



ETS status and foreseen activities in support of JT-60SA

Dmitriy Yadykin, Pär Strand, Emil Fransson and ETS team



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European Transport Simulator

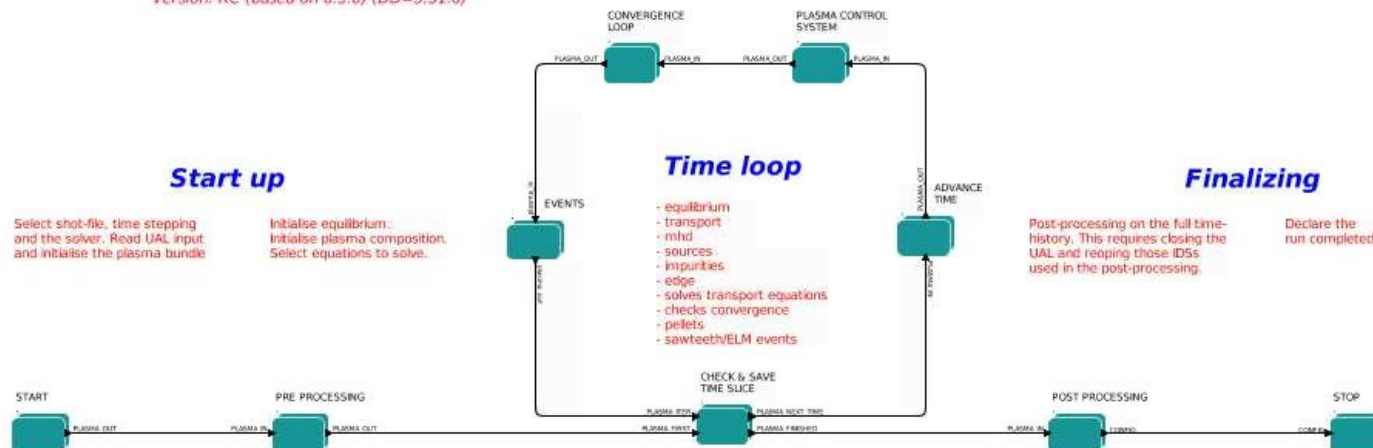


- Kepler workflow to solve transport equations to study plasma evolution in tokamaks
- Data is read/saved in the standard format (CPOs for ETS5 or IDss for ETS6)
- Main development platform - Gateway, ported to JET, further porting options (contanerization) is explored presently

European Transport Simulator

IMAS

Version: RC (based on 6.3.0) (DD=3.31.0)





- IMAS based version of ETS (ETS6) will be the main modelling tool
- Conversion of the major ETS5 modules to the IMAS based ETS6 is completed during 2020 by WPCD members.
 - Last modules (impurity) being completed as a part of extended FP8 activity
 - Plans to add CDBM and HPI2 during spring
- Validation tests are ongoing for different tokamak devices (ITER, JET, AUG, TCV), JT-60SA is supported in ETS5, upgrading machine description for IMAS version
- Extensive set of physics actors are available (some are listed below):
 - Equilibrium: CHEASE
 - Transport: TCI package(NCLASS,TGLF,QLK,NEO..)
 - HCD: ASCOT package (BBNBI, ASCOT, AFSI), Gray,..
 - Edge: PENN, cec
- Documentation:
 - https://iterphysicswiki.euro-fusion.org/index.php?title=ETS-6_Documentation
 - https://iterphysicswiki.euro-fusion.org/index.php?title=ETS_training_and_modelling_session_23_November_-_4_December_2020



- Time plan (2021)
 - Setup, demonstrate and deploy ETS for scenarios modelling
 - activities using ETS for JT-60SA modelling were started in 2019, possible to use as starting point
 - description of the machine hardware (vessel, heating systems)
 - input data conversion mechanism should be clarified
 - data in IMAS format required
 - Revisit/convert CPO base
 - verification with available modelling results
- Interests: Scenario modelling:
 - interpretive simulations using precalculated profiles
 - predictive modelling including current ramp-up/down
 - various heating schemes
 - different operational regimes (L-mode, H-mode)
 - impurity transport
- New activity for us: very keen on getting involved

