VISA at DESY

scientific analysis tools from your browser

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HELMHOLTZ RESEARCH FOR GRAND CHALLENGES

DESY.

Overview

- VISA portal originally developed by Institut Laue-Langevin during PaNOSC
- Adopted by member institutes of the project itself as well as by ExPaNDS members
- Currently setting up an MoU to
  - Build a community for further development of the portal software and exchange experiences
  - Ensure sustainable reuse of the portal software at multiple institutes
  - Disseminate the use of VISA to a wider audience
- Visa is currently in productive use at ILL and ESRF
- More institutes to join soon

- VISA allows scientific users to run data analysis tools in their browser on virtual hardware close to their data
- VISA allows to embrace **FAIR** data principles
  - Data catalogue integration in VISA makes data **Findable**
  - Storage integration at the hosting institutes makes data **Accessible**
  - Standardized data formats per scientific discipline make data **Interoperable**
  - Labelling data for open use after embargo periods makes it **Reusable**

VISA

Create an instance

Experiments

Select the experiments you wish to associate with your compute resource.

Search for experiments

Search for your experiments using the filters below

Instrument All instruments between 2017 and 2021 with open data included sort by date (newest first)

Proposal	Title	Instrument	Start Date	End Date	
p700002	FXE example data	EUXFEL-XMPL	27 Sept 2021	30 Dec 2021	SELECT
p700001	Detector Calibration Test Data	EUXFEL-XMPL	19 Jan 2019	20 Jan 2019	SELECT
CXIDB-ID-98	ExPaNDS Reference Data for Serial Crystallography	EUXFEL-SPB/SFX	30 Aug 2018	03 Sept 2018	SELECT
CXIDB-ID-103	Advances in long-wavelength native phasing at X-ray free-electron lasers	SwissFEL-Alvra	07 Aug 2018	10 Aug 2018	SELECT
p700000	Example Data	EUXFEL-XMPL	08 Nov 2017	31 Dec 2017	SELECT

Results per page 5 1 - 5 of 5 experiments

Computing Environment

Choose an environment

VISA_Apptainer

VISA image with Apptainer (former Singularity) preinstalled.

VISA_CrystFEL

VISA Image with latest CrystFEL installed.

Choose hardware requirements

4 Cores
8GB memory

Large

8 Cores
16GB memory

XLarge

VISA

Work with JupyterLab

Example by Silvan Schön (DESY/FS-SC):
Using CrystFEL Docker Images to run Singularity Container in a Jupyter Notebook (on a Bash Kernel).

VISA

Work with Remote Desktop

Example by Silvan Schön (DESY/FS-SC)
Using CrystFEL Docker Images to run Singularity Container and work with Crystfel 10 Graphical Interface.

VISA

Interoperable workflow that seamlessly extends to Maxwell HPC Infrastructure

Example by Silvan Schön (DESY/FS-SC)
Use VISA to upload notebook to Maxwell HPC Cluster, Notebook + Slurm Job
Interoperable: Run same analysis, same data (CrystFEL 10 Singularity Container)

VISA hosted at DESY

Architecture Overview (Data Analysis Platform)

Deploy to … Production, Staging

Out of many: VISA Portal, Helmholtz Cloud Portal, …

```
$ helm repo list | grep visa
visa-stable     https://gitlab.desy.de/api/v4/projects/2921/packages/helm/stable
visa-staging    https://gitlab.desy.de/api/v4/projects/2921/packages/helm/staging
visa-testing    https://gitlab.desy.de/api/v4/projects/2921/packages/helm/testing
```

flux

Workflow for updating the VISA deployment branches

- https://visa.desy.de
- https://visa-staging.desy.de

AAI

Keycloak

```
dn: uid=******-dlr-f,ou=people,ou=rgy,o=desy,c=de
[...]
displayName: ******, ****** (******-dlr-f)
mail: ******@dlr.de
uid: ******-dlr-f        ←--- persistent uids
UidNumber: 1001234       ←--- persistent uid numbers
```

- keycloak.desy.de established on the same k8s platform
- Local:
  - DESY Registry Accounts (LDAP)
  - DOOR accounts
- Federations:
  - Helmholtz AAI
  - EGI Check-in
  - Github
- Importing accounts and assigning persistent uids
- OIDC clients managed on-premise
- Single Sign On for DESY Services

EGI

Federated cloud

- Horizontal infrastructure
- Federated IaaS, cloud interface
- Common AAI
- Shared images, software repos
- Collaborate on monitoring, accounting, development, security, documentation, …
- Run analysis where the data is

Storage

Data Lake and File Transfer Service

EOSC Marketplace
1207844 (2/8/23) entries in data category

OpenAIRE ResearchGraph

Prototype in place for direct file transfer

FTS dCache

Thank you

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Questions?

Demonstration of the VISA portal:

today 15:30 – 15:55 at the EGI Booth A (Room Amsterdam)

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