

Space Delta 2: Mission Federation and Realignment for a Contested and Congested Domain

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ABSTRACT

Space Domain Awareness (SDA) is foundational to all space operations and underpins the overall strength of our Joint Force. However, for decades the Department of the Air Force has executed tactical Command and Control of Space Domain Awareness sensors via a single organization (e.g. 1st Command and Control Squadron, 1st Space Surveillance Squadron, Joint Space Operations Center, 18th Space Control Squadron) with a dedicated backup. This construct was designed to support operations in a benign domain. Executing tactical C2 within a single organization fails to meet the fight tonight challenge and exponential growth of objects and actors in the domain. The combination of increasing congestion in the domain, the newly contested nature of the domain, and limited resources within the United States Space Force necessitates operational federation of both tactical C2 and enterprise analysis in order to maintain battlespace awareness in the domain. Simultaneously, the commercial and civil sectors' involvement in SDA C2 continue to evolve and grow without a single service organization focused on integrating their capabilities in order to improve operations. Accordingly, Space Delta 2 will present a C2 federation plan between 18th Space Defense Squadron (SDS), 18 SDS Det 2, and 19 SDS in order to enable operations in the contested domain and congested domain, and to enable commercial innovation and civil integration. 18 SDS will focus on: mission planning for the SDA enterprise; maintaining the satellite catalog; supporting Space-Track.org and out-reach to allies and partners; and event processing to include launch support, breakup processing and re-entry assessment notification. 18 SDS Detachment 1 will activate in fall 2022 and imbed within the National Space Defense Center to provide tactical SDA in support of Protect and Defend missions at a timing and tempo which meets Task Force-Space Defense's requirements. This detachment will support ASAT processing, custody of threat objects and support future targeting requirements. 19 SDS will assume the spaceflight safety mission for unmanned spaceflight, establish a nascent xGEO tracking and custody capability, serve as an incubator for commercial SDA capabilities, and posture to support Department of Commerce's assumption of spaceflight safety from the Department of Defense. In addition 19 SDS will continue to support the naval fleet with tailored SDA data and serve as the backup for select SDA functions. While Space Delta 2 is still negotiating roles and responsibilities, this federation plan aims to efficiently integrate capabilities to identify, characterize and maintain custody of current and future threats. This federation plan will optimize use of limited resources but develops seams which complicate operations which must be overcome with additional guidance and operations procedures. Moving forward, Space Delta 2 will communicate this federation plan to the wider SDA community of interest, develop CONOPs for execution, establish agreements as needed, and shape joint operational guidance to codify these changes. This effort represents the majority of re-organization efforts within Space Delta 2 which also include re-aligning the Ground-based Optical Deep Space System to the newly-formed 15 SPSS. In total, these re-alignments posture Space Delta 2 to help close kill chain and maintain freedom of action within the domain for the United States, its allies and partners.