

Vyoma response to RFI on scope of civil SSA services

Scope of proposed basic SSA safety services

For each of the services discussed above, OSC is seeking public input about whether the service should be included in TraCSS, and if so, whether it should be part of the initial offering or added in the future.

We acknowledge that free services provided by OSC are necessary to maintain the safety, stability, and sustainability of space operations. We would argue that everything that goes beyond this immediate need should not be free of charge. For us, a sensible demarcation line is between protecting the needs of the global space community (e.g., avoiding collisions) and tendering to the needs of the individual operators (e.g., additional tracking to save unnecessary avoidance maneuvers or other decision, or support for maneuver planning).

Hence, we would argue that services 1-8, and 10 should be for free, because they ultimately protect all current and future stakeholders. We would further argue that services 9, 11-23 should not be provided for free, because they are less relevant for the safety of the environment and instead mainly benefit O/O economically, as corporate savings can be achieved at the expense of the taxpayer.

Therefore, we recommend to remove services 9, 11-14, encompassing precise PoC calculation, additional tracking to improve data accuracy and plannability, visualization of historical information and space weather sensitivity, from the free of fee basic services.

Additionally, OSC seeks input on whether the services should be developed by the government or purchased from commercial vendors and redistributed.

In our opinion, the services provided today by the DoD and 18 SDS are of high quality. It is sensible that services necessary for the safety and sustainability of space are developed by the government.

Does the proposed basic safety SSA service provide sufficient data to allow ongoing operations of orbital assets at a level equal to or beyond that currently provided by the DoD?

Equal level

What proposed basic safety SSA services are essential to your ongoing operations? If the U.S. Government were to prioritize the delivery of individual services as part of TraCSS, which ones should be provided soonest?

As a third-party space safety provider to satellite operators, we are currently dependent on CDMs provided by space-track through the secondary representative channel. Additionally, we rely on SP ephemeris and fuse it with additional observational data that we generate. Hence, continued access to CDMs and SP ephemeris for SSA service providers are crucial for us.

What, if any, additional capabilities beyond those currently provided by the DoD should be included in the TraCSS?

Provision of covariance information alongside the SP ephemerides would be helpful for our data fusion algorithms.

Are there any additional capabilities not listed that should be included in the basic SSA safety service to provide a baseline level of safety for owners and operators?

It would be helpful if a CDM – showing low levels of probabilities – would be issued when exiting a dangerous situation, such that operators can deprioritize such conjunctions.

Where applicable, at what level or how often should the service be performed (e.g., DoD currently provides these assessments three times a day.)?

For us, the demarcation line here again is between benefits to all and benefits to individuals. 8-hourly assessments are sufficient to trigger analysis and potentially implementation of avoidance maneuvers. Increasing the frequency mainly benefits the O/O, as it leads to cost reductions through savings of maneuvers. Hence, this is a financial interest better served by commercial entities.

[Impacts of proposed Basic SSA Safety services on commercial SSA providers](#)

Are any of the basic SSA safety services readily available from the current U.S. SSA industry? If so, is the service affordable to owners and operators of spacecraft?

We detect that the current worldwide SSA industry does not have the capability to maintain the safety of the space environment, mainly due to a lack of high-quality surveillance and tracking data or prohibitively high costs thereof.

For commercial SSA service providers, does the current SSA capability offered by the DoD have any impacts on your current or future product offerings?

Yes, we rely on CDMs – provided through the secondary representative channel – and SP ephemerides provided by the DoD. For the next 24 months, we will not be in the position of replacing their services, and a removal thereof could be a critical blow to our current offerings, as well as the operations of our customers.

For commercial SSA service providers, do any of the basic SSA safety services identified for inclusion in TraCSS have any impacts or implications on your current or future product offerings? If so, which services proposed to be part of TraCSS would have an impact on your offerings and why?

We run dedicated tracking campaigns to update the orbital information on the secondary object (similar to your services 11 and 12). We cannot compete with a free service. The consequence would be a loss of customers and revenue. We would therefore appreciate if the TraCSS would not contain such a service for free. Again, the demarcation line should be clearly defined as benefits for the environment vs corporate benefits to the operators.

For O/Os, are any of the basic SSA safety services identified for inclusion in TraCSS duplicative of what O/Os of spacecraft are already responsible for obtaining or providing?

N/A

Are there unique advantages to the government purchasing and redistributing certain commercial services rather than leaving these to the commercial marketplace?

No, quite the opposite, as it would stifle competition. However, it would be helpful if the government would define minimum requirements for commercial services and certify industry

players accordingly. This would guarantee a certain minimum quality and avoid a race to the bottom in terms of pricing (and service quality).

Tenets of Participation and Receipt of Basic SSA Safety Services

Which basic SSA safety services identified for inclusion in TraCSS should be made publicly available?

Services 1 and 2, i.e., contact information and O/O ephemeris should continue to be available – subject to an agreement – alongside SP ephemeris of the catalogue, as it is the basis of services of many commercial actors. CDMs should continue to be available to providers trusted by the O/O through the secondary representative channel. Publicly, the GP catalogue should remain freely accessible for purposes of educating the general public.

What, if any, information should owners and operators of spacecraft be required to provide to OSC to participate in TraCSS?

Contact information and O/O ephemeris, including maneuvers.

What, if any, actions should owners and operators agree to take to participate in TraCSS as part of the tenets of participation?

If propulsion capabilities are available, O/O should agree to perform collision avoidance if needed. Additionally, O/O should provide ephemeris and maneuver plans on a regular basis.

What should happen when owners or operators fail to provide the relevant information to OSC or fail to take actions consistent with the tenets of participation?

While we are not in a position to propose punitive actions, it is clear that such O/O cannot be excluded from TraCSS, as this would negatively affect the environment. Instead, a score or otherwise a metric could be established factoring in accuracy of O/O inputs. Such a score might eventually be relevant for insurance premiums.

Contact information

We are happy to provide further information on our responses. Please reach out to

Dr Stefan Frey
Managing Director Vyoma GmbH
Berliner Allee 65
64295 Darmstadt
Germany
stefan.frey@vyoma.space