A First Look at the Upcoming SISO Space Reference FOM

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Abstract:

Simulation is increasingly used in the space domain for several purposes. One example is analysis and engineering, from the mission level down to individual systems and subsystems. Another example is training of space crew and flight controllers. Several distributed simulations have been developed for example for docking vehicles with the ISS and for mission training, in many cases with participants from several nations. Space based scenarios are also used in the "Simulation Exploration Experience", SISO's university outreach program. We have thus realized that there is a need for a distributed simulation interoperability standard for data exchange within the space domain.

Based on these experiences, SISO is developing a Space Reference FOM. Members of the product development group come from several countries and contribute experiences from projects within NASA, ESA and other organizations. Participants represent government, academia and industry.

The first version will focus on handling of time and space. The Space Reference FOM will provide the following: (i) a flexible positioning system using reference frames for arbitrary bodies in space, (ii) a naming conventions for well known reference frames, (iii) definitions of common time scales, (iv) federation agreements for common types of time management with focus on time stepped simulation, and (v) support for physical entities, such as space vehicles and astronauts.

The Space Reference FOM is expected to make collaboration politically, contractually and technically easier. It is also expected to make collaboration easier to manage and extend.