

Commerce Department Has Plan To Control Space Situational Awareness

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Credit: NASA

The Office of Space Commerce (OSC) within the Commerce Department is set to implement a three-phase plan to assume control of space situational awareness starting at the end of fiscal 2024, according to an Aviation Week interview with the effort's chief engineer.

“We’re looking forward to next year when we get the new system up and running with our initial capability,” said Sandra Magnus, a former [NASA](#) astronaut who is leading the OSC’s Traffic Coordination System for Space (TraCSS). “It’s hard, but I came back to do this job because technical problems are fun to solve, and this is a good technical problem.”

TracSSS, formerly known as the Open Architecture Data Repository, is a program that allows the Commerce Department to take over space situational awareness (SSA) from the Defense Department as detailed in Space Policy Directive-3 (SPD-3), issued in 2018 by former President Donald Trump.

The Defense Department’s space surveillance network (SSN) currently tracks and catalogs more than 40,000 objects in space on [space-track.org](#), including spacecraft and debris.

However, in September 2022, the Defense and Commerce Departments signed a memorandum of agreement to implement SPD-3 and cooperate on transferring the management of both commercial and civil space traffic to the OSC.

The OSC issued a request for information on the system’s proposed basic services in January and received public comment from 45 commercial space industry members including [SpaceX](#), Blue Origin, Maxar, COMSPOC, the Secure World Foundation, [Telesat](#) and the [Commercial Spaceflight Federation](#).

According to Magnus, people within the industry expressed a number of concerns. Among them were ensuring there is a single standard data repository, methods for sharing data, and whether or not the transition from the Defense Department will be abrupt.

“They’re very concerned that their business cases, their market share might change if the government is operating free services,” she said. “Having it very clearly defined what the government is and what the government is not going to do for them, it’s very important.”

TraCSS consists of three components detailed in a video released by the OSC on July 28: a data repository, infrastructure for third-party services and a research and development environment.

The repository, called TraCSS-OASIS, will hold unclassified data from the Defense Department’s space surveillance network, international partners, commercial sensors and space weather sensors. The data will be used in TraCSS-SKYLINE, which provides commercial and private SSA application services and includes the user portal.

Research and development will occur in TraCSS-HORIZON, utilizing archival data in a setting similar to TraCSS for people to test and model new services that can eventually be integrated into the rest of the system.

TraCSS will be implemented in three phases based on what the Defense Department prioritizes to offload. Orbit conjunction analysis will be the first mission to move to TraCSS, relieving the Defense Department from keeping track of all unclassified satellites. The Transportation Department will offer input for Phases 2 and 3, which are about launch collision avoidance and re-entry collision avoidance respectively, according to Magnus.

“What we’re planning is little chunks at a time, little pieces of on-orbit conjunction screening to pass over so industry doesn’t get disrupted, and they understand clearly who’s going to give them what data,” she said.

Travis Langster, the principal director of space and missile defense policy at the Defense Department, said in a July 28 video that TraCSS will rely mostly on Defense Department data at the beginning. But Magnus added that in Phase 1.3, commercial sensors will be charged with tracking to provide data that allows for smaller “clouds of uncertainty” around objects for more precise understandings of their locations relative to one another.

Phase 1 will start in September 2024 and is planned to take until the end of 2025 to fully execute. The OSC will gradually implement more on-orbit capabilities throughout the year.

Although the timelines for Phases 2 and 3 have not formally been laid out yet, they are expected to take about another year or two. In preparation for Phase 2, the OSC and Transportation Department will start to converse about collision awareness in the fall, Magnus said.

“As more and more people engage in launching satellites, I think the way you deal with those from a safety and a sustainability viewpoint is going to have to change too,” she said. “You have to think of TraCSS as a living system that’s always going to be evolving.”

While the Defense Department focused on national security with its space surveillance network, TraCSS instead focuses on safety and sustainability, which involves looking at the possibilities of extending the life of satellites and capturing and deorbiting debris to prevent litter from orbiting Earth.

Just as traffic on a highway gets clogged and causes a standstill, Magnus said sustainability metrics are being developed to understand how many satellites can reasonably be at the same orbit at the same time without causing congestion, especially as more countries plan to start utilizing remote sensing.

“Not all the countries on the planet are working in space yet,” Magnus said. “There’s a lot more people coming on board, so we have to kind of figure out, as a globe, how to make sure we don’t mess up space so we can’t use it anymore.”