

Update on IMAS databases

O. Hoenen
ITER Organization

Disclaimer: The views and opinions expressed herein do not necessarily reflect those of the ITER Organization

Multi-machine Databases in IMAS

- August 2021: internship on H-mode ITPA DB mapping ([ITER_D_5J5JKR](#))
- September 2021: mapping tool made available in [idstools/1.10.0](#), and mentioned at ITPA-TC
- October 2021: presentation of tool and needs in a dedicated meeting with EUROfusion ([ITER_D_5JWPFH](#))
 - Early exchanges with A. Dinklage on IMAS basics, towards mapping a Stellerator Confinement Database (ISCDB)
 - Mention of interest in mapping to IMAS from GKDB (Austin, US) – no contact yet
 - Mention of issues faced by E. Peluso with mapping of 0D/1D DB (JET1/MST1), including IDS definition and lack of documentation for IO mapping tool – no contact yet
- November 2021: IAEA TM on AI/ML for Fusion, with many discussions around databases for training algorithms (→ to iterate towards a CRP).

IMAS Database Management

- **SimDB**

<https://git.iter.org/projects/IMEX/repos/simdb>

- **Client** (0.5.0) available on SDCC
- CLI to ingest simulation meta-data (summary and dataset_description IDs) to a local DBMS, can then be pushed to a remote server (with data)
- Requires fully-functional URI API in Access-Layer (in-progress)
- **Server** (REST API) and **Dashboard** (web frontend for SimDB server) are installed for tests from SDCC (<https://io-ls-simdb01.iter.org>)

The image displays two overlapping screenshots of the SimDB interface. The top screenshot shows the 'SimDB Dashboard' with a search filter for 'io-ls-simdb01.iter.org' and search results for simulation IDs 130010/20, 130011/4, and 130012/2. The bottom screenshot shows the 'SimDB REST API' interface with a 'default' namespace and a 'simulations' collection. It lists endpoints for 'POST', 'DELETE', and 'GET' on simulation metadata. Below this, a 'Parameters' section shows 'sim_id' as a required parameter. A 'Responses' section shows a 200 status code for a successful request. At the bottom, a 'Summary Global Quantities Energy Total Value' chart is visible, showing energy values over time for two simulation runs (130011/3 and 130012/2).