![HCL Digital Experience]

HDX-DEV-100
Theme Development for Beginners

![HCLSoftware U — Creating a new generation of experts]

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Introduction

This hands-on lab guides you through creating a theme on HCL Digital Experience (DX). The theme manages the overall look & feel and layout of your page. In this lab, you will explore how to easily create, update, deploy, test and manage your DX theme using the **Theme Manager**, **Theme Editor, WebDav** and **DXClient**, and optionally the **Web Developer Toolkit for HCL Digital Experience**.

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 **HCL DX Theme** theme using the Theme Manager. Then you will create a new **HCL DX Promotion** page and apply your theme to test it. You will then modify your theme online using the Theme Editor to show a different Web Content footer.
Finally, you will setup your local theme development environment using WebDav (and optionally using the Web Developer Toolkit), change the theme to show a different logo, synchronize it with the server in different ways and test it.

Prerequisites

1. Completion of [HDX-INTRO](#) and [HDX-BU-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.

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	<from solution console>
Developer Gene Hayes	ghayes (or wpsadmin)	HCL-Dem0 (or wpsadmin)

Lab Overview

In this lab you will use a typical retail portal, in this case we used a fictional website: Woodburn Studio, but you can also use your own.

In this lab, you will explore how to create, update, deploy, test and manage your DX theme using the **Theme Manager**, **Theme Editor** and locally using the DXClient and DX **Web Developer Toolkit**.
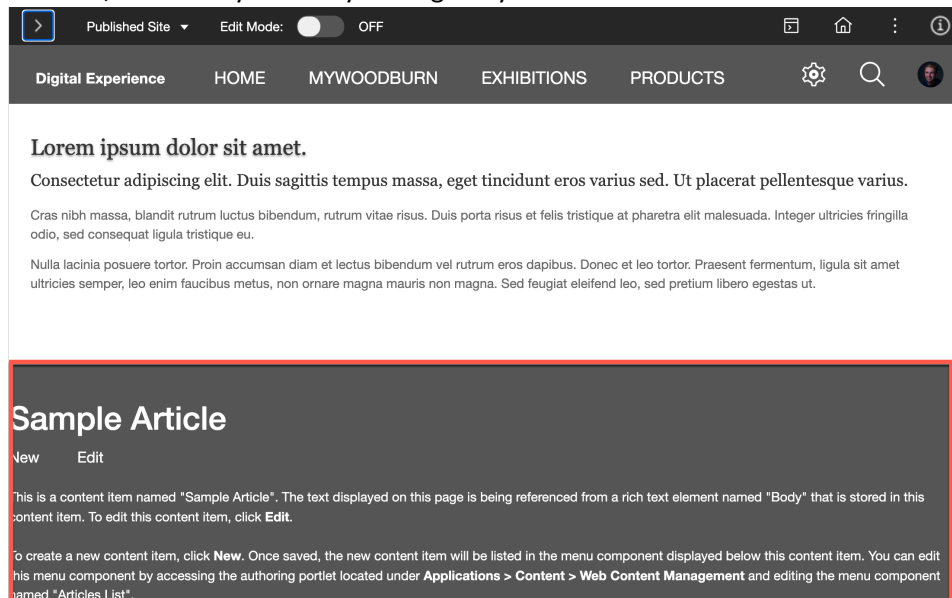
Part 1: Create a new Theme and deploy on a new DX Page

You will create a new theme **HCL DX Theme**, discover it in more details and then apply it on a new **Promotion** page.
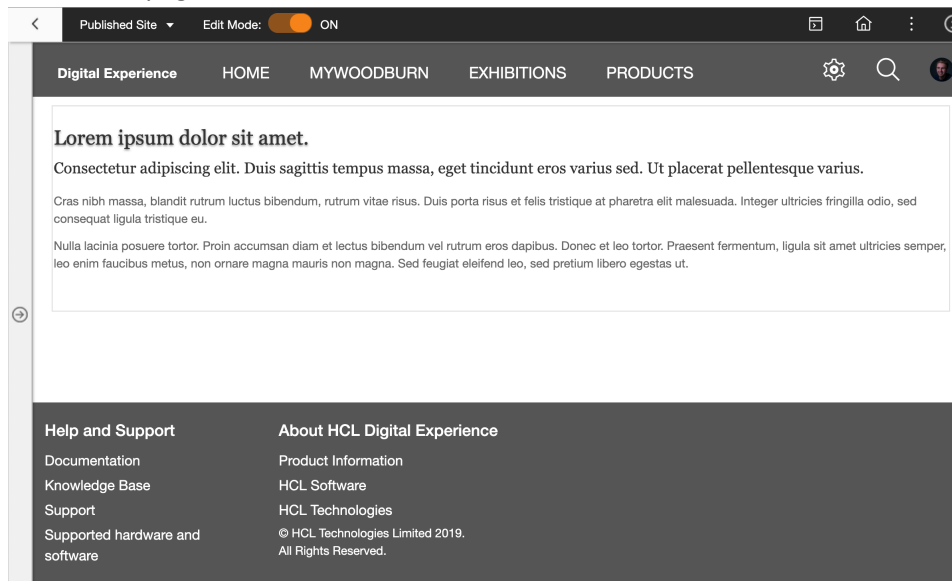
Part 2: Update the Theme Footer using the Theme Editor

You will use the Theme Editor to discover your theme and then change the footer to point to a Web Content, which may be easily managed by Business Users.

Part 3: Update the Theme Logo locally with your favorite IDE

Using the DXClient, WebDav and optionally the DX Web Developer Toolkit, you will synchronize the theme locally and use your favorite code editor to further develop it (instructions are provided for the Visual Studio Code editor). You will change the logo. Then you get a local copy of your theme using WebDav, optionally use DXClient to deploy your changes, and test it on your page. Optionally, you may also learn how to use the HCL DX Extensions for Visual Studio Code, Web Developer Toolkit Dashboard and dxsync command for this. For this, ensure the HCL DX Extensions for Visual Studio Code and/or DX Web Developer Toolkit is installed correctly.

Part 1: Create a new Theme on DX Server and deploy on a new DX Page

You will create a new theme **HCL DX Theme**, discover it in more details and then apply it on a new **Promotion** page.

1. Start by creating a new theme using the existing Simple theme template. Log into your server as Gene Hayes. Click **Log in**.
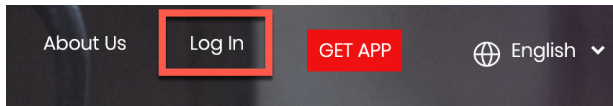

2. **2.** Then use the credentials of Gene (User ID: **ghayes**, Password: **HCL-Dem0** – if you do not have these, you may use the default administrator account with User ID: **wpsadmin,** Password: **wpsadmin)**
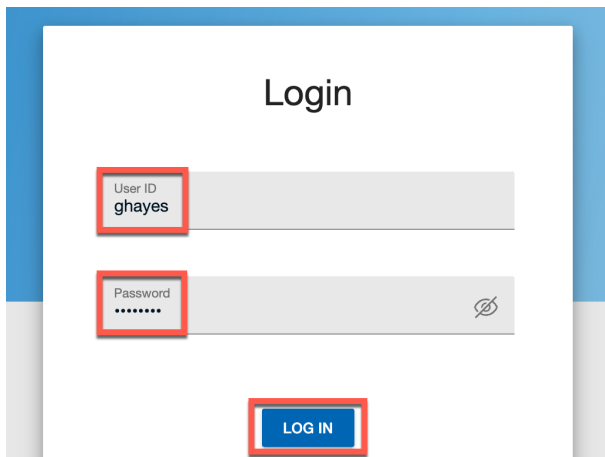

3. Then go the Themes in the Practitioner Studio. Open the applications menu and click **Themes**.
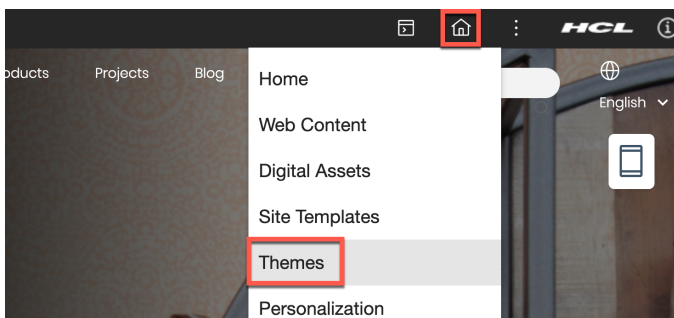
4. You will land on the **Theme Manager.** You see the default Portal 8.5 theme and a Spotlight theme that is part of the DX Demo Pack. Now create the Theme. Click **Create Theme**.
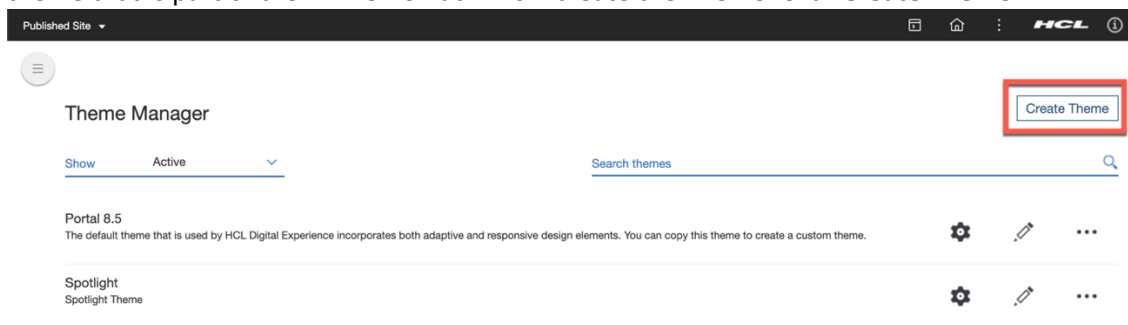
5. Enter the theme title **HCL DX Theme** and enter the description **Theme for HCL Digital Experience**. Notice there are two out of the box theme template. The **Simple** is a clean version based on Bootstrap. Bootstrap is one of the many front-end open source toolkits, featuring Sass variables and mixins, responsive grid system, extensive prebuilt components, and powerful JavaScript plugins. Learn more on https://getbootstrap.com/. Select this one and click **Create**.
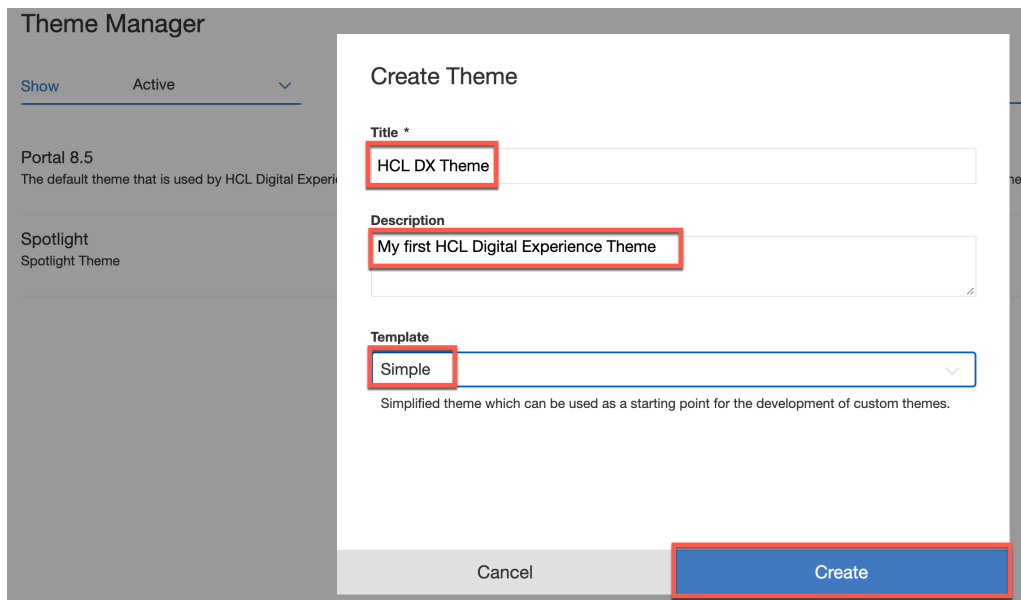
6. The theme creation will take a few seconds.
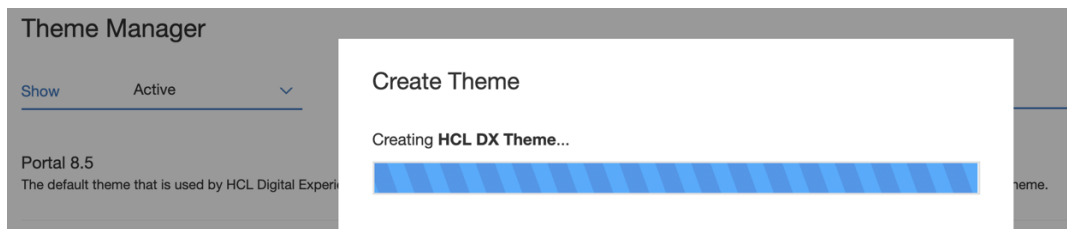
7. Then you will get a success message as shown below. Click **Done**.
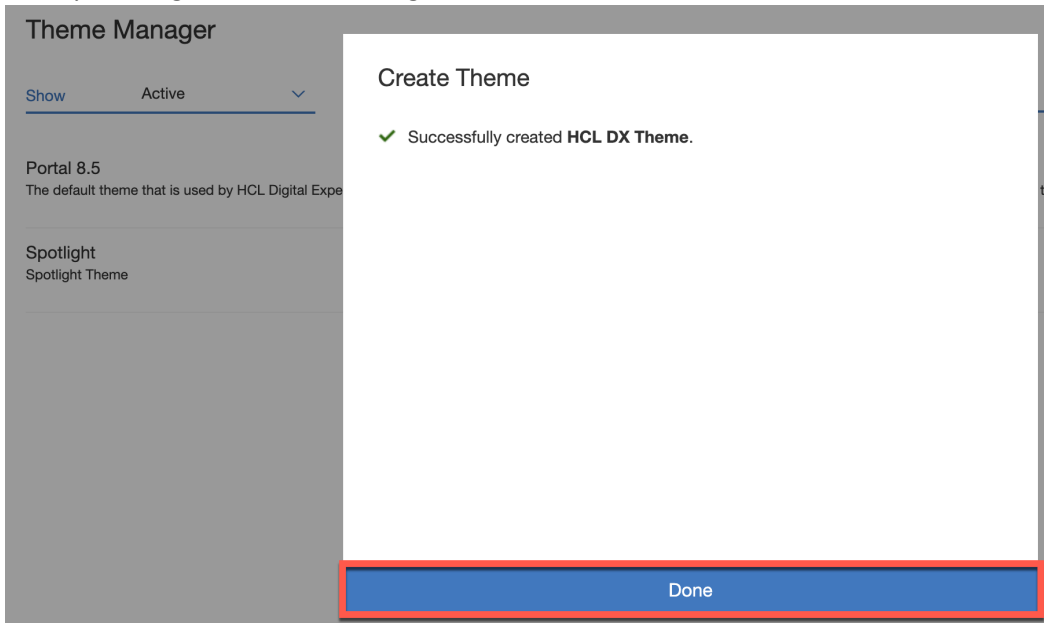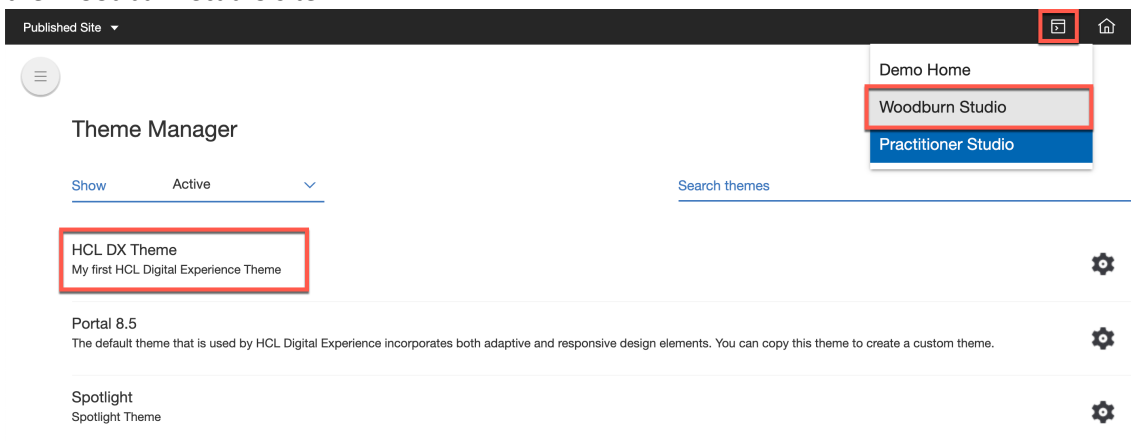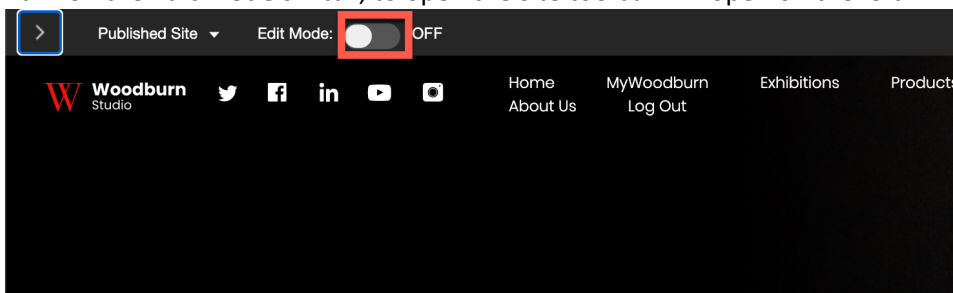

8. Your theme is now created and visible in the list of themes. Now create a Promotions test page where you apply your theme and check how it looks. From the **Site Menu** icon, select the **Woodburn Studio** site.

9. Turn on the **Edit mode** switch, to open the site toolbar will open on the left.

10. Create your **Promotions** page as a new child under the **WoodBurn Studio** site. From the right menu, select **Create Child Page** as shown.
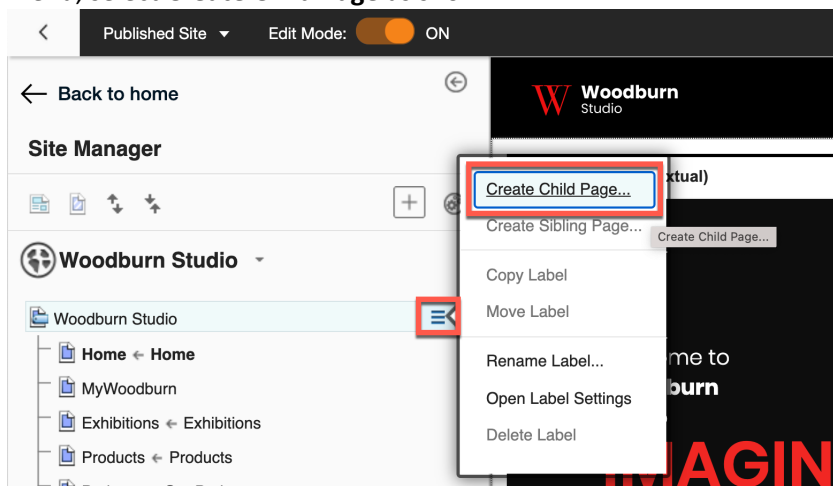
11. Enter the **Page Title** as **Promotion**, verify the **Friendly URL** as **promotion**, and select a template that inherits its theme. Select **Basic (inherit theme) Template** and click **Create Page...**
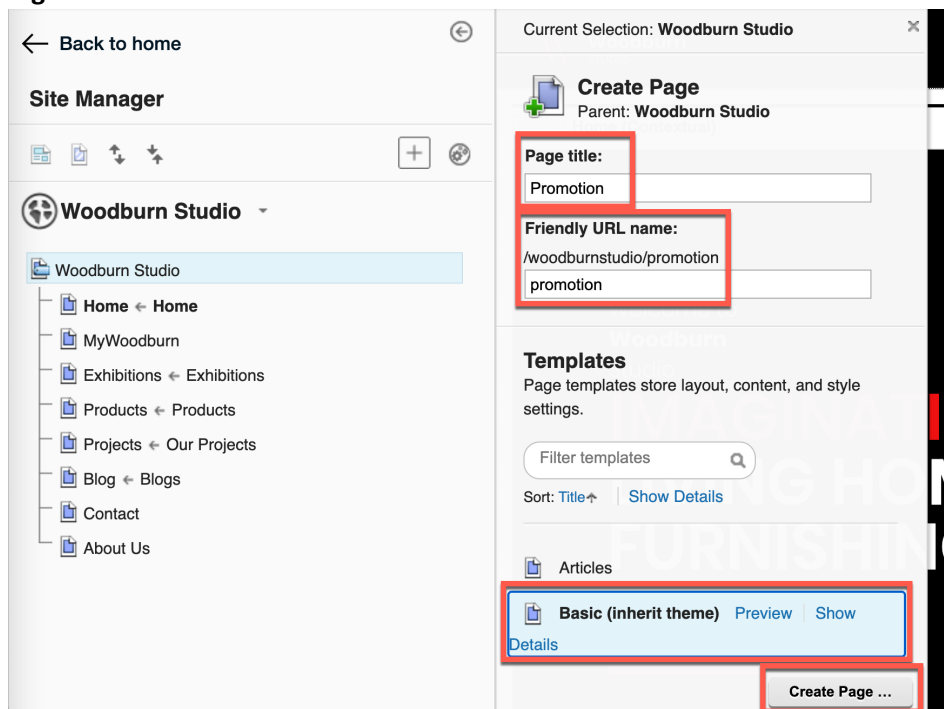
12. Then add a simple Rich Text Web Content to the page. Click **+** (**Add page components and applications**) and click **Web Content**.
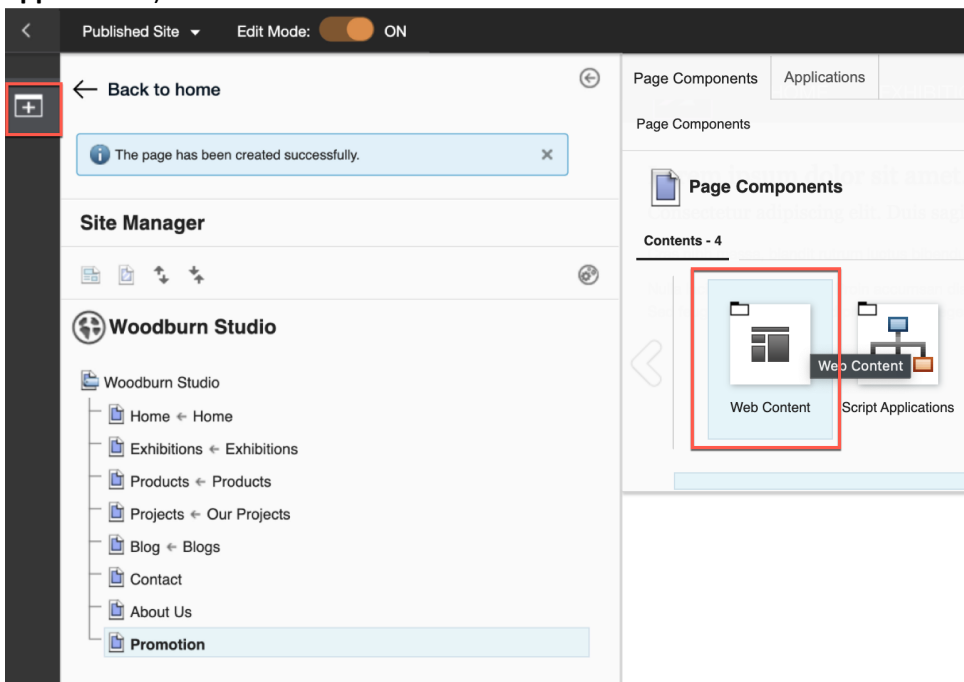
13. Then click **+** to add the Rich Text Page Component to your page.
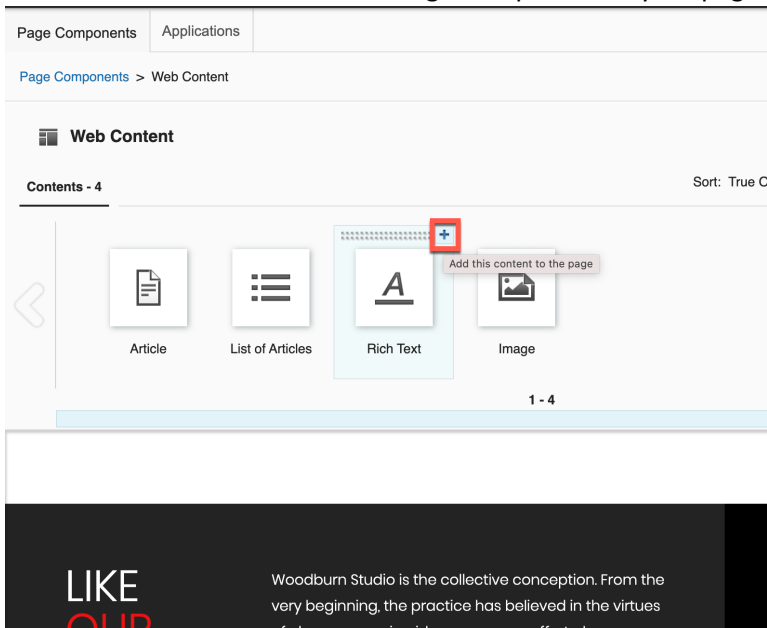
14. Then close the toolbar.
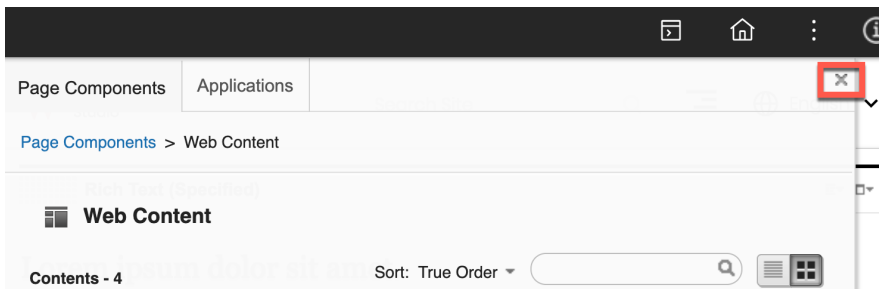
15. Now change the theme to yours for this page. Click on the page **menu** of the **Promotion** page and select **Open Page Settings**.
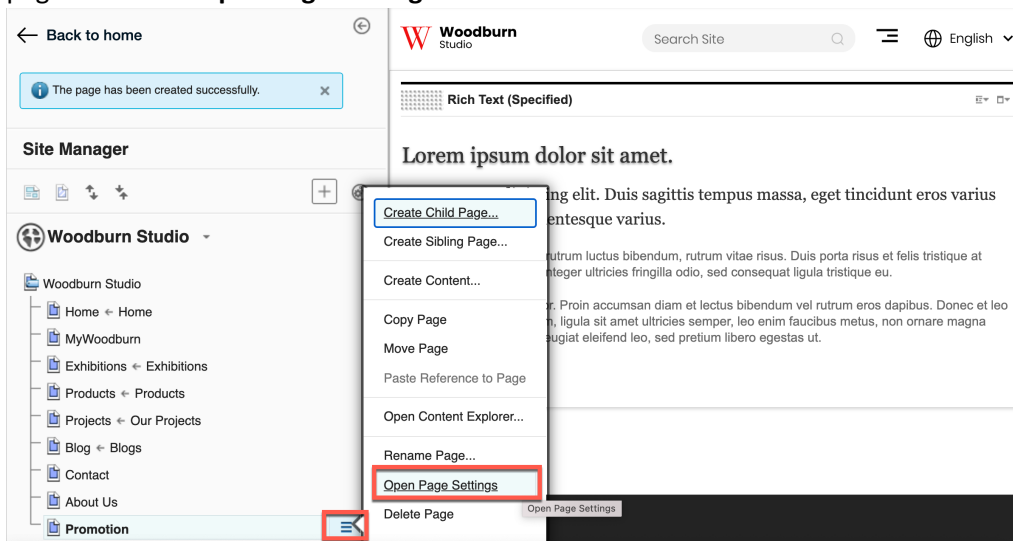
16. Click the **Edit Page properties** option.

17. Go to the **Advanced** tab.

18. Change the **Theme** to your **HCL DX Theme**.

19. Then change the **Profile** to use the one of your theme: **Bootstrap**.

20. Then save it. Scroll down to the bottom and click **Save**.

21. Set your page to use a single column layout. Click **Layout**.
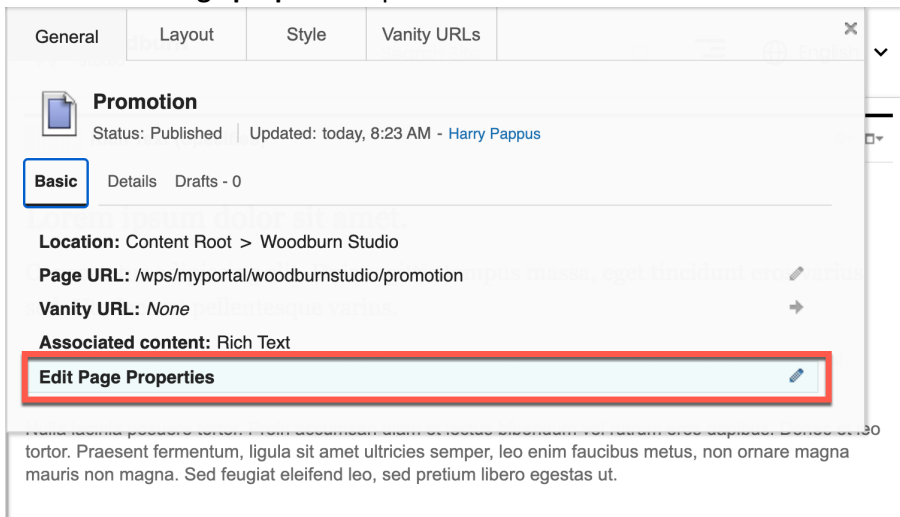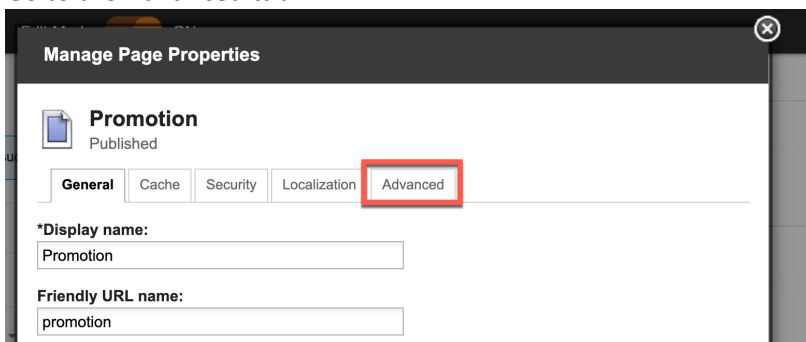
22. These are the out of the box layouts of your new theme. Set this page now to use the single column one. Click **1 Column**. Then close the Toolbar and Site Manager and view your theme changes.
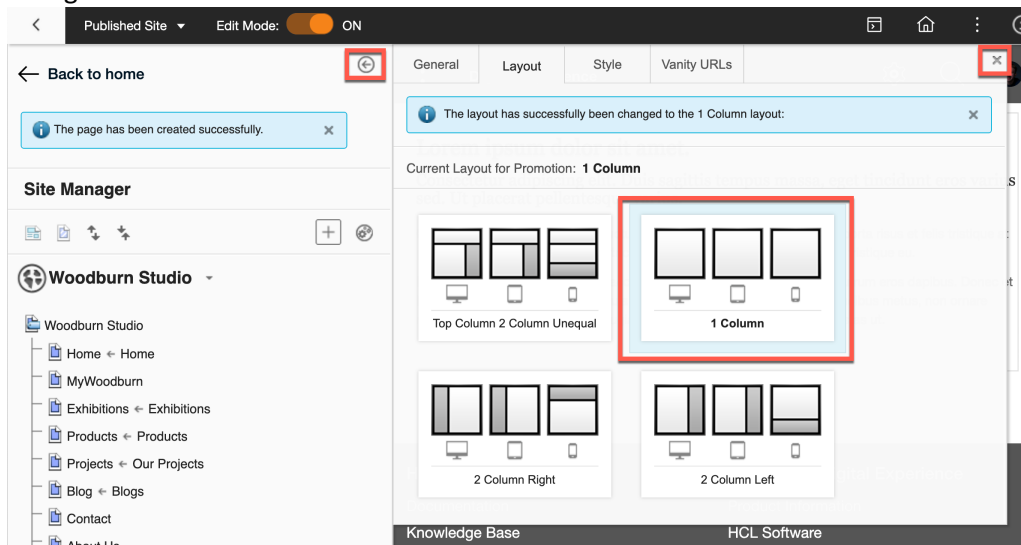
23. As the page was using a very different theme before, notice now the new look & feel of your page with a different header and footer. You may change the rich content if you want. Then exit the Edit Mode.
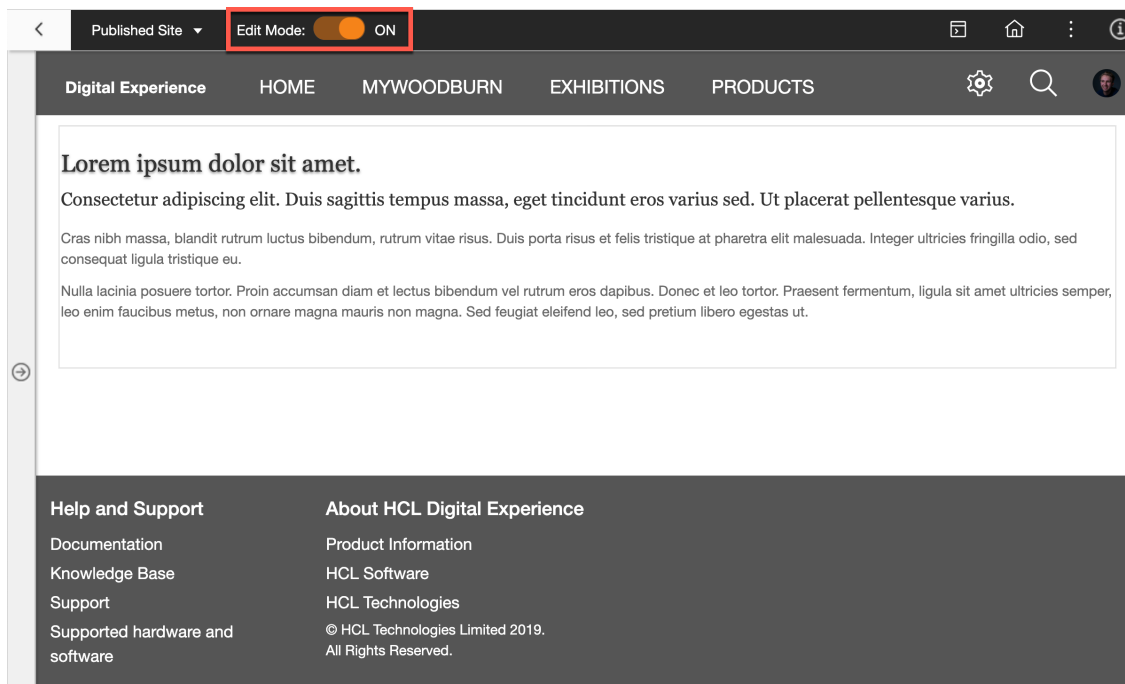
Congratulations!! You have created and deployed a new **DX Theme** on a new Promotion page!

Part 2: Update the Theme Footer using the Theme Editor

You will use the Theme Editor to discover your theme and then change the footer to point to a Web Content, which may be easily managed by Business Users.

1. Check how the footer looks like now. Then open the application menu and select **Themes**.
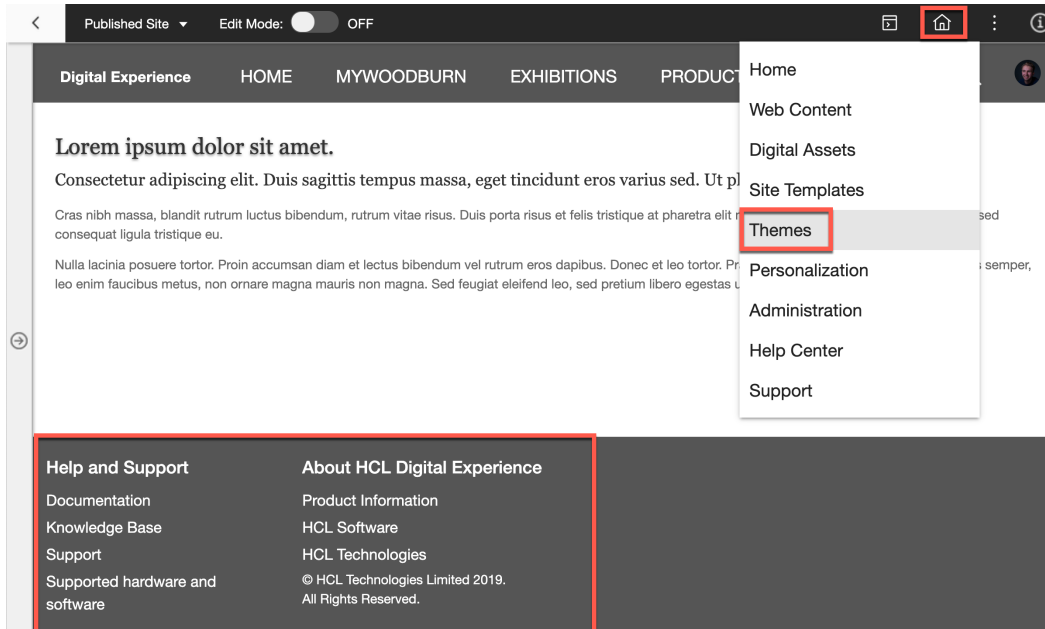
2. In the **Theme Manager**, edit your theme. Click the **pencil/edit** icon of your **HCL DX Theme**.
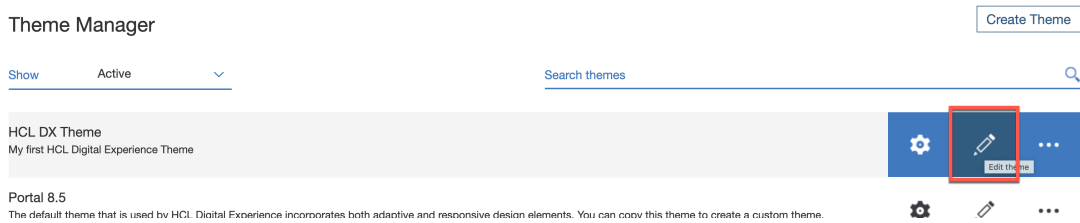
3. Your theme is now available in editable mode on the **Theme Editor.** Notice the **Help icon** and different folders. You will discover these later. Open the **theme.html** file.
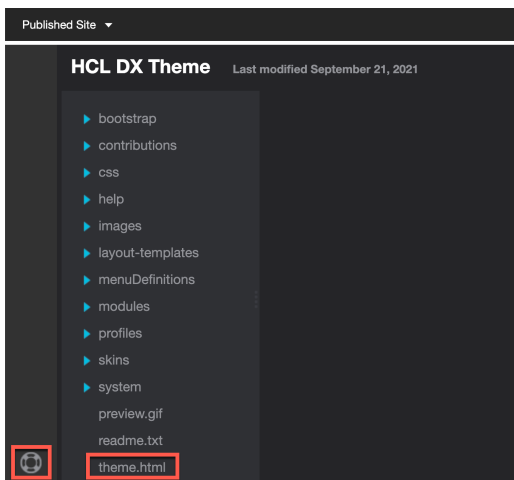
4. Change the footer now to show a Web Content. Scroll down to the part where you see the footer defined. Notice the site toolbar section with the logo, action menu with search,

navigation configuration and the use of classes. The footer now points to a dynamic content spot (dyn-cs): st_footer_HCL.

```
theme.html ✖
92          <div id="layoutContainers" class="stLayoutContainers stLayoutContainersHidden stGroup wptl
93              <a rel="dynamic-content" href="lm:template"></a>
94          </div>
95      </div><!--end main content-->
96
97      <footer id="stFooter" aria-label="HCL Digital Experience Footer" role="contentinfo">
98          <div class="stFooterInner">
99              <a rel="dynamic-content" href="dyn-cs:id:st_footer_HCL"></a>
100         </div>
101     </footer><!-- page footer -->
102     </div>
103
104     <!-- This is responsible for bootstrapping the configuration for the javascript framework
```

5. Replace this dynamic content spot with a Web Content. You may use an out of the box **Sample Article** Web Content, and normally you would create a dedicated Web Content footer that your Business User can easily update. You can have a look at it in the **Web Content** library under the **Articles** site area. The format to insert Web Content is

    <a rel="dynamic-content" href="dyn-cs:id:st_wcm_content?path=<Web Content Library>/<Site Area>/<Content>">

    Comment out the original footer and add your content spot:

    Your updated **theme.html** file should look like this. Then save it. Click the save icon.

```
modified September 21, 2021                                         [◉] ↺ ↻
theme.html ● ✖
94              </div>
95          </div><!--end main content-->
96
97      <footer id="stFooter" aria-label="HCL Digital Experience Footer" role="contentinfo">
98          <div class="stFooterInner">
99              <!--   <a rel="dynamic-content" href="dyn-cs:id:st_footer_HCL"></a> -->
100             <a rel="dynamic-content" href="dyn-cs:id:st_wcm_content?path=Web+Content/Articles/Sample+Article"></a>
101         </div>
102     </footer><!-- page footer -->
103     </div>
104
```

6. Now try it out. Open a new tab. Do a right click on Published Site and then Open Link in New Tab.

    Published Site
    Open Link in New Tab
    Open Link in New Window
    Open Link in Incognito Window   2021
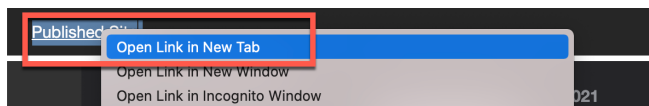
7. In the new tab go to your Promotion page. Open the site menu and then the Woodburn Studio site.
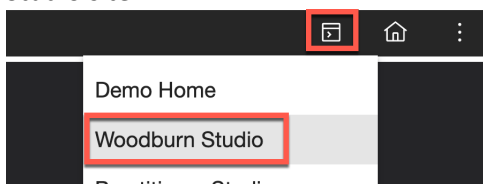
8. You see that your footer now shows the Sample Article.
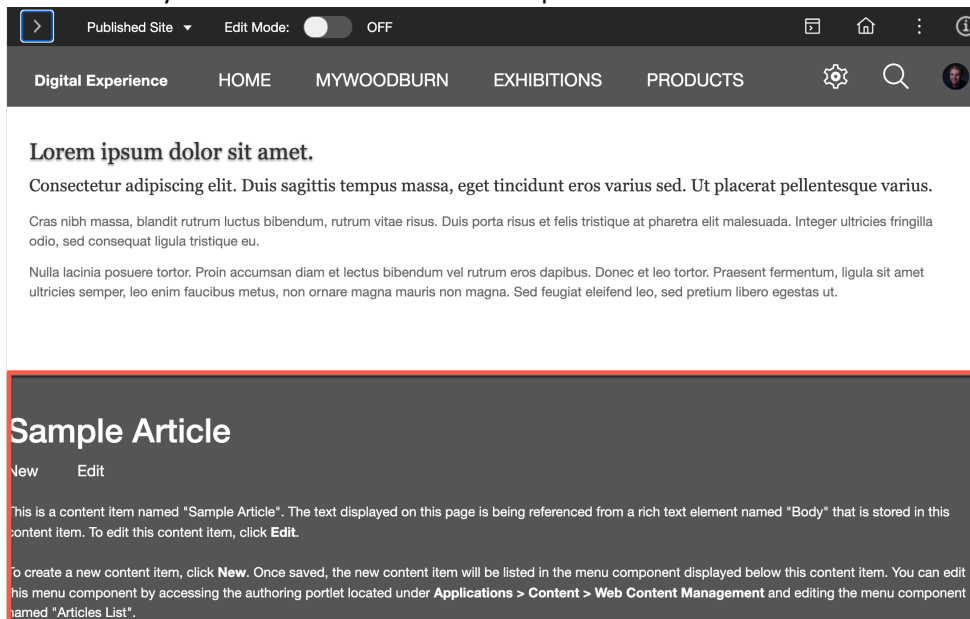
9. Now go back to the previous tab and have a look at a few more parts of your theme. Open the bootstrap folder. Click the readme.txt to learn details on this and notice the entries for two versions of bootstrap. Then open the css folder.
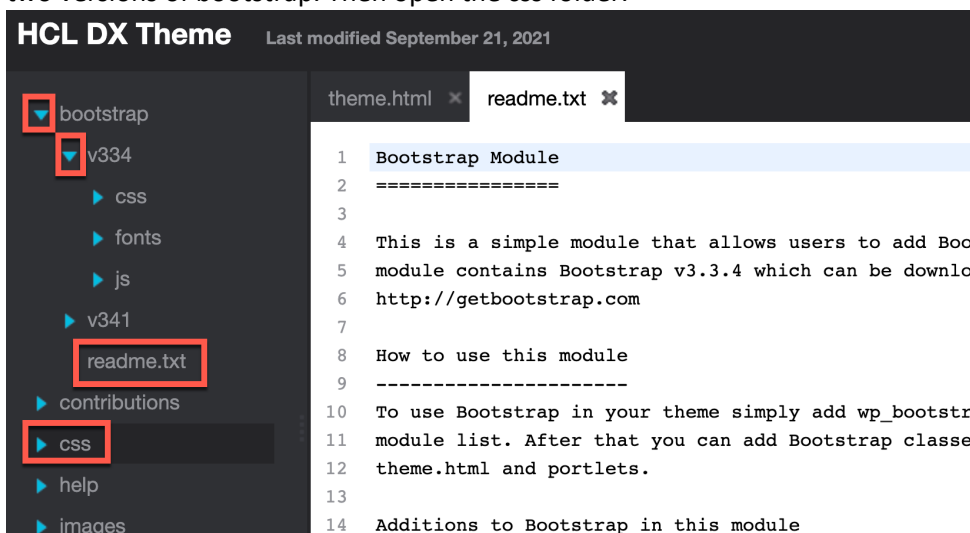
10. Again, there is a readme.txt file to explain the CSS. Note the master.css that combine the different CSS files from the default sub-folder. Also notice that there are standard compressed and uncompressed versions of each CSS file. The compressed ones are smaller and therefore load faster. You'll learn more on this in follow up courses. Then go to layout templates.
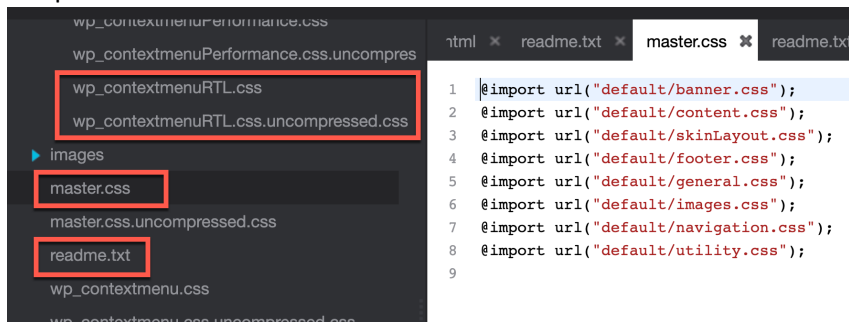
11. Here you see the different layouts you could choose from before. Each one has an image to show in the toolbar and the layout.html to manage that layout.
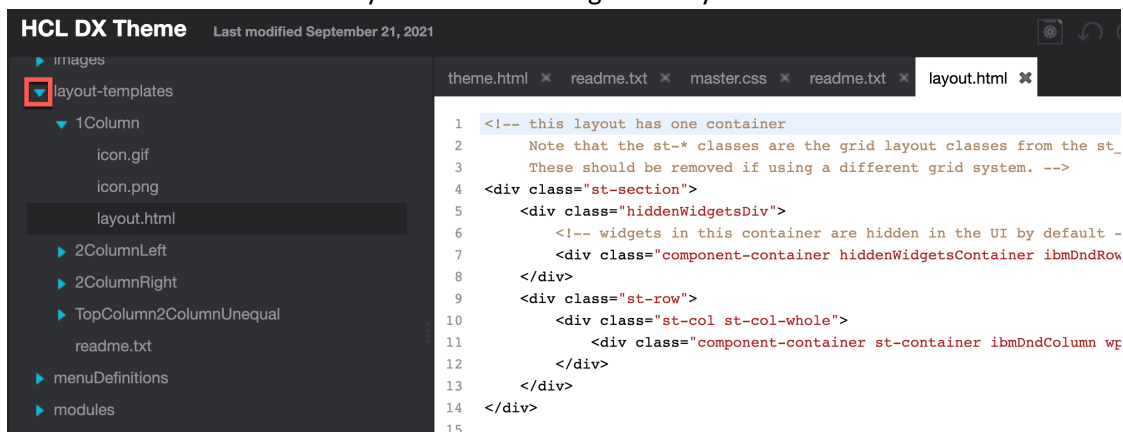
12. You may have a look at other parts. Use the readme.txt to learn more about it.

Congratulations!! You have updated your **HCL DX Theme** using the **Theme editor**, on the DX server.

Part 3: Update the Theme Logo locally with your favorite IDE

Using the DXClient, WebDav and optionally the DX Web Developer Toolkit, you will synchronize the theme locally and use your favorite code editor to further develop it (instructions are provided for the Visual Studio Code editor). You will change the logo. Then you get a local copy of your theme using WebDav, optionally use DXClient to deploy your changes, and test it on your page. Optionally, you may also learn how to use the HCL DX Extensions for Visual Studio Code, Web Developer Toolkit Dashboard and dxsync command for this. For this, ensure the HCL DX Extensions for Visual Studio Code and/or DX Web Developer Toolkit is installed correctly.

1. You first need to get a local copy of your theme. There are several ways of doing this. The easiest way is using a web browser that allows you to download the theme directory as a zip file. Use this URL format:
https://<host>/wps/mycontenthandler/dav/fs-type1/themes/<theme folder name>?mime-type=application/zip

   In the case of this lab running on SoFy, this would be
https://dx.<SoFy specific>.play.hclsofy.com/wps/mycontenthandler/dav/fs-type1/themes/HCL DX Theme?mime-type=application/zip

   Enter your username and password (**hpappus**/**HCL-Dem0**) and click **Sign In**.
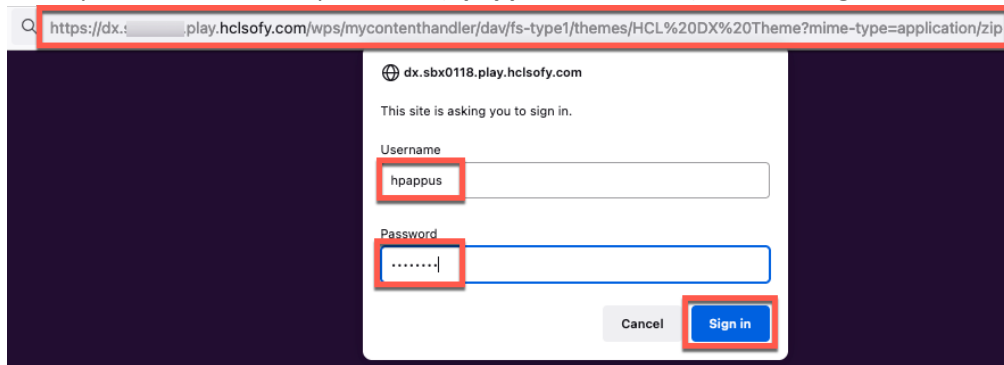
2. Then you can download the HCL DX Theme.zip file. Click **OK**, select the folder to download and unzip it. This will be your local theme working folder, you will use further in this lab.
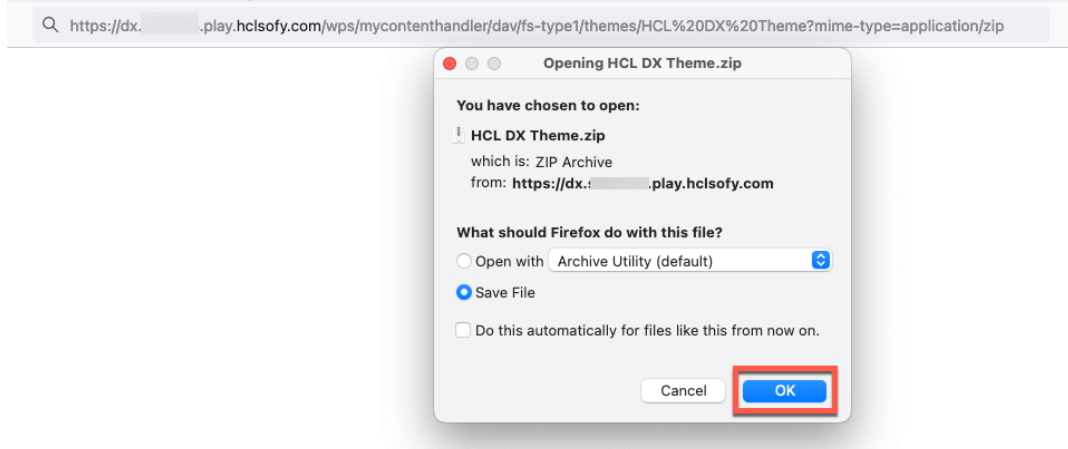
3. You may now go directly to step 16. However, if you are interested, you may try two different ways to get a local version of your theme. You may read through this part and apply this later, if you want. First you will discover how to get a copy using a WebDav client. You may access your theme as a folder https://<host>/wps/mycontenthandler/dav/fs-type/themelist/<theme_dir>. Apply this for your theme on SoFy (or other server). https://dx.XXXXXXX.play.hclsofy.com/wps/mycontenthandler/dav/fs-type/themelist/<theme_dir>. Use your favorite WebDav client to first connect to your server (e.g. on a Mac you can use Finder Connect to Server under the Go menu). Enter the FileStore (fs-type) URL **https://dx.XXXXXXX.play.hclsofy.com/wps/mycontenthandler/dav/fs-type1/**.
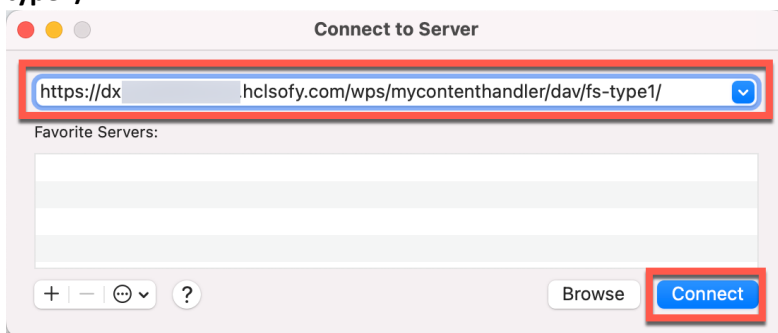
4. Then confirm you wish to connect. Click **Connect**.
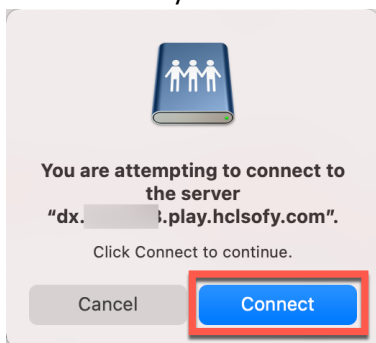
5. Provide your name and password (hpappus/HCL-Dem0), optional remember this and click **Connect**.
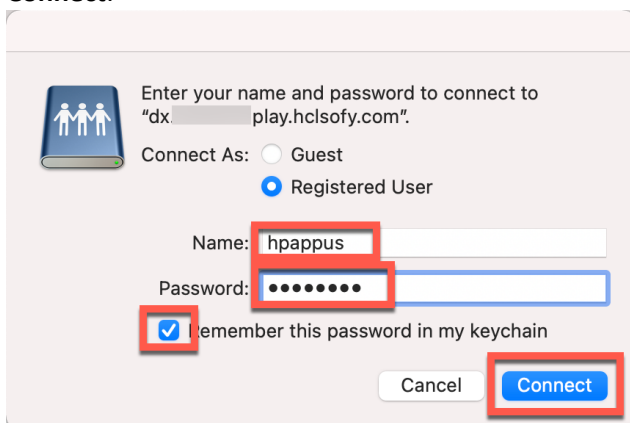
6. And then you should see all the available resources. Open the themes folder and you should see your theme you just created. You may open it here to directly work on it, or create a copy of this folder and work on that copy. Again, this will be your working theme folder.
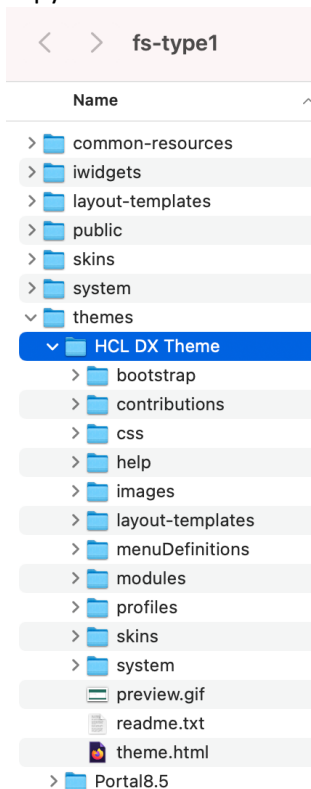
7. Alternatively, you connect with the themelist URL (here shown): *https://dx.XXXXXX.play.hclsofy.com/wps/mycontenthandler/dav/themelist/* and click **Connect**.
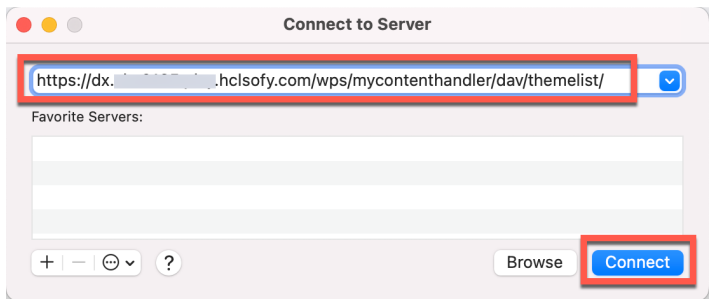
8. Then you will see this.
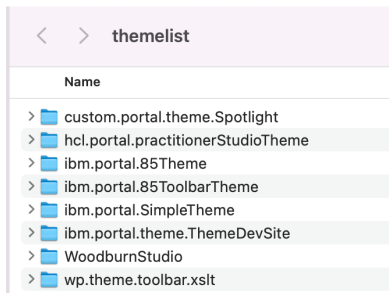
9. Now you will update it on your local system to add a new logo image. Open your code editor (here Visual Studio Code editor) and on the welcome page click on **Open folder**.
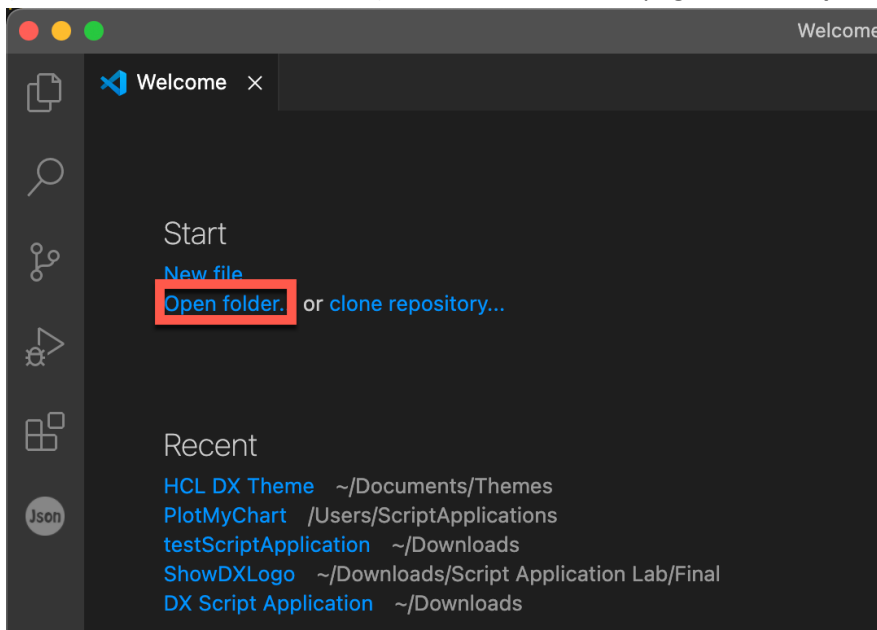
10. Browse your local **HCL DX Theme** folder and click **Open**.
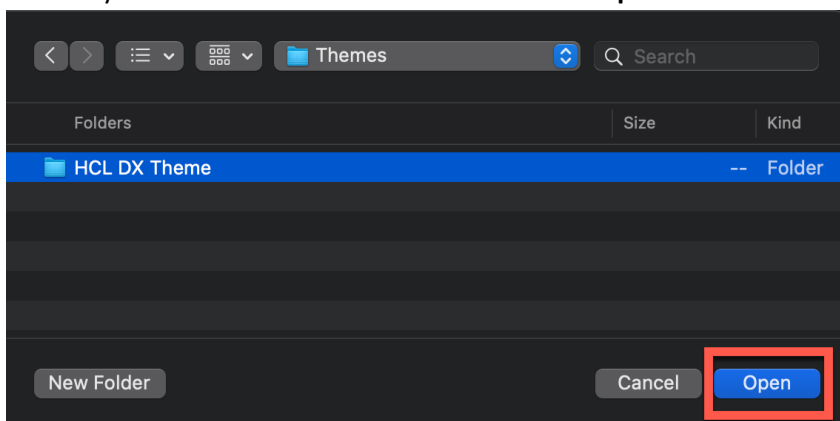
13. First copy the **dx-logo.jpg** from the **lab-resources/Theme Development Resources** folder into the **images** folder on your local drive as shown. You can use your Windows Explorer or Finder for that. Then close the **Welcome** page.
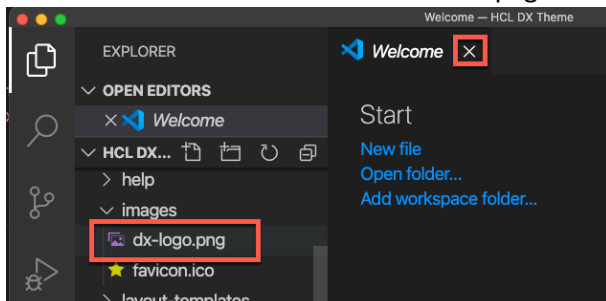
11. You will need to update the logo entry to point to the image you just added. Open the **theme.html** file and notice that the logo is currently managed with this code.

<svg class="stLogo" role="img" aria-labelledby="logoTitle">
   <title id="logoTitle">Digital Experience</title>
   <use xlink:href="#stMainLogo"></use>
</svg>
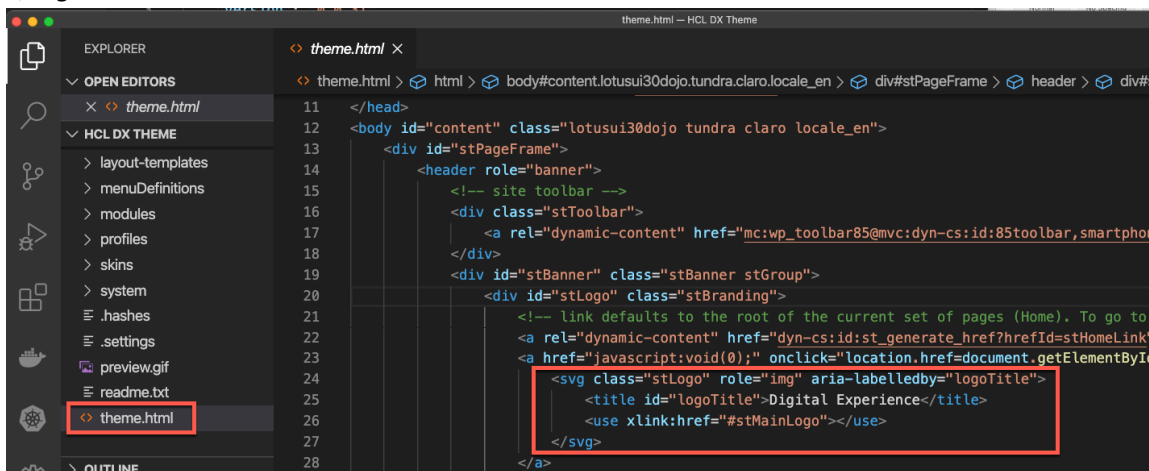
12. Replace it with the below line of code to make it point to the logo you just added and save your **theme.html** file. Make these changes and save it **(CTRL + S).**

<img src="images/dx-logo.png" alt="HCL DX" height="48px" class="stLogo" role="img" aria-labelledby="logoTitle">
   <title id="logoTitle">Digital Experience</title>
   <use xlink:href="#stMainLogo"></use>
</img>

13. Now test it on your **Promotion** page. You need to deploy the theme using the DXClient. This tool may be configured to work in a development pipeline.
Note that if you are directly working on your server folder using WebDav, there is no need to deploy. Using WebDav, you also copy your changes back to the WebDav folder of your server.
To use the DXClient, ensure you have installed it. Then test it with the help option

dxclient deploy-theme -h

```
[Hilhorst-MacBook-Pro:dxclient hilhorst2$ dxclient deploy-theme -h
Usage: dxclient deploy-theme [options]

- deploys the theme to the remote server

Options:
  -dxProtocol, --dxProtocol <value>               Protocol of the DX server (default: "https")
  -hostname, --hostname <value>                   Host name of the DX server (default:
                                                  "dx.sbx0118.play.hclsofy.com")
  -dxPort, --dxPort <value>                        Port number of the DX server, for any Kubernetes Environment
                                                  default port is 443 (default: "443")
  -xmlConfigPath, --xmlConfigPath <value>          Path to DX configuration endpoint (default: "/wps/config")
  -dxUsername, --dxUsername <value>                Username of the DX server (default: "wpsadmin")
  -dxPassword, --dxPassword <value>                Password of the DX server (default: "wpsadmin")
  -contenthandlerPath,--contenthandlerPath <value> Alternate path for the portal context root or the content
                                                  handler servlet (default: "/wps/mycontenthandler")
  -dxSoapPort, --dxSoapPort <value>                Soap Port number of the DX server  (default: "10033")
  -dxProfileName, --dxProfileName <value>          Profile name of the DX server  (default: "wp_profile")
  -dxProfilePath, --dxProfilePath <value>          Profile path of the DX server  (default:
                                                  "/opt/HCL/wp_profile")
  -dxConnectHostname, --dxConnectHostname <value>  Host name of the config wizard home (route change only in case
                                                  of Open Shift Kubernetes Environment). For any other case,
                                                  this parameter should be same as hostname (default:
                                                  "dx.sbx0118.play.hclsofy.com")
  -dxConnectUsername, --dxConnectUsername <value>  Username for the cw_profile (default: "wpsadmin")
  -dxConnectPassword, --dxConnectPassword <value>  Password for the cw_profile (default: "wpsadmin")
  -dxConnectPort, --dxConnectPort <value>          Port number of the cw_profile, for any Kubernetes Environment
                                                  default port is 443 (default: "443")
  -xmlFile, --xmlFile <value>                       Input xml file name with full path
  -applicationFile, --applicationFile <value>       Application file name with full path
  -applicationName, --applicationName <value>       Application name
  -themeName, --themeName <value>                   Theme Collection name
  -themePath, --themePath <value>                   Theme Path with zip or folder name
  -h, --help                                        display help for command
Hilhorst-MacBook-Pro:dxclient hilhorst2$
```
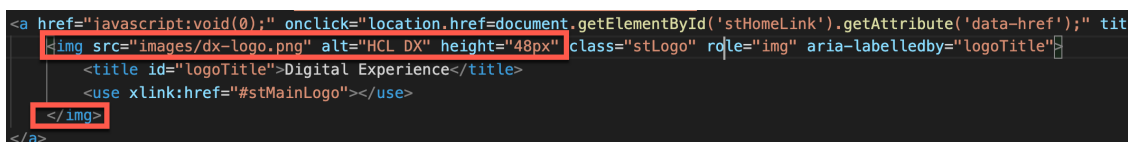
14. If you set the name parameters in the config.json, you only need to set the specific themeName and themePath parameters. In older DXClient versions, your path cannot have spaces. Ensure your remove or replace them with a different character, like '_'. Then run in your terminal or command window:
**dxclient deploy-theme -themeName <your theme's name> -themePath <your theme's folder>**
e.g. dxclient deploy-theme -themeName "HCL DX Theme" -themePath /Users/herberthilhorst/Data/Themes/HCL-DX_Theme
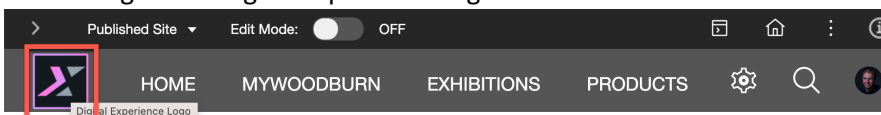
```
[Hilhorst-MacBook-Pro:dxclient hilhorst2$ dxclient deploy-theme -themeName "HCL DX Theme" -themePath /Users/herberth]
ilhorst/                    /Data/Themes/HCL_DX_Theme
2021-12-13 12:42:22 : Start to deploy theme in WebDav.
(node:1) Warning: Setting the NODE_TLS_REJECT_UNAUTHORIZED environment variable to '0' makes TLS connections and HT
TPS requests insecure by disabling certificate verification.
(Use `node --trace-warnings ...` to show where the warning was created)
2021-12-13 12:42:23 : The theme HCL DX Theme is available under WebDAV themes collection.
2021-12-13 12:42:26 : WebDAV theme back up has been taken and placed in : store/outputFiles/themes/backup/webdav/HC
L DX Theme-20211213124224.zip.
2021-12-13 12:42:34 : Files uploaded successfully to HCL DX Theme under WebDAV themes collection.
2021-12-13 12:42:34 : Deploy theme execution successful.
2021-12-13 12:42:34 :
 Theme WebDAV deployment successful.
Hilhorst-MacBook-Pro:dxclient hilhorst2$
```

15. Notice it updates the logs/logger.log and creates a backup of your theme directory under store and as a zip with the date and time of deployment under outputFiles/themes/backup/webdav in the format <theme name>-<date><time>.zip. For example: HCL DX Theme-20211213124224.zip. You may find more details in https://opensource.hcltechsw.com/digital-experience/latest/extend_dx/development_tools/dxclient/dxclient_artifact_types/themes/. You may also use LiveSync, detailed in https://opensource.hcltechsw.com/digital-experience/latest/extend_dx/development_tools/dxclient/dxclient_artifact_types/livesync/.
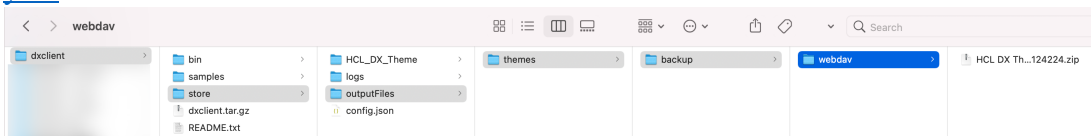
16. Then verify your changes. Open your **Promotion** page and view the updated logo. See the current logo title: Digital Experience Logo. You need to add 'HCL ' before it now.
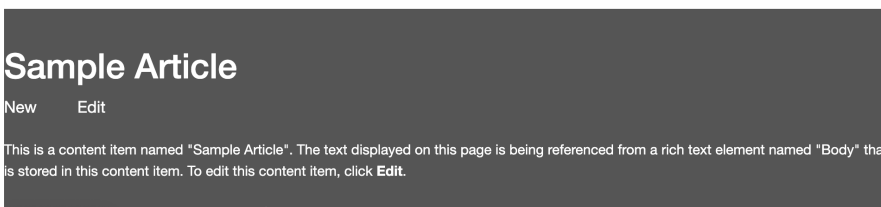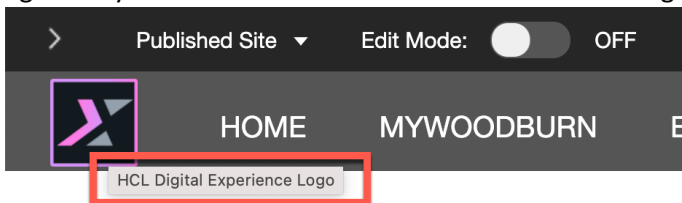

17. Change the logo title to **HCL** Digital Experience Logo (add 'HCL ' before), by updating line 23 at the end, as shown, and then deploy it again with the **dxclient**, like you did in step 12. Check again on your server. The title now should show HCL Digital Experience Logo:


18. You are ready and may now go to the conclusion of the part. However, if you are interested, you may have a look at other options to get a local copy of the theme, using the HCL DX Extensions for Visual Studio Code. For details on how to set this up to work with your themes, use https://opensource.hcltechsw.com/digital-experience/latest/extend_dx/development_tools/hcl_dx_extensions/.

19. Another option to get a local copy of the theme is using the Web Developer Toolkit and sp command. You first configure it to point to your local theme folder and configure the server settings. Create a **Themes** folder on your local system and copy its path.
e.g. /Users/meghnapradhan/Documents/Themes

20. Then open the **Web Developer Dashboard** by running the **dxdashboard** command from the command prompt.

```
meghnapradhan@Meghnas-MacBook-Pro ~ % dxdashboard
```
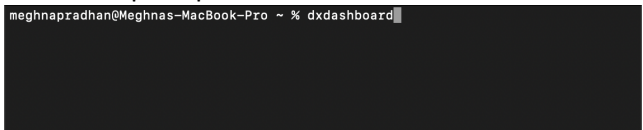
21. Go to the **Settings** tab and enter the path copied in Step 1 above, against the **Theme Folder** to point to the local system folder where your theme will be placed.
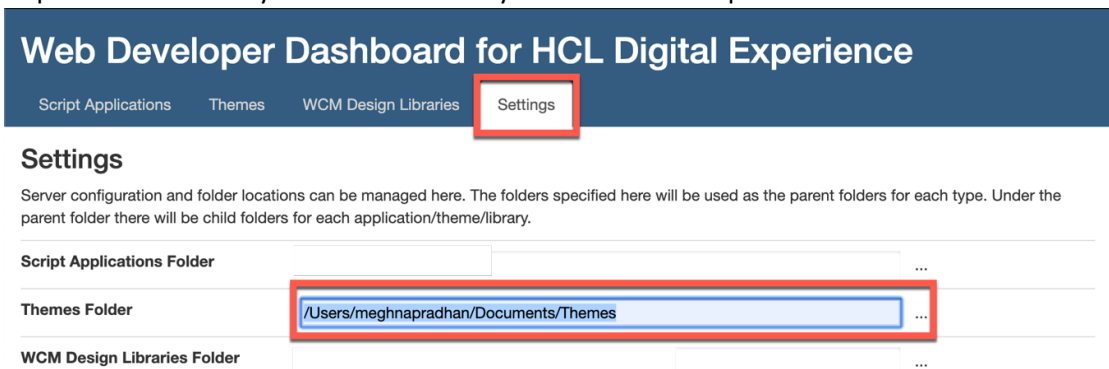
22. Add a new server under the **Servers** section and enter the details of your DX server. **Name** it **my-dx**, use your developer credentials: **User Name hpappus** (or wpsadmin) and Password HCL-Dem0 (or wpsadmin), your **Host** name **dx.<your sandbox id>.play.hclsofy.com**, port 443 (as your connection is secured with https), **Content Handler** /wps/mycontenthandler and check the **Secure** check-box. Ensure it is the A**ctive Server** and save it. Click **Save**.

23. Your settings are configured to point to the correct DX server and synchronize your theme from the correct local folder. Now get the theme. Go to the **Themes** tab. At present there will be no themes available. Click **Get Themes**.

Web Developer Dashboard for HCL Digital Experience

Script Applications   Themes   WCM Design Libraries   Settings

Themes   /Users/meghnapradhan/Documents/Labs/Themes

Filter: [   ]   Refresh   ⬆ Get Themes

No themes found in `/Users/meghnapradhan/Documents/Labs/Themes` .
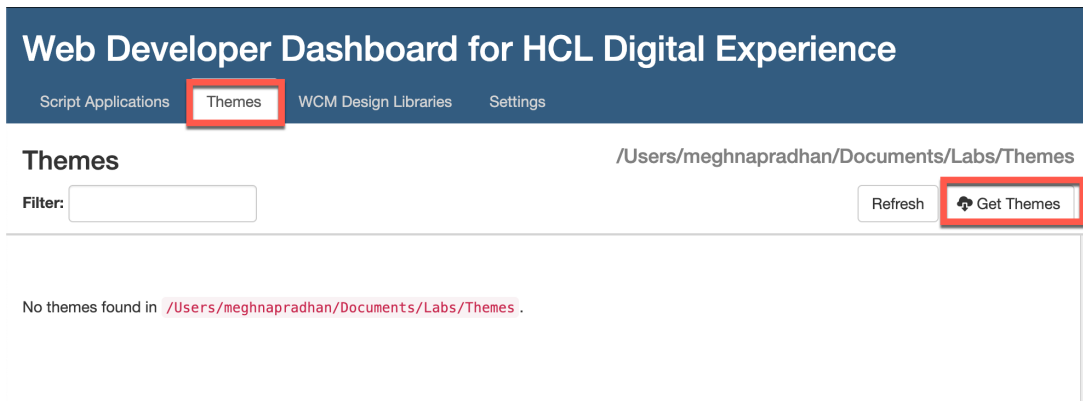
24. Verify the server details shown and click **View Server Themes**.

Choose Themes to Add   ✕

Username: hpappus
Password: ********
Protocol: https
Host: dx._____.play.hclsofy.com
Port: 443
Content Handler Path: /wps/mycontenthandler

Close   **View Server Themes**
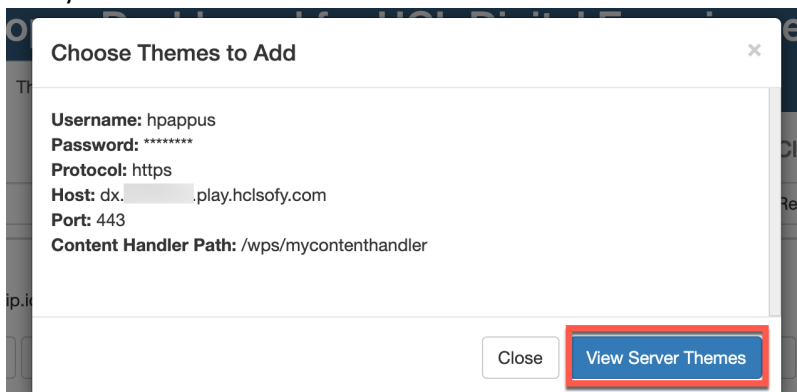
25. This gives the full list of themes that are deployed on your server. You only want to work with the HCL DX Theme. Enter the theme folder name **HCL DX Theme** under the **HCL DX Theme** theme entry. It shows that that folder will be created on your local system under the path that you selected above. Then click **Create Theme Folders**.
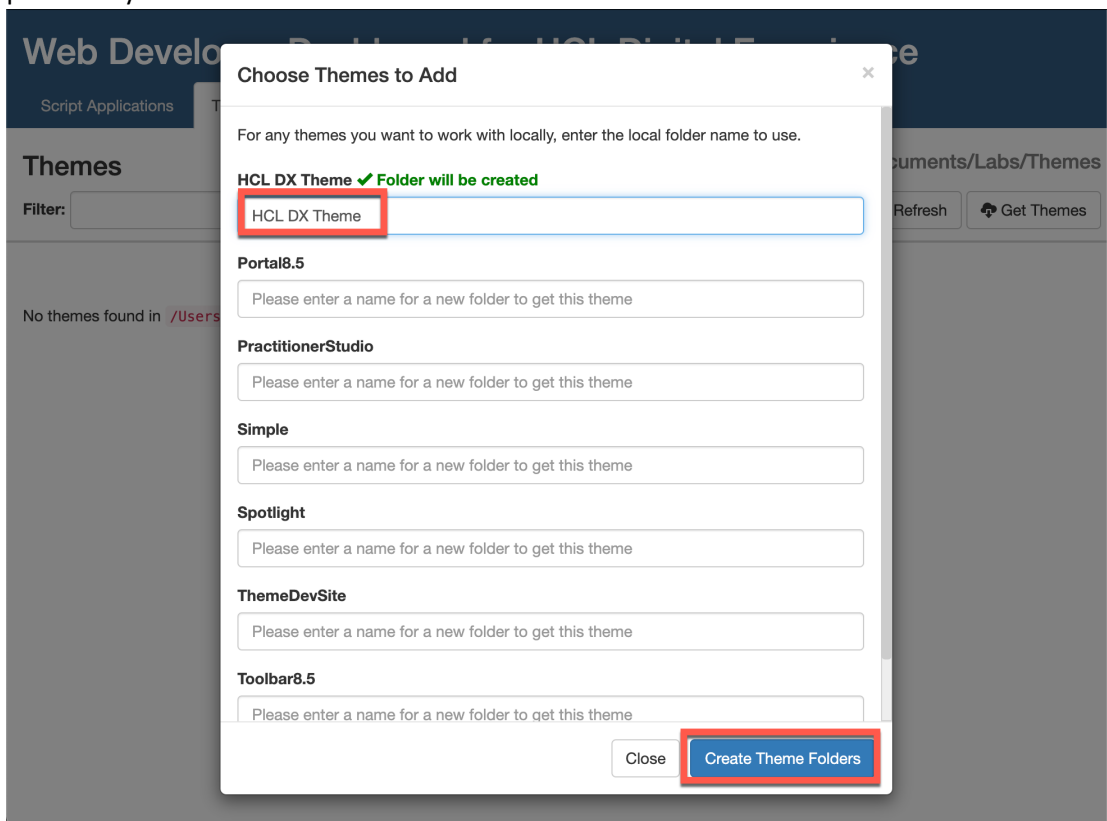
26. Now download (pull) your theme from the DX server to your local system. Click **Pull**.
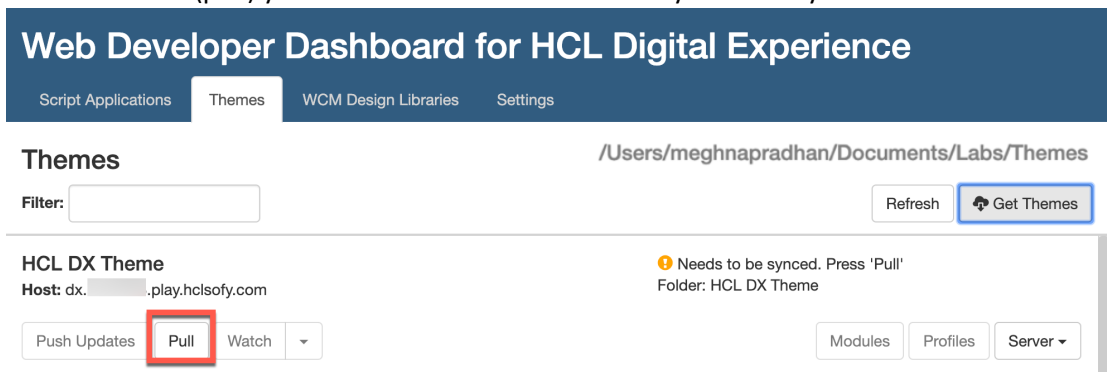
27. Your theme is now successfully downloaded and synchronized with the DX server, with an option to push your local changes to the server.

28. To push the updates, go to the **Themes** tab and click the **Push Updates** button.

29. Wait for the deployment to complete and then check the **Pushed** timestamp.

30. You may also use push using a command line, **dxsync**, that is part of the Web Developer Toolkit and which may be downloaded also from https://github.com/HCL-TECH-SOFTWARE/dxsync). You can run the command line directly in Visual Studio Code. Open a new terminal in Visual Studio Code and use the menu **Terminal – New Terminal**.
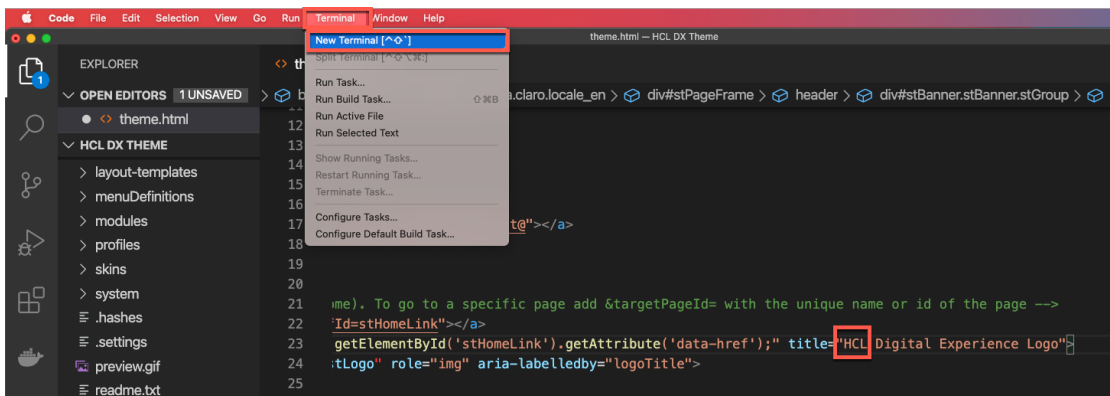
31. To illustrate the use of dxsync, in the terminal, use **dxsync push** command from the editor terminal as shown. Wait for the message 'Synchronization complete' and verify there are no errors. The same tool may be used to pull as well.
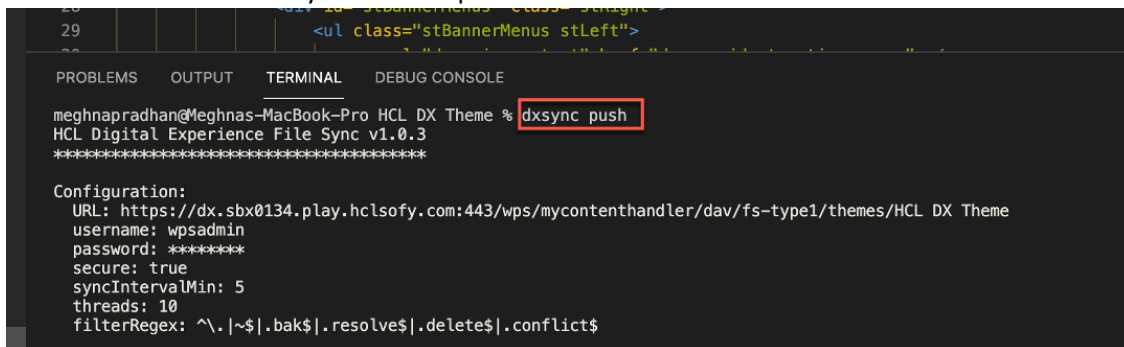
Congratulations! You have been able to work and update your theme logo locally with your favorite code editor and synchronized it with your DX server using WebDav and DXClient. And you have learned how you could also use the Web Developer Toolkit with its Web Developer Dashboard and dxsync command.

Conclusion

Using this lab tutorial, you created a new theme on the DX server, based on a Bootstrap based Simple theme template. You have created a new Promotion test page that you configured to run with your new theme and that allows you to easily see any updates. Then you used the Theme Editor to look at several aspects of them, like the CSS and layout templates, and make an update to the footer to use a Web Content item. And then you learned how to pull the theme code to your local system, make further changes with your preferred code editor and push them to the DX server using WebDav and DXClient and optionally using the HCL DX Extensions for Visual Studio Code, Web Developer Toolkit with its Web Developer Dashboard and dxsync command.

Resources

Refer to the following resources to learn more:

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

HCL Digital Experience on HCL Solutions Factory (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 Extensions for Visual Studio Code - https://hclsw.co/dx-extension-vsc

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

HCL DX File Sync (dxsync) - https://github.com/HCL-TECH-SOFTWARE/dxsync

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