FLOWX.AI

PLATFORM DEEP DIVE / Core components / Renderer SDKs / angular-renderer

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PLATFORM DEEP DIVE / Core components / Renderer SDKs / Using the Angular Renderer

FlowxProcessRenderer is a low code library designed to render UI configured via the Flowx Process Editor.

Angular project requirements

Your app MUST be created using the NG app from the @angular/cli~15 package. It also MUST use SCSS for styling.

```
npm install -g @angular/cli@15.0
ng new my-flowx-app
```

INFO

To install the npm libraries provided by FLOWX you will need to obtain access to the private FLOWX Nexus registry. Please consult with your project DevOps.

CAUTION

The library uses Angular version **@angular~15**, **npm v8.1.2** and **node v16.13.2**.

CAUTION

If you are using an older version of Angular (for example, v14), please consult the following link for update instructions:

Update Angular from v14.0 to v15.0

Installing the library

Use the following command to install the **renderer** library and its required dependencies:

```
npm install @flowx/ui-sdk@3.21.0
@flowx/ui-toolkit@3.21.0
@flowx/ui-theme@3.21.0
paperflow-web-components
vanillajs-datepicker@1.3.1
moment@^2.27.0
```

```
@angular/flex-layout@15.0.0-beta.42
@angular/material@15.2.0
@angular/material-moment-adapter@15.2.0
@angular/cdk@15.2.0
ng2-pdfjs-viewer@15.0.0
event-source-polyfill@1.0.31
```

Also, in order to successfully link the pdf viewer, add the following declaration in the assets property of you project's angular.json:

```
{
  "glob": "**/*",
  "input": "node_modules/ng2-pdfjs-viewer/pdfjs",
  "output": "/assets/pdfjs"
}
```

Using the library

Once installed, FlxProcessModule will be imported in the `AppModule` `FlxProcessModule.forRoot({})`.

You MUST also import the dependencies of `FlxProcessModule: HttpClientModule` from `@angular/common/http` and **IconModule** from `@flowxai/ui-toolkit`.

Using Paperflow web components

Add path to component styles to stylePreprocessesOptions object in **angular.json file**

```
"stylePreprocessorOptions": {
  "includePaths": [
  "./node_modules/paperflow-web-components/src/assets/scss",
  "./node_modules/flowx-process-
renderer/src/assets/scss/style.scss",
  "src/styles"]
}
```

> **INFO**
>
> Because the datepicker module is build on top of angular material datepicker module, using it requires importing one predefined material theme in you **angular.json** configuration.

```
 "styles": ["...,
"./node_modules/@angular/material/prebuilt-themes/indigo-
pink.css"],
```

Theming

Component theming is done through two json files (`theme_tokens.json`, `theme_components.json`) that need to be added in the assets folder of your project The file paths need to be passed to the `FlxProcessModule.forRoot()` method through the `themePaths` object.

```
themePaths: {
    components: 'assets/theme/theme_components.json',
    tokens: 'assets/theme/theme_tokens.json',
  },
```

The **assets/theme/theme_tokens.json** - should hold the design tokens (e.g. colors, fonts) used in the theme. An example can be found here.

The **assets/theme/theme_components.json** - holds metadata used to describe component styles. An example can be found here.

For **Task Management** theming is done through the ppf-theme mixin that accepts as an argument a list of colors grouped under **primary**, **status** and **background**

```
@use 'ppf-theme';

@include ppf-theme.ppf-theme((
  'primary': (
    'color1': vars.$primary,
    'color2': vars.$secondary,
    'color3': vars.$text-color,
  ),
  'status': (
    'success': vars.$success,
    'warning': vars.$warning,
    'error': vars.$error,
  ),
  'background': (
    'background1': vars.$background1,
    'background2': vars.$background2,
    'background3': vars.$background3,
  ),
));
```

Authorization

INFO

Every request from the **FLOWX** renderer SDK will be made using the **HttpClientModule** of the client app, which means those requests will go through every interceptor you define here. This is most important to know when building the auth method as it will be the job of the client app to intercept and decorate the requests with the necessary auth info (eg. `Authorziation: Bearer ...`).

NOTE

It's the responsibility of the client app to implement the authorization flow (using the **OpenID Connect** standard). The renderer SDK will expect to find the **JWT** saved in the browser **localStorage** object at the key named access_token.

```
import {BrowserModule} from '@angular/platform-browser';
import {NgModule} from '@angular/core';
import { HttpClientModule, HTTP_INTERCEPTORS } from
'@angular/common/http';
import {FlxProcessModule} from 'flowx-process-renderer';
import { IconModule } from 'paperflow-web-components';

import {AppRoutingModule} from './app-routing.module';
import {AppComponent} from './app.component';

@NgModule({
  declarations: [
    AppComponent,
  ],
  imports: [
```

```
    BrowserModule,
    AppRoutingModule,
    // will be used by the renderer SDK to make requests
    HttpClientModule,
    // needed by the renderer SDK
    IconModule.forRoot(),
    FlxProcessModule.forRoot({
      components: {},
      services: {},
      themePaths: {
        components: 'assets/theme/theme_components.json',
        tokens: 'assets/theme/theme_tokens.json',
      },
    }),
  ],
  // this interceptor with decorate the requests with the
Authorization header
  providers: [
    { provide: HTTP_INTERCEPTORS, useClass: AuthInterceptor,
multi: true },
  ],
  bootstrap: [AppComponent]
})
export class AppModule {}
```

The `forRoot()` call is required in the application module where the process will be rendered. The `forRoot()` method accepts a config argument where you can pass extra config info, register a **custom component**, **service**, or **custom validators**.

Custom components will be referenced by name when creating the template config for a user task.

Custom validators will be referenced by name (`currentOrLastYear`) in the template config panel in the validators section of each generated form field.

```
// example
FlxProcessModule.forRoot({
  components: {
    YourCustomComponentIdenfier: CustomComponentInstance,
  },
  services: {
    NomenclatorService,
    LocalDataStoreService,
  },
  validators: {currentOrLastYear },
})
```

```
# example with custom component and custom validator
FlxProcessModule.forRoot({
  components: {
    YourCustomComponentIdenfier: CustomComponentInstance,
  },
  services: {
    NomenclatorService,
    LocalDataStoreService,
  },
  validators: {currentOrLastYear },
})

  // example of a custom validator that restricts data
selection to
  // the current or the previous year

  currentOrLastYear: function currentOrLastYear(AC:
```

```
AbstractControl): { [key: string]: any } {
    if (!AC) {
      return null;
    }

    const yearDate = moment(AC.value, YEAR_FORMAT, true);
    const currentDateYear = moment(new
Date()).startOf('year');
    const lastYear = moment(new Date()).subtract(1,
'year').startOf('year');

    if (!yearDate.isSame(currentDateYear) &&
!yearDate.isSame(lastYear)) {
      return { currentOrLastYear: true };
    }

    return null;
  }
```

> **CAUTION**
>
> The error that the validator returns **MUST** match the validator name.

The component is the main container of the UI, which will build and render the components configured via the **FlowX Designer**. It accepts the following inputs:

```
<flx-process-renderer
  [apiUrl]="baseApiUrl"
  [processApiPath]="processApiPath"
  [processName]="processName"
  [processStartData]="processStartData"
  [debugLogs]="debugLogs"
```

```
  [keepState]="keepState"
  [language]="language"
></flx-process-renderer>
```

Parameters:

Name	Description	Type	Mandatory	Default value	
baseApiUrl	Your base url	string	true	-	https
processApiPath	Engine API prefix	string	true	-	/onb
processName	Identifies a process	string	true	-	clien
processStartData	Data required to start the process	json	true	-	{ "firs "last
debugLogs	When set to true this will print WS messages in the console	boolean	false	false	-

Name	Description	Type	Mandatory	Default value	
language	Language used to localize the application.	string	false	ro-RO	-
keepState	By default all process data is reset when the process renderer component gets destroyed. Setting this to true will keep process data even if the viewport gets destroyed	boolean	false	false	-

Name	Description	Type	Mandatory	Default value	
isDraft	When true allows starting a process in draft state. *Note that isDraft = true requires that processName be the **id** (number) of the process and NOT the name.	boolean	false	false	-

Data and actions

Custom components will be hydrated with data through the $data input observable which must be defined in the custom component class.

```
@Component({
  selector: 'my-custom-component',
  templateUrl: './custom-component.component.html',
  styleUrls: ['./custom-component.component.scss'],
})
```

```
export class CustomComponentComponent  {
  @Input() data$: Observable<any>;
  }
```

Component actions are always found under `data` -> `actionsFn` key.

Action names are configurable via the process editor.

```
# data object example
data: {
   actionsFn: {
      action_one: () => void;
      action_two: () => void; }
   }
```

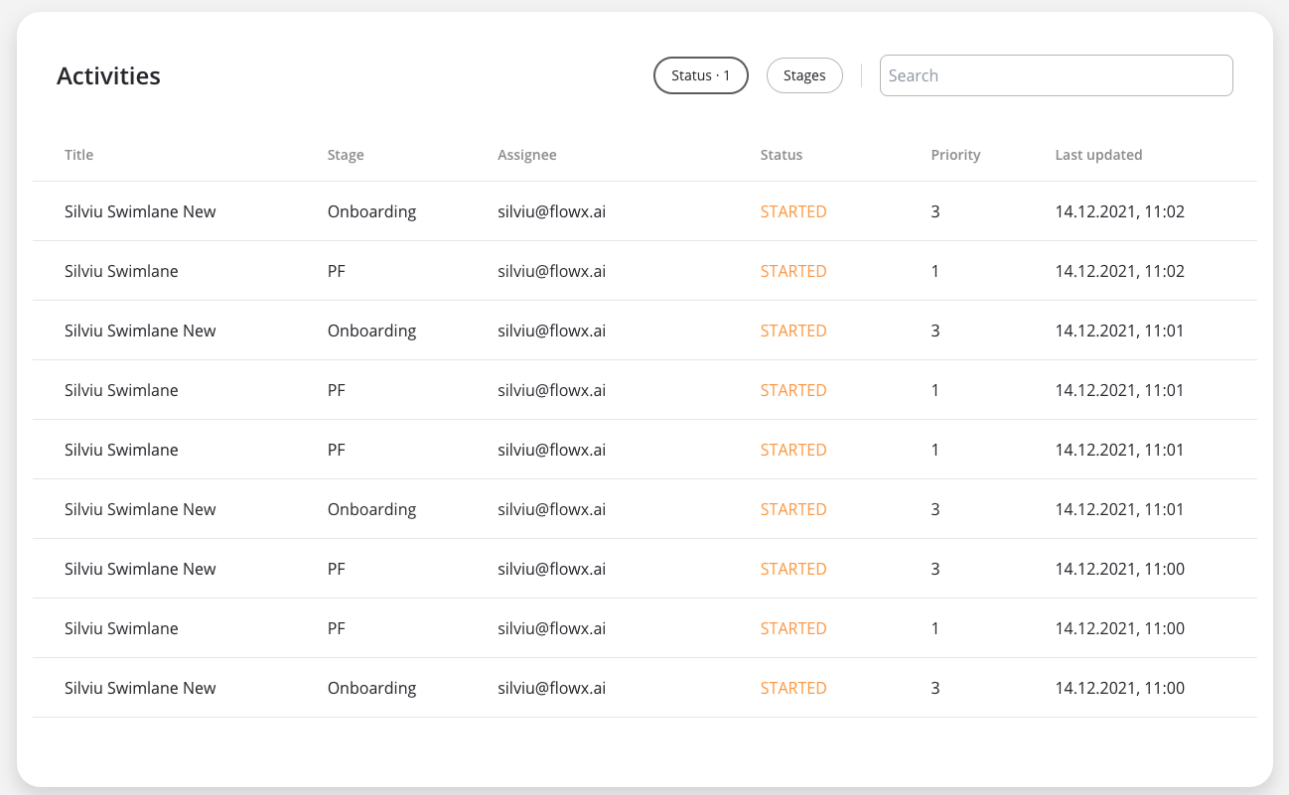
Interacting with the process

Data from the process is communicated via **SSE** protocol under the following keys:

Name	Description	Example	
Data	data updates for process model bound to default/custom components		
ProcessMetadata	updates about process metadata, ex: progress update, data about how to render components		

Name	Description	Example	
RunAction	instructs the UI to perform the given action		

Task management component



The flx-task-management component is found in the FlxTaskManagementModule. In order to have access to it, import the module where needed:

```
import {FlxTaskManagementModule} from 'flowx-process-
renderer';
@NgModule({
  declarations: [
```

```
    ...,
  ],
  imports: [
    ...,
    FlxTaskManagementModule
  ],

})
export class MyModule {
}
```

Then in the template:

```
<flx-task-management [baseUrl]="baseUrl" [title]="'Tasks'">
</flx-task-management>
```

Parameters:

Name	Description	Type	Default	Mandatory	
apiUrl	Endpoint where the tasks are available	string	-	true	https://yo
title	Table header value	string	Activities	false	Tasks

Name	Description	Type	Default	Mandatory	
pollingInterval	Interval for polling task updates	number	5000 ms	false	10000

Development

When modifying the library source code and testing it inside the designer app use the following command which rebuilds the flx-process-renderer library, recreates the link between the library and the designer app and recompiles the designer app:

```
npm run build && cd dist/flowx-process-renderer/ && npm link
&& cd ../../ && npm link flowx-process-renderer && npm run
start:designer
```

or alternatively run

`./start_with_build_lib.sh`

If you want to start the designer app and the flx-process-renderer library in development mode (no need to recompile the lib for every change) run the following command:

`npm run start:designer-dev`

> **CAUTION**

> Remember to test the final version of the code by building and bundling the renderer library to check that everything works e2e

Trying to use this lib with npm link from another app will most probably fail. If (when) that happens, there are two alternatives that you can use:

1. Use the build-and-sync.sh script, that builds the lib, removes the current build from the client app **node_modules** and copies the newly build lib to the node_modules dir of the client app:

```
./build-and-sync.sh ${path to the client app root}

# example (the client app is demo-web):
./build-and-sync.sh ../../demo-web
```

NOTE: This method uses under the hood the build-and-sync.sh script from the first version and the chokidar-cli library to detect file changes.

2. Use the build-and-sync:watch npm script, that builds the library and copies it to the client app's **node_module** directory every time a file changes:

```
npm run build-and-sync:watch --target-path=${path to the
client app root}

# example (the client app is demo-web):
npm run build-and-sync:watch --target-path=../../demo-web
```

Running the tests

```
ng test
```

Coding style tests

Always follow the Angular official coding styles.

Below you will find a Storybook which will demonstrate how components behave under different states, props, and conditions, it allows you to preview and interact with individual UI components in isolation, without the need for a full-fledged application:

» Storybook

Was this page helpful?