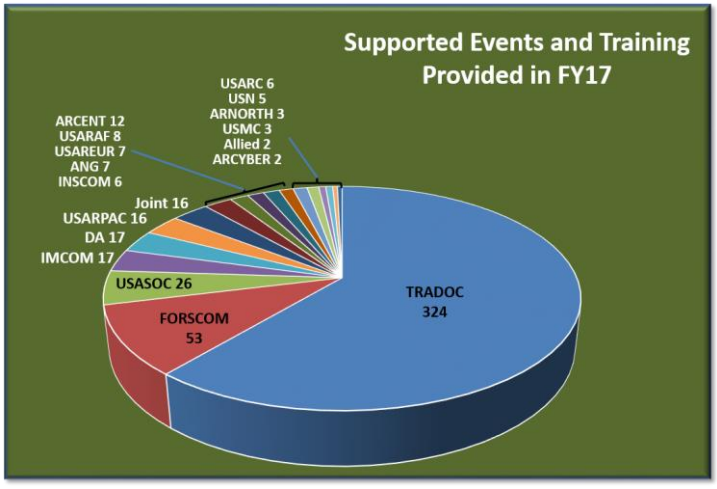
G-2 OPERATIONAL ENVIRONMENT CENTER
[Delivering the Operational Environment]

G-2 Operational Environment Center (OEC) Mission. *The OEC delivers complex Operational Environments (OE) by leveraging real world data, information, and knowledge in order to enable learning across all Training, Education, and Leader Development and advocates solutions to key OE capability gaps in Army forums.*
http://www.tradoc.army.mil/g2/oetsc/

Replicating the OE to Reflect a Complex World. An arm of the TRADOC G-2 Operational Environment Enterprise (OEE), the OEC replicates a complex OE by harvesting and manipulating real-world data and information, using innovative technologies, and capitalizing on a widely diverse workforce of subject matter experts (SMEs). These SMEs specialize in a multitude of areas such as intelligence, surveillance and reconnaissance (ISR), special operations forces, conventional war fighting functions (WfFs), data processing and manipulation, and OE Live, Virtual, and Constructive integration, and deliver it via unique methods which present both efficiency and value over traditional Army means. The OEC also ensures operational environments used in both operational and institutional settings meet key regulatory requirements for complexity and realism by deploying subject-matter experts to CTCs, HST, and institutional venues to conduct assessments and then, if required, address key OE capability gaps in Army resourcing forums. As well, the OEC is missioned to ensure OE-compliance across the six Army M&S-enabled Communities (Acquisition, Analysis, Experimentation, Intelligence, Test & Evaluation, and Training).



Supporting the Centers of Excellence and Schools. The OEC assists Army schools and Centers of Excellence (COE) in developing soldier and leader competencies. Customized virtual replications deliver the complex world with a level of fidelity and depth never before possible. OE event and process visualizations, and virtual practical exercises (micro-simulations) use real-world data and virtual game engines (VBS3, Unity) to enable Army Learning Model (ALM) - compliant, student-centric blended learning. Gaming technology's flexibility allows swift modification, faster than other Army programs. Products include 3-D models and geo-specific terrain tailored to individual and collective training scenarios. Access the OEC **Gaming and Visualizations page here:**
https://www.milsuite.mil/book/groups/oetsc

The OEC has transformed programs of instruction (POI) across centers and schools to a DATE environment that is sequenced through the blocks of instruction and culminate in end-of-course or CAPSTONE exercises. As an example, the OEC worked with the Ranger Training Brigade in FY17 to transform the separate Battalion STX-focused field training to an integrated DATE compliant OE with an increasingly complex and dynamic scenario that will also sequentially link all phases of Ranger school. Collectively, all phases of Ranger training will encompass a common, complex and interrelated experience for students. Support to the 6th and 5th Ranger Training Battalions was completed and the 4th Ranger Training Battalion will be completed by the end of FY17.

OEC also assisted Cadet Command through FY16 and FY17 in developing a DATE compliant Summer Training FTX that shifted the cadet leadership focus from separate tactical STX lane scenarios to a larger holistic, integrated OE. The new OE builds and allows assessment of critical thinking skills by increasing both the complexity and effectiveness of OE conditions. In addition, the introduction of the Information Operations Network allows cadets to access internet-based DATE information well before their summer training, optimizing valuable Summer Training time by eliminating the cold-starts. To achieve such, the OEC developed the scenario, orders, missions, role players, MSEL injects, and provided on-site dynamic scripting during the training.

Support To Readiness. Collaborating closely with commanders, their staffs, mission training complexes (MTC), and the Global Simulation Capability (GSC), the OEC provides conventional and special operations units focused and scalable exercise design expertise and OPFOR training and support to develop tough, realistic, and complex multi-echelon training within any real-world or training operational environment.

In direct support, the OEC manipulates or "bends" historical information and data in time and space in order to stimulate Mission Command systems. Support could include both

classified and unclassified products and services via NIPR, SIPR and JWICS networks; simulated real time operations and scenario synchronized intelligence products; and Road to War, SIGACT analysis, surveillance feeds and message traffic.

To provide persistent indirect support 24/7, the OEC "bundles" these products and services into comprehensive exercise support packages (ESP) and posts them to the **Exercise Support Application (ESA)** which serves the Army training community by providing access to previously executed exercise content. Anyone with a CAC card may find exercise products, download exercise material for reuse, and request additional support from the OEC. **https://tbr.army.mil/esa/**.

The OEC is also working through FY17 and FY18 to establish tighter support relationships directly with the MTCs, to include providing key OEC tools so that greater value and support may be provided to home station at the point of need.

OPFOR Training and Support. The OEC provides direct support in training assigned OPFOR to adequately replicate the threat and serve as OPFOR/Red Team leaders, and indirect support via the **Virtual OPFOR Academy (VOA)** which provides information, tools, and resources to learn, apply, and replicate OPFOR counter-tasks to achieve unit training objectives within a collective training environment by exposing users to OPFOR tasks, conditions, and standards. **https://www.milsuite.mil/book/groups/voa**

Another persistent indirect support capability is the **Information Operations Network (ION)**. ION emulates the open source internet environment by providing realistic webpages, blogs, streaming media/video, Twitter, Facebook, radio, and TV broadcasts in order to immerse units in the IO environment. Content is unique to each unit exercise and accessed via the web allowing the training audience access to the social media environment specific to their scenario during the exercise. **https://ion.army.mil/ion-browser/**

The OEC further enhances the commander's ability to shape the OE IAW his intent through **Network Engagement** (NE – formerly Attack the Network (AtN)) training enabling Battle Staffs to: 1) understand and apply NE lines of effort and 2) apply social network analysis concepts and software to rapidly identify key nodes to engage within complex networks. NE Training Directorate is also co-authoring with MCoE draft Army Techniques Publication 5-0.6, Network Engagement, which supports the U.S. Army Functional Concept for Engagement, TRADOC Pam 525-8-5.

OEC's **Exercise Design Tool (EDT)** is a collaborative open source, web-based, tool that enables the design of exercises to meet training objectives in accordance with Army standards. Training designers and planners create, clone, store, share or modify training support packages utilizing current force structures for Army and other Services, including those of the Decisive Action Training Environment (DATE). Imbedded links to approved doctrinal tasks, including OPFOR tasks, and previously developed scenario events facilitate the development of specific storylines. **https://tbr.army.mil/app/**

Predictive Analytics- **ATHENA** is a scalable, laptop-based, decision support tool designed to assist leaders and analysts anticipate intended and unintended consequences of courses of action and policy proposals employing the instruments of national power for operations in complex environments. Athena generates trend lines indicating changes in population satisfaction levels, the level of volatility/stability within a discrete area, control over neighborhoods, and relationships between actors and civilian and/or force groups. These results improve situational understanding and inform decision making.

Intelligence, Surveillance, and Reconnaissance Integration (ISR-I) ISR-I supports home station exercises by developing and delivering real-world ISR processes and capabilities applied against unit problem sets using the **ISR Staff Integration Trainer (ISIT)**, a multi-player virtual practical exercise, developed to assist operational force staffs in integrating ISR into fires and maneuver. With iSIT, staff (or students) can employ a virtual practical exercise in a blended learning training environment, and assist in providing Joint ISR and Fires integration. The iSIT may be downloaded from MIL GAMING at: **https://milgaming.army.mil/VBS3/files/ResourceDetail.aspx?rid=1703.** ISR-I also supports deployed forces through the ISR Mobile Assistance Teams which provide subject matter expertise and training/mentoring support on the application of Theater ISR to OE-specific problem sets.

Emerging capabilities and initiatives. As the Army and TRADOC seek innovative cost effective ways to organize, train, and equip the force to win in a complex world, OEC will continue to seek the best technologies and rapidly develop advanced capabilities to fully represent and deliver all facets of the OE. Important new developments include:

- OEC collaborates with sister Services, allied countries, and Joint Staff to refine requirements and prototype solutions of OEC tools and capabilities for use and potential transition.
- OEC is converting ATHENA outputs into operational views to support the military decision making process so joint and Army commanders and battle staffs can visualize potential outcomes.
- The OEC is pursuing partnerships from across the Army and business world to build both Artificial Intelligence and Big Data processing capabilities in order to provide the warfighter intuitive information exactly when and where needed.

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Some links may require CAC authentication