



## SPACE SITUATIONAL AWARENESS

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[Space situational awareness](#) (SSA) is foundational and fundamental to the conduct of all space operations functions and is especially critical to the effective conduct of counterspace operations. Joint Publication 3-14, [Space Operations](#), defines SSA as “the requisite foundational, current, and predictive knowledge and characterization of space objects and the operational environment upon which space operations depend – including physical, virtual, information, and human dimensions – as well as all factors, activities, and events of all entities conducting, or preparing to conduct, space operations.” SSA makes it possible to understand the space domain, allowing effective command and control of counterspace missions, leading to the desired control of space.

SSA is divided into four functional capabilities (see figure, *Space Situational Awareness Functional Capabilities*):

- ★ **Detect / Track / Identify.** Detect / track / identify (D/T/ID) is the ability to search, discover, and track space objects in order to maintain custody of objects and events; distinguish objects from others; and recognize objects as belonging to certain types, missions, etc. D/T/ID’s primary role is in support of safety of flight and support of offensive counterspace (OCS) and defensive counterspace (DCS) missions. This capability is required to provide the data for creation of a user-defined operational picture (UDOP) and presentation to the decision makers. Joint force commanders (JFCs) benefit from a comprehensive knowledge of the inventory of space objects, events, and status that may affect the users’ missions.
- ★ **Threat Warning and Assessment.** Threat warning and assessment (TW&A) is the ability to predict and differentiate between potential or actual attacks, space weather environment effects, and space system anomalies, as well as provide timely friendly force status. TW&A’s primary role is in direct support of OCS and DCS and relies heavily on D/T/ID, characterization, and data integration and exploitation (DI&E). This capability is required to provide the JFC with an assessment of events related to space capabilities (all segments—space, link, and ground) and advanced warning of potential events or threats and their impacts to space capabilities or other capabilities dependent on space. These threat warnings and assessments may also contribute to or serve as indications and warnings of other potential events or threats, which might affect non-space capabilities and/or non-Department of Defense capabilities and services.
- ★ **Characterization.** Characterization is the ability to determine strategy, tactics, intent, and activity, including characteristics and operating parameters of all space

capabilities (ground, link, and space segments) and threats posed by those capabilities. This provides the JFC, and other decision makers, with the knowledge and confidence to make assessments of space capabilities, objects, and events that may affect the mission. Characterization of friendly assets is necessary to support blue system anomaly resolution, establish baselines for evaluating adversary space object surveillance and identification capabilities and CONOPS, and supports indications and warning development.

★ **Data Integration and Exploitation.** DI&E is the ability to fuse, correlate and integrate multi-source data into a UDOP and enable decision-making for space operations. This capability enhances the other three functional capabilities of SSA and provides the ability to identify, correlate, and integrate multiple sources of data and information and to provide SSA services. These enhancements support the JFC and other decision makers by facilitating decision-making (with earlier predictions at higher confidence) and more responsive courses of action for space and non-space forces.

