



Contribution ID: 14

Type: **Poster**

## **Cubesat Subsystems Preliminary Design: Nanostar Software Suite (NSS) First Prototype**

NSS (Nanostar Software Suite) aims at helping to get a strong data consistency between expert software during a mission analysis preliminary design. In fact, designing a nanosatellite requires close interrelation between different fields, with respectively strong level of expertise, all the more so as development progresses.

A lot of software bricks already exist for such a purpose, e.g. space mechanics libraries that are extendedly used during mission analysis. Expert tools inputs, outputs and models are then often strongly intertwined in this kind of projects. Event if efforts on standardization are undertaken (e.g. CSSDS), strong and rigorous data management, update, and checking is currently required all along project development cycle.

For this purpose, we are currently developping NSS. It is not an heavy client application. It has an Angular GUI (Nanospace) frontend, accessible through a browser, a graph Neo4j database deployed on a distant server and a constellation of possible softwares to be connected with, seen from NSS users as web applications. It allows user to be easily (or at least that what we hope!) connected with a simple RESTful interface, using a common and centralized database, in order to ease some interdependent data update and visualization. One of our requirement is to let the user define to which point he/she wants to automatize the interaction with the database, and to re-use already existing softwares and libraries as far as possible - users use to be attached to their own codes, and we don't want to force them to use one expert tool or another.

NSS is currently under development. We are trying to focus especially on favoring standards as far as possible, providing something easy to use (especially for students) and a way to work concurrently for engineering teams. NSS is Open source (AGPLv3 Licence), a prototype is available on <https://sourceforge.isae.fr/projects/nanospace>. A test server is also deploy on <https://dcas-nanostar/>. Part of this work is supported by SUDOE Nanostar project (<http://nanostarproject.eu/>).

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