

# ECSS-E-ST-40C Rev1 Working Group status

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- 22 participants from 9 organisations
- Kicked-off on 01/10/2019 ... for one year
- Meetings impacted by Covid-19
  - only one face to face meeting
  - 23 web conferences
- Work delayed by:
  - Initialisation of a new standard dedicated to security (ECSS-Q-ST-90?)
  - Synchronisation with ECSS-E-ST-20-40C
  - Synchronisation with ECSS-E-ST-80C Rev.2
- Public review initiated on 23/08/2022, closing on 18/11/2022

Airbus Defence and Space SAS	1
ArianeGroup	2
CNES	3
DLR	2
ESA	9
INTECS	1
OHB	1
Thales Alenia Space	3

- **69 CRs** have been processed
- Change requests have been analyzed and dedicated subgroups have been identified for the ones requiring specific expertise and additional work:
  - **Security** (one CR): very large impact on the standard: new section, clauses and requirements
  - **HW/SW co-engineering**: collaboration with the ECSS-E-ST-20-40C Working Group
  - **Software Verification**: improve the verification of the source code
  - **ISVV**: coordination with the ISVV guidelines update project – Limited/no impact on the standard.
- Important aspects:
  - No modification of current numbering (requirement/clause/annexes) (constraint of revision)
  - Some requirements updated, some added (not always with logical numbering), none deleted
  - New Annexes

- Definition of software (in coordination with ECSS-E-ST-20-40C):
  - set of instructions and data executed on a processing unit
    - NOTE 1: A processing unit can be hardware, for example a processor or software, for example a virtual machine or an interpreter.
    - NOTE 2: Some processing units only require data, for example configuration of state machines or configuration data of a neural network.
    - NOTE 3: Files using Hardware Description Languages (VHDL, Verilog, System-C) used to model ASICs or bit stream files used to programme FPGAs are not software.

- **From CPU to Processing Unit:** to consider individual cores and any type of processing unit in technical budgets
- Make the standard **less waterfall oriented**
- **Introduction of Security** has large impact on the standard: new section, clauses and requirements
- Address impact of **Hardware-Software co-engineering** process: Limited to SSS, IRD and SDP
- **Technical Budgets:** No more figure provided in a note and a fixed formula to compute memory margin
- Software validation control – **Software VCD** introduced but in electronic format only
- Two new technical reviews (but no additional work)
  - **Software Delivery Review Board:** to accept a software delivery w.r.t. its expected use
  - **Software Validation Specification Review:** to anticipate TRR with the verification of the SVS
- **Software Management Plan DRD** moved from handbook to standard
- **Software code verification annex** added to detail expected verifications to be performed

- Public review is open until 18<sup>th</sup> of November 2022 in parallel to ECSS-E-ST-20-40C
- DRRs can be proposed to ECSS through the website (<https://ecss.nl>)
- Process of received comments (DRRs) in Q1 2023
- Publication early 2023
- Meanwhile, ...
  - update of ECSS-HB-ST-40A is on-going
    - to align to ECSS-E-ST-40C Rev1,
    - to update best practices
  - update of ECSS-Q-ST-80C Rev1 is on-going