



SDA General Information

What is the SDA?

The Space Data Association Limited (“Space Data Association” or “SDA”) is a non-profit organization incorporated in the Isle of Man, dedicated to assuring satellite flight safety and service quality. SDA services protect satellites by reducing operational risk. Participation is open to all operators, including commercial, civil, academic, or military, in all orbital regimes (LEO, MEO, GEO).

What services does the SDA provide?

The SDA provides three main services:

1. **Conjunction Assessment (CA)** to analyze and warn of close approaches between participating satellites and other space objects, using the best available data, including knowledge of planned maneuvers, to coordinate collision avoidance actions;
2. **Radio Frequency Interference (RFI)** mitigation tools to speed the resolution of interference events and improve service quality; and
3. **Definitive contacts** for the operators who are participating in the SDA, to facilitate rapid and accurate communications, to coordinate CA and RFI mitigation.

What are the key benefits?

- Accurate CA and notifications; RFI mitigation support; and access to reliable contact information for your fellow operators;
- Minimize your operating costs for CA and RFI activities;
- Join the world’s most responsible satellite operators to evolve best practices;
- Reduced workload for CA as the SDA’s systems do all data conversions, analysis and notifications – so you can focus on real events rather than chasing false warnings;
- Reduced workload for RFI investigation, as our systems will send alerts, generate geolocation solution sets, and allow searching of historic RFI events (RFI functions are under development);
- Participate in a global RFI mitigation community with fellow operators, and have access to information, tools and techniques to fight interference;
- Secure data sharing; our systems perform automatic analysis and do not distribute your data;
- Effective legal and technical safeguards to protect your information from misuse; and
- Technical support 24x7x365 by the SDA’s contracted and trusted technical advisor, AGI;

Why should I participate?

The space environment is a critical shared resource, and operators must share certain data to minimize the risk of collisions, maintain service quality and preserve the space resource.

Other CA services rely on radars or telescopes to collect observations without the active cooperation of the satellite operator and do not incorporate advance maneuver plans, producing inaccurate results that do not best predict the satellite’s orbit. Use of this data for CA leads to false alarms or, even worse, missed alarms. Why remain at risk? SDA’s use of operator-provided ephemeris and maneuvers provides the most accurate conjunction analysis and the most trustworthy close approach warnings.

Your participation will encourage more operators to join us, for the operational safety of all.

How do I get more information about the SDA?

The SDA website contains general information about the SDA and how to contact one of its Directors.

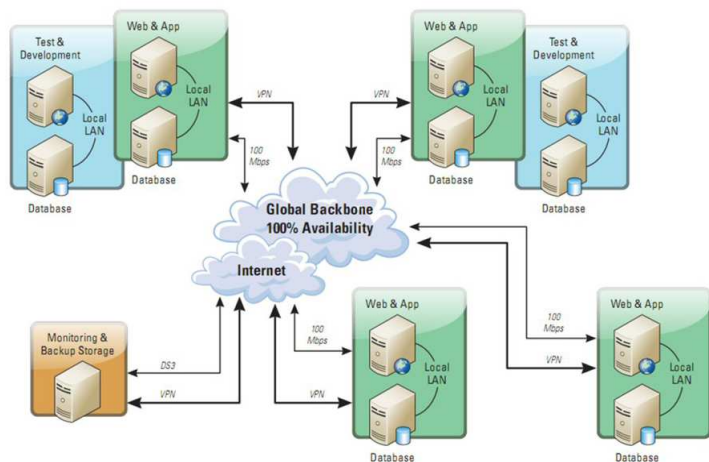
SDA Technical Information

Space Data Center system

The processing system used by the SDA to perform the CA and RFI functions is called the Space Data Center (SDC). Designed and operated by Analytical Graphics, Inc. (AGI), it is built on AGI's commercial software and provides SDA members with networked access to operational functions through a service-oriented architecture. The system automatically ingests and processes operator orbital data; performs conjunction assessments; generates automated warnings; and supports avoidance maneuver planning. It also provides RFI functions to help operators with the efficient mitigation of RFI. Technical operational support is available from AGI on a 24x7x365 basis, to all SDA members.

SDC network

For high availability and protection of members' data, the SDC infrastructure includes two redundant processing nodes on different continents, each node also having redundant processors and databases. A third processing node may be added in the future to further distribute the system. A data backup site provides additional data protection and recovery.



Secure user access

Access to the SDC is highly secure, to assure protection of members' data.

User authentication and security certificates are required to authenticate member access, and communications between the system and users are encrypted. A web services interface is used by members to automatically upload orbital data to the SDC, which minimizes the operational support required from each member for ongoing SDC operation. AGI provides assistance to members for establishing the user access controls and development of the web services interface, to simplify the setup process for new members.

Satellites supported

Initially founded by Inmarsat, Intelsat and SES, the SDA/SDC currently performs collision avoidance monitoring for 225 satellites from 14 geostationary (GEO) operators, and 110 satellites from Low Earth Orbit (LEO) operators. The SDA is open to all operators in all orbital regimes. The graphic shows the supported satellites and their nominal orbital tracks.

