

```

281 unsigned int l;
282 double tmp_d0, tmp_d0;
283 Vector3 p;
284
285 if( tree->getNumberOfParticles() > 0 ) {
286     /* we have some points in current mode */
287     p = parts.getParticle(tree->getParticleIndex(0))-get_r();
288     tmp_d0 = tmp_d0 + p.d();
289
290     for( int i = 1; i < tree->getNumberOfParticles(); i++)
    
```

EDRG

December 17, 2020

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EDRG (EXPERIMENTALISTS AND DIAGNOSTICIANS RESOURCE GROUP) is one of the two projects falling under the coordination of the Leadership of the EU Task Force for Integrated Tokamak Modelling (ITM) and is the privileged contact of the ITM with the experimentalists and diagnosticians community.

1 Scientific Rationale and Main Objectives

The consolidation of the validated suite of simulation tools that the ITM aims to provide for ITER and existing experiments requires a strong interaction with the experimentalists and diagnosticians fusion community. The former are promoted by the Experimentalist and Diagnosticians Resource Group (EDRG).

Acting as a contact point within the ITM towards the full range of experiments and some of the EFDA Topical Groups and Working Group initiatives, the EDRG group promotes the provision of a machine independent approach to modelling, to encompass realistic operational conditions and to facilitate [verification](#)¹ and [validation](#)² of the modelling codes.

The groups action comprises

1. Developing a comprehensive set of [Machine descriptions](#)³ and experimental [data mappings](#)⁴ to access experimental databases from european devices.
2. The coordination of the overall plasma control activities to be carried within the ITM-TF and in liaison with other EFDA initiatives.
3. The integration of synthetic diagnostic modules to assist Verification and Validation of ITM modules and virtual PCS.

2 Meetings

The EDRG group, as most of the ITM projects, holds meetings that aim at monitoring the internal progress on the EDRG tasks. In addition, meetings are organized (mostly via VC) whenever experts from the Experimentalist and Diagnosticians community or other representatives of the european fusion devices engaged in the ITM activities require assistance from the ITM in EDRG related activities. This is particularly relevant for the development of the Machine Descriptions and Data Mappings and for the integration of synthetic diagnostics. A list of all the relevant meetings that took place in 2009 and 2010 is found below.

2.1 2009

2.1.1 EDRG kick-off 30th January

- [Overview of EDRG for 2009 \(R.Coelho\)](#)⁵
- [Experimental data retrieval \(F.Imbeaux\)](#)⁶
- [Minutes \(R. Coelho\)](#)⁷

¹https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_verification

²https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_validation

³https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_machine_description

⁴https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_data_mapping

⁵https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/2009/EDRG_kickoff/edrg_kick-off.ppt

⁶https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/2009/EDRG_kickoff/edrg_ExperimentalDataITM_v2.pdf

⁷https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/2009/EDRG_kickoff/edrg_Kick_off_minutes.pdf

2.1.2 3D Machine Description kick-off 4th June

- [Minutes of the Meeting \(R.Coelho\)](#) ⁸
- [Agenda and 3D related tasks \(R.Coelho\)](#) ⁹
- [CAD to Physics Codes \(W.Arter\)](#) ¹⁰
- [CAD fix to Physics Codes \(W.Arter\)](#) ¹¹
- [ASCOT 3D wall \(S.Sipil\)](#) ¹²
- [CEDRES++ full 2D domain meshing \(G.Huysmans\)](#) ¹³
- [Potential 3D codes for the ITM \(C.Konz\)](#) ¹⁴
- [3D codes on the IMP3 forge \(D.Coster\)](#) ¹⁵
- [ASPOEL mesh generator \(F.Subba\)](#) ¹⁶

2.2 2010

2.2.1 2010/09/13-17 ITM General Meeting in Lisbon

2.2.1.1 Posters

- *3D Machine Description of Fusion Devices* ([pdf](#) ¹⁷), by T. Lunt et al.
- *Simulation of MSE spectra from predictive fusion plasma simulations* ([pdf](#) ¹⁸), by A. Dinklage et al.
- *European Reflectometer Code Consortium (ERCC) activities* ([ppt](#) ¹⁹), by E. Blanco et al.

last update: 2011-02-16 by coster

last update: 2010-11-23 by coelho

3 Working Sessions

With the consolidation of the ITM-TF infrastructure and maturing tools, there are inevitably some interdependencies in the workprogramme of the integrated modelling projects. A new feature of the 2010 implementation of the ITM-TF work programme is the focused use of coordinated joint activities as integral part of the work. These joint activities will be organised in working sessions and code camps (working sessions supported by the integration team) and supported under mobility.

3.1 2009

3.1.1 Control Meeting at Cadarache, 22-23 June

The meeting was a kick-off meeting on the overall activities of the ITM-TF focusing on plasma control. A particular emphasis on free boundary equilibrium codes and position+shape control was given. The need for multiplexer/de-multiplexer [actors](#) ²⁰ was highlighted in order to decouple the controller actors from any

⁸https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/2009/3Dwall/edrg_minutes_3Dmeeting_04_06_09_v2.pdf

⁹https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/2009/3Dwall/edrg_3D_walldescriptionmeeting.ppt

¹⁰https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/2009/3Dwall/edrg_CADtophys.pdf

¹¹https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/2009/3Dwall/edrg_wa_cadfix_test.pdf

¹²https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/2009/3Dwall/edrg_ASCOT_3D_wall_ITM.ppt

¹³https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/2009/3Dwall/edrg_maillage_cedres.ppt

¹⁴https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/2009/3Dwall/edrg_ITM_3D_Codes.doc

¹⁵https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/2009/3Dwall/edrg_3D_2009_06_04_IMP3_codes_v2.ppt

¹⁶https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/2009/3Dwall/edrg_ASPOEL_Mesh_Generator.ppt

¹⁷https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/20100913-17_Lisbon/poster_lunt_ITM_2010.pdf

¹⁸https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/20100913-17_Lisbon/Poster_MSE_v5.pdf

¹⁹https://www.efda-itm.eu/ITM/imports/edrg/public/meetings/20100913-17_Lisbon/posterITM2010_final.ppt

²⁰https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_actor

detail of the CPO²¹ ontology, rendering the adaptation of control schemas much more flexible. A tentative workflow schema for plasma current control was produced. Foreseen obstacles for the coupling of feedback controlled free boundary equilibrium codes to the ETS were highlighted taking the learning curve from the DINA-CH+CRONOS package.

- Minutes of the working session (R.Coelho/T.Bolzonella)²²
- Welcome (R.Coelho)²³
- General ITM overview (R.Coelho)²⁴
- Controller schemes from experiments (T.Bolzonella)²⁵
- IMP1 control related activities (G.Huysmans)²⁶
- EFDA Feedback Control Goup summary (A.Pironti)²⁷
- Flight Simulator for controlling plasma discharges (N.Ravenel)²⁸
- DINA-CH + CRONOS overview (K.Besseghir)²⁹
- ITM control workflow concepts (F.Imbeaux)³⁰
- CREATE-NL closed loop runs and integration with transport codes (A.Pironti)³¹

3.2 2010

3.2.1 3D wall at Garching, 18 March

The meeting was dedicated to assess the ongoing status of the defeaturing tool, challenges on targeting real device CAD representations of some devices and interfacing with the GRID CPO.

- Minutes (R. Coelho)³²
- Overview of ITM datastructure heading to 3D (R. Coelho)³³
- 3D defeaturing tool effort under the ITM (T.Lunt/S.Jms)³⁴
- 3D Meshing strategies guidelines in RWM codes (M. Palumbo)³⁵
- Edge CPO and grid structuring (F. Subba)³⁶

3.2.2 Control Activities at Cadarache, 28 June - 1 July

A joint working session and Code camp to discuss the ongoing activities related to control on the ITM-TF (at both project and task level) and to provide training with the first test cases of the Control Toolbox, for SCICOS and SIMULINK born control diagrams. Simple PID cases suited perfectly the training purpose and evidenced the valuable ongoing effort. The timeline for fully integrating a free boundary equilibrium code under feedback shape control was discussed. Improvements on the kepler³⁷ actor management methods and on the automation of the actor creation from C code emanating from the SCICOS/SIMULINK diagrams were discussed.

²¹https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_cpo

²²https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2009/control/edrg_20090623_Minutes.pdf

²³https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2009/control/edrg_20090622_Coelho_Welcoming.ppt

²⁴https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2009/control/edrg_20090622_Coelho_ITMactivities.ppt

²⁵https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2009/control/edrg_20090622_Bolzonella.ppt

²⁶https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2009/control/edrg_20090622_Huysmans.ppt

²⁷https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2009/control/edrg_20090622_Pironti.ppt

²⁸https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2009/control/edrg_20090622_Ravenel.ppt

²⁹https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2009/control/edrg_20090622_Besseghir.ppt

³⁰https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2009/control/edrg_20090623_Imbeaux.ppt

³¹https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2009/control/edrg_20090623_Pironti.ppt

³²https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/3Dwall_WS_18March/edrg_Minutes_3D_WS_Garching.pdf

³³https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/3Dwall_WS_18March/edrg_ITM_datastructure.ppt

³⁴https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/3Dwall_WS_18March/edrg_3D_wall_lunt_jamsa.ppt

³⁵https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/3Dwall_WS_18March/edrg_MFP_Garching.ppt

³⁶https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/3Dwall_WS_18March/edrg_Edge_CPO.ppt

³⁷https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_kepler

- Welcome and Agenda (T. Bolzonella)³⁸
- Modeling, simulation, and controller design using ScicosLab and Kepler (S. Mannori)³⁹
- Advanced Scicos, Kepler, and Simulink integration (S. Mannori)⁴⁰
- ISIP-ACT12 Control Toolbox (N. Ravenel)⁴¹
- EDRG Control related activities in the WP-2010 (R. Coelho)⁴²
- ISIP - Status of Control Toolbox Task "Task 12" (F. Imbeaux, G. Manduchi)⁴³
- Free boundary equilibrium feedback control simulations under Kepler/ITM (S. Brémond)⁴⁴
- Free boundary equilibrium reconstruction and feedback control in IMP12 (C. Konz)⁴⁵
- CREATE-NL adaptation to ITM need (M. Mattei)⁴⁶
- Approach on parallel I/O (A. Galonska)⁴⁷
- KEPLER Actor Generation from Simulink Components (G. Manduchi)⁴⁸
- MARS-F on ITM (D. Yadykin)⁴⁹
- Multiplexer/De-multiplexer (O. Hoenon)⁵⁰
- Kepler workflow design and directors⁵¹ (B. Guillerminet)⁵²
- Feedback Control WG ongoing effort (D. Mazon)⁵³

3.2.3 ERC3D integration on the ITM infrastructure, 5-6 July

A working session promoted to discuss the integration of the ERC3D reflectometer package on the ITM infrastructure. The discussion focused on particular aspects of the datastructure that need to be developed, in particular the Antenna and Output CPOs to be plugged to the code. Meshing interfacing, code parameters and C interface were also discussed.

- ITM datastructure and tools (R. Coelho)⁵⁴
- Code integration in IMP12 (C. Konz)⁵⁵
- The European 3D Reflectometry code ERC3D - overview of structure (C. Lechte)⁵⁶
- Summary discussion (R. Coelho)⁵⁷

last update: 2010-12-09 by konz

³⁸https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/20100628_Bolzonella_Welcoming.ppt

³⁹https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/CEA-ENEA_P1_r2.pdf

⁴⁰https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/CEA-ENEA_P2_r2.pdf

⁴¹https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/Codecamps-NR.ppt

⁴²https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/EDRGControlrelatedactivities.ppt

⁴³https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/ISIP_ControlTasks_100628.ppt

⁴⁴https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/ITMcontrol_WSCCjune2010_SB.ppt

⁴⁵https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/ITM_WS_on_Control_June_2010.ppt

⁴⁶https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/Mattei_ITM_ws_Cadarache.ppt

⁴⁷https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/Parallel_IO_Galonska.pdf

⁴⁸https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/SimulinkActorGeneration.ppt

⁴⁹https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/yadykin_100629.ppt

⁵⁰https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/Cadarache20100628_01_Hoenen_de_mux.ppt

⁵¹https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_director

⁵²https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/Cadarache20100629_Guillerminet_workflow.ppt

ppt

⁵³https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/WS_CEA_June/Cadarache20100628_02_Mazon_control.ppt

⁵⁴https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/ERC3D_WS_5July/ITMdatastructure-ERCCWS.ppt

⁵⁵https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/ERC3D_WS_5July/ITM_IMP12_ERCC_July_2010.ppt

⁵⁶https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/ERC3D_WS_5July/lechte-ERC3D-codecamp-06.pdf

⁵⁷https://www.efda-itm.eu/ITM/imports/edrg/public/WS/2010/ERC3D_WS_5July/Summarydiscussion.pdf

4 Calls for Participation and Reporting

Below is the list of the EDRG Call for Participation (CfP) and Annual Reporting since 2009.

4.1 2009

- [Call for Participation](#) ⁵⁸
- [Annual Reporting](#) ⁵⁹

4.2 2010

- [Call for Participation](#) ⁶⁰
- [Annual Reporting](#) ⁶¹

last update: 2011-03-14 by coelho

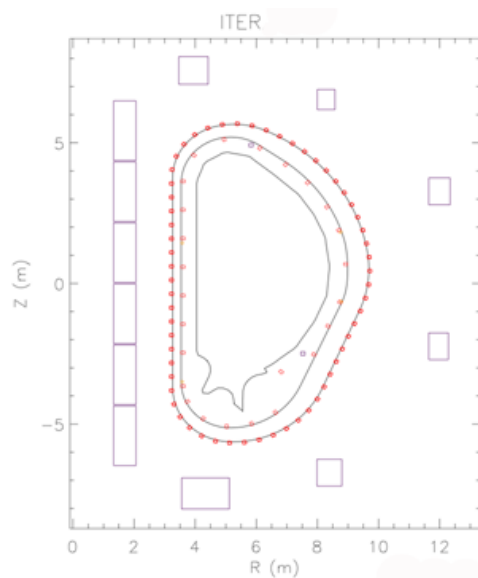
5 Machine Descriptions and Data Mappings

At the forefront of the EDRG activities, the consolidation of the [machine descriptions](#) ⁶² and [data mappings](#) ⁶³ for the experimental data on the participating devices is of utmost importance.

5.1 Machine Descriptions

5.1.1 Background

The machine description (MD) of a device basically builds on the set of engineering and diagnostic settings characterising any device. This includes, for instance, the vessel/limiter description (for the moment in R-Z domain only), the PF coils and circuiting and lines of sight of diagnostics (an example for ITER is seen below evidencing the vessel+limiter+pfsystems and magdiad CPOs).



In practice, all MD information is encapsulated in a XML file that emanates from the MD tagged datastructure schemas. A MD instance of a given device is then stored into the ITM db as shot 0 for that device database. At data structure version 4.09a, the list of CPOs with machine description tags is indicated in the Figure below

⁵⁸https://www.efda-itm.eu/ITM/imports/edrg/public/cfp_and_report/2009/edrg_CfP_WP09_TFL2_EDRG.pdf

⁵⁹https://www.efda-itm.eu/ITM/imports/edrg/public/cfp_and_report/2009/edrg_reporting.pdf

⁶⁰https://www.efda-itm.eu/ITM/imports/edrg/public/cfp_and_report/2010/edrg_CfP_WP10_ITM_EDRG.pdf

⁶¹https://www.efda-itm.eu/ITM/imports/edrg/public/cfp_and_report/2010/edrg_reporting.pdf

⁶²https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_machine_description

⁶³https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_data_mapping

topinfo
antennas
ecediag
fusiondiag
interfdiag
ironmodel
langmuirdiag
limiter
magdiag
msediag
pfsystems
polardiag
toroidfield
tsdiag
vessel

5.1.2 MD content on dataversions

4.07b	4.08a	4.08b	4.09a
antennas, interfdiag, ironmodel, limiter, magdiag, msediag, pfsystems, polardiag, toroidfield, vessel	antennas, ecediag, interfdiag, ironmodel, limiter, magdiag, msediag, pfsystems, polardiag, reference, toroidfield, tsdiag, vessel	antennas, ecediag, interfdiag, ironmodel, limiter, magdiag, msediag, nbi, pfsystems, polardiag, toroidfield, tsdiag, vessel	antennas, ecediag, fusiondiag, interfdiag, ironmodel, langmuirdiag, limiter, magdiag, msediag, nbi, pfsystems, polardiag, toroidfield, tsdiag, vessel

5.1.3 Tutorial and specific information on some CPOs

- A good introduction to the machine description concept is found in this [User Guide](#) ⁶⁴.
- Up to data version 4.07c, the geometry of lines of sight used in some diagnostics (interfdiag and polardiag) was characterized by two angles (poloidal and toroidal). A caveat was found, leading to the adoption of a new set of angles as described in this [report](#) ⁶⁵. The pivot points became 3 (previously 2) to encompass slightly different entry/exit positions for the reflected beams.
- From data version 4.09a, the limiter, nbi and antennas CPOs use arrays of structures data types. This enabled a more refined description of plasma facing components and the divertor region and both open and closed ‘tile’ elements. Each NBI and antenna unit is also a dedicated structure.
- Detailed definitions are available for [Flux loop position](#) ⁶⁶, [PFconnections](#) ⁶⁷, [Langmuir probes](#) ⁶⁸ and [Fusion CPO](#) ⁶⁹.

5.2 Data Mappings

5.2.1 Background

In regard to the experimental data from a particular shot/device set, the ITM had to develop its own tool to retrieve the data from the experimental databases and populate the corresponding ITM db entry since the latter rarely adopt the same datastructure ontology and different methods/implementation for the databases might exist on different devices. A XML file contains all the mapping essentials, e.g. download method, local signal names, gains and offsets, time base and eventual interpolation option to ensure that only one time base is set for each CPO ⁷⁰ that is built from multiple local signals. A java code (exp2ITM developed under ISIP), with the MD and DM files as inputs, is then run to connect to the local device database, retrieve the required experimental data and populate the ITM db instance for that shot/device and dataversions.

At data structure version 4.09a, the list of CPOs with data mappings tags is indicated in the Figure below (experimental signals are colored in orange; mappings to other CPOs, e.g. equilibrium or coreprof have been set in order to assist the retrieval of simulated data from other databases, e.g. JSP, JSPC)

⁶⁴https://www.efda-itm.eu/ITM/imports/edrg/public/md_and_dm/edrg_MachineDescriptionUserGuide_4.ppt

⁶⁵https://www.efda-itm.eu/ITM/imports/edrg/public/md_and_dm/edrg_Convention_angles_interfdiag.pdf

⁶⁶https://www.efda-itm.eu/ITM/imports/edrg/public/md_and_dm/edrg_FLUXLOOPposition.pdf

⁶⁷https://www.efda-itm.eu/ITM/imports/edrg/public/md_and_dm/edrg_PFconnections.pdf

⁶⁸https://www.efda-itm.eu/ITM/imports/edrg/public/md_and_dm/edrg_LangmuirCPO.pdf

⁶⁹https://www.efda-itm.eu/ITM/imports/edrg/public/md_and_dm/edrg_FusionCPO.pdf

⁷⁰https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_cpo

mapping_info	ironmodel
antennas	langmuirdiag
coredelta	magdiag
coreprof	msediag
coresource	neoclassic
coretransp	pfsystems
cxdiag	polardiag
distribution	sawteeth
distsource	scenario
ecediag	toroidfield
equilibrium	tsdiag
fusiondiag	turbulence
interfdiag	waves

5.2.2 DM content on dataversions

4.07b	4.08a	4.08b	4.09a
antennas, interfdiag, ironmodel, magdiag, msediag, pfsystems, polardiag, toroidfield	antennas, cxdiag, ecediag, interfdiag, ironmodel, magdiag, msediag, nbi, pfsystems, polardiag, toroidfield, tsdiag, coredelta, coreprof, coretransp, distribution, distsource, equilibrium, neoclassical, sawteeth, scenario, waves	antennas, cxdiag, ecediag, interfdiag, ironmodel, magdiag, msediag, nbi, pfsystems, polardiag, toroidfield, tsdiag, coredelta, coreprof, coretransp, distribution, distsource, equilibrium, neoclassical, sawteeth, scenario, turbulence, waves	antennas, cxdiag, ecediag, fusiondiag, interfdiag, ironmodel, langmuirdiag, magdiag, msediag, nbi, pfsystems, polardiag, toroidfield, tsdiag, coredelta, coreprof, coretransp, distribution, distsource, equilibrium, neoclassical, sawteeth, scenario, turbulence, waves

5.2.3 Tutorial on data mappings

- A good starting point to understand the basics of the data mapping concept and how to fill it with the device dependent referecing of the experimental data is found in this [User Guide](#) ⁷¹.
- A description on the data mapping concept and processing by exp2ITM (with usage tips) is found in this [presentation](#) ⁷².

For more updated information on the MD and DM activity please check the [md_and_dm project](#) ⁷³ in [Gforge](#) ⁷⁴

last update: 2019-01-31 by g2dpc

6 Machine Description Database

UNDER CONSTRUCTION!

This database description is autogenerated from the Machine Description Database <https://gforge6.eufus.eu/svn/itmshared/branches/machineDescriptionDatabase> ⁷⁵

Below you find the integration status of each of the participating devices regarding the [machine descriptions](#) ⁷⁶ and [data mappings](#) ⁷⁷. Run numbers and a short description is also given. The corresponding shot=0 are found either under `/pfs/itmdb` (*to be updated*) or at the md_and_dm repository under `tags/candidates`

6.1 ITER

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.08b	1	rcoelho tags/candidates	1 - 100000	limiter, magdiag, pfsystems, toroidfield, vessel	pfcoids only contains geometry settings; missing turns on toroidfield; only r,z,phi and angles on magdiag/bprobes	

⁷¹https://www.efda-itm.eu/ITM/imports/edrg/public/md_and_dm/edrg_exp2ITM_MappingFileDescription_v6.ppt

⁷²https://www.efda-itm.eu/ITM/imports/edrg/public/md_and_dm/edrg_Basics_on_exp2ITM_v2.pdf

⁷³https://gforge6.eufus.eu/project/md_and_dm/

⁷⁴https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_gforge

⁷⁵<https://gforge6.eufus.eu/svn/itmshared/branches/machineDescriptionDatabase>

⁷⁶https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_machine_description

⁷⁷https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_data_mapping

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.09a	2	rcoelho tags/candidates	1 - 100000	limiter, magdiag, nbi, pfsystems, toroidfield, vessel	pfcoils only contains geometry settings; missing turns on toroidfield; only r,z,phi and angles on magdiag/bprobes	- 2D cross section of ITER in RUN2 ⁷⁸ - Top view of ITER in RUN2 ⁷⁹
4.10a	2	rcoelho tags/candidates	1 - 100000	limiter, magdiag, nbi, pfsystems, toroidfield, vessel	NBI box 1/2 is Off-axis/Off-axis and there are just 2 units (4x4 section, each sub-unit with 80 beamlets); divertor rail and support passive structures included; pfcoils only contains geometry settings; missing turns on toroidfield; only r,z,phi and angles on magdiag/bprobes	- 2D cross section of ITER in RUN2 ⁸⁰ - Top view of ITER in RUN2 ⁸¹
4.10a	3	rcoelho tags/candidates	1 - 100000	limiter, magdiag, nbi, pfsystems, toroidfield, vessel	NBI box 1/2 is Off-axis/On-axis and there are just 2 units (4x4 section, each sub-unit with 80 beamlets); divertor rail and support passive structures included; pfcoils only contains geometry settings; missing turns on toroidfield; only r,z,phi and angles on magdiag/bprobes	- 2D cross section of ITER in RUN3 ⁸² - Top view of ITER in RUN3 ⁸³
4.10a	4	rcoelho tags/candidates	1 - 100000	limiter, magdiag, nbi, pfsystems, toroidfield, vessel	NBI box 1/2 is On-axis/Off-axis and there are just 2 units (4x4 section, each sub-unit with 80 beamlets); divertor rail and support passive structures included; pfcoils only contains geometry settings; missing turns on toroidfield; only r,z,phi and angles on magdiag/bprobes	- 2D cross section of ITER in RUN4 ⁸⁴ - Top view of ITER in RUN4 ⁸⁵
4.10a	5	rcoelho tags/candidates	1 - 100000	limiter, magdiag, nbi, pfsystems, toroidfield, vessel	NBI box 1/2 is On-axis/On-axis and there are just 2 units (4x4 section, each sub-unit with 80 beamlets); divertor rail and support passive structures included; pfcoils only contains geometry settings; missing turns on toroidfield; only r,z,phi and angles on magdiag/bprobes	- 2D cross section of ITER in RUN5 ⁸⁶ - Top view of ITER in RUN5 ⁸⁷

6.2 JT60SA

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.10b	2	rcoelho tags/candidates	1 999999999 -	nbi, pfsystems, wall	Data derived from the files and the beamlets come from files built by Matteo using the grid layout we got in January 2017. All the data is derived from the beamlets layout except for the focusing (infinity since parallel beam assumption is used) and the sizes (derived from the excel+pdf). The order of the NNBI is from bottom to top for unit U and then from bottom to top for unit L	- 2D cross section of JT60SA in RUN2 ⁸⁸ - Top view of JT60SA in RUN2 ⁸⁹

6.3 JET

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.06b	2	rcoelho tags/candidates	68613 78157 -	ironmodel, limiter, magdiag, pfsystems, toroidfield, vessel	pfcoils only contains geometry settings	
4.07b	3	rcoelho tags/candidates	68613 78157 -	interfdiag, ironmodel, limiter, magdiag, mse, pfsystems, polardiag, toroidfield, vessel	pfcoils only contains geometry settings; the line integrals were still using the old convention	
4.08a	4	rcoelho tags/candidates	68613 78157 -	interfdiag, ironmodel, limiter, magdiag, mse, pfsystems, polardiag, toroidfield, vessel	pfcoils only contains geometry settings; the line integrals have new angles convention	- 2D cross section of JET in RUN4 ⁹⁰ - Top view of JET in RUN4 ⁹¹

⁷⁸https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_ITER_RUN2.eps

⁷⁹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_ITER_RUN2_top.eps

⁸⁰https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_ITER_RUN2_410a.eps

⁸¹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_ITER_RUN2_410a_top.eps

⁸²https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_ITER_RUN3_410a.eps

⁸³https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_ITER_RUN3_410a_top.eps

⁸⁴https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_ITER_RUN4_410a.eps

⁸⁵https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_ITER_RUN4_410a_top.eps

⁸⁶https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_ITER_RUN5_410a.eps

⁸⁷https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_ITER_RUN5_410a_top.eps

⁸⁸https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JT60SA_RUN2.eps

⁸⁹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JT60SA_RUN2_top.eps

⁹⁰https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JET_RUN4.eps

⁹¹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JET_RUN4_top.eps

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.08b	5	rcoelho tags/candidates	68613 - 71875	interfdiag, ironmodel, limiter, magdiag, mse, nbi, pfsystems, polardiag, toroidfield, vessel	pfcoids only contains geometry settings; the nbi is valid for 62051-71875 and 78299-79853 but the mapping file is not compatible and thus left void	- 2D cross section of JET in RUN5 ⁹² - Top view of JET in RUN5 ⁹³
4.09a	6	rcoelho tags/candidates	68613 - 71875	interfdiag, ironmodel, limiter, magdiag, mse, nbi, pfsystems, polardiag, toroidfield, vessel	pfcoids only contains geometry settings; the nbi is valid for 62051-71875 and 78299-79853; the mapping file is compatible but only the "timebase" version that fixed NBI4/POW1 as time base; NBI and limiter now cast as arrays of structures; iron model with permeability	- 2D cross section of JET in RUN6 ⁹⁴ - Top view of JET in RUN6 ⁹⁵
4.09a	7	rcoelho tags/candidates	71876 - 78298	interfdiag, ironmodel, limiter, magdiag, mse, nbi, pfsystems, polardiag, toroidfield, vessel	pfcoids only contains geometry settings; the nbi is valid for 71876-78298; the mapping file is compatible but only the "timebase" version that fixed NBI4/POW1 as time base; NBI and limiter now cast as arrays of structures; iron model with permeability	- 2D cross section of JET in RUN7 ⁹⁶ - Top view of JET in RUN7 ⁹⁷
4.09a	8	rcoelho tags/candidates	78299 - 79853	interfdiag, ironmodel, limiter, magdiag, mse, nbi, pfsystems, polardiag, toroidfield, vessel	pfcoids only contains geometry settings; the nbi is valid for 78299-79853; the mapping file is compatible but only the "timebase" version that fixed NBI4/POW1 as time base; NBI and limiter now cast as arrays of structures; iron model with permeability	
4.09a	9	rcoelho tags/candidates	59754 - 59757	interfdiag, ironmodel, limiter, magdiag, mse, nbi, pfsystems, polardiag, toroidfield, vessel	pfcoids only contains geometry settings; the nbi is valid for 78299-79853; the mapping file is compatible but only the "timebase" version that fixed NBI4/POW1 as time base; NBI and limiter now cast as arrays of structures; iron model with permeability	
4.10a	6	rcoelho	68613 - 71875		Features a wall2d%vessel with blocks of dedicated resistivity and divertor elements passive; pfcoids only contains geometry settings; the nbi is valid for 62051-71875 and 78299-79853 (Octant4.UP167.Octant8.UP167); "timebase" in mapping file tied to NBI4/POW1; NBI and limiter cast as arrays of structures; iron model with permeability.	- 2D cross section of JET in RUN6 ⁹⁸ - Top view of JET in RUN6 ⁹⁹
4.10a	7	rcoelho	71875 - 78298	interfdiag, ironmodel, limiter, magdiag, mse, nbi, pfsystems, polardiag, toroidfield, vessel	Features a wall2d%vessel with blocks of dedicated resistivity and divertor elements passive; pfcoids only contains geometry settings; the nbi is valid for 71875-78298 (Octant4.UP17.Octant8.UP167); "timebase" in mapping file tied to NBI4/POW1; NBI and limiter cast as arrays of structures; iron model with permeability.	- 2D cross section of JET in RUN7 ¹⁰⁰ - Top view of JET in RUN7 ¹⁰¹
4.10a	8	rcoelho	78299 - 79853		Features a wall2d%vessel with blocks of dedicated resistivity and divertor elements passive; pfcoids only contains geometry settings; the nbi is valid for 62051-71875 and 78299-79853 (Octant4.UP167.Octant8.UP167); "timebase" in mapping file tied to NBI4/POW1; NBI and limiter cast as arrays of structures; iron model with permeability.	
4.09a	9	rcoelho tags/candidates	59754 - 59757	interfdiag, ironmodel, limiter, magdiag, mse, nbi, pfsystems, polardiag, toroidfield, vessel	MD file custom made for the Langmuir set of data, not validated machine data used is valid for shot > 68613; pfcoids only contains geometry settings; the nbi is valid for 52888-61931; "timebase" in mapping file tied to NBI4/POW1; NBI and limiter cast as arrays of structures; iron model with permeability.	
4.10a	10	rcoelho	79854 - 100000	interfdiag, ironmodel, limiter, magdiag, mse, nbi, pfsystems, polardiag, toroidfield, vessel	The ILW configuration. Features a wall2d%vessel with blocks of dedicated resistivity and divertor elements passive; The only tangible change is on the limiter curve (HFS and top of device) but small; pfcoids only contains geometry settings; the nbi is valid for 62051-71875 and 78299-79853 (Octant4.UP167.Octant8.UP167); "timebase" in mapping file tied to NBI4/POW1; NBI and limiter cast as arrays of structures; iron model with permeability.	- 2D cross section of JET in RUN10 ¹⁰² - Top view of JET in RUN10 ¹⁰³
4.10b	1	rcoelho tags/candidates	31000 - 37996	antennas, ironmodel, magdiag, pfsystems, toroidfield	antennas (#31000); ironmodel (#31000); magdiag (#31000); pfsystems (#31000); toroidfield (#31000)	
4.10b	2	rcoelho tags/candidates	37997 - 38001	antennas, cxdiag, ironmodel, magdiag, pfsystems, toroidfield	antennas (#31000); cxdiag (#37997); ironmodel (#31000); magdiag (#31000); pfsystems (#31000); toroidfield (#31000)	
4.10b	3	rcoelho tags/candidates	38002 - 39215	antennas, cxdiag, ironmodel, magdiag, nbi, pfsystems, toroidfield	antennas (#31000); cxdiag (#37997); ironmodel (#31000); magdiag (#31000); nbi (#38002); pfsystems (#31000); toroidfield (#31000)	

⁹²https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JET_RUN5.eps

⁹³https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JET_RUN5_top.eps

⁹⁴https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JET_RUN6.eps

⁹⁵https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JET_RUN6_top.eps

⁹⁶https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JET_RUN7.eps

⁹⁷https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JET_RUN7_top.eps

⁹⁸https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JET_RUN6_410a.eps

⁹⁹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JET_RUN6_410a_top.eps

¹⁰⁰https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JET_RUN7_410a.eps

¹⁰¹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JET_RUN7_410a_top.eps

¹⁰²https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JET_RUN10_410a.eps

¹⁰³https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_JET_RUN10_410a_top.eps

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.10b	68	rcoelho tags/candidates	91874 - 999999999	antennas, ecediag, ironmodel, msediag, pfsystems, toroidfield, tsdiag, wall	cxdiag, interfdiag, magdiag, nbi, polardiag, vessel	antennas (#88590); cxdiag (#37997); ecediag (#80288); interfdiag (#52888); ironmodel (#31000); magdiag (#68613); msediag (#49850); nbi (#91874); pfsystems (#31000); polardiag (#52888); toroidfield (#31000); tsdiag (#72140); wall (#79854)

6.4 TS

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.07a	2	rcoelho pfs	28764 - 100000	interfdiag, limiter, msediag, polardiag, vessel	ironmodel, magdiag, pfsystems, toroidfield, vessel	missing r0 on toroidfield CPO
4.07b	3	rcoelho pfs	28764 - 100000	interfdiag, limiter, msediag, polardiag, vessel	ironmodel, magdiag, pfsystems, toroidfield, vessel	missing r0 on toroidfield CPO
4.08a	4	rcoelho pfs	34000 - 43445	antennas, interfdiag, limiter, pfsystems, toroidfield, vessel	ecediag, ironmodel, magdiag, mse, polardiag, tsdiag, vessel	antennas with C2-C3 LH configuration; the line integrals have new angles convention
4.08a	5	rcoelho pfs	43446 - 60000	antennas, interfdiag, limiter, pfsystems, toroidfield, vessel	ecediag, ironmodel, magdiag, mse, polardiag, tsdiag, vessel	antennas with C2-C3 LH configuration; the line integrals have new angles convention - 2D cross section of TS in RUN5 ¹⁰⁴ - Top view of TS in RUN5 ¹⁰⁵
4.09a	4	rcoelho tags/candidates	34000 - 43445	antennas, interfdiag, limiter, pfsystems, toroidfield, vessel	ecediag, ironmodel, magdiag, mse, polardiag, tsdiag, vessel	antennas with C2-C3 LH configuration; the line integrals have new angles convention
4.09a	5	rcoelho tags/candidates	43446 - 43540	antennas, interfdiag, limiter, pfsystems, toroidfield, vessel	ecediag, ironmodel, magdiag, mse, polardiag, tsdiag, vessel	antennas with C2-C3 LH configuration; the line integrals have new angles convention
4.09a	6	rcoelho tags/candidates	28764 - 33999	antennas, ironmodel, magdiag, pfsystems, toroidfield, vessel	interfdiag, limiter, mse, polardiag, vessel	antennas with C2-C3 LH configuration; the line integrals have new angles convention
4.09a	7	rcoelho tags/candidates	43541 - 48432	antennas, interfdiag, limiter, pfsystems, toroidfield, vessel	ecediag, ironmodel, magdiag, mse, polardiag, tsdiag, vessel	antennas with C2-C3 LH configuration; the line integrals have new angles convention; the R-settings of MSE changed

6.5 AUG

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.07b	2	rcoelho tags/candidates	1 - 100000	limiter, magdiag, pfsystems, toroidfield, vessel	Flux loops are cast as 8 point structure to allow return leg. No interfdiag nro msediag since not fit for AUG.	
4.08a	3	rcoelho tags/candidates	1 - 100000	interfdiag, limiter, magdiag, msediag, pfsystems, toroidfield, vessel	Interfdiag and msediag now integrated	

¹⁰⁴https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_TS_RUN5_eps

¹⁰⁵https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_TS_RUN5_top_eps

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.08b	4	rcoelho tags/candidates	1 - 100000	interfdiag, limiter, magdiag, msediag, pfsystems, toroidfield, vessel	secured + missing data access enabled; pfcoils data mapping not fully compliant (algebra on signals)	- 2D cross section of AUG in RUN4 ¹⁰⁶ - Top view of AUG in RUN4 ¹⁰⁷
4.09a	5	rcoelho tags/candidates	1 - 100000	interfdiag, limiter, magdiag, msediag, nbi, pfsystems, toroidfield, vessel	secured + missing data access enabled; pfcoils data mapping not fully compliant (algebra on signals); NBI was integrated (no details on "beamlets"); NBI data mapping missing.	- 2D cross section of AUG in RUN5 ¹⁰⁸ - Top view of AUG in RUN5 ¹⁰⁹
4.10a	6	rcoelho tags/candidates	8646 - 9400	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	secured + missing data access enabled on all RUN numbers; pfcoils data mapping features algebra on signals on all RUN numbers; NBI has full detail on "beamlets" and data mapping exist. Start shot at new wall setup, end shot wall upper limit.	- 2D cross section of AUG in RUN6 ¹¹⁰ - Top view of AUG in RUN6 ¹¹¹
4.10a	7	rcoelho tags/candidates	9401 - 11319	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + wall upper limit.	- 2D cross section of AUG in RUN7 ¹¹² - Top view of AUG in RUN7 ¹¹³
4.10a	8	rcoelho tags/candidates	11320 - 12750	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + wall upper limit.	- 2D cross section of AUG in RUN8 ¹¹⁴ - Top view of AUG in RUN8 ¹¹⁵
4.10a	9	rcoelho tags/candidates	12751 - 13230	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + wall upper limit.	- 2D cross section of AUG in RUN9 ¹¹⁶ - Top view of AUG in RUN9 ¹¹⁷
4.10a	10	rcoelho tags/candidates	13231 - 14050	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + wall upper limit.	- 2D cross section of AUG in RUN10 ¹¹⁸ - Top view of AUG in RUN10 ¹¹⁹
4.10a	11	rcoelho tags/candidates	14051 - 14600	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + wall upper limit and more sensors in magdiag.	- 2D cross section of AUG in RUN11 ¹²⁰ - Top view of AUG in RUN11 ¹²¹
4.10a	12	rcoelho tags/candidates	14601 - 16309	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + wall upper limit.	- 2D cross section of AUG in RUN12 ¹²² - Top view of AUG in RUN12 ¹²³
4.10a	13	rcoelho tags/candidates	16310 - 18203	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + wall upper limit.	- 2D cross section of AUG in RUN13 ¹²⁴ - Top view of AUG in RUN13 ¹²⁵

¹⁰⁶https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN4.eps

¹⁰⁷https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN4_top.eps

¹⁰⁸https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN5.eps

¹⁰⁹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN5_top.eps

¹¹⁰https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN6.eps

¹¹¹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN6_top.eps

¹¹²https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN7.eps

¹¹³https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN7_top.eps

¹¹⁴https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN8.eps

¹¹⁵https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN8_top.eps

¹¹⁶https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN9.eps

¹¹⁷https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN9_top.eps

¹¹⁸https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN10.eps

¹¹⁹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN10_top.eps

¹²⁰https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN11.eps

¹²¹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN11_top.eps

¹²²https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN12.eps

¹²³https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN12_top.eps

¹²⁴https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN13.eps

¹²⁵https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN13_top.eps

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.10a	14	rcoelho tags/candidates	18204 - 18276	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + tsdiag upper limit.	- 2D cross section of AUG in RUN14 ¹²⁶ - Top view of AUG in RUN14 ¹²⁷
4.10a	15	rcoelho tags/candidates	18277 - 19550	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New tsdiag + wall upper limit.	- 2D cross section of AUG in RUN15 ¹²⁸ - Top view of AUG in RUN15 ¹²⁹
4.10a	16	rcoelho tags/candidates	19551 - 21484	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall + wall upper limit.	- 2D cross section of AUG in RUN16 ¹³⁰ - Top view of AUG in RUN16 ¹³¹
4.10a	17	rcoelho tags/candidates	21485 - 21741	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall + cxdiag upper limit.	- 2D cross section of AUG in RUN17 ¹³² - Top view of AUG in RUN17 ¹³³
4.10a	18	rcoelho tags/candidates	21742 - 24202	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New cxdiag + ecediag upper limit.	- 2D cross section of AUG in RUN18 ¹³⁴ - Top view of AUG in RUN18 ¹³⁵
4.10a	19	rcoelho tags/candidates	24203 - 24999	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New ecediag + cxdiag upper limit.	- 2D cross section of AUG in RUN19 ¹³⁶ - Top view of AUG in RUN19 ¹³⁷
4.10a	20	rcoelho tags/candidates	25000 - 25890	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New cxdiag + wall upper limit.	- 2D cross section of AUG in RUN20 ¹³⁸ - Top view of AUG in RUN20 ¹³⁹
4.10a	21	rcoelho tags/candidates	25891 - 25999	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall + new magdiag (same set size) + ecediag/tsdiag upper limit.	- 2D cross section of AUG in RUN21 ¹⁴⁰ - Top view of AUG in RUN21 ¹⁴¹
4.10a	22	rcoelho tags/candidates	26000 - 26159	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New ecediag/tsdiag + cxdiag upper limit.	- 2D cross section of AUG in RUN22 ¹⁴² - Top view of AUG in RUN22 ¹⁴³
4.10a	23	rcoelho tags/candidates	26160 - 26919	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New cxdiag + ecediag upper limit.	- 2D cross section of AUG in RUN23 ¹⁴⁴ - Top view of AUG in RUN23 ¹⁴⁵

¹²⁶https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN14.eps

¹²⁷https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN14_top.eps

¹²⁸https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN15.eps

¹²⁹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN15_top.eps

¹³⁰https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN16.eps

¹³¹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN16_top.eps

¹³²https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN17.eps

¹³³https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN17_top.eps

¹³⁴https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN18.eps

¹³⁵https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN18_top.eps

¹³⁶https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN19.eps

¹³⁷https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN19_top.eps

¹³⁸https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN20.eps

¹³⁹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN20_top.eps

¹⁴⁰https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN21.eps

¹⁴¹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN21_top.eps

¹⁴²https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN22.eps

¹⁴³https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN22_top.eps

¹⁴⁴https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN23.eps

¹⁴⁵https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN23_top.eps

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.10a	24	rcoelho tags/candidates	26920 - 30150	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New ecediag + ecediag upper limit.	- 2D cross section of AUG in RUN24 ¹⁴⁶ - Top view of AUG in RUN24 ¹⁴⁷
4.10a	25	rcoelho tags/candidates	30151 - 30715	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New ecediag.	- 2D cross section of AUG in RUN25 ¹⁴⁸ - Top view of AUG in RUN25 ¹⁴⁹
4.10a	26	rcoelho tags/candidates	30716 - 99999999	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New equilibrium.	- 2D cross section of AUG in RUN25 ¹⁵⁰ - Top view of AUG in RUN25 ¹⁵¹
4.10b	6	rcoelho tags/candidates	8646 - 9400	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	secured + missing data access enabled on all RUN numbers; pfcoids data mapping features algebra on signals on all RUN numbers; NBI has full detail on "beamlets" and data mapping exist. Start shot at new wall setup, end shot wall upper limit.	- 2D cross section of AUG in RUN6 ¹⁵² - Top view of AUG in RUN6 ¹⁵³
4.10b	7	rcoelho tags/candidates	9401 - 11319	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + wall upper limit.	- 2D cross section of AUG in RUN7 ¹⁵⁴ - Top view of AUG in RUN7 ¹⁵⁵
4.10b	8	rcoelho tags/candidates	11320 - 12750	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + wall upper limit.	- 2D cross section of AUG in RUN8 ¹⁵⁶ - Top view of AUG in RUN8 ¹⁵⁷
4.10b	9	rcoelho tags/candidates	12751 - 13230	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + wall upper limit.	- 2D cross section of AUG in RUN9 ¹⁵⁸ - Top view of AUG in RUN9 ¹⁵⁹
4.10b	10	rcoelho tags/candidates	13231 - 14050	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + wall upper limit.	- 2D cross section of AUG in RUN10 ¹⁶⁰ - Top view of AUG in RUN10 ¹⁶¹
4.10b	11	rcoelho tags/candidates	14051 - 14600	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + wall upper limit and more sensors in magdiag.	- 2D cross section of AUG in RUN11 ¹⁶² - Top view of AUG in RUN11 ¹⁶³
4.10b	12	rcoelho tags/candidates	14601 - 16309	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + wall upper limit.	- 2D cross section of AUG in RUN12 ¹⁶⁴ - Top view of AUG in RUN12 ¹⁶⁵

¹⁴⁶https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN24.eps

¹⁴⁷https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN24_top.eps

¹⁴⁸https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN25.eps

¹⁴⁹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN25_top.eps

¹⁵⁰https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN25.eps

¹⁵¹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN25_top.eps

¹⁵²https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN6.eps

¹⁵³https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN6_top.eps

¹⁵⁴https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN7.eps

¹⁵⁵https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN7_top.eps

¹⁵⁶https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN8.eps

¹⁵⁷https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN8_top.eps

¹⁵⁸https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN9.eps

¹⁵⁹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN9_top.eps

¹⁶⁰https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN10.eps

¹⁶¹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN10_top.eps

¹⁶²https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN11.eps

¹⁶³https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN11_top.eps

¹⁶⁴https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN12.eps

¹⁶⁵https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN12_top.eps

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.10b	13	rcoelho tags/candidates	16310 - 18203	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + wall upper limit.	- 2D cross section of AUG in RUN13 ¹⁶⁶ - Top view of AUG in RUN13 ¹⁶⁷
4.10b	14	rcoelho tags/candidates	18204 - 18276	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall setup + tsdiag upper limit.	- 2D cross section of AUG in RUN14 ¹⁶⁸ - Top view of AUG in RUN14 ¹⁶⁹
4.10b	15	rcoelho tags/candidates	18277 - 19550	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New tsdiag + wall upper limit.	- 2D cross section of AUG in RUN15 ¹⁷⁰ - Top view of AUG in RUN15 ¹⁷¹
4.10b	16	rcoelho tags/candidates	19551 - 21484	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall + wall upper limit.	- 2D cross section of AUG in RUN16 ¹⁷² - Top view of AUG in RUN16 ¹⁷³
4.10b	17	rcoelho tags/candidates	21485 - 21741	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall + cxdiag upper limit.	- 2D cross section of AUG in RUN17 ¹⁷⁴ - Top view of AUG in RUN17 ¹⁷⁵
4.10b	18	rcoelho tags/candidates	21742 - 24202	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New cxdiag + ecediag upper limit.	- 2D cross section of AUG in RUN18 ¹⁷⁶ - Top view of AUG in RUN18 ¹⁷⁷
4.10b	19	rcoelho tags/candidates	24203 - 24999	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New ecediag + cxdiag upper limit.	- 2D cross section of AUG in RUN19 ¹⁷⁸ - Top view of AUG in RUN19 ¹⁷⁹
4.10b	20	rcoelho tags/candidates	25000 - 25890	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New cxdiag + wall upper limit.	- 2D cross section of AUG in RUN20 ¹⁸⁰ - Top view of AUG in RUN20 ¹⁸¹
4.10b	21	rcoelho tags/candidates	25891 - 25999	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New wall + new magdiag (same set size) + ecediag/tsdiag upper limit.	- 2D cross section of AUG in RUN21 ¹⁸² - Top view of AUG in RUN21 ¹⁸³
4.10b	22	rcoelho tags/candidates	26000 - 26159	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New ecediag/tsdiag + cxdiag upper limit.	- 2D cross section of AUG in RUN22 ¹⁸⁴ - Top view of AUG in RUN22 ¹⁸⁵

¹⁶⁶https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN13.eps

¹⁶⁷https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN13_top.eps

¹⁶⁸https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN14.eps

¹⁶⁹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN14_top.eps

¹⁷⁰https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN15.eps

¹⁷¹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN15_top.eps

¹⁷²https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN16.eps

¹⁷³https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN16_top.eps

¹⁷⁴https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN17.eps

¹⁷⁵https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN17_top.eps

¹⁷⁶https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN18.eps

¹⁷⁷https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN18_top.eps

¹⁷⁸https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN19.eps

¹⁷⁹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN19_top.eps

¹⁸⁰https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN20.eps

¹⁸¹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN20_top.eps

¹⁸²https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN21.eps

¹⁸³https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN21_top.eps

¹⁸⁴https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN22.eps

¹⁸⁵https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN22_top.eps

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.10b	23	rcoelho tags/candidates	26160 - 26919	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New cxdiag + ecediag upper limit.	- 2D cross section of AUG in RUN23 ¹⁸⁶ - Top view of AUG in RUN23 ¹⁸⁷
4.10b	24	rcoelho tags/candidates	26920 - 30150	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New ecediag + ecediag upper limit.	- 2D cross section of AUG in RUN24 ¹⁸⁸ - Top view of AUG in RUN24 ¹⁸⁹
4.10b	25	rcoelho tags/candidates	30151 - 30715	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New ecediag.	- 2D cross section of AUG in RUN25 ¹⁹⁰ - Top view of AUG in RUN25 ¹⁹¹
4.10b	26	rcoelho tags/candidates	30716 - 99999999	interfdiag, magdiag, msediag, nbi, pfsystems, toroidfield, wall, (cxdiag,ecediag,tsdiag only on mapping files)	New equilibrium.	- 2D cross section of AUG in RUN25 ¹⁹² - Top view of AUG in RUN25 ¹⁹³

6.6 TCV

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.09a	1	rcoelho tags/candidates	13550 - 44406	interfdiag, limiter, magdiag, pfsystems, toroidfield, vessel	secured + missing data access enabled; complete pfsystems	- 2D cross section of TCV in RUN1 ¹⁹⁴ - Top view of TCV in RUN1 ¹⁹⁵

6.7 FTU

Data version	Run	User Id / Path	Pulse range	CPOs	Comments	Illustrations
4.07b	1	rcoelho tags/candidates	32000 - 34000	interfdiag, limiter, magdiag, pfsystems, toroidfield, vessel	complete pfsystems (no passive though).	
4.08a	2	rcoelho tags/candidates	32000 - 34000	interfdiag, limiter, magdiag, pfsystems, toroidfield, vessel		
4.08b	3	rcoelho tags/candidates	32000 - 34000	interfdiag, limiter, magdiag, pfsystems, toroidfield, vessel		- 2D cross section of FTU in RUN3 ¹⁹⁶ - Top view of FTU in RUN3 ¹⁹⁷

For more updated information on the MD and DM activity please check the [md_and_dm project](#)¹⁹⁸ in Gforge¹⁹⁹

last update: 2019-01-31 by g2dpc

¹⁸⁶https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN23.eps
¹⁸⁷https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN23_top.eps
¹⁸⁸https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN24.eps
¹⁸⁹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN24_top.eps
¹⁹⁰https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN25.eps
¹⁹¹https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN25_top.eps
¹⁹²https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN25_top.eps
¹⁹³https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_AUG_RUN25_top.eps
¹⁹⁴https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_TCV_RUN1.eps
¹⁹⁵https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_TCV_RUN1_top.eps
¹⁹⁶https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_FTU_RUN3.eps
¹⁹⁷https://www.efda-itm.eu/ITM/graphics/edrg/public/edrg_Machinedescription_FTU_RUN3_top.eps
¹⁹⁸https://gforge6.eufus.eu/project/md_and_dm/
¹⁹⁹https://www.efda-itm.eu/ITM/html/itm_glossary.html#g_gforge

7 UalGetCpoBundle Workflow

Contact: Thomas Johnson, tjohn@kth.se .

Modelling real plasmas requires input from both the relevant experimental database and information about the machine hardware and settings. The purpose of the UalGetCpoBundle is to provide a workflow that reads both input CPOs related to the plasma state and the once that are related to the hardware. The workflow then bundles these CPOs into the CPOS-branch of the [EU-ITM bundle](#)²⁰⁰. The target applications of this workflow is as an initialisation actor in workflows like the HCD workflow and the ETS.

The actor is still under development and need to be tested. So far only the wall, the nbi and the antennas CPOs are read from the machine description database, but more CPOs will be added (e.g. pfsystems and ironmodel). Note that the UalGetCpoBundle does not fill in the discharge related hardware settings. These have to be set externally with actors like the addECant, addICant and nbifiller.

7.1 Input to UalGetCpoBundle Actors

The UalGetCpoBundle actor has a number of input ports, through which all input to the actor are passed. The list of input ports reads:

Port name	Datatype	Description
UserName	String	Name of the user whos UAL database we shall read from
MachineName	String	Name of the machine (tokamak) used when accessing the UAL database
ShotNumber	Integer	Shot number to be used when reading from the UAL database
InputRunNumber	Integer	Run number to be used when reading the main CPOs from the UAL database
TemporaryRunNumber_MainCpos	Integer	Run number used when the UALInit temporarily store the main CPOs during a run. Also referred to as <code>runwork</code> .
TemporaryRunNumber_MachineDescriptionCpos	Integer	Run number used when the UALInit temporarily store the Machine Description CPOs during a run. Also referred to as <code>runwork</code> .
SelectMachineDescriptionCpos	Bundle	Bundle of three boolean fields: { <code>use_MD.wall=True/False</code> , <code>use_MD.nbi=True/False</code> , <code>use_MD.antennas=True/False</code> } The three field are used to select if the wall, the nbi and the antennas CPOs should be taken from the Machine Description Database or from the <code>shot=ShotNumber</code> and <code>run=InputRunNumber</code> .

7.2 Design of the UalGetCpoBundle-Workflow

The UalGetCpoBundle-Workflow has been developed purely for the testing and development of the UalGetCpoBundle actor. This workflow (1) provides an interface for prescribing the input to be used by the UalGetCpoBundle actor and (2) it prints the output from the same actor.

To fill the input data double click on the composite actor at the top-level of the workflow. A box will then pop up where you can fill in each of the input parameters described above, as illustrated in figure 1. These parameters are then fed into the actor as illustrated in figure 2.

²⁰⁰https://www.efda-itm.eu/ITM/html/itm_conventions.html#itm_conventions_plasma_bundle

This is a test workflow for the composite actor:
 -- UalGetCpoBundle--



To adjust the input, double click on the actor below.



Figure 1. The top level of the UalGetCpoBundle-Workflow provides an interface for describing the input to the UalGetCpoBundle actor.

- user_name: 'tjohnson'
- machine_name: 'jet'
- shot_number: 77922
- input_run_number: 1006
- runwork_number: 998
- runwork_number_MachineDescription: 999
- use_MD_wall: false
- use_MD_nbi: false
- use_MD_antennas: false

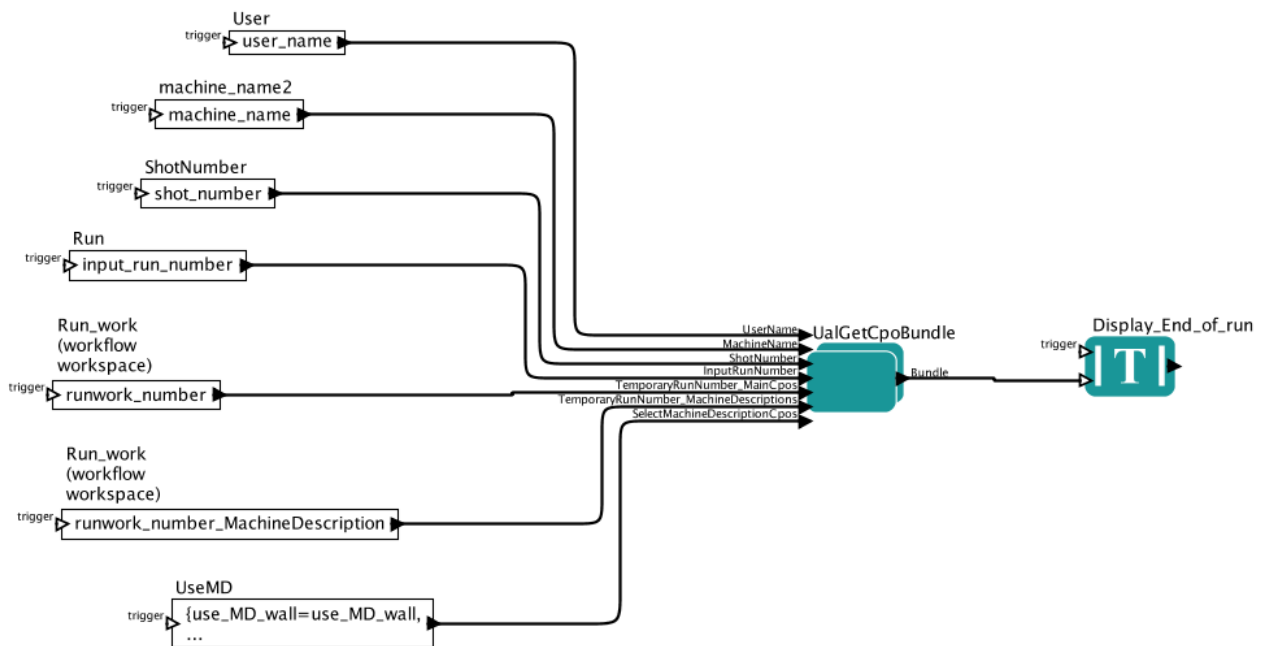


Figure 2. Calling the UalGetCpoBundle actor in the UalGetCpoBundle-Workflow .

7.3 Design of the UalGetCpoBundle Actor

The UalGetCpoBundle actor, outlined in the figure 3 below, consists of four composite actors and some logic to connect these.

- The first of these actors is Validate_Input (see figure 4), which checks the three input run numbers to make sure they are all different.
- The second actor reads all the main CPOs from the input run number InputRunNumber and is called UAL_read_main_CPOs (see figure 5).

After the third actor there is a switch to determine which Machine Description data is requested and if we need any of the machine description CPO. If we do not, the output from `UAL_read_main_CPOs` will be sent to the output of the `UalGetCpoBundle` actor, otherwise the third actor `UAL_read_machine_description_CPOs` is called.

- This third actor (see figure 6 and 7) first identifies the relevant triplet of `UserId/Shot/Run` to be used when reading data from the machine description database. This procedure uses an xml-document from the `md_and_dm` -repository that related e.g. JET shot 77922 with a certain set `UserId/Shot/Run`. Once this triplet is known the `UALInit` is called and its output is finally bundled.
- The fourth and final composite actor is `Insert_Machine_Descriptions_to_CPO_bundle`, which merges the Machine Description CPOs according to the specifications in the input port `SelectMachineDescriptionCpos`.

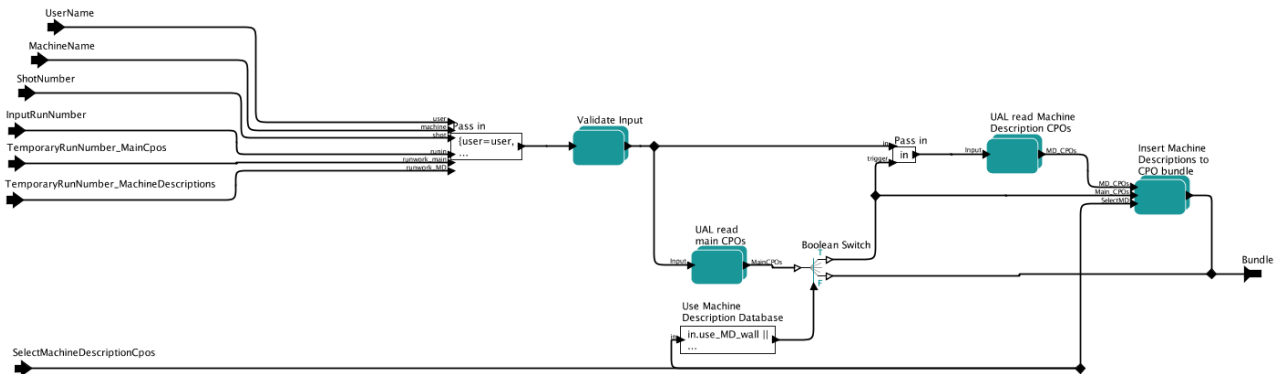


Figure 3. Outline of the `UalGetCpoBundle` actor.

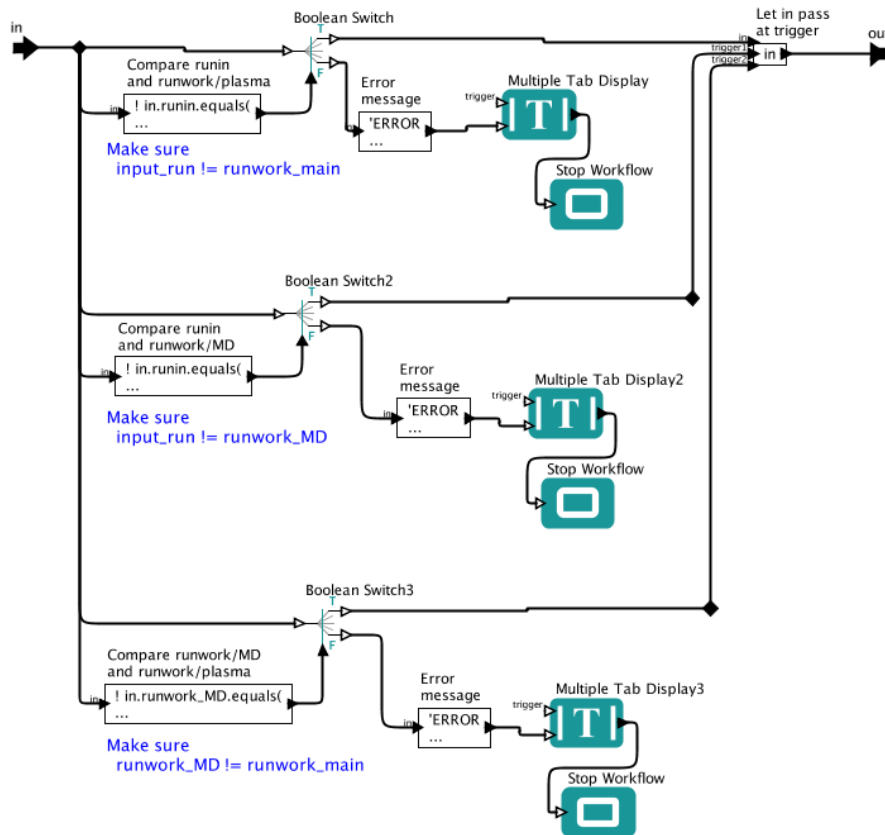


Figure 4. The `Validate_Input` composite actor, part of `UalGetCpoBundle`.

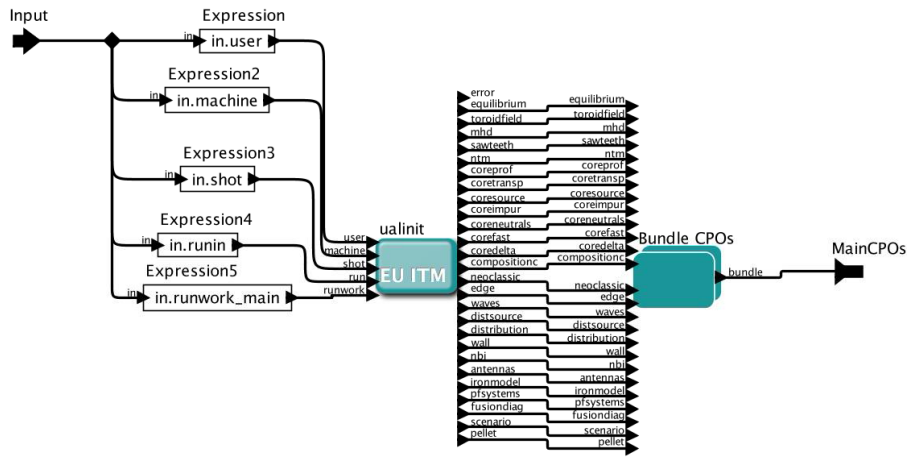


Figure 5. The UAL_read_main_CP0s composite actor, part of UalGetCpoBundle .

● machineDescriptionXML: '/pfs/home/tjohnson/public/codes/machineDescriptionDataba...

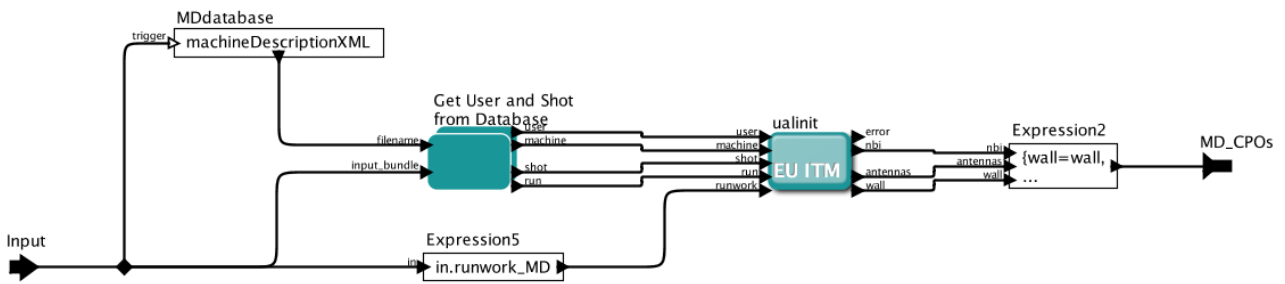


Figure 6. The UAL_read_machine_description_CP0s composite actor, part of UalGetCpoBundle .

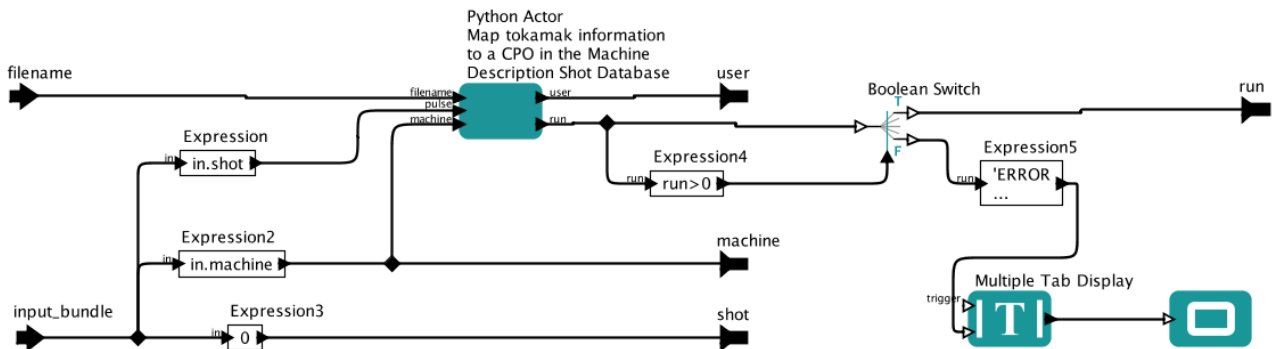


Figure 7. The Get_User_and_Shot_from_Database composite actor, part of UalGetCpoBundle/UAL_read_machine_description .

8 Private EDRG pages

To access the [private EDRG pages](https://www.efda-itm.eu/EDRG/html/index.html)²⁰¹, an EDRG password is needed.

last update: 2015-04-21 by tjohnson

²⁰¹<https://www.efda-itm.eu/EDRG/html/index.html>