

Joint Test and Evaluation (JT&E)



FY23 marked the reestablishment of the Joint Test and Evaluation (JT&E) Program and the return of the Joint Test process following the President's Budget 2023. The JT&E Program continued to execute warfighter-initiated test projects by managing 2 joint tests and 10 quick reaction tests (QRTs) to support development of non-materiel solutions to warfighter-identified problems. Specific FY23 activities demonstrated a trend toward addressing the integration of emerging weapons capabilities into tactics, techniques, and procedures (TTP), concepts of employment (CONEMPs), and concepts of operations (CONOPS).

PROGRAM OVERVIEW

The JT&E Program was established in 1972 in response to the 1970 Blue Ribbon Defense Panel Report recommending that responsibility for joint operational testing be vested in an OSD staff element. In 2002, management and responsibility for the JT&E Program transferred to DOT&E from the then Under Secretary of Defense for Acquisition, Technology, and Logistics. Today, the JT&E Program considers emerging technologies and the increasingly complex and dynamic, joint, multi-domain operational environment to plan and execute test projects intended to deliver non-materiel solutions and enhance the lethality, suitability, resilience, survivability, agility, and responsiveness of the joint force.

The Services and combatant commands (CCMDs) help identify critical challenges that need to be addressed in their areas of responsibility to maintain superiority across joint, multi-domain operations. The JT&E Program provides OT&E management and expertise to develop, test, and validate joint non-materiel solutions, including agile warfighting TTP, CONEMPs, and CONOPS. In turn, the Services and CCMDs provide leadership and support to the planning and execution of JT&E projects and their successful transition to the warfighter.

The JT&E Program focuses on joint requirements that cannot be economically or effectively tested within each of the individual Services and CCMDs. Given the increased integration and dependencies of platform, network, and command and control (C2) solutions across the domains, JT&E's mission and unique focus on system-of-systems testing is becoming increasingly critical to the Department's strategic objectives. JT&E's extensive use of OT&E testing techniques, workforce talents, and reach-back are essential to the adequate evaluation of the effectiveness of proposed solutions needed in operational plans across the CCMDs.

MISSION

The JT&E Program assists the warfighter in solving joint operational problems and issues by developing and testing proposed solutions using OT&E methodology. The resulting products are non-materiel solutions and reports detailing the operational performance of the joint force in contested, multi-domain operations.

FY23 KEY ACTIVITIES

» JOINT TESTS

During FY23, the JT&E Program started two joint test projects following the reestablishment of the JT&E Program in the President's Budget 2023. A joint test averages about two years in duration and is preceded by a six-month joint feasibility study.

Joint CONUS Directed Over-The-Horizon Radar (J-CONDOR)

Joint forces will face challenges in maintaining freedom of maneuver in complex multi-domain anti-access/area denial environments. Adversary and friendly forces have fielded variations of over-the-horizon radar (OTHR) that can detect air and surface targets at long ranges. The OTHR operates by transmitting high frequency radio waves that are reflected off the ionosphere into a surveillance area that can provide target cueing for adversary long-range weapon systems. In August 2023, JT&E initiated the J-CONDOR Joint Test to develop an overarching CONOPS that informs combatant commanders of adversary OTHR capabilities and mitigation strategies. The J-CONDOR CONOPS will include TTP for tactical commanders that synergizes maneuver with electronic systems and capabilities to counter detection and tracking by adversary OTHR. The J-CONDOR Joint Test includes several test events over the course of the two-year project utilizing air, maritime, and electromagnetic warfare resources to evaluate the J-CONDOR CONOPS and TTP.

Joint Conventional Nuclear Integration (J-CNI)

Conventional and nuclear integration requires seamless planning and operation of joint and combined conventional and nuclear forces, in sequence and in parallel, across the spectrum of conflict, up to and through a nuclear exchange environment. The scope of planning and execution of such operations encompasses more than conventional support to nuclear operations and requires full-spectrum integration of non-nuclear capabilities to enhance or complement nuclear options. In August 2023, JT&E initiated the J-CNI Joint Test to develop, test, and evaluate a CONOPS for defining integrated conventional and nuclear options that are executable within a pre-synchronized timeline and effectively assign these missions to the responsible organizations. The J-CNI Joint Test is expected to conclude in November 2025.

» QUICK REACTION TESTS

During FY23, the JT&E Program managed 10 QRT projects. QRTs provide a faster response to urgent joint needs but must focus their objectives to execute within the shortened, 12-month contract duration.

Automated Tactical Targeting and Counterfire Kill-Web System (ATTACKS)

During large-scale combat operations, tactical operators within the U.S. Forces Korea Counterfire Task Force Air Component Command must employ and disseminate counterfire against North Korea's long-range artillery threats efficiently, at scale, and within their vulnerability window. The ATTACKS uses joint sensors and the existing Combined Joint All-Domain Command and Control (CJADC2) software to automate data transfer between disparate counterfire systems using machine learning. By automating disparate data links, U.S. forces in South Korea can reduce the total time required to neutralize the long-range artillery threat from minutes to seconds, preventing potential catastrophic loss of life in the Greater Seoul Metropolitan Area.

In March 2023, JT&E initiated the ATTACKS QRT to develop and validate TTP to optimize the automation provided by ATTACKS to support the Counterfire Task Force mission. FY24 testing will use a multi-domain counterfire team, airborne fighter/reconnaissance aircraft, and surface counterfire platforms with the Advanced Field Artillery Tactical Data System. The Tactical Air Control Party and Tactical Command and Control systems will integrate this software into current C2 systems aiming to nest ATTACKS with emerging CJADC2 efforts including Advanced Battle Management System, Project Convergence, and Project Overmatch. ATTACKS will address tactical C2, voice and data link communication, and fire support coordination measures required to employ the system most efficiently against two brigade-size long-range artillery forces attacking simultaneously both within and outside of defined garrison boundaries.

The ATTACKS QRT will enable broader CJADC2 by operationally optimizing a multi-domain kill-web of mobile C2 nodes, sensors, and shooters. The QRT is intended to prove that U.S. Forces Korea C2 of counterfires are more redundant and survivable than a structure reliant on fixed facilities. The ATTACKS-developed TTP will propose changes to Combined Air Component Commander Wartime Baseline Special Instructions and the Combined Forces Command Publication 3-1-1, Combined Joint Fires. The QRT team is expected to complete development of the initial ATTACKS TTP in 1QFY24.

CONOPS for Novel Information Warfare Capabilities (CNIWC)

U.S. Strategic Command (USSTRATCOM) and overall DoD mission success relies on the ability to optimize information warfare capability. In October 2022, JT&E initiated the CNIWC QRT to develop and test a Joint Information Warfare CONOPS that will be executed by USSTRATCOM. CNIWC began work in September 2023 to support development, testing, and validation of a stand-alone CONOPS, which is expected to result in changes to multiple joint and Service doctrine by 4QFY24.

Joint Aviation Signature Management Analysis, Application and Rehearsals Tool (JA-SMAART)

The U.S. Army Aviation Center of Excellence requires a standardized and repeatable test methodology to evaluate electromagnetic signatures of slow flying, joint tactical aircraft. In FY23, JT&E initiated the JA-SMAART QRT to develop TTP and a series of models to directly improve aircraft survivability in contested, congested, and constrained electromagnetic spectrum operations. Assisted by Air Force and Navy organizations that have electromagnetic signatures modeling capabilities, JA-SMAART will produce standardized models by aircraft type and configuration that support current mission planning analysis tools. The resulting models are intended to increase aviation combat survivability through a reduction in aircraft susceptibility in mission planning and use in multi-domain operations. Upon completion in FY24, the project is expected to deliver a validated test methodology for future use as well as accurate, realistic susceptibility models that have an immediate benefit to the warfighter and use in joint aviation mission planning software suites.

Joint Development of Hypersonic Weapons Employment (J-DoHE)

USSTRATCOM J3 requires a hypersonic weapons CONEMP that addresses decision timeline, fire request procedures, and communication paths for hypersonic weapons. In January 2022, JT&E initiated the J-DoHE QRT to develop and test a CONEMP based on the CONOPS developed by the Joint Hypersonic Strike Planning, Execution, Command and Control Joint Test in 2020. During FY23, the QRT team conducted two field tests at Offutt AFB, Nebraska, to validate the J-DoHE Hypersonic Weapons CONEMP, which focused on decision and execution communication flow at the operational level. Upon completion in July 2023, the J-DoHE QRT delivered the CONEMP to position USSTRATCOM to successfully plan and employ long-range hypersonic weapons upon initial fielding.

Joint Distributed Command and Control (J-DC2)

Changes in military capabilities, resource allocations, and emerging technologies will dictate how the United States plans and executes a future J-DC2 capability. In response to these changes, USSTRATCOM J8 and the Nuclear Command, Control, and Communications Enterprise Center require a CONOPS for a future nuclear C2 capability that is flexible, resilient, and distributed. In July 2022, the J-DC2 QRT began work with the sponsor, other CCMDs, the Joint Staff, U.S. agencies, the U.S. Navy, the U.S. Air Force, and additional relevant stakeholders to develop a draft CONOPS for future nuclear C2. The J-DC2 QRT conducted tabletop exercises at Offutt AFB, Nebraska, in June and August 2023 to evaluate and validate the CONOPS. The final product is a validated CONOPS that will inform the development and implementation of future nuclear C2 operations to achieve positive operational outcomes for J-DC2 platforms.

Joint-Global Hypersonic Operational Sensor Tasking (J-GHOST)

The joint warfighter requires doctrine to deconflict, coordinate, and integrate attacks that include emerging technologies and newly fielded capabilities within emerging Space Domain Awareness, Missile Defense, and Missile Warning doctrine. In October 2022, JT&E initiated the J-GHOST QRT to develop, test, and deliver validated Space Domain Awareness CONOPS and associated TTP to rapidly task external sensors and internal missile defense sensors in real-time during advanced trans-regional threat events. The goal is to operationally improve responsiveness for no-notice tasking of Missile Warning, Missile Defense, Space Domain Awareness, and other sensors to support detection and improve track custody and reporting of time-sensitive, multi-domain, trans-regional, advanced threats, and high-interest space events. J-GHOST began test activities in August 2023 to support the Missile Defense Agency and U.S. Space Command in jointly delivering tested and validated CONOPS and TTP to enable warfighters to detect, track, and report on advanced threats. The J-GHOST team includes participants from six CCMDs, the Services, the Missile Defense

Agency, and Australian defense organizations. The team expects to complete the QRT in 4QFY24.

Joint Interface Control Cell Resiliency (JICC-R)

Joint Interface Control Cell personnel need the ability to detect, respond to, and recover from issues on data links. In March 2023, JT&E initiated the JICC-R QRT to develop TTP for Joint Interface Control Cell personnel. JICC-R is focused on improving operational resilience in the event of data integrity loss across military activities. The QRT team began work in October 2023 to support testing, analysis, and evaluation required to produce the JICC-R TTP. The project is expected to conclude in 4QFY24.

Joint Operation NOBLE EAGLE Link-16 Tactical Data Link (JOLT)

Until recently, U.S. Coast Guard (USCG) Rotary Wing Air Intercept (RWAi) aircraft were not equipped with a tactical data link system and relied only on visual information and aural advisories from the Eastern and Western Air Defense Sectors. The Coast Guard Deputy Commandant for Operations, with advisory direction from North American Aerospace Defense Command (NORAD), established a requirement that all USCG MH-65 aircraft participating in RWAi missions have a tactical data link capability to enable real-time visual situational awareness among active air intercept participants. In October 2022, JT&E initiated the JOLT QRT to develop and assess TTP for RWAi missions flown in conjunction with Air Force or Navy aircraft and Army Ground Based Air Defenses controlled by the Eastern and Western Air Defense Sectors in the Continental NORAD Region. The JOLT QRT team is jointly developing the TTP with USCG and Joint Staff J6 using a test-fix-test approach with the first field test occurring at USCG facilities in Atlantic City, New Jersey, in November 2023. The JOLT QRT is expected to complete in 3QFY24.

Joint Operations in the Information Environment Playbook Toolkit (J-OPTiK)

Digital and social media have become the new battleground for Operations in the Information

Environment (OIE). OIE cells face challenges in assessing social media, coordinating messaging, countering adversaries, and adapting strategies for commanders' intent essential for approved narratives and information advantage. OIE analyst procedures lack commander-aligned efficiency, which leads to coordination gaps among Service OIE cells and hinders timely actions. In January 2022, JT&E initiated the J-OPTiK QRT to formalize and validate TTP for digital and social media campaigns to cover deep analysis, course of action development, and synergistic messaging for use of social media accounts. The J-OPTiK developed tested products that include a TTP, BEND guidebook, and corresponding Spot Report. These products were based on the 16 information actions of the BEND framework known as "the four Bs" – back, build, bridge, boost; "the four Es" – engage, explain, excite, enhance; "the four Ns" – negate, neutralize, narrow, neglect; and "the four Ds" – dismiss, distort, dismay, distract.

The J-OPTiK products describe the process for planning multi-domain OIE series in the joint community at the tactical level to enhance warfighter effectiveness in the information environment. With the participation of OIE analysts from various Services, the two J-OPTiK field tests in California and Hawaii validated product effectiveness and support for OIE analysts in crafting recommended courses of action. These two events utilized synthetic data from Carnegie Mellon University's Center for Computational Analysis of Social and Organizational Systems, in partnership with the Office of Naval Research. The introduction of synthetic X (formerly known as Twitter) content into an OIE wargame training environment supported assessments of operator outcomes in real-world scenarios and their ability to effectively apply the results within the information environment. The J-OPTiK QRT team concluded that the tested and validated products empower OIE analysts to evaluate the information environment demonstrating effective responses and strategic information actions.

The following OIE cell participants have moved toward implementation of the products: Command Naval Forces Japan, the Army's 1st Multi-Domain

Task Force, I Marine Expeditionary Force Information Group Psychological Operations Company, the Air Force's 553 Intelligence Squadron, 188th Wing of the Arkansas Air National Guard, and the Publicly Available Information Center of Excellence. The J-OPTiK QRT test products transitioned to the Joint Information Operations Warfare Center in September 2023 to ensure seamless warfighter access to the products for daily operations. Possible integration of J-OPTiK products under consideration by Joint Information Operations Warfare Center for warfighter usability includes an annex in Joint Publication 3-04, Information in Joint Operations; conversion to an Air Land Sea Space Application Center multi-Service TTP; and inclusion in a Joint Knowledge Online course.

More Situational Awareness for Industrial Control Systems (MOSAICS)

The U.S. military is dependent on critical infrastructure to execute its mission. In the event of a contentious conflict, it is anticipated the adversary will conduct an unattributed cyberattack via proxy on U.S. critical infrastructure. The likely intent of such action is to slow the military's ability to generate forces and unleash logistics support of global operations in defense of allies. U.S. Indo-Pacific Command and U.S. Northern Command signed a joint letter in 2016 requesting development of capabilities to protect DoD Industrial Control Systems (ICS). In response, NORAD and U.S. Northern Command J4 requested the development of processes and procedures to enable ICS/Operational Technology operators and cyber defenders to fully detect, analyze, mitigate, and recover their systems from cyber interference or attack.

In January 2022, JT&E initiated the MOSAICS QRT to refine TTP and CONOPS to help prevent proxy cyberattacks and allow the U.S. projection of force to change the operational outcome. The MOSAICS QRT conducted two field tests at Port Hueneme, California, in March and June 2023, resulting in validated products that include a revised TTP and CONOPS for future MOSAICS systems employment across the DoD and private sector. Upon project completion in September 2023, the test products transitioned to Naval Facilities Engineering Systems

Command as the initial product owner and user. The revised MOSAICS TTP and CONOPS have enhanced ICS cyber survivability education and training as well as security at locations where the U.S. Navy is programmed to install MOSAICS systems.