# MISSION ESSENTIAL TASKS

## Tactical Surveillance and Reconnaissance (TacSRT)

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# OVERVIEW

This document provides the list of Joint Commercial Operations (JCO) tasks supporting the space Tactical Surveillance Reconnaissance and Tracking (TacSRT) mission. As additional mission areas are incorporated into the JCO, an appendix will be added to identify the Mission Essential Tasks (METs) associated with the new mission. Each task includes measurable standards designed to assess task performance. The METs outlined in this document drive JCO mission execution, training, evaluation, and enable identification of mission gaps. The document is organized in categories outlined in the USSPACECOM Space Domain Awareness Initial Capability Document.

# 1. PLAN AND DIRECT

**USSPACECOM ICD Definition:** The ability to synchronize and integrate the activities of tasking, collection, processing, exploitation, analysis, and dissemination resources to meet SDA information requirements in a constrained, congested, and contested space environment.

**JCO Role:** The JCO supports both dynamic and deliberate planning to enhance the effectiveness of the space Protect and Defend mission. Dynamic planning refers to adaptive, real-time decision-making in response to changing conditions or threats in space. Deliberate planning involves more structured, long-term strategies that are developed in advance.

The JCO conducts operations planning to ensure optimal commercial contribution. This involves regular assessment and adjustment of collection and analysis priorities based on the latest space events and SPACEFOR-Space (S4S) focus areas. JCO planning consists of rehearsal of concepts (ROC) drills, review of procedures, and software solution check-out.

The JCO is also responsible for ensuring that resources are appropriately allocated and available for high-interest events. This can include sensor optimization and tasking, personnel supporting analysis, or other assets necessary for mission success.

Overall, the JCO's role is to ensure that space operations are supported by commercial entities, and conducted efficiently and effectively, with a focus on protecting and defending assets in space against emerging threats and challenges.

## 1.1. Coordination with Primary Stakeholder

**Description**: Role of the JCO TacSRT is to maintain coordination with the Space Component. This should occur at least as frequently as once a week. The meeting will cover varied topics including current TacSRT OPP, Financial Status, current exercises, upcoming meetings, and others.

**References:** TacSRT Standard Operating Procedure (SOP)

| | | |
|---|---|---|
| **M1** | Yes / No | Is there a current and approved Standard Operating Procedure (SOP) for each of the Space Components? |
| **M2** | Yes / No | Does the TacSRT and Space Component meet on regular cadence (weekly)? |

**Measures:** Coordination with Commercial Vendor community

## 1.2. Space Component Deconfliction Responsibilities

**Description**: The Space Components are responsible for deconflict with external stakeholders prior to authorizing the JCO TacSRT to begin work.

The JCO TacSRT is not part of this process for operational security (OPSEC) reasons. However, the JCO TacSRT should coordinate closely with the Space Component to ensure that the Space Component 'has a plan', that the plan has been vetted by senior leaders within the component, and the processes are being followed.

**References:** TacSRT Standard Operating Procedure (SOP)

**Measures:**

| | | |
|---|---|---|
| **M1** | Yes / No | Does each Space Component have and exercise a methodology for deconfliction of tasking with other ISR Stakeholders? |
| **M2** | Number | Average length of time to deconflict with other ISR Stakeholders |

### 1.3. Stakeholder and Intel Community Coordination

**Description**: The Space Components are responsible for deconflict with external stakeholders prior to authorizing the JCO TacSRT to begin work. The JCO TacSRT is not part of this process for operational security (OPSEC) reasons. However, the JCO TacSRT should coordinate closely with the Space Component to ensure that the Space Component 'has a plan', that the plan has been vetted by senior leaders within the component, and the processes are being followed.

# 2. Data Quality and Accuracy

### 2.1. Resolution of Imagery

**Intent: Evaluate the clarity and detail of the images or data collected**

**Description**: Resolution in satellite overhead systems refers to the clarity and detail of the images or data collected by the satellite. Higher resolution means that the satellite can capture finer details, making it possible to distinguish smaller objects and more intricate features on the Earth's surface. This is crucial for applications such as mapping, environmental monitoring, and situational awareness, where precise and detailed information is essential. Lower resolution, on the other hand, results in less detailed images, which might be sufficient for broader, less detailed observations.

Resolution in satellites is primarily measured in terms of spatial resolution, which indicates the smallest object or detail that can be distinguished in an image. This is typically expressed in meters, representing the size of one pixel on the ground. For example, a spatial resolution of 1 meter means each pixel in the image corresponds to a 1-meter by 1-meter area on the Earth's surface.

**References:** TacSRT Standard Operating Procedure (SOP)

**Measures:**

| | | |
|---|---|---|
| **M1** | Yes / No | Is the OPP imagery resolution clear and provides detailed findings of the ROI(s), AOI(s), POI(s)? |
| **M2** | Yes / No | Are resolution parameters clearly stated and adhered to for each satellite data tasking request? |
| **M3** | Yes / No | Does the resolution provided consistently meet minimum standards for operational and analytical requirements? |

| | | |
|---|---|---|
| **M4** | Number % | Percentage of imagery products that achieve or exceed the specified resolution criteria. |
| **M5** | Yes / No | Are deviations from requested resolution documented with justification? |
| **M6** | Number | Frequency of resolution validation audits conducted per reporting period. |

## 2.2 Timeliness of Data

**Intent: Evaluate how quickly the data is collected, processed, and made available.**

**Description:** Timeliness refers to the duration from data acquisition through processing to final availability for use. This metric significantly impacts operational effectiveness, particularly in scenarios involving Humanitarian Assistance and Disaster Response (HADR), Illegal Resource Extraction (IRE), and rapid operational planning. Optimal timeliness ensures decision-makers receive actionable intelligence promptly without compromising data quality or accuracy.

**References:** TacSRT Standard Operating Procedure (SOP)

**Measures:**

| | | |
|---|---|---|
| **M1** | Yes / No | Are HADR and IRE requests acknowledged in a timely manner within the TacSRT Center on MatterMost? |

| | | |
|---|---|---|
| **M2** | Yes / No | Is each query validated for accuracy within a timely manner of submission? |
| **M3** | Yes / No | Are clearly defined timelines for quality control checks communicated to vendors of task assignment? |
| **M4** | Yes / No | Is OPP curation and submission completed within the requesters/customers timeline(s)? |
| **M5** | Yes / No | Is tasking opened Matter Most SRT Internal with proper naming convention? |
| **M6** | Number | Average total elapsed time from initial data request to OPP delivery. |

### 2.3 Reliability of Data

**Intent: Evaluate the consistency and dependability of the data delivered by the vendor over time.**

**Description:** Reliability pertains to the consistency and dependability of satellite data across multiple collection cycles. High reliability ensures data accuracy and consistency, enabling trusted and confident decision-making for critical tasks such as strategic planning, operational assessments, and emergency response scenarios. Ensuring reliability involves rigorous vendor adherence to collection and data management standards.

**References:** TacSRT Standard Operating Procedure (SOP)

**Measures:**

| | | |
|---|---|---|
| **M1** | Yes / No | Are vendors utilizing the appropriate imagery to meet the requesters/customers intent? |
| **M2** | Yes / No | Is the satellite imagery used consistently current (within specified recency requirements)? |
| **M3** | Yes / No | Is imagery validated against historical data for consistency and reliability before OPP submission? |

# 3. Coverage and Accessibility

## 3.1. Geographical Coverage

**Intent: Evaluate the effectiveness of the imagery's geographical coverage to answer the stakeholder's question.**

**Description:** Geographical coverage refers to the total area observable by satellite assets from various orbital regimes (LEO, MEO, GEO). Effective geographical coverage ensures strategic assets and regions of interest are consistently monitored, supporting diverse missions such as HADR and IRE. Commercial imagery capabilities must balance wide-area monitoring with accurate and precise location collection.

**References:** TacSRT Standard Operating Procedure (SOP)

**Measures:**

| | | |
|---|---|---|
| **M1** | Yes / No | Provided consistent, near-real-time coverage of key geographic regions? |

| | | |
|---|---|---|
| **M2** | Yes / No | Minimized the latency between data capture and availability to requesters/customers? |
| **M3** | Yes / No | Supported time-sensitive operations? |
| **M4** | Yes / No | Data can be accessed by authorized users via secure, reliable platforms? |
| **M5** | Yes / No | Data formatted for interoperability across all joint unclassified domains/platforms/comms paths/apps and tools. |
| **M6** | Yes / No | Provided detailed, up-to-date imagery for terrain analysis, infrastructure monitoring, or change detection? |
| **M7** | Yes / No | Incorporated the appropriate all-weather satellite imagery sensors that can capture usable imagery regardless of cloud cover or weather conditions? |
| **M8** | Yes / No | Delivered imagery and analysis to support multiple missions including detection, navigation, and humanitarian efforts. |

### 3.2. Frequency of Coverage

**Intent: Evaluate the effectiveness of the vendor's collection plan to ensure tasked imagery will answer the stakeholder's question.**

**Description:** Frequency of Coverage refers to how often a satellite can revisit and collect data from the same geographical location on Earth. This is a key performance factor in satellite missions, especially for applications like

weather monitoring, disaster response, and environmental change detection.

**Factors Affecting Frequency of Coverage:**

1. **Orbit Type**:
    a. **Low Earth Orbit (LEO)** satellites move quickly around the Earth (about 90–100 minutes per orbit), allowing them to pass over the same area periodically. However, a single LEO satellite may only revisit the same spot every few days unless it's in a **sun-synchronous orbit**, which allows consistent lighting conditions during each pass.
    b. **Geostationary Orbit (GEO)** satellites remain fixed over one point on the equator, offering continuous coverage of the same region — ideal for real-time applications like weather forecasting.
    c. **Medium Earth Orbit (MEO)** satellites, like those in GPS constellations, provide global coverage but with revisit times dependent on the number and configuration of satellites.
2. **Satellite Constellation**: Multiple satellites working together in a constellation can drastically improve revisit frequency — some systems offer near real-time global monitoring by staggering the orbits of numerous satellites.
3. **Swath Width**: A satellite with a wider swath (area imaged in a single pass) can cover more ground, potentially reducing the time between observations of the same area.
4. **Agility and Revisit Strategy**: Some satellites are agile, meaning they can steer their sensors to look off-nadir (not directly below), allowing more

frequent imaging of the same area even if the satellite itself isn't directly overhead.

**References:** TacSRT Standard Operating Procedure (SOP)

**Measures:**

| | | |
|---|---|---|
| **M1** | Yes / No | Identified critical regions (e.g., conflict zones, disaster areas, strategic assets) that require high temporal resolution? |
| **M2** | Yes / No | Managed satellite taskings in orbit to reduce gaps in coverage? |
| **M3** | Yes / No | Coordinated among multiple satellites or constellations to increase tasking revisit rate? |
| **M4** | Yes / No | Ensured frequent passes to capture dynamic changes? (e.g., illegal resource extraction, flood expansion, wildfire spread) |
| **M5** | Yes / No | Shortened the interval between successive observations to hours or even minutes, if required? |
| **M6** | Yes / No | Integrated frequent imagery into systems that can quickly identify and flag changes or anomalies? |
| **M7** | Yes / No | Enabled commanders, analysts, or civil authorities to respond quickly based on the most current satellite data? |
| **M8** | Yes / No | Built redundancy into coverage plans to avoid data gaps due to satellite failure or adverse conditions? |

## 3.3. Accessibility

**Intent: Evaluate the effectiveness of the vendor's ability to task necessary imagery to answer the stakeholder's question.**

**Description:** Accessibility refers to the ease with which authorized users, requesters/customers can obtain, view, and utilize satellite data. It plays a crucial role in determining how useful and impactful the satellite system is for its intended applications.

**Key Factors Affecting Accessibility:**

1. **Data Distribution Platforms**: Many agencies and companies provide web portals, APIs, or cloud platforms for users to access satellite data. The easier and more intuitive these platforms are, the more accessible the data becomes.
2. **User Permissions and Licensing**:
    a. **Open-access data** is freely available to the public.
    b. **Restricted or commercial data** (e.g., high-resolution imagery from commercial satellites) may require subscriptions, purchase, or special authorization.
3. **Data Format and Usability**:
    a. Accessibility also depends on whether data is provided in standard, interoperable formats that can be easily used in common GIS or remote sensing software.
        i. Some providers offer pre-processed, user-friendly products, while others provide raw data that may need technical expertise to process.

4. **Latency and Delivery Time**: The speed at which data is made available after acquisition affects accessibility—real-time or near-real-time access is critical for applications like disaster response.

**References:** TacSRT Standard Operating Procedure (SOP)

**Measures:**

| | | |
|---|---|---|
| **M1** | Yes / No | Ensure that satellite data is stored and transmitted using encrypted, access-controlled systems to protect sensitive information? |
| **M2** | Yes / No | Enforced role-based access for different user levels? |
| **M3** | Yes / No | Provided web-based and mobile-accessible platforms where users can easily search, view, download, and analyze satellite data? |
| **M4** | Yes / No | Minimized latency from data acquisition to end-user availability? |
| **M5** | Yes / No | Supported automatic notifications and data pushes for time-sensitive updates? |
| **M6** | Yes / No | Formatted data to work with common GIS and analysis tools? |
| **M7** | Yes / No | Enabled fusion of satellite data with other sources? |
| **M8** | Yes / No | Offered user training and documentation to ensure personnel can interpret and use satellite products effectively? |

| | | |
|---|---|---|
| **M9** | Yes / No | Maintained help or support teams for troubleshooting? |
| **M10** | Yes / No | Allowed users to generate tailored products (e.g., annotated maps, change detection layers) for specific mission needs? |

### 3.4. Supported Collection Types

**Description:** Supported Collection Types refer to the kinds of data or observations a satellite can collect, while duration refers to how long the satellite can sustain these collections over its operational life or during a single observation session.

1. **Common Collection Types:**
    a. **Optical Imaging:**
        i. Collects visible and near-infrared light to produce images similar to photographs.
        ii. Used for land mapping, agriculture, disaster monitoring, etc.
    b. **Multispectral Imaging**
        i. Captures data in multiple specific wavelengths across the visible and infrared spectrum.
        ii. Supports vegetation analysis, water quality monitoring, and mineral detection.
    c. **Hyperspectral Imaging**
        i. Collects data in hundreds of narrow spectral bands, offering fine spectral detail.

ii. Used in precision agriculture, geology, and environmental monitoring.

**d. Thermal Imaging**

i. Detects infrared radiation (heat).

ii. Useful for wildfire monitoring, urban heat mapping, and industrial inspections.

**e. Radar Imaging (SAR – Synthetic Aperture Radar)**

i. Active sensing that works in all weather and day/night conditions.

ii. Ideal for terrain mapping, flood monitoring, and infrastructure tracking.

**f. LiDAR (Light Detection and Ranging)**

i. Measures distances by illuminating targets with laser light.

ii. Provides high-resolution elevation data (e.g., for forestry or topography).

**g. Communications Relay**

i. Some satellites collect and relay communication signals rather than images.

**References:** TacSRT Standard Operating Procedure (SOP)

**Measures:**

| | | |
|---|---|---|
| **M1** | Yes / No | Include sensors for optical, infrared, radar (e.g., SAR), multispectral, or hyperspectral imaging to meet |

| | | |
|---|---|---|
| | | various observation needs (e.g., vegetation, heat signatures, terrain, cloud-penetrating imaging)? |
| **M2** | Yes / No | Allowed for environmental, meteorological, or signal intelligence data collection, depending on the mission? |
| **M3** | Yes / No | Design satellites with sufficient onboard power, data storage, and thermal management to perform extended observation sessions without interruption? |
| **M4** | Yes / No | Used robust materials, radiation shielding, and onboard system redundancy to extend mission duration? |
| **M5** | Yes / No | Implemented fuel-efficient orbit adjustments and station-keeping? |
| **M6** | Yes / No | Balanced tasking demands and satellite workload to avoid overuse of sensors or data downlink channels during high-demand periods? |
| **M7** | Yes / No | Provided for large and rapid onboard data collection and downlink capacity to sustain continuous or burst-mode observations? |
| **M8** | Yes / No | Continuously assess satellite subsystem performance and sensor calibration to maintain data quality throughout the mission life? |

# 4. Operational Performance

## 4.1 Uptime and Availability

**Description:** The JCO TacSRT operational team ensures timely and reliable availability to support tasking and communication needs. The standard operational hours and off-hours response policy are designed to maintain continuous mission effectiveness.

- JCO TacSRT operations shall be available Monday through Friday, 0800–1700 Mountain Time (US).
- Outside of standard hours, on weekends, and holidays, JCO TacSRT shall respond to chats or calls within 12 hours of receipt.

**References:** JCO TacSRT Standard Operating Procedure (SOP)

**Measures:**

| | | |
|---|---|---|
| **M1** | Yes/No | Available for tasking during standard operating hours? |
| **M2** | Yes/No | POC(s) identified to respond to off-hours tasking within 12 hours? |

### 4.2 Latency

**Description:** JCO TacSRT shall maintain predictable and responsive latency from tasking receipt to delivery of Operational Planning Products (OPPs), varying by priority level of the tasking.

- During standard hours, tasking receipt shall be acknowledged within 30 minutes.
- Tasking categories and response expectations:
    - **Routine (>72 hours)**: Analytic provider tasked with no less than 72 hours to complete OPP; OPP delivery within customer defined deadline
    - **Priority (<72 hours):** Analytic provider tasked within 24 hours; OPP delivery within 48 hours
    - **Urgent (<48 hours):** Analytic provider tasked within 12 hours; OPP delivery within 24–36 hours

**References:** JCO TacSRT SOP, JCO Tasking Guidelines

**Notes:** Latency metrics may be adjusted during surge operations

**Measures:**

| | | |
|---|---|---|
| **M1** | Yes/No | Routine taskings opened with 72-hours allowance for providers to complete and deliver the OPP? |
| **M2** | Yes/No | Priority taskings opened within 24-hours with OPP delivery within 72 hours? |

| | | |
|---|---|---|
| **M3** | Yes/No | Urgent taskings opened within 12-hours with OPP delivery within 48 hours? |
| **M4** | Yes/No | OPPs delivered to the requester on or before set deadlines? |

### 4.3 Bandwidth

**Description:** JCO TacSRT maintains operational capacity to support a limited number of simultaneous open events based on available operator resources.

- The number of open events shall not exceed 2 per on-shift operator.
- Minimum on-shift staff: 3 operators (2 WAVES, 1 Deputy Site Lead), supporting up to 6 open events.
- To support more events, either reprioritization or surge staffing must occur.
- An event is considered ‘Open’ once an analytic provider has been assigned.

For TacSRT purposes on-shift operators are defined as trained TacSRT personnel on the operations crew roster. The roster is updated on a weekly basis and available on request. The JCO CORE communications card has on-call personnel identified for off-hours support requirements.

**References:** JCO TacSRT Manning Requirements, Shift Management Guidelines

**Notes:** Surge protocol staffing plan outline in JCO TacSRT SOP

**Measures:**

| | | |
|---|---|---|
| **M1** | Yes/No | Crew staffed to accommodate at minimum 6 simultaneous events? |
| **M2** | Yes/No | Surge staffing activatable to meet bandwidth requirements? |
| **M3** | Yes/No | Sufficient trained crew to accommodate weekends/holidays for off-hours support? |
| **M4** | Yes/No | Minimum 2 trained JCO TacSRT deputy site leads capable of covering on-call communications 24/7? |
| **M5** | Yes/No | Sufficient trained JCO TacSRT personnel to fill critical staffing positions to meet minimum operational standards in the event of illness, injury, incapacitation, or leave? |

# 5. Security and Resilience

### 5.1 Cybersecurity

**Description:** Ensures that critical mission systems and communications are secure from unauthorized access, cyber threats, and system failures.

- Mission-critical systems (chat, mission management, OPP delivery) must be password protected, and access controlled.
- Systems should utilize two-factor authentication.
- Access lists must be maintained and limited to trained personnel.

- DRAGON Army's Dragons Gate team manages access, with government oversight.
- In the event of a cyberattack, systems must be refactored or shifted to a failover within 8 hours.

**References:** JCO Cybersecurity Policy, DRAGON Army Access Control Matrix

**Notes**: Pending final cybersecurity audit results

**Measures:**

| | | |
|---|---|---|
| **M1** | Yes/No | Two-factor authentication and password protections in place on all critical systems? |
| **M2** | Yes/No | Mission critical systems (chat, OPP delivery, event management) have Secondary, and Tertiary failovers identified? |
| **M3** | Yes/No | Access control rosters audited monthly to ensure that only trained personnel with need-to-access have active accounts? |

### 5.2 Resilience

**Description:** TacSRT ensures operational continuity through infrastructure, network, and personnel redundancy, enabling sustained performance under adverse conditions.

- TacSRT is operated remotely with primary, secondary, and tertiary communication and OPP delivery systems across geographically separated networks.
- Multiple imaging phenomenologies enable continued intelligence collection despite terrestrial or space weather disruptions.
- Distributed analytic provider locations enable continued operations in the face of physical or cyber-attacks.

**References:** JCO Continuity of Operations Plan, JCO TacSRT SOP

**Measures:**

| | | |
|---|---|---|
| **M1** | Yes/No | Alternate communication and delivery systems tested quarterly? |
| **M2** | Yes/No | Resilience drills (loss of primary systems) conducted in the last 6 months? |