

REGARDS

A Generic Catalog Access System and Data Valorization Tool

Claire Caillet, Benoît Chausserie-Laprée, Dominique Heulet CNES, 18 av E. Belin, 31401 Toulouse Cedex 9, France



Context

For CNES archives, SITools2 and SIPAD-NG are the current two main systems used to manage space mission data. However, the architecture of these tools are now becoming obsolete due to the new needs of long term data preservation:

NETFLIX

ES6 and JS
ECMAScript 6

React

REACT

- Have a unique tool to optimize development and maintenance costs,
- Be able to cope with huge data volumes expected from space missions in the 2020 and beyond,
- Address the interoperability needs,
- Meet the need to bring the processing as close as possible to the data,

- Make it an open source software (under GPLv3 license),
- Get a true ground segment product with high capabilities of configuration and adaptability aiming to be implemented in Mission or Data Centers located at CNES or in partner laboratories
- Be compatible with a cloud-type architecture

Storage (U)

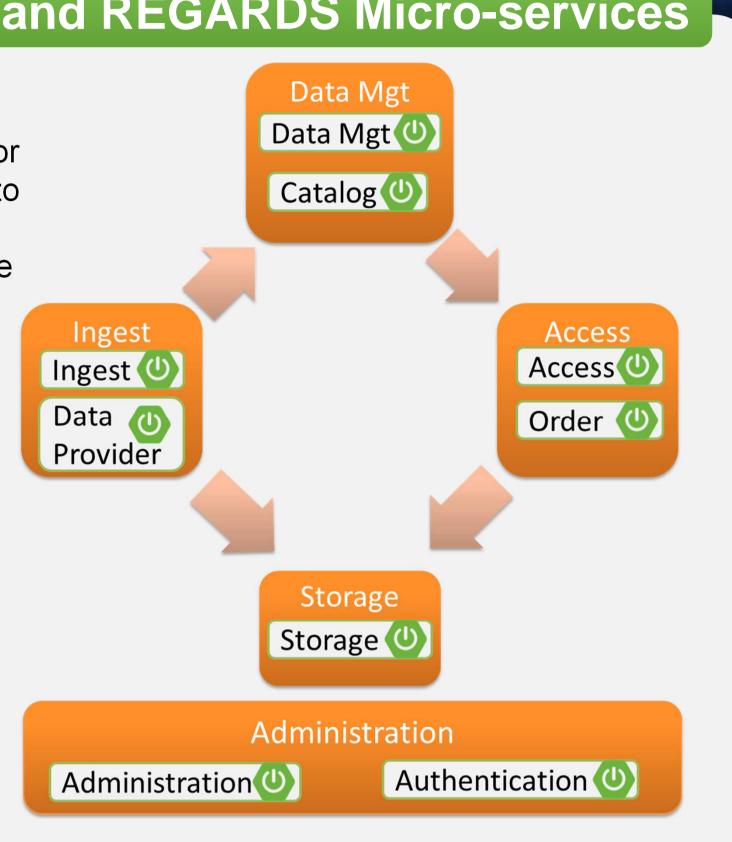
HTTPS {REST API}

OAIS Functional model and REGARDS Micro-services

- Rely on the OAIS functional model for long-term preservation and access to digital data
- Based on a **micro-service** architecture



- Contribute to better implement the **FAIR** principles for CNES archives
 - Findable
 - Accessible and Interoperable
 - Reusable

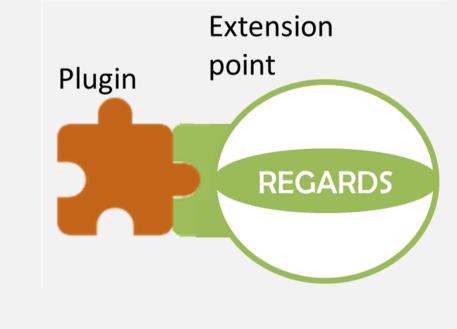


REGARDS Architecture as a framework

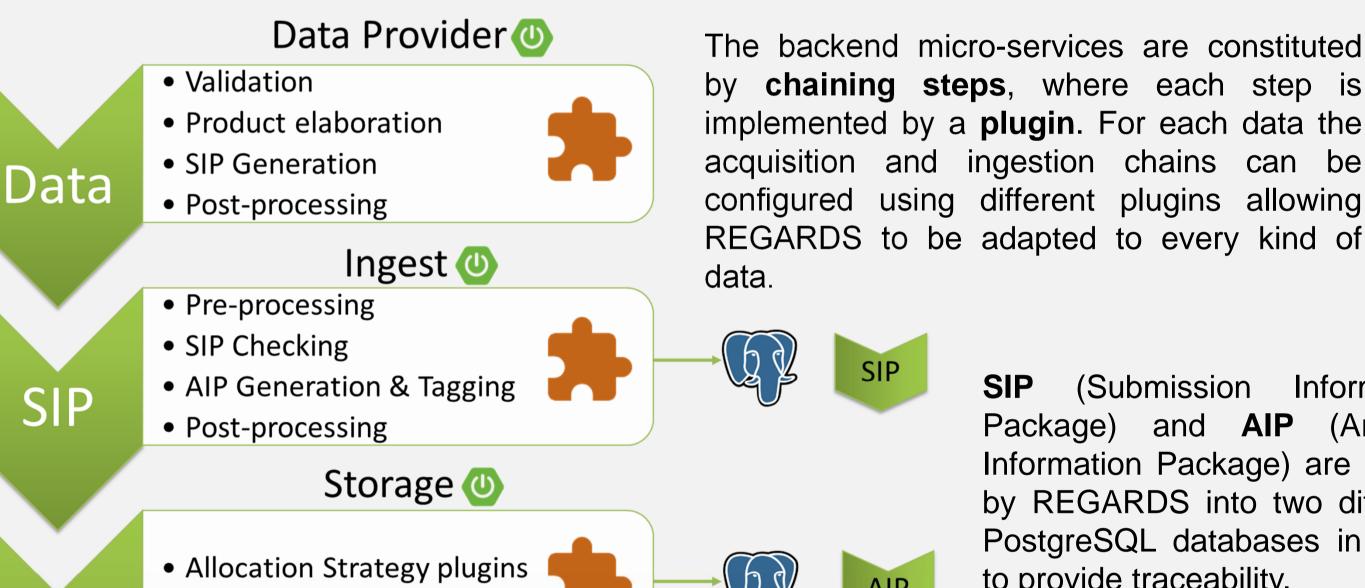
Backend

Frontend

- Administration (U) micro-service elementary matches REGARDS function and has its own context of Catalog (U) Authentication (U) execution and its own configuration High horizontal scalability: several instances of a Ingest (U) Data Mgt (U) micro-service can be deployed to absorb load spinup Data 🕕 Access (U) 010118 Provider
 - Extension point are used to develop new plugins for specific needs



Ingest and Storage functions

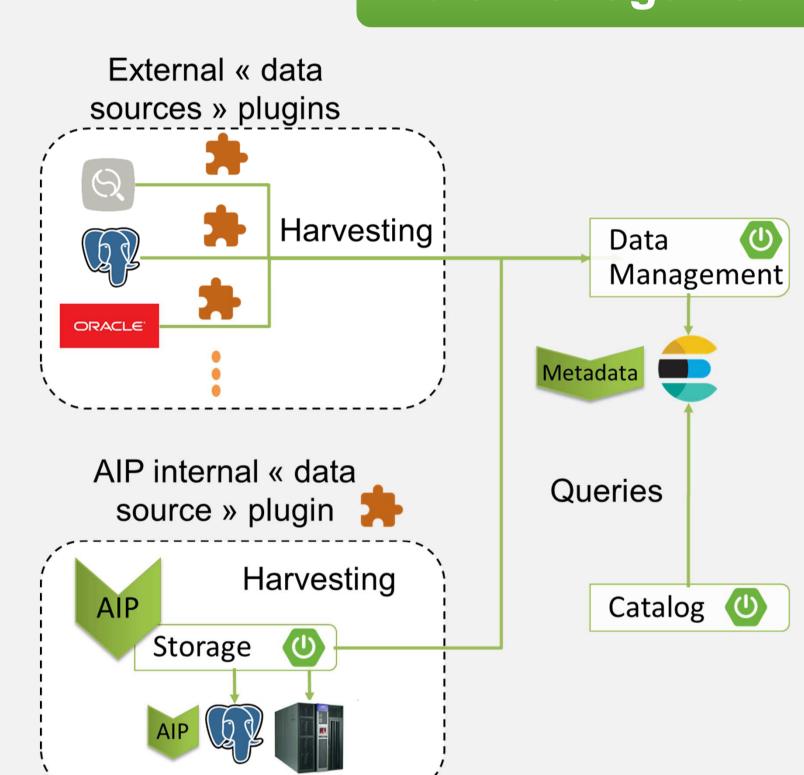


by chaining steps, where each step is implemented by a plugin. For each data the acquisition and ingestion chains can be configured using different plugins allowing REGARDS to be adapted to every kind of

> (Submission Information Package) and AIP (Archival Information Package) are stored by REGARDS into two different PostgreSQL databases in order to provide traceability.

AIP are stored in the archival storage capacity to ensure longterm storage when needed.

Data Management function



Order 🔱

The Catalog is based on an Elastic Search database which can be fed by two kinds of data sources:

- External data sources: external catalogs providing services to harvest their metadata
- Internal REGARDS data source (AIP) Metadata from the data sources are indexed in the ElacticSearch database made searchable via "Data management".

REGARDS able is harvest to PostgreSQL, ORACLE and OpenSearch catalogs but new plugins can be developed to harvest any kind of API providing metadata.

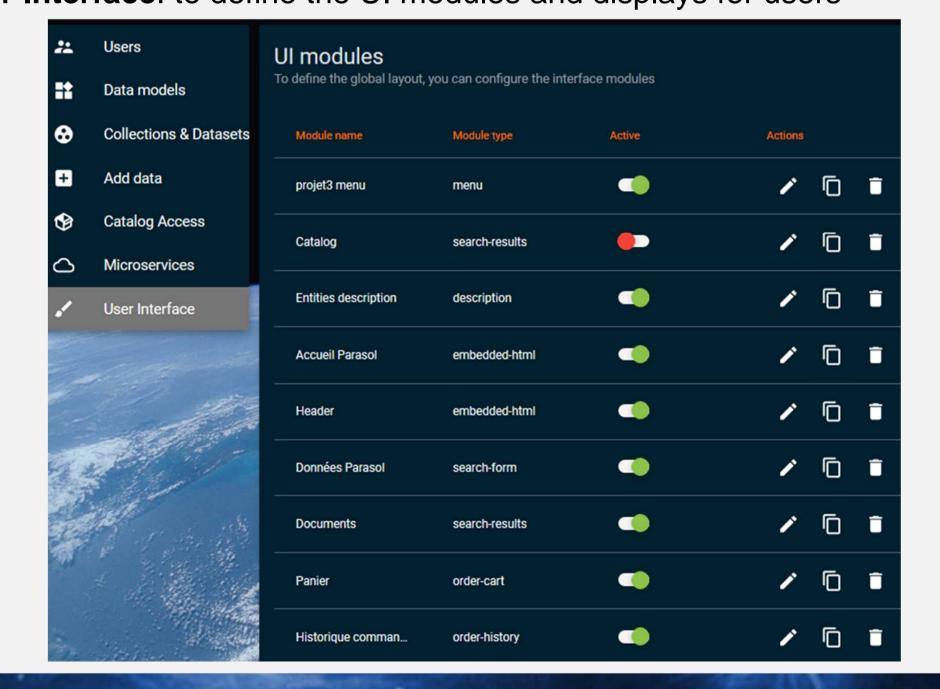
Administration function

Highly configurable :

• **Users**: access control and roles

Storage locations

- Data models: to define specific metadata depending on each mission
- **Collections and datasets**
- Add data: data collects from external catalogs or data ingestion
- Catalog access: to configure access rights at dataset level
- Microservices: to control and configure micro-services and plugins • User Interface: to define the UI modules and displays for users

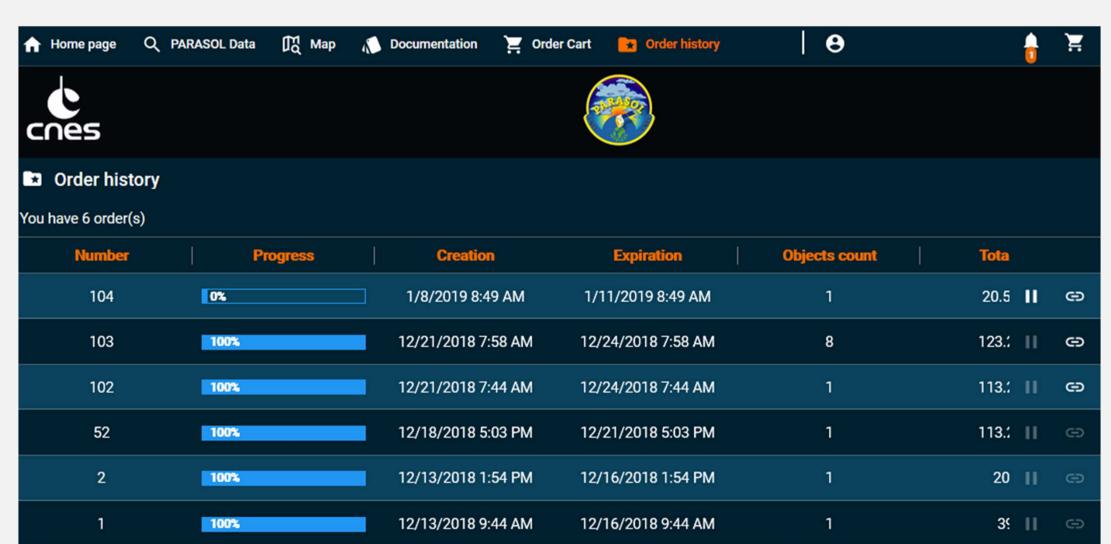


Access function

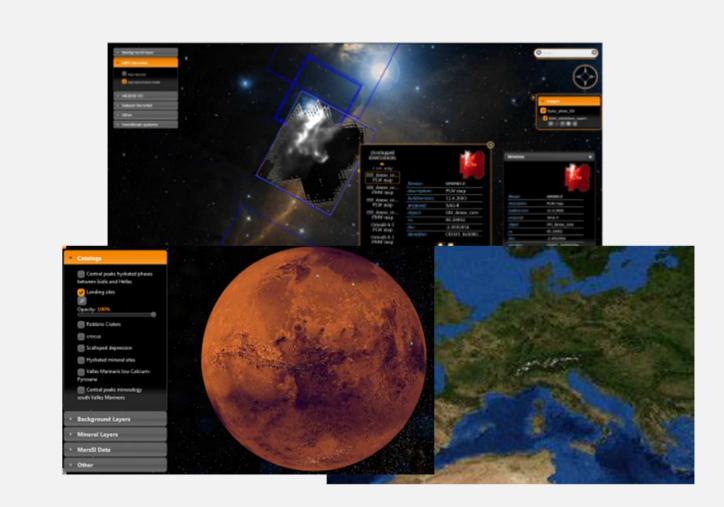
Two types of data access:

- Direct download (synchronous) of the data through the web user interface of REGARDS Restful API.
- Data order (asynchronous) through the order micro-service. Can be useful in case of data near-line storage (tapes for instance) or in case of data processing before download.

A metalink file is provided to the user so he can download the data when it is available on REGARDS local storage.



Provides Web standardized API (OpenSearch standard) to access data



Example of MIZAR cartographic component that can be embedded in the REGARDS GUI and be connected to REGARDS catalog using the exposed OpenSearch web services

REGARDS deployment and planning

Development starts

Nov. 2015

V3 : ready for operational deployment

V4: performances and carto

2019

Migrations from SIPAD-NG and SiTools2

2020

Oct. 2018

MICROSCOPE

Swh (Spot World Heritage)



MICROCARB **SWOT**

2021



2022



Source code: https://github.com/RegardsOss Documentation: https://regardsoss.github.io/ Contact: dominique.heulet@cnes.fr



Source code: https://github.com/mizarweb Documentation: https://mizarweb.github.io/Mizar/



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