

OPEN WEB COMPONENTS

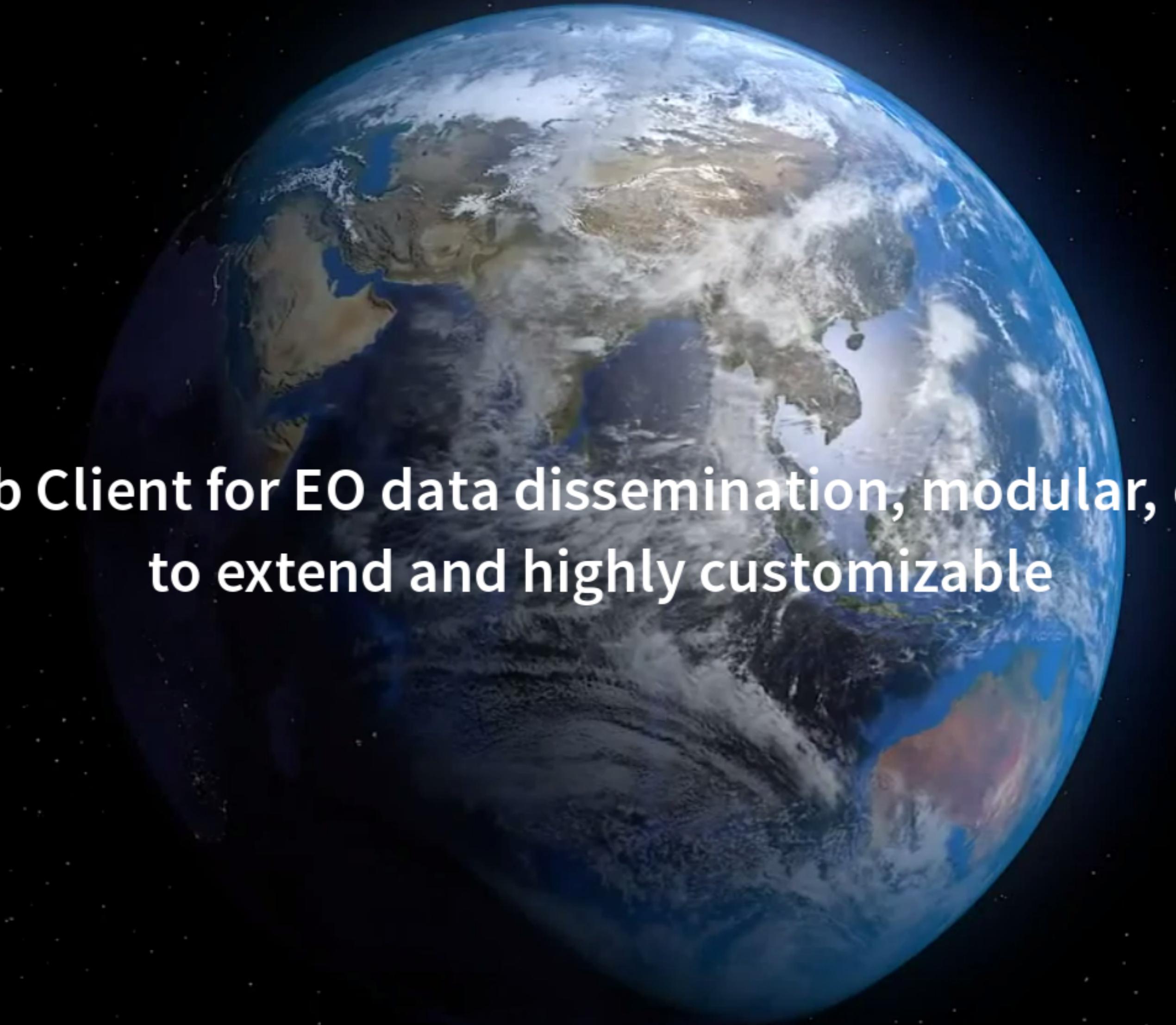
Web Client for EO data dissemination

Raffaele Bua - SERCO & GAEI - Vienna 2017

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

MODULARITY

WEB COMPONENTS

Every component follows the Object Oriented Programming exploiting Polymer library.

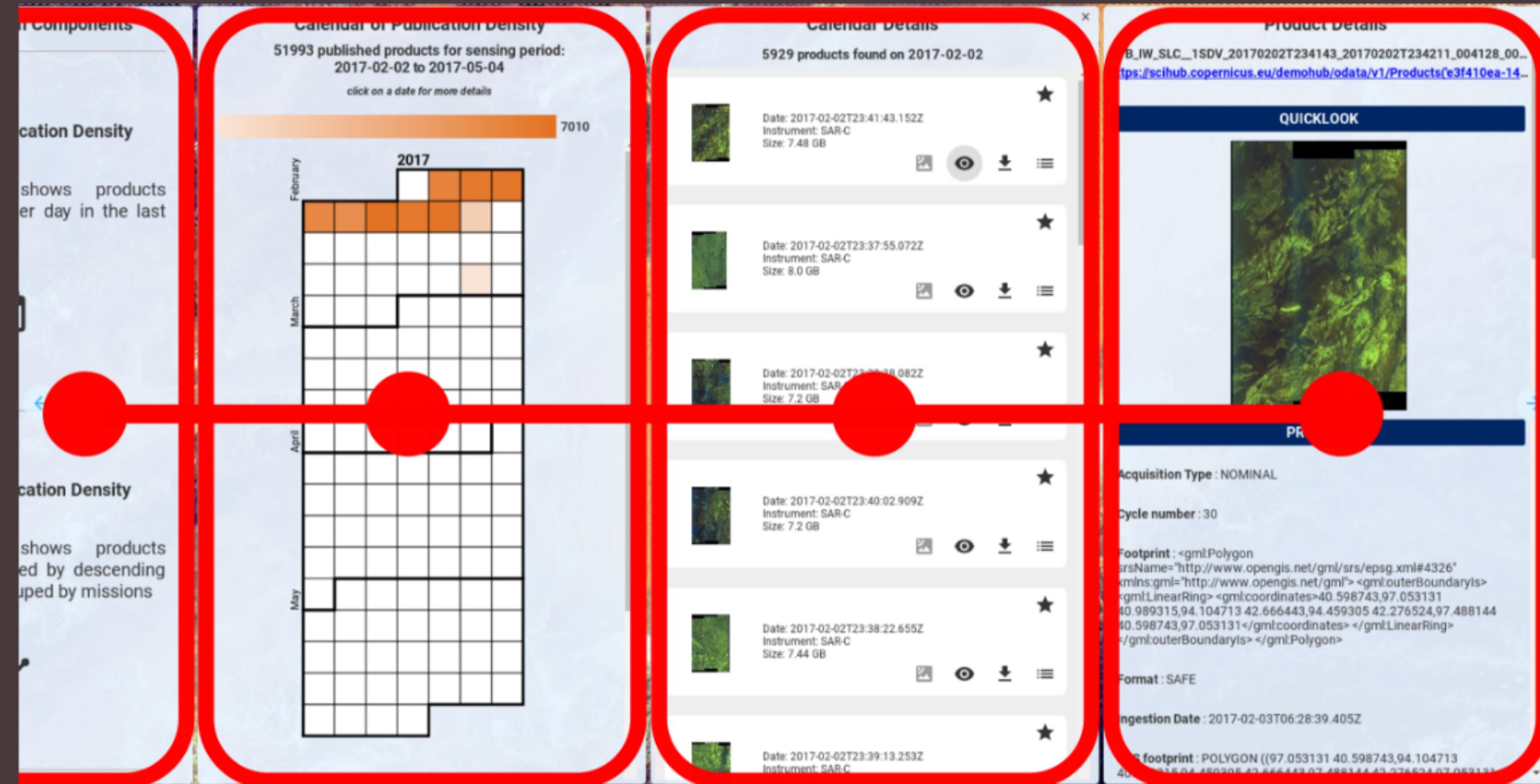
The web components are atomic and portable elements.

Web components implementation is available on Chrome.



HORIZONTAL LAYOUT

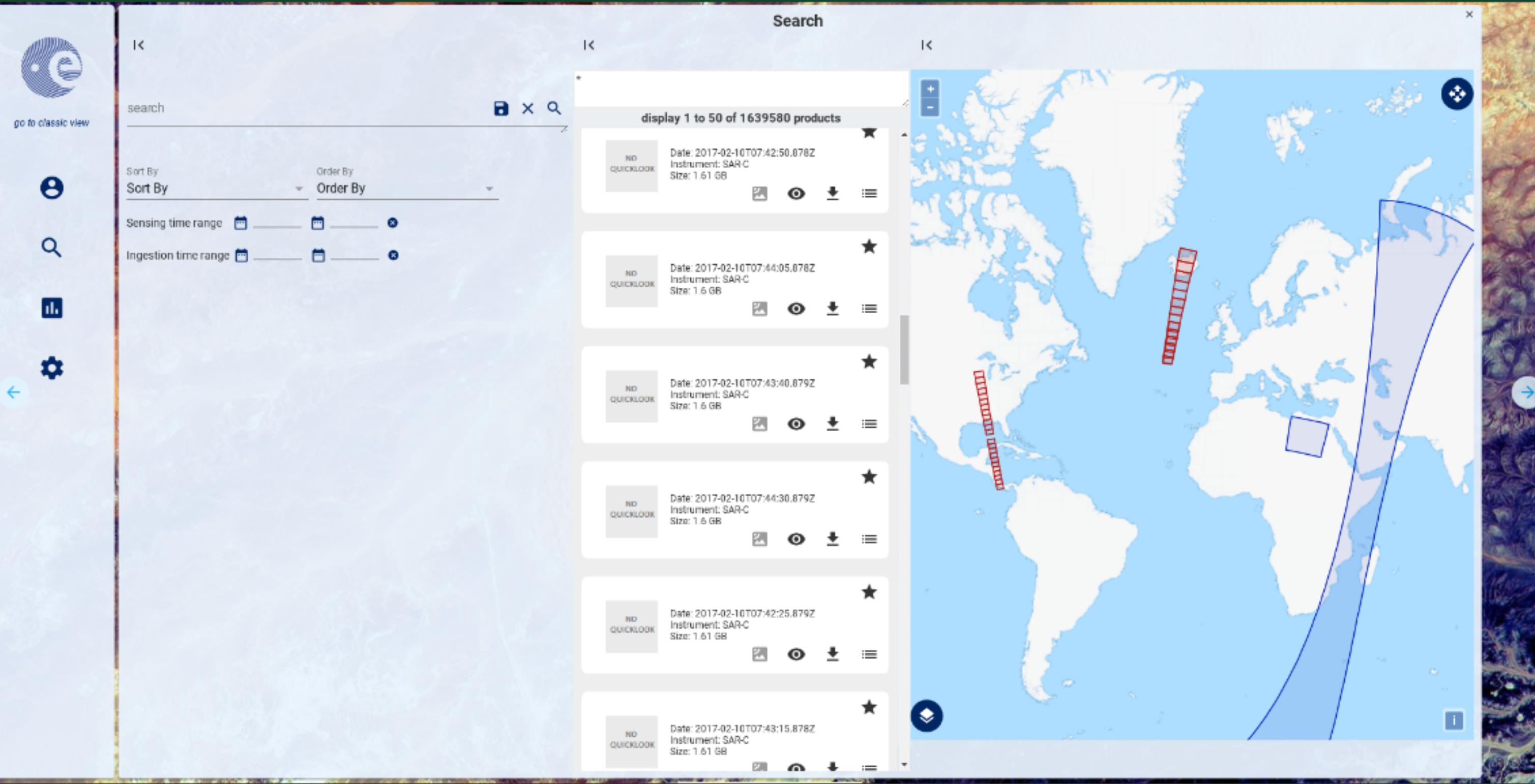
Horizontal layout, the navigation system pushes the components in a horizontal stack.



EO FEATURES

SEARCH

Open search, free text and geographic filters. Sorting by ingestion or sensing time. Order by descending/ascending. Graphical time range selectors for sensing and ingestion time. A save search is possible. The results are shown in a list and in a map.



LIST COMPARISON

Presenting two search result lists, comparing search results is possible.

The image shows a user interface for searching satellite imagery. On the left, there is a sidebar with icons for user profile, search, filters, and settings. The main area contains two search results panels and a preview panel.

Search Results Panel 1:

- Search term: *
- Display: 1 to 25 of 1639580 products
- Product 1: Date: 2017-02-24T08:22:52.976698Z, Instrument: OLCI, Size: 599.51 MB. Quicklook available.
- Product 2: Date: 2017-02-24T06:29:57.858268Z, Instrument: OLCI, Size: 701.46 MB. Quicklook available.
- Product 3: NO QUICKLOOK, Date: 2017-02-10T07:45:45.878Z, Instrument: SAR-C, Size: 1.6 GB.
- Product 4: NO QUICKLOOK, Date: 2017-02-10T07:45:20.879Z, Instrument: SAR-C, Size: 1.6 GB.
- Product 5: NO QUICKLOOK, Date: 2017-02-10T07:42:50.878Z, Instrument: SAR-C, Size: 11.97 MB.

Search Results Panel 2:

- Search term: S2A*
- Display: 1 to 25 of 577808 products
- Product 1: NO QUICKLOOK, Date: 2017-02-10T01:56:11.026Z, Instrument: MSI, Size: 726.21 MB.
- Product 2: NO QUICKLOOK, Date: 2017-02-10T01:56:11.026Z, Instrument: MSI, Size: 447.12 MB.
- Product 3: NO QUICKLOOK, Date: 2017-02-10T01:56:11.026Z, Instrument: MSI, Size: 438.16 MB.
- Product 4: NO QUICKLOOK, Date: 2017-02-10T01:56:11.026Z, Instrument: MSI, Size: 265.16 MB.
- Product 5: NO QUICKLOOK, Date: 2017-02-10T01:56:11.026Z, Instrument: MSI, Size: 223.14 MB.

Preview Panel:

A large preview image shows a satellite view of a landscape, likely a river basin or coastal area, with various land cover types including water bodies, forests, and agricultural fields. A blue circular icon with a white arrow is overlaid on the image, indicating a specific point of interest or a feature of interest.

PRODUCT DETAILS

Product details: Quicklook, metadata indexes and attributes.

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

NO QUICKLOOK Date: 2017-02-10T07:45:45.878Z
Instrument: SAR-C
Size: 1.68 GB

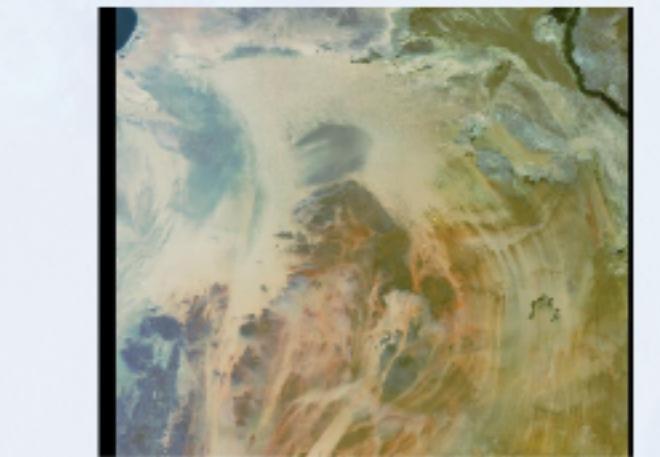
NO QUICKLOOK Date: 2017-02-10T07:45:20.879Z
Instrument: SAR-C
Size: 1.6 GB

NO QUICKLOOK 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

AUXILIARY DATA FILE LIST

List of auxiliary data file exploited to process the product.

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

NO QUICKLOOK Date: 2017-02-10T07:45:45.878Z
Instrument: SAR-C
Size: 1.68 GB

NO QUICKLOOK Date: 2017-02-10T07:45:20.879Z
Instrument: SAR-C
Size: 1.6 GB

NO QUICKLOOK Date: 2017-02-10T07:42:50.878Z
Instrument: SAR-C
Size: 11.97 MB

Auxiliary Data Files List

S3A_OL_1_EFR____20170224T082252_20170224T082552_20170224T101220_017... contains 25 Auxiliary Data Files

Product Data Format Specification - OLCI Level 1 and Level 2 Instru...

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...

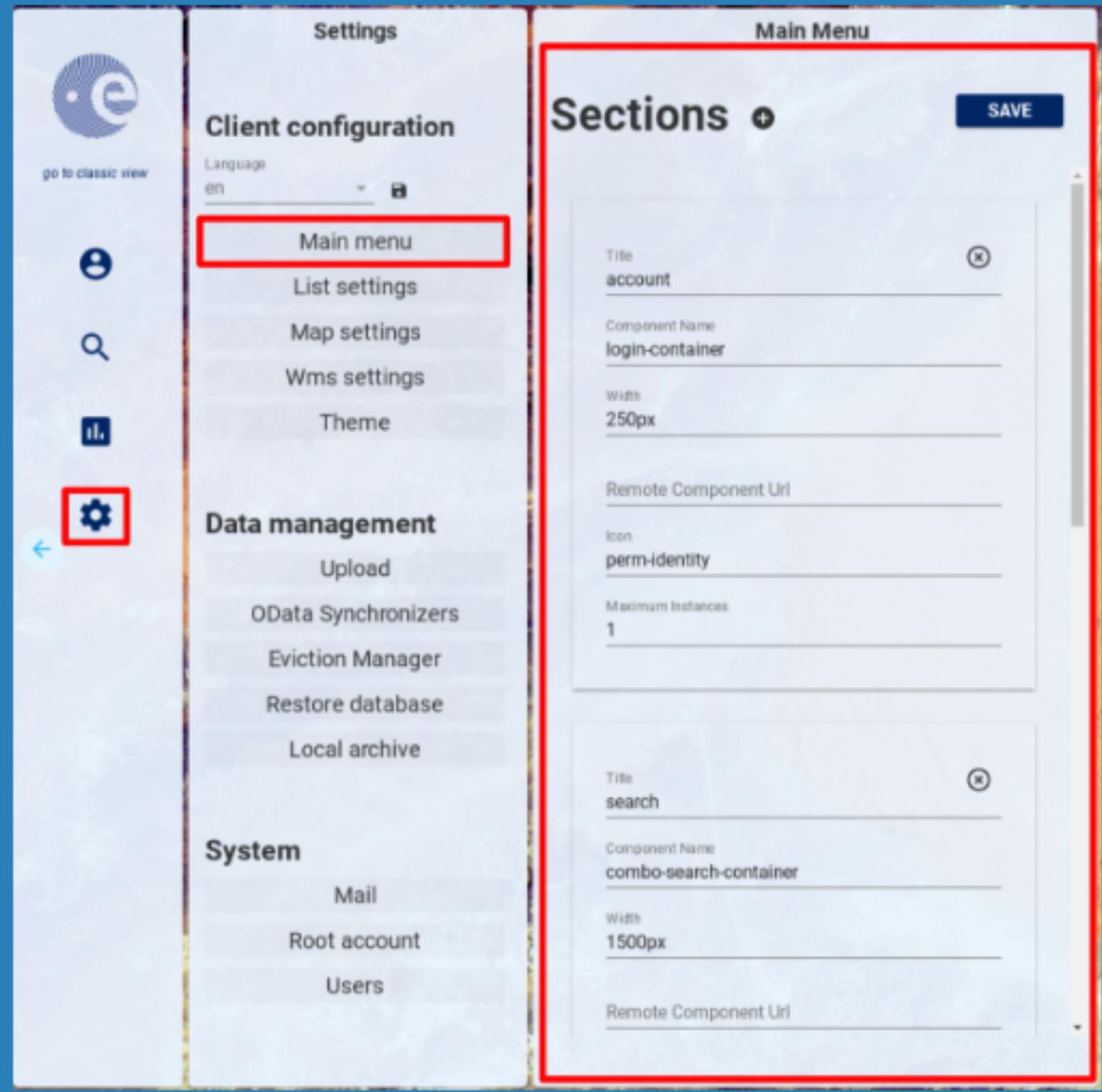
S3A_TM_0_NAT____20170224T080553_20170224T094648_2017022...



CUSTOMIZATION

MAIN MENU





The main menu sections are customizable, via graphical user interface

LANGUAGE

The language settings are stored locally in the browser.

Settings

Client configuration

Language

en it

M en enu

List fr ings

Map settings

Wms settings

Theme

Data management

Upload

OData Synchronizers



THEME

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

The screenshot shows the GeoServer Settings interface. On the left, there's a sidebar with icons for User, Search, Data, and Settings (highlighted with a red box). The main area has a title bar "Settings" and a section titled "Client configuration". It includes a language dropdown set to "en". Below this are links for "Main menu", "List settings", "Map settings", "Wms settings", and "Theme" (which is also highlighted with a red box). A "Data management" section follows, containing "Upload", "OData Synchronizers", "Eviction Manager", "Restore database", and "Local archive". At the bottom, a "System" section is visible. A modal dialog titled "Theme Editor" is open on the right. It contains a "Title" input field, a "Logo" section with a logo URL input ("./images/logo_esa-in.png"), a "Background" section with a background color input ("#e9f4ff") and a color picker, and a "Background Image" section with a background image URL input ("./images/Sentinel-2-algeria.jpg"). At the bottom of the dialog 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

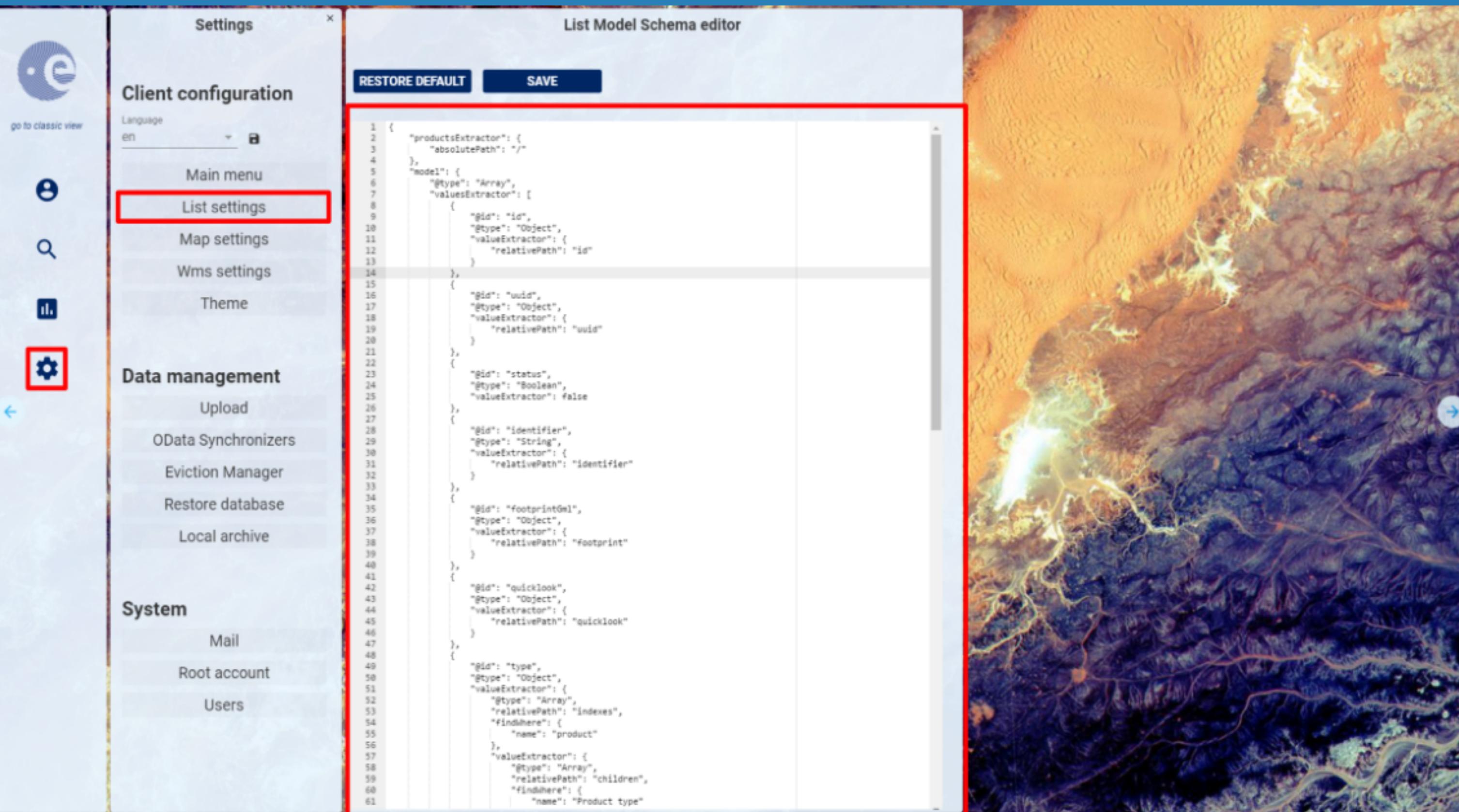
Background Image

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

RESTORE DEFAULT

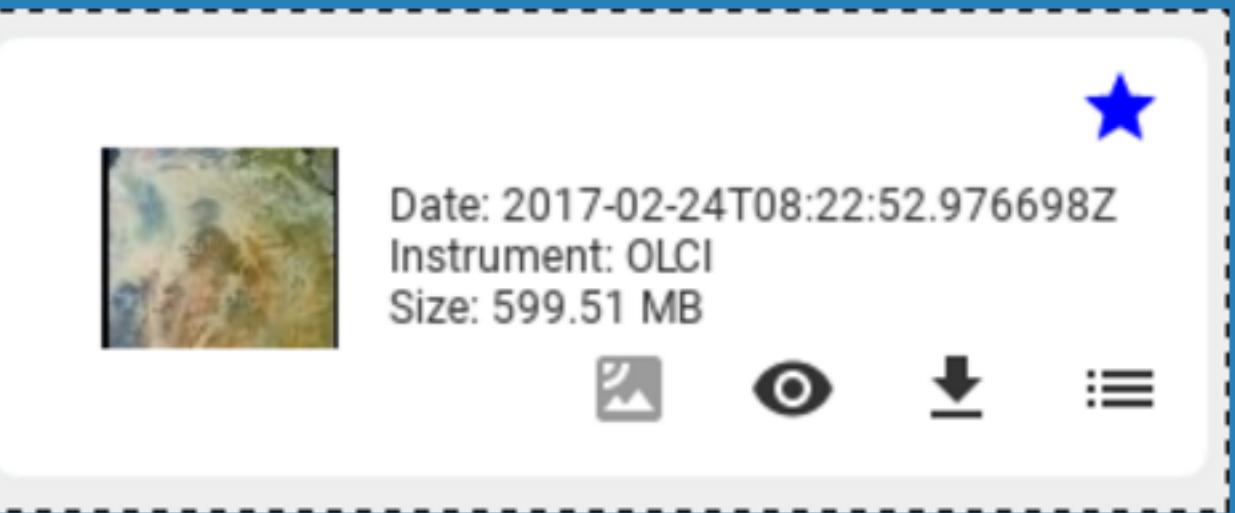
SAVE

LIST ATTRIBUTES



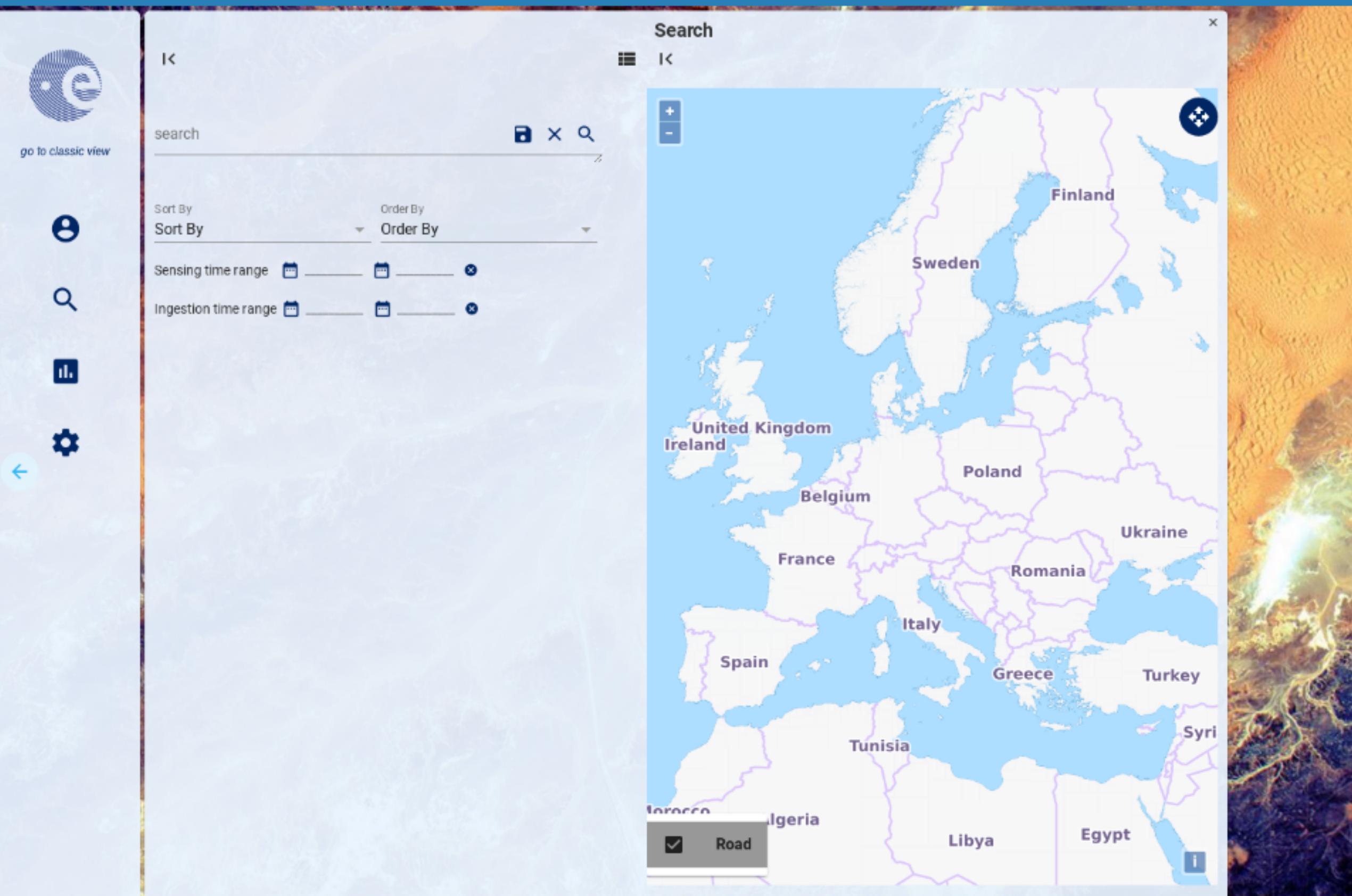
The screenshot shows a software interface with a sidebar and a main content area. The sidebar includes icons for user profile, search, and settings, with the settings icon highlighted by a red square. The main content area has a title "List Model Schema editor" with "RESTORE DEFAULT" and "SAVE" buttons. A large red box highlights a block of JSON code:

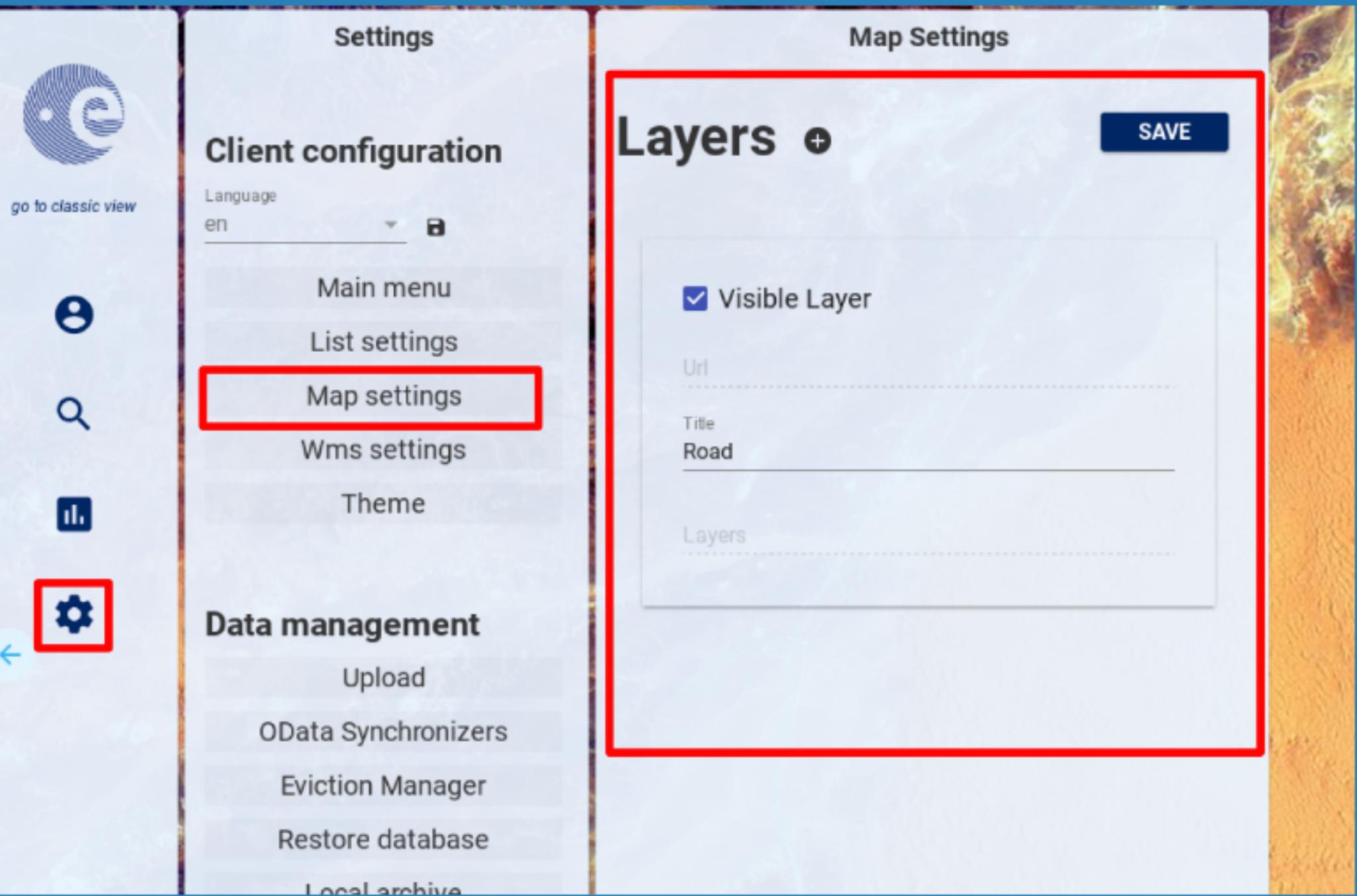
```
1 {
2   "productsExtractor": {
3     "absolutePath": "/"
4   },
5   "model": [
6     {
7       "@type": "Array",
8       "valuesExtractor": [
9         {
10          "@id": "id",
11          "@type": "Object",
12          "valueExtractor": {
13            "relativePath": "id"
14          }
15        },
16        {
17          "@id": "uuid",
18          "@type": "Object",
19          "valueExtractor": {
20            "relativePath": "uuid"
21          }
22        },
23        {
24          "@id": "status",
25          "@type": "Boolean",
26          "valueExtractor": false
27        },
28        {
29          "@id": "identifier",
30          "@type": "String",
31          "valueExtractor": {
32            "relativePath": "identifier"
33          }
34        },
35        {
36          "@id": "footprintGml",
37          "@type": "Object",
38          "valueExtractor": {
39            "relativePath": "footprint"
40          }
41        },
42        {
43          "@id": "quicklook",
44          "@type": "Object",
45          "valueExtractor": {
46            "relativePath": "quicklook"
47          }
48        },
49        {
50          "@id": "type",
51          "@type": "Object",
52          "valueExtractor": {
53            "@type": "Array",
54            "relativePath": "indexes",
55            "findhere": {
56              "name": "product"
57            },
58            "valueExtractor": {
59              "@type": "Array",
60              "relativePath": "children",
61              "findhere": {
62                "name": "Product type"
63              }
64            }
65          }
66        }
67      ]
68    }
69  ]
```



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

MAP SETTINGS





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

ADMIN PANELS

UPLOAD MANAGEMENT

Products ingestion via file upload and file scanner.

go to classic view



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

Mail

Root account

Users

REFRESH ALL

Display 0 elements

ADD

File Scanners

Url to scan

Username

Password Show

Pattern

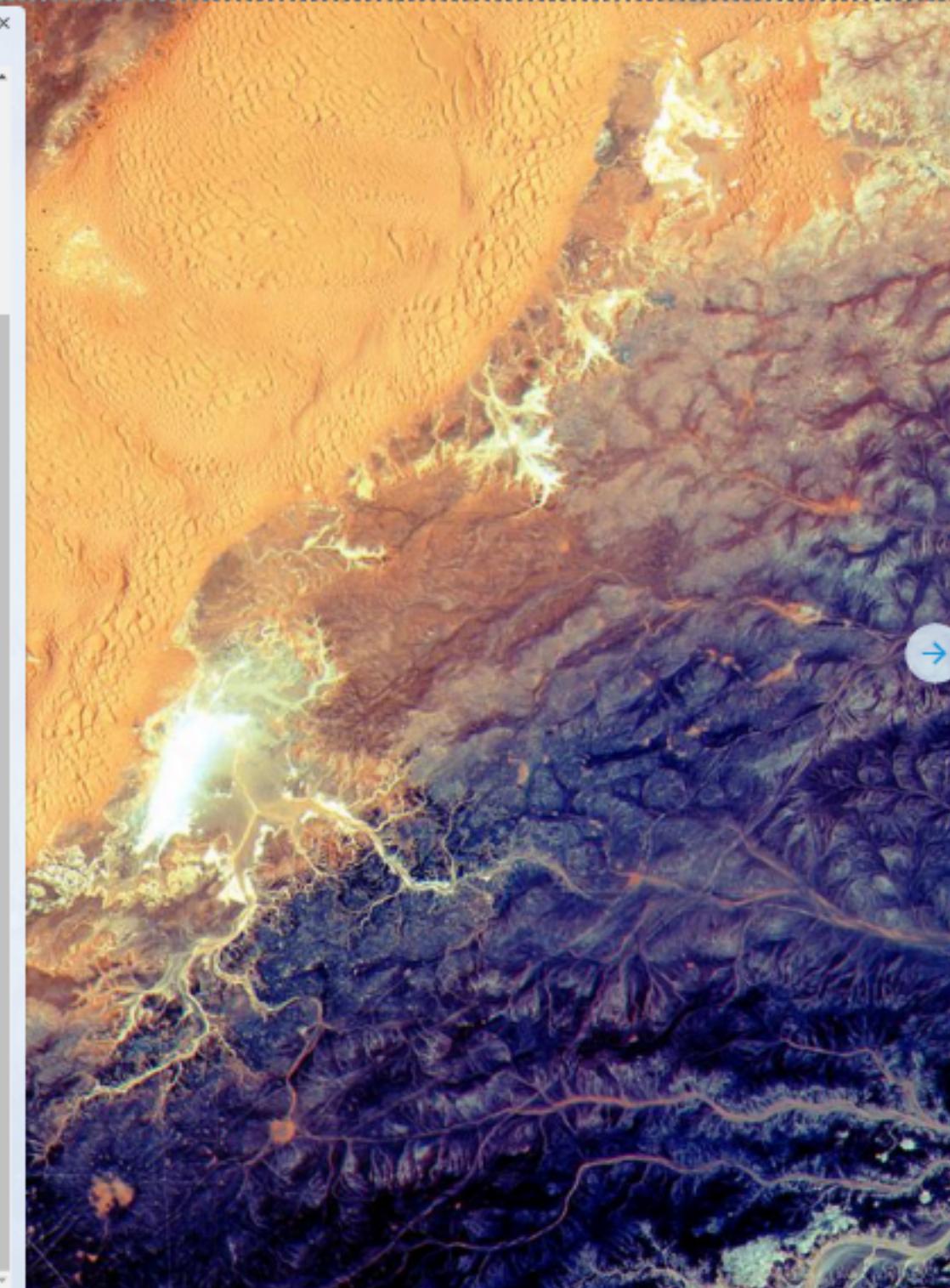
Scanning information

The next file scanner is going to run on "May 15, 2017 10:00:00 PM"

UPLOAD

Choose File No file chosen

Upload Management



SYNCHRONIZER LIST

List of ODATA synchronizers, to synch products
between DHuS instances.

go to classic view

- Client configuration
- Main menu
- List settings
- Map settings
- Wms settings
- Theme

Data management

- Upload
- OData Synchronizers
- Eviction Manager
- Restore database
- Local archive

System

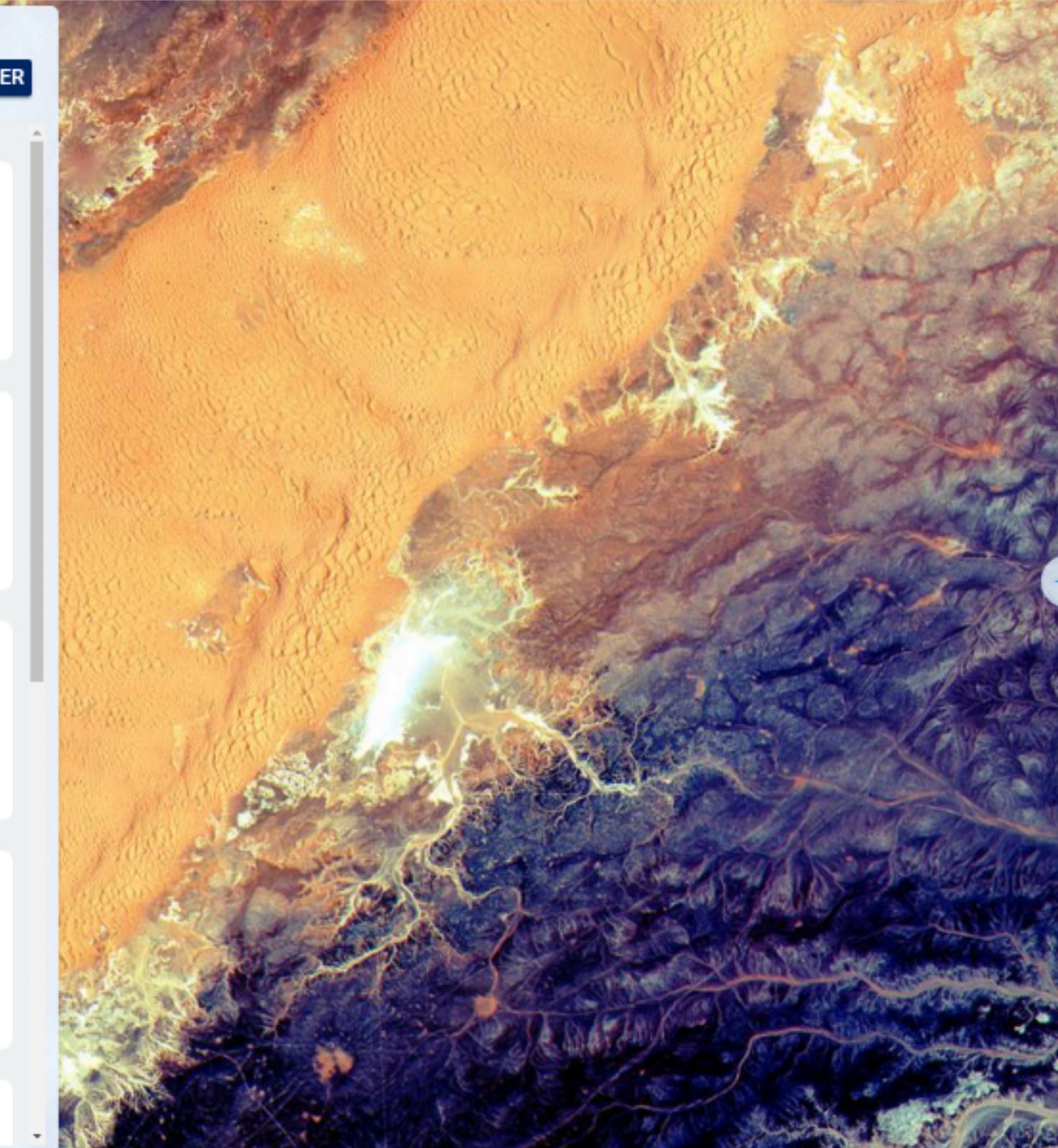
- Mail
- Root account
- Users

Synchronizer Container

CREATE SYNCHRONIZER

Your ODATA synchronizer contains 8 synchronizers.

Synchronizer	Created	Status
Synchronizer-S1COPHUB-01	2016-07-27 16:08:24	STOPPED
Synchronizer-S2COPHUB-01	2016-07-27 16:11:46	STOPPED
Synchronizer-S1B-0	2016-09-26 10:36:31	STOPPED
Synchronizer-S2A_NewFormat	2016-12-06 11:32:22	STOPPED
aa	2017-04-10 14:52:45	



SYNCHRONIZER EDITOR

Editor of ODATA Synchronizers. A new version of this component is on-going, with a user friendly UI for beginners.

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

Mail

Root account

Users

Synchronizer Container

CREATE SYNCHRONIZER

Your ODATA synchronizer contains 8 synchronizers.

Synchronizer-S1COPHUB-01 - 2016-07-27 16:08:24

Service Url: http://example.com
Copy Product: false
Schedule: 0 0/1 * * * ?
Synchronizer Status: STOPPED

Synchronizer-S2COPHUB-01 - 2016-07-27 16:11:46

Service Url: http://172.30.246.32:8081/odata/v1
Copy Product: false
Schedule: 0 0/10 * * * ?
Synchronizer Status: STOPPED

Synchronizer-S1B-0 - 2016-09-26 10:36:31

Service Url: http://172.30.246.26:8081/odata/v1
Copy Product: false
Schedule: 0 0/1 * * * ?
Synchronizer Status: STOPPED

Synchronizer-S2A_NewFormat - 2016-12-06 11:32:22

Service Url: http://172.30.246.32/chus2/odata/v1
Copy Product: false
Schedule: 0 0/2 * * * ?
Synchronizer Status: STOPPED

aa - 2017-04-10 14:52:45

Synchronizer Editor

Synchronizer Properties

Label: Synchronizer-S1COPHUB-01

Service Url: http://example.com

Service Login Username: syncs1sci

Service Login Password:

Service Login Confirm Pass...:

Schedule: 0 0/1 * * * ?

Remote Incoming: /PUP/dhus-cop/var/incoming/_

Request: stop

Target Collection:

Page Size: 50

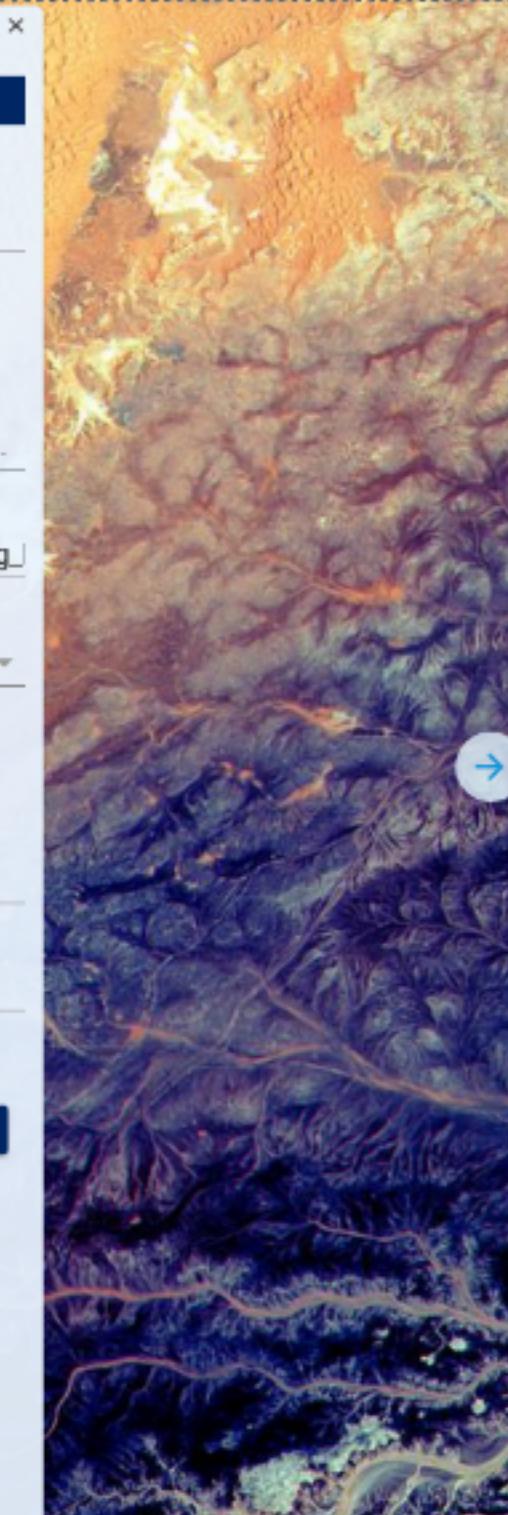
Copy Product: false

Filter Param:

Last Creation Date: 2014-01-01T03:00:00

Source Collection:

UPDATE



EVICTION

Settings of product eviction.

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

- Mail
- Root account
- Users

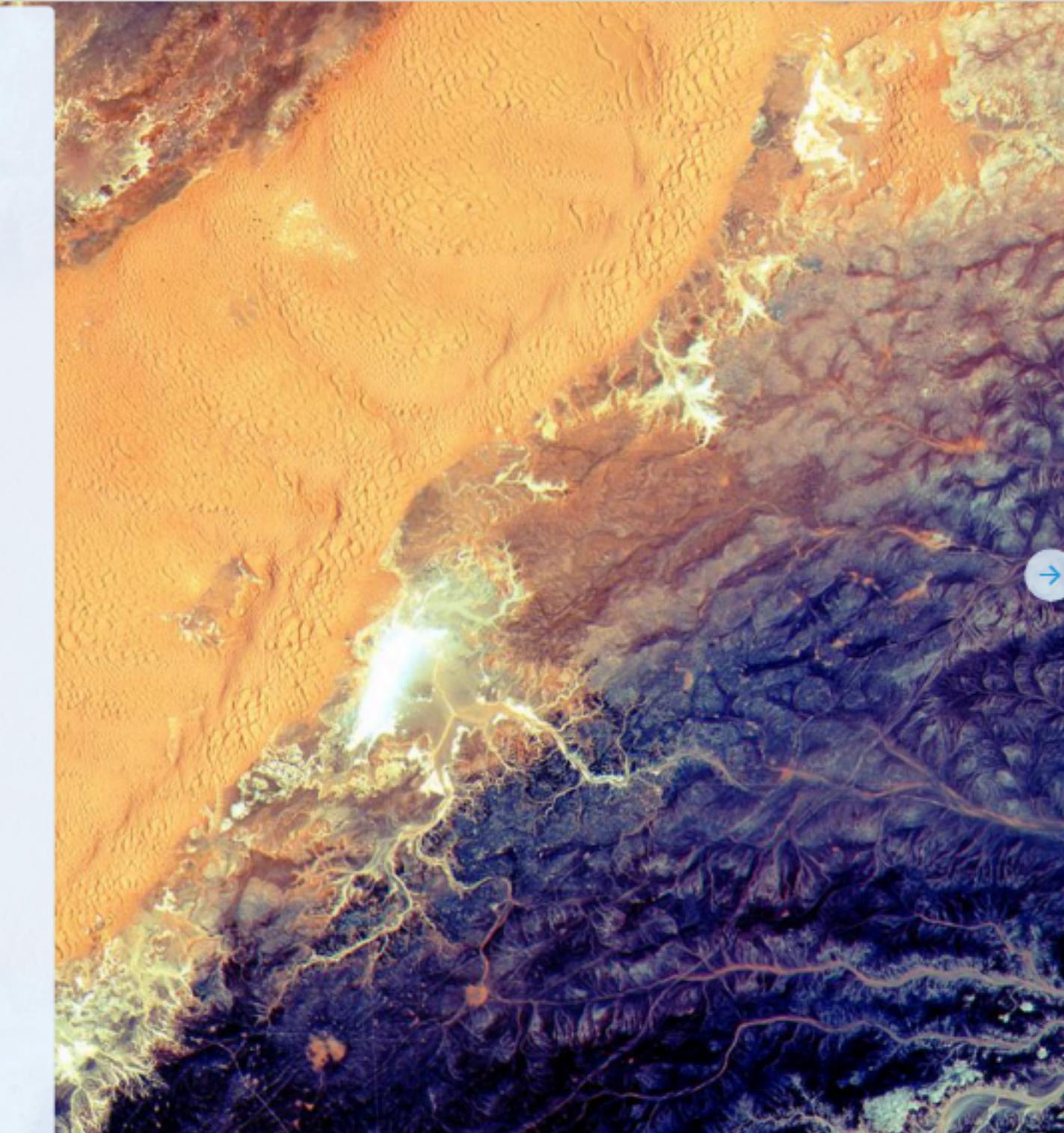
Eviction Manager

Eviction strategy: No Eviction Applied

Maximum disk usage before eviction (in %): 80

Minimal keeping period for a product (days): 10

SAVE RUN CANCEL



RESTORE DATABASE

Restore old database dumps.

go to classic view

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

Mail

Root account

Users

Restore database

RESTORE

Choose database dump that will be restored

LOCAL ARCHIVE

Ingestion via local archive folder.

go to classic view

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

Mail

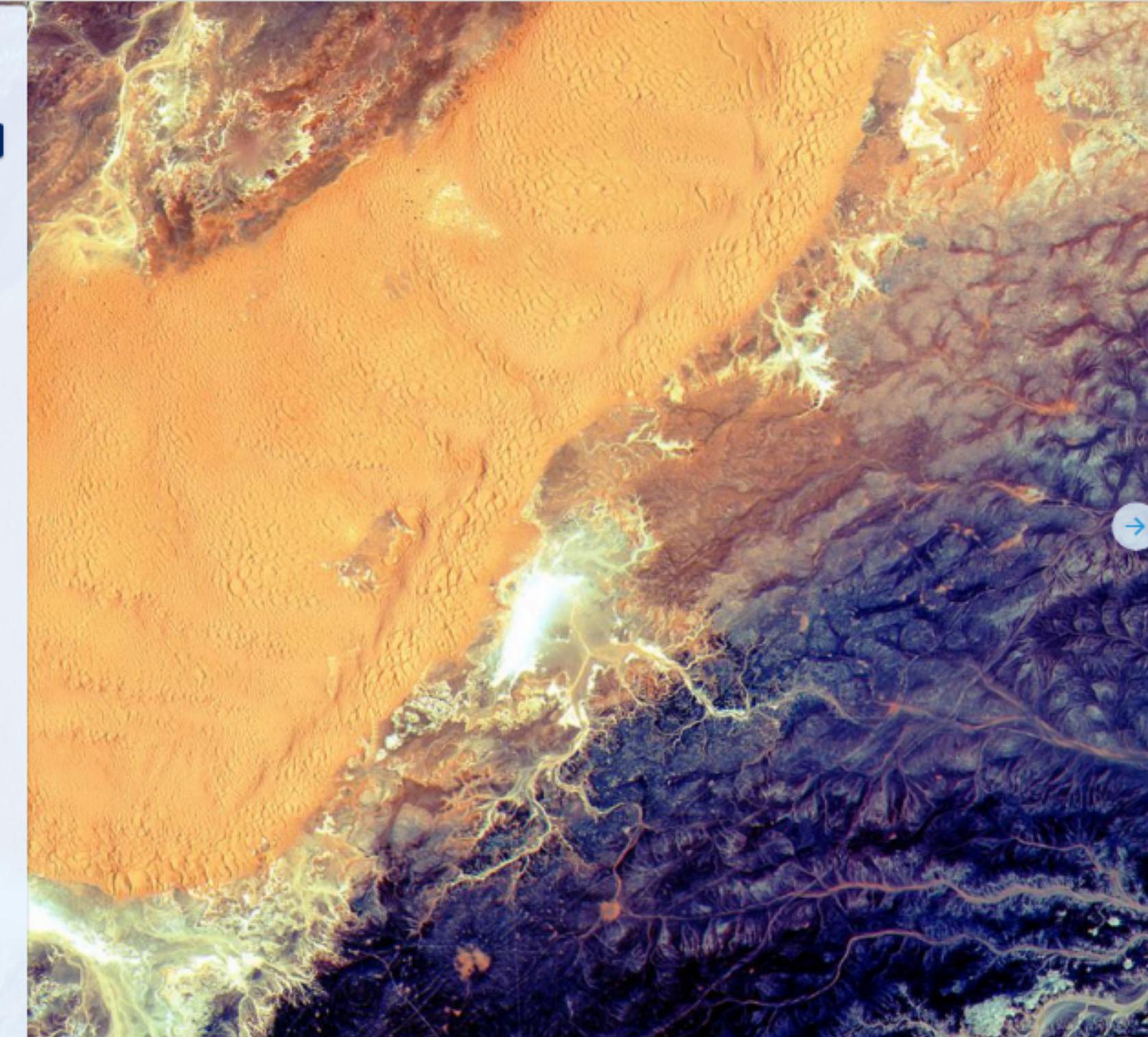
Root account

Users

Local archive

SYNCHRONIZE LOCAL ARCHIVE

SYNCHRONIZE LOCAL ARCHIVE



MAIL CONFIGURATION

Email notification system settings.

go to classic view



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

Mail
Root account
Users

Mail configuration

SAVE

SMTP Server
131.176.235.251

Port
25

TLS

Username
scihub@copernicus.esa.int

Password

Expeditor mail
scihub@copernicus.esa.int

Expeditor Name
Sentinels Scientific Data Hub Support

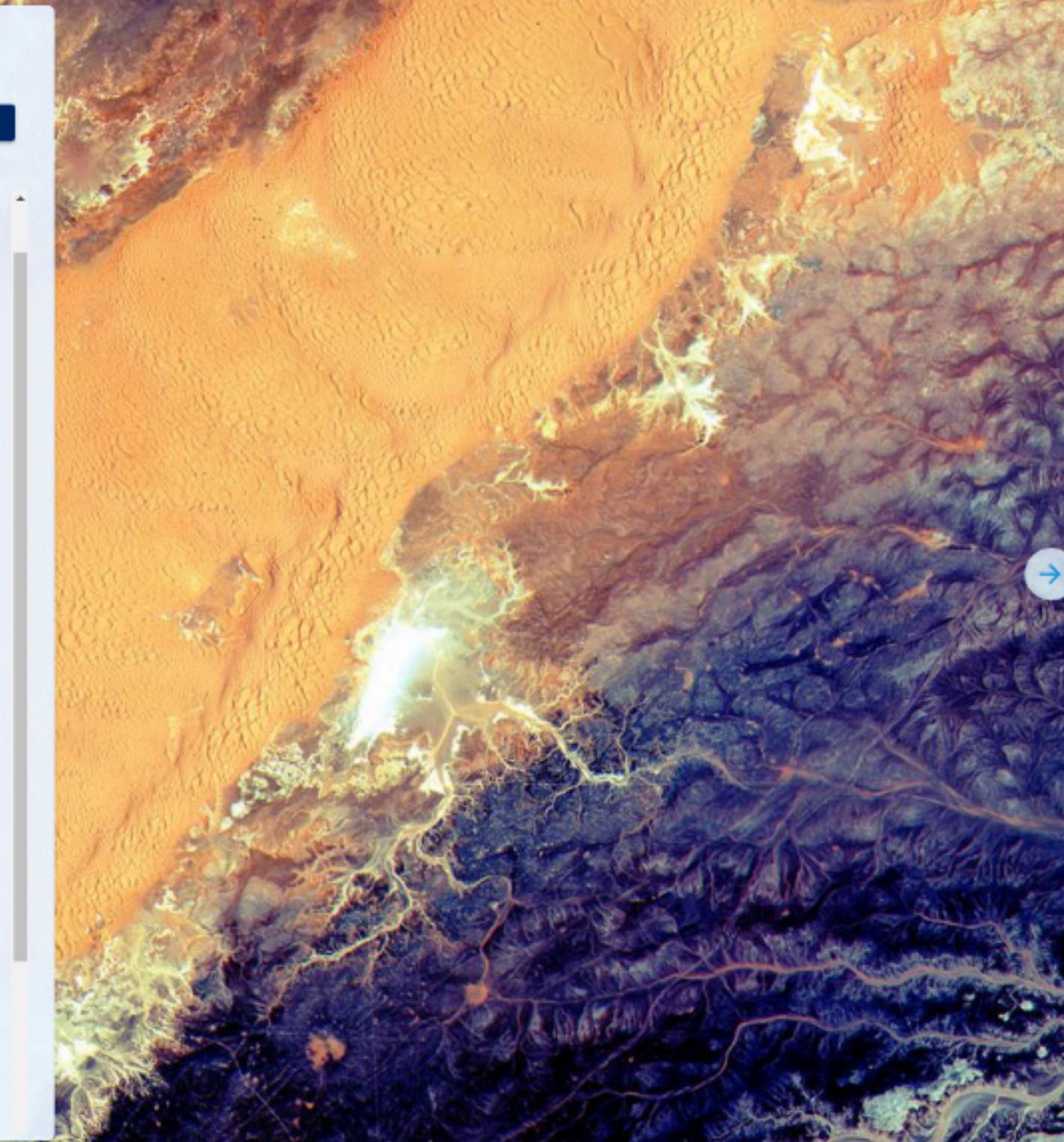
Reply to
scihub.support@copernicus.esa.int

Mail user when:

creating account
 administrator updated his account
 deleting account

Support

Mail
scihub.support@copernicus.esa.int



ROOT CONFIGURATION

Root password configuration.

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

Mail

Root account

Users

go to classic view

Root configuration

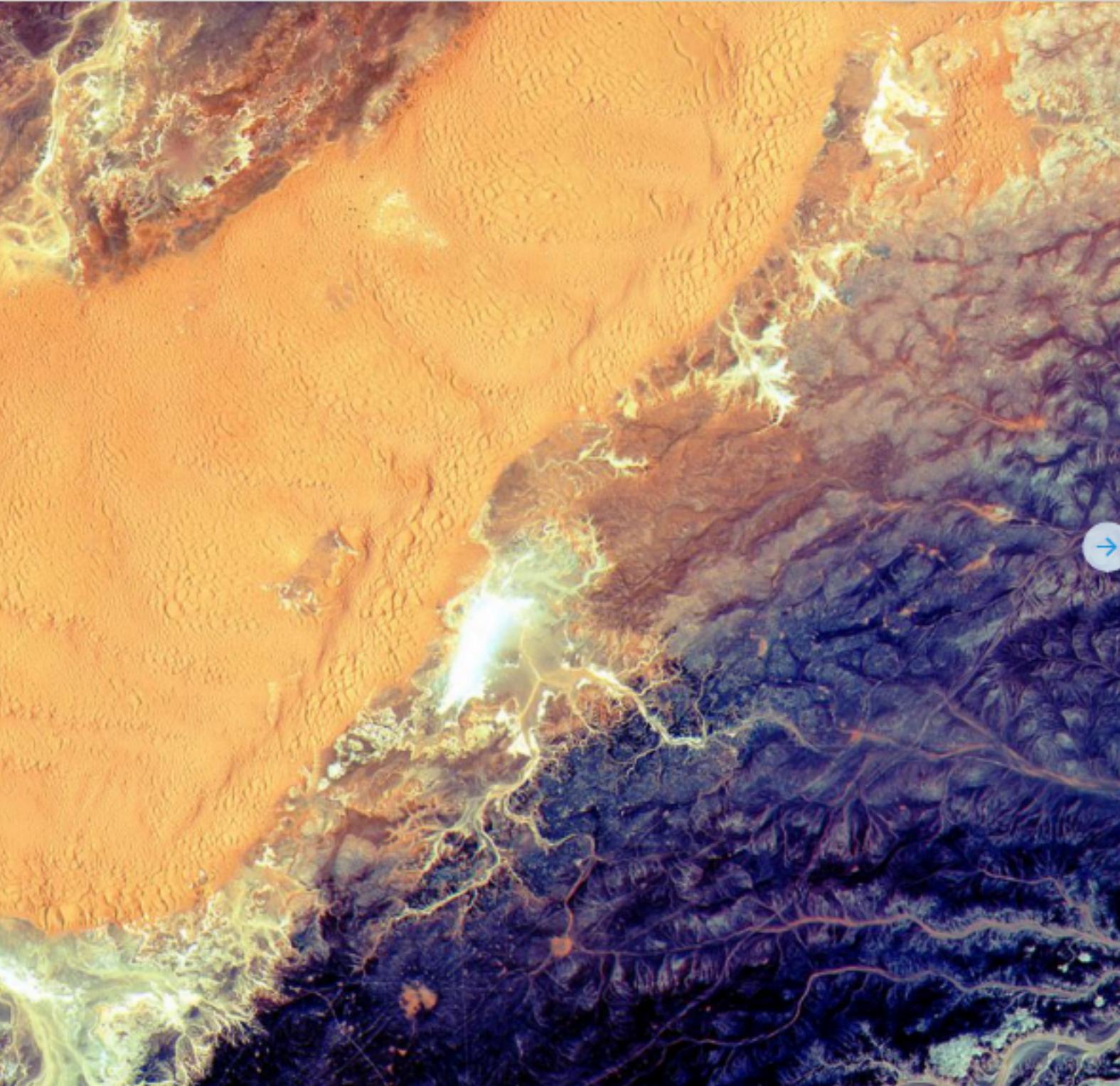
SAVE

Old password

New Password

Confirm Password

This screenshot shows the GeoServer Settings interface. On the left, there's a sidebar with icons for users, search, and data management, followed by sections for Client configuration, Data management, and System. The Client configuration section has a dropdown for language set to 'en'. The Data management section includes options like Upload, OData Synchronizers, Eviction Manager, Restore database, and Local archive. The System section includes Mail, Root account, and Users. A central modal window titled 'Root configuration' is open, containing fields for 'Old password', 'New Password', and 'Confirm Password', with a 'SAVE' button at the top right. The background shows a satellite map of a desert region with orange and brown terrain.



ADMIN USERS

User accounts list.

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

Mail

Root account

Users

Admin Users

Search Q CREATE

0815martinez

0832535243

09gis

09lester

obojan

0c79da0d

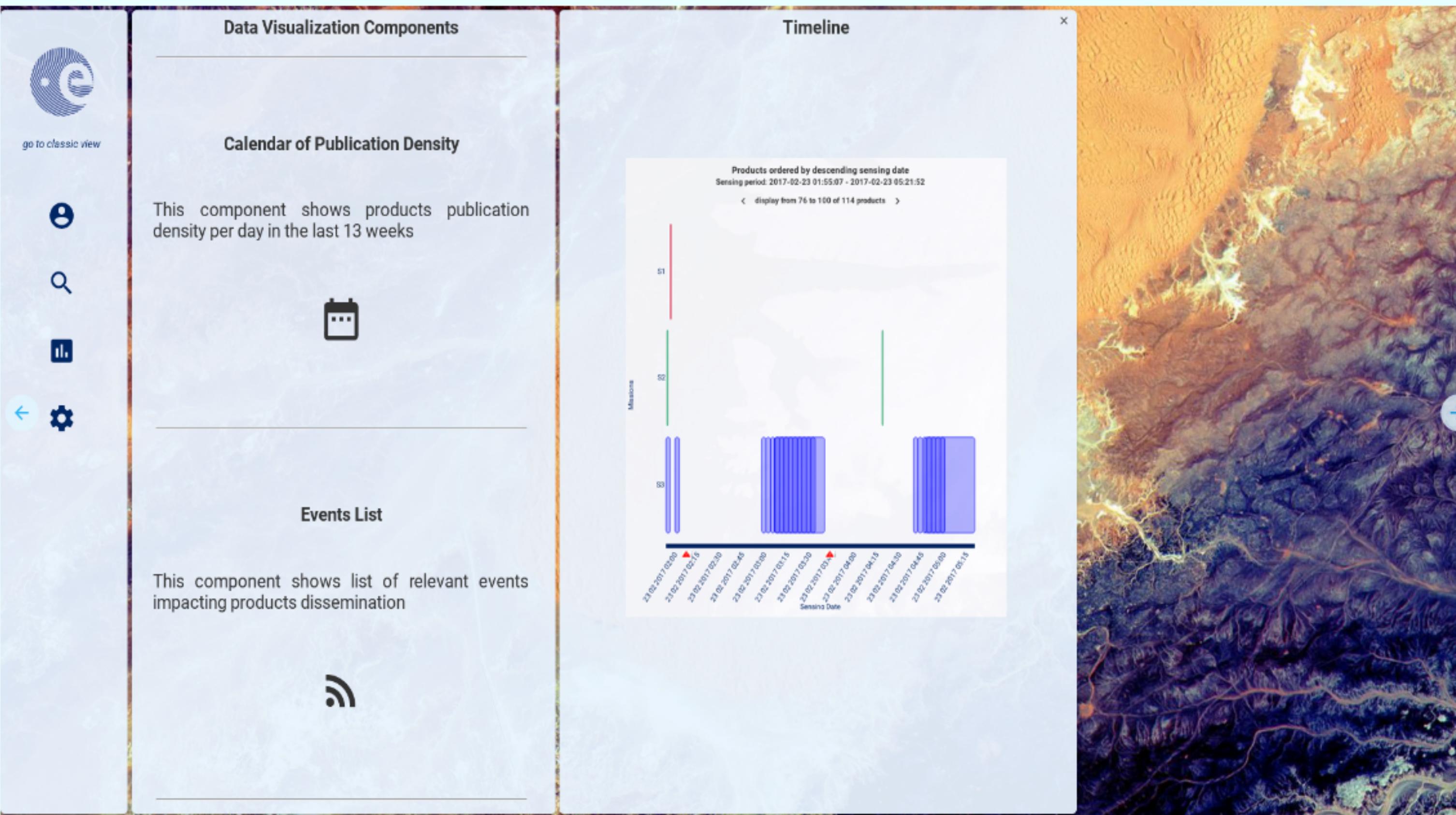
0llillo

0martin

FUTURE FEATURES

TIMELINE

Distribution of products by sensing time.



FLEX LAYOUT

Flex layout of components, customizable via graphical user interface.

Component Template

Choose a layout

calendar-container

calendar-details

info-container

list-container

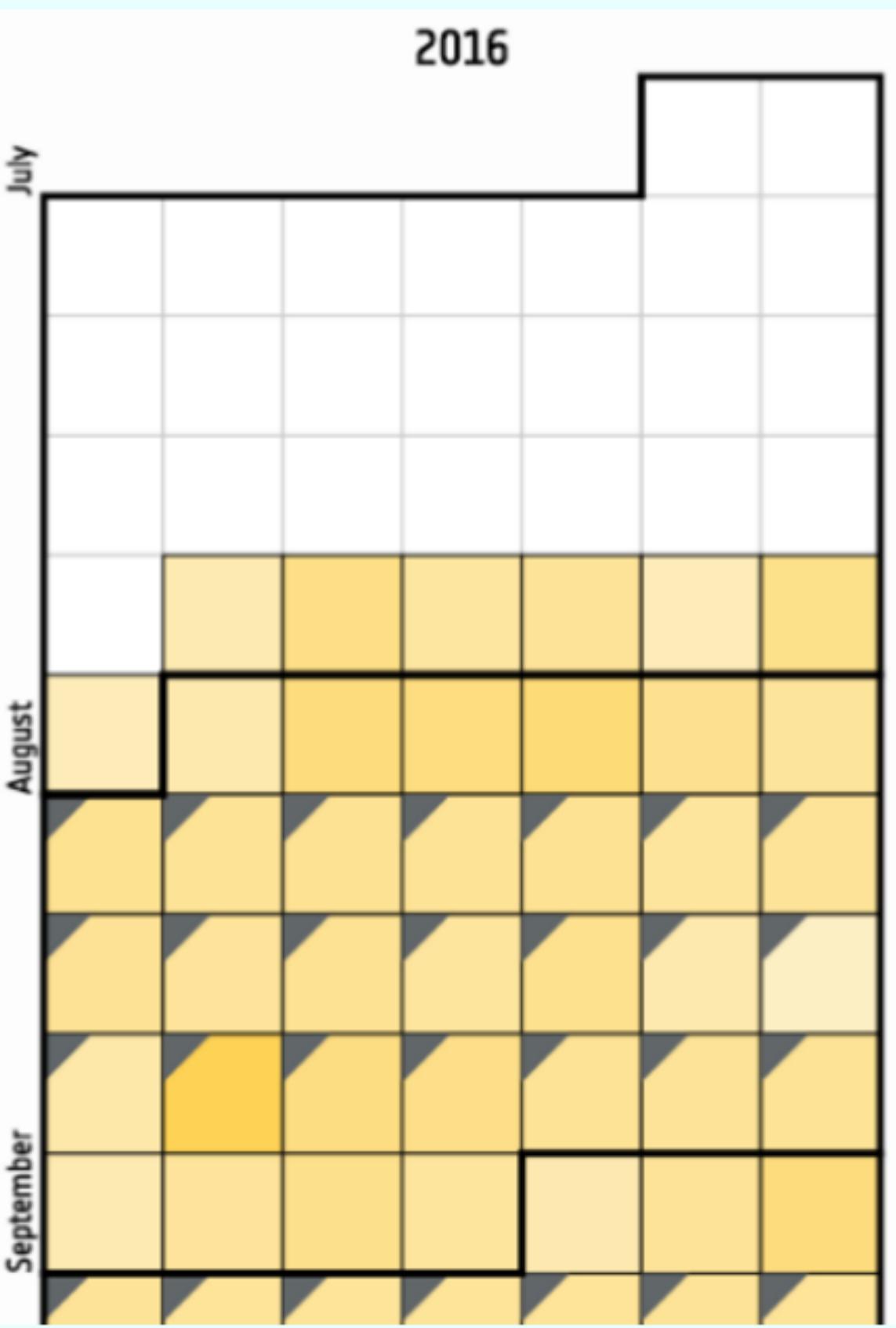
owc-list

owc-map

CREATE

EVENTS

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



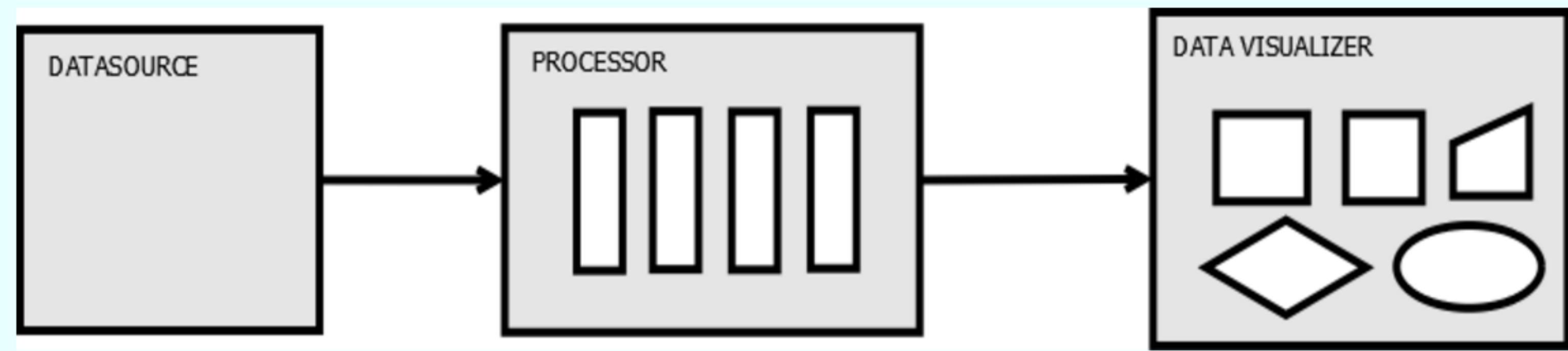
POLAR MAPS

Polar maps in the map component.



METADATA PROCESSING

OWC Metadata Processing system manages user's
plugins to process metadata from searches, and to
create automatic tasks client side.



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.

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

DOCUMENTATION

- User Guide: https://github.com/buele/DataHubSystem/blob/gh-pages/OWC/USER_GUIDE.md
- API reference: <http://buele.github.io/DataHubSystem/OWC/api-docs/app/docs.html>
- OWC SDD Issue: 1.0
- OWC ICD, Issue: 1.0

DEMO