

# OPEN WEB COMPONENTS

Web Client for EO data dissemination

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Open web Component is an **open** source project

...using the lastest **web** technologies

...based on web **components**



**Web Client for EO data dissemination, modular, easy  
to extend and highly customizable**

# CORE FEATURES

Messaging among components

Authentication

Layout system

Object oriented web

# EO FEATURES



# SEARCH

The screenshot displays a search interface for a dataset, likely satellite imagery. On the left, there's a sidebar with icons for user profile, search, filters, and settings. The main area has a search bar at the top. Below it, there are sections for "Sort By" and time ranges for "Sensing time range" and "Ingestion time range". A central panel shows a world map with several highlighted regions: a red dashed rectangle in the North Atlantic, a blue rectangle in the Southern Ocean, and a purple rectangle in the Indian Ocean. To the right of the map is a vertical zoomed-in view of the Earth's surface. A large modal window titled "Search" is open, showing a list of 50 products out of 1,639,580. Each product entry includes a thumbnail, a "NO QUICKLOOK" message, a date (e.g., 2017-02-10T07:42:50.878Z), an instrument (SAR-C), and a size (1.6 GB). The modal also features a toolbar with icons for image, eye, download, and more.

search

Sort By Order By

Sensing time range

Ingestion time range

Search

display 1 to 50 of 1639580 products

NO QUICKLOOK Date: 2017-02-10T07:42:50.878Z Instrument: SAR-C Size: 1.6 GB

NO QUICKLOOK Date: 2017-02-10T07:44:05.878Z Instrument: SAR-C Size: 1.6 GB

NO QUICKLOOK Date: 2017-02-10T07:43:40.879Z Instrument: SAR-C Size: 1.6 GB

NO QUICKLOOK Date: 2017-02-10T07:44:30.879Z Instrument: SAR-C Size: 1.6 GB

NO QUICKLOOK Date: 2017-02-10T07:42:25.879Z Instrument: SAR-C Size: 1.6 GB

NO QUICKLOOK Date: 2017-02-10T07:43:15.878Z Instrument: SAR-C Size: 1.6 GB

Open search, free text and geographic filters. Sorting by ingestion or sensing time. Order by descending or ascending. Graphical time range selectors for sensing and ingestion time. It is possible to save the search. The results are shown as list and map.

# LIST COMPARISON

The image shows a user interface for searching satellite data products. On the left, there is a sidebar with icons for 'go to classic view', a user profile, a magnifying glass (search), a bar chart (statistics), and a gear (settings). The main area has two search results panels and a preview panel on the right.

**Search Results Panel 1 (Left):**

- Search term: \*
- Display: 1 to 25 of 1639580 products
- Product 1: Date: 2017-02-24T08:22:52.976698Z, Instrument: OLCI, Size: 599.51 MB. Includes thumbnail, star, and download icons.
- Product 2: Date: 2017-02-24T06:29:57.858268Z, Instrument: OLCI, Size: 701.46 MB. Includes thumbnail, star, and download icons.
- Product 3: Date: 2017-02-10T07:45:45.878Z, Instrument: SAR-C, Size: 1.68 GB. Includes thumbnail, star, and download icons.
- Product 4: Date: 2017-02-10T07:45:20.879Z, Instrument: SAR-C, Size: 1.6 GB. Includes thumbnail, star, and download icons.
- Product 5: Date: 2017-02-10T07:42:50.878Z, Instrument: SAR-C, Size: 11.97 MB. Includes thumbnail, star, and download icons.

**Search Results Panel 2 (Right):**

- Search term: S2A\*
- Display: 1 to 25 of 577808 products
- Product 1: NO QUICKLOOK. Includes star and download icons.
- Product 2: Date: 2017-02-10T01:56:11.026Z, Instrument: MSI, Size: 726.21 MB. Includes thumbnail, star, and download icons.
- Product 3: NO QUICKLOOK. Includes star and download icons.
- Product 4: Date: 2017-02-10T01:56:11.026Z, Instrument: MSI, Size: 447.12 MB. Includes thumbnail, star, and download icons.
- Product 5: NO QUICKLOOK. Includes star and download icons.
- Product 6: Date: 2017-02-10T01:56:11.026Z, Instrument: MSI, Size: 265.16 MB. Includes thumbnail, star, and download icons.
- Product 7: NO QUICKLOOK. Includes star and download icons.
- Product 8: Date: 2017-02-10T01:56:11.026Z, Instrument: MSI, Size: 223.14 MB. Includes thumbnail, star, and download icons.

**Preview Panel (Right):**

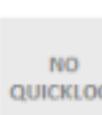
A large preview image on the right shows a satellite map of a landscape with various geological features and terrain. A circular button with a right-pointing arrow is located in the bottom right corner of the preview area.

Pushing two search result lists, it is possible to compare search results.

# PRODUCTS DETAIL

Search

display 1 to 25 of 1639580 products

-  Date: 2017-02-24T08:22:52.976698Z  
Instrument: OLCI  
Size: 599.51 MB
-  Date: 2017-02-24T06:29:57.858268Z  
Instrument: OLCI  
Size: 701.46 MB
-  Date: 2017-02-10T07:45:45.878Z  
Instrument: SAR-C  
Size: 1.68 GB
-  Date: 2017-02-10T07:45:20.879Z  
Instrument: SAR-C  
Size: 1.6 GB
-  Date: 2017-02-10T07:42:50.878Z  
Instrument: SAR-C  
Size: 11.97 MB

Product Details

S3A\_OL\_1\_EFR\_\_\_20170224T082252\_20170224T082552\_20170224T101220\_0179\_014\_349\_2520\_SV...  
[https://scihub.copernicus.eu/demohub/odata/v1/Products\(e75cc09a-6c82-40a9-97c3-916ec2717491\)/](https://scihub.copernicus.eu/demohub/odata/v1/Products(e75cc09a-6c82-40a9-97c3-916ec2717491)/)

QUICKLOOK



PRODUCT

Baseline Collection : 002

Bright Cover Percentage (%) : 3.571208

Coastal Cover Percentage (%) : 0.000000

Creation Date : 2017-02-24T10:12:20.000Z

Cycle number : 14

ECMWF Type : FORECAST

Footprint : <gml:Polygon srsName="http://www.opengis.net/gml/srs/epsg.xml#4326" xmlns:gml="http://www.opengis.net/gml"><gml:outerBoundaryIs><gml:LinearRing><gml:coordinates>20.9453,17.3742 20.834,18.0513 20.725,18.7047 20.6162,19.3421 20.503,19.9899 20.3867,20.6404 20.268,21.2899 20.1475,21.939 20.0235,22.588 19.8976,23.2333 19.7725,23.8794 19.6414,24.5245 19.5111,25.1671 19.3752,25.8087 19.238,26.4494 19.0958,27.0896 18.9558,27.7283 18.8113,28.3687 18.6654,29.0047 18.5166,29.6413 21.1547,30.3349 23.7973,31.0565 26.4359,31.8072 29.0708,32.5918 29.231,31.9043 29.3864,31.2178 29.539,30.5263 29.6864,29.8327 29.8346,29.1367 29.9757,28.4419 30.1148,27.7424 30.2467,27.0414 30.3778,26.3373 30.501,25.6347 30.6246,24.9254 30.7435,24.2194 30.8582,23.5081</gml:coordinates></gml:LinearRing></gml:outerBoundaryIs></gml:Polygon>



Product details: Quicklook, metadata indexes and attributes.

# AUXILIARY DATA FILE

The screenshot displays a user interface for searching satellite data products. On the left, there is a sidebar with icons for user profile, search, and settings, along with a link to "go to classic view". The main area shows a "Search" results page with the message "display 1 to 25 of 1639580 products". Below this, five data items are listed:

- Date: 2017-02-24T08:22:52.976698Z  
Instrument: OLCI  
Size: 599.51 MB
- Date: 2017-02-24T06:29:57.858268Z  
Instrument: OLCI  
Size: 701.46 MB
- Date: 2017-02-10T07:45:45.878Z  
Instrument: SAR-C  
Size: 1.68 GB
- Date: 2017-02-10T07:45:20.879Z  
Instrument: SAR-C  
Size: 1.6 GB
- Date: 2017-02-10T07:42:50.878Z  
Instrument: SAR-C  
Size: 11.97 MB

Each item has a star icon, a thumbnail, and download/upload/share buttons.

To the right of the search results, a modal window titled "Auxiliary Data Files List" is open, showing a list of 25 files related to the selected product. The list includes:

- S3A\_OL\_1\_EFR\_\_\_\_20170224T082252\_20170224T082552\_20170224T101220\_017...
- S3A\_OL\_1\_EFR\_\_\_\_20170224T082055\_20170224T082255\_2017022...
- S3A\_OL\_1\_EFR\_\_\_\_20170224T082255\_20170224T082455\_2017022...
- Metadata Specification, Excel document S3IPF.PDS.008
- S3A\_TM\_0\_NAT\_\_\_\_20170224T080553\_20170224T094637\_2017022...
- S3A\_OL\_1\_EFR\_\_\_\_20170224T082455\_20170224T082655\_2017022...
- S3A\_OL\_0\_EFR\_\_\_\_20170224T082455\_20170224T082655\_2017022...
- S3A\_OL\_0\_EFR\_\_\_\_20170224T082655\_20170224T082855\_2017022...
- S3A\_OL\_0\_EFR\_\_\_\_20170224T082255\_20170224T082455\_2017022...
- S3A\_TM\_0\_NAT\_\_\_\_20170224T080553\_20170224T094648\_2017022...

On the far right, a large satellite image shows a coastal area with brown land and blue water, with a white navigation arrow pointing right.

List of auxiliary data file exploited to process the product.

# MODULARITY

# ATOMIC GUI COMPONENTS EXPLOITING WEB COMPONENTS



Every component follows the Object Oriented Programming exploiting Polymer library. The web components are atomic elements portable from different web applications

# HORIZONTAL LAYOUT

The image displays a horizontal layout of four panels, each with a red border and rounded corners. A thick red line connects the centers of the first three panels.

- Panel 1: Publication Density**

Shows products per day in the last month. The chart is titled "Publication Density" and includes a legend: "shows products per day in the last month". It features a color-coded grid for February, March, April, and May, with a total count of 7010 products. A large red circle is positioned at the center of the grid.
- Panel 2: Calendar of Publication Density**

Shows 51993 published products for the sensing period from 2017-02-02 to 2017-05-04. It includes a bar chart for the year 2017 and a grid for the months February through May. A large red circle is positioned at the center of the grid.
- Panel 3: Calendar Details**

Shows 5929 products found on 2017-02-02. It lists five entries with details like date, instrument, size, and download links. A large red circle is positioned at the center of the list.

Date	Instrument	Size
2017-02-02T23:41:43.152Z	SAR-C	7.48 GB
2017-02-02T23:37:55.072Z	SAR-C	8.0 GB
2017-02-02T23:38:08.082Z	SAR-C	7.2 GB
2017-02-02T23:40:02.909Z	SAR-C	7.2 GB
2017-02-02T23:38:22.655Z	SAR-C	7.44 GB
2017-02-02T23:39:13.253Z	SAR-C	
- Panel 4: Product Details**

Shows a product detail page for a specific item. It includes a thumbnail image, a "QUICKLOOK" section with a preview image, and detailed information such as acquisition type, cycle number, footprint, format, and ingestion date. A large red circle is positioned at the center of the page.

Horizontal layout, the navigation system pushes the components in a horizontal stack.

# **EXTENDIBLE**

# NEW COMPONENT CREATION

## Chapter 4: Build your own Open Web Components

### How to create a new web component for OWC (generation tool)

OWC provides a tool to auto-generate a polymer from a template, which is compliant with folder structure described previously.

These are the steps to follow for running OWC component generation tool:

- 1) move to the owc source folder (like: <clone\_folder>/client/owc-client/src/main/frontend/):

```
cd <owc-path>
```

- 2) run the following command to create a new OWC component:

```
python tools/new_component.py create
```

- 3) during command execution, please insert the requested information:

Repository path (empty to load the path from configuration file):

*Insert the path of the owc source folder (e.g. ./client/owc-client/src/main/frontend/) and then press enter.*

Repository url (empty to load the path from configuration file):

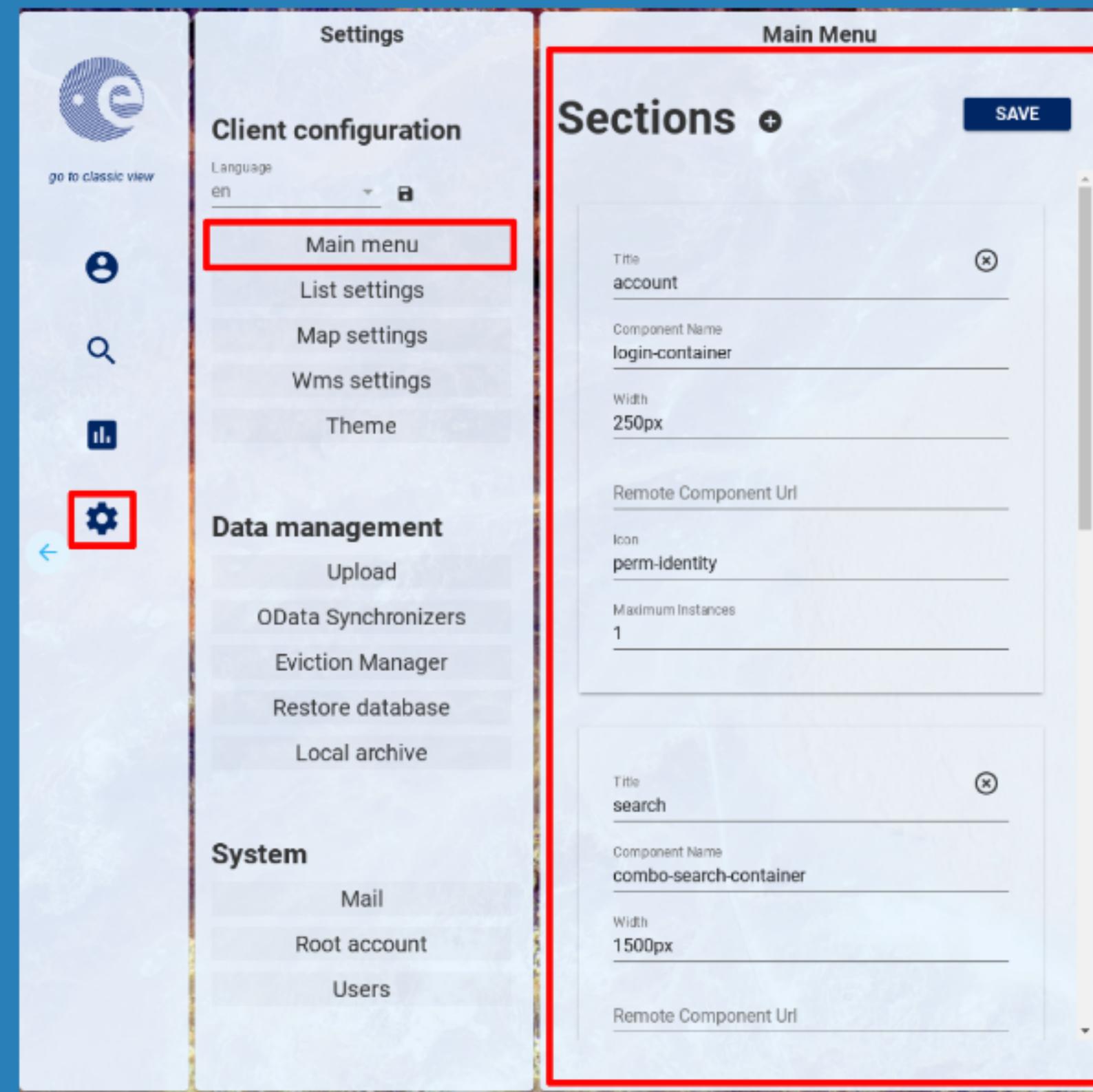
*Insert the git repository url for this component (e.g. https://github.com//DataHubSystem.git), or leave field empty if there isn't a repository, then press enter.*

The guide how to create a new component and how to integrate in the OWC application is present in the Open Source Portal.

# CUSTOMIZATION

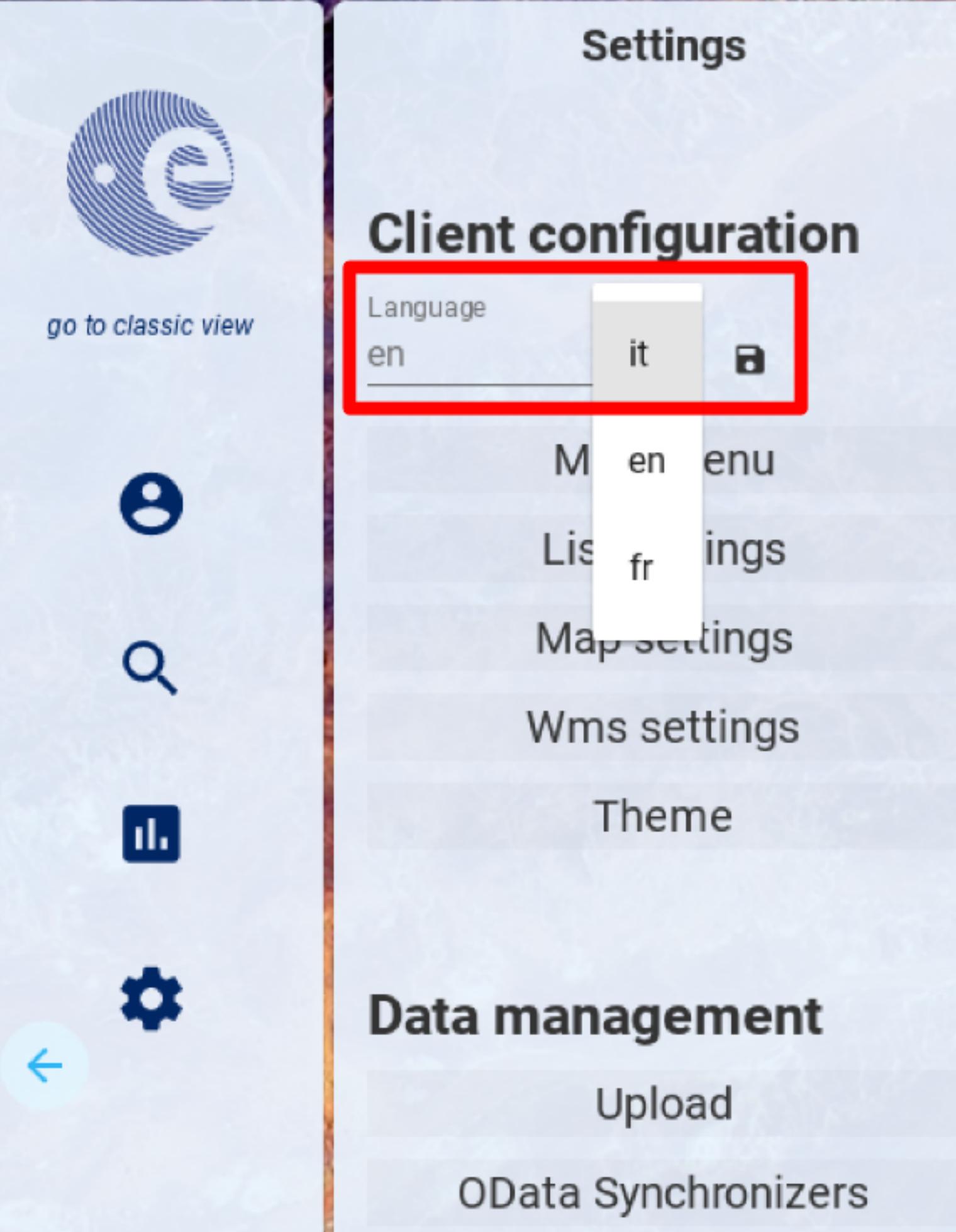
# MAIN MENU



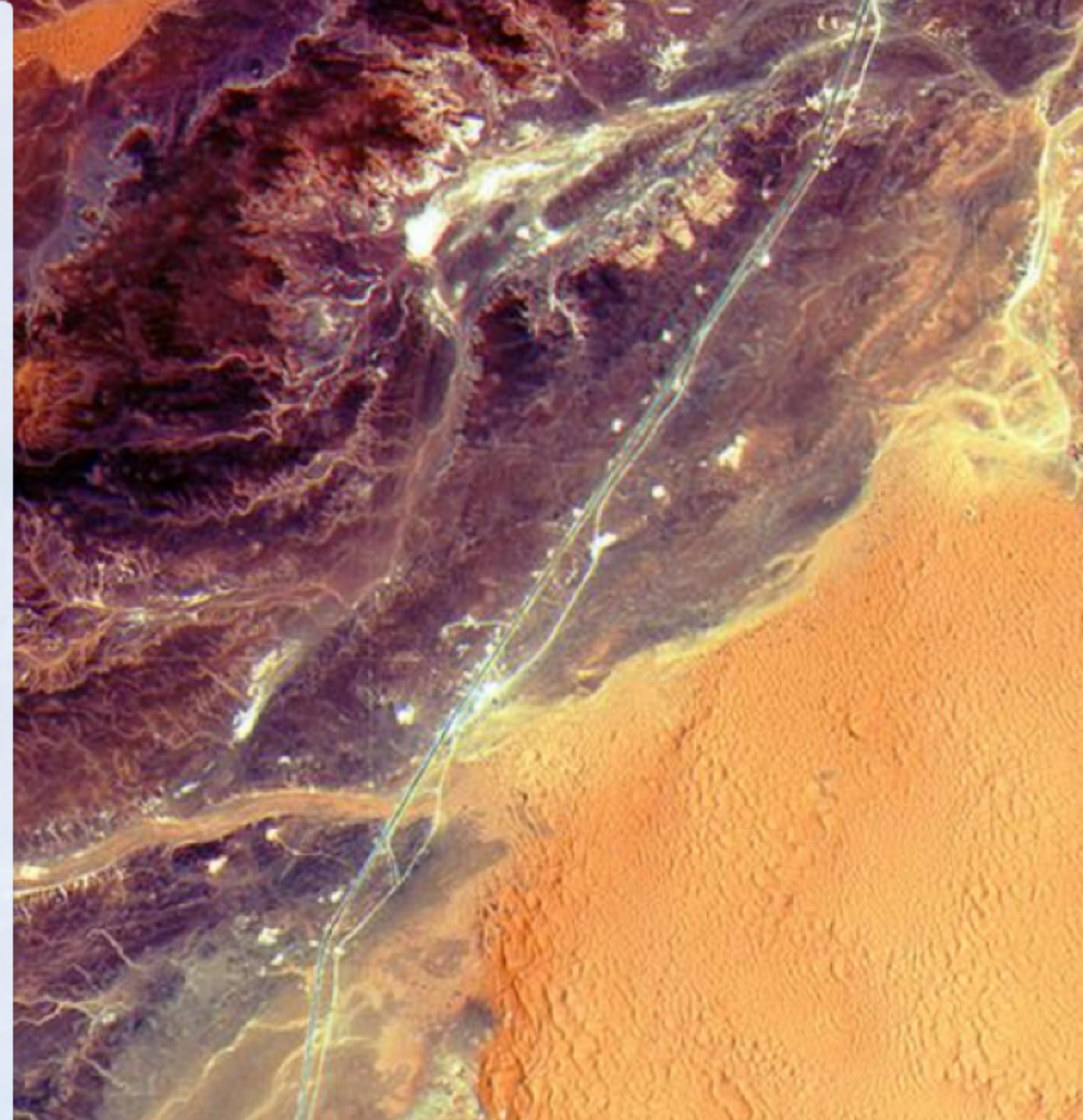


The main menu sections are customizable, via  
Graphical user interface

# LANGUAGE



The screenshot shows a user interface for managing map settings. On the left, there's a sidebar with icons for user profile, search, and data management, along with a back arrow. The main area has a title "Settings" and a section titled "Client configuration". In this section, there's a "Language" dropdown menu with "en" selected (highlighted by a red box) and "it" as an option. Other menu items include "Map settings", "Wms settings", and "Theme". Below this, there's a "Data management" section with "Upload" and "OData Synchronizers" options.



A high-resolution aerial satellite image showing a coastal landscape. A large, winding river or stream flows from the center-left towards the bottom right, its path marked by a distinct greenish-blue color. The surrounding terrain is a mix of dark brown, reddish-brown, and yellowish-green hues, indicating different types of vegetation or soil. The image captures a complex network of waterways and landforms.

The language settings are stored locally in the browser.

# THEME

The screenshot shows the 'Theme' configuration page. On the left, there's a sidebar with icons for user profile, search, data management, and system settings (the last one is highlighted with a red box). The main area has a 'Settings' header and a 'Client configuration' section. A red box highlights the 'Theme' option under 'Client configuration'. To the right is the 'Theme Editor' panel, which is also framed by a red border. It contains sections for 'Logo' (with a URL input field containing `./images/logo_esa-in.png`) and 'Background' (with a color input field set to `#e9f4ff`). Below that is a 'Background Image' section with a URL input field containing `./images/Sentinel-2-algeria.jpg`. At the bottom of the editor are 'RESTORE DEFAULT' and 'SAVE' buttons.

Settings

Client configuration

Language  
en

Main menu

List settings

Map settings

Wms settings

Theme

Data management

Upload

OData Synchronizers

Eviction Manager

Restore database

Local archive

System

Theme Editor

Title

Logo

Logo Url  
`./images/logo_esa-in.png`

Background

Background Color  
`#e9f4ff`

Background Image

Background Image Url  
`./images/Sentinel-2-algeria.jpg`

RESTORE DEFAULT

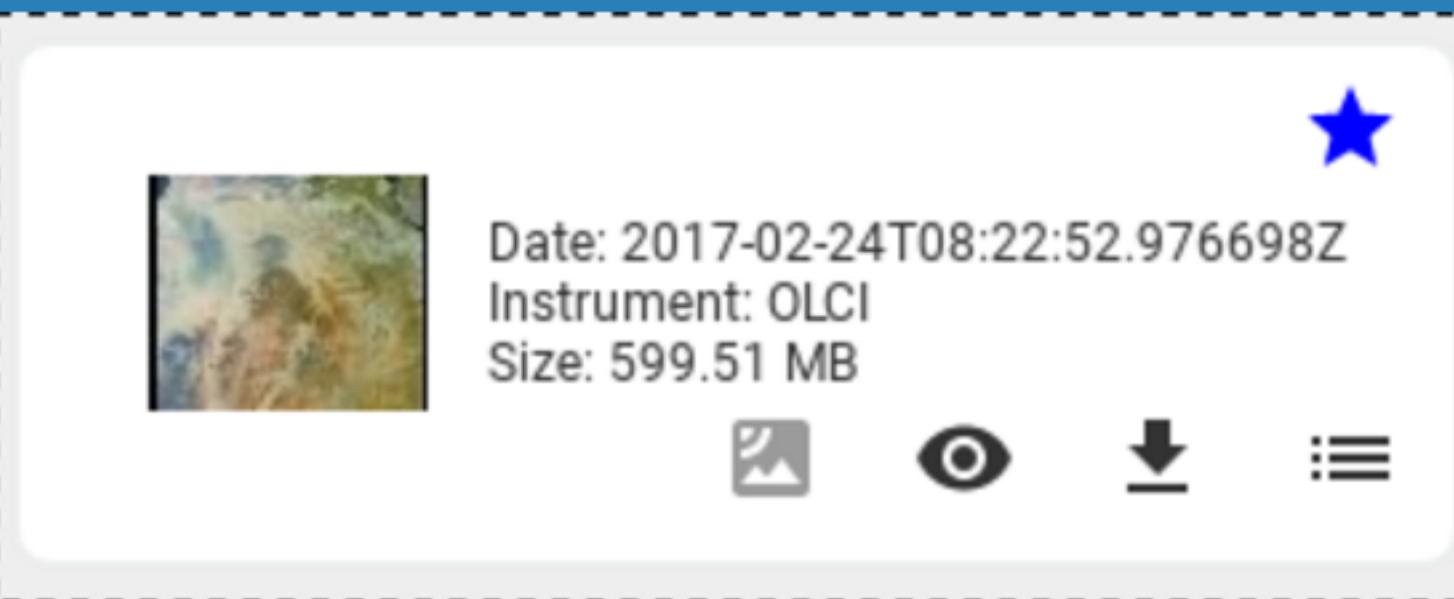
SAVE

Theme properties: application title, logo, panels  
background color, application background image.

# LIST ATTRIBUTES

The image shows a software interface with a sidebar and a main content area. The sidebar on the left contains icons for user profile, search, and settings, with the settings icon highlighted by a red box. The main content area has two tabs: 'List Model Schema editor' (which is active) and 'List Model View editor'. The 'List Model Schema editor' tab displays a JSON-like schema with line numbers from 1 to 61. The schema defines various objects and their properties, including 'productsExtractor', 'model', 'valueExtractor', and 'valueType'. To the right of the schema editor is a large satellite map of a landscape with orange, brown, and green terrain, showing a network of roads and water bodies.

```
1 {
2   "productsExtractor": {
3     "absolutePath": "/"
4   },
5   "model": {
6     "@type": "Array",
7     "valuesExtractor": [
8       {
9         "@id": "id",
10        "@type": "Object",
11        "valueExtractor": {
12          "relativePath": "id"
13        }
14      },
15      {
16        "@id": "uuid",
17        "@type": "Object",
18        "valueExtractor": {
19          "relativePath": "uuid"
20        }
21      },
22      {
23        "@id": "status",
24        "@type": "Boolean",
25        "valueExtractor": false
26      },
27      {
28        "@id": "identifier",
29        "@type": "String",
30        "valueExtractor": {
31          "relativePath": "identifier"
32        }
33      },
34      {
35        "@id": "footprintGml",
36        "@type": "Object",
37        "valueExtractor": {
38          "relativePath": "footprint"
39        }
40      },
41      {
42        "@id": "quicklook",
43        "@type": "Object",
44        "valueExtractor": {
45          "relativePath": "quicklook"
46        }
47      },
48      {
49        "@id": "type",
50        "@type": "Object",
51        "valueExtractor": {
52          "@type": "Array",
53          "relativePath": "indexes",
54          "findWhere": {
55            "name": "product"
56          },
57          "valueExtractor": {
58            "@type": "Array",
59            "relativePath": "children",
60            "findWhere": {
61              "name": "Product type"
62            }
63          }
64        }
65      }
66    ]
67  }
68}
```

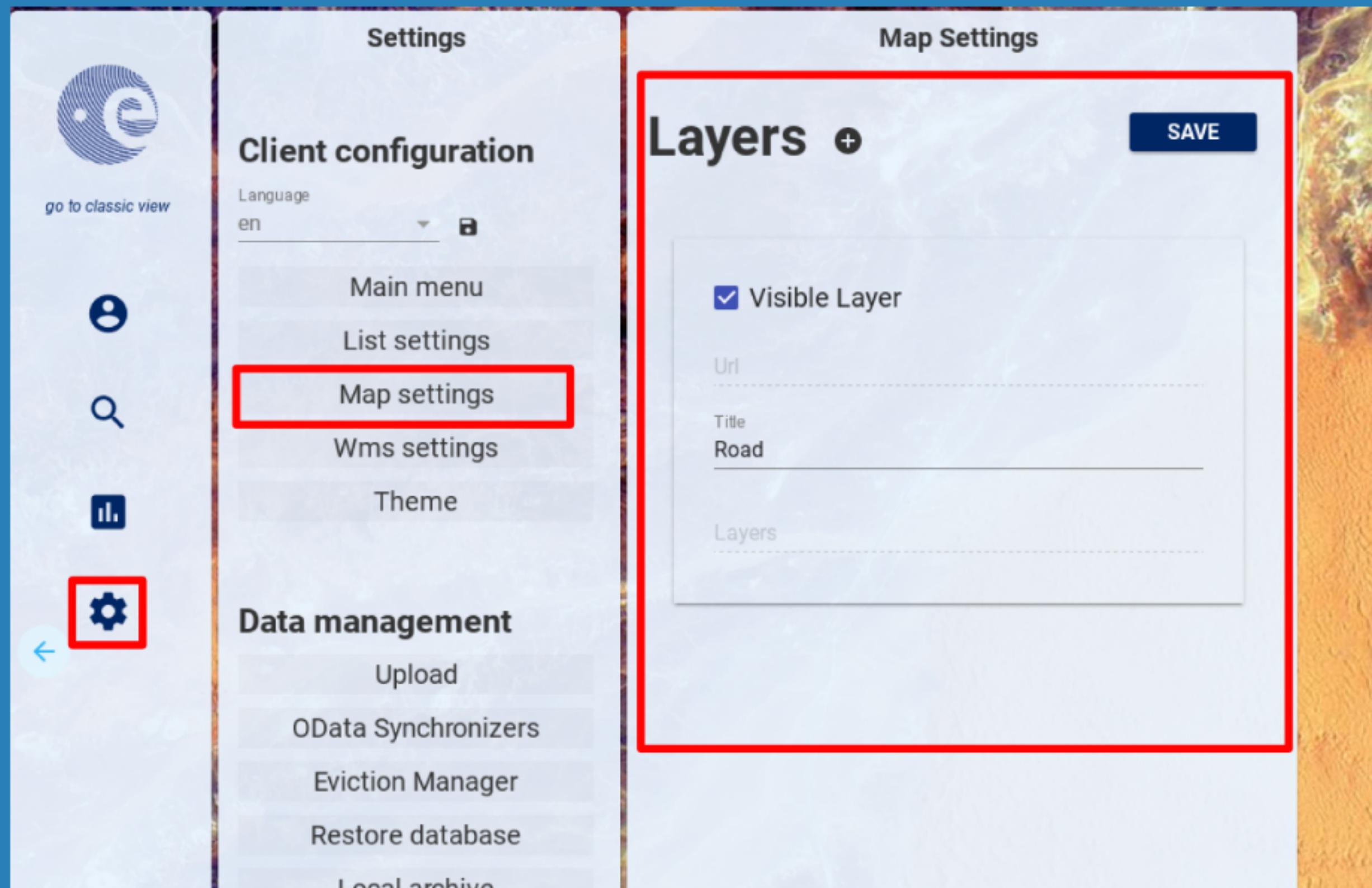


Configuration of List Item model. Via the semantic schema, described in the user manual.

# MAP SETTINGS

The screenshot displays a map interface with the following features:

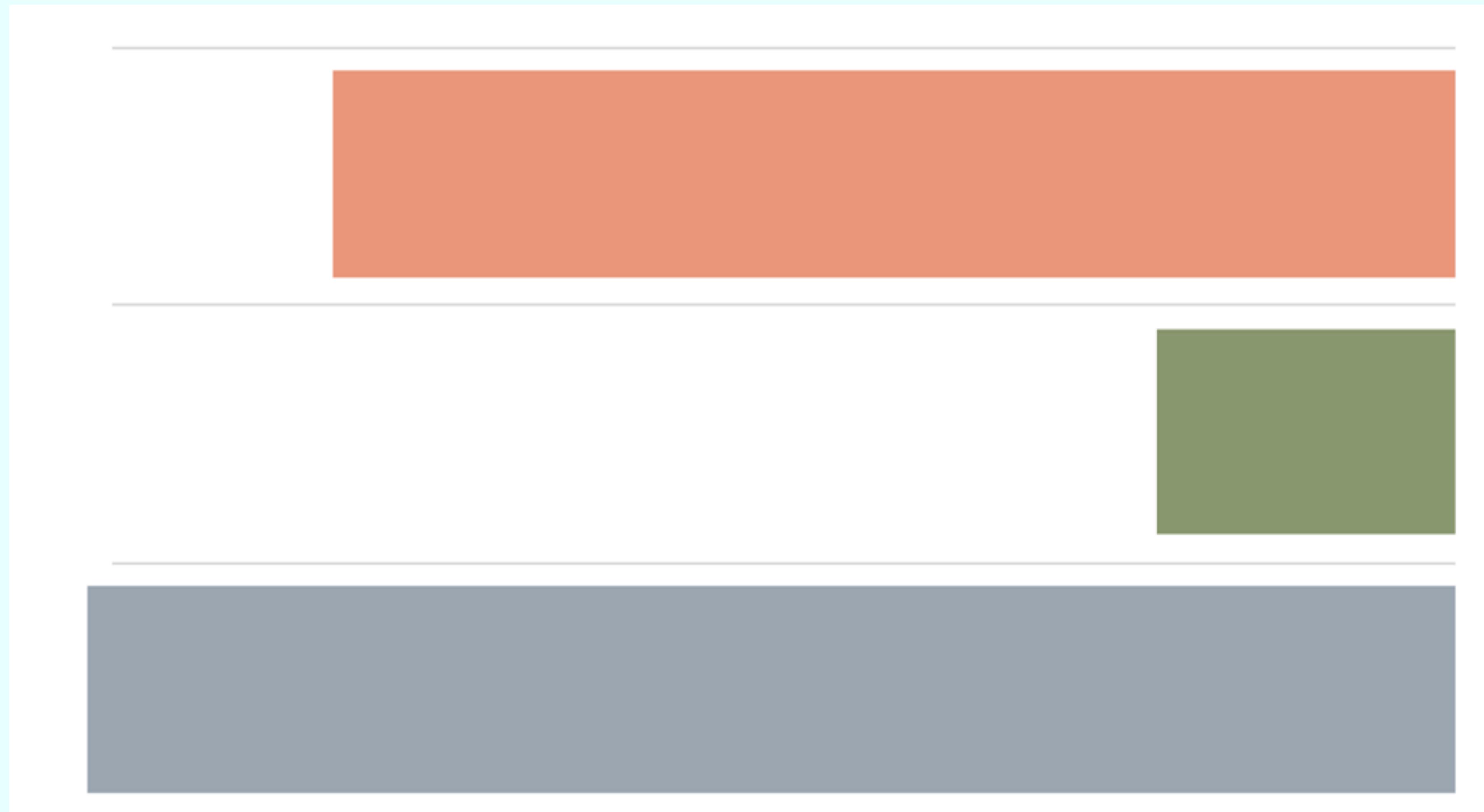
- Search Bar:** A search bar at the top left contains the text "Search". It includes a magnifying glass icon, a clear button (X), and a search button.
- Filter Options:** Below the search bar are two dropdown menus: "Sort By" and "Order By".
- Time Range Filters:** Two date range filters are present: "Sensing time range" and "Ingestion time range".
- Map View:** The main map shows Europe with country boundaries. Labeled countries include United Kingdom, Ireland, France, Spain, Italy, Greece, Turkey, Poland, Romania, Ukraine, and Russia.
- Road Layer:** A legend at the bottom left indicates that the "Road" layer is selected, represented by a checked checkbox.
- Zoom Controls:** A zoom control with plus (+) and minus (-) buttons is located in the top right corner of the map area.
- Search Overlay:** A modal window titled "Search" is overlaid on the map, showing a zoomed-in view of the Middle East region. Labeled countries in this view include Syria, Iraq, Jordan, Israel, Lebanon, and Egypt.
- Right Panel:** On the far right, there is a vertical panel displaying a satellite-style image of the same Middle Eastern region, showing terrain and land cover.



Configuration of map layers via the definition of the WMS url.

# FUTURE FEATURES

# TIMELINE



Distribution of products by senting time.

# FLEX LAYOUT

Component Template

Choose a layout

calendar-container

calendar-details

info-container

list-container

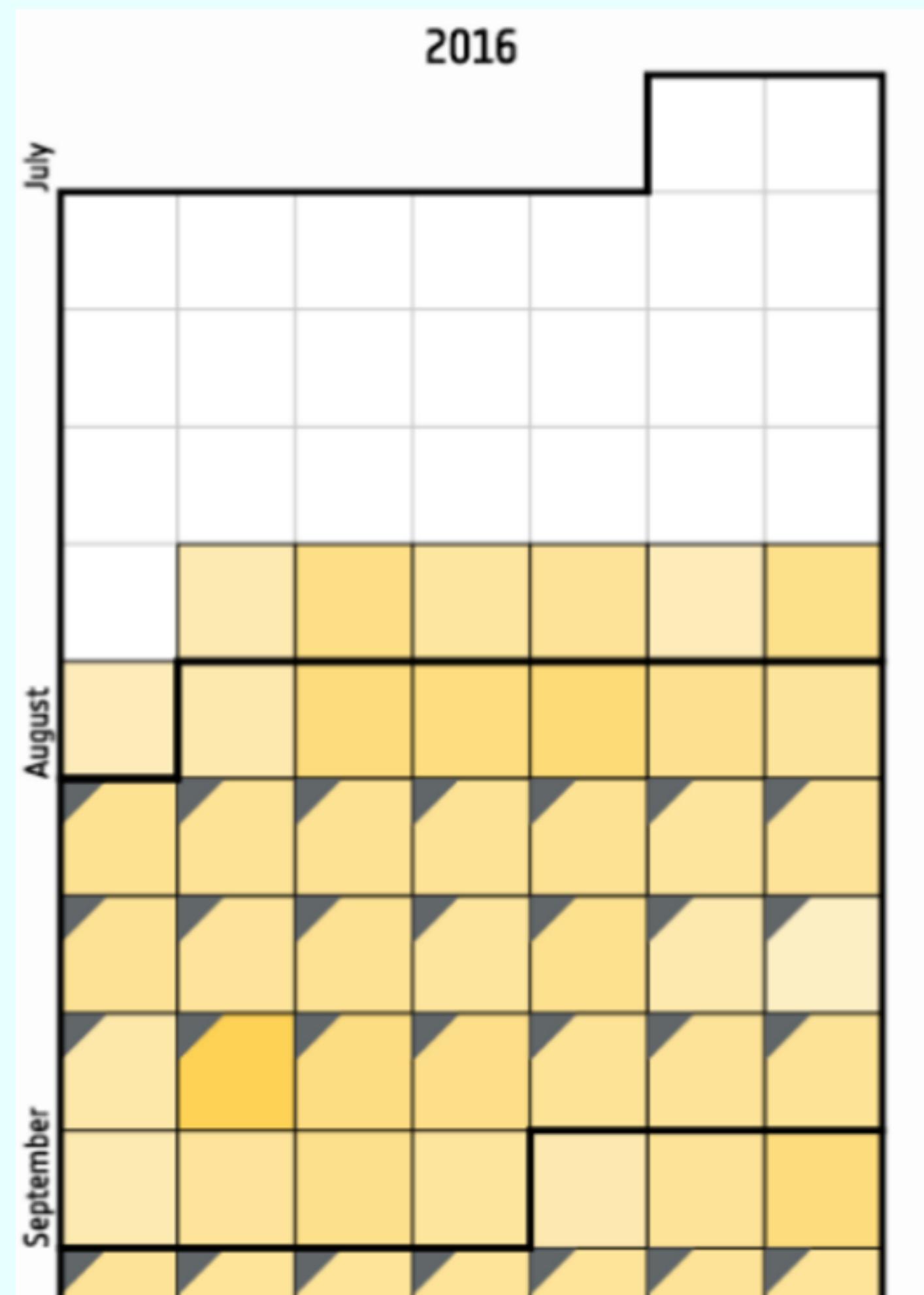
owc-list

owc-map

CREATE

Flex layout of components, customizable via graphical user interface.

# EVENTS



- Events in products density calendar.
- Events list
- Event detail

# POLAR MAPS



Polar maps in the map component

# METADATA PROCESSING

WMS overlay

Graph component

User synth

List settings via GUI (semantic manager)

Advanced search

LTA

Meta Components

# **DEMO**