

**Office of Space Commerce, National Oceanic and Atmospheric  
Administration, Department of Commerce**

**Request for Information on Scope of Civil Space Situational Awareness  
Services**

**RTID: 0648-XV190**

**Comments of the Secure World Foundation**

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## Statement of Interest

The mission of the Secure World Foundation is to work with academia, governments, industry, international organizations, and civil society to develop and promote ideas and actions to achieve the secure, sustainable, and peaceful uses of outer space benefiting Earth and all its peoples.

As a non-governmental organization devoted entirely to space sustainability, the Secure World Foundation strives to be a trusted and objective source of leadership and information on space security, sustainability, and the use of space for benefits on Earth. We use a global and pragmatic lens to study and evaluate proposed solutions to improve the governance of outer space. While recognizing the complexities of the international political environment, SWF works to encourage and build relationships with all willing stakeholders in space activities, including government, commercial, military, civil society, and academic actors. Central to this approach is increasing knowledge about the space environment and the need to maintain its stability, promoting international cooperation and dialogue, and helping all space actors realize the benefits that space technologies and capabilities can provide.

We are very pleased to see the Department of Commerce continuing to work on implementation of Space Policy Directive 3 and a U.S. space traffic management framework (STM). This is a critical issue to ensuring the long-term sustainability of space for all space actors, including a vibrant and diverse commercial space economy. Our organization and staff have been heavily involved in this issue, including organizing panel discussions and workshops to bring together stakeholders, testifying before Congress,<sup>1</sup> and providing inputs to various executive branch agencies.

Based on this work, we offer the following public comments in response to the Request for Information on Scope of Civil Space Situational Awareness Services.

### A. Scope of Proposed Basic SSA Safety Services

The current SSA data and products provided by the U.S. Department of Defense through the Space Track website are a valuable tool for increasing knowledge and awareness of space activities and their impact on the long-term sustainability of the space environment. While perhaps not originally intended for use by a wide audience, the openness, accessibility, and perceived authority of the Space Track website has led to widespread use for a huge number of applications far beyond avoiding collisions in space. This openness was critical in both building confidence in the Space Track website and increasing the global trust in the SSA information provided by the United States government.

We feel it is important to explicitly acknowledge that there is a wider universe of users of the civil SSA basic services than satellite operators and companies. While satellite operators are a very important set of users, other groups such as academia, civil society, and the public need to be acknowledged when

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<sup>1</sup> See “Testimony given by Dr. Brian Weeden before the U.S. House Committee on Science, Space and Technology Subcommittee on Space Hearing on ‘Space Traffic Management: How to Prevent a Real-Life ‘Gravity,’ Washington, D.C., May 9, 2014, [https://swfound.org/media/206932/weeden\\_house\\_ssa\\_testimony\\_written\\_feb2020.pdf](https://swfound.org/media/206932/weeden_house_ssa_testimony_written_feb2020.pdf), and “Testimony given by Dr. Brian Weeden before the US. House Subcommittee on Space and Aeronautics on ‘Space Situational Awareness: Key Issues In An Evolving Landscape,’ Washington, D.C., February 11, 2020, [https://swfound.org/media/169974/weeden%20testimony\\_may2014.pdf](https://swfound.org/media/169974/weeden%20testimony_may2014.pdf)

defining civil SSA basic services and usage rights of those services as they may have different needs than satellite operators. Supporting these additional categories of users is critical to achieving the United States' national space policy principles and goals, including advancing the openness, transparency, and predictability of space activities and creating a safe, stable, secure, and sustainable environment.<sup>2</sup>

Non-governmental organizations play an important role in the space community. Think tanks help analyze and discuss challenges and generate potential solutions. Advocacy groups help increase public awareness of space, and foundations play roles in awareness, workforce development, and developing public policy. Academia helps advance the frontiers of science and translating breakthroughs into new technologies and innovations. All of these groups are increasingly using basic SSA to various degrees, whether as inputs to research and analysis or as evidence for why space is an important part of our civilization.

As a non-governmental organization, Secure World Foundation's use of the existing Space Track data and services falls into two general categories. The first is using the data and services as part of our efforts to increase public awareness of space activities and challenges to space sustainability. We routinely refer to and use data from Space Track in public presentations, articles, and discussions to help increase awareness of topics such as orbital debris, congestion in critical orbits, and space traffic management.

The second category is using the data and services as part of academic research. Over the fifteen years, our staff have published several research papers and sponsored or co-authored many more with non-SWF experts that have advanced understanding of the impact of space activities on the space environment,<sup>3</sup> proposed techniques for mitigating or remediating orbital debris,<sup>4</sup> made improvements in the algorithms for propagating space object trajectories,<sup>5</sup> increased the transparency of rendezvous and proximity operations in orbit,<sup>6</sup> and documented the threat posed by destructive antisatellite testing in space.<sup>7</sup> This research would not have been possible without the free and open access to the SSA data through Space Track.

In general, the set of basic SSA safety services proposed by the Office of Space Commerce is suitable for our needs. However, we feel that this proposal would be strengthened by providing additional clarification on the future relationship between the Department of Commerce and the existing Space Track website maintained by the Department of Defense. For example, the proposed list of services does

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<sup>2</sup> "National Space Policy of the United States of America", *The Executive Office of the President*, December 9, 2020, <https://www.federalregister.gov/documents/2020/12/16/2020-27892/the-national-space-policy>

<sup>3</sup> Brian Weeden, "Overview of the legal and policy challenges of orbital debris removal," *Space Policy*, Vol 27 (2011), pp 38-43, <http://www.sciencedirect.com/science/article/pii/S0265964610001268>

<sup>4</sup> Darren McKnight et al, "Identifying Critical LEO Kinetic Space Safety Activities," IAC-22-A6.8-E9.1 x69234, Presented at the 73rd International Astronautical Congress, Paris, France, September 18-22, 2022., Sep 22, 2022, <https://swfound.org/media/207421/bw-iac-22a68-e91x69234-space-safety-activities.pdf>

<sup>5</sup> Juan F. San-Juan et al, "Using the DSST Semi-Analytical Orbit Propagator Package Via the Nondywebtools/Astrowebtools Open Science Environment," IAC-11.B5.2.9, 62nd International Astronautical Congress, Cape Town, South Africa, October 2-7, 2011, <http://swfound.org/media/53069/IAC-11.B5.2.9-Paper.pdf>

<sup>6</sup> Nevan Simone, Brian Weeden, and Moriba Jah, "Introducing the satellite dashboard: A tool for enhancing the visibility of rendezvous and proximity operations in geosynchronous orbit," *Journal of Space Safety Engineering*, Vol 9 (2), June 22, pp. 251-256, <https://www.sciencedirect.com/science/article/abs/pii/S2468896722000027>

<sup>7</sup> Victoria Samson and Brian Weeden, "Global Counterspace Capabilities: An Open Source Assessment," *Secure World Foundation*, April 2022, <https://swfound.org/counterspace/>

not include providing basic orbital information on human-generated space objects in Earth orbit that is already available in Space Track. Does this mean that the Department of Defense plans to continue operation of the Space Track website to provide these data in parallel to the services provided by the Department of Commerce? Does the Department of Commerce plan to take over provision of the Space Track website at some point in the future?

Additionally, we request clarification on whether or not the Department of Commerce will be maintaining its own satellite catalog independent of the Department of Defense. The list of proposed services includes (22) Breakup Detection, Tracking, and Cataloguing or (23) Maneuver Detection and Processing as NOT being included, which suggests that the Department of Commerce will be using a catalog of space objects provided by another entity. While it is feasible in the initial stages for the Department of Commerce to leverage the existing data maintained by the Department of Defense, there are clear advantages to a civil entity having the ability to maintain an independent satellite catalog for providing safety-related SSA services that can provide improved transparency and accuracy beyond what is currently provided.<sup>8</sup>

### **C. Tenets of Participation and Receipt of Basic SSA Safety Services**

As we have noted in a previous comment, determining the proper usage rights for space safety-related data, products, and services is a complicated topic.<sup>9</sup> We applaud the Office of Space Commerce for taking explicit consideration of how their decisions on civil SSA data and services might affect the marketplace and incentives for future innovation.

We reiterate the major lesson from our previous research on this issue: the importance of building trust between SSA data providers and end users. Any data, products, and services that are developed by the Department of Commerce should keep this issue of trust at the forefront. They should be developed with as much transparency as possible so that all potential end users can have confidence in their accuracy and provenance.

We also reiterate the importance of data rights in the provision of civil SSA data and services, especially for non-commercial end users such as academia and civil society. End users of the current Space Track website are required to obtain prior permission before reposting or “transferring” any analysis based on Space Track data.<sup>10</sup> Such a restriction has a chilling effect on innovative uses of such data that could have significant positive social and economic impact. To the extent possible under the law, the Department of Commerce should ensure that the data, products, and services it offers have as broad usage rights as possible, particularly for non-commercial use.

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<sup>8</sup> See Brian Weeden, “Going Blind: Why America is on the Verge of Losing its Situational Awareness in Space and What Can be Done About it,” *Secure World Foundation*, September 10, 2012, [http://swfound.org/media/90775/going\\_blind\\_final.pdf](http://swfound.org/media/90775/going_blind_final.pdf)

<sup>9</sup> See Brian Weeden and Chris Johnson, “Comments of the Secure World Foundation,” RIN 0648-XV18, August 2022.

<sup>10</sup> [https://www.space-track.org/documentation#/user\\_agree](https://www.space-track.org/documentation#/user_agree)