

## Proposal

**Title:** Space Robot Operating System (Space ROS)

### Authors:

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**Desired Talk Length:** 30 Minutes

### Summary:

Space Robot Operating System (Space ROS) is an open-source software framework for flight-quality robotic and autonomous space systems. It combines the benefits of open-source software and flight software best-practices into a single framework. Space ROS is predicated on ROS 2 and is therefore reusable, modular and adoptable. As an open-source framework, it is accessible to the global space community. Space ROS is intended to be compliant with NASA flight software engineering practices in order to facilitate meeting mission and safety standards. Space ROS has fault management and real-time capabilities at its core.

### Description:

- **Relevance to the ROS Community** – Space ROS leverages open-source ROS 2 to mature robust flight system software with the intent to become a sustainable, de facto standard for robotic and autonomous space systems. It is relevant to space roboticists who have an explicit interest in leveraging ROS into their systems. Most Space ROS is open-source and accessible to space robot developers worldwide, thereby enabling open-community contribution and use. The Space ROS team intends to change how space robot software is developed and maintained by including an open community of space enthusiasts and industrial subject matter experts in the Space ROS software life cycle.
- **Quality of Content/Impact** – Blue Origin and NASA subject matter experts, in coordination with Open Robotics, are intent on developing a software framework that will influence how robotic flight software is matured, qualified and maintained. When successful, Space ROS will represent a paradigm shift in how spacecraft flight software is matured and maintained.
- **Originality/Novelty** – There does not currently exist an open, reusable software framework for robotic and autonomous space systems. Space ROS is a new software framework designed specifically for robotic and autonomous space system. It has the added benefit of an open community of supporters.
- **Open-Source Availability** – Core Space ROS software is available to the open-source community via Github. Space ROS will maintain interoperable with other frameworks predicated on ROS 2, such as Apex.OS. To remain export compliant and to protect intellectual property, we are also exploring a registry model like that used by ROS-Military.

**Audio Abstract:**

We will submit a maximum one-minute, single-take recording (Mp3 or ogg format) of the Blue Origin presenter describing the content of the talk. The narrative for the recording will draw from the summary and key points in the description.

**Key URL:**

We will consider establishing a URL prior to the conference but for now propose merely stating “coming soon”.

**Twitter Handle(s):**

Similar to above for key URL.