

ACH-04 - IPPLM/PSNC

Integrated Modelling and Control

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The ITER Integrated Modelling & Analysis Suite (IMAS)

ACH-04 works towards making IMAS environment available at EUROfusion's computing resources: **Gateway** and **Pitagora**.

Our activities revolve around installation, maintenance, and providing support to users.

Environment we provide is composed of the software commonly used for fusion related computations.

```
> module load ach-modules
> module load imasenv
```

EUROfusion Software Stack

DevOps platform for a EUROfusion Standard Software

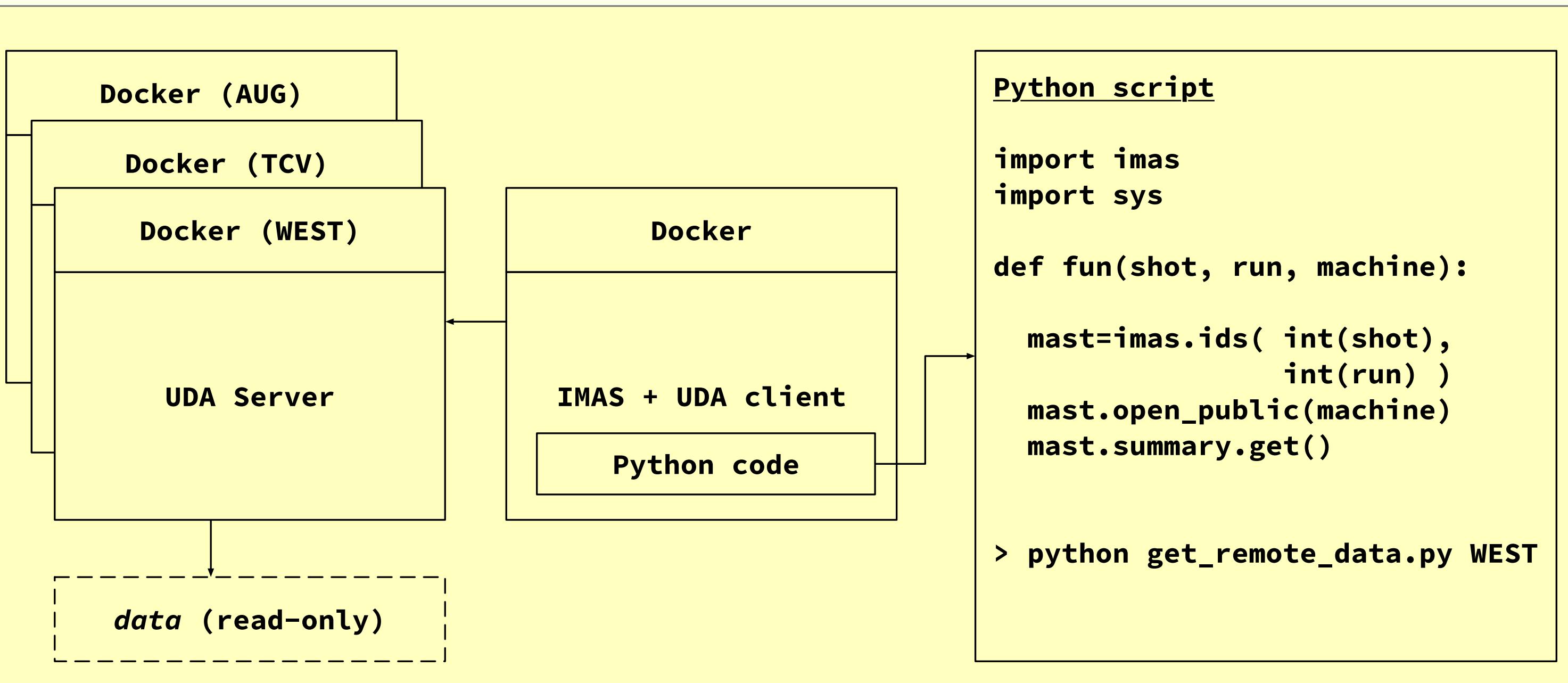
ACH-04 hosts a complete, fully integrated, DevOps platform. It significantly improves the developer experience when building and delivering code. We provide following components:

- <https://gitlab.eufus.psnc.pl> - source code control
- <https://jira.eufus.psnc.pl> - your primary ACH-04 contact point
- <https://confluence.eufus.psnc.pl> - powerful WIKI system
- <https://chat.eufus.psnc.pl> - chat and knowledge sharing system

Containerised infrastructure-agnostic components

Docker based release of IMAS allows developers to provide IMAS based solutions in a convenient way. They can be easily made **laptop**, **HPC** and **Cloud ready** at the same time. One component that runs everywhere.

A Docker based UDA (Universal Data Access) client/server solution is an example of how containerization benefits can be leveraged.



Adaptation of codes to IMAS framework

ACH-04 provides support for adapting simulation and analysis codes to the IMAS framework. This work spans several complementary activities:

- interface development: IMAS ↔ code native data formats
- containerized integration: Docker based IMAS wrappers
- Python integration: Python based IMAS wrappers
- Data Model changes: new physical quantities in IMAS Data Dictionary
- workflow integration: adapting codes to the MUSCLE3 framework
- workflow benchmarking: benchmarks of integrated workflows

Authorization and Authentication Infrastructure (AAI)

ACH-04 provides Keycloak based Authorization and Authentication Infrastructure integrated with standard EUROfusion mechanisms (IMS located at IPP). It is possible to use it as IdP for your projects.

Implementation of Data Management Plan

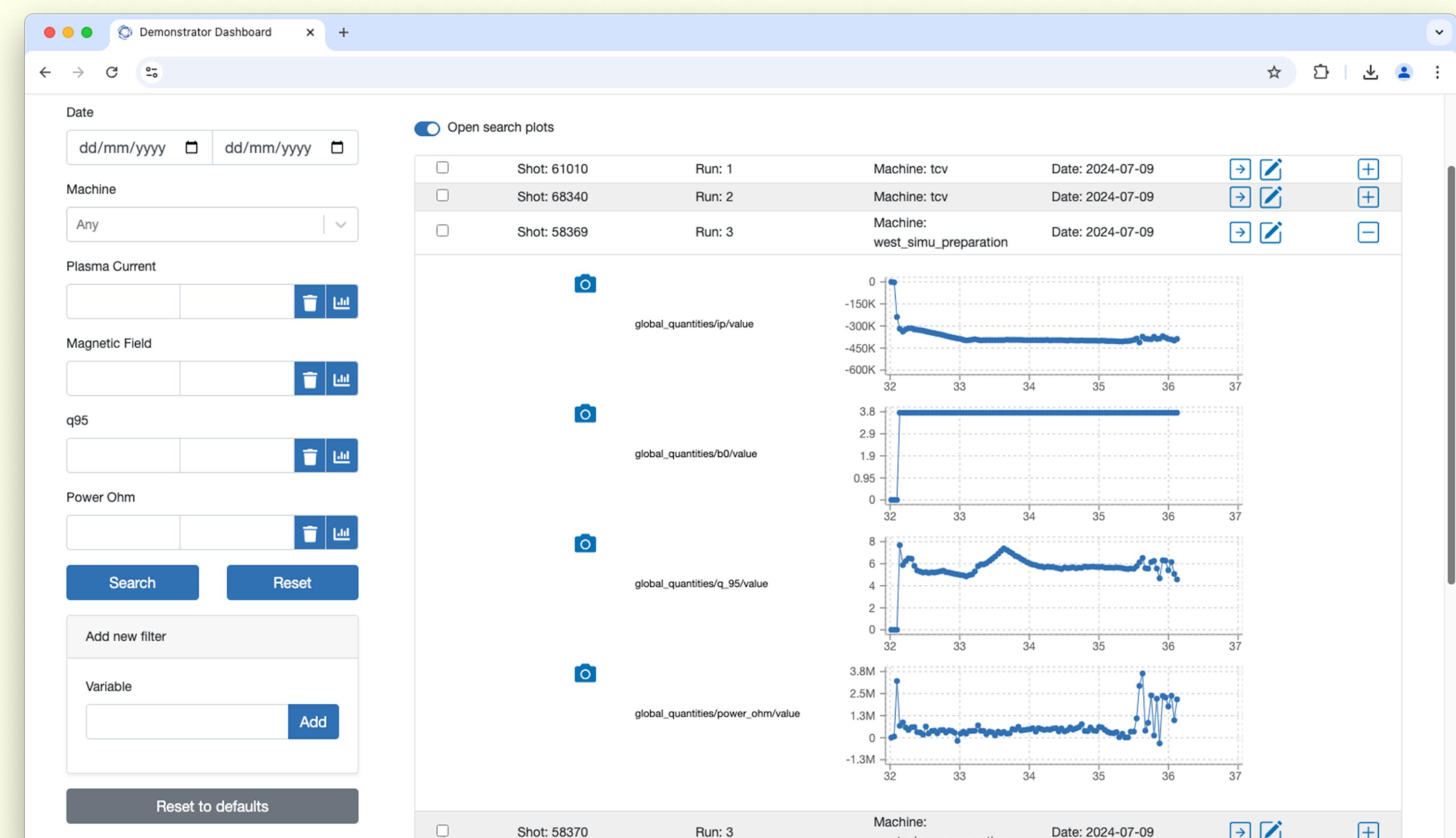
The main goal of Data Management Plan project is to provide access to metadata generated during operation of fusion devices

AUG, COMPASS(U), JET, MAST(U), TCV, WEST.

Simulation Catalogue

The aim to overcome the challenges of retrieving data from various data sources, e.g.: *dealing with proprietary data formats, accessing remote locations, managing different data access policies and credentials*.

It is planned to include new data sources in the future as well as providing data to a general public audience.



Conclusions

- If you are facing challenges with:
 - making your code IMAS ready and running it at **Gateway/Pitagora**
 - improving code robustness through stronger **DevOps** practices
 - identifying the right platforms for project related activities (**JIRA/Gitlab**)
 - distributing your work as containerized codes
 - sharing result metadata with the wider community

please reach out to us via the ACH-04 Support portal:

<https://jira.eufus.psnc.pl/browse/ACH04SUPP>

