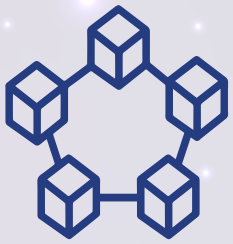
Global Space Situational Awareness Coordination

Office of Space Commerce
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

Global Vision

We envision that in the future there will be a global, coordinated system of SSA providers, with a series of national or regional hubs providing SSA information and services to spacecraft operators. These centers will be supported by networks of international partnerships, and their services will be augmented by a robust global commercial SSA sector.



The number of objects in space is increasing rapidly, and reliable space situational awareness information and services are necessary to support global spaceflight safety and sustainability in this increasingly congested environment. In response to this growing need, the United States Department of Commerce's Office of Space Commerce is developing the Traffic Coordination System for Space (TraCSS).

TraCSS will provide SSA information and services to civil and private spacecraft operators around the world in support of spaceflight safety and sustainability. To be successful, this system must be developed in close coordination with other nations.

As the United States is developing the TraCSS system, many other nations and organizations around the world are also developing or improving their own SSA capabilities. As these developments continue, the Office of Space Commerce is committed to maintaining an open and transparent system that enables global coordination with other SSA providers and ensures reliable and efficient services to global spacecraft operators.

This type of closely coordinated system will be necessary to minimize the potential for spacecraft operators to receive conflicting information about potential conjunction events. It also lays the foundation for future Space Traffic Coordination efforts, which require that spacecraft operators have consistent information on the likelihood and nature of potential conjunctions, allowing for a safe and efficient adjudication of the issue.

However, much needs to be accomplished to move from the status quo to a future in which TraCSS is one of many national or regional SSA providers working in close coordination on a global level. We will continue to engage with close international partners to enable cooperation between national and regional SSA systems in operation or development around the world. Recognizing that space requires truly global cooperation, we will also seek to open lines of communication with nations operating SSA systems that have not traditionally coordinated their efforts with the United States.

These efforts will also seek to align with existing international efforts on space sustainability, such as the United Nations Long-Term Sustainability of Outer Space Activities Guidelines. Throughout this process, the United States will actively engage with global satellite owner/operators as well as commercial SSA providers.

Standards and Best Practices

An early focus for international cooperation in this area should be alignment on standards and best practices for SSA data and information sharing. Adopting standards and best practices for data and information sharing is an important step in facilitating international coordination and ensuring clear and efficient services for spacecraft operators.

As noted in the United Nations Long Term Sustainability of Outer Space Activities Guidelines, "When sharing orbital information on space objects, operators and other appropriate entities should be encouraged to use common, internationally recognized standards to enable collaboration and information exchange." In the United States, Space Policy Directive-3 similarly directs the development of standards to improve SSA interoperability and enable greater SSA data sharing and to establish best practices for space safety. The United States is currently exploring existing options for standards and best practices most relevant to the TraCSS system.

With respect to data standards, the Consultative Committee on Space Data Systems (CCSDS) standards are the most widely adopted standard in the SSA community today, and listening sessions with spacecraft operators and commercial SSA providers suggest widespread awareness and use of these standards. CCSDS standards – as well as derived and complementary standards developed by the International Organization for Standardization (ISO) – are developed through an international consultative process.

CCSDS standards are openly available free of charge to all users, making them particularly well-suited for international coordination. TraCSS will leverage CCSDS and ISO standards that are directly applicable to the types of SSA data and information that TraCSS will provide, although it is likely that some adjustments to the standards will be necessary to fully meet operational needs.

The international space community, including both private and governmental actors, has already produced a number of best practices documents, generated through coordination among spacecraft operators and other industry experts. The United States will build on these existing efforts to adopt policies and best practices for the TraCSS system. In alignment with these goals, the United States will encourage transparency and openness in data sharing among spacecraft operators and SSA providers, while respecting the need to limit access to information that is sensitive or proprietary.

As activity in space rises, global coordination has become increasingly important. This vision for global space situational awareness coordination aims to provide a first step toward a more safe and sustainable global future in space.

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Learn more about TraCSS:
www.space.commerce.gov