

TAP services for PSUP

IDOC - (Integrated Data and Operation Center)

IAS - (Institut d'Astrophysique Spatiale)

CNRS - (Centre national de la recherche scientifique)

Outline

- Context
 - PSUP - SITools2
 - VO Services
- DaCHS server for VESPA
 - VM idoc-dachs - config files on gitlab
- How to use
 - DaCHS Service Interface
 - VESPA Query Interface
 - Aladin
 - TOPCAT

Context

SITools 2



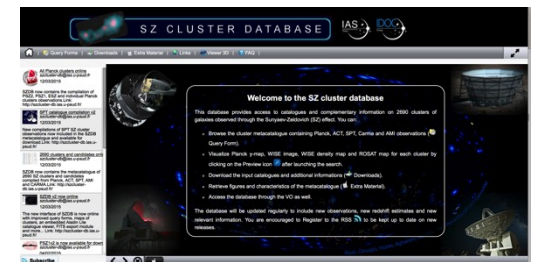
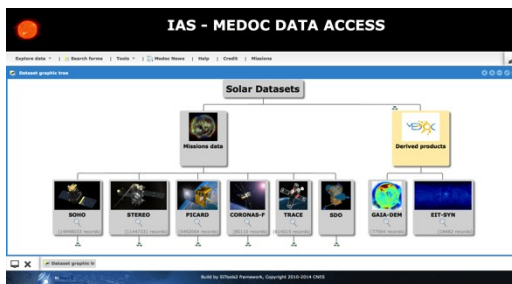
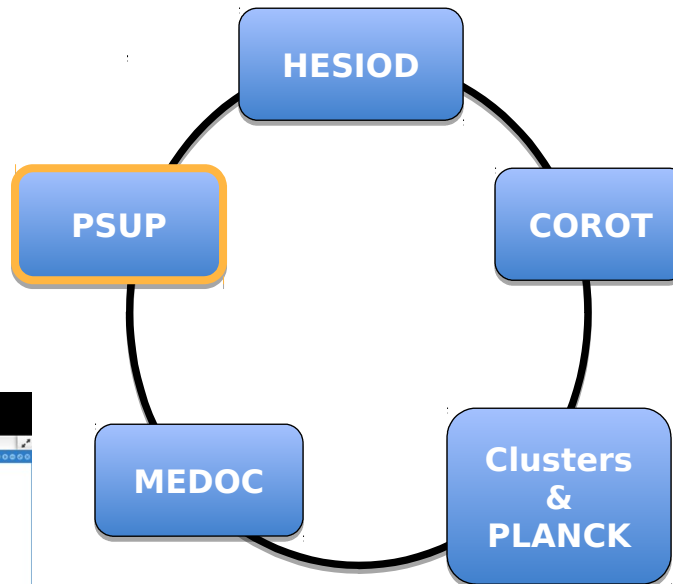
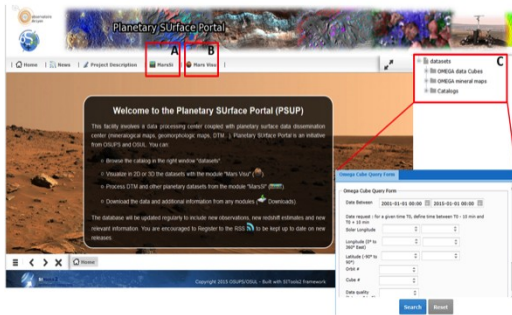
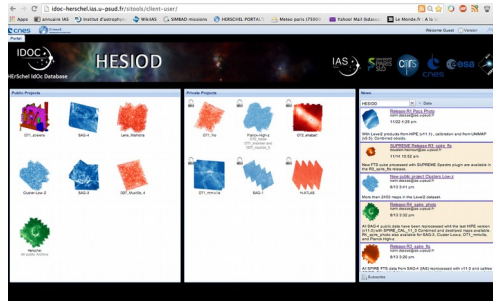
SITools2 is a CNES generic tool performed by a joint effort between CNES and scientific laboratories

- Java JEE Application
- Open source
- <https://github.com/SITools2/SITools2-core/projects>

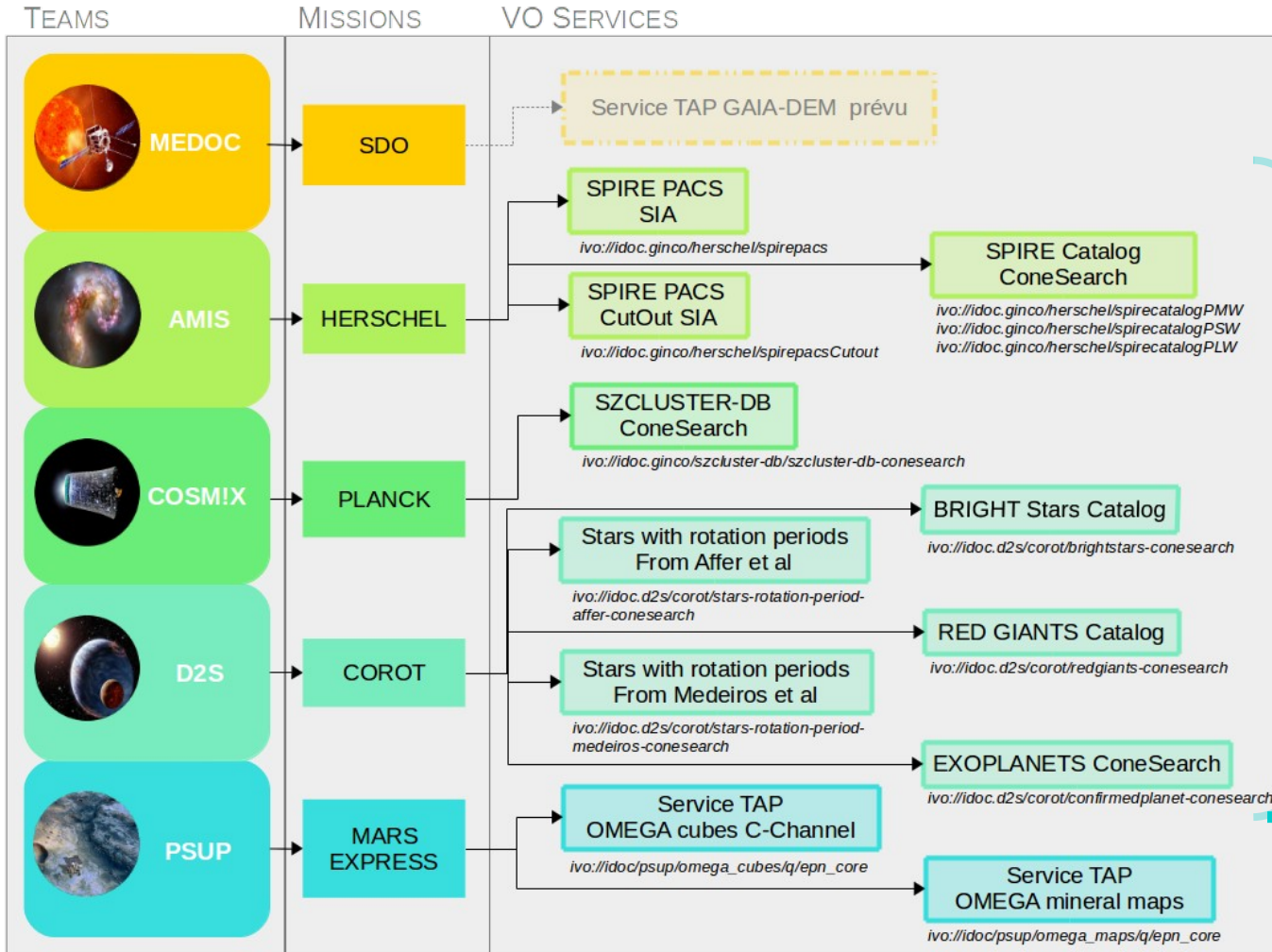


- Plugins VO
- Astronomy Extension => Services VO
- <https://github.com/SITools2/Astronomy-Extension-Server>
- Used for ConeSearch and SIA in some of IDOC instances
- **No plugin for TAP service => use of DaCHS server**

SITools2 IDOC Instances



IDOC VO services summary

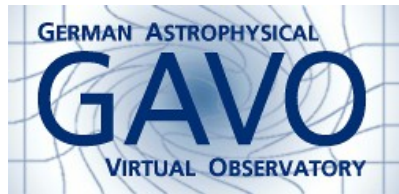


ConeSearch
And SIA services
Provided with
SITools2 plugins

TAP services
Provided with
DaCHS Server

DaCHS server for TAP service

DaCHS server for VESPA



DaCHS = GAVO Data Center Helper Suite

«The Data Center Helper Suite DaCHS is an integrated publication package for building VO and Web services, supporting the entire workflow from ingestion to data mapping to service definition. It implements all major data discovery, data access, and registry protocols defined by the VO» [[doi:10.1016/j.ascom.2014.08.003](https://doi.org/10.1016/j.ascom.2014.08.003)]



VESPA = Virtual European Solar and Planetary Access

«VESPA (Virtual European Solar and Planetary Access) is an activity in the Europlanet 2020 Research Infrastructure programme funded under the European Commission's Horizon 2020 programme. It aims at building a Virtual Observatory for Planetary Science, connecting all sorts of data in the field, and providing modern tools to retrieve, cross-correlate, and display data and results of scientific analyses.»



EPN-TAP = EuroPlaNet-Table Access Protocol

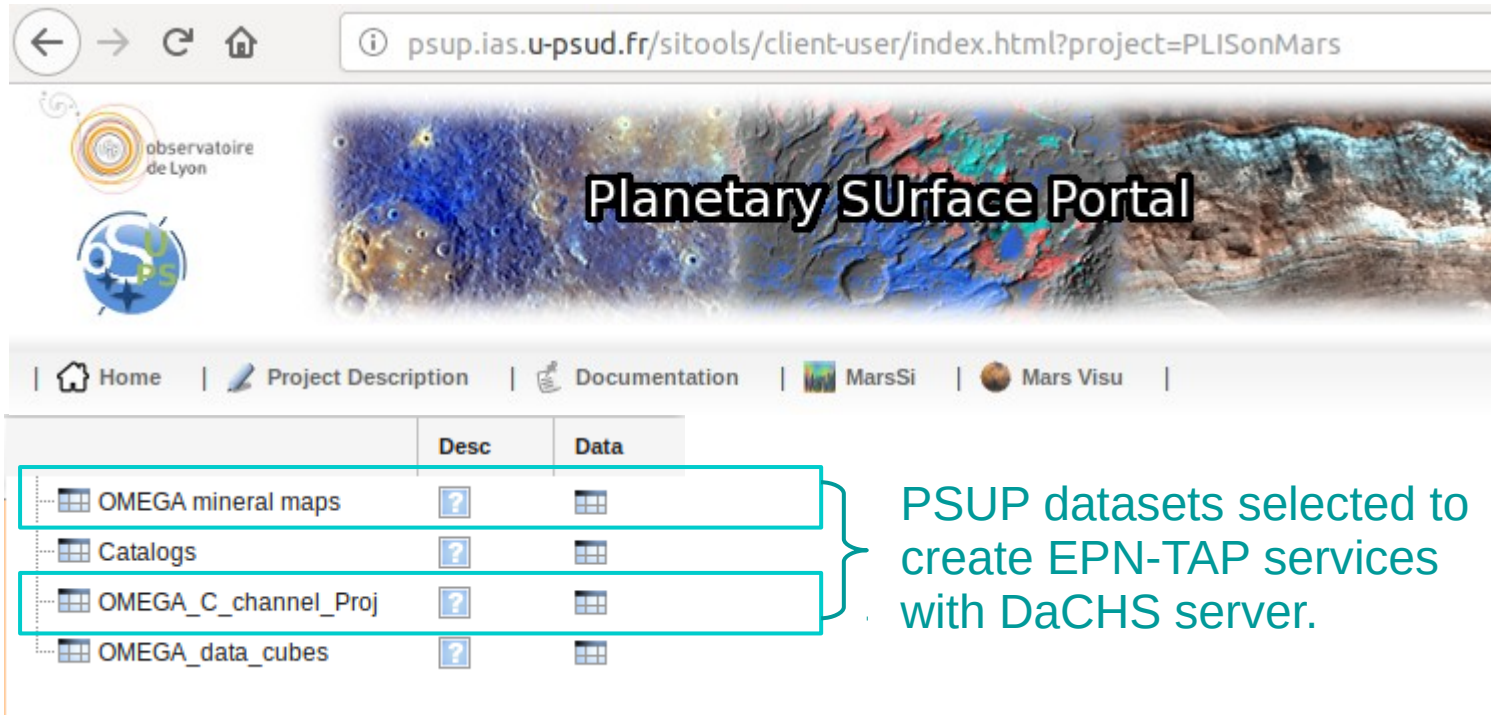
« A Data Access Protocol set up to search and retrieve Planetary Science data in general. This protocol will allow the user to select a subset of data from an archive in a standard way, based on the IVOA Table Access Protocol (TAP). » [[doi:10.1016/j.ascom.2014.07.008](https://doi.org/10.1016/j.ascom.2014.07.008)]



IDOC VM for DaCHS server

Creation of a Virtual Machine with DaCHS server following this [EPN-TAP tutorial](#) and attending [VESPA Workshop for data services in April 2018](#) in Prague.

Configuration of DaCHS services for two PSUP datasets :



psup.ias.u-psud.fr/sitools/client-user/index.html?project=PLISonMars

observatoire de Lyon

PSUP

Planetary Surface Portal

Home | Project Description | Documentation | MarsSi | Mars Visu

	Desc	Data
OMEGA mineral maps	?	
Catalogs	?	
OMEGA_C_channel_Proj	?	
OMEGA_data_cubes	?	

PSUP datasets selected to create EPN-TAP services with DaCHS server.

IDOC VM for DaCHS server

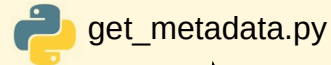
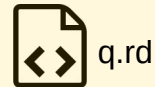
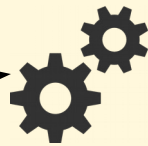
<http://idoc-dachs.ias.u-psud.fr>



PostgreSQL DB
« psup »

2 Tables copied from
«pgismars »

DaCHS server



EPN-TAP services

ivo://idoc/psup/omega_cubes/q/epn_core
ivo://idoc/psup/omega_maps/q/epn_core

+ **idoc-dachs data center
WEB interface**

<http://idoc-dachs.ias.u-psud.fr/>

<http://plis.ias.u-psud.fr>



PostgreSQL DB
« pgismars »

Tables of interest :
-rasters (mineral maps)
-omega_cubes_channel_c

<http://psup.ias.u-psud.fr>



PSUP SITools2
Instance

Datasets files



How to query IDOC TAP services

IDOC DaCHS Service Interface

http://idoc-dachs.ias.u-psud.fr/__system__/dc_tables/list/form



Help

Service info

Metadata

Identifier
[ivo://idoc/__system__/dc_t](#)

Description
An overview over the table
... within the idoc-dachs

Creator

Data updated
2017-12-04

Reference URL
[Service info](#)

[Try ADQL](#) to query our

idoc-dachs Public Tables

Result

Matched: 8


Send via SAMP

Quick Plot

Tablename	Info	Table desc.	Res desc.
omega_cubes.epn_core	Table Info	Mars Express - Omega Cubes	<p>*** PSUP Omega Cubes *** The database contains all the OMEGA C channel data. Filtering processes have been implemented to remove artefacts and observational conditions. OMEGA C channel data includes atmospheric and aerosol contributions. OMEGA is the spectro-imager of the Mars-Express mission, inserted on the martian orbit the 25th November 2003. The Observatories of Paris Sud (OSUPS) and Lyon (OSUL) have implemented the PSUP (Planetary Surface Portal), for providing users with efficient and dedicated data products dedicated to the Martian surface.</p>
omega_maps.epn_core	Table Info	Mars Express - Omega Mineral Maps	<p>*** PSUP Omega Maps *** PSUP Omega Mineral maps are OMEGA mineral maps (OMEGA BD530, Olivine SP1, SP2, SP3, Pyroxene and water BD maps). OMEGA is the spectro-imager of the ESA Mars-Express mission, inserted on the martian orbit the 25th November 2003. The Observatories of Paris Sud (OSUPS) and Lyon (OSUL) have implemented the PSUP (Planetary Surface Portal), for providing users with efficient and dedicated data products dedicated to the Martian surface.</p>

IDOC DaCHS Service Interface

http://idoc-dachs.ias.u-psud.fr/__system__/dc_tables/show/tableinfo/omega_cubes.epn_core



Metadata

Identifier
[ivo://idoc/psup/omega_cub](#)

Cite this
[Advice on citing this resour](#)

Description
Mars Express - Omega Cu

Keywords
Mars

Creator
IDOC

Table information for 'omega_cubes.epn_core'

General

Table Description: Mars Express - Omega Cubes

This table is available for ADQL queries and through the [TAP](#) endpoint.

Resource Description: *** PSUP Omega Cubes *** The database contains all the OMEGA observations acquired with the C channel. Filtering processes have been implemented to remove some instrumental artefacts and observational conditions. OMEGA C channel data cubes are corrected for atmospheric and aerosol contributions. OMEGA is the spectro-imaging instrument of the ESA Mars-Express mission, inserted on the martian orbit the 25th of December 2003. The Observatories of Paris Sud (OSUPS) and Lyon (OSUL) have implemented a portal, called PSUP (Planetary Surface Portal), for providing users with efficient and easy access to data products dedicated to the Martian surface. *** Scientific interest ***

For a list of **all services and tables** belonging to this table's resource, see [Information on resource 'L3 Omega Cubes - Mars Express'](#)

Further Information at: <http://psup.ias.u-psud.fr>

IDOC DaCHS Service Interface

http://idoc-dachs.ias.u-psud.fr/_system_/adql/query/form?__nevow_form.....



Help

Service info

Related

[Tables available for ADQL](#)

Metadata

Identifier

[ivo://idoc/_system_/adql](#)

Cite this

[Advice on citing this resource](#)

Description

An endpoint for submitting queries

Keywords

Virtual observatory

Creator

ADQL Query

Parameters

- ADQL query: `select * from omega_cubes.epn_core`

Result

Matched: 100

Query result probably incomplete due to the match limit kicking in. Queries not providing a TOP clause will be furnished with an automatic TOP 2000 by the machinery, so adding a TOP clause with a higher number may help.

Granule_uid	Granule_gid	Obs_id	Dataproduct_type	et_prod	Target_name	Target
47_1_sav	Omega_channelC_lambertian_reflectance_projected	47_1		sc		Mars
47_1_nc	Omega_channelC_lambertian_reflectance_projected	47_1		sc		Mars

VESPA Query Interface

<http://vespa.obspm.fr/planetary/data/ept/query/all/>




VESPA
Virtual European Solar and Planetary Access

All VO Custom resource Direct Query Advanced Query Help

Submit Reset

Main Parameters ▲

Target Name

Granule UID

Granule GID

VESPA Query Interface



EPN Resources

omega_cubes - L3 Omega Cubes from PSUP 7038 results

Omega spectral cubes from PSUP. The database contains OMEGA observations acquired with the C (short wavelength NIR) channel. Filtering processes have been implemented to remove some instrumental artefacts and observational conditions. OMEGA C channel data cubes are corrected for atmospheric and aerosol contributions. Data are available as netcdf and idl sav files.

Credits:
Creators: Karin Dassas
Contributors: IDOC
Publisher: Institut d'Astrophysique Spatiale - IDOC

abs cs - Data for numerical modeling of planetary atmospheres 0 result

VESPA Query Interface



Results in service [omega_cubes](#)

Show entries

Column visibility

Show all

Hide all

Select All in current page

Reset Selection

granule_uid	dataprodukt_type	target_name	time_min (d)	time_max (d)	access_url
998_5_sav	spectral_cube	Mars	2004-10-29T04:37:09.039	2004-10-29T04:44:48.077	http://psup.ias.u-ps...
998_5_nc	spectral_cube	Mars	2004-10-29T04:37:09.039	2004-10-29T04:44:48.077	http://psup.ias.u-ps...
998_4_sav	spectral_cube	Mars	2004-10-29T04:31:09.041	2004-10-29T04:36:49.085	http://psup.ias.u-ps...
998_4_nc	spectral_cube	Mars	2004-10-29T04:31:09.041	2004-10-29T04:36:49.085	http://psup.ias.u-ps...
997_5_sav	spectral_cube	Mars	2004-10-28T21:54:03.039	2004-10-28T22:01:42.076	http://psup.ias.u-ps...
997_5_nc	spectral_cube	Mars	2004-10-28T21:54:03.039	2004-10-28T22:01:42.076	http://psup.ias.u-ps...

Plotting tools



Example queries

Saturn in March 2012

Aladin



Download Aladin Desktop application

Aladin

Données disponibles → 14 / 22128

- Collections → 14 / 22125
 - Others → 14 / 1228
 - SIA (image) → 2 / 284
 - CS (table) → 9 / 555
 - TAP (table) → 3 / 222
 - idoc → 3
 - idoc-dachs TAP service
 - *L3 Omega Cubes - Mars Express
 - *Omega mineral maps - Mars Express

sélect.

dans

idoc/psup/omega_maps/q/epn_core

idoc/psup/omega_cubes/q/epn_core

CDS/P/DSS2/color

époq... -

taille -

dens. -

opac. -

zoom -

NGC 2244

New release

no preview

Tabular

Omega mineral maps - Mars Express ...

Couverture inconnue (aucun MOC disponible)

Mode d'accès ✓ par critères

idoc/psup/omega_maps/q/epn_core

TAP access with idoc/psup/omega_maps/q/epn_core

idoc/psup/omega_maps/q/epn_core Mode

Générez, vérifiez et exécutez votre requête.

Table:

Select: All Constraints: Max rows:


`SELECT TOP 10 * FROM omega_maps.epn_core`

Aladin

Commande **00:00:00.00 -90:00:00.0** x Référentiel **ICRS** Projection **Aitoff**

DSS SDSS ZMASS WISE GALEX PLANCK AKARI XMM Fermi Gaia Simbad NED +

http://psup.ias.u-psud.fr/sitools/datastorage/user/storage/marsdata/omega/fits/albedo_r10



193.6° x 180°

[Plane @1] - CDS/P/DSS2/color

access url	granule uid	granule gid	obs id	dataprodu	target na
http://psup.ias.u-psud.fr/sitools/datastorage/user/storage/marsdata/omega/fits/albedo_r10	olivine osp1 eq	Omega mineral...	olivine	map	Mars
http://psup.ias.u-psud.fr/sitools/datastorage/user/storage/marsdata/omega/fits/albedo_r10	olivine osp2 eq	Omega mineral...	olivine	map	Mars
http://psup.ias.u-psud.fr/sitools/datastorage/user/storage/marsdata/omega/fits/albedo_r10	olivine osp3 eq	Omega mineral...	olivine	map	Mars
http://psup.ias.u-psud.fr/sitools/datastorage/user/storage/marsdata/omega/fits/albedo_r10	albedo filled	Omega mineral...	albedo	map	Mars
http://psup.ias.u-psud.fr/sitools/datastorage/user/storage/marsdata/omega/fits/albedo_r10	pyroxene bd200	Omega mineral...	pyroxene	map	Mars
http://psup.ias.u-psud.fr/sitools/datastorage/user/storage/marsdata/omega/fits/albedo_r10	albedo unfilled	Omega mineral...	albedo	map	Mars
http://psup.ias.u-psud.fr/sitools/datastorage/user/storage/marsdata/omega/fits/albedo_r10	emissivite 5.03m	Omega mineral...	emissivity	map	Mars

grille exam. clone nord hdr multivues unif.

Montrer

- Réticule sur la position initiale du plan
- Parcourir les objets du plan**
- Sélectionner tous les objets des plans
- Désélectionner les objets
- Crée un graphe de points
- Crée un nouveau plan avec les objets

idoc/psup/omega_maps/q/epn...
 idoc/psup/omega_cubes/q/rope...
 http://psup.ias.u-psud.fr/sitools/c...
 CDS/P/DSS2/color

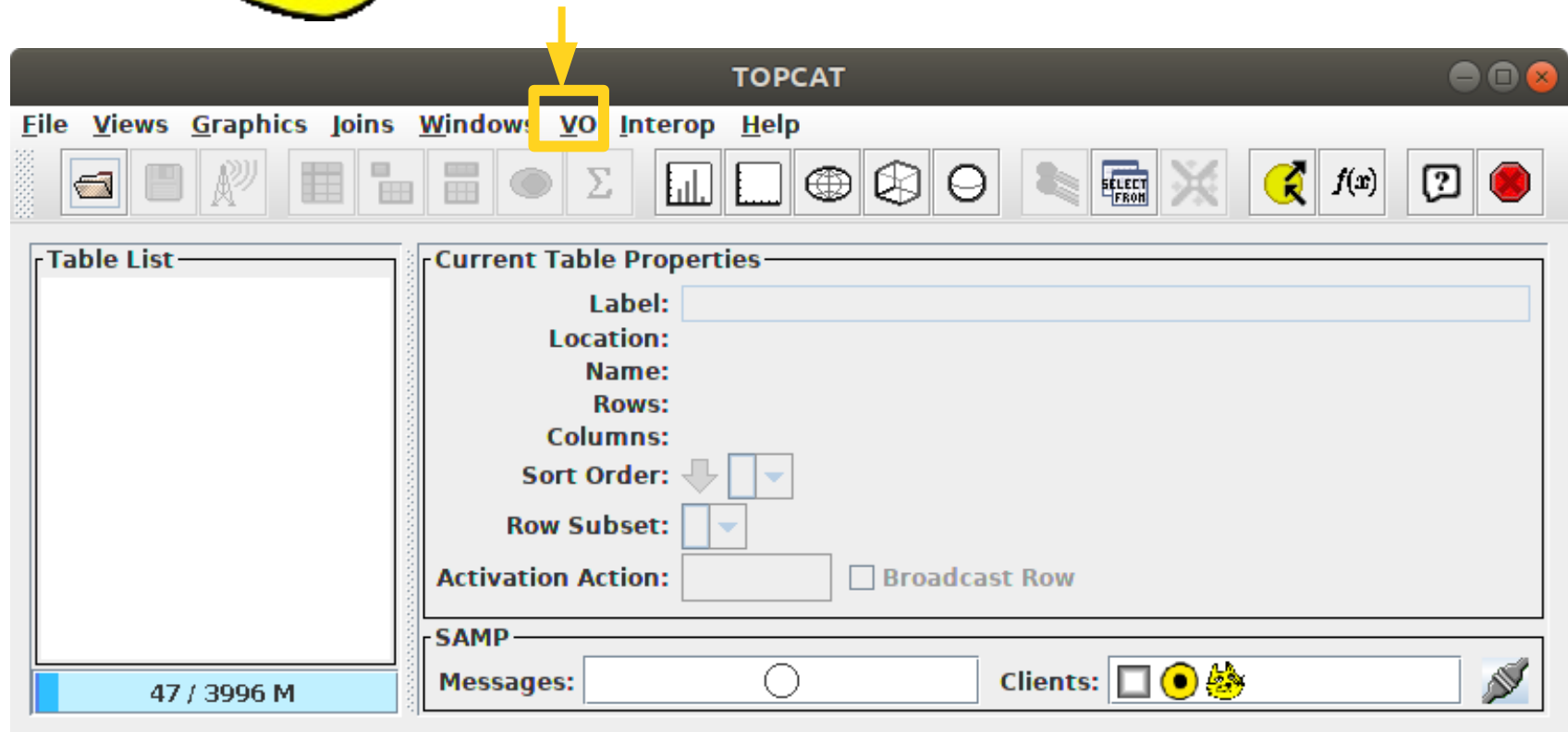
époque...
 taille...
 dens...
 opac...
 zoom...

9 sel / 20 src 71fps / 96

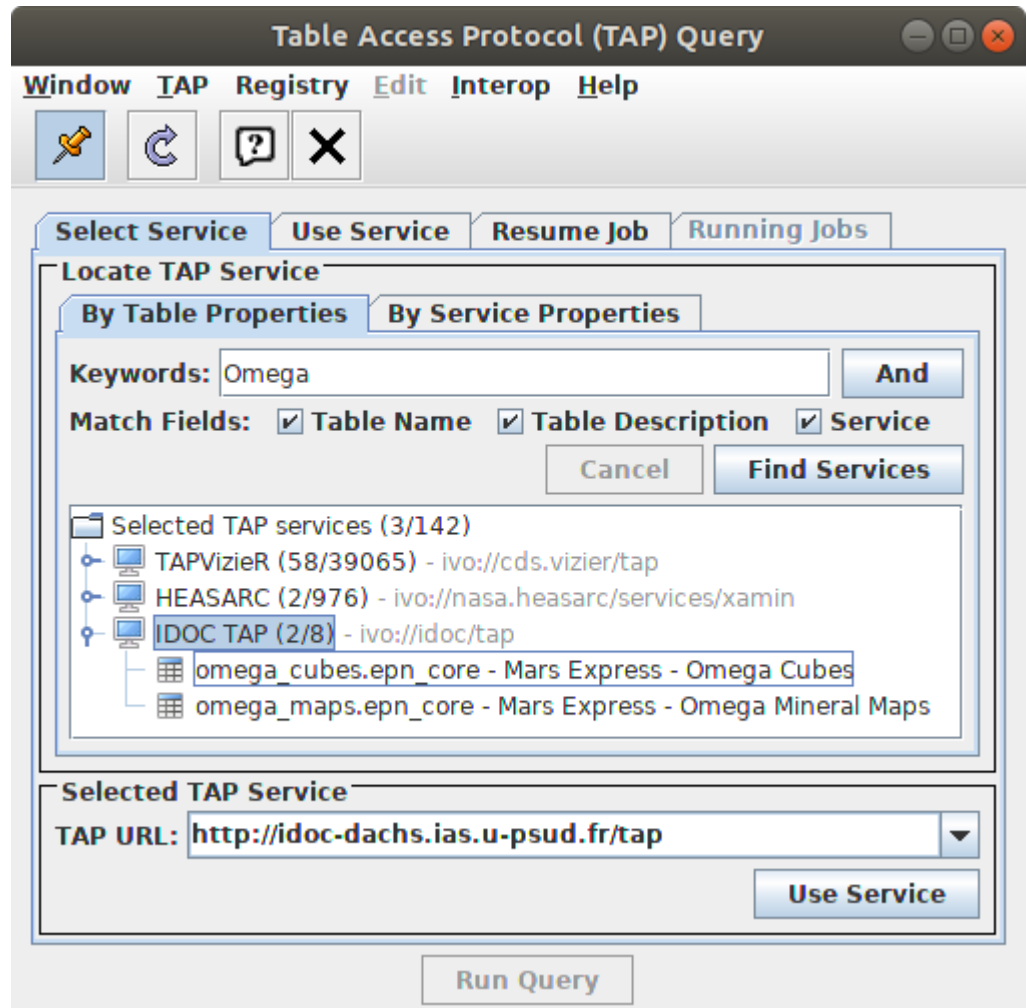
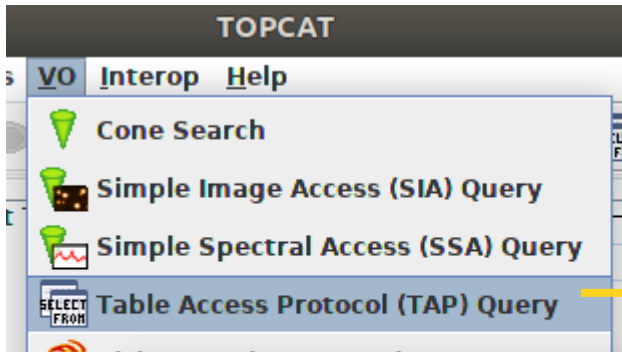
TOPCAT



Download TOPCAT Desktop application



TOPCAT



TOPCAT

Select Service Use Service Resume Job Running Jobs

Metadata

Find:

Name Descrip

- IDOC TAP (8)
 - omega_cubes (1)
 - omega_cubes.epn_core**
 - omega_maps (1)
 - omega_maps.epn_core
 - tap_schema (6)
 - tap_schema.columns
 - tap_schema.groups

Service	Schema	Table	Columns	FKeys	Hints
Name	DataType	Indexed	Unit		
granule_uid	char	<input checked="" type="checkbox"/>			Internal table row index
granule_gid	char	<input type="checkbox"/>			Common to granules of
obs_id	char	<input type="checkbox"/>			Associates granules deri
dataprodu	char	<input type="checkbox"/>			The high-level organizat
target_name	char	<input type="checkbox"/>			Standard IAU name of t
target_class	char	<input type="checkbox"/>			Type of target, from enu
time_min	double	<input type="checkbox"/>	d		Acquisition start time (in
time_max	double	<input type="checkbox"/>	d		Acquisition stop time (in

Service Capabilities

Query Language: ADQL-2.0 Max Rows: 20000 (default) Uploads: 20Mb

ADQL Text

Mode: Synchronous

`select * from omega_cubes.epn_core`

Examples

Run Query

TOPCAT

The screenshot shows the TOPCAT software interface. The main window has a menu bar (File, Views, Graphics, Joins, Windows, VO, Interop, Help) and a toolbar with various icons. The 'Table List' panel shows a table named '3: TAP_3_omega_cubes.epn_core' with a progress bar at 175 / 3996 M. The 'Current Table Properties' panel shows the label 'TAP_3_omega_cubes.epn_core' and SAMP options. A yellow arrow points from the 'Table List' icon in the toolbar to the 'Table Browser' window.

The 'Table Browser for 3: TAP_3_omega_cubes.epn_core' window displays a table with the following data:

	granule_uid	granule_gid	obs_id	datapr...	target_...	target_...	time_min
1	47_1_sav	Omega_channelC lambertian_reflectance proje...	47_1	sc	Mars	planet	2,453029E6
2	47_1_nc	Omega_channelC lambertian_reflectance proje...	47_1	sc	Mars	planet	2,453029E6
3	47_3_sav	Omega_channelC lambertian_reflectance proje...	47_3	sc	Mars	planet	2,453029E6
4	47_3_nc	Omega_channelC lambertian_reflectance proje...	47_3	sc	Mars	planet	2,453029E6
5	49_1_sav	Omega_channelC lambertian_reflectance proje...	49_1	sc	Mars	planet	2,453030E6
6	49_1_nc	Omega_channelC lambertian_reflectance proje...	49_1	sc	Mars	planet	2,453030E6
7	68_1_sav	Omega_channelC lambertian_reflectance proje...	68_1	sc	Mars	planet	2,453036E6