REACT-ESRI Customizable Application Template

Luis Miguel Agudo Bravo, Spanish Institute of Oceanography (Spain), luismi.agudo@ieo.es
Jon Garrido, Bilbomática (Spain), jon.garrido@gmail.com
Olvido Tello-Antón, Spanish Institute of Oceanography (Spain), olvido.tello@ieo.es

React.js is a JavaScript library for building user interfaces. It is the view layer for web applications.

At the heart of all React applications are components. A component is a self-contained module that renders some output. We can write interface elements like a button, input field, map or widgets as a React component.

Unlike many of its predecessors, React operates not directly on the browser's Document Object Model (DOM) immediately, but on a virtual DOM. That is, rather than manipulating the document in a browser after changes to our data (which can be quite slow) it resolves changes on a DOM built and run entirely in memory. After the virtual DOM has been updated, React intelligently determines what changes to make to the actual browser's DOM.

The React Virtual DOM exists entirely in-memory and is a representation of the web browser's DOM. Because of this, when a React component is written, not is written directly to the DOM, but is generated a virtual component that React will turn into the DOM.

Using this library in the client side and the API for Javascript 4.6 from ESRI as map library, the Spanish Institute of Oceanography (IEO) has developed a new customizable web application template.

Each React component or "widget" has a JSON file in order to configure style, behaviors and default init parameters.
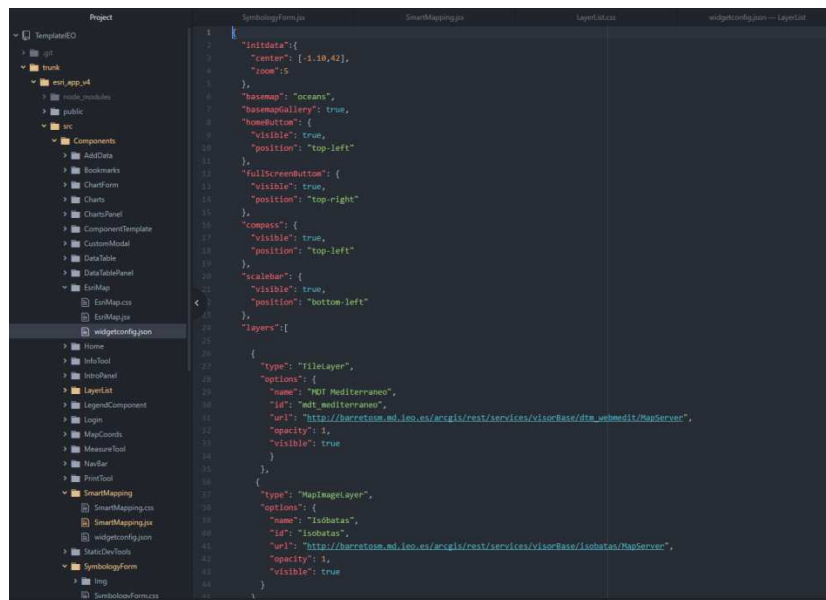

Figure 1:- Example widget's JSON configuration file

Also there are logic in the server side. In this case .NET is used to handle users and roles and ArcGIS Server is used to generate map and geoprocessing services.

The Viewer Base integrated on the Spatial Data Infrastructure of IEO has useful and advanced tools to discovering and managing the oceanographic data of IEO. This viewer has been updated with this new template

These tools allow display, select simbology and consult spatial and alphanumeric data. Besides allow insert new data, 3D displays, make several charts (bar, pie, scatter, etc.).
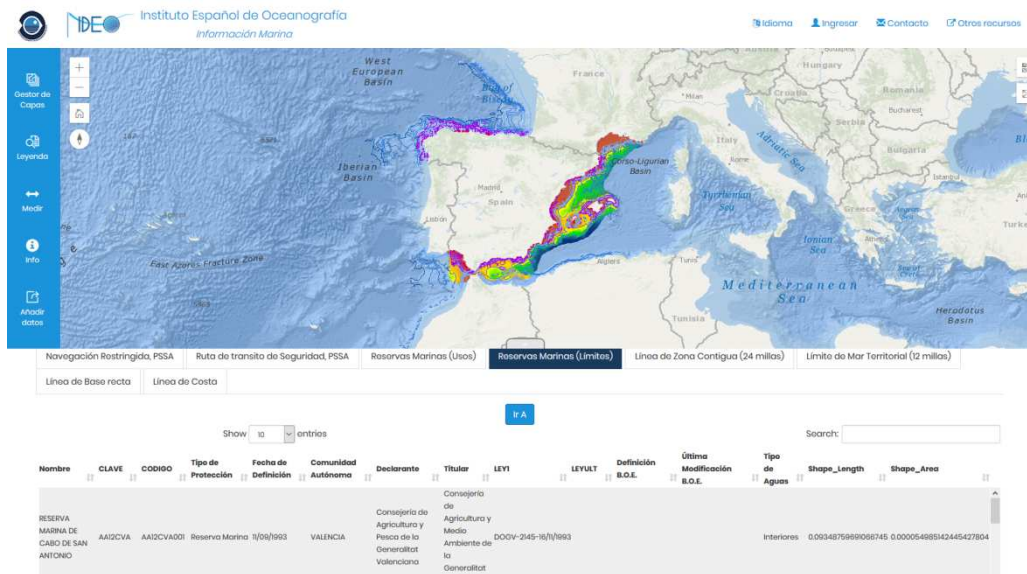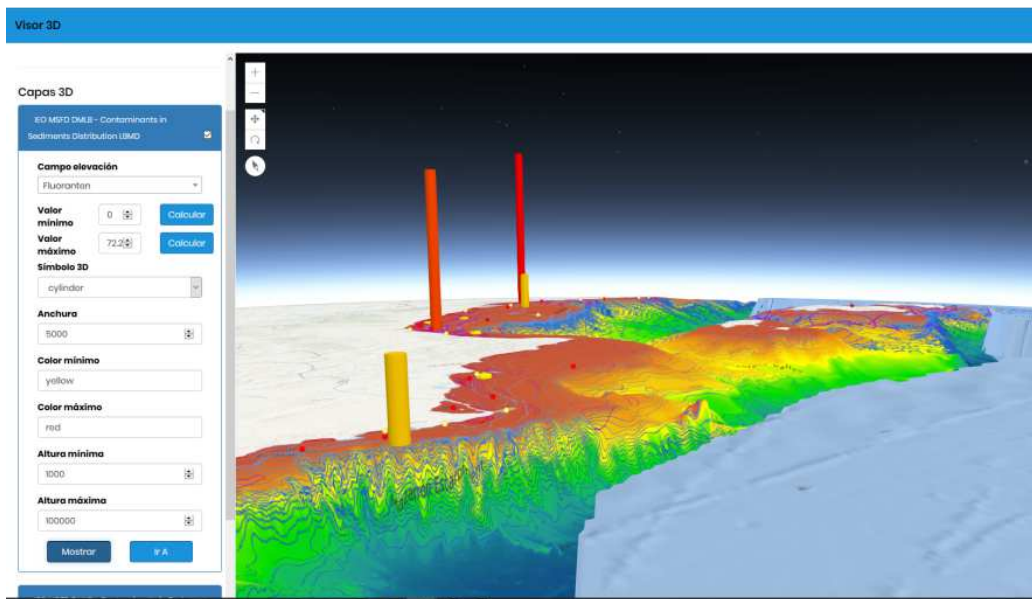

Figure 2: IEO Base Viewer

Figure 3: IEO Base Viewer- 3D Tool

This template is available to download in order to deploy in a new production environment. Also it is easy develop new widgets (React components). In this way is possible to scale this application generating new analysis tools or modify existing tools.