



DAFITC 2024

Enterprise Space Data for Joint All Domain Operations

DATA AT THE
SPEED OF NEED

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XMD Data Strategy

Provide data and systems according to mission criticality and provisioned to support armed conflict



We are focused on delivering timely, accurate, and actionable space data. Enhanced situational awareness is essential for enabling Combined Joint All-Domain Command and Control (CJADC2) operations, allowing for faster decision-making and more effective mission execution.



Commercial Data Solutions Key to Modern Warfare & JADC2

- 2024 USSF Commercial Space Strategy
- 2024 DoD Commercial Space Integration Strategy
- FY24 USSF Data & Artificial Intelligence Strategic Action Plan
 - FY25 Action Plan in work
- 2023 Data, Analytics, and Artificial Intelligence Adoption Strategy
- Department of the Air Force Instruction, 90-7001 on Enterprise Data Sharing & Data Stewardship
- 2023 Space Doctrine Publication (SOP) 3-100, Space Domain Awareness



The USSF is focused on expanding opportunities and leveraging more commercial capabilities



Unified Data Library (UDL)



UDL Program Description

UDL is a cloud-based, multi-classification repository that serves as a central hub for accessing and managing data that supports USSF operational systems, turning multiple sources of collection points into a centralized picture.

How it supports National Defense Strategy: Integrates data for use by any analytic provider for any subset of the mission in real-time and at scale to facilitate data fusion, superior analytics, planning and decisions for the tactical edge, all domains, and allies and coalition partners when, where, and how needed.

UDL helps implement the DoD Data Strategy's [Visibility, Accessibility, Understandability, Linkage, Trustworthiness, Interoperability, and Security \(VAULTIS\)](#) goals, fostering a collaborative and adaptable data ecosystem with a diverse range of industry partners.

UDL Strengths and Advantages

- **Centralized Data Repository:** Serves as a single source of truth for space-related data
- **Increased Efficiency:** Reduces redundancy and improves data management processes
- **Improved Situational Awareness:** Offers real-time insights into the space environment
- **Interoperability:** Facilitates data sharing and collaboration across different systems and organizations
- **Scalability:** Adapts to growing data volumes and evolving mission requirements



Enterprise Data Exposure Foundation for USSF to Evolve Decision-Making



Preparing for Modern Warfare

UDL Key Features

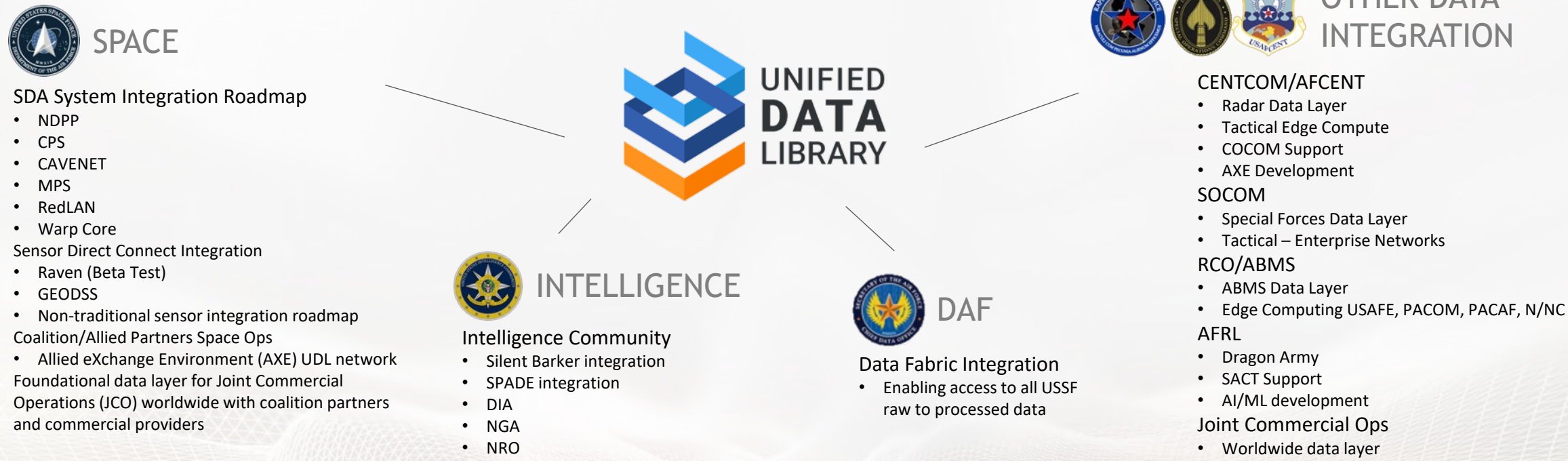
- Message agnostic cloud-based enterprise data repository – free the data!
- Discovery, Ingest, Secure, Storage, and Access to data at scale
- Permit machine-to-machine multi-domain operations with strategic, operational and tactical level instances
- Ensure proper data management and secure data distribution
- Eliminate the N2 integration problem of point to point
- Provides the foundation to evolve decision-making, tasking, and commonality of execution through data fusion with additional data sources



The UDL provides the SDA Data Integration Layer for modern Joint Operations



UDL Userbase Current State



150	1,700	125	2,000+	25	300+	2,209	SENSORS ACROSS	49	SENSOR SOURCES
ACADEMIC	COMMERCIAL	ALLIED	GOVERNMENT ACCOUNTS	COUNTRIES	SCHEMAS				
SUPPORTS	12	PROGRAMS OF RECORD	70	APPLICATIONS INGESTING UDL DATA	50M	OBSERVATIONS / DAY FOR SDA	270B	OBSERVATIONS / DAY FOR ALL CLIENTS	
APIs that meet internation data standards for space traffic management									



Supporting Joint Operations

UDL Use Cases

U.S. Special Operations Command (SOCOM)

In 2022, SOCOM operationally accepted the UDL to track operations across the SOCOM enterprise and the real-time locations of their forces. The UDL provides the data layer in the SOCOM Mission Command System/Common Operational Picture (COP), which enables military users to share real-time information—live—across a single platform.

Tactical Surveillance, Reconnaissance and Tracking (TacSRT)

TacSRT teams utilized the UDL marketplace to purchase commercial data products for operational and planning purposes in support of Resolute Sentinel 2023. This information led to the real-world detection of illegal fishing vessels, enabling targeted interdiction efforts by regional authorities.

U.S. Indo-Pacific Command (INDOPACOM)/U.S. Africa Command (AFRICOM)

During INDOPACOM's Valiant Shield 2024, Air Mobility Command (AMC) diverted Airlift Tanker Open Mission Systems (ATOMS) kits equipped with Tactical UDL (T-UDL) to support a real-world operation in the AFRICOM area of responsibility. T-UDL serves as the data layer to ATOMS to ensure data synchronization and continued access to UDL data even in environments with no internet access.



A joint special forces team moves together out of an Air Force CV-22 Osprey aircraft.



Using the UDL marketplace, TacSRT helped facilitated the detection of illegal fishing vessels.



UDL Security Tenets

First system for DAF Cloudworks Commercial Cloud Environment Office to obtain a 3-year Unconstrained ATO

“ The test team is struggling to find any vulnerabilities on production and are just about out of options at this point. We are so limited in what we can do because of the Amazon security features and those implemented by Bluestaq ”

47th Cyberspace Test Squadron, 8 Dec 21 (Similar comments in Dec 22)

“ I made the decision if the testing for Secret and Top Secret are as successful as Unclassified, I will sign a 3-year ATO for the 3 domains ”

Delegated Authorizing Official, 9 Dec 21

“ There's a balance between 'need to protect' and 'need to share', and this operation [OAR] demanded greater data sharing between multiple agencies. On Aug. 24, the teams made a huge push to implement a plan to link our data to the UDL...Less than a week later, we made the final connections live and went from sharing data with only a few agencies, to sharing it with multiple mission partners on an integrated platform. ”

Col Robert Kelly, AMC Director of Communication and CIO



The UDL is ready for the 2026 Fight!

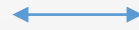


UDL Extensions



Global Data Marketplace

Global Data Marketplace facilitates the ability for commercial providers to provide and expose data across classification levels alongside government providers as needed



- Incentivizes the commercial industry
- Enables immediate interaction
- Allows for immediate payment
- Enables anonymous data acquisition
- Provides market insight for future investment
- Reduces the cost to engage from millions to pennies
- Inclusive to all sectors (commercial, government, academic, allied)
- Allows the government to take advantage of the global commercial industry
- Follows FAR, provides tracking and accounting of funds and data
- If connected to UDL, data can flow within seconds to classified enclaves

Vendors: 114

Consumers: 32 government organizations including:

- 3 IC organization accounts,
- 1 NASA account,
- 1 DOC account,
- 1 SOCOM account
- Australia, Canada

Purchase Stats:

- 139 orders in the last 30 days to 37 different vendors
- 342 orders in the last 90 days
- 709 orders in the last 9 months
- 843 orders in the last 12 months
- 1500 orders over the last 4 years
- Total value of orders over the last 4 years of marketplace is \$58,466,250.07
- Average award value over 4 years: 38k per order



Tactical UDL

The T-UDL is a deployable, micro-sized instance of the Enterprise UDL designed for air, maritime, and terrestrial operations

Core Capabilities

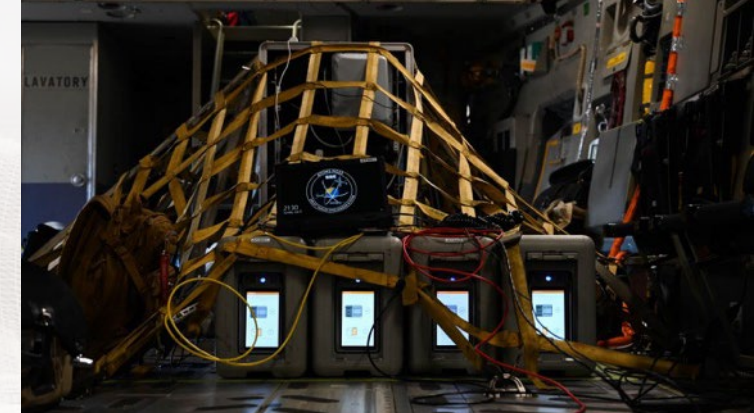
- Provides warfighters on the Tactical Edge with the ability to receive, retain, secure, and distribute critical mission data
- Bridges the data gap between heterogeneous weapons systems
- User-defined, customizable data synchronization

Operational Success

- Demonstrated the ability to operate autonomously in a disconnected environment (DDIL)
- Meets PACAF's need for an Edge Node Capability
- Utilized during Exercise Mobility Guardian and Project Convergence, and deployed to support a real-world operation in AFRICOM, demonstrating its operational readiness and capability to enhance mission effectiveness



Maj. Christian Brechbuhl, AMC deputy director for mission systems integration, operates T-UDL aboard a C-17.



Equipped with T-UDL, Airlift Tanker Open Mission Systems (ATOMS) kits provide a standardized framework for integrating communication and sensor systems onto aircraft.



Allied eXchange Environment (AXE)

AXE is a future capability designed to establish a standardized interface and facilitate near real-time, two-way operational data exchange between the U.S. and foreign allied partners.

Core Capabilities

- Brings traditionally sidelined allied partners into active participation, ultimately benefiting the warfighter
- Leverages UDL capabilities and cybersecurity best practices to help eliminate common hurdles like manual connections and burn-and-ship processes



Consolidated Operational Data Archive (CODA)

CODA bridges the gap between commercial space data and USSF command and control (C2) systems. By translating diverse data formats into a standardized form, CODA provides warfighters with timely and actionable space intelligence, enhancing decision-making capabilities.

Core Capabilities

- Vets and integrates data from commercial and non-traditional sources into the UDL
- Translates multiple data formats into a compatible format for USSF C2 systems
- Applies a quality control algorithm to compare incoming data with existing data
- Aligns with USSF's Commercial Space Strategy by leveraging commercial assets

CODA Operational Trial

- Entered an operational trial period on July 8, 2024
- Integrating data from Air Force Research Laboratory's WAS and ExoAnalytics
- Assessing system capabilities for data ingestion, translation, and integration





Partner With Us

Commercial partnerships are essential to providing complementary data sources and accelerating the development of innovative solutions to address emerging space challenges.

Intelligence utilized for space situational awareness and military operations is enhanced by data from commercial providers. By integrating commercial data streams into our overall space situational awareness architecture, we can create a more comprehensive, accurate, and timely picture of the space environment.

SSC Front Door



Monthly UDL Demo:
The 1st Thursday of each month