APRIL 3, 2025

USE CASES

USE CASE STRUCTURE

Element	Purpose	Example
Actor	Who is doing the action	Payload Operations Specialists
Actor Action	What the actor is doing	Configure spacecraft SAR payload settings
Acting On	What object, data, system, or entity is being acted on	Wide-area imaging system
Actor Location	Where the actor is when acting	Ground Control Station
Outcome of Action	What is produced or achieved	Persistent wide-area collection
Actee Location	Where the object/system is being affected	Area of Interest (AOI)
Order	When/where it fits into the workflow (sequence)	First operational step

DOD KILL CHAIN: F2T2EA - USE CASE SCENARIOS
Find

Objective: Detect potential targets of interest across wide-area surveillance.

1. Payload Operations Specialists located at the Ground Control Station configure the Synthetic Aperture Radar (SAR) payload settings on the spacecraft, acting upon the wide-area imaging system, to initiate persistent wide-area surveillance collection over the assigned Area of Interest (AOI), as the first operational step in the Find phase.

2. Collection Managers and Mission Managers operating from the Command and Control Node prioritize tasking of available spacecraft sensors, acting on the orbital asset constellation, in order to optimize sensor allocation based on mission urgency and priority intelligence requirements (PIRs), as the second operational step.

3. Cybersecurity Engineers and Cyber Warfare Specialists positioned within the Secure Operations Center secure the command and data links between spacecraft and ground segments, acting on network communication pathways, to ensure integrity and authenticity of collection tasking, mitigating risks of spoofing or electronic warfare, as the third operational step.

4. Artificial Intelligence/Machine Learning Specialists embedded at the Mission Planning Cell develop and train onboard anomaly detection models, acting on SAR data repositories, to enable autonomous early target recognition capabilities directly onboard the spacecraft, prior to ground-based exploitation, completing the fourth operational step.

5. All-Source Intelligence Analysts and Geospatial Intelligence Analysts (GEOINT) located at the Intelligence Exploitation Facility interpret incoming SAR imagery, acting on initial wide-area collection products, to extract potential targets of interest, providing preliminary reports to operational command elements, fulfilling the fifth operational step.

6. Watch Officers and the Joint Staff J2 operating within the Joint Operations Center (JOC) receive preliminary detection briefings, acting on the interpreted GEOINT products, to allocate additional collection resources or trigger the transition to the Fix phase, concluding the sixth operational step.

7. Office of the Director of National Intelligence (ODNI) Liaisons, co-located at the Joint Intelligence Center, coordinate with interagency assets, acting on intelligence fusion products, to synchronize national-level collection support with operational commanders, supporting broad-area situational awareness as a parallel operational step.

Fix

Objective: Precisely locate the target in time and space for further targeting actions.

1. Attitude Determination and Control Engineers located at the Spacecraft Operations Center orient the satellite precisely towards the designated target location, acting on the spacecraft's attitude control system, in order to achieve optimal sensor alignment for high-resolution targeting collection, with the spacecraft positioned over the designated Area of Interest (AOI), as the first operational step in the Fix phase.

2. Satellite Operators and System Engineers, co-located within the Mission Control Facility, collaboratively adjust sensor parameters and orbital track predictions, acting on the payload targeting configurations, to ensure collection geometry supports sub-meter geolocation accuracy, aligned with dynamic mission timelines, as the second operational step.

3. Ground Segment Engineers, operating at the Ground Data Processing Center, correlate multi-sensor data streams from successive spacecraft passes, acting on SAR, EO, and LiDAR datasets, to generate a verified high-confidence target fix, while simultaneously managing low-latency data relay back to tactical command elements, representing the third operational step.

4. Data Dissemination Analysts situated at the Intelligence Dissemination Node manage the secure transmission pipelines, acting on the geo-coordinates metadata outputs, to deliver validated location intelligence to supported operational units, ensuring minimal latency and integrity assurance, completing the fourth operational step.

5. Military End Users, utilizing tactical interfaces such as the Android Tactical Assault Kit (ATAK) or equivalent systems in the forward operational environment, receive the precise geolocation fix, acting on the disseminated target coordinates, and may conduct local ISR or HUMINT verification to confirm target identification prior to authorizing engagement, concluding the fifth operational step.

Track

Objective: Maintain custody of the target and predict its movements.

1. Modeling and Simulation Engineers located at the Mission Support Analysis Center develop and refine target movement models, acting on behavioral, geospatial, and environmental datasets, to predict future target positions, thereby enabling proactive surveillance and strike planning, as the first operational step in the Track phase.

2. Flight Software Engineers operating within the Spacecraft Development Facility update and optimize onboard tracking algorithms, acting on the flight software suite of the surveillance spacecraft, to improve autonomous reacquisition of moving targets between orbital passes, thus maintaining continuous custody, completing the second operational step.

3. Network Engineers stationed at the Network Operations Center optimize the real-time data transmission architecture, acting on satellite-ground link configurations and relay pathways, to ensure low-latency, high-fidelity delivery of tracking information to ground users and mission planners, comprising the third operational step.

4. Reconnaissance Marines and Unmanned Aerial Systems (UAS) Operators, operating in the forward operational environment, supplement space-based tracking feeds by conducting on-the-ground surveillance missions, acting on live movement patterns to validate and refine the target track, forming the fourth operational step.

5. Ground Station Operators at the Ground Control Center monitor ongoing spacecraft tracking operations, acting on real-time telemetry and onboard AI outputs, to coordinate tracking updates to mission planners and Command and Control (C2) networks, ensuring a single integrated track is maintained, delivering the fifth operational step.

6. Military End Users leveraging tactical command systems, such as ATAK or command post visualization software, receive live or near-real-time tracking overlays, acting on aggregated space and ground ISR data, to adjust troop movements, targeting decisions, or engagement windows dynamically based on evolving target behavior, concluding the sixth operational step.

Target

Objective: Develop a valid firing or strike solution.

1. Imagery Scientists operating within the Targeting Support Center analyze and validate targeting-quality imagery products, acting on spacecraft-collected SAR, EO, and LIDAR data, to confirm target identity, vulnerability, and structure as the first operational step in the Target phase.

2. SIGINT Analysts, located at the Signals Analysis Node, review intercepted communications and emissions correlated to the potential target, acting on real-time SIGINT payload collections, to independently verify target activity patterns and threat profile, completing the second operational step.

3. Targeting Officers embedded within the Joint Targeting Cell synthesize validated imagery and signals intelligence, acting on integrated multi-source datasets, to conduct target validation, vetting, weaponeering calculations, and generation of executable strike solutions, forming the third operational step.

4. Combat Systems Officers, assigned to Weapons Integration Divisions, integrate approved target data packages into operational weapons platforms, acting on targeting command architectures, to ensure accuracy of delivery parameters, weapon configuration, and mission readiness, comprising the fourth operational step.

5. Mission Assurance Analysts, operating from the Mission Assurance Division, perform comprehensive risk and collateral damage assessments, acting on compiled target data products and geospatial overlays, to ensure strike solutions meet operational risk thresholds, ROE compliance standards, and ethical targeting mandates, completing the fifth operational step.

6. Program Managers and Integrated Product Team (IPT) Leads, coordinating through the Joint Mission Planning Conference, act on developed target packages, to synchronize multi-domain targeting inputs, approve joint targeting priorities, and submit finalized strike solutions for commander review, as the sixth operational step.

7. Ground Station Operators located at the Mission Control Center verify the data integrity, timestamps, and classification levels of targeting-quality sensor outputs, acting on live spacecraft downlink feeds, to push validated target packages into tactical fire control systems, thus supporting real-time mission execution, concluding the seventh operational step.

8. Military End Users, participating in forums such as the Joint Targeting Coordination Board (JTCB), review validated target data and strike solutions, acting on consolidated multi-domain intelligence products, to confirm ROE compliance, target validation, and mission authority prior to approving execution orders, finalizing the eighth operational step.

Engage

Objective: Deliver kinetic or non-kinetic effects on the target.

1. Radio Frequency and Communications Engineers stationed at the Operations Communications Center maintain and verify real-time communication links between strike platforms, ISR assets, and command authorities, acting on the C2 communications architecture, to ensure uninterrupted data flow and dynamic mission updates throughout the strike window, as the first operational step in the Engage phase.

2. Joint Staff J6 personnel at the Joint Operations Center (JOC) manage operational command systems, acting on command networks and data links, to ensure that mission authority, dynamic re-tasking, and execution orders are properly transmitted and acknowledged during live operations, completing the second operational step.

3. Space Operations Officers operating from the Space Operations Center monitor spacecraft relay support, orbital timing, and signal paths, acting on the communications relay payloads of spacecraft, to maintain continuity of operational communications and ISR support, especially for long-range precision strike missions, completing the third operational step.

4. Cyber Warfare Specialists embedded at the Cyber Operations Cell execute or support non-kinetic engagements by acting on adversary networks, GPS systems, and command links, to achieve disruption, denial, or degradation of enemy capabilities, complementing kinetic strike operations, as the fourth operational step.

5. Ground Station Operators working at the Mission Data Center manage ISR handoff operations by acting on real-time tracking feeds from spacecraft and UAVs, ensuring that strike platforms receive updated target coordinates, sensor cueing, and battle tracking information with minimal latency, completing the fifth operational step.

6. Military End Users — including strike aircraft crews, artillery fire direction centers, and special operations teams— execute kinetic engagements via direct fire missions, close air support (CAS) sorties, or long-range precision fires, acting on real-time ISR cueing and strike targeting data, to achieve physical or functional effects on validated enemy targets, concluding the sixth operational step.

Assess

Objective: Evaluate effectiveness of engagement and inform follow-up actions.

1. Thermal Engineers assigned to the Mission Exploitation Cell analyze thermal imaging products collected during immediate post-strike spacecraft passes, acting on thermal sensor outputs, to detect heat anomalies, secondary explosions, or fire signatures indicating target destruction or functional degradation, as the first operational step in the Assess phase.

2. Imagery Scientists and All-Source Analysts, operating from the Target Exploitation Facility, conduct a comparative analysis of pre-strike and post-strike imagery, acting on spacecraft EO/SAR datasets and ground ISR feeds, to validate target damage, survivability, and any residual threat capabilities, completing the second operational step.

3. Mission Schedulers located at the ISR Planning Node review BDA results and determine follow-up collection requirements, acting on collection management platforms, to ensure timely re-tasking of assets if further verification or re-engagement is necessary, completing the third operational step.

4. Under Secretary of Defense for Intelligence and Security (USD(I&S)), in coordination with the National Intelligence Coordination Center (NICC), may direct a strategic-level BDA review, acting on high-priority or politically sensitive targets, to inform national policy decisions, strategic communications, and subsequent operational guidance, as the fourth operational step.

5. Ground Station Operators at the Ground Mission Control Center prioritize rapid downlink and processing of spacecraft BDA assets, acting on SAR, EO, thermal, and SIGINT products, to ensure that commanders receive exploitation products in near-real-time, while simultaneously cueing follow-up tasking as needed, fulfilling the fifth operational step.

6. Military End Users, including Operational Commanders, Strike Package Leaders, and Tactical Command Elements, review battle damage assessment products via command-and-control systems, acting on integrated BDA intelligence, to confirm strike success, determine necessity for re-engagement, and update operational status and maneuver plans accordingly, concluding the sixth operational step.

INTELLIGENCE CYCLE: TCPED - USE CASE SCENARIOS

Tasking

Objective: Assign collection requirements based on commander's intel priorities.

1. Defense Space Policy Analysts stationed at the National Space Policy Directorate shape space-based collection policies, acting on national intelligence objectives, legal frameworks, and strategic priorities, to ensure that collection tasking aligns with mission mandates and international norms, initiating the first operational step in the Tasking phase.

2. The Director, Defense Intelligence Agency and the Deputy Assistant Secretary of Defense for Space and Intelligence, operating within the Pentagon Intelligence Coordination Office, validate high-level intelligence collection priorities, acting on strategic intelligence requirements and commander critical information requirements (CCIRs), to approve which mission areas receive space-based support, comprising the second operational step.

3. United States Space Command Liaison Officers, operating from the Combined Space Operations Center (CSpOC), deconflict space asset tasking schedules, acting on joint and national ISR asset databases, to prevent tasking conflicts, maximize global ISR coverage, and ensure unity of effort across domains and allies, fulfilling the third operational step.

4. Payload Engineers and Mission Systems Architects, assigned to the Space Mission Configuration Division, configure spacecraft payload parameters and operational timelines, acting on approved tasking orders and orbital mechanics constraints, to ensure that assigned sensors are properly tuned for mission execution, completing the fourth operational step.

5. Ground Station Operators working from the Mission Operations Center schedule spacecraft orbit adjustments, payload activations, and tasking sequences, acting on tasking orders transmitted via secure C4ISR channels, to confirm asset availability, coverage feasibility, and execution readiness, representing the fifth operational step.

6. Military End Users, including Tactical Intelligence Officers and Collection Managers operating within Theater Operations Centers, submit Priority Intelligence Requirements (PIRs) and specific intelligence support requests, acting on the intelligence gaps identified during operational planning, to drive mission-specific collection priorities and spacecraft tasking decisions, finalizing the sixth operational step.

Collection

Objective: Acquire raw data using technical or human means.

1. Spacecraft operating in assigned orbital paths execute intelligence collection passes over designated Areas of Interest (AOIs), acting on pre-programmed tasking orders and onboard AI prioritization algorithms, to gather multispectral, radar, optical, or signals intelligence datasets, representing the first operational step in the Collection phase.

2. Ground Station Operators positioned at the Satellite Control Facility manage downlink schedules, contact windows, and data integrity checks, acting on mission priority schedules and spacecraft telemetry, to ensure successful data capture, error checking, and retransmission where required, completing the second operational step.

3. System Administrators and Software Engineers, assigned to the Satellite Operations and Data Acquisition Teams, maintain control software, encryption protocols, and hardware interfaces, acting on ground-side C2 systems, to guarantee uninterrupted spacecraft communication and optimal command execution during critical collection periods, completing the third operational step.

4. Hardware Engineers and Mechanical/Structural Engineers located at the Payload Maintenance Center ensure that sensor payloads, deployment mechanisms, thermal shielding, and onboard processing systems function within specified tolerances during dynamic space operations, acting on environmental telemetry and structural diagnostics, to support sustained mission capability throughout collection cycles, fulfilling the fourth operational step.

5. Military End Users, including field-deployed reconnaissance teams, UAS operators, and HUMINT collectors, conduct supplemental intelligence gathering missions, acting on ground-based and tactical ISR directives, to provide additional local collection that complements space-based sensors, thereby enhancing overall situational awareness and ISR fusion, completing the fifth operational step.

Processing

Objective: Convert raw data into usable information.

1. Spacecraft operating in designated orbits execute onboard edge-processing algorithms, acting on raw collected SAR, EO, spectral, or SIGINT datasets, to triage and label high-priority intelligence data prior to transmission, thereby optimizing downlink efficiency and prioritizing critical mission information, initiating the first operational step in the Processing phase.

2. Ground Station Operators working at the Data Reception and Control Center manage incoming spacecraft data streams, acting on encrypted downlinks and telemetry feeds, to filter, decrypt, and categorize incoming intelligence information into structured data repositories for exploitation, completing the second operational step.

3. Data Scientists and Intelligence Systems Engineers, assigned to the Mission Data Processing Division, apply machine learning pipelines, anomaly detection algorithms, and metadata enhancement tools to the incoming datasets, acting on SAR imagery, spectral band data, RF signals, and event-driven captures, to accelerate information triage and prioritize intelligence for further exploitation, fulfilling the third operational step.

4. Cybersecurity Engineers stationed at the Secure Data Operations Center manage data encryption, transmission security, and validation protocols, acting on incoming raw and semi-processed data streams, to guarantee that no data corruption, loss, or unauthorized manipulation occurs during the transition from raw collection to structured information, completing the fourth operational step.

5. Military End Users, such as Intelligence Officers and Battle Staff Planners, positioned within operational command posts or fusion centers, receive categorized and processed intelligence products, acting on filtered ISR data outputs, to support real-time situational awareness, mission planning, and decision support activities, concluding the fifth operational step.

Exploitation

Objective: Analyze data to derive actionable insights.

1. Spacecraft systems equipped with onboard analytic processors generate preliminary metadata, classification tags, and confidence scores during post-collection processing, acting on edge-processed sensor datasets, to enable initial triage and prioritization for ground exploitation centers, initiating the first operational step in the Exploitation phase.

2. Ground Station Operators working within the ISR Exploitation Division conduct full-spectrum exploitation of incoming data streams, acting on imagery intelligence (IMINT), signals intelligence (SIGINT), and measurement and signature intelligence (MASINT) feeds, to extract relevant operational intelligence supporting theater-level mission planning, completing the second operational step.

3. Intelligence Analysts, GEOINT Analysts, and SIGINT Analysts, operating from the All-Source Fusion Center, review exploited imagery, RF intercepts, and MASINT sensor outputs, acting on domain-specific intelligence products, to identify threat indicators, generate tactical warnings, and update operational intelligence assessments, completing the third operational step.

4. Mission Systems Architects stationed at the Integrated Operations and Decision Support Center fuse multi-domain intelligence products into unified decision support environments, acting on exploited datasets from space, ground, and cyber domains, to deliver operational overlays, risk analyses, and fused threat assessments for commanders, completing the fourth operational step.

5. Military End Users, including Battle Staff Officers, Brigade Commanders, and Tactical Operations Centers, consume finished exploitation products in the form of intelligence reports, alert notifications, visual geospatial overlays, or live situational dashboards, acting on real-time fused intelligence products, to adjust operational plans, reposition forces, or modify engagement rules, concluding the fifth operational step.

Dissemination

Objective: Deliver finished intelligence to decision-makers in time to act.

1. Spacecraft systems, operating within the space-based communications relay network, may facilitate the relay of intelligence data packets, acting on satellite communications architectures, but do not directly disseminate intelligence products, instead supporting the maintenance of secure downlink pathways to ground dissemination nodes, establishing the first operational note in the Dissemination phase.

2. Ground Station Operators and Collection Managers, operating from the Intelligence Distribution Control Center, push finished, validated intelligence products to designated operational, tactical, and strategic consumers, acting on classification protocols, urgency markers, and mission dissemination matrices, to ensure secure, appropriate, and timely delivery to authorized end users, completing the second operational step.

3. Military End Users, including Tactical Intelligence Officers, Operational Planners, and Mission Commanders, receive intelligence reports, fused threat overlays, and alert notifications, acting on delivered products via secure C2 networks, to integrate intelligence into ongoing mission plans, tactical movements, and operational briefings, and may also provide immediate feedback to refine collection and exploitation priorities, fulfilling the third operational step.

4. Watch Officers, stationed at the Joint Intelligence Watch Center, monitor product delivery timelines and priority notification queues, acting on time-sensitive intelligence dissemination lists, to ensure that critical threat indicators or operational changes are immediately communicated to tactical forces and decision-makers, completing the fourth operational step.

5. Joint Staff K2/J6, Office of the Director of National Intelligence (ODNI) Liaisons, and Targeting Officers, coordinating through Joint Dissemination Management Cells, synchronize cross-agency intelligence dissemination activities, acting on interoperable data standards and cross-domain sharing protocols, to maintain a unified, consistent intelligence picture across DoD, IC, and multinational partners, concluding the fifth operational step.

APPENDIX A: PERSONNEL LIST

ID	Personnel	Category C: Contractor F: FFRDC I: Intelligence M: Military P: Pentagon S: SNOC	Role
1	All-Source Intelligence Analyst	I	Integrates data from multiple intelligence disciplines (exempli grata, GEOINT, SIGINT, HUMINT) to produce comprehensive reports that inform mission planning, threat assessments, and strategic decisions.
2	Anomaly Response Coordinator	S	Leads troubleshooting and recovery efforts in the event of system faults or satellite anomalies.
3	Artificial Intelligence/ Machine Learning Specialist	F	Apply machine learning to improve SAR data analysis, anomaly detection, predictive maintenance, and ISR exploitation pipelines.
4	Attitude Determination and Control/Guidance Navigation and Control Engineer	C	Designs algorithms for spacecraft orientation, maneuvering, and orbit control using star trackers, IMUs, et cetera.
5	Collection Manager	I	Coordinates intelligence collection priorities between space-based assets and field requirements, ensuring SNOC tasking aligns with military and national intelligence needs.
6	Combat Systems Officer	M	Manages weapons systems and tactical operations aboard aircraft or naval vessels.
7	Counterintelligence Analyst	I	Identifies and mitigates risks posed by adversaries targeting space infrastructure or intelligence operations, protecting both SNOC and military activities.
8	Cybersecurity Engineer	C,F	Implements system security controls, software hardening, anti-jamming, and NIST compliance.
9	Cyber Warfare Specialist	M	Defends against digital threats and executes offensive cyber operations.
10	Data Dissemination Analyst	S	Verifies the integrity of collected data and coordinates its secure distribution to end users across military, commercial, or research channels

11	Data Scientist/Intelligence Systems Engineer	I	Develops machine learning models and analytic tools to process satellite data at scale, improving speed and accuracy for intelligence exploitation.
12	Defense Space Policy Analyst	P	Support strategic planning and threat analysis involving adversary space capabilities, helping shape how SNOCs and intelligence agencies use space assets in contested environments.
13	Deputy Assistant Secretary of Defense for Space and Intelligence	P	Oversees policy, planning, and integration of space and Intelligence, Surveillance, Reconnaissance systems. Ensures alignment between satellite operations, warfighter needs, and intelligence collection strategies.
14	Director, Defense Intelligence Agency	P	Leads all-source intelligence efforts, provides strategic military intelligence to combatant commands and coordinates closely with satellite and SIGINT data exploitation.
15	Electrical and Avionics Engineer	C	Develops spacecraft electronics, power distribution, embedded processors, and internal data interfaces.
16	Flight Software Engineer	C	Develops and verifies spacecraft code for autonomy, command handling, and onboard processing.
17	Geospatial Intelligence Analyst (GEOINT)	I	Analyzes imagery and geospatial data from satellites (exempli grata, SAR, EO/IR) to produce maps, identify patterns, and support military operations, targeting, and battlefield awareness.
18	Ground Segment Engineer	S	Oversees ground station hardware, antennas, RF systems, and uplink/downlink processes.
19	Hardware Engineer	F	Support development and testing of spacecraft electronics, sensors, antennas, and payload systems.
20	Imagery Scientist	I	Works with raw satellite data to enhance image quality, extract technical features, and develop automated analysis tools for both defense and civilian applications.
21	Intelligence Analyst	M	Gathers and interprets data to support mission planning and threat assessment.
22	Joint Staff J2	P	Advises the Chairman of the Joint Chiefs on military intelligence matters, ensures synchronization between intelligence operations (including satellite tasking) and joint force requirements.

23	Joint Staff J6	P	Develops and oversees network and data-sharing architectures across the DoD, ensuring SNOC, ground stations, and field units remains connected and interoperable.
24	Mechanical/Structural Engineer	C	Builds physical structure of the spacecraft to withstand launch and space environment.
25	Mission Assurance Analyst/Risk Manager	F	Ensure technical quality, mission survivability, and end-to-end system performance.
26	Mission Manager	S	
27	Mission Scheduler	S	Schedules satellite tasking, data collection windows, and downlink sessions based on user requirements and orbital constraints.
28	Mission Systems Architect	C	Designs mission end-to-end concept (space-to-ground) and ensures system-of-systems alignment.
29	Modeling and Simulation Engineer	C, F	Uses digital twins and physics-based models to assess performance, behavior, and stress under mission scenarios.
30	Network Engineer	S	Maintains and optimizes the ground network infrastructure supporting satellite communication links and data flow.
31	Office of the Director of National Intelligence Liaison	P	Coordinate intelligence priorities, technical policies, and interagency support for satellite systems shared between the IC and DoD.
32	Payload Engineer	C	Designs and integrates mission payloads (exempli grata, Synthetic Aperture Radar), ensuring data quality and mission alignment.
33	Payload Operations Specialist	S	Manages the operation of the satellite's payload, such as SAR, EO/IR sensors, or communications equipment, ensuring optimal performance and data capture.
34	Program Manager/IPT Lead	C	Manages cost, schedule, risk, and customer coordination across engineering disciplines.
35	Radio Frequency and Communications Engineer	C	Designs telemetry, tracking, and command and mission data communication links to ground, handles encryption and frequency management.
36	Reconnaissance Marine	M	Specializes in collecting critical battlefield intelligence behind enemy lines.
37	Satellite Communications Technician	M	Maintains and operates satellite links for secure, long-range communication.

38	Satellite Operator	S	Monitors and controls satellite systems, including telemetry, tracking, and command functions to ensure health and performance.
39	Signals Intelligence Analyst (SIGINT)	I	Intercepts and deciphers electronics signals to track adversary communications, movements, and satellite activity, helping military and SNOC teams understand the electromagnetic environment.
40	Software Engineer/ Algorithm Developer	F	Design onboard and ground-based software for satellite control, data processing (exempli grata, SAR image formation), encryption, and fault management.
41	Space Operations Officer	M	Supports operations involving satellites, space surveillance, and orbital warfare.
42	System Administrator	S	Manages the IT systems, servers, and cybersecurity protocols within the operations center to ensure uptime and data protection.
43	System Engineer	C, F	Leads spacecraft architecture, requirements slowdown, and integration across subsystems.
44	Targeting Officer	M	Identifies, prioritizes, and validates targets for strike missions within the kill chain process.
45	Test and Integration Engineer	C	Manages assembly, system test thermal vacuum, vibration, EMI/EMC, and launch-readiness checks.
46	Thermal Engineer	C	Ensures all systems stay within operational temperature ranges via thermal modeling and heater integration.
47	Under Secretary of Defense for Intelligence and Security	P	Sets defense-wide priorities for Intelligence, Surveillance, and Reconnaissance programs, ensuring integration of space-based assets with intelligence and defense strategies.
48	Unmanned Aerial Systems Operator	M	Controls and monitors drones for surveillance or targeting missions.
49	United States Space Command Liaison Officers	P	Embedded within the Pentagon to represent operational space interests and coordinate with military users and SNOCs on satellite tasking, orbital conflict, and data distribution.
50	Watch Officer	I	Provides 24/7 situational awareness by monitoring global events, issuing alerts, and maintaining coordination between satellite operations and forward-deployed military units.

APPENDIX B: ACRONYMS

Abbreviation	Definition
ADCS	Attitude Determination and Control Subsystem
BDA	Battle Damage Assessment
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
CSO	Combat Systems Officer
DASD-SI	Deputy Assistant Secretary of Defense for Space and Intelligence
DIA	Defense Intelligence Agency
DoD	Department of Defense
EMC	Electromagnetic Compatability
EMI	Electromagnetic Interference
EO/IR	Electro-Optical/Infra-Red
FFRDC	Federally Funded Research and Development Center
GEOINT	Geospatial Intelligence
GNC	Guidance, Navigation, and Control
HUMINT	Human Intelligence
IC	Intelligence Community
IPT	Integrated Project Team
ISR	Intelligence, Surveillance, and Reconnaissance
J2	
J6	
ODNI	Office of the Director of National Intelligence
RF	Radio Frequency
SAR	Synthetic Aperture Radar
SIGINT	Signals Intelligence

SNOC	Satellite Network Operations Center
SPACECOM LNOs	United States Space Command Liaison Officers
TT&C	Telemetry, Tracking, and Command Subsystem
TVAC	Thermal Vacuum Chamber
UAS	Unmanned Aerial Systems
USD(I&S)	Under Secretary of Defense for Intelligence and Security

APPENDIX C: GLOSSARY

Term	Definition
Actor	The user or external entity interacting with the system.
Assess	The process of evaluating the effects of an engagement by comparing predetermined assessment criteria against observed actions and outcomes, using ISR assets to collect post-engagement information and determine whether the desired effects and objectives were achieved.
Collection	
Engage	The process of confirming the target's hostile status and issuing the engagement order to the operator of the designated weapon system.
Expected Outcome	The results of the interaction.
Exploitation	
Dissemination	
Find	The process of detecting an emerging target and initiating its characterization, leading to its classification within one of the established dynamic targeting categories.
Fix	The process of positively identifying an emerging target and determining its precise location and associated data with sufficient accuracy to enable engagement.
Goal	The objective the user wants to achieve.
Processing	
Sequence of Actions	The steps the user takes to achieve the goal.
Target	The process of analyzing an identified, classified, located, and prioritized target to determine the desired effect and appropriate targeting solution, while obtaining the necessary authorization to engage.
Tasking	
Track	The process of maintaining continuous surveillance of a confirmed target and its location to ensure persistent custody and situational awareness.

APPENDIX D: SOURCES

ID	Citation
1	"Targeting." United States Air Force, www.doctrine.af.mil/Portals/61/documents/AFDP_3-60/3-60-AFDP-TARGETING.pdf. Accessed 5 Apr. 2025.