Destination Earth Data Lake Harmonized Data Access (HDA)

Destination Earth HARMONISED

Contributed by EUMETSAT as part of the Destination Earth initiative, the HDA service offers seamless access to both "DestinE Data" and "Federated Data". The service is a REST-based API that enables users to search, discover, and access data from the DestinE Data portfolio, employing a federation model that integrates offerings from Federated Data Providers and co-localised data within the DestinE Data Lake.

Key Features

- **Unified Interface:** a single-entry point for accessing various data sources ٠
- **Standardization**: promoting interoperability among different systems.
- **Scalability**: designed to handle large amounts of data and accommodate ۲ growing demands, suitable for complex scientific applications.
- Flexibility: supports various data formats and protocols.
- **Improved Security**: ensures secure access control and authorization.
- **Integration with Other Systems**: seamlessly integrates with other systems, such as Digital Twins, allowing for streamlined workflow and enhanced productivity.

By leveraging these features, HDA empowers users to unlock the full potential of the Destination Earth Data Lake.



Multiple ways to access data

REST APIs

HDA exposes a set of **RESTful APIs for** programmatic access to data.

STAC API - Collections Part of STAC API v1.0.0-rc.3 - Collections definition						
GET /stac/collections The feature collections in the dataset.						
GET /stac/collections/{collectionId} Describe the feature Collection for the given `collectionId`.						
STAC API - Features Part of STAC API v1.0.0-rc.3 - Features definition						
GET /stac/collections/{collectionId}/items List of items avaiable in a given collection						
GET /stac/collections/{collectionId}/items/{featureId} Fetch a single feature.						
STAC API - Item Search Part of STAC API v1.0.0-rc.3 - Item Search definition						
GET /stac/search Search STAC items with simple filtering.						
POST /stac/search Search STAC items with full-featured filtering.						

Swagger UI for exploring and testing the API : https://hda.data.destination-earth.eu/docs/





EODAG^[6]

Earth Observation Data Access Gateway (EODAG) natively supports DEDL as a provider, allowing users





STAC^[7] compliant Interface

HDA provides a STAC 1.0.0compliant interface, allowing users to access datasets and services irrespective of the source protocol or access method, ensuring that the code used for data manipulation remains independent of the data source.

Multiple data provider sources

Multiple data provider sources can be referenced for a given collection improving the robustness of the solution



How to use EODAG in Destination Earth

to access Destination Earth data via its Python library or CLI client. An EODAG extension for JupyterLab is also available in the Stack **DEDL** Service.

PySTAC^[8]

STAC interface allows integration with STACcompatible tools, such as the PySTAC Python library, for discovering, visualising, and processing data in the DestinE Data Lake.



Ressources

HDA Notebook example using pySTAC



Chosen colle	ection:	EO.ECHNF.DAT.	CANS_SOLAR_RADIATION_TIMES	ERIES	
Fetch quer	yables				
sky_type	clear		~		
time_refere	true_:	solar_time	~		
format			~		
Properties 1	fetche	d successfully. A	pplicable filters		
Descri	ption	Туре	enum	value	7
sky	_type	"string"	clear , observed_cloud	"clear"	-
time_reference		"string"	<pre>true_solar_time , universal_time</pre>	"true_solar_time"	
1	ormat	"string"	csv , netcdf	"csv"	
"sky_tyj "eq" }, "time_ri "eq" } } For the nor	pe": { ": "cl eferen ": "tr n sele	ear" ce": { ue_solar_time" cted parameters	the default values, visib	le in the column 'va	lue' above, will be applied by det
Filtering	gao	ollection	with the list retur	med by the q	ueryable API
This section v	vil expl	ain how to use th	e list of variable terms returned	d by the queryables API	for filtering a specific dataset.
Build the	que	ry from the	selected values		
The parameter	we cho	ten in the previou	is steps can be used to build th	he corresponding HDA	ouerier

Queryables API

The queryable API is a valuable tool for exploring the full potential of filter and their valid combination for Digital Twin datasets and ECMWF datasets provided by Climate Data Store.

The API ensures the generation of valid filter combination for selected dataset.

Authors

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[4] **References**

[1] CloudFerro S.A. Nowogrodzka 31, Warsaw Poland [2] CS Group, avenue Galilée, LE Plessis Robinson, France [3] EODC, Franz-Grill-Straße 9, Vienna, Austria [4] EUMETSAT, Eumetsat-Allee 1, Darmstadt, Germany [5] Starion, Europaplatz 4. Darmstadt, Germany [6] EODAG - https://eodag.readthedocs.io/en/stable/ [7] STAC - https://stacspec.org/ [8] PySTAC - https://pystac.readthedocs.io/en/stable/





HDA Catalog



Destination Earth





Implemented by







