

D3.5 - CENTAUR Integrated platform test document - v1

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HISTORY OF CHANGES

Date	Version	Author	Change Description
20.01.2024	0.1	GMV	Initial version with a ToC
29.02.2024	1.0	GMV, ECM, HEN, EG, VITO, TRA	First version of the document



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1 EXECUTIVE SUMMARY

The present document represents the deliverable D3.5 – CENTAUR Integrated platform test document of CENTAUR project and is produced under the Work Package WP3 – Service deployment, in particular, under Task 3.4 is in charge of:

- Platform deployment in a public cloud
- Performing platform test

The document includes the deployment resources and the testing of the platform.

The current document is expected to have 2 releases:

- The first one with the resources and testing performed in the prototype delivered in M15, see D.3.3 CENTAUR integrated platform including Urban Flood and Wated&Food Indexes v1 (baseline).
- The other one is scheduled for M32, detailing the resources and testing performed in the last release of the platform M32.

The information that contains this document will be the basis for the next deliverable in Task 3.4: D3.6 – CENTAUR integrated platform test document v2 (final setting).

2 INTRODUCTION

2.1 CENTAUR PROJECT DESCRIPTION

Climate change is a fact and its impact on human lives and security is continuously growing. The EU understood the importance and consequences of climate change a long time ago, adopting ambitious legislation in different policy areas. The Green Deal recognises that tackling climate change and striving for climate neutrality should be placed at the centre of societal and economic transformation. Over the last 50 years, more than 11.000 reported disasters related to extreme weather and climate conditions have caused over 2 million deaths and US\$ 3,64 trillion in losses. The number of disasters has multiplied by a factor of five during that period, mainly driven by climate and more weather extremes¹. In particular, the last twenty years have seen the number of major floods more than double, from 1.389 to 3.254, while the incidence of storms grew from 1.457 to 2.034². Floods and storms were the most prevalent events and floods are the most common type of disaster worldwide, accounting for 44% of total events registered in the last twenty years. A global temperature increase of the global climate is estimated to increase the frequency of potentially high-impact natural hazard events across the world. This could render current national and local strategies for disaster risk reduction and climate change adaptation obsolete in many countries. In total, between 2000 and 2019, there were 3,068 disaster events in Asia, 1,756 events in the Americas and 1,192 events in Africa.

Climate change is increasingly acknowledged within the EU's integrated approach to security. The related environmental degradation is recognized as a threat multiplier and an aggravating factor for political instability with serious implications for peace and security across the globe³. Nowadays, climate change is already causing people to migrate, and while migration should not be directly labeled as a security problem, implicitly the link

¹ World Meteorological Organization (2021). WMO atlas of mortality and economic losses from weather, climate and water extremes (1970–2019).

² UNDRR report: The human cost of disasters: an overview of the last 20 years (2000-2019).

³ Meyer, C., Vantaggiato, F. P., & Youngs, R. (2021). Preparing the CSDP for the new security environment created by climate change. European Union.



between pressures on society and increased competition for resources is often made⁴. People living in places affected by violent conflict are particularly vulnerable to climate change and it is agreed that some of the factors that increase the risk of violent conflict are sensitive to climate change⁵. This way, it is estimated that 95 % of new displacements by conflicts in 2020 happened in countries that have high or very high vulnerability to climate change⁶. From 2008 to 2016, this represents over 20 million people per year who have been forced to migrate due to climate change effects⁷.

Within Copernicus Security and Emergency Services evolution, the objective of **CENTAUR** is to respond to societal challenges deriving from Climate Change threats by developing and demonstrating new service components for the **Copernicus Emergency Management Service (CEMS)** and **Copernicus Security Service - Support to EU External Action Service (CSS-SEA)**, aiming to:

1. Improve **situational awareness and preparedness** around climate change and its impact on complex emergencies and multi-dimensional (security) crises;
2. **Anticipate the occurrence and possible knock-on effects** of crisis events, in particular those triggered by climatic extremes, thus contributing to resilience and effective adaptation.

In the emergency domain, CENTAUR will address the flood-related threats to population, assets, and infrastructures in urban areas. In the Security domain, CENTAUR will address water & food insecurity. The two work streams will be connected via a cross-cutting component focusing on exposure and vulnerability to climate change, as well as resilience and societal capacity for managing environmental risks and social conflict. Across work streams, indicators and models will be validated by different methods. CENTAUR will integrate data coming from multiple heterogeneous sources, with a specific focus on those generated by other Copernicus services, and, in particular, those of the Climate Change Service). It will combine these with meteorological data, socio-economic data, and data coming from new sensors (e.g. traditional and social media). Thus, it will enhance current capacities to produce composite risk indexes and to perform multi-criteria analyses in the emergency and security domains.

2.2 SCOPE OF THE DOCUMENT

To provide deployment resources and organize the testing of the platform services. In particular, pipelines for the automation of testing, even in prototype development.

2.3 DEFINITIONS, ABBREVIATIONS AND COMPONENTS

Product

A product is either a dataset (i.e., the input to an indicator), indicator (i.e., the input to an index), or index ('final' product).

⁴ Schaik, L., Bakker, T. (2017). Climate-migration-security: Policy Brief Making the most of a contested relationship. Planetary Security.

⁵ W.N., J.M. Pulhin, J. Barnett, G.D. Dabelko, G.K. Hovelsrud, M. Levy, Ú. Oswald Spring, and C.H. Vogel (2014). Human security. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 755-791.

⁶ University of Notre Dame. (n.d.). Country index // Notre Dame Global Adaptation Initiative // University of Notre Dame. Notre Dame Global Adaptation Initiative. Retrieved January 23, 2022, from <https://gain.nd.edu/our-work/country-index/>.

⁷ WEF (2020). *The Global Risks Report 2020*, Insight Report 15th Edition. World Economic Forum, Geneva Switzerland, p. 102. <https://www.weforum.org/reports/the-global-risks-report-2020>.



Table 1: Abbreviations and acronyms

Acronym	Description
AWS	Amazon Web Services

2.4 APPLICABLE AND REFERENCE DOCUMENTS

Table 2: Applicable and reference documents

ID	Document name
[RD01]	Copernicus Service in Support to EU External Action: https://sea.security.copernicus.eu/
[RD02]	Disaster Risk Reduction in EU external action - Council conclusions (28 November 2022): https://data.consilium.europa.eu/doc/document/ST-14463-2022-INIT/en/pdf
[RD03]	D1.1 - Report on Urban Flood and Water & Food security indicators v1.0 15/06/2023
[RD04]	D2.1 - Catalogue of CENTAUR data and related specifications
[RD05]	D2.2 - Urban Flood and Water & Food Insecurity Design
[RD06]	D2.3 - Urban Flood and Water&Food Insecurity service pipelines v1 (baseline set up)
[RD07]	D3.2 - Platform Design Document (all the theoretical background related to service design and implementation) v2
[RD08]	D3.3 - CENTAUR integrated platform including Urban Flood and Water&Food Indexes v1 (baseline)



3 ORGANIZATION THE TEST

According to the project plan, the platform will be enriched gradually with capabilities along the project, the formal releases are scheduled by M15 and M32. Using those deliverables, the test will also be delivered, although the performance will take place when a platform release is done. Common aspects of the tests can be defined as follows:

- Tests performed will check the high-level functions of the platform, all described in D3.2 - Platform Design Document (all the theoretical background related to service design and implementation) v2.
- Tests will be autonomous as they will contain the relevant information to understand it, from a description and the capability to check, to the result report, see section 4 for further information.
- Taking into account that along the platform releases the test may need to be rerun, the test might be created automatically. When defining a test the policy to create as automatically or not will be the number of times to be run.
- Tests will be run in the production environment.
- Test will be rated as pass or fail.
- Tests will be scheduled after the deployment of a new release of the platform.

4 TEST PLAN AND REPORT

4.1 TEST STRATEGY

The strategy is based on a set of E2E (End to End) scenarios of testing composed of different test cases. The present version is going to include a set of scenarios (to be updated during the development of the final version of the platform) detailing only the test cases effectively executed for the release of the first version.

E2E Test Scenario ID	Mapped E2E Test Cases	E2E Test Scenario Result
<p>E2E-TS-01</p> <p>Data Discovery and Visualization of Harvested data and cold case products</p>	<ul style="list-style-type: none"> • E2E-TC-CENTRAL-01 – LOGIN • E2E-TC-CENTRAL-02 – INSERT A PRODUCT • E2E-TC-CENTRAL-03 – RESTRICTION ACCESS TO A PRODUCT • E2E-TC-CENTRAL-04 – DISCOVERY OF A PRODUCT • E2E-TC-CENTRAL-05 – VISUALIZATION OF A PRODUCT 	PASSED

The rest of the section will include the results of the test that has been performed by the validation team. Each test will contain the following sections:



- Description which includes the feature to test, the tools needed, the readiness steps before launching the test, and the strategy
- Test report which includes the results of the execution of the test.

4.2 SUMMARY OUTCOME

The "Test Results Summary" chapter provides a concise overview of the outcomes of the conducted tests. This section serves as a high-level assessment of the platform components' status with respect to the tests. The test results are typically categorized into the following statuses:

- **Passed:** All Test Procedures have been carried out from the beginning up to the end and no issues have been identified.
- **Passed with Problems:** All Test Procedures have been executed from beginning up to the end, but problems have arisen and not all steps have been checked and passed successfully. In case of any blocking issues, details of any workarounds or patches used must be included in the report.
- **Failed:** A blocking issue has been encountered during the execution, making it impossible to proceed further.

The following table summarises the overall outcome by component:

Component Name	Version	Verification Test Result
Central Node	V1	Passed for the current status of the platform

Table 3: Verification Tests summary outcome

4.3 E2E-TC-CENTRAL-01 - LOGIN

4.3.1 Description

In this test, we verify the login functionality.

Preconditions:

- Users is in possession of valid credentials as the open registration is disabled

Steps:

1. Open Your Web Browser and navigate to the CENTAUR platform link
2. Click on Login button
3. As the registration is disabled, enter your credentials and click on the "Login" or "Sign In" button to authenticate your account.
 - a. Enter a wrong credential, the end-user will be notified that they are incorrect.
 - b. Enter the correct credential, the end-user will success the login.
4. Access the CENTAUR platform and explore the various sections on the top bar
5. Logout (Optional)

4.3.2 Test report

Login to the CENTAUR platform:

- Data used:
 - URL: to be defined
 - User: “tracasaUF”
 - Password: Not Applicable

The following screenshots show the execution of the above steps.

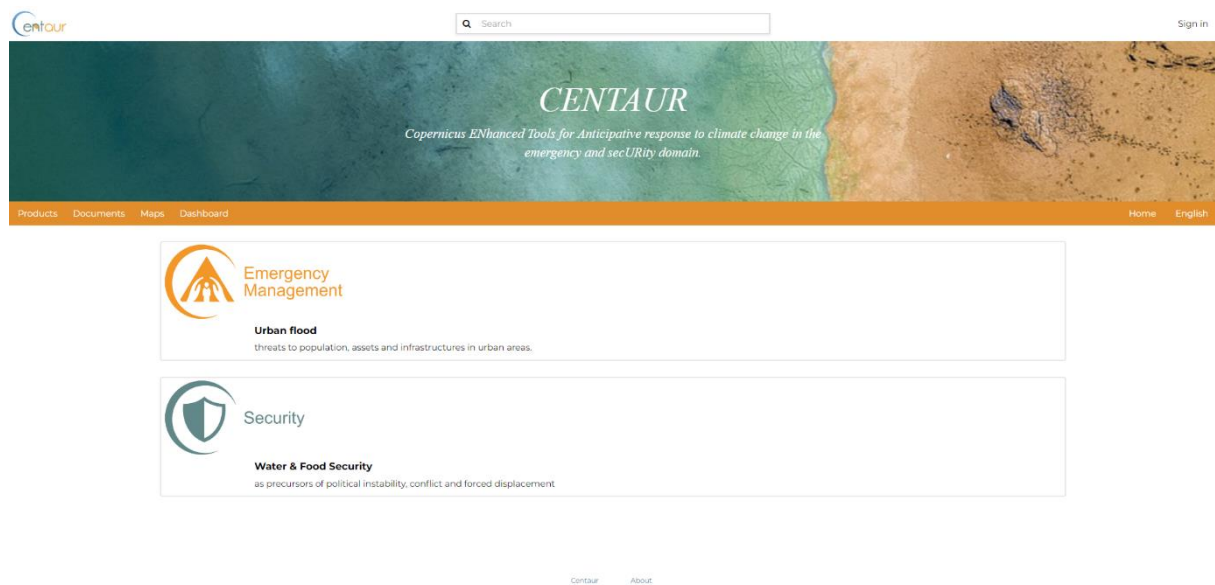


Figure 4-1: E2E-TC-CENTRAL-01-LOGIN screenshot 1

Log in to an existing account

If you have not created an account yet, then please [sign up](#) first.

Login

Password

Remember Me

[Forgot Password?](#)

[Sign In](#)

Figure 4-2: E2E-TC-CENTRAL-01-LOGIN screenshot 2

Log in to an existing account

If you have not created an account yet, then please [sign up](#) first.

The username and/or password you specified are not correct.

Login

Password

Remember Me

[Forgot Password?](#)

[Sign In](#)

Figure 4-3: E2E-TC-CENTRAL-01-LOGIN screenshot 3

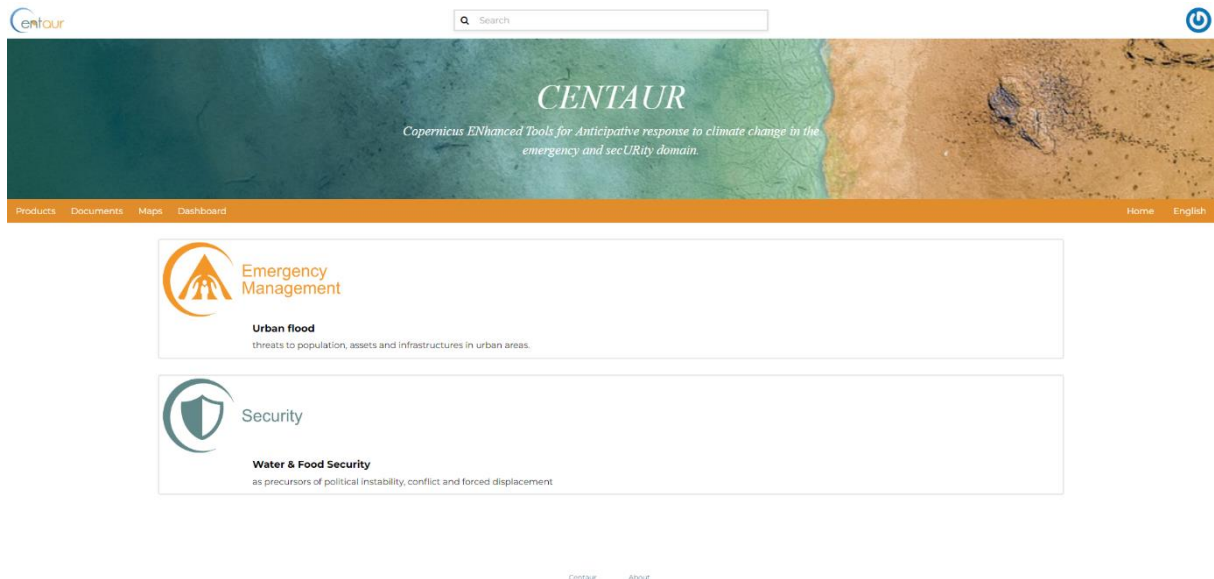


Figure 4-4: E2E-TC-CENTRAL-01-LOGIN screenshot 4

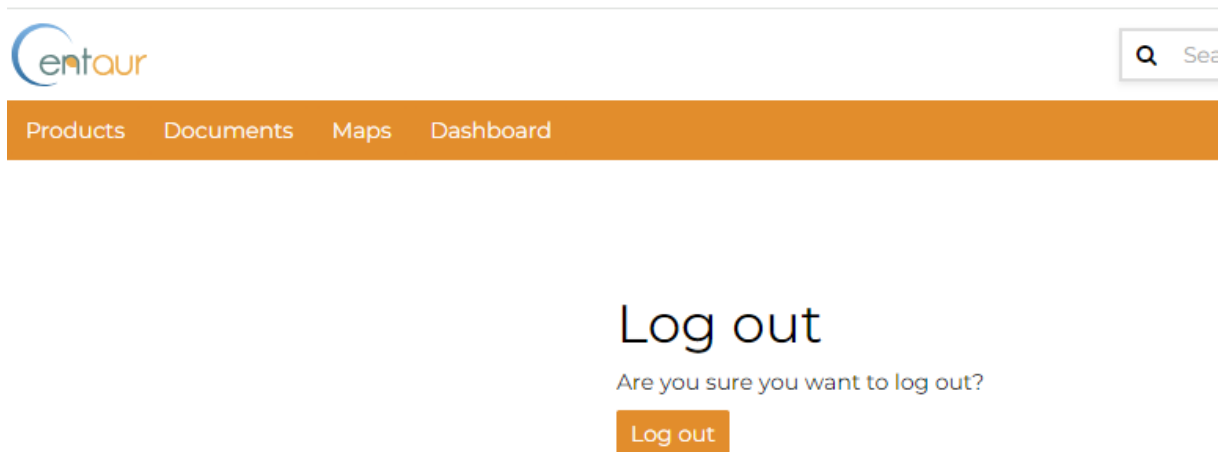


Figure 4-5: E2E-TC-CENTRAL-01-LOGIN screenshot 5

4.4 E2E-TC-CENTRAL-02 - INSERT A PRODUCT

4.4.1 Description

In this test, we verify the functionality to upload a product into the CENTAUR platform.

Preconditions:

- Users must be logged in and has the correct grant to upload a product
- It must be empty the catalogue.

Steps:

1. Navigate to the Add Resource in the top bar
2. Select Add Resource drop-down and select “Upload Dataset”
3. Through the Select files button you can select files from your disk, make sure they are valid raster or vector spatial data, then you can click to “Upload” button.
4. Review the product, once the upload is complete, click on “view” and verify the metadata and the data in the map

4.4.2 Test report

Upload a product to the CENTAUR platform:

- Data used:
 - Test dataset: UF-ID-4 (WG1_Spain_Cold_Case_UF-ID-4_WGS84.geojson)

The following screenshots show the execution of the above steps.

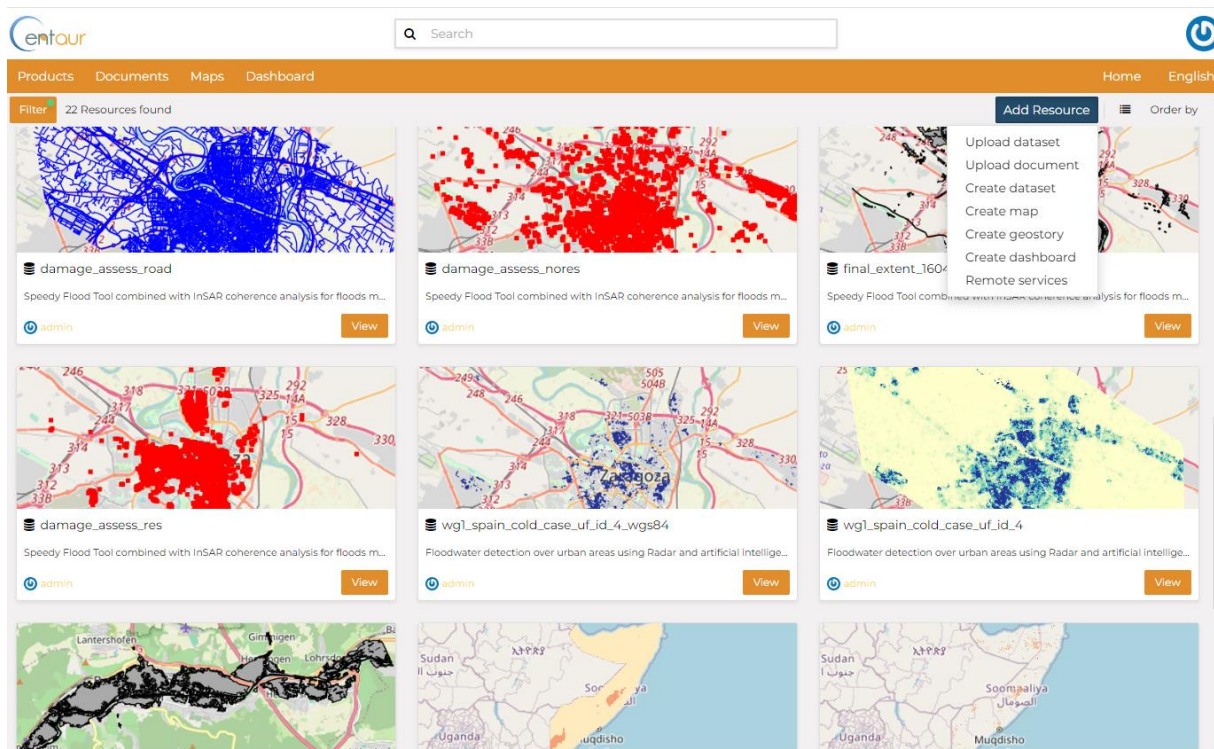


Figure 4-6: E2E-TC-CENTRAL-02 - INSERT A PRODUCT screenshot 1

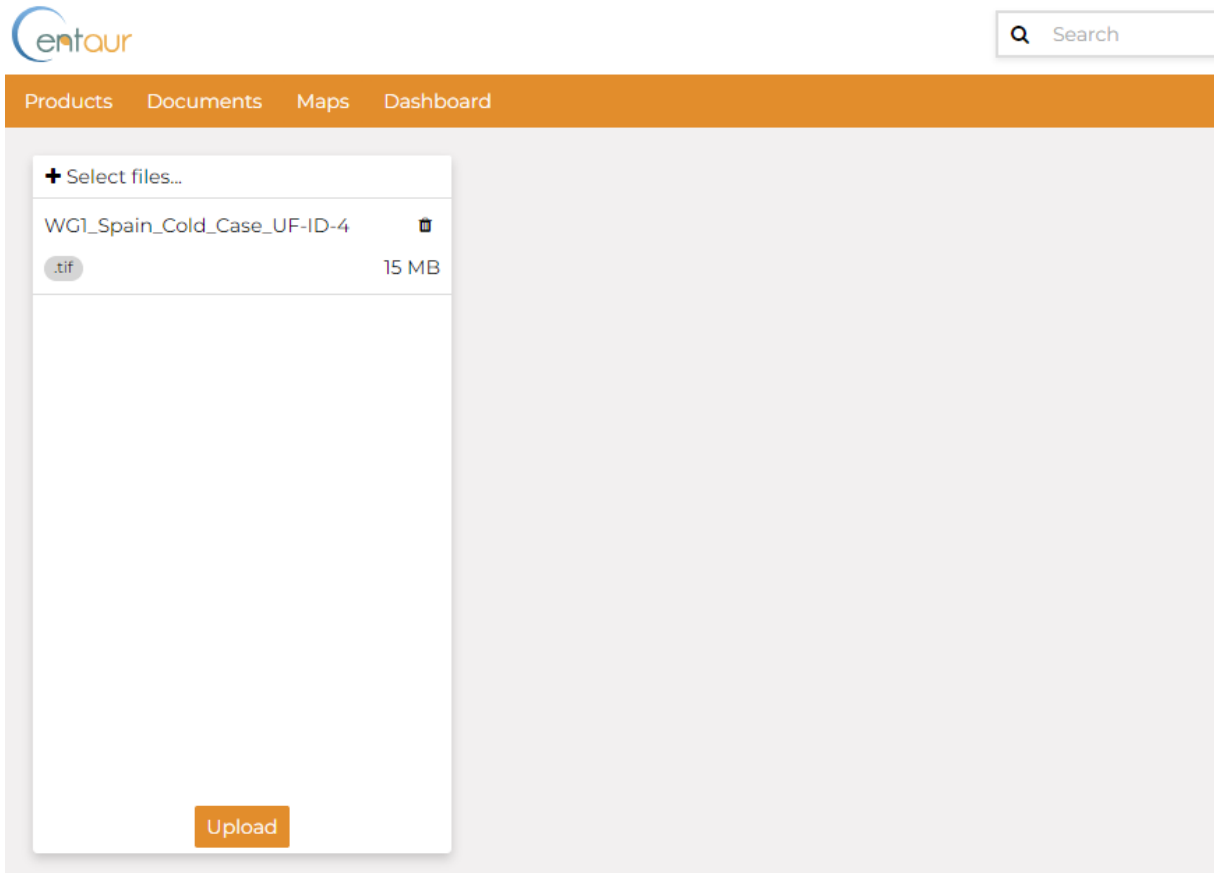


Figure 4-7: E2E-TC-CENTRAL-02 - INSERT A PRODUCT screenshot 2

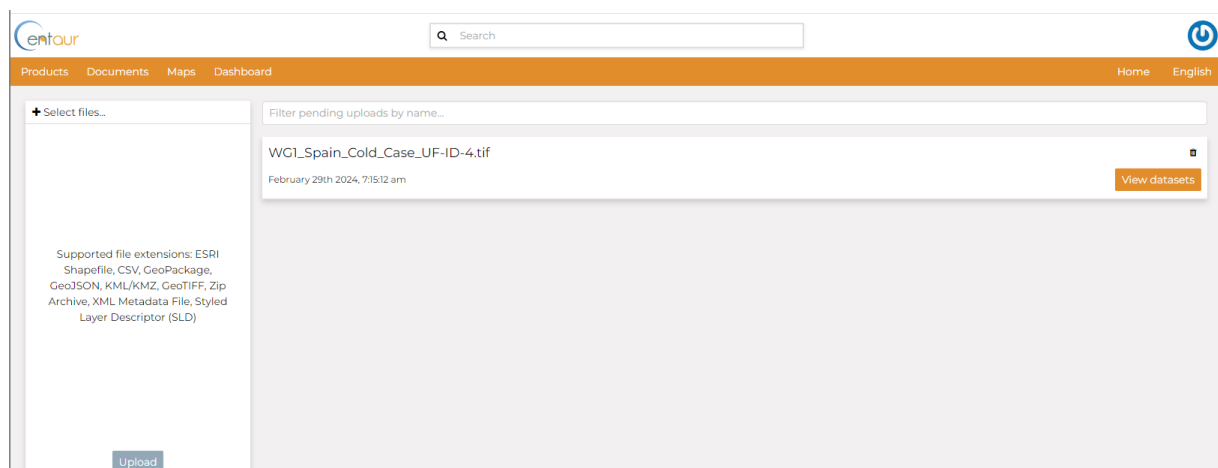


Figure 4-8: E2E-TC-CENTRAL-02 - INSERT A PRODUCT screenshot 3

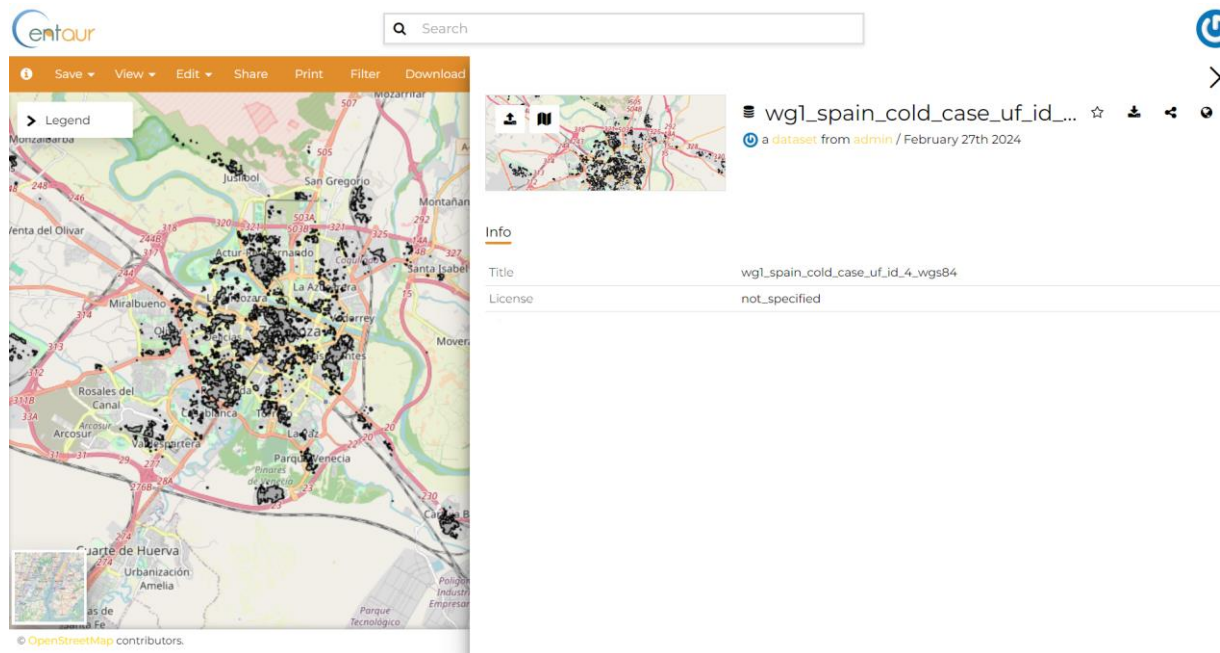


Figure 4-9: E2E-TC-CENTRAL-02 - INSERT A PRODUCT screenshot 4

4.5 E2E-TC-CENTRAL-03 - RESTRICTION OF THE ACCESS TO A PRODUCT

4.5.1 Description

In this test, we verify that the system allows to restrict access to products based on access control policies, this permission can be set to any category managed through the end-user interface (map/dashboards/datasets/documents).

Preconditions:

- Admin User must be logged in or a user with the required grants to change policies.
- Execution of E2E-TC-CENTRAL-01 and E2E-TC-CENTRAL-02 test with the product WG1_Spain_Cold_Case_UF-ID-4_WGS84.geojson.
- 2 different users must be created apart from admin (user A, user B).
- The product used for this test is a dataset.

Steps:

1. The user opens a dataset in the geoviewer
2. The user opens the configuration panel for the dataset
3. The user can change the access control policies to the dataset in order to limit the visibility by:
 - User visible/download/edit access
 - Group visible/download/edit access
 - AOI based access
4. The user configures one of the examples: visible access to user A.
5. Execute E2E-TC-CENTRAL-01 – LOGIN to login into the platform with user A.
6. Search for “wg1_spain” and the product is available to view for user A.

7. Repeat step 5 with user B.
8. Search for “wg1_spain” and the product is not available to view for user B.

4.5.2 Test report

Configuration of the access to single users

- Data used:
 - Same as E2E-TC-CENTRAL-01 and E2E-TC-CENTRAL-02

The following screenshots show the execution of the above steps.

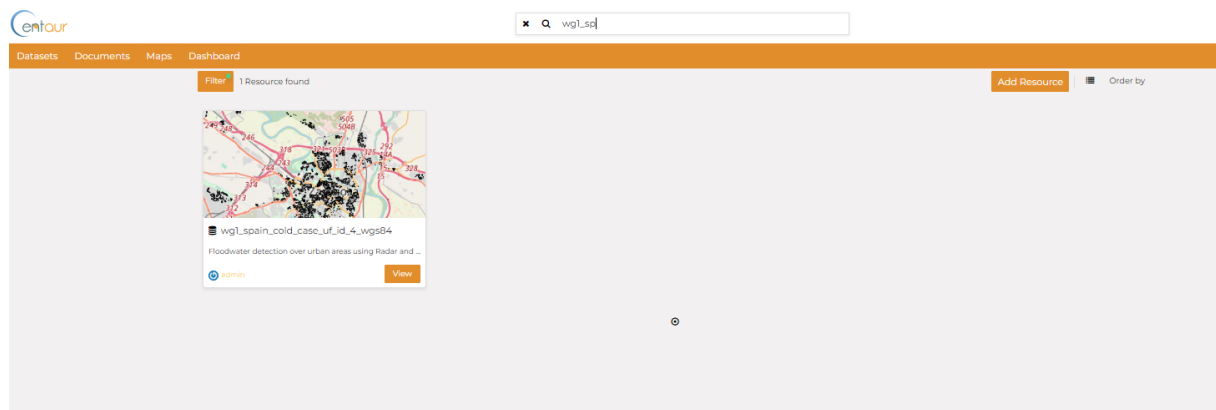


Figure 4-10: E2E-TC-CENTRAL-03 - RESTRICTION OF THE ACCESS TO A PRODUCT screenshot 1

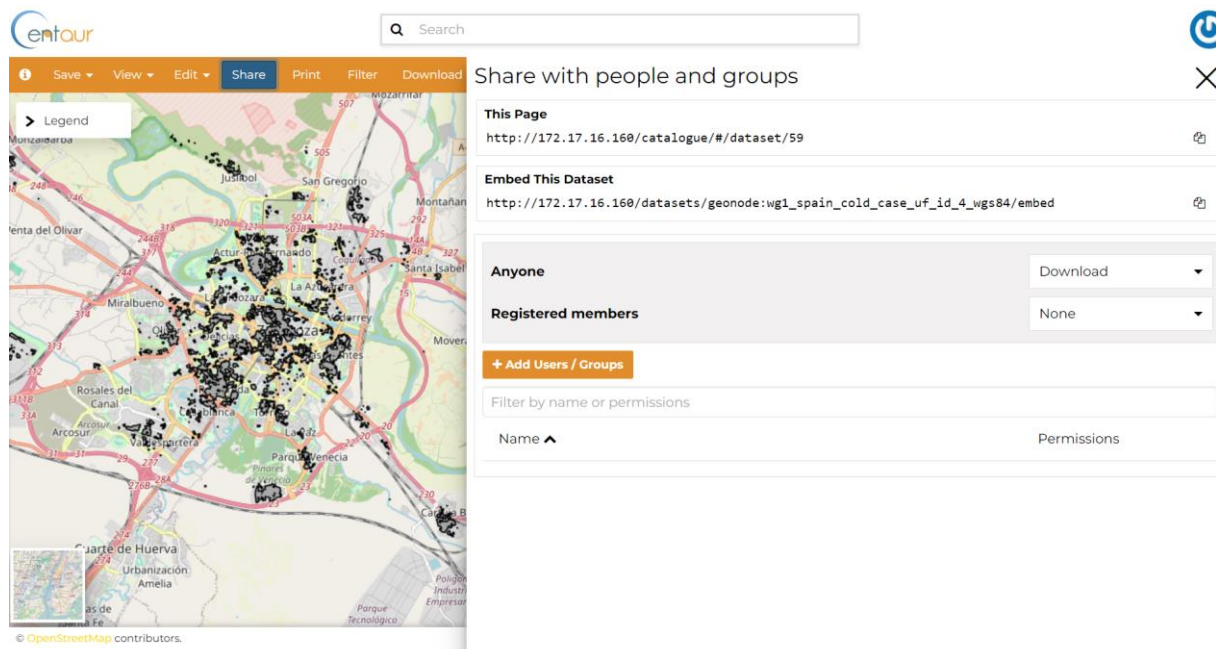


Figure 4-11: E2E-TC-CENTRAL-03 - RESTRICTION OF THE ACCESS TO A PRODUCT screenshot 2

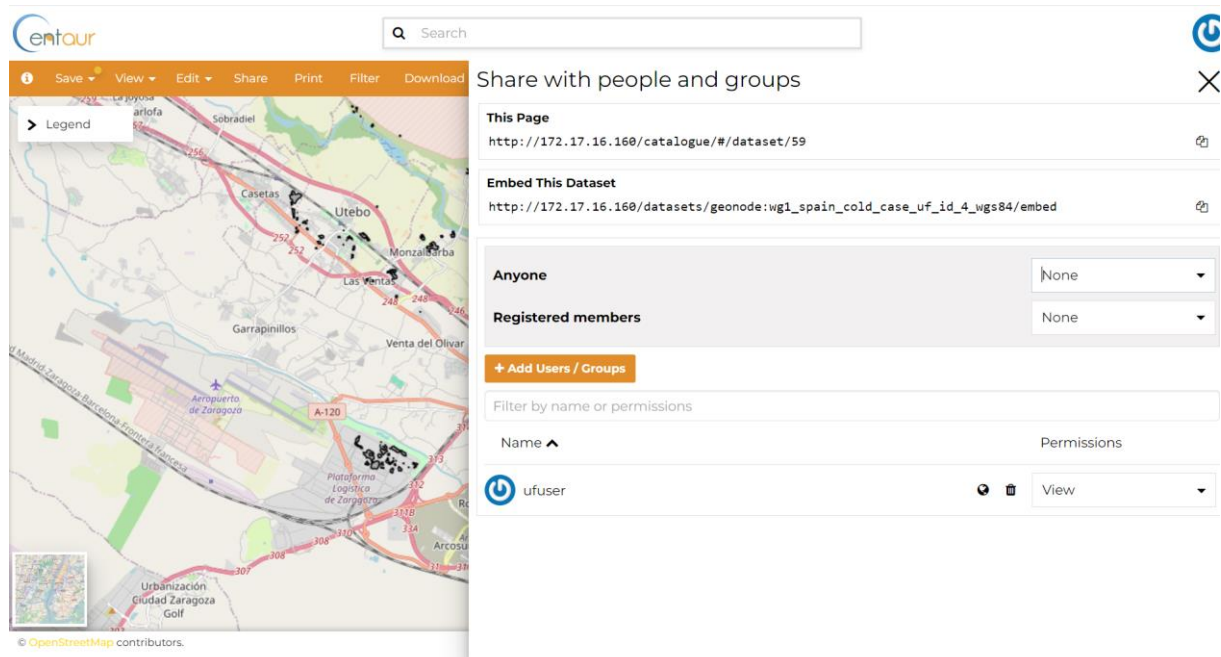


Figure 4-12: E2E-TC-CENTRAL-03 - RESTRICTION OF THE ACCESS TO A PRODUCT screenshot 3

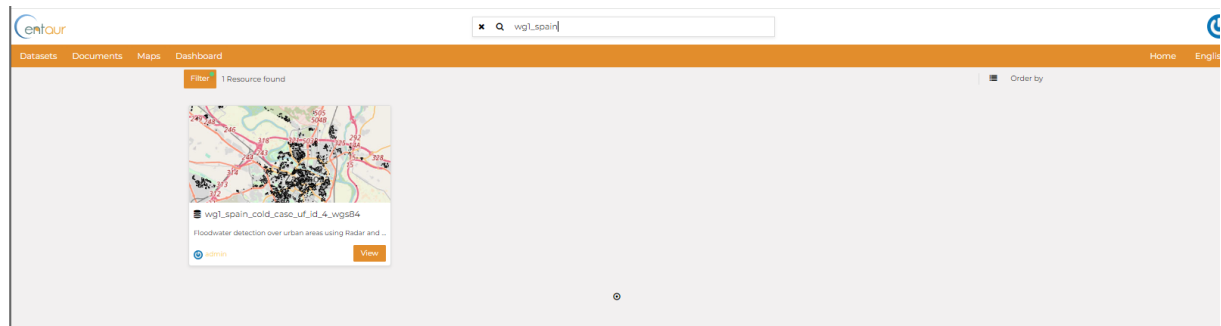


Figure 4-13: E2E-TC-CENTRAL-03 - RESTRICTION OF THE ACCESS TO A PRODUCT screenshot 4

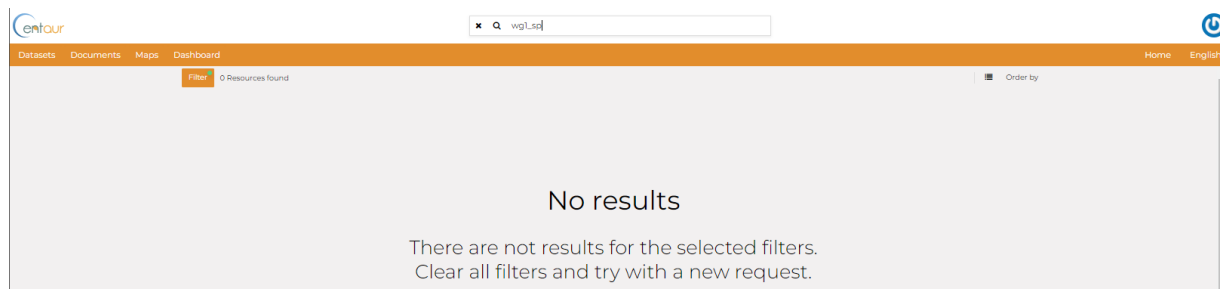


Figure 4-14: E2E-TC-CENTRAL-03 - RESTRICTION OF THE ACCESS TO A PRODUCT screenshot 5

4.6 E2E-TC-CENTRAL-04 – DISCOVERY OF A PRODUCT BY NAME

4.6.1 Description

In this test, we verify the functionality to discover a product in the CENTAUR platform.

Preconditions:

- Users must be logged in
- E2E-TC-CENTRAL-01 and E2E-TC-CENTRAL-02 should be executed using the data used for this test.

Steps:

1. Navigate to product sections
2. Enter a product name in the search bar
3. Verify that the product is found in the available products

4.6.2 Test report

Discover a product to CENTAUR platform:

- Data used:
 - Product: “flooding.kml”
 - Search string: “flooding”

The following screenshots show the execution of the above steps.

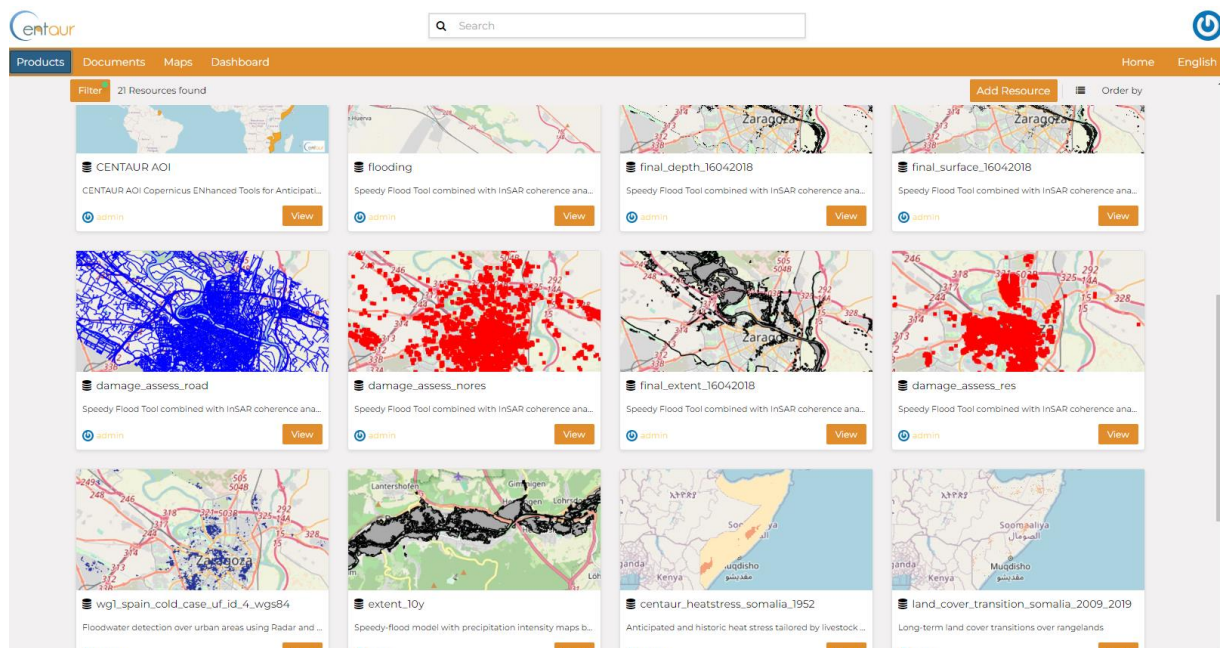


Figure 4-15: E2E-TC-CENTRAL-04 – DISCOVERY OF A PRODUCT BY NAME screenshot 1

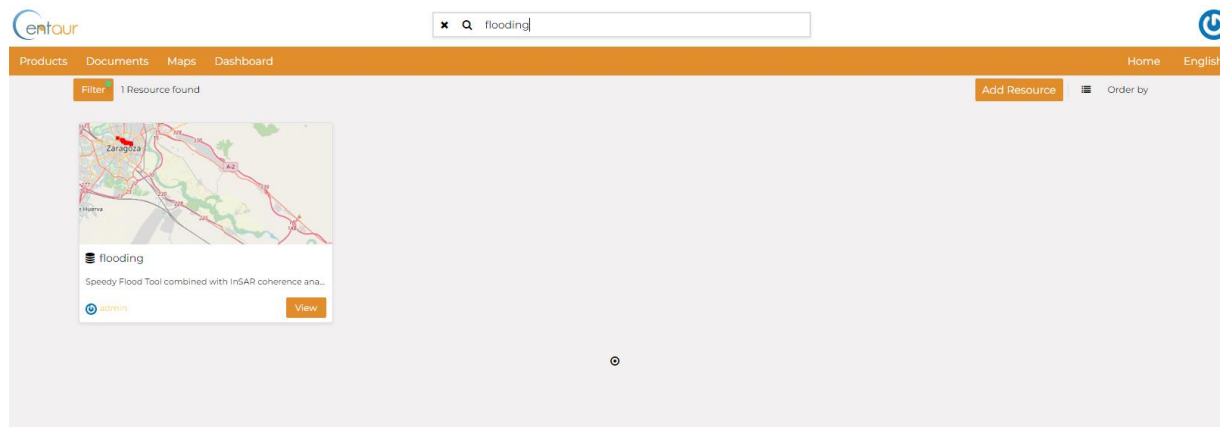


Figure 4-16: E2E-TC-CENTRAL-04 – DISCOVERY OF A PRODUCT BY NAME screenshot 2

4.7 E2E-TC-CENTRAL-05 - VISUALIZATION OF A PRODUCT

4.7.1 Description

In this test, we verify the functionality to visualize a product into the CENTAUR platform and we verify the proper style is applied.

Preconditions:

- Users must be logged in

Steps:

1. Select the product from the discovery interface
2. Click on view button
3. Interact with the GeoViewer
 - Zoom & Pan
 - Layer Tree Control: can be used to visualize the Legend
 - Feature Information
 - Map Controls: such as basemap selection, measurement tools, or drawing tools.
4. Verify a proper style is applied to the product

4.7.2 Test report

Upload a product to CENTAUR platform:

- Data used:
 - Product: "centaur_mainroads_somalia_2018_2023"
 - Style: "roads defined in D2.3 - Urban Flood and Water&Food Insecurity service pipelines v1 (baseline set up) ([RD06])"

The following screenshots show the execution of the above steps.

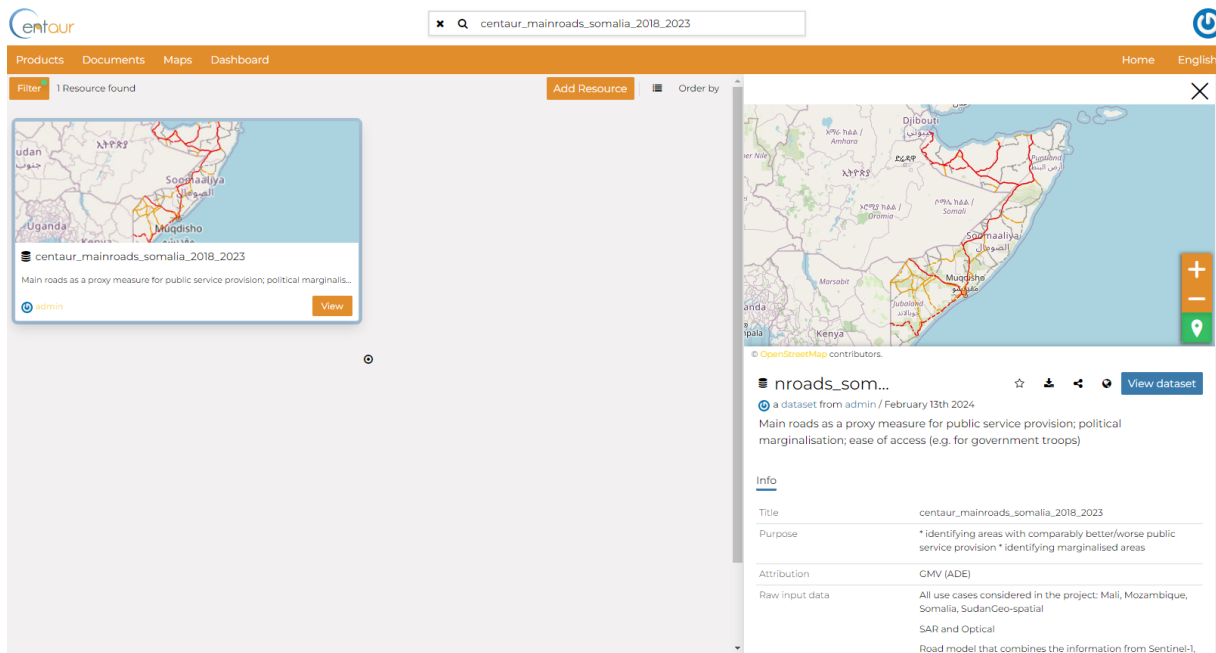


Figure 4-17: E2E-TC-CENTRAL-05 - VISUALIZATION OF A PRODUCT screenshot 1

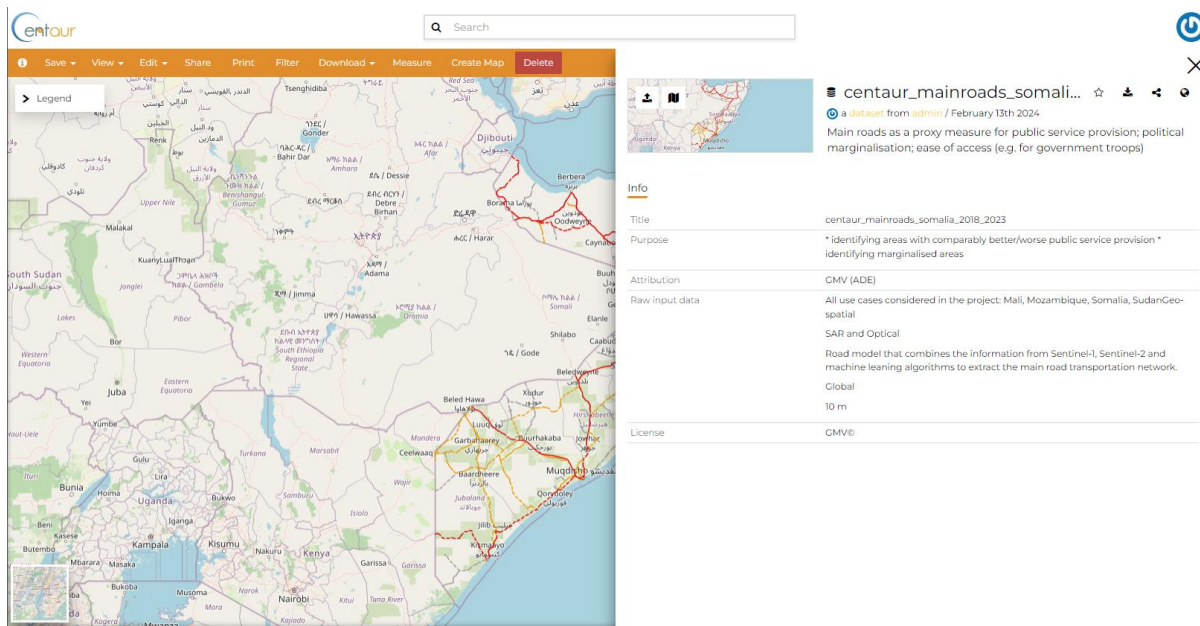


Figure 4-18: E2E-TC-CENTRAL-05 – VISUALIZATION OF A PRODUCT screenshot 2

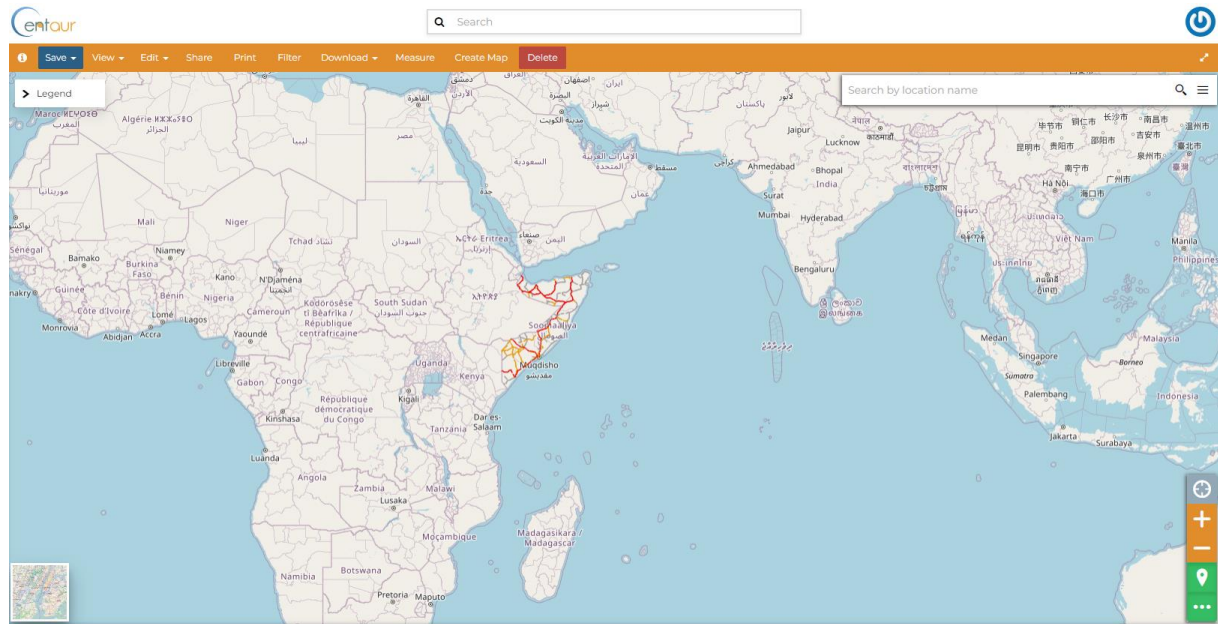


Figure 4-19: E2E-TC-CENTRAL-05 – VISUALIZATION OF A PRODUCT screenshot 3

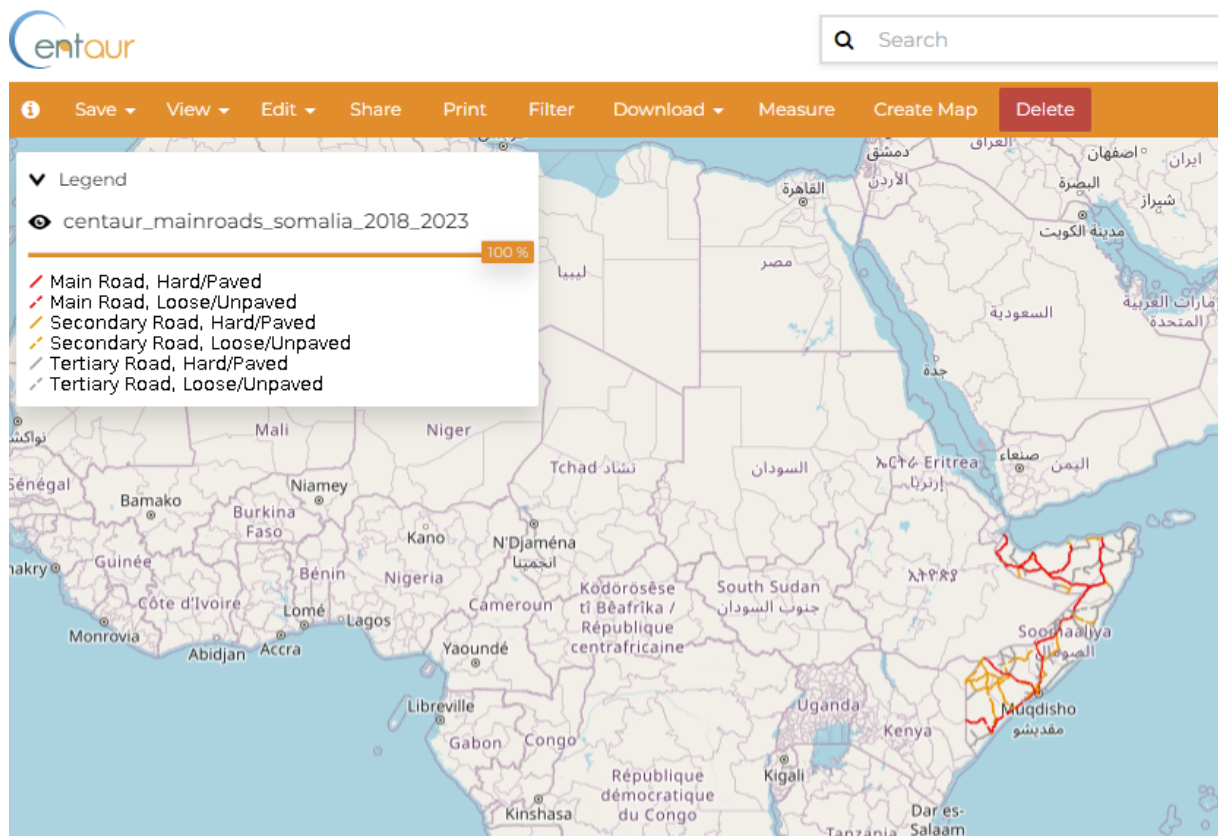


Figure 4-20: E2E-TC-CENTRAL-05 - VISUALIZATION OF A PRODUCT screenshot 4

5 ENVIRONMENT RESOURCES

5.1 OVERVIEW

The architecture of the first version of CENTAUR is reported in D3.2 Platform design document ([RD07]).



6 CONCLUSIONS

The platform is built in an iterative process, in each iteration a validation phase will take place. The team responsible for the validation is a team different from the developing team, which gives a more efficient assessment. However, for the definition of the test, the developing team was involved.

The first release of the platform covers features such as insertion and visualization of the data, and restriction access to the data. The validation team assesses these capabilities through the manual test described in this document.

The iterative process consists of each new feature available in the platform for the user there will be a validation phase. Each validation phase will be collected and reported in the second deliverable of this report, D3.5 CENTAUR integrated platform test document v1 (baseline).

Each test will be assessed to be done manually or automatically depending on the function. The criteria will be based on the frequency of performing the testing. If it will be done on each release of the platform or the contrary once or twice in the life of the platform.





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