

Data Flow Operations Concepts – Sentinel-2 L2A On Demand

Pilot Implementation of Transformations

December 2018

Simple Motivation

- Strong demand for standard Sentinel-2 L2A user product
- Systematic production of latest data
- Fixed volume of online storage to manage rolling archive
- Support ad-hoc need for historic data without massive reprocessing, archival...

Use case: **Sentinel-2 Level-2A products ordering: DHuS triggers production in S2 PDGS**

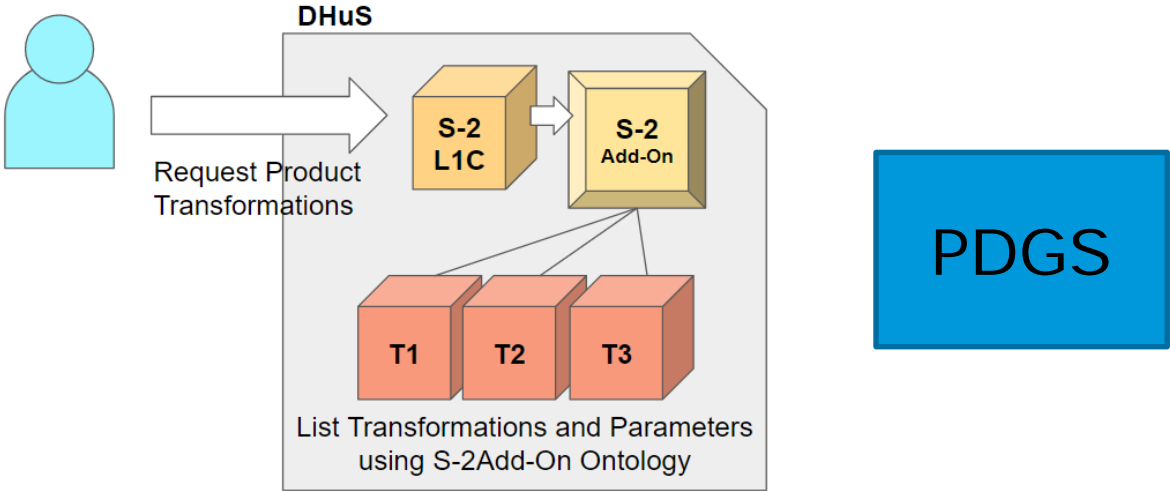
- The Data Hub users will be able to order Sentinel-2 Level-2A products on-demand
- The Data Hub will **avoid overloading** the PDGS with processing requests (quotas)
- The Data Hub will ensure **fair access** to all users

*Main difference with the DHuS-LTA use case: L2A product are NOT kept in the PDGS
LTA, data are generated on-demand*

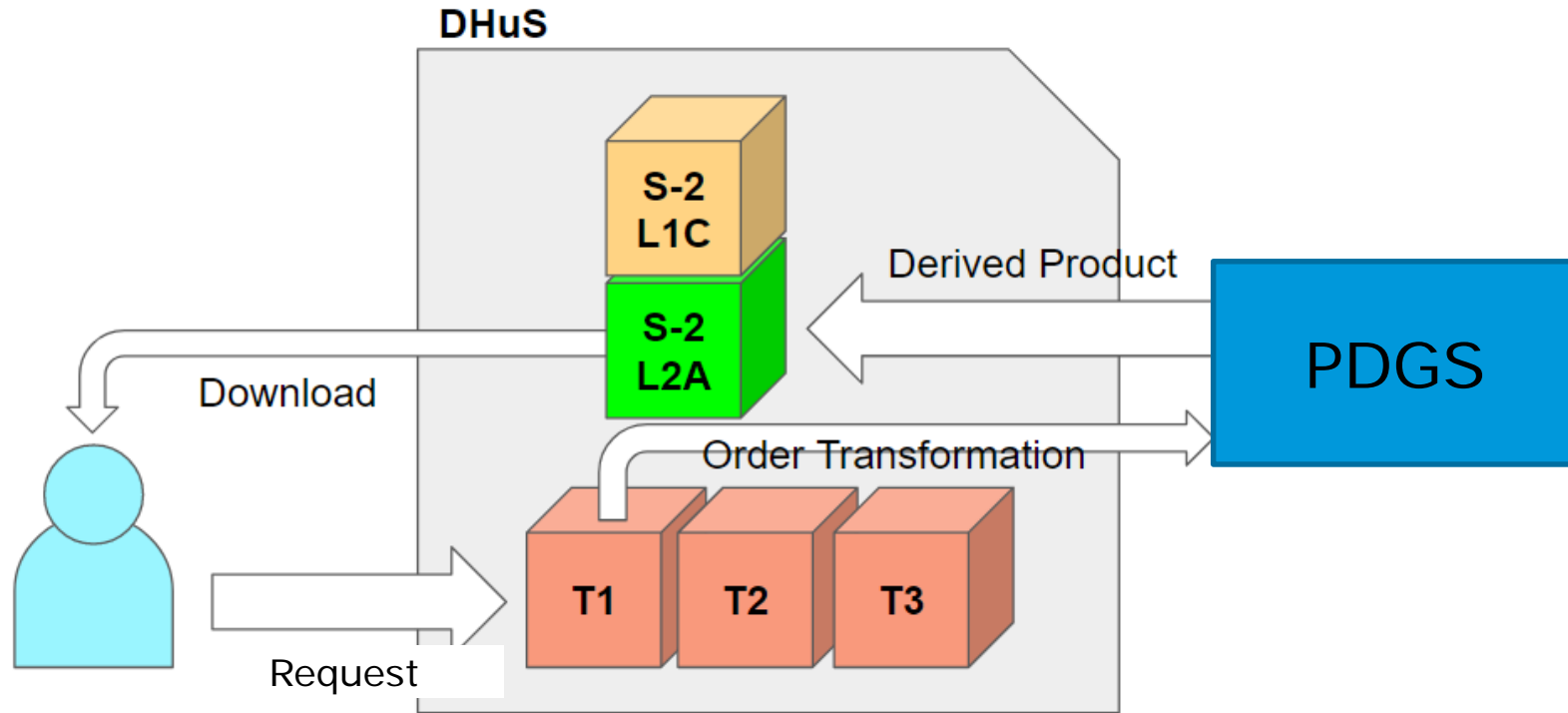
More in general, the Data Hub is being enhanced to:

- Support the **transformation of EO products** using local or remote resources
- Allow the users to identify the possible processing features applicable to specific types of EO product
- Allow the users to trigger one or more of the available processing features

How to identify the available set of product processing features:



How to retrieve a processed Level-2A product:



On-Demand Processing : Sentinel-2 Level 2A products – External Interface API

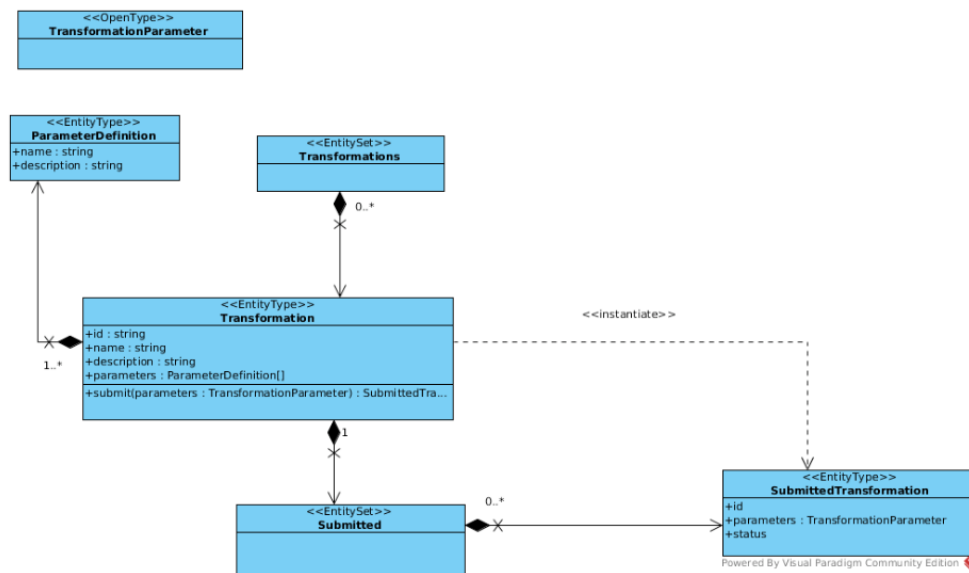
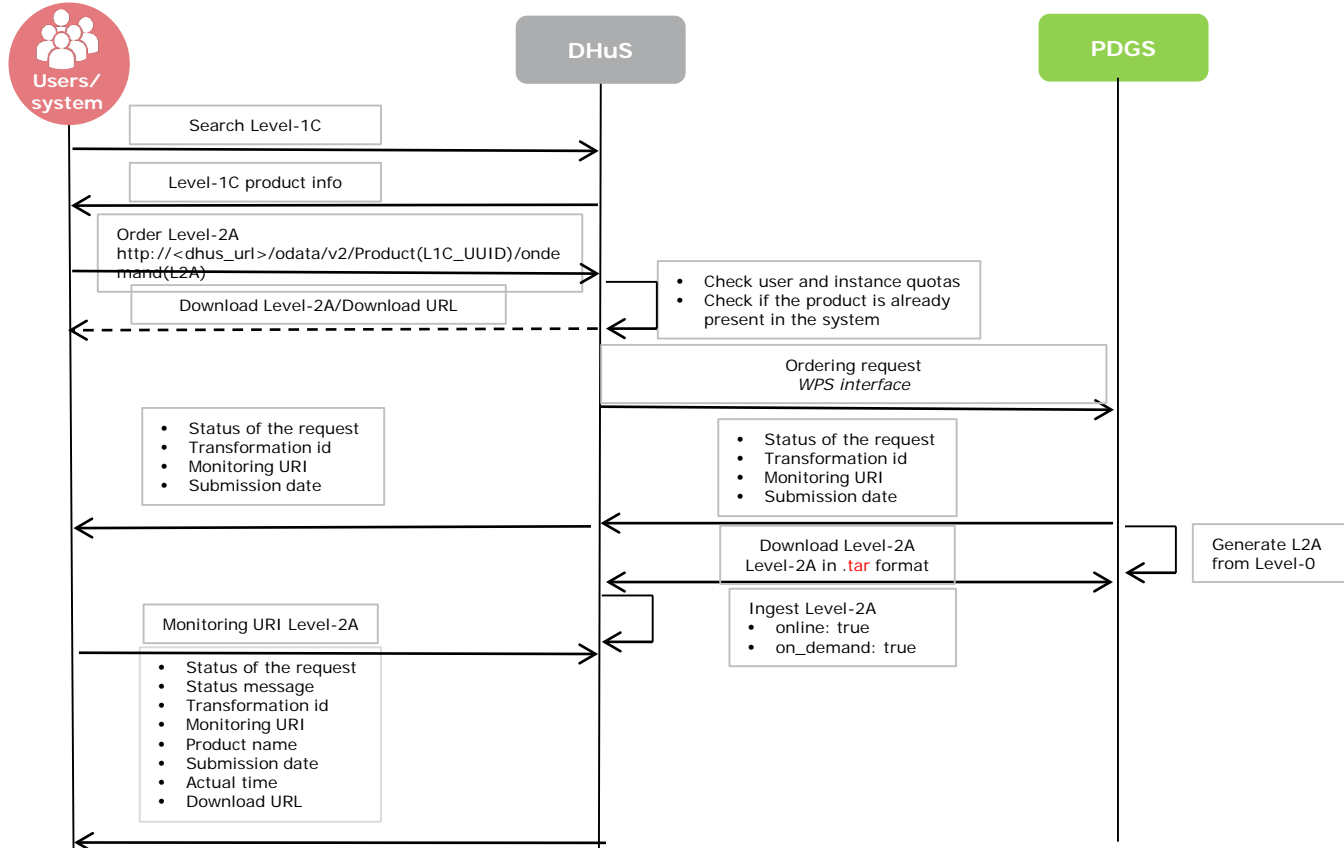


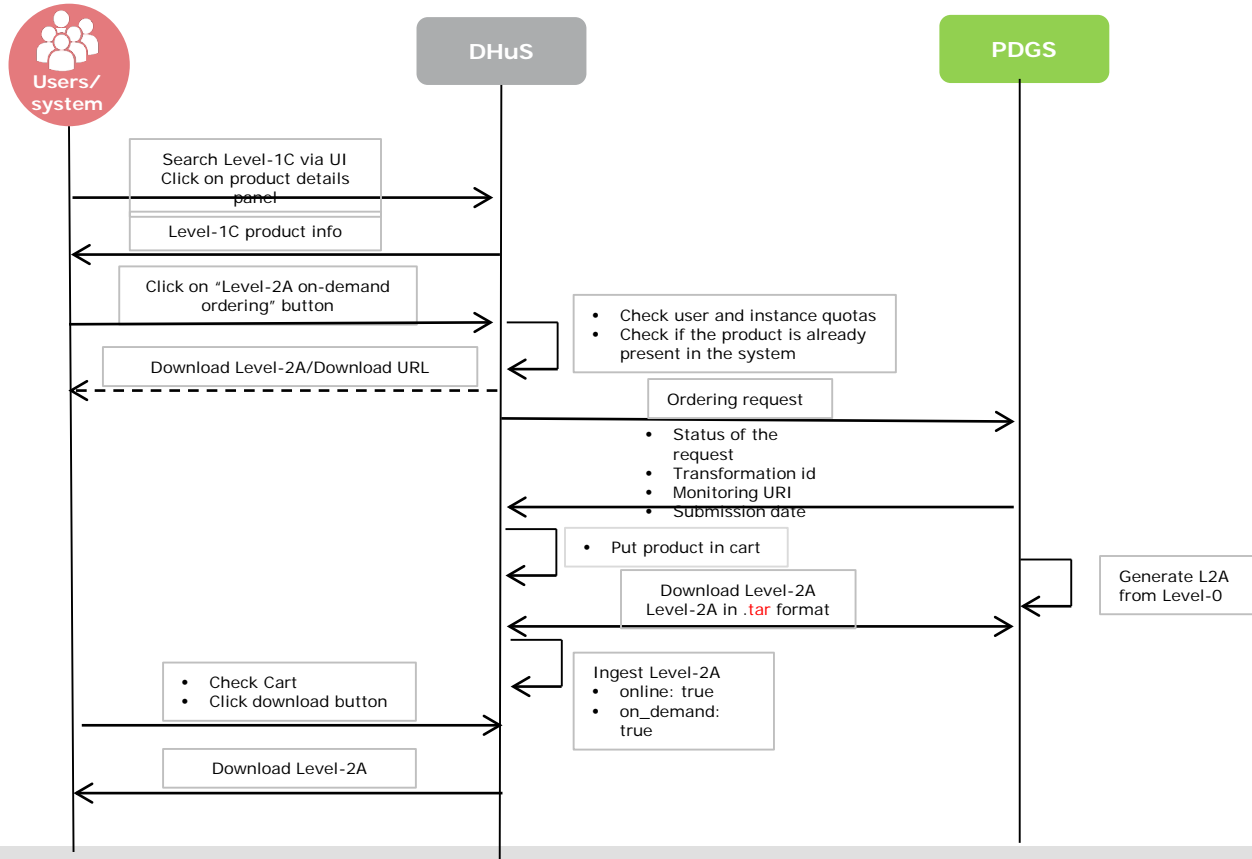
fig. 2 OData Transformation API

- Data Hub Service (DHuS) Transformations API Design available as TN, to be updated following final implementation
- OData – “Action” API first concrete implementation of the OData V4 standard for new interface
- External Interface Interaction similar to LTA interaction

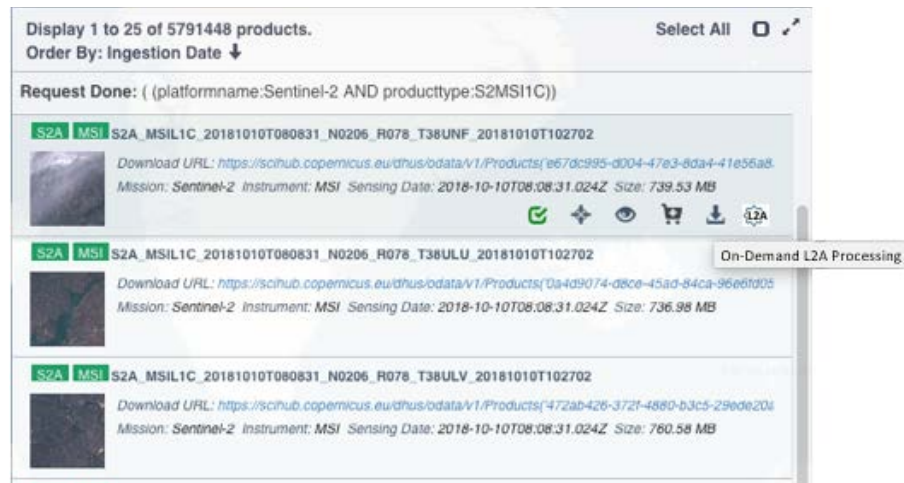
On-Demand Processing : Sentinel-2 Level 2A products – External Interface API



On-Demand Processing : Sentinel-2 Level 2A products – External Interface UI






UI Interface towards the users will be similar to the one of DHuS-PDGS LTA scenario



Display 1 to 25 of 5791448 products. Select All

Order By: Ingestion Date ↓

Request Done: ((platformname:Sentinel-2 AND producttype:S2MSI1C))

	S2A MSI S2A_MSIL1C_20181010T080831_N0206_R078_T38UNF_20181010T102702 Download URL: https://scihub.copernicus.eu/dhus/odata/v1/Products('e67dc995-d004-47e3-8da4-41e56a8...') Mission: Sentinel-2 Instrument: MSI Sensing Date: 2018-10-10T08:08:31.024Z Size: 739.53 MB
	S2A MSI S2A_MSIL1C_20181010T080831_N0206_R078_T38ULU_20181010T102702 Download URL: https://scihub.copernicus.eu/dhus/odata/v1/Products('0a4d9074-d8ce-45ad-84ca-96e61005...') Mission: Sentinel-2 Instrument: MSI Sensing Date: 2018-10-10T08:08:31.024Z Size: 736.98 MB
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On-Demand Processing : Sentinel-2 Level 2A products - Internal Interface



Scenario

Interface exposed by the PDGS

Sentinel-2 on-demand processing



WPS interface
(EICD-HP)-(ngEO-13-ICD-DLR-072)-(External ICD for Hosted Processing_Facilities).docx



- Implementation complete for mid-Dec.
- Interface for On-Demand via Sentinel-2 PDGS in place
- Integration test started, E2E integration planned early Q1 2019
- Operations in Q1 2019
- Validation of Pilot API as feedback for future evolution of Transformations
- TN and ICD to be can be made available pending final revisions
- Strong expectation of evolution of alternative interfaces (openstacks, containers, swarms ... unlocking elastic capacities)