

DMP Implementation Status of IPP

2026-09-23

Updated AUG summary IDS

- IMAS uses li_3, AUG has li_1
 - Needed to be able to correct this
 - Introduced the ability to have expressions
 - "li3": {
 - "calc": "li['data'] * 2 * volume['data'] / (Rgeo['data'] * Circumference['data']**2)",
 - "timeref": "li['time']",
 - "summary": "global_quantities/li"
 - },
- Added some additional signals
 - <https://docs.google.com/spreadsheets/d/1IX61xqM6sDMjbwpr-HG5NR8tlbauQ-NkCxZeKhXjYKY/edit?gid=1047540999#gid=1047540999> should be up-to-date

Updated AUG summary IDS

```
summary
├── ids_properties
│   ├── comment: 'Using fill_summary.py'
│   ├── homogeneous_time: 1
│   ├── source: '/toks/scratch/dpc/FAIR4fusion/aug-summary-ingestion/fill_summary.py'
│   ├── provider: 'dpc'
│   ├── creation_date: '2026/09/21'
│   └── ids_properties/version_put
│       ├── data_dictionary: '3.42.0'
│       ├── access_layer: '5.6.0'
│       └── access_layer_language: 'IMAS-Python 2.3.0'
└── tag
    ├── name:
    │   ├── '{"description": "*** AT pedestal at different beta_pol and fueling\\nchanged beta_pol FB, same n0div - worked well\\nHappy anniversary ASDEX Upgrade!!!"}'
    │   └── comment: 'Additional data for which there is no home in the summary IDS.'
    └──
```

Updated AUG summary IDS

```
global_quantities
├── global_quantities/ip
│   ├── value: array([307070.4048, 336141.3362, 365356.8183, ..., 218876.179 , 163851.2793, 108095.5337], shape=(63,))
│   ├── value_error_upper: array([22183.9713, 12710.8831, 8745.2933, ..., 15263.3538, 16016.9171, 15832.5637], shape=(63,))
│   └── source: 'AUGD: FPC / IpiFP / 1'
├── global_quantities/v_loop
│   ├── value: array([ 1.8923, 1.5538, 1.6205, ..., 0.2671, -0.0677, -0.2575], shape=(63,))
│   ├── value_error_upper: array([2.4623, 0.3042, 0.1769, ..., 0.1262, 0.0897, 0.0542], shape=(63,))
│   └── source: 'AUGD: TOT / u_loop / 2'
├── global_quantities/li
│   ├── value: array([0.6632, 0.7114, 0.8991, ..., 1.1131, 1.1728, 1.1211], shape=(63,))
│   ├── value_error_upper: array([0.0171, 0.0428, 0.0665, ..., 0.0275, 0.0746, 0.1486], shape=(63,))
│   └── source: "li['data'] * 2 * volume['data'] / (Rgeo['data'] * Circumference['data']**2)"
├── global_quantities/beta_pol
│   ├── value: array([0.1469, 0.2429, 0.2989, ..., 0.6562, 0.7555, 0.9998], shape=(63,))
│   ├── value_error_upper: array([0.0449, 0.0177, 0.0145, ..., 0.0392, 0.0533, 0.1239], shape=(63,))
│   └── source: 'AUGD: GQH / betpol / 4'
├── global_quantities/energy_mhd
│   ├── value: array([10415.8966, 19556.2907, 28493.7467, ..., 20540.5701, 14686.833 , 8781.4897], shape=(63,))
│   ├── value_error_upper: array([3146.5141, 2456.4336, 1595.9606, ..., 1604.1246, 2037.3077, 1478.371 ], shape=(63,))
│   └── source: 'AUGD: GQH / Wmhd / 4'
├── global_quantities/energy_thermal
│   ├── value: array([ 7864.8544, 3204.8928, 297.0379, ..., 11476.7336, 8531.8016, 5657.7535], shape=(63,))
│   ├── value_error_upper: array([1718.8455, 2343.0558, 1482.6959, ..., 1263.1172, 658.2796, 1034.9618], shape=(63,))
│   └── source: 'AUGD: TOT / Wth / 2'
├── global_quantities/denergy_thermal_dt
│   ├── value: array([0., 0., 0., ..., 0., 0., 0.], shape=(63,))
│   ├── value_error_upper: array([0., 0., 0., ..., 0., 0., 0.], shape=(63,))
│   └── source: 'AUGD: TOT / dWmhd/dt / 2'
├── global_quantities/volume
│   ├── value: array([10.0317, 10.3406, 11.8302, ..., 11.9763, 10.7261, 8.9519], shape=(63,))
│   ├── value_error_upper: array([0.9492, 0.4256, 0.6607, ..., 0.3804, 0.6481, 0.4603], shape=(63,))
│   └── source: 'AUGD: GQH / Vol / 4'
└── global_quantities/r0
    ├── value: 1.65
    ├── value_error_upper: 0.0
    └── source: 'Official AUG value'
```

Updated AUG summary IDS

```
global_quantities/b0
  value: array([-2.5017, -2.5023, -2.5033, ..., -2.4987, -2.4985, -2.4983], shape=(63,))
  value_error_upper: array([0.0008, 0.0005, 0.0005, ..., 0.0005, 0.0004, 0.0005], shape=(63,))
  source: 'AUGD: MAI / BTF / -1'

global_quantities/h_98
  value: array([0.3003, 0.0988, 0.0055, ..., 0.7653, 1.5633, 1.2908], shape=(63,))
  value_error_upper: array([0.1998, 0.0764, 0.0273, ..., 0.2563, 0.3771, 0.0758], shape=(63,))
  source: 'AUGD: TTH / H/L-facs;7 / 1'

global_quantities/tau_energy
  value: array([5.8627e-02, 6.0024e-03, 3.2319e-04, ..., 3.3164e-01, 1.4073e+00, 2.1002e-01], shape=(63,))
  value_error_upper: array([0.1032, 0.0045, 0.0016, ..., 0.4556, 1.4645, 0.0418], shape=(63,))
  source: 'AUGD: TOT / tau_tot / 2'

global_quantities/q_95
  value: array([-9.6898, -9.3104, -9.7646, ..., -18.9436, -21.6168, -27.7312], shape=(63,))
  value_error_upper: array([0.7476, 0.1232, 0.2441, ..., 0.7595, 1.3708, 2.8158], shape=(63,))
  source: 'AUGD: GQH / q95 / 4'

global_quantities/power_ohm
  value: array([554271.7725, 519838.2109, 595646.6094, ..., 60407.3739, 13207.1309, 27255.2155], shape=(63,))
  value_error_upper: array([630164.6181, 93694.7563, 75077.0253, ..., 31527.9742, 9964.7344, 3144.8895], shape=(63,))
  source: 'AUGD: TOT / P_OH / 2'

global_quantities/power_steady
  value: array([554271.7725, 519838.2109, 595646.6094, ..., 60407.3739, 13207.1309, 27255.2155], shape=(63,))
  value_error_upper: array([630164.6181, 93694.7563, 75077.0253, ..., 31527.9742, 9964.7344, 3144.8895], shape=(63,))
  source: 'AUGD: TOT / P_TOT / 2'

global_quantities/power_radiated
  value: array([143434.64, 139695.8428, 130240.6765, ..., 271304.1301, 181298.4428, 109633.0175], shape=(63,))
  value_error_upper: array([111174.3473, 89179.2822, 77075.702, ..., 76983.56, 52363.4463, 40952.1611], shape=(63,))
  source: 'AUGD: BPD / Pradtot / 1'
```

Updated AUG summary IDS

```
boundary
├── boundary/geometric_axis_r
│   ├── value: array([1.5664, 1.5716, 1.5754, ..., 1.5474, 1.5342, 1.5082], shape=(63,))
│   ├── value_error_upper: array([0.0143, 0.0046, 0.0073, ..., 0.0082, 0.0126, 0.0065], shape=(63,))
│   └── source: 'AUGD: GQH / Rgeo / 4'
├── boundary/geometric_axis_z
│   ├── value: array([ 0.0129, 0.0066, 0.0198, ..., -0.0203, -0.0194, -0.0107], shape=(63,))
│   ├── value_error_upper: array([0.0046, 0.0042, 0.0041, ..., 0.0041, 0.0116, 0.004 ], shape=(63,))
│   └── source: 'AUGD: GQH / Zgeo / 4'
├── boundary/magnetic_axis_r
│   ├── value: array([1.6225, 1.6378, 1.6538, ..., 1.6376, 1.6229, 1.6028], shape=(63,))
│   ├── value_error_upper: array([0.0139, 0.0074, 0.0111, ..., 0.0086, 0.0145, 0.0103], shape=(63,))
│   └── source: 'AUGD: GQH / Rmag / 4'
├── boundary/magnetic_axis_z
│   ├── value: array([0.0128, 0.0112, 0.0345, ..., 0.02 , 0.0109, 0.013 ], shape=(63,))
│   ├── value_error_upper: array([0.0038, 0.006 , 0.0038, ..., 0.0055, 0.0065, 0.0063], shape=(63,))
│   └── source: 'AUGD: GQH / Zmag / 4'
├── boundary/minor_radius
│   ├── value: array([0.5261, 0.5315, 0.5396, ..., 0.5137, 0.5001, 0.4538], shape=(63,))
│   ├── value_error_upper: array([0.0134, 0.0049, 0.0083, ..., 0.0037, 0.0082, 0.0628], shape=(63,))
│   └── source: "(Raus['data'] - Rin['data']) / 2"
├── boundary/elongation
│   ├── value: array([1.1625, 1.1733, 1.3098, ..., 1.5281, 1.4418, 1.3395], shape=(63,))
│   ├── value_error_upper: array([0.0379, 0.0297, 0.0319, ..., 0.0301, 0.0386, 0.0323], shape=(63,))
│   └── source: 'AUGD: GQH / k / 4'
├── boundary/triangularity_upper
│   ├── value: array([0.0196, 0.0053, 0.0085, ..., 0.0109, 0.0199, 0.1082], shape=(63,))
│   ├── value_error_upper: array([0.0096, 0.0061, 0.0052, ..., 0.0033, 0.0112, 0.2329], shape=(63,))
│   └── source: 'AUGD: GQH / delRoben / 4'
└── boundary/triangularity_lower
    ├── value: array([0.0398, 0.062 , 0.126 , ..., 0.1508, 0.2329, 0.2966], shape=(63,))
    ├── value_error_upper: array([0.0083, 0.0117, 0.0236, ..., 0.1661, 0.0665, 0.2647], shape=(63,))
    └── source: 'AUGD: GQH / delRuntn / 4'
```

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```
line_average
└─ line_average/n_e
   └─ value: array([1.1040e+19, 1.2490e+19, 1.2759e+19, ..., 2.2008e+19, 1.4211e+19, 1.0481e+19], shape=(63,))
      └─ value_error_upper: array([2.3626e+18, 3.4643e+17, 4.5150e+17, ..., 2.9634e+18, 1.4620e+18, 8.2895e+17], shape=(63,))
         └─ source: 'AUGD: DCN / H-0 / -1'

fusion
└─ fusion/neutron_rates
   └─ fusion/neutron_rates/total
      └─ value: array([1.2283e+09, 3.0248e+10, 7.3095e+10, ..., 8.5476e+10, 7.7762e+10, 3.0415e+10], shape=(63,))
         └─ value_error_upper: array([5.6745e+09, 5.9577e+10, 1.1323e+11, ..., 1.2366e+11, 1.5941e+11, 8.8493e+10], shape=(63,))
            └─ source: 'AUGD: ENR / NRATE_II / 1'

heating_current_drive
└─ heating_current_drive/power_ec
   └─ value: array([3677.7567, 3487.975, 3414.3834, ..., 3184.4584, 3092.7008, 3042.212], shape=(63,))
      └─ value_error_upper: array([1429.837, 1421.831, 1421.8188, ..., 1410.0454, 1350.9939, 1339.879], shape=(63,))
         └─ source: 'AUGD: ECS / PECRH / 1'

   └─ heating_current_drive/power_nbi
      └─ value: array([0., 0., 0., ..., 0., 0., 0.], shape=(63,))
         └─ value_error_upper: array([0., 0., 0., ..., 0., 0., 0.], shape=(63,))
            └─ source: 'AUGD: NIS / PNI / 1'

time_width: array([0.1, 0.1, 0.1, ..., 0.1, 0.1, 0.1], shape=(63,))

code
└─ name: 'fill_summary.py'
   └─ commit: '0.0.0-6-gf9b84d4-dirty'
      └─ version: '0.0.0-6-gf9b84d4-dirty'
         └─ repository: 'git@gitlab.com:fair-for-fusion/aug-summary-ingestion.git'
```

Updated AUG summary IDS

```
parameters:
{
  "\n  "ip": {\n\t"diag": "FPC",\n\t"sig": "IpiFP",\n\t"summary": "global_quantities/ip"\n  },\n  "b0": {\n\t"diag": "MAI",\n\t"sig": "BTF",\n\t"summary": "global_quantities/b0"\n  },\n  "h_98": {\n\t"diag": "H/L-facs;7",\n\t"summary": "global_quantities/h_98"\n  },\n  "v_loop": {\n\t"diag": "TOT",\n\t"sig": "u_loop",\n\t"summary": "global_quantities/v_loop"\n  },\n  "power_ohm": {\n\t"diag": "TOT",\n\t"sig": "P_OH",\n\t"summary": "global_quantities/power_ohm"\n  },\n  "power_steady": {\n\t"diag": "TOT",\n\t"sig": "P_TOT",\n\t"summary": "global_quantities/power_steady"\n  },\n  "energy_thermal": {\n\t"diag": "TOT",\n\t"sig": "Wth",\n\t"summary": "global_quantities/energy_thermal"\n  },\n  "energy_mhd_dt": {\n\t"diag": "TOT",\n\t"sig": "dWmhd/dt",\n\t"summary": "global_quantities/denergy_thermal_dt"\n  },\n  "tau_energy": {\n\t"diag": "TOT",\n\t"sig": "tau_tot",\n\t"summary": "global_quantities/tau_energy"\n  },\n  "n_e": {\n\t"diag": "DCN",\n\t"sig": "H-0",\n\t"summary": "line_average/n_e"\n  },\n  "power_nbi": {\n\t"diag": "NIS",\n\t"sig": "PNI",\n\t"summary": "heating_current_drive/power_nbi"\n  },\n  "power_ec": {\n\t"diag": "ECS",\n\t"sig": "PECRH",\n\t"summary": "heating_current_drive/power_ec"\n  },\n  "power_ic": {\n\t"diag": "ICP",\n\t"sig": "PICRFc",\n\t"summary": "heating_current_drive/power_ic"\n  },\n  "q95": {\n\t"diag": "GQH",\n\t"sig": "q95",\n\t"summary": "global_quantities/q_95"\n  },\n  "elongation": {\n\t"diag": "GQH",\n\t"sig": "k",\n\t"summary": "boundary/elongation"\n  },\n  "triangularity_upper": {\n\t"diag": "GQH",\n\t"sig": "delRoben",\n\t"summary": "boundary/triangularity_upper"\n  },\n  "triangularity_lower": {\n\t"diag": "GQH",\n\t"sig": "delRuntn",\n\t"summary": "boundary/triangularity_lower"\n  },\n  "energy_mhd": {\n\t"diag": "GQH",\n\t"sig": "Wmhd",\n\t"summary": "global_quantities/energy_mhd"\n  },\n  "li": {\n\t"diag": "GQH",\n\t"sig": "li",\n\t"summary": "global_quantities/beta_tor_norm"\n  },\n  "beta_tor_norm": {\n\t"diag": "GQH",\n\t"sig": "beta_N",\n\t"summary": "global_quantities/beta_tor_norm_mhd"\n  },\n  "beta_tor_norm_mhd": {\n\t"diag": "GQH",\n\t"sig": "beta_N",\n\t"summary": "global_quantities/beta_tor_norm"\n  },\n  "beta_tor_thermal_norm": {\n\t"diag": "GQH",\n\t"sig": "beta_Nth",\n\t"summary": "global_quantities/beta_tor_thermal_norm"\n  },\n  "betpol": {\n\t"diag": "GQH",\n\t"sig": "betpol",\n\t"summary": "global_quantities/beta_pol"\n  },\n  "betpol_mhd": {\n\t"diag": "GQH",\n\t"sig": "betpol",\n\t"summary": "global_quantities/beta_pol"\n  },\n  "volume": {\n\t"diag": "GQH",\n\t"sig": "Vol",\n\t"summary": "global_quantities/volume"\n  },\n  "Rgeo": {\n\t"diag": "GQH",\n\t"sig": "Rgeo",\n\t"summary": "boundary/geometric_axis_r"\n  },\n  "Zgeo": {\n\t"diag": "GQH",\n\t"sig": "Zgeo",\n\t"summary": "boundary/geometric_axis_z"\n  },\n  "Rmag": {\n\t"diag": "GQH",\n\t"sig": "Rmag",\n\t"summary": "boundary/magnetic_axis_r"\n  },\n  "Zmag": {\n\t"diag": "GQH",\n\t"sig": "Zmag",\n\t"summary": "boundary/magnetic_axis_z"\n  },\n  "Circumference": {\n\t"diag": "GQH",\n\t"sig": "Circumf",\n\t"summary": ""\n  },\n  "li3": {\n\t"diag": "li3",\n\t"sig": "li3",\n\t"summary": "li3"\n  },\n  "li": {\n\t"diag": "li",\n\t"sig": "li",\n\t"summary": "li"\n  },\n  "Raus": {\n\t"diag": "GQH",\n\t"sig": "Raus",\n\t"summary": ""\n  },\n  "a_minor": {\n\t"diag": "a_minor",\n\t"sig": "a_minor",\n\t"summary": ""\n  },\n  "Rin": {\n\t"diag": "GQH",\n\t"sig": "Rin",\n\t"summary": ""\n  },\n  "Rin": {\n\t"diag": "Rin",\n\t"sig": "Rin",\n\t"summary": ""\n  },\n  "fusion_neutron_rate": {\n\t"diag": "ENR",\n\t"sig": "NRATE_II",\n\t"summary": "fusion/neutron_rates/total"\n  },\n  "radiated_power": {\n\t"diag": "BPD",\n\t"sig": "Pradtot",\n\t"summary": "global_quantities/power_radiated"\n  }
}
```

```
output_flag: array([0, 0, 0, ..., 0, 0, 0], shape=(63,), dtype=int32)
time: array([0.17, 0.27, 0.37, ..., 6.17, 6.27, 6.37], shape=(63,))
```

Gotcha: DD3 → DD4

▼ global_quantities/li_3 1

structure

Internal inductance. [...]

Internal inductance. The li_3 definition is used, i.e. $li_3 = 2/R0/\mu0^2/lp^2 * \int(Bp^2 \, dV)$.



Changed in version 4.0.0: Renamed from `li`

➤ global_quantities/li_3/value(:) ↔ {dynamic} 1

FLT_1D

Value

➤ global_quantities/li_3/source {constant}

STR_0D

Source of the data (any comment describing the origin of the [...])

Updated AUG summary IDS

- Have now created
 - 19570 summary (and related IDSes) for DD 3.42.0
 - 19570 summary (and related IDSes) for DD 4.1.1
- The lists of URIs can be found at
 - <https://wiki.euro-fusion.org/images/6/61/Aug-dmp-3.uris.txt>
 - <https://wiki.euro-fusion.org/images/1/11/Aug-dmp-4.uris.txt>
- To check, I ran
 - `idscp -s "imas:hdf5?path=aug-dmp/3/32408/1" -d "imas:hdf5?path=aug-dmp.test/4/32408/0" --dd-update`
 - `idsdiff -u "imas:hdf5?path=aug-dmp/4/32408/2" "imas:hdf5?path=aug-dmp.test/4/32408/0" -html -p`

Updated AUG summary IDS: checking

Differences : imas:hdf5?path=aug-dmp/4/32408/2 ~ imas:hdf5?path=aug-dmp.test/4/32408/0

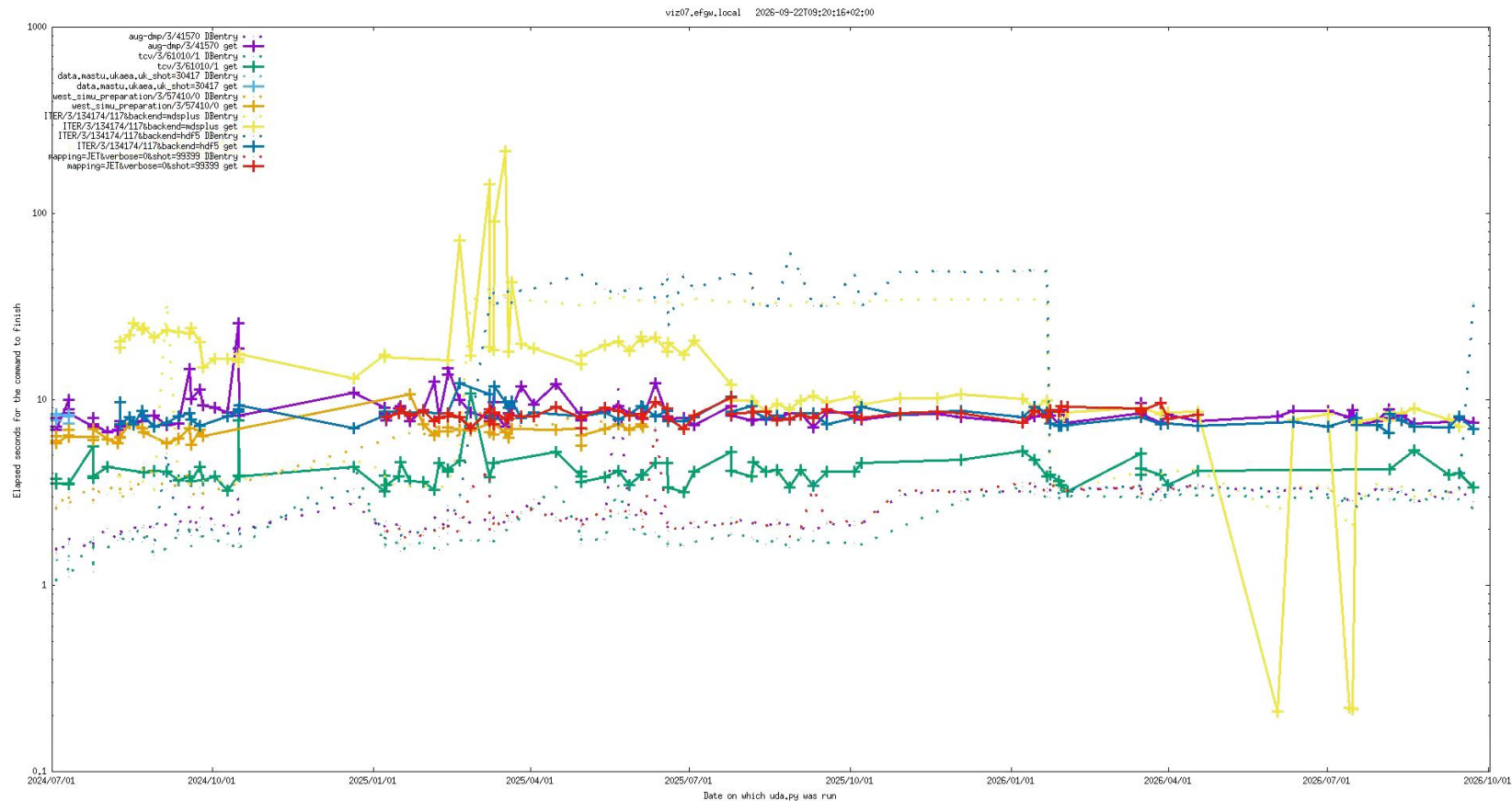
Result generated by idsdiff tool shows differences between quantities and also shows plots

Status	Field Name	imas:hdf5?path=aug-dmp/4/32408/2	imas:hdf5?path=aug-dmp.test/4/32408/0
dataset_fair			
different values	ids_properties/creation_date	2026-09-22T22:18:00Z	2026-09-22T16:44:00Z
different values	identifier	06ab2fe9-bb23-7f91-8000-888055f74a86	06ab2b05-031d-737e-8000-03727e80d409
summary			
different values	ids_properties/creation_date	2026/09/23	2026/09/22
different values	ids_properties/provenance/node/reference/name		/toks/scratch/dpc/FAIR4fusion/aug-summary-ingestion/fill_summary.py
different values	type/name	experimental	
different values	type/index	1	
different values	type/description	Data coming from an experiment (contains only data from an experimental database)	
different values	machine	ASDEX Upgrade	
different values	pulse	32408	
different values	pulse_time_begin	2015-10-27T10:46:00Z	
different values	code/commit	0.1.0-2-gfa713c0	0.1.0-0-g7e268e0
different values	code/version	0.1.0-2-gfa713c0	0.1.0-0-g7e268e0

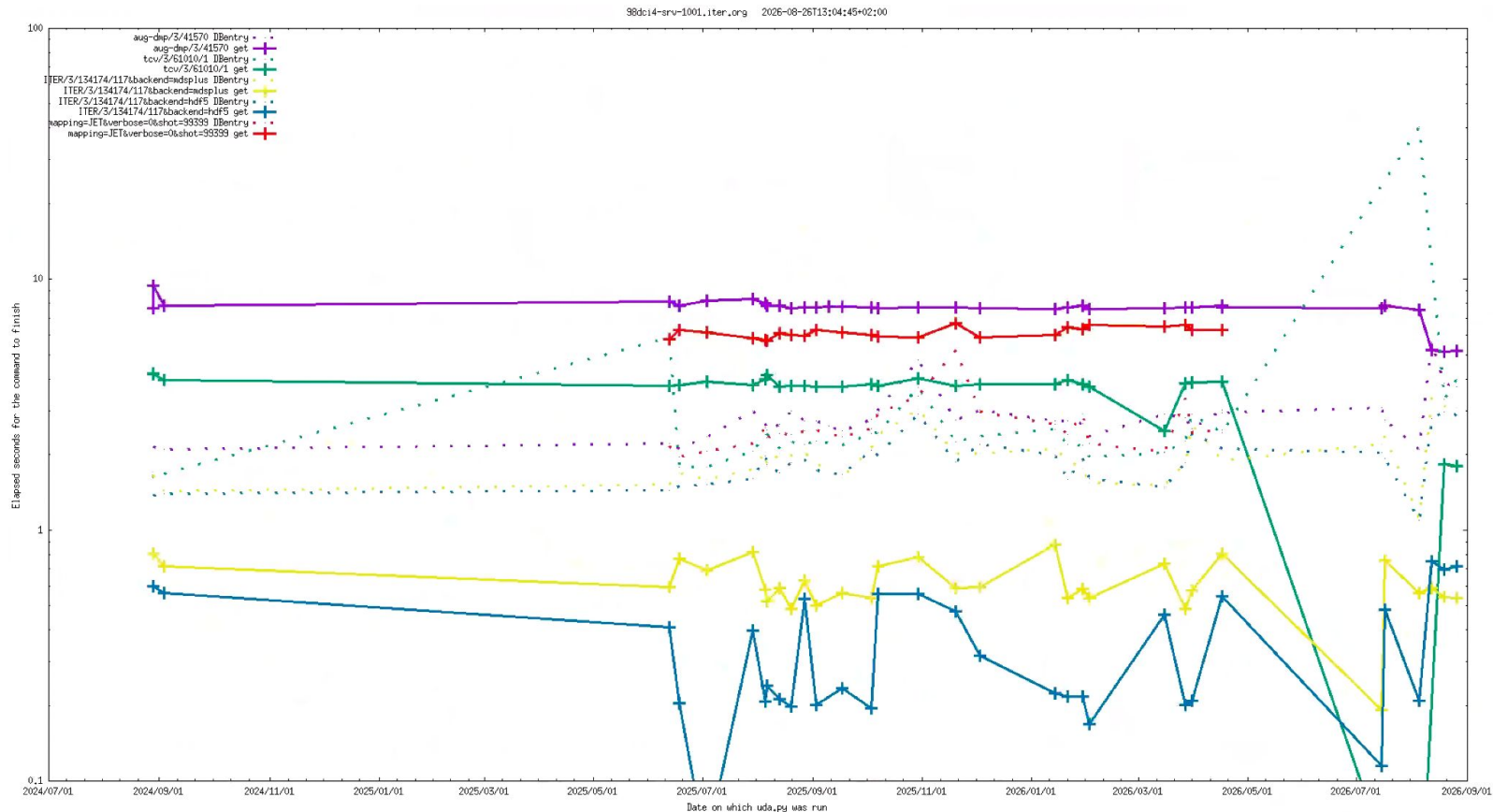
Updated AUG summary IDS: checking

different values	code/parameters	<pre>{ "ip": { "diag": "FPC", "sig": "IpiFP", "summary": "global_quantities/ip" }, "b0": { "diag": "MAI", "sig": "BTF", "summary": "global_quantities/b0" }, "h_98": { "diag": "TTH", "sig": "H/L-facs;7", "summary": "global_quantities/h_98" }, "v_loop": { "diag": "TOT", "sig": "u_loop", "summary": "global_quantities/v_loop" }, "power_ohm": { "diag": "TOT", "sig": "P_OH", "summary": "global_quantities/power_ohm" }, "power_steady": { "diag": "TOT", "sig": "P_TOT", "summary": "global_quantities/power_steady" }, "energy_thermal": { "diag": "TOT", "sig": "Wth", "summary":</pre>	<pre>{ "ip": { "diag": "FPC", "sig": "IpiFP", "summary": "global_quantities/ip" }, "b0": { "diag": "MAI", "sig": "BTF", "summary": "global_quantities/b0" }, "h_98": { "diag": "TTH", "sig": "H/L-facs;7", "summary": "global_quantities/h_98" }, "v_loop": { "diag": "TOT", "sig": "u_loop", "summary": "global_quantities/v_loop" }, "power_ohm": { "diag": "TOT", "sig": "P_OH", "summary": "global_quantities/power_ohm" }, "power_steady": { "diag": "TOT", "sig": "P_TOT", "summary": "global_quantities/power_steady" }, "energy_thermal": { "diag": "TOT", "sig": "Wth", "summary":</pre>
		<pre>"li['data'] * 2 * volume['data'] / (Rgeo['data'] * Circumference['data']**2)", "timeref": "li['time']", "summary": "global_quantities/li_3" }, "Rin": { "diag": "GQH", "sig": "Rin", "summary": "" }, "Raus": { "diag": "GQH", "sig": "Raus", "summary": "" }, "a_minor": { "calc": "(Raus['data'] - Rin['data']) / 2", "timeref": "Rin['time']", "summary": "boundary/minor_radius" }, "fusion_neutron_rate": { "diag": "ENR", "sig": "NRATE_II", "summary": "fusion/neutron_rates/total" }, "radiated_power": { "diag": "BPD", "sig": "Pradtot", "summary": "global_quantities/power_radiated" } }</pre>	<pre>"li['data'] * 2 * volume['data'] / (Rgeo['data'] * Circumference['data']**2)", "timeref": "li['time']", "summary": "global_quantities/li", "Rin": { "diag": "GQH", "sig": "Rin", "summary": "" }, "Raus": { "diag": "GQH", "sig": "Raus", "summary": "" }, "a_minor": { "calc": "(Raus['data'] - Rin['data']) / 2", "timeref": "Rin['time']", "summary": "boundary/minor_radius" }, "fusion_neutron_rate": { "diag": "ENR", "sig": "NRATE_II", "summary": "fusion/neutron_rates/total" }, "radiated_power": { "diag": "BPD", "sig": "Pradtot", "summary": "global_quantities/power_radiated" } }</pre>

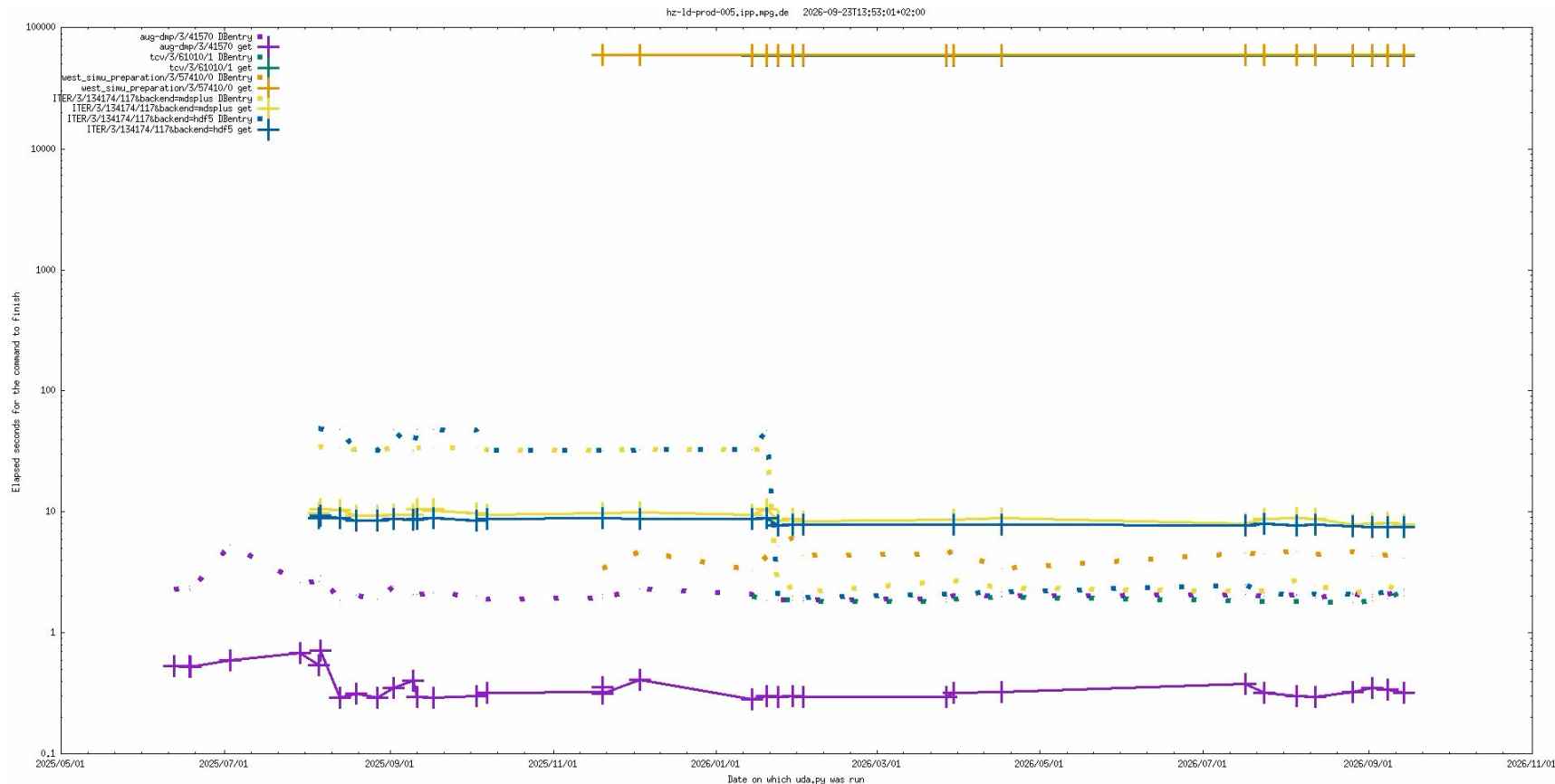
Data access times: run on Gateway



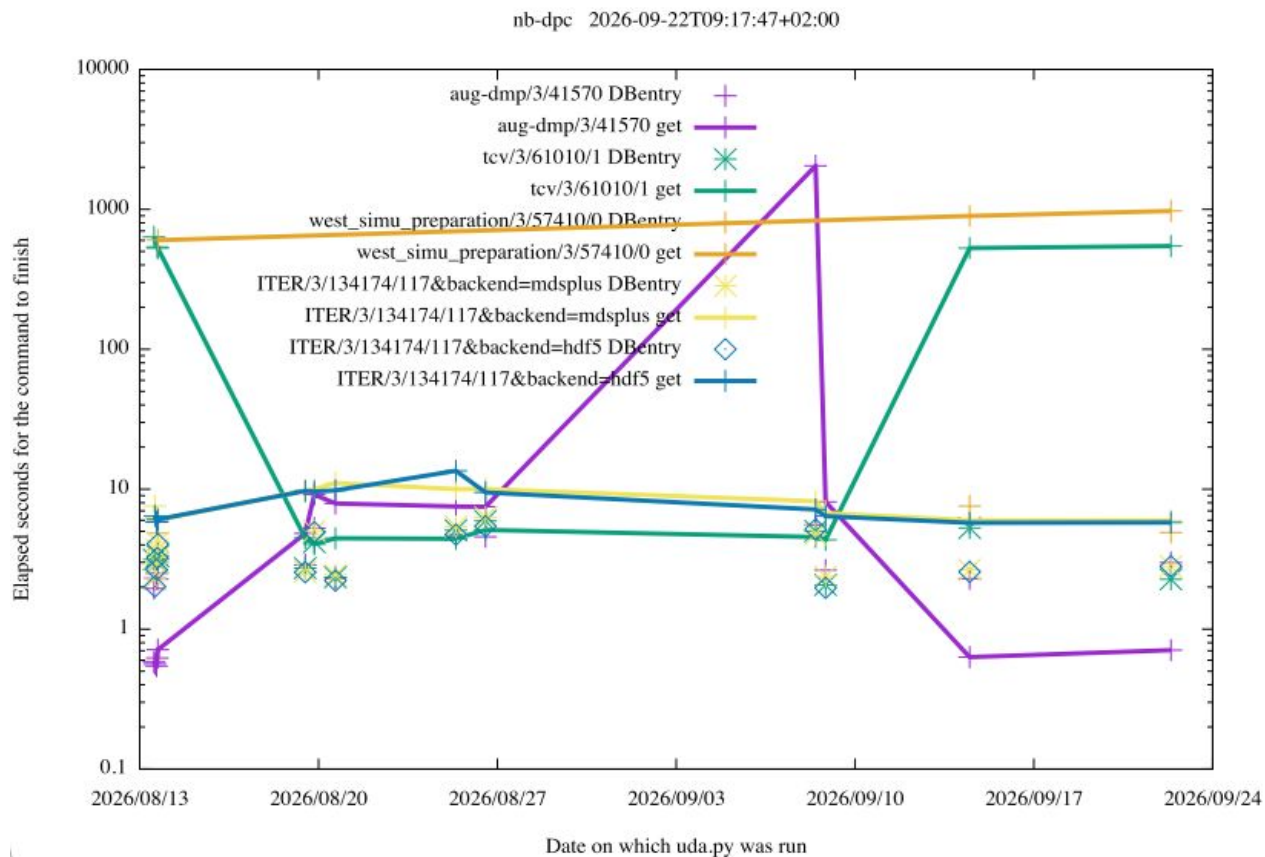
Data access times: run at ITER (IMAS-PYTHON)



Data access times: run on IPP (Horizon)



Data access times: run on laptop (IMAS-PYTHON)



Why are the DBEntry times so big?

	Access from IPP		Access from Gateway		Access from ITER	
	DBEntry	get	DBEntry	get	DBEntry	get
uda.ipp.mpg.de	2.659	0.35	3.363	7.907	4.751	5.024
uda.ipp.mpg.de	2.322	0.321	3.267	7.881	4.323	5.37
uda.ipp.mpg.de	2.308	0.359	3.249	7.199	4.199	6.015
uda.ipp.mpg.de	2.309	0.342	3.272	8.193	4.371	5.08
uda.ipp.mpg.de	2.378	0.424	3.165	7.937	4.529	5.225
uda.ipp.mpg.de	2.341	0.334	3.325	8.15	4.744	4.714
uda.ipp.mpg.de	2.35	0.315	3.205	7.978	4.409	5.74
uda.ipp.mpg.de	2.387	0.364	3.255	8.676	5.17	6.394
uda.ipp.mpg.de	2.279	0.347	2.893	8.678	4.826	5.822
uda.ipp.mpg.de	2.279	0.346	2.833	7.947	5.367	6.293
uda.ipp.mpg.de	2.432	0.366	3.29	8.718	4.891	6.107
uda.ipp.mpg.de	2.379	0.35	2.796	8.187	4.522	6.223
uda.ipp.mpg.de	2.275	0.333	3.206	8.003	4.484	6.033
uda.ipp.mpg.de	2.273	0.34	3.41	8.216	4.976	6.468
uda.ipp.mpg.de	2.294	0.344	3.095	8.669	4.807	6.118
uda.ipp.mpg.de	2.392	0.338	2.871	8.195	4.189	6.045
uda.ipp.mpg.de	2.352	0.332	3.003	8.012	4.412	6.156
uda.ipp.mpg.de	2.357	0.364	3.211	8.151	5.584	6.078
uda.iter.org	2.117	7.886	3.236	7.13	3.581	0.635
uda.iter.org	2.018	7.47	3.266	8.086	3.158	0.74
spcimasdata.epfl.ch	2.243	58594.364	2.917	3.994	3.756	1.808
spcimasdata.epfl.ch	1.711	58609.546	2.977	4.735	3.812	3.508
irfm-uda.partenaires.cea.fr	4.14	59722.004				
Mean	2.374	1.081	3.141	7.756	4.494	5.073
Standard deviation	0.422	2.257	0.185	1.174	0.577	1.779

Why are the DBEntry times so big?

DBentry direct access times are smaller, but still noticeable

```
./uda.py -u  
'imas:mdsplus?path=/work/imas/shared/imasdb/ITER/3/134174/117'  
Timing information  
    DBentry = 1.682  1.744  1.793  1.777  1.662  
        get = 1.094  1.102  1.135  1.091  1.111  
        close = 0.000  0.000  0.000  0.000  0.000
```

```
./uda.py -u  
'imas:hdf5?path=/work/imas/shared/imasdb/ITER/3/134174/117'  
Timing information  
    DBentry = 1.746  1.634  1.654  1.616  1.652  
        get = 1.222  1.214  1.209  1.240  1.198  
        close = 0.000  0.000  0.000  0.000  0.000
```

Tried imas_validator – and it died ...

```
(venv_3.13.5) 20:53> imas_validator validate "imas:hdf5?path=aug-dmp.test/3/40000/1"
20:53:38 INFO Parsing data dictionary version 4.1.1 @dd_zip.py:89
Traceback (most recent call last):
  File "/toks/scratch/dpc/FAIR4fusion/aug-summary-ingestion/venv_3.13.5/bin/imas_validator", line 6, in <module>
    sys.exit(execute_cli())
    ~~~~~^
  File "/toks/scratch/dpc/FAIR4fusion/aug-summary-ingestion/venv_3.13.5/lib/python3.13/site-packages/imas_validator/cli/imas_validator_cli.py", line 280, in
execute_cli
    main(argv)
    ~~~~~^
  File "/toks/scratch/dpc/FAIR4fusion/aug-summary-ingestion/venv_3.13.5/lib/python3.13/site-packages/imas_validator/cli/imas_validator_cli.py", line 202, in main
    command.execute()
    ~~~~~^
  File "/toks/scratch/dpc/FAIR4fusion/aug-summary-ingestion/venv_3.13.5/lib/python3.13/site-packages/imas_validator/cli/commands/validate_command.py", line 38,
in execute
    self._result = validate(
        ~~~~~^
        imas_uri=self._uri, validate_options=self.validate_options
        ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
    )
    ^
  File "/toks/scratch/dpc/FAIR4fusion/aug-summary-ingestion/venv_3.13.5/lib/python3.13/site-packages/imas_validator/validate/validate.py", line 38, in validate
    _check_imas_version()
    ~~~~~^
  File "/toks/scratch/dpc/FAIR4fusion/aug-summary-ingestion/venv_3.13.5/lib/python3.13/site-packages/imas_validator/validate/validate.py", line 65, in
_check_imas_version
    if not imas.backends.imas_core.imas_interface.has_imas:
        ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
AttributeError: module 'imas.backends.imas_core.imas_interface' has no attribute 'has_imas'
user=11.106 system=0.493 real=0.02.94
(venv_3.13.5) 20:53>
```

Hacked the code to get it to work ...