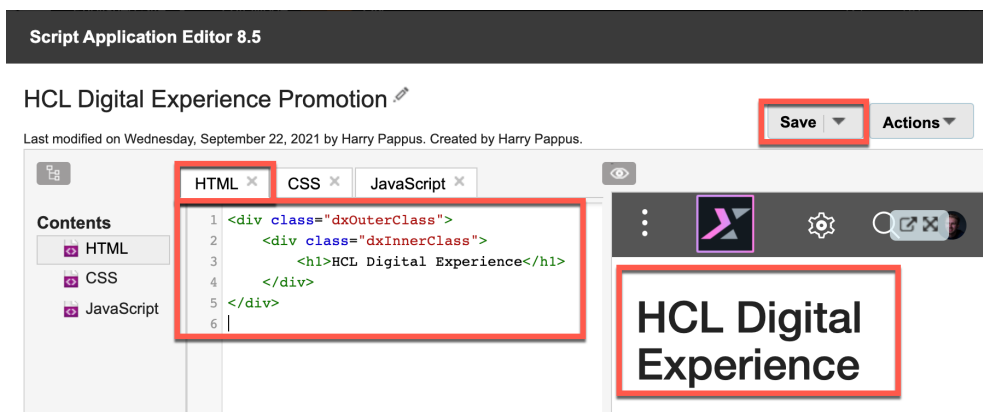
12. Set the name of the application to **HCL Digital Experience Promotion** and click **Save**.
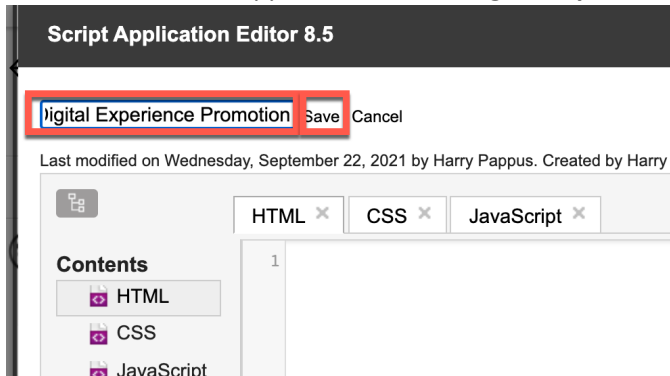

13. Now add some code to show **HCL Digital Experience** with a special style. Under the **HTML** tab enter the following code to manage the main page. Then click **Save** to see it updated in the preview pane.

```html
<div class="dxOuterClass">
   <div class="dxInnerClass">
      <h1>HCL Digital Experience</h1>
   </div>
</div>
```

14. Then style it, using the classes you have defined above with dxInnerClass and dxOuterClass. Under the **CSS** tab, define the above classes by entering the following code. Again, click **Save** to see how it updates and then close the editor using the **X** in the right top corner.

```
.dxOuterClass {
    background-color: #eeeeee;
    width: fit-content;
    margin: 10px;
    border: solid 1px #777777;
    text-align: center;
}
.dxInnerClass {
    color: purple;
    margin: 10px;
      padding-top: 5%;
}
.dxInnerClass img {
    max-height: 100px;
}
.hidden {
    display: none;
}
```
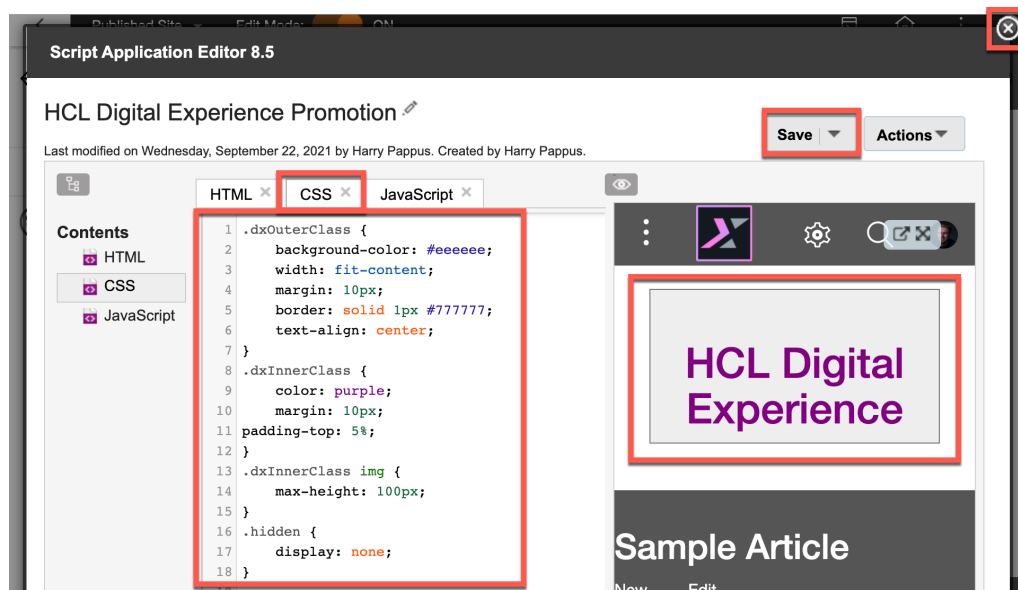
15. Your page will look like this. Now check that this is a Web Content. Open the **Content menu** and you see the options Configure Spot and Read, Edit and Delete the form. With Configure Spot you can manage to what segments it should show and potentially use other Content or Script Applications targeted to other segments in the same place. As it is a content, it benefits from all the other advantages of content, like being part of a workflow, project, versioning, access control, etc. Then have a look at how this looks like as a content item. Click **Open Edit Form**.
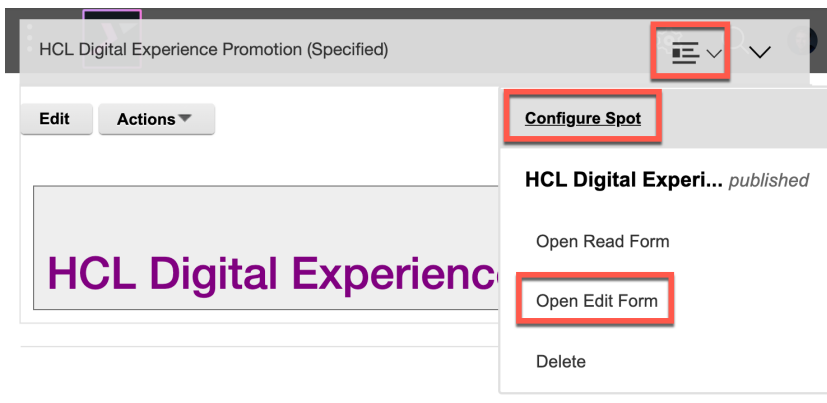
16. Notice where this Script Application is stored, under the Woodburn Studio page you have created. Then see the different elements that are available to store the Head, CSS, HTML and JavaScript. Now find out what Content and Presentation templates are used. Click **Properties**.
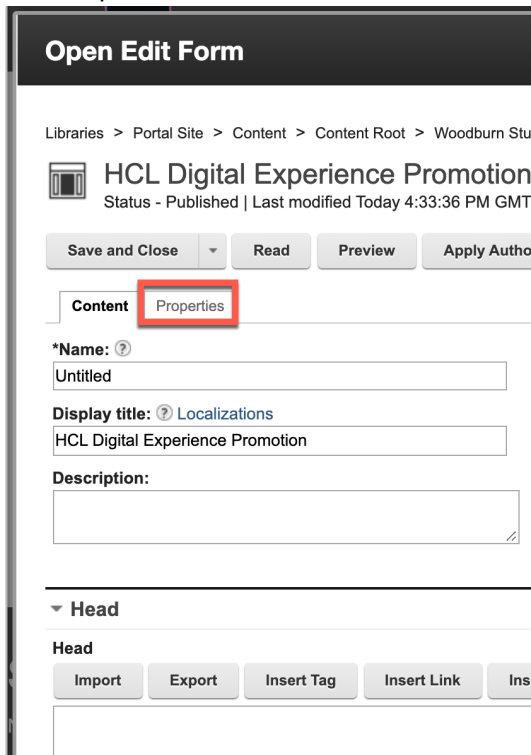
17. Here you see it uses the Script Application Content and Presentation Template, both managed in the Script Application Library. The Script Application Library also has a Site Area called Script Applications that is configured to show in the toolbar. You make look at other parts and then close the content.
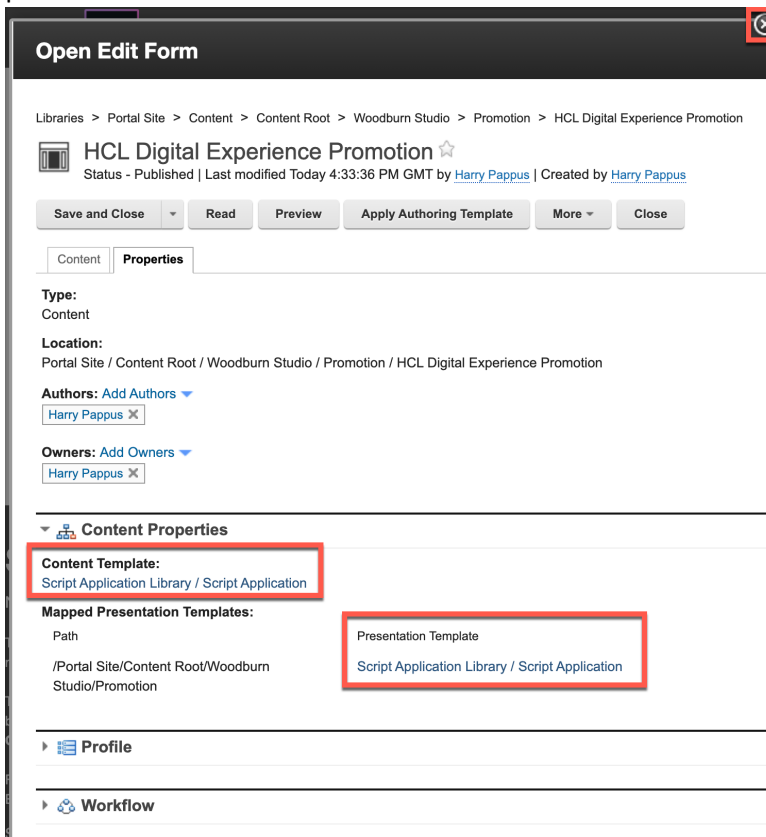

Congratulations!! You have created and deployed a new DX Script Application **HCL Digital Experience Promotion** on a DX page!

Part 2: Export the Script Application to Local, Update and Import into DX Server

You will export this application from the DX server to your local system and update it using your **choice of code Editor**, by adding an HCL DX logo image to it and then import and test this application into the DX server.

1. Start by exporting your Script Application to your local system where you can make further changes. Open the **Action** menu and click **Export**.
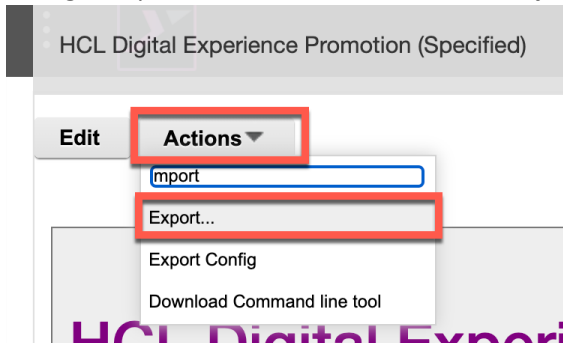
2. This allows you to download a zip file, called script_portlet_export.zip. Select (or create) a folder to download this file and click **Save**.
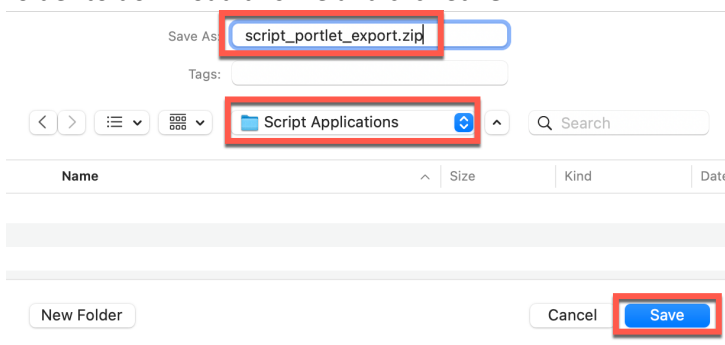
3. Then unzip the file, rename the extracted folder to **HCL Digital Experience Promotion** and view its contents. Notice that the HTML file name has been stored as **index.html** and the CSS file as **css0.css**. There is also a configuration file, **sp-config.json**, that contains information about the Script Application and where it is stored on the server. You will discover shortly in more details.
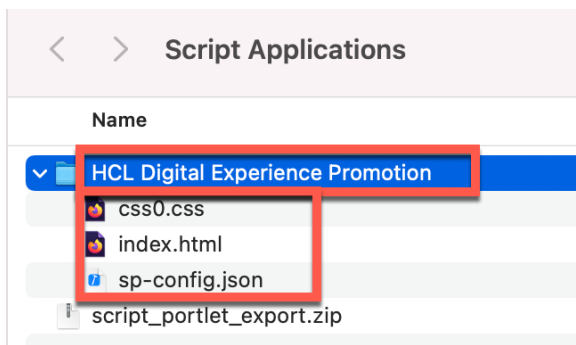
4. Open this folder in your choice of **Editor** (we have used Visual Studio Code Editor) and have a look at these files. Start with the **index.html**. Notice that additional code that has automatically been added to include the stylesheet **css0.css**.

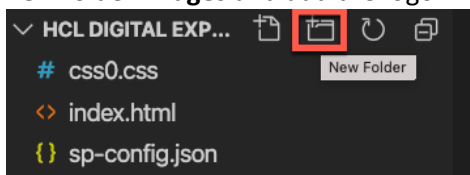5. The **css0.css** file has no changes from the CSS you entered before.

6. Now have a look at the new **sp-config.json**. You see the parameters of your server, the user and the title and ID of the content on the server.

7. Now add a logo image of HCL Digital Experience and show it in your application. Create a new folder **images** and add the logo image file. First create a new image folder.

8. Then add **dx-logo.png**, located under **Script Application Lab Resources** folder, with Windows Explorer, Finder or other file copy tool.

9. Then use the new logo in your Script Application. In the **index.html**, add the image reference inside the existing dxInnerClass div using again an dxInnerClass div. The updated code should look like this. Save your changes.

```html
<html>
 <head>
<link rel="stylesheet" type="text/css" href="css0.css">
 </head>
 <body>
<div class="dxOuterClass">
  <div class="dxInnerClass">
    <h1>HCL Digital Experience</h1>
    <div class="dxInnerClass">
       <img id="logo" src="images/dx-logo.png">
    </div>
  </div>
</div>
 </body>
</html>
```
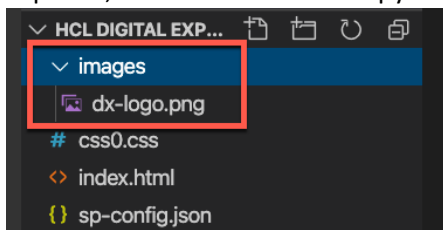
10. To test your changes on the DX server, deploy the application by importing it from your local system. Locate the Script Application on your local system and zip the folder.
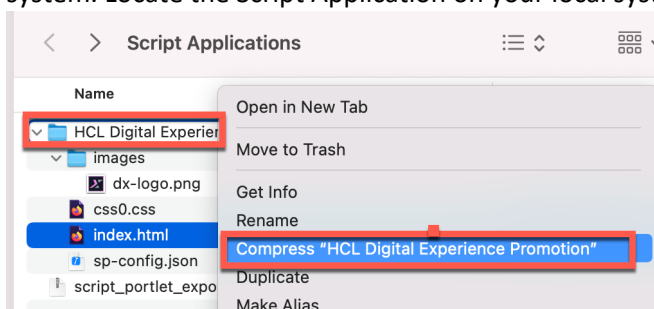
11. Now import it into the DX Server. Click to open the **Action** menu and then **Import.**
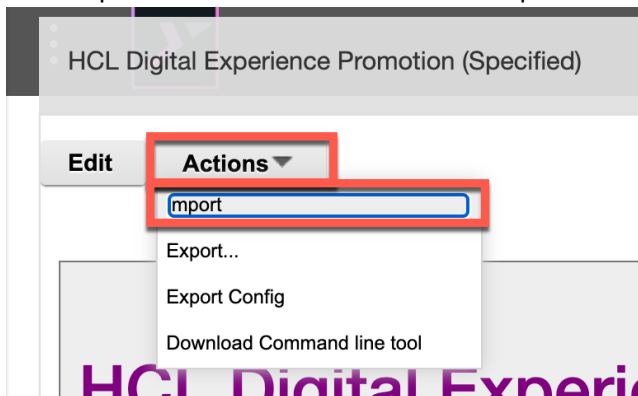
12. Click **Choose File** and browse and **Open** your zipped Script Application (**HCL Digital Experience Promotion.zip**). Click **Import**.
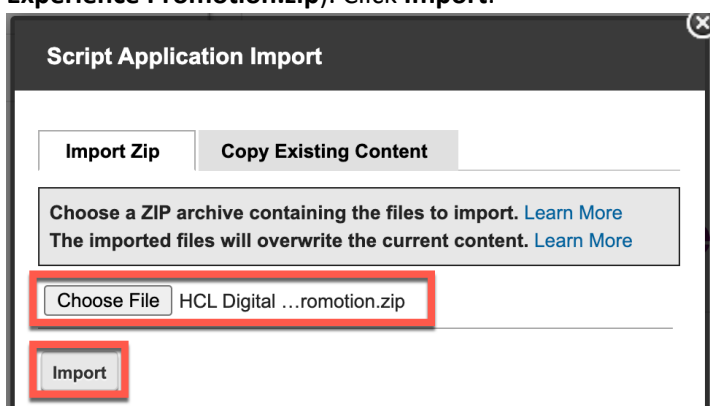
13. Expand the imported folder structure and verify that all your files have been imported, and then click close the window.
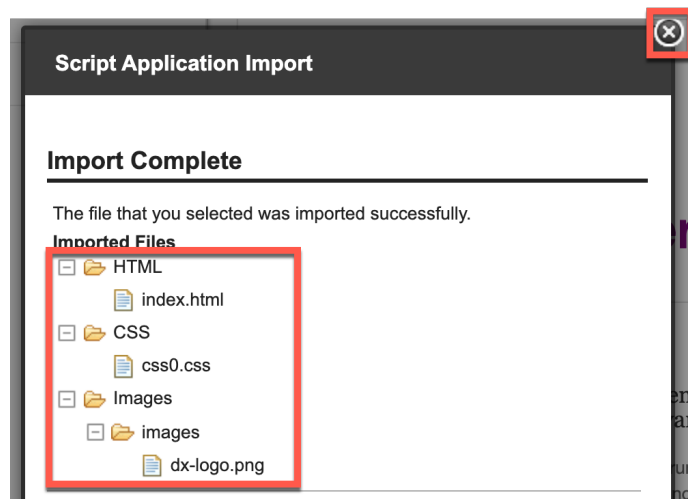
14. You should now be able to view the updated Script Application with the added HCL Digital Experience logo image. Click **Edit** to see how the HTML has been updated.
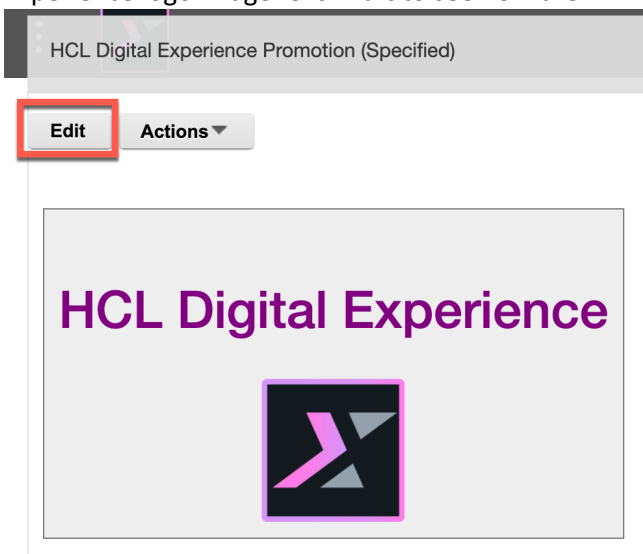
15. Notice that special tags have been created to manage tags, using the data-script-portlet-original-tag, and when referring to the other files, a [Plugin:ScriptPortletElementURL] is used to point to the other files of the Script Application. You can close it again.
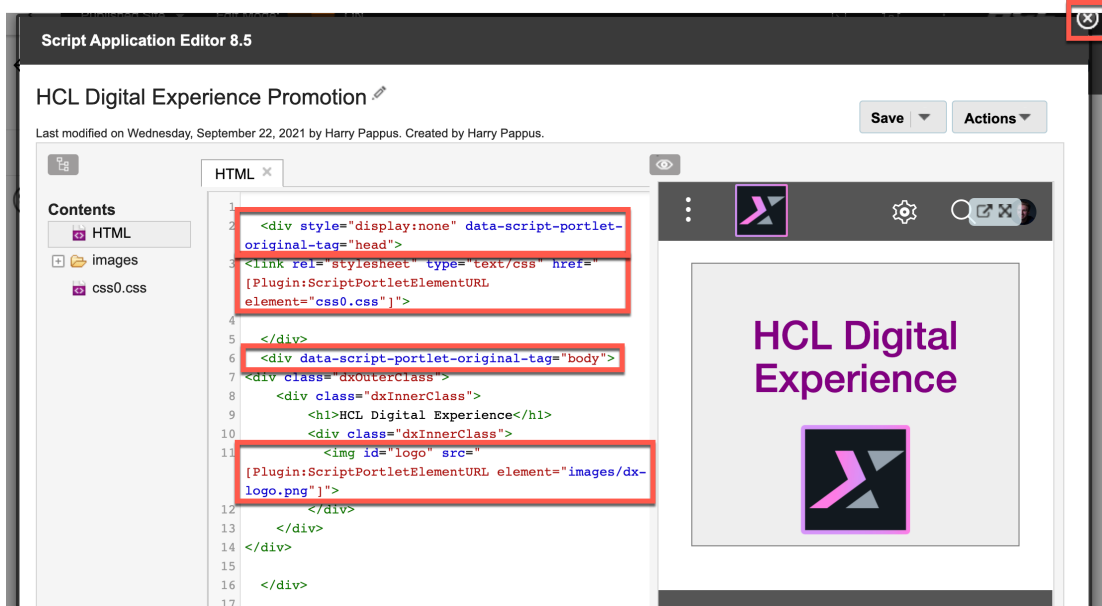
Congratulations! You have now learnt how to export your DX script application to your local system, update it and deploy your changes by importing the application into the DX server.

Part 3: Update the Script Application Locally, Run and Deploy Changes

You will update the Script Application on your local system to provide buttons that show/hide the logo image. This time you will test and synchronize (push and pull) the application with the DX server using the DXClient (and optionally the DX Web Developer Toolkit with its Web Developer Dashboard and sp command).

1. In your code editor, first create a new JavaScript folder to manage your JavaScript files. Create the folder **js** within your local script application. Click **New Folder icon** and name it **js**.
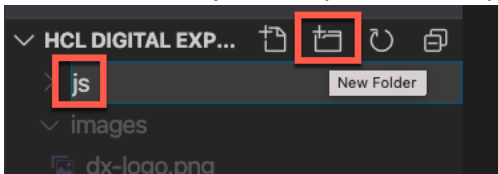
2. Then create a file **app.js** file. Open the js folder and then click **New File icon** and name it **app.js**.
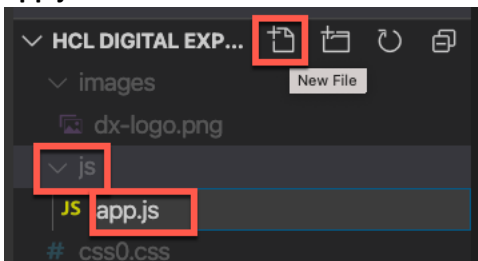
3. Then add the JavaScript code to control to show and hide the logos.

```javascript
function showLogo() {
    var logo = document.getElementById("logo");
    logo.classList.remove('hidden');
}

function hideLogo() {
    var logo = document.getElementById("logo");
    logo.classList.add('hidden');
}
```
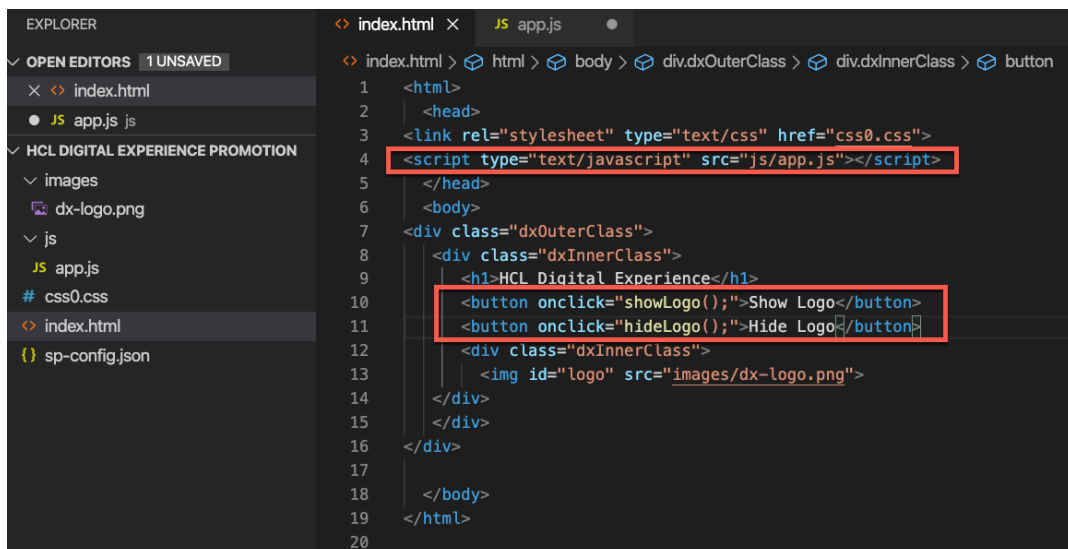
4. Now update the **index.html** file to reference the app.js file and add buttons that call these functions to show or hide the logo, shown in bold. **Save** it (CRTL + S).

```html
<html>
  <head>
<link rel="stylesheet" type="text/css" href="css0.css">
<script type="text/javascript" src="js/app.js"></script>
  </head>
  <body>
<div class="dxOuterClass">
  <div class="dxInnerClass">
    <h1>HCL Digital Experience</h1>
        <button onclick="showLogo();">Show Logo</button>
        <button onclick="hideLogo();">Hide Logo</button>
        <div class="dxInnerClass">
          <img id="logo" class="hidden" src="images/dx-logo.png">
        </div>
  </div>
</div>
  </body>
</html>
```


5. Now that your final application is ready, you can test it on your localhost with a built-in test server on your code editor (Visual Studio Code has several you may use) and verify your changes. You may go to step 8. If you are using the Web Developer Dashboard, you may use its built-in test server. In the Theme Development lab, you may learn how to configure the **Web Developer Dashboard**. Start it now by running the **dxdashboard** command from the command prompt.

```
[Hilhorst-MacBook-Pro:~ hilhorst2$ dxdashboard
```

6. Go to the **Settings** tab and enter the path of the **Script Applications Folder** to point to the local system folder where your Script Application is placed.
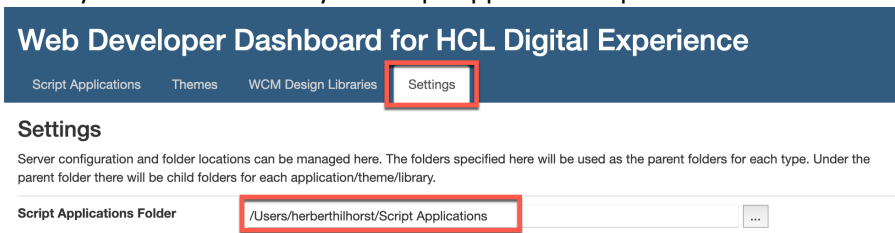
7. Now go to the **Script Applications** tab. Your application should be visible in the list of available Script Applications. Click on the **Run** button of your Script Application.
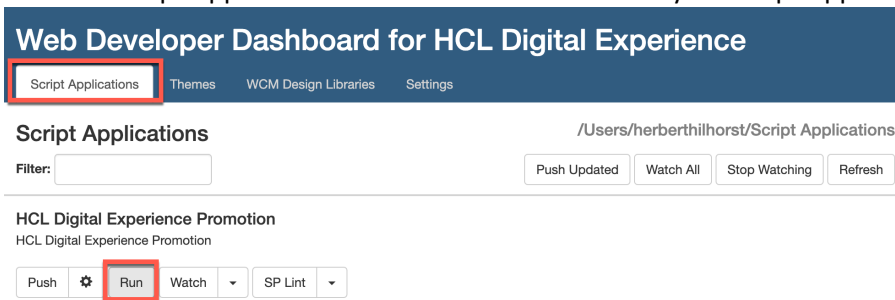
8. This starts your Script Application on a local test server that comes with the Web Developer Dashboard. A browser window should automatically open, and you should be able to view your changes. Try clicking on the **Show Logo** and **Hide Logo** buttons to verify your changes.
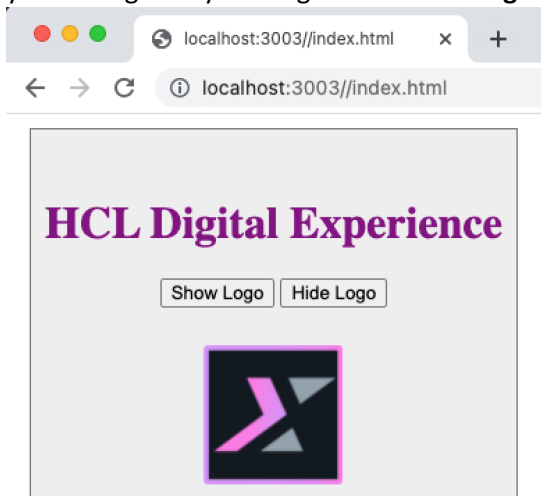
9. You may use other tools to optimize and check your code. This could be part of your pipeline using DXClient. Again, if you are using the Web Developer Dashboard, you may notice that under the configuration, to the right of the Push icon, you can invoke your own build scripts when pushing Script Applications to the server, to compile LESS/Sass, combine/minify JS, etc..
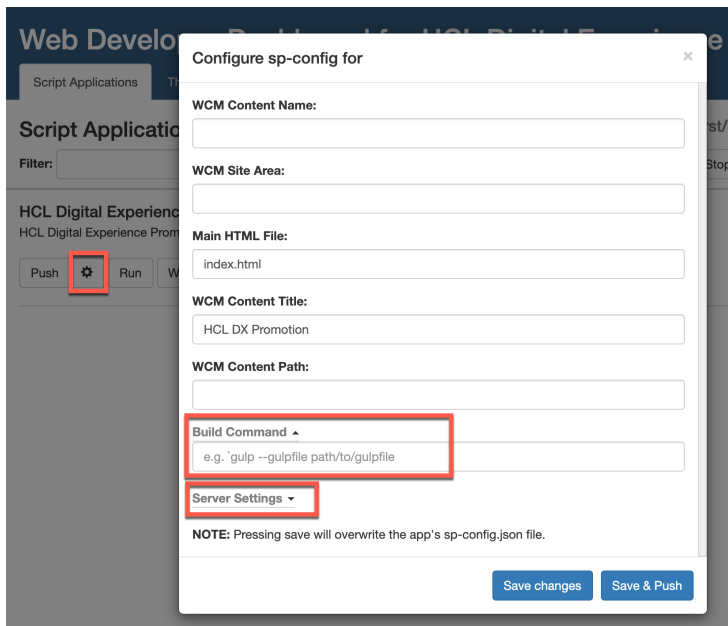
10. Notice you can also run an SP Lint (Script Portlet Lint) to check for potential issues with your Script Application.
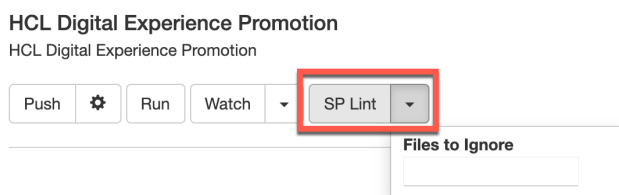
11. Now you can deploy your changes on the DX server, this time using the DXClient. You can use the **dxclient deploy-scriptapplication push -h** to understand its options (or pull if you wish to pull it locally).
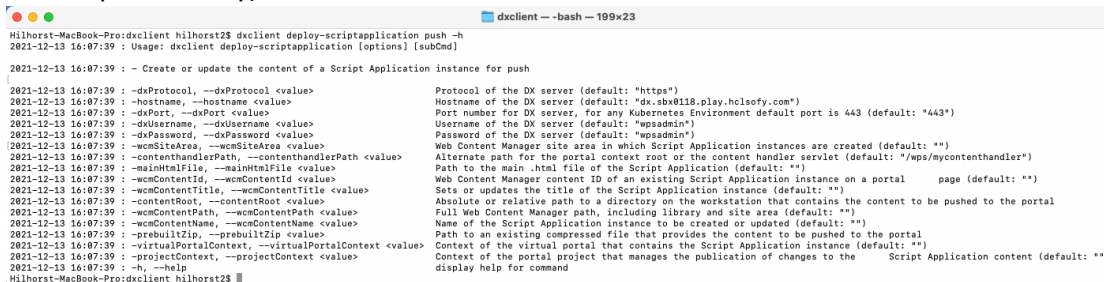
12. Then to deploy your script, ensure your **config.json** settings are set. For the Script Application, you need to specify the one of the following parameters **wcmContentId**, **wcmContentPath** or **wcmContentName & wcmSiteArea**, as shown in https://opensource.hcltechsw.com/digital-experience/latest/extend_dx/development_tools/dxclient/dxclient_artifact_types/scriptapplications. As your application is already deployed, you may use the existing **wcmContentId**. The **wcmContentId** is also set in the **sp-config.json** file to the ID of your content that contains the Script Application, e.g. "cfbabdda-8fd8-4413-b79d-73a8cfc07424". In addition, you need to indicate the path or your Script Application with the -contentRoot and indicate the name of the main HTML file with -mainHtmlFile parameters. *Note that in older versions of DXClient, you could not use spaces in the path. Hence you may replace any spaces for example with an underscore '_'.* Use this to deploy your updated version

dxclient deploy-scriptapplication push -wcmContentId <UUID of existing Script Application content> -mainHtmlFile <main HTML file of your Script Application> -contentRoot <path to your script application>

```
● ● ●                          📁 dxclient — -bash — 124×26
Hilhorst-MacBook-Pro:dxclient hilhorst2$ dxclient deploy-scriptapplication push -wcmContentId cfbabdda-8fd8-4413-b79d-73a8cf
c07424 -mainHtmlFile index.html -contentRoot /Users/herberthilhorst           /Data/Script_Applications/HCL_Digital
_Experience_Promotion/
2021-12-14 08:17:02 : Begin content push to Portal.
2021-12-14 08:17:02 : WCM content ID: cfbabdda-8fd8-4413-b79d-73a8cfc07424.
2021-12-14 08:17:02 : WCM Content Path: .
2021-12-14 08:17:02 : WCM Content Title: .
2021-12-14 08:17:02 : Main HTML file: index.html.
2021-12-14 08:17:02 : PrebuiltZip path does not exist.
2021-12-14 08:17:02 : Archive file:

        /tmp/tmp--1-QUNm0fqke2yf-.zip
        (902 bytes in 3 files)

        css0.css
        index.html
        sp-config.json.
(node:1) Warning: Setting the NODE_TLS_REJECT_UNAUTHORIZED environment variable to '0' makes TLS connections and HTTPS reque
sts insecure by disabling certificate verification.
(Use `node --trace-warnings ...` to show where the warning was created)
2021-12-14 08:17:05 : Content push was successful.
2021-12-14 08:17:05 : End content push to Portal.
2021-12-14 08:17:05 : Body content: {"results":{"status":"success","importedFiles":{"file":[{"filename":"HTML/index.html"},{
"filename":"CSS/css0.css"}]},"skippedFiles":"","message":"The file that you selected was imported successfully.","contentId"
:"cfbabdda-8fd8-4413-b79d-73a8cfc07424"}}.
Hilhorst-MacBook-Pro:dxclient hilhorst2$ █
```

13. Now you may go directly to step 18. Optionally, you may use the Web Developer Dashboard or **sp** command. From the **Script Applications** tab, click **Push** for your script application.

Web Developer Dashboard for HCL Digital Experience

| Script Applications | Themes | WCM Design Libraries | Settings |

Script Applications   /Users/herberthilhorst/Script Applications

Filter: [   ]   [Push Updated] [Watch All] [Stop Watching] [Refresh]

HCL Digital Experience Promotion
HCL Digital Experience Promotion

[Push] ⚙ [Run] [Watch] ▼ [SP Lint] ▼
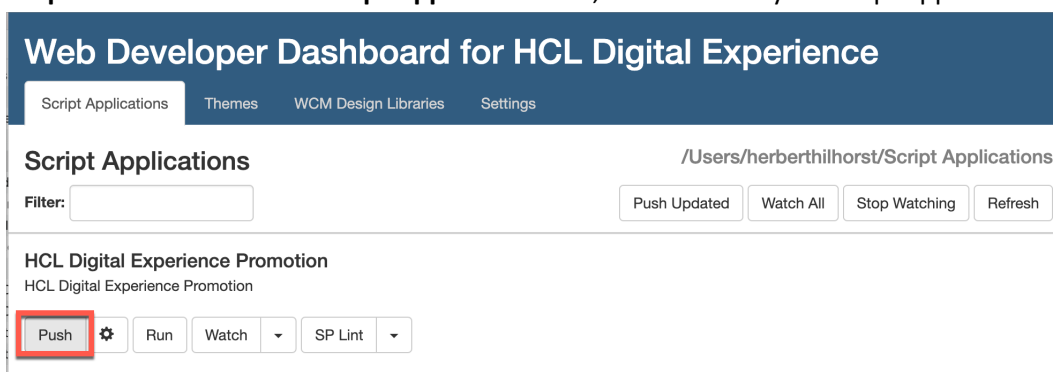
14. Click **View Log** and look for the log **Content push was successful**. Alternatively, if the color of the **View Log** button is green, then your changes were successfully deployed on the DX Server.

Web Developer Dashboard for HCL Digital Experience

Script Applications   Themes   WCM Design Libraries   Settings

Script Applications   /Users/herberthilhorst/Script Applications

Filter: [   ]   [Push Updated] [Watch All] [Stop Watching] [Refresh]

HCL Digital Experience Promotion   [✔ View Log]
HCL Digital Experience Promotion   Pushed: 9/22/2021, 9:56:35 PM

[Push] [⚙] [Run] [Watch] [▾] [SP Lint] [▾]
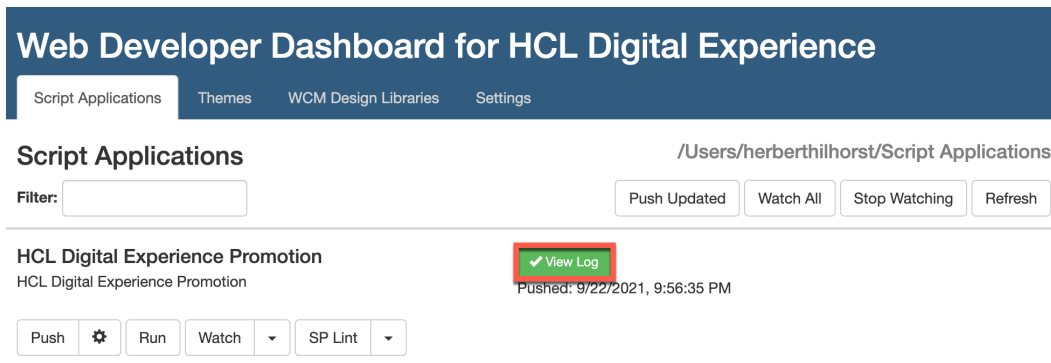
15. Another way to push and pull the Script Application with the DX server is with the sp command. You can deploy your changes by running the **sp push** command. This command gets installed with the Web Developer Toolkit. However, you may also install this from the Script Application Editor. From **Actions**, select **Download Command line tool**.

⠿ HCL Digital Experience Promotion (Specified)

[Edit] [**Actions** ▾]

      Import
      Export...
      Export Config
HCL   Download Command line tool
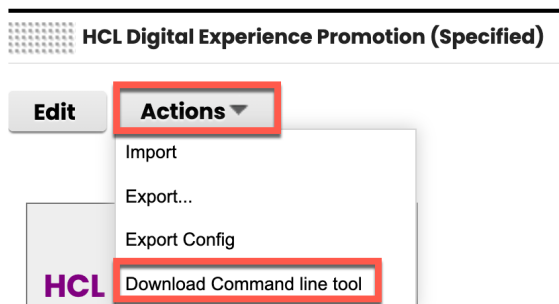
16. Then select a place to download, unzip it and you have access to the **sp** command with its corresponding **sp-config.json** configuration file. You may find more details on **sp** in the Help Center: https://help.hcltechsw.com/digital-experience/9.5/script-portlet/cmd_line_push_ovr.html.

⟨   ⟩   sp_cmdln   ≫   🔍

📁 sp_cmdln   ⟩   📁 lib   ⟩
                📄 sp-config.json
                📄 sp.bat
                📄 sp.sh
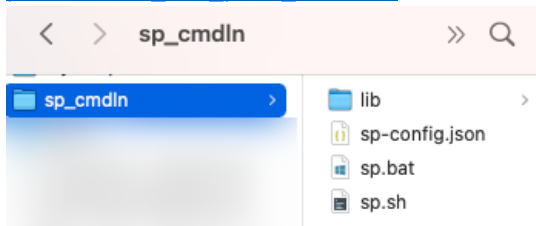
17. You may run the **sp push** from the Visual Studio Code terminal as shown below.
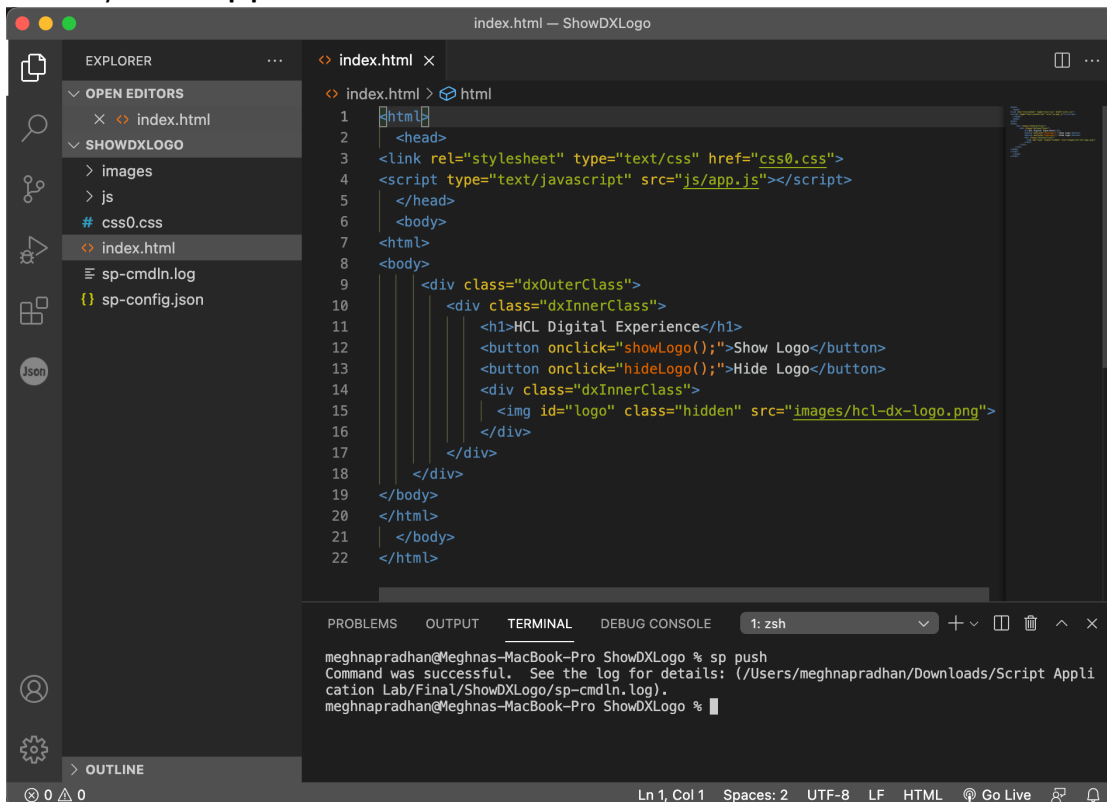
18. Verify your changes by opening the page again on the DX server. Your Script Application should look like this. Try showing and hiding the logo
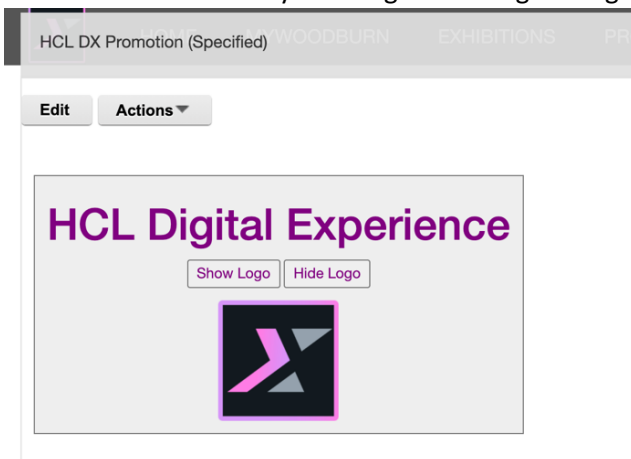
19. Turn off the **Edit Mode** switch and try showing and hiding the logo.
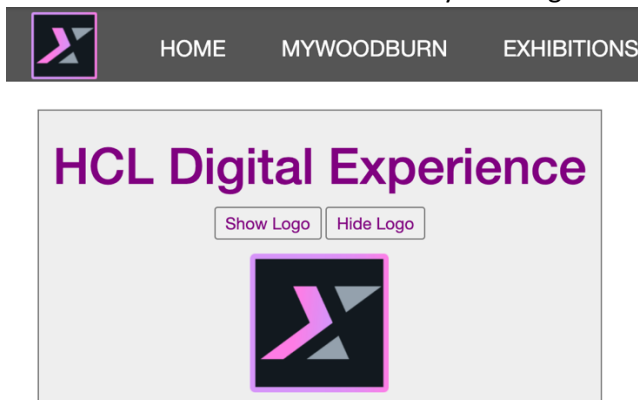
Congratulations! You have successfully updated your application using your local editor and deployed your changes from your local server to the DX server using the DXClient (and optionally the Web Developer Toolkit with the Web Developer Dashboard and sp command).

Conclusion

Using this lab tutorial, you created a new HCL Digital Experience Promotion Script Application using the Script Editor. You then exported your new application from DX to your local system, updated the application with your favorite code editor, imported it back into and tested it on the DX server. You then made more changes on the application locally and deployed it on the DX server using the DXClient (and optionally the Web Developer Toolkit using the Web Developer Dashboard and sp command).

Resources

Refer to the following resources to learn more:

HCL Digital Experience Home - **https://hclsw.co/dx**

HCL Digital Experience on HCL SoFy - **https://hclsofy.com/**

HCL Software - **https://hclsw.co/software**

HCL Product Support - **https://hclsw.co/product-support**

HCL DX Product Documentation - **https://hclsw.co/dx-product-documentation**

HCL DX Support Q&A Forum - **https://hclsw.co/dx-support-forum**

HCL DX Video Playlist on YouTube - **https://hclsw.co/dx-video-playlist**

HCL DX Product Ideas - **https://hclsw.co/dx-ideas**

HCL DX Product Demos - **https://hclsw.co/dx-product-demo**

HCL DX Did You Know? Videos - **https://hclsw.co/dx-dyk-videos**

HCL DX GitHub - **https://hclsw.co/dx-github**

HCL DX Web Developer Toolkit - **https://github.com/HCL-TECH-SOFTWARE/WebDevToolkitForDx**

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