DRAMA 3.0.0

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DRAMA 3.0.0 Scope

- First stop for verification of ESA space debris mitigation requirements
  - Provision reference results
  - Indication of what more sophisticated result should entail

- Target mission designers (engineers & operators)
  - **Phase 0/A (catch risks early)**
  - **Phase B/C/D/E (support design decisions and operations)**
  - Phase F (Enable the interpretation of surveillance data)

- Catering to the **procedural user** vis-à-vis a **creative user**

DRAMA 3.0.0 Scope

ARES
Assessment of Risk Event Statistics:
Analyze requirements for collision avoidance manoeuvres expected for a mission.

MIDAS
MASTER (-based) Impact Flux and Damage Assessment Software:
Modeling of the collision flux and damage statistics for a mission.

OSCAR
Orbital Spacecraft Active Removal:
Analyze disposal scenarios and assess compliance with mitigation requirements.

CROC
Compute projected cross-sectional areas of complex bodies

SARA
Spacecraft Entry Survival Analysis Module (SESAM): Modeling the re-entry.
Spacecraft Entry Risk Analysis Module (SERAM): Assessing on-ground risks of objects surviving re-entry.

DRAMA 3.0.0 Scope

Major upgrades include:

- Integrating new MASTER 8 functionality in MIDAS & ARES
- Upgrading ARES based on up-to-date space surveillance statistics
- Introducing python wrapper around all tools
- Redesigning the SARA module for evolving needs

Licence (DRAMA and MASTER)

2005: On request single user licence after approval for specific use

2014: Worldwide distribution (minus sanctioned countries and embargoed countries), for use on ones own space mission.

2015: Registration and distribution of software automated via a web portal; user support provided.

2019: Worldwide distribution (minus sanctioned countries and embargoed countries).

Roadmap

ESA's commitment to transparency and advancement in the field of space debris mitigation implied:

- Publication of detailed implementation standards/guidelines
- Allowing unrestricted access to tools in support there of

Next steps:

- Open source DRAMA code (permissive, referenced, central governed master)
- User and developer community development
- Development or adoption of data exchange formats between tools

Roadmap (short term)

- Release version available at https://sdup.esoc.esa.int
- The audience is welcome to test features in real-time

- https://sdup.esoc.esa.int/drama/known-issues

- Bring together regulator, implementer, and validator