

Build Your First Front-End Project

Learning Objectives

In this module, you'll learn what tools and frameworks are available in Liferay to customize the user experience as well as how to set up a front-end development environment.

Tasks to Accomplish

- Use the NPM Theme generator to quickly generate and deploy a theme
 - Set up a local instance of Liferay
 - Install the NPM tools to create and deploy front-end modules
 - Create a basic Theme Module
 - Deploy the basic Theme Module to the local instance of Liferay
 - Select the Theme Module on the platform
- Use the NPM Liferay Bundle generator to generate and deploy a React JavaScript module
 - Set up the NPM Bundler
 - Create a React JavaScript module
 - Deploy the module and view it on a page

Exercise Prerequisites

- Java JDK installed to run Liferay
 - Download here: <https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>
 - Instructions on installation here: https://www.java.com/en/download/help/download_options.xml
- Unzipped module exercise files in the following folder structure:
 - Windows: `C:\liferay`
 - Unix Systems: `[user-home]/liferay`
- A Liferay DXP or CE 7.4 instance up and running

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Setting up and Deploying with the Liferay Theme Generator

Exercise Goals

- Use the NPM Theme generator to quickly generate and deploy a theme
 - Set up a local instance of Liferay
 - Install the NPM tools to create and deploy front-end modules
 - Create a basic Theme Module
 - Deploy the basic Theme Module to the local instance of Liferay
 - Select the Theme Module on the platform

Install a Liferay Tomcat Bundle in a New Bundles Folder

1. **Create** a new *bundles* folder in your liferay folder so that you have a directory that looks like this:
 - Windows: *C:\liferay\bundles*
 - Unix Systems: *[user-home]/liferay/bundles*
2. **Expand** the `liferay-dxp-[version]` file to the bundles directory.
 - Windows: `liferay-dxp-[version].zip`
 - Unix Systems: `liferay-dxp-[version].tar.gz`

Note: This file can be found in the software materials provided by the instructor. Windows' built-in archive tool causes problems with Liferay when it tries to extract the large .zip file. We recommend using a third-party tool, like 7-Zip or WinZip.

Set the Tomcat Bundle to Developer Mode

1. **Copy** the *portal-ext.properties* file from this module's exercise folder.
2. **Paste** the file into the *Liferay Home* folder.
 - Windows: *C:\liferay\bundles\liferay-dxp-[version]*
 - Unix Systems: *[user-home]/liferay/bundles/liferay-dxp-[version]*

Install Node

1. **Go to** <https://nodejs.org/en/>.
2. **Click** the appropriate installer for your operating system.
3. **Click** through the installer.
4. **Open** a *Command Line/Terminal* window.
5. **Run** `node -v` in your *Command Line* to verify your installation once you have installed node.js and npm.
6. Run `npm -version` to double-check that the appropriate version is installed.

Note: It is possible you may run into errors with some versions of Node. To avoid this, we recommend using Node version 16.13.2 and npm version 8.x.x.

Mac OSX and Linux: Redirect the NPM Global Command

1. **Create** a `.npmrc` file in your user home.
 - You can navigate here in your *Terminal* using `cd ~/[username]`.
2. **Add** the following in your `.npmrc` file:

```
prefix=/Users/[username]/.npm-packages
```

1. **Save** the file.
2. **Open** your `.profile` file.
 - Use the shortcut `CMD + SHIFT + .` to view hidden files in your user home.
3. **Add** the following to your `.profile` file:

```
export NPM_PACKAGES=/Users/[username]/.npm-packages
```

```
export PATH=${PATH}:${NPM_PACKAGES}/bin
```

1. **Save** the file.
2. **Restart** the *Terminal* for the changes to take place.

Install Yeoman and the Liferay Theme Generator

1. **Run** `npm install -g yo gulp` to install the Yeoman and Gulp dependency.
2. **Run** `npm install -g generator-liferay-theme@10.x.x` to install the Liferay Theme Generator.
3. **Run** `yo` in the *Command Line/Terminal* to see that the generator is installed.
 - Type *Y or N* if an initial prompt asks to collect data.
4. **Choose** *Get me out of here!*

Start the Liferay-Tomcat Bundle

1. **Go to** the Tomcat server's `bin` directory:
 - Windows: `C:\liferay\bundles\liferay-dxp-[version]\tomcat-[version]\bin` in the file manager
 - Mac/Linux: `[userhome]/liferay/bundles/liferay-dxp-[version]/tomcat-[version]/bin` using the *Terminal*
2. **Start** the Tomcat Server:
 - Windows: **Double-click** on the `startup.bat`.
 - Mac/Linux: **Run** `./catalina.sh run` in your *Terminal*.

Deploy the Activation Key

1. **Copy** the `activation-key-digitalenterprisedevelopment-7.3-liferaycom.xml` file from your provided materials.
2. **Paste** the file into your `liferay-dxp-[version]/deploy` folder.

Complete the Liferay Setup Wizard

1. **Go to** *localhost:8080* in the browser.
2. **Type** *Livingstone Hotels & Resorts* as the *Portal Name*.
3. **Type** *Josiah* for the *First Name*.
4. **Type** *Copeland* for the *Last Name*.
5. **Type** *josiah.copeland@livingstone.com* for the *Email*.
6. **Click** *Finish Configuration*.
7. **Click** *I Agree* for the *Terms of Use* placeholder.
8. **Type** a new password for your account.
9. **Click** *Save*.
10. **Choose** a password reminder query.
11. **Type** in an answer.
12. **Click** *Save*.

Create a New Theme to Deploy

1. **Go to** your *liferay* folder in your *Command Line/Terminal*.
 - Windows: *C:\liferay*
 - Unix Systems: *[userhome]/liferay*
2. **Run** *yo liferay-theme*.
3. **Type** *My Test Theme* for the *theme name*.
4. **Press** *Enter* to accept the default *themeld*.
5. **Choose** *7.4* for the *version*.
6. **Type** *N* when asked to use *Font Awesome* in the theme.
 - Font Awesome is no longer included by default and using it may cause errors.
7. **Choose** *Local App Server* for the *deployment strategy*.
8. **Add** the app server directory path:
 - Windows: *C:\liferay\bundles\liferay-dxp-[version]\tomcat-[version]*
 - Unix Systems: *[user-home]/liferay/bundles/liferay-dxp-[version]/tomcat-[version]*
9. **Press** *Enter* to accept the default url.

Note: Liferay themes created with the theme generator are bundled with Gulp. In order to run Gulp locally from the command line, we must add a script to the package.json file. Additionally, some setups run into issues running scripts with npm. If this is the case, try creating an .npmrc file in the root of your project and add the ignore-scripts=false configuration.

Deploy the Theme

1. **Go to** your new theme directory in the *Command Line/Terminal*.
 - Windows: *C:\liferay\my-test-theme*
 - Unix Systems: *[userhome]/liferay/my-test-theme*
2. **Run** *npm run deploy* in the *Command Line/Terminal*.

Select the New Theme on the Platform

1. **Log in** to *localhost:8080* if you're not already logged in.
2. **Open** the *Menu*.
3. **Go to** *Site Builder > Pages* in the *Site Administration* panel.
4. **Click** on the configuration icon next to *Public Pages*.
5. **Click** the *Change Current Theme* button.
6. **Choose** the *My Test* theme.
7. **Click** *Save*.
8. **Click** *Home* in the *Site Administration* panel to see the base theme without any customization.
 - Note: My Test Theme does not include a login portlet. Be sure to change the theme back to Classic if you need to close your instance.

Bonus Exercises

1. Change the theme back to the *Classic* theme.
2. Explore the new theme project and add some css to the *custom.scss* file in the *src* folder and deploy the changes.

Deploying with the NPM Bundle Generator

Exercise Goals

- Use the NPM Liferay Bundle generator to generate and deploy a React JavaScript module
 - Set up NPM Bundler
 - Create a React JavaScript module
 - Deploy the module and view it on a page

Install the Liferay NPM Bundle Generator

1. **Run** `npm install -g generator-liferay-js` to install the Liferay NPM Bundle Generator.
2. **Run** `yo` in the *Command Line/Terminal* to see that the generator is installed.
 - You should now see both the Liferay Js and Liferay Theme generators.
3. **Choose** *Get me out of here!*

Create a Basic React Module

1. **Go to** your *liferay* folder in your *Command Line/Terminal*.
 - Windows: *C:\liferay*
 - Unix Systems: *[userhome]/liferay*
2. **Run** `yo liferay-js` in your *Command Line/Terminal*.
3. **Choose** *React Widget*.
4. **Type** *test-project* for the *project name*.
5. **Press** *Enter* to accept the default *Project Description*.
6. **Type** *Y* to accept localization support.
7. **Type** *Y* to accept configuration support.
8. **Press** *Enter* to accept the default portlet category.
 - This will add your new react portlet to the *Widget # Sample* section of the *Add* menu.
9. **Type** *Y* to indicate that you have a local installation for development.
10. **Type** the folder path for the liferay bundle.
 - Windows: *C:\liferay\bundles\liferay-dxp-[version]*
 - Unix Systems: */Users/[username]/liferay/bundles/liferay-dxp-[version]*
11. **Type** *Y* to generate sample code.

Deploy the New React Module

1. **Go to** your *test-project* project folder in your *Command Line/Terminal*.
2. **Run** `npm run deploy` in your *Command Line/Terminal*.
 - You may need to choose whether or not you want to report usage stats to improve the tool.

Add the New React Module to the Page

1. **Go to** *localhost:8080* in your browser.
2. **Sign in** if you are not already signed in.
3. **Click** the *Edit* button at the top right.
4. **Open** the *Widgets* section in the sidebar.
5. **Open** the *Sample* section.
6. **Click** the *Test Project* widget.
7. **Drag** the widget to the bottom of the page.
8. **Click** *Publish* in the top right corner.

Bonus Exercises

1. Create any of the other JavaScript module types.
2. Create and deploy another module using blade.

Build Your First Front-End Project Module Quiz

1. Which two IDEs have Liferay IDE plugins available to them from development? (Choose two.)
 - A. Microsoft Visual Studio
 - B. IntelliJ IDEA
 - C. Eclipse
 - D. Netbeans
2. Which three Yeoman generators are available with the Liferay NPM Toolkit? (Choose three.)
 - A. Liferay Layouts Generator
 - B. Liferay Fragments Generator
 - C. Liferay Web Content Generator
 - D. Liferay Theme Generator
 - E. Liferay Bundle Generator
3. The Blade CLI supports JavaScript module development in 7.2.
 - A. True
 - B. False
4. Which three ways can you use to create stylistic changes on the platform? (Choose three.)
 - A. Themes
 - B. JSP Hooks
 - C. Templates
 - D. Fragments
 - E. React modules
5. The Liferay Bundle Generator can be used to build JavaScript modules as well as themes and layouts.
 - A. True
 - B. False

Answer Key

1. B, C
2. B, D, E
3. False
4. A, C, D
5. False