U.S. Joint Staff J6
Deputy Directorate
for
Cyber and C4 Integration
(DD C5I)

Enhancing Joint and Coalition Interoperability

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Joint Staff J6 will assist CJCS in providing best military advice while advancing cyber defense, C2 systems capabilities, and Joint and Coalition interoperability required by Joint Force to preserve nation’s security.

**CJCS Joint Force Priorities**
- Improve Joint Warfighting
- Restore Joint Readiness
- Develop Leaders for JF Next

**DJ6 Intent**
- Support CJCS and SecDef priorities
- Support, enable and advocate for C4 and Cyber Joint Warfighter capabilities
- Joint Staff CIO

**NMS Themes**
- 4+1 Actors
- Maintain our competitive advantage
- Allies and partners are critical to our success
- Joint Force must be globally integrated

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**Lines of Operation:**
- **Cyber Defense Line of Effort (LOE)**
  1. Strengthen the defensibility of key DoD cyber terrain
  2. Increase the abilities of cyber maneuver and fixed cyber defense forces
  3. Enhance dedicated DoDIN cyber defenses
  4. Develop cyber-focused strategies, plans and assessments

**Lines of Operation:**
- **C2 Systems Capabilities LOE**
  1. Identify and validate Joint and Component C2 capability requirements
  2. Identify C2 capability gaps and assess risk
  3. Enable and inform C2 operational priorities

**Lines of Operation:**
- **Joint / Coalition Interoperability LOE**
  1. Lead Joint Information Environment (JIE) implementation
  2. Lead Mission Partner Environment (MPE) implementation
  3. Define / develop / inform joint, allied & coalition interoperability standards
  4. Conduct and synchronize capability demonstrations and assessments

**Lines of Operation:**
- **Chief Information Officer Responsibilities LOE**
  1. Establish and manage an IT Portfolio Management process for JJS
  2. Develop Mission Networks / CJCS Controlled Activities Cyber Security Program
  3. Implement Special Access Programs Security Controls
  4. Execute Residual / Retained Joint Staff Support

**End State**
- Ready and resilient C4 and Cyber-enabled Joint Force capable of operating with:
  - Allies
  - Coalition Partners
  - Interagency

- Synchronization of our Lines of Effort, operation and activities across the C4 / Cyber environment in which the Joint Force Operates

- Robust JS CIO management and oversight roles, responsibilities and processes that support and enable our JS mission networks

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Achieve Globally Integrated Capabilities

Develop Mature, Integrated Cyber Capabilities

Achieve Operational Interoperability

Achieve Sustained Coalition Interoperability Assurance and Validation (CIAV) in support of CCMDs

Note: All goals inclusive of Joint, Inter-Agency and Coalition partners
**Mission Event No.** | **Description** |
--- | --- |
1 | Unit detects target |
2 | Commander decides to request CAS |
3 | Unit notified TACP < 3min |
4 | TACP passes request to ASOC |
5 | ASOC coordinates with senior ground HQs which approve request |
6 | ASOC assigns on-call aircraft |
7 | CRC send aircraft to contact point (CP) |
8 | AWACS passes critical updates to aircraft > 95% Acrcy |
9 | JTAC briefs aircraft < 2 min |
10 | Aircraft depart initial point (IP) |
11 | JTAC controls CAS aircraft |
12 | Bombs on target > 98.9 % PK |
13 | Assessment |

**Service-Specific Call for Fires**

**Joint / Coalition Close Air Support**

**Service-Centric to Enterprise-Centric Approach**
JTAC, FAC(A) and JFO MOA
Accredited Schoolhouses / Programs / Engagement

Accredited JTAC Program
Accredited FAC(A) Program
Accredited JFO Program
MOA Signatory – Accreditation Pending
Talks in Progress
**BOLD QUEST 16.2 Threads**

**Coalition ISR**
- Joint and coalition partnership to share intelligence from multiple ground and air sources
- Drive operations and target engagement across multiple initiatives and throughout a common scenario

**Joint Fire Support**
- Joint and coalition digital interoperability end-to-end from JFO / JTAC to CJTF
- Multiple nations participating with distinct system types exercising extensive cross-service and cross-nation threads
- JFOs from multiple nations demonstrating digital interoperability in a live fire event

**Integrated Air and Missile Defense**
- Exercising engagement authority and procedures in a robust BLUFOR / OPFOR, live and simulated sorties
- Air-air; surface-air; air-surface engagements in a complex air and surface environment

**Live/Virtual Environment**
- Coalition JTAC / JFO and Aircrew in distributed virtual sim (CONUS / OCONUS), with Air Support Operations Center (ASOC) and ISR support

**Leverage Resources (Sorties, Ground Forces, Network, etc.)**

**Digitally Aided Close Air Support**
- Digital interoperability among joint terminal attack controllers (JTAC), aircrew and C2 nodes
- Multiple nations with several JTACs, conventional and SOF, per nation
- Concurrent credit toward individual JTAC annual sustainment training

**Friendly Force Tracking and Ground-Air Situational Awareness**
- Demonstrating shared SA between US and Coalition handheld FFT systems
- Developing NATO Interoperability standards with multiple nations and NATO HQ
- Provide ground tracks to fixed wing aircrew conducting CAS for SA and fratricide avoidance

**Cyber**
- Stand-up multi-national cyber cell
- Conduct cooperative vulnerability assessment
- Cyber OPFOR effects

**Coalition Network (Federated Mission Networking)**
- Federated environment encompassing national networks / systems
- Each nation follows their own national policies and operates their own mission command systems and core services for collaboration
- Guided by collaboratively developed Joining, Membership and Exit Instructions (JMEI)
Coalition Interoperability Assurance and Validation (CIAV)

- Resolves mission-based interoperability problems BEFORE new systems and software are fielded
- Desk Top Analysis (DTA) methodology assesses end-to-end information exchange across DOTmLPF-P (solutions not always technical)
- Validates Coalition Mission Threads (CMTs) and Coalition Tactics, Techniques, and Procedures (CTTPs)

- Coalition Test and Evaluation Environment (CTE2) replicates Afghanistan Mission Network (AMN) and systems
- Coalition Verification and Validation Environment (CV2E) simulates Mission Partner Environment (MPE) / Federated Mission Networking (FMN) systems
Technology Integration Example: Hand-Held Link 16 (HHL-16)

- Connects dismounted Joint Terminal Attack Controllers (JTACs) directly into LINK 16 network to digitally call for fire
- Provide all nodes with accurate situational awareness in joint integrated air and ground common operational picture
- Prevents fratricide and minimizes collateral damage
- Enables command and control in degraded RF environments
- Enables US and coalition forces to leverage worldwide L-16 capabilities of 50+ nations
Technical Capabilities

Visual Analysis and Mission Monitoring Tool

Data Collection Architecture for Analytical Feedback (DCAAF)

Deployable Technical Operations Center

Communications Assets

Delivering decision-quality recommendations from combatant command, multinational, and Service venues

Software Applications

JDAT Capability Assessment Process

Problem statement: One or more capability gaps or threats to opportunities

Planning
- Critical operational issues
- Conceptual model
- Assessment concept
- Assessment methodology
- Assessment plan

Execution
- Data collection and reduction
- Mission conduct

Reporting
- Data analysis
- Assessment report

Feedback to customers
- JDOT
- System program offices
- Users

Technical Capabilities

- Software Applications
  - Visual Analysis and Mission Monitoring Tool
  - Critical operational issues
  - Mission Monitoring Tool

- Data Collection Architecture for Analytical Feedback (DCAAF)
  - Communications
  - Data Collection
  - Oracle databases
  - Site-to-site
  - Link 16
  - CoT
  - JUTC
  - BFT
  - Various data gateways

- Distributed Operations
  - Albuquerque, NM
  - Colorado Springs, CO
  - Camp Atterbury, IN
  - Eglin AFB, FL
  - Epperson, VA
  - Huntington Beach, CA

- Deployable Technical Operations Center
Joint and Coalition Interoperability Enablers

Interoperability built in, not added on
Coalition interoperability as a requirement
Policy that supports coalition information exchange
Leverage community of interest initiatives
Leverage interoperability forums
Common standards, standardized implementation
“Coordinated” acquisition across Services and nations
Machine-to-machine ideal but not required
Tactics, techniques and procedures
Training is key: “Train like we will operate”
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