Field Artillery

Professional Bulletin

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55th Field Artillery School Commandant, Fort Sill, Oklahoma

Purpose

Originally founded as the Field Artillery Journal, the Field Artillery Professional Bulletin serves as a forum for the discussions of all U.S. Army and U.S. Marine Corps Field Artillery professionals, Active, Reserves and National Guard; disseminates professional knowledge about progress, development and best use in campaigns; cultivates a common understanding of the power, limitations and application of Fires, both lethal and nonlethal; fosters Fires interdependency among the armed services, all of which contribute to the good of the Army, joint and combined forces and our nation. The Field Artillery Professional Bulletin is pleased to grant permission to reprint; please credit Field Artillery Professional Bulletin, the author(s) and photographers.

Cover: Triple-7 Live Fire Exercise
Photo by Ygal Kaufman
Public Affairs Office, Fort Sill

During a visit to the Fort Sill Fires Center of Excellence by Oklahoma Governor Kevin Stitt, the Alpha Battery 2-2 FA BN fires an M777A2 (155 mm) during live fire training on Oct. 22, 2020.

BG Andrew D. Preston
Field Artillery School Commandant

Introducing...

New Field Artillery Commandant **BG Andrew D. Preston**

Brigadier General Andy Preston, a native of Edmond, Oklahoma, was commissioned as a Field Artillery Officer through Officer Candidate School in 1992, after enlisting as an 11B in 1990. He began his commissioned career as a Company Fire Support Officer in 1st Battalion, 505th Parachute Infantry Regiment, 82nd Airborne Division, Battery Fire Direction Officer and Executive Officer in 1st Battalion, 319th Airborne Field Artillery Regiment, followed by Aide-de-Camp to the XVIII Airborne Corps Artillery Commanding General. After his time at Fort Bragg, he was assigned to the 214th Field Artillery Brigade as Assistant Brigade S3 before commanding both C Battery, 2nd Battalion, 4th Field Artillery and Headquarters and Headquarters Battery, 214th Field Artillery Brigade.

After departing Fort Sill, BG Preston served as a Harvard/ DCSOPS Fellow first in Cambridge, Massachusetts then as a Strategic Plans Officer in DAMO-SSW (War Plans Division), Army G3. Following schooling at Fort Leavenworth, he began a series of assignments in the Pacific to include 25th ID Plans Officer (CJTF-76, OPERATION ENDURING FREEDOM), Battalion Executive Officer in 3rd Battalion, 7th Field Artillery, Executive Officer for 3rd Infantry Brigade Combat Team (OPERATION IRAQI FREEDOM), and Contingency Plans Officer in J35, United States Pacific Command. COL Preston then returned to the 25th ID as Commander 2nd Battalion, 11th Field Artillery (OPERATION IRAQI FREEDOM and NEW DAWN) and Division G3 (Rear). He then departed Hawaii and assumed command of the 214th Fires Brigade and 4th Division Artillery. In 2015, he returned to Hawaii as the 25th ID Chief of Staff, prior to transitioning to the Pentagon as Director for the Chief of Staff of the Army's Coordination Group. Returning to Hawaii in 2018, he served as the Deputy Commanding General (Support) for the 25th Infantry Division; the Deputy Chief of Staff, G-3/5/7, United States Army Pacific; and his last assignment as the Chief of Staff, United States Army Pacific.

His civilian education includes a Bachelor of Science degree from the University of Oklahoma, a Master of Public Administration degree from Harvard University, and a Master of Military Arts and Sciences degree from the United States Army Command and General Staff College. He also attended a Senior Service College Fellowship at the Scowcroft Institute, Texas A&M University.

BG Preston has been happily married for 30 years to his wife Gina. They have two adult daughters, one granddaughter, and another one on the way.

CSM Michael J. McMurdy
Field Artillery School
Command Sergeant Major

A message from USAFAS Command Sergeant Major

Redlegs,

I'd like to start out by thanking our 54th Commandant and Chief of the Field Artillery, BG Winston Brooks, for such steadfast support and dedication to ensuring our Professional Military Education for the enlisted force remained at the forefront of his priorities as he guided the Branch over the last year. Sir, on behalf of the entire force THANK YOU and best of luck as you move to serve as the Deputy Chief of Staff for Operations, Allied Rapid Reaction Corps, North Atlantic Treaty Organization (NATO). We are excited to welcome our 55th Commandant and Chief of the Field Artillery, BG Andrew Preston!

Working with the team, what you should expect to see from me based on the Commandant's published priorities during this quarter:

-Project Athena Senior Leader Course Pilot. Schedule began on March 29 with 13F Students, and will expand to all enlisted MOS in the near future. Your local Basic Leaders Course should also be piloting the program. Project Athena is changing how we implement Guided Self Development. If you haven't already, see it for yourself at https://capl.army.mil/athena/#/.

-Review Post Board analysis of the Sergeant First Class Order of Merit List and Enlisted Manning Cycle results for inclusion in DA PAM 600-25 update.

-Self Development in Army Career Tracker (ACT). We will update the Self Development Model outlined in ACT to ensure our Soldiers are the best prepared for future changes in our branch and profession.

-Finalizing our draft proposal for the Field Artillery Commandant's review of Military Occupational Classification and Structure documents to add the Field Artillery Master Gunner A7 Additional Skill Identifier to 13F and 13R billets in O-6 Headquarters as we continue moving toward expanding the course.

-Adding 13R Advanced and Senior Leader Course students to our Culminating Live Fire Exercise at the Non-Commissioned Officer Academy to better synchronize and ensure NCO understanding of inter-operability across all our shooters and sensors.

The Commandant and I are humbled to serve you and our Field Artillery community. We look forward to another year of progress, leader development, and driving change.

Guns up and King of Battle!

RL7 CSM Michael McMurdy


"TODAY'S ARMY IS MUCH LESS ABOUT THE KNOWLEDGE WE HAVE, SO MUCH AS THE KNOWLEDGE WE CAN SHARE."
FKN
FIRES
KNOWLEDGE
NETWORK
FOLLOW THIS LINK TO THE BRAND NEW FIRES KNOWLEDGE NETWORK:
HTTPS://INTRANET.TRADOC.ARMY.MIL/SITES/FKN/

Now is the time

For a Force Field Artillery Proficiency Test

By COL Bryan L. Babich, MAJ Frederick (Fritz) J. Carr, and MG (R) Richard Longo

It is the first day of a future Mission Command Training Program (MCTP) Warfighter Exercise. The Division Artillery (DIVARTY) Commander is receiving his first Battle Update Brief. During final comments, the Commander asks the following questions: CDR: S2, how are we feeding the G2, the analysis and control element, our Field Artillery Intelligence Officers, our counter-fire analysis, and the predictive Battle Damage Assessment (BDA) based on decay time and fire order?

S2: Sir, Division will provide us with those estimates from what is identified from collection assets, and additionally, we have to wait for the 35T to get Distributed Common Ground System (DCGS) talking to AFATDS.

CDR: Battle Captain, is the battlespace-owning Brigade Combat Team (BCT) Commander providing an adequately sized operation area to enable the survivability moves of our High Mobility Rocket System battalion?

Battle Captain: I'm not tracking which BCT's battlespace we're operating in and not sure whether the operation area is adequate because I am more of a "cannon-guy."

CDR: S4, is our ammo count listed as pods or rockets, and what is the Controlled Supply Rate (CSR) for our long-range munitions?

S4: Sir, I don't know, the Division order did not say and I asked Division to give me our Required Supply Rate.

CDR: S6, is our AFATDS talking to adjacent units, Joint Air Ground Integration Cell (JAGIC), and Division Fires?

S6: Sir, we're up with Division and JAGIC. I'll work with the AFATDS field service representative on which adjacent units we need to communicate with.

With the reintroduction of DIVARTYs across the active Army, there has been continuous and evolutionary improvement in performance as lessons are learned and shared from one training event or unit to the next. However, the principal challenge that DIVARTYs face is a lack of experience of the NCOs and officers in the command post. This is compounded by the fact that the majority of these leaders primarily come from a cannon artillery background and lack a basic understanding of how to fight with a Multiple Launch Rocket System (MLRS) and HIMARs, which are the predominant weapon systems available to our DIVARTYs. In most cases, assignment at DIVARTY will be an individual's first time operating at the Brigade level, let alone within a DIVARTY or Force Field Artillery (FFA) headquarters. Sometimes there will be an Operations Sergeant Major or a Fire Control Noncommissioned Officer with experience, but everyone else will be new to a DIVARTY, and just as importantly, Division operations.

The primary training opportunity for a DIVARTY and staff is in the preparation for, and execution of, an MCTP Warfighter exercise. The current model is for MCTP to provide a week of "academics" in a sterile classroom environment where they coach the seemingly always new members of the team on the fundamentals and doctrine of DIVARTY operations, as well as the best practices of previously observed units. This is followed by a series of Division-led Command Post Exercises (CPXs), culminating in the Warfighter exercise. Usually, there are three of these CPXs, generally progressing from crawl to walk to run.

DIVARTYs have a multitude of competing time demands including the certification and qualification of all Field Artillery Batteries and Battalions in the Division. The very best DIVARTYs use these training and readiness oversight events as training opportunities for their command posts. However, the training value is limited as there is not the external stimulus necessary to prepare them fully for the intensity of a WFX. The reality of the situation is that DIVARTYs are two-headed organizations. One is focused down and in on certifications, and the other is focused up and out to operate as a Force Field Artillery Headquarters (FFAHQ). Most view DIVARTY as the former rather than the latter, and almost all Red Books serve as proof; as they are built around certifications, rather than fighting as an FFAHQ.

What is missing from this sequential progression of training readiness is an understanding of exactly

"The primary training opportunity for a DIVARTY and staff is in the preparation for, and execution of, an MCTP Warfighter exercise."

A M777A3 from C BTRY, 3-320th (Red Knights) is carried into battle during Platoon Qualifications.
(CPT Rance Blake/US Army)

The sun rises as the 101st DIVARTY TOC continues operations through the TOC Jump. *(MAJ Ian Kent/US Army)*

what fundamental knowledge is necessary of every member of the command post to get the most benefit from the collective training event, and ultimately to be prepared to fight as the Division's FFAHQ.

In our Field Artillery Battalions, we begin to build training readiness with an Artillery Skills Proficiency Test (ASPT). We execute this evaluation prior to progressing through our Artillery Tables as we build collective readiness. This test serves as a verification that the individual has the foundational knowledge required prior to building further individual and collective skills.

We recommend that we use a similar model for DIVARTYs to ensure the foundational knowledge exists at the individual level. Just as these proficiency tests are the first gate in our collective training strategy in Field Artillery Battalions, a similar, fundamentals-based proficiency test will enable building collective readiness at the DIVARTY level.

We should state at the beginning that what we are recommending in this article would apply just as well to Field Artillery Brigades serving in an FFAHQ role.

Division Artillery Skills Proficiency Test (DASPT)

As mentioned earlier, this is the first time operating at this level for most involved. We recommend that every staff primary and alternate officer, and noncommissioned officer, including the fire control and counter-fire sections, in the DIVARTY Headquarters, be required to demonstrate mastery of the necessary fundamentals in the form of certification. This will be achieved by passing a two-part test. The first part is Military Occupational Specialty (MOS) immaterial and focused on MLRS and HIMARS knowledge, as well as doctrinal requirements and duty descriptions for an FFAHQ. Each leader, regardless of MOS, will be required to demonstrate an understanding of basic system capabilities, ammunition nomenclature, ranges, effects, and firing reload times. The second part of the DASPT would focus on cross-educating the same audience on how to "artillerize" specific warfighting functions. The purpose of this part is to create a common language across the DIVARTY command post and an appreciation for how their work interconnects and enables the entire staff.

The following paragraphs provide recommended learning objectives that can serve as a basic framework for our proposed DASPT.

Fires: The test must demand an understanding of Fire Support Coordination Measures, the Targeting Process, and the capabilities and limitations of the Fires systems assigned, or likely to be made available, to the Division. In addition, a basic comprehension on how the so-called "Deep Fight" is delineated between Corps and Division using the Fire Support Coordination Line and Coordinated Firing Line or other control measures. Other emphasis areas should include how a DIVARTY coordinates with the Division's Fire Support Element and JAGIC, validates a No Strike List, airspace management planning factors, and tactical employment of all enablers provided from outside the Division.

Command and Control: The staff should demonstrate understanding of command and support

relationships and how or with whom a DIVARTY coordinates to ensure synchronized movement and survivability throughout the Division's battlespace. The staff should also understand the various communication systems and how they provide access to the upper and lower tactical internets. In addition to Command and Control requirements, the members of a DIVARTY staff require a basic understanding of the Fires kill chain architecture with AFATDS, Joint Automated Deep Operations Coordination System, DCGS, and Tactical Airspace Integration System as just a few examples.

Sustainment: The DASPT should focus on foundational artillery sustainment knowledge to include definitions of a Required Supply Rate and CSR, the concept of area support, and the capabilities and limitations of the logistics assets available to the DIVARTY. Other areas of sustainment emphasis include the management of pods versus individual rockets or missiles, the requisition process, how the loss of a launcher affects ammunition, and how to enable the movement of supplies through Brigade Combat Team's battlespace. Specific to personnel, it is crucial that this warfighting function, and those that feed it information, can demonstrate the understanding of a critical MOS within the Field Artillery community as they translate to operational crews. Ultimately, this will enable reporting and requisition to ensure that replacements, and their timely arrival to a firing unit, create combat power synchronized with operational pacing items. The replacement of a launcher is useless if a unit does not have the Soldiers with the right MOS's to put it in action.

Protection: The test must demand an understanding of DIVARTY critical assets and placement on the Prioritized Protection List, the self-secure capability of the command post and subordinate units, and active and passive protection measures. The DIVARTY staff should understand how to communicate with the Division's Protection Cell and ensure appropriate enablers such as Avengers, Military Police escorts, and engineers are synchronized with the movement of firing units.

Maneuver: Every member of the DIVARTY staff should demonstrate basic comprehension of Maneuver graphics with a focus on ground and airspace control measures. The staff must

Platoon Leaders brief their plan during C BTRY, 3-320th (Red Knights) Table XII exercise at Fort Campbell, Kentucky. *(CPT Rance Blake/US Army)*

understand how to coordinate with battlespace owning Maneuver units to ensure movement is synchronized in time and space and informed by the enemy situation at the ground level. This would include understanding the capability and limitations of the Division Combat Aviation Brigade for supporting the suppression of enemy air defense, and deconflicting Position Areas for Artillery (PAA) and position area hazards with friendly air corridors to enable responsive Fires. Also, for planning purposes, the staff must be proficient in the tactical considerations for movement of HIMARS, MLRS, and RADARS throughout the battlespace to avoid threats and minefields to include what informs decisions for survivability move criteria and movement to alternate PAA's.

Intelligence: Most critical to the foundation of a proficient DIVARTY staff is the understanding of how to synchronize and integrate the Fires and Intelligence Warfighting Functions. The staff must understand both friendly and enemy RADAR capabilities and zones, capabilities of other friendly and enemy collection and weapons systems, and be able to articulate the associated risks to the Commander. The staff should understand the BDA and the impacts of target decay time, enemy displacement times, and effects achieved by each specific friendly munition. In addition, the staff must understand how this Intelligence drives DIVARTY's Counterfire Analysis, the Division's Targeting Process, and the greater Intelligence enterprise. Intelligence drives all warfighting functions within the DIVARTY HQs and its emphasis within the DASPT should be commensurate.

Way forward: This article provides a recommendation for a DASPT and a Warfighting Function framework for its development. As with the established ASPT, a similar doctrinal addition that provides common core requirements for all DIVARTYs would be optimal for implementation and assurance this initiative would endure. Divisions and DIVARTYs would have the latitude to enhance, or add-to, based on their unique mission requirements.

The DIVARTY Artillery Skills Proficiency Test is a "First Step" in the staff's training progression. DIVARTY's should consider incorporating this test into their reception plan for new staff officers and NCOs with a study guide and appropriate amount of time to prepare for the exam. Within a typical DIVARTY Warfighter Exercise training glide path, the target audience should complete this requirement before attending the MCTP's Academic Week. With a basic understanding of the systems, processes, and functions of a DIVARTY staff, the DASPT will provide a solid intellectual framework to get the most out of these collective training opportunities.

COL Bryan L. Babich is currently serving as the 101st Airborne (Air Assault) Division Artillery (Guns of Glory) Commander at Fort Campbell Kentucky, and he previously commanded the 1st Battalion, 319th Airborne Field Artillery Regiment at Fort Bragg, North Carolina.

MAJ Frederick (Fritz) J. Carr is currently serving as the 101st Airborne (Air Assault) Division Artillery Operations Officer at Fort Campbell, Kentucky, and he previously served as the 101st Airborne Division's JAGIC Chief and Operations Officer for 3rd Battalion, 320th Field Artillery Regiment (Red Knights Rakassan).

MG (R) Richard Longo currently serves in the Mission Command Training Program as a Division Fires and Division Artillery Senior Mentor.

A Platoon Leader races to conduct Big 3 checks during an emplacement. *(CPT Rance Blake/US Army)*

Leaders from DIVARTY supervise the CAR during 1–320th (Top Guns) Table XVIII Division Artillery Readiness Test (DART). *(MAJ Justin Hunter/US Army)*

Division Fires in the sandbox

Observations from a Division-Level rotation at the National Training Center

By LTC Derek R. Baird

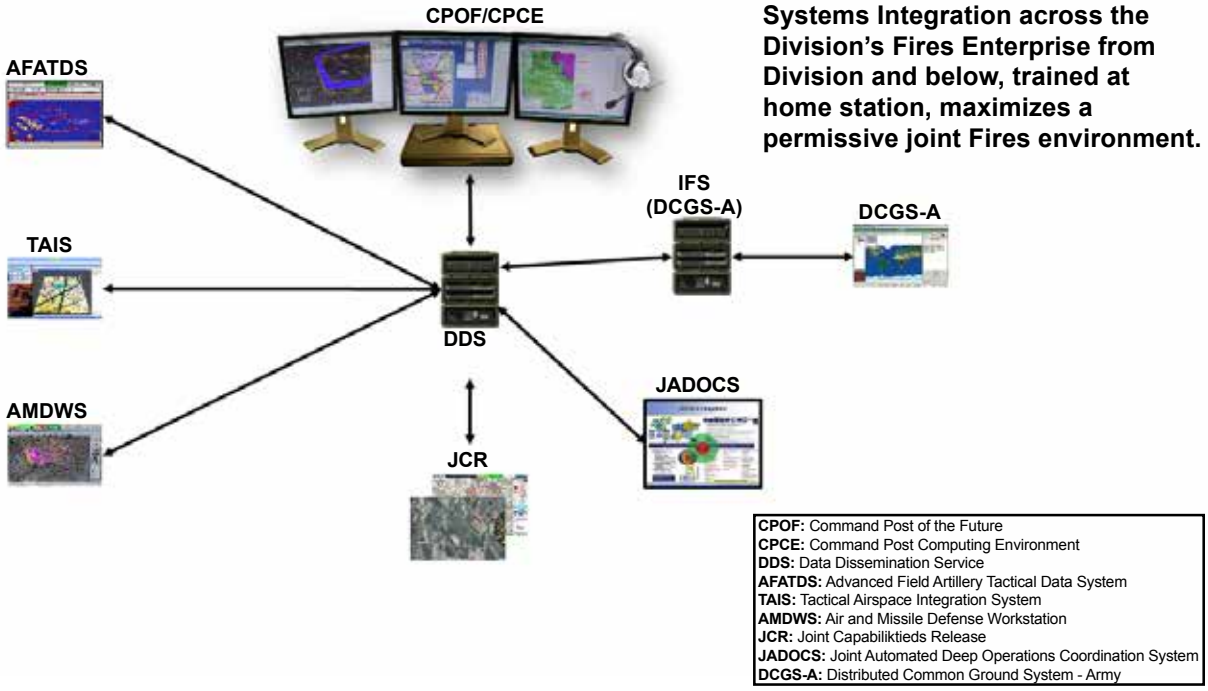
The National Training Center (NTC) is centered on its Brigade-level training environment, traditionally known to maximize unit lethality, deployability, and expertise. During September 2020, the NTC hosted its first Division-level rotation complete with a Division Headquarters (HQ), a Division Artillery (DIVARTY) HQ physically supported by an MLRS battalion, and several additional constructive Rocket and Field Artillery Battalions, to include a virtual Extended Range Cannon Artillery Battalion. A Reinforced Cavalry Squadron supported by a Field Artillery and Air Cavalry Brigade, and additional enablers physically operating throughout the NTC dirt, affectionately known as the sandbox, supported the Division. This complex rotational design included the physical realm at the NTC, and simultaneous, simulated virtual operations. Rotation 20-10's complexity enabled the Division's Fires Enterprise to execute targeting and shape the Division's operational environment by synchronizing and integrating Joint and organic assets. The challenges the Division Fires Enterprise faced are not uncommon, and very similar to challenges that Brigade Combat Teams deal with at the NTC. Deploying to the NTC enabled all headquarters across the Division's Fires Enterprise, to train basic, fundamental tasks such as establishing a main command post and tactical air control, and exercising fieldcraft. This article focuses on observations on communications architecture that enable a Joint, permissive environment through air and ground integration, Targeting Processes, and rehearsals.

The tyranny of distance stresses the communication architecture of every organization deploying to the NTC. Organizations develop, and exercise their Primary, Alternate, Contingent, and Emergency (PACE) plan communications architecture to maximize their ability to communicate at distance, and rapidly move up and down the PACE plan during electronically degraded environments. The Division's Fires PACE plan relied heavily on Upper Tactical Infrastructure (Upper TI) to manage communications and command and control over enormous distances at the NTC. The PACE plan included Frequency Modulation (FM), high frequency, and High Capacity Line-Of-Sight Radios, but was underdeveloped, particularly the use of retransmission teams to support the FM network. This underdeveloped PACE plan, with an over-reliance on the Upper TI network stressed the Fires Enterprise command and control, especially during periods of intense electromagnetic spectrum jamming. These degraded periods disrupted the Division's Joint Fires Fight, greatly increasing fire mission processing times, command and control with Joint and organic enablers, and the ability to manage ground and air clearance. During these disruptive periods, the Fires Enterprise was challenged to move across their PACE plan to re-establish and provide command and control. We recommend the Division Fires Enterprise develop a solid, usable PACE plan, establish it during a Warfighter Exercise (WFX) or Command Post Exercise (CPX), and replicate disruptive effects. This allows users at all levels to better understand their PACE plan and all involved equipment (especially at distance), train through the friction of disruptive effects, and quickly re-establish command and control over the Fires Enterprise.

...the NTC dirt, affectionately known as the sandbox...

The Fires Enterprise's intent for their communications architecture was to operate multiple mission command systems, such as the AFATDS, Air and Missile Defense Work Station, Tactical Airspace Integration System and Command Post of the Future to rapidly employ Joint enablers by creating permissive airspace measures beyond the Division coordinated fire line. The Joint Air-Ground Integration Cell (JAGIC) and the DIVARTY used these systems to synchronize air and ground; however, the systems were rarely properly integrated, internally to the Division HQ, and externally to subordinate units, leading to long delays in airspace clearance, and fire mission processing. ***Figure 1*** illustrates this powerful integration within an organization, and between echelons. Systems integration across the Division's Fires Enterprise, from Division to Battalions and below, maximizes permissive Joint Fires environments. It is imperative that Fires Enterprises at all echelons develop, and conduct systems integration during home-station training.

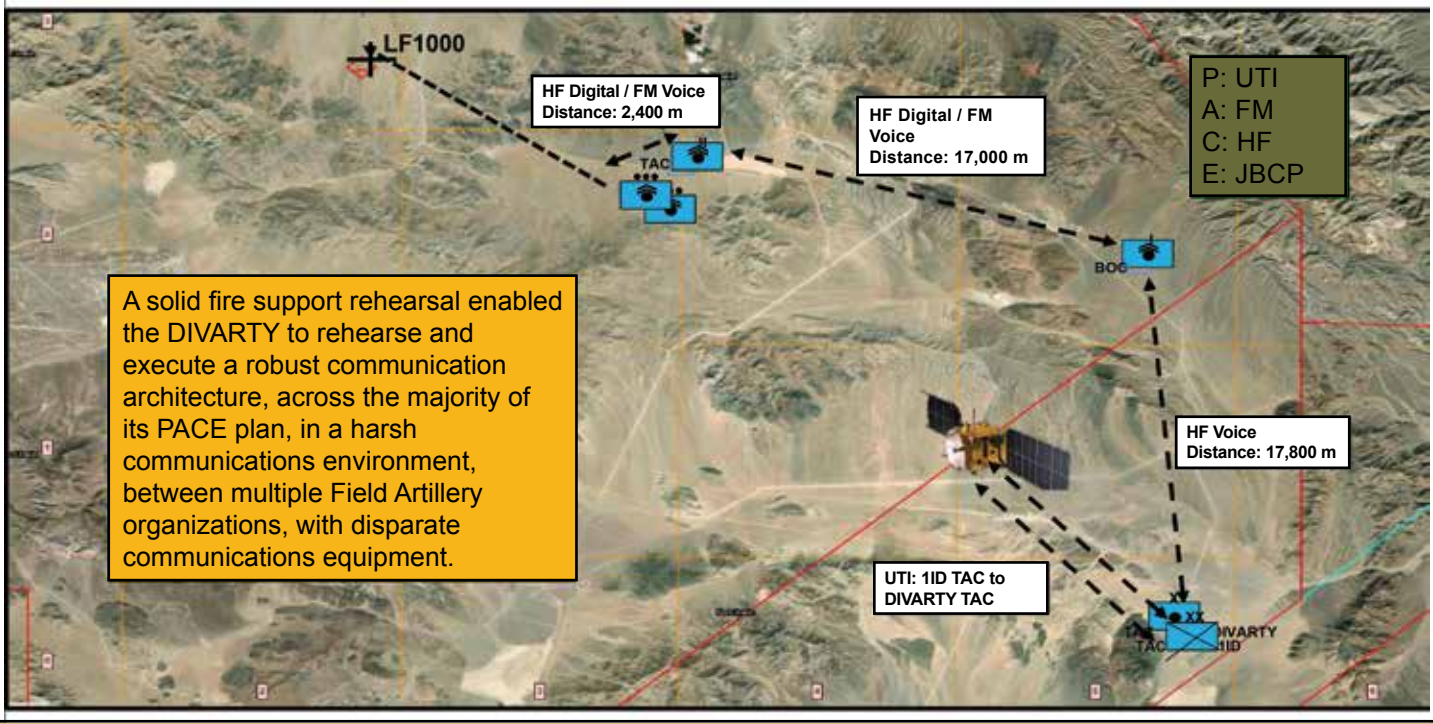
Figure 1: Mission Command Joint Fires System Integration



A Division-level WFX or CPX are perfect opportunities to connect these systems, and train across a well-developed PACE plan to create this permissive environment. Digital Sustainment Training (DST), from the Division fire support element down to subordinate Brigades and below, is a great opportunity to develop and establish a solid network, and train users to deliberately and dynamically execute operations across this network. Secondary to this is trusting the system. Organizations that train the integration of these systems inherently have more trust in this system and do not add additional and time-consuming checks, further maximizing a rapid, permissive Joint Fires environment.

The Division's Targeting Process was a mature, refined process codified within a well-defined SOP, synchronized at the planning level. However, it was not often properly transitioned to the Current Operations (CUOPS) floor, resulting in less than permissive, Joint Fires operations. When transitions did occur on time, the Division was able to conduct deliberate and dynamic targeting resulting in simultaneous lethal, and non-lethal effects on the high-payoff targets and priority formations. Transitions are fundamental to success in any operation and are often overlooked during staff internal processes. Inadequate staff process transitions affect understanding, tempo, and decision making within the staff, resulting in a more dynamic, and restrictive Division Fires fight. The targeting team believed their targeting efforts were transitioned to the CUOPS floor through a series of transverse chat windows, which tended to be a fire and forget methodology. There needs to be a feedback mechanism to ensure planned targeting efforts are received and acknowledged by the CUOPS, and JAGIC teams to ensure understanding of the Division's shaping efforts, and a permissive air-ground integration. Although the Division had a mature Targeting Process, it could have been better supported by DIVARTY's internal Targeting Process. The DIVARTY Commander and portions of his staff were regular participants in the Division Targeting Working Group (TWG), and Division Target Decision Board (TDB). However, the DIVARTY did not regularly host its own TWG or TDB. With only one echelon conducting a TWG, the DIVARTY did not synchronize its assigned targets with the appropriate collection, delivery, and assessment assets. This caused most missions to go without reported Battle Damage Assessment (BDA), leaving the DIVARTY to use inferred BDA to inform their overall enemy assessment. The DIVARTY used the Division's TWG and TDB as the inputs to their planning process and to produce a DIVARTY Field Artillery Support Plan daily. The planning process was insular and did not feed back into the Military Decision Making Process as outlined in ATP 3-60, *Targeting*. The staff primarily relied on the Rapid Decision-making and Synchronization Process (MDMP) to create orders. Subordinate organizations were often unable to plan effectively due to the lack of products and dynamism of the Division's execution. To better synchronize targeting at echelon, we recommend hosting a regular TWG and TDB at

Figure 2: DIVARTY Communications Architecture vs The Tyranny of Distance



the DIVARTY level to synchronize delivery and collection assets, and ensure the MDMP continues in parallel to the Targeting Process. By doing this, the Division Targeting Process, supported by DIVARTY's internal targeting, provides a more synchronized, Joint permissive environment. Furthermore, a DIVARTY Targeting Process synchronizes operations with its subordinate Battalions in stride, creating a shared understanding of the battlefield environment at echelon. Targeting and planning efforts are then transitioned to effective operations through the rehearsal process. Fire support rehearsals are effective tools to transition targeting efforts to better prepare, and synchronize organizations across all domains and warfighting functions (FM 3-09, *Field Artillery Operations and Fire Support*).

Fire support rehearsals in Large-Scale Combat Operations (LSCO), in accordance with *FM 3-0, Operations,* are fundamental to understanding specific roles, synchronizing the fire support plan, and practicing tasks before execution. The DIVARTY conducted several fire support rehearsals, technical and tactical, throughout the rotation. Tactical rehearsals began with a map rehearsal, graduating to a sand table fire support rehearsal that enabled a more prepared, and synchronized Joint Fires operation.

Fire support rehearsals are effective tools to transition targeting efforts to better prepare and synchronize organizations across all domains and warfighting functions

Of note, it is vital before rehearsals that DIVARTYs understand their subordinate unit capabilities, how they operate, and what they bring to the fight. For example, DIVARTYs are not currently task-organized with organic subordinate rocket units, and may not understand the capabilities of these subordinate rocket Battalions. It is important to understand rocket artillery-specific roles during rehearsals to better synchronize the Division Fires Enterprise during the fire support rehearsal. This includes understanding and rehearsing not only the Fires plan, but the communications architecture, and the different types of communications packages each subordinate echelon operates. DIVARTY technical rehearsals are time consumers and planned accordingly, must involve all resources within the kill chain, and conducted over the appropriate

architecture. The communications architecture is extremely important when operating over great distances, and electromagnetic-challenged environments. ***Figure 2*** illustrates a DIVARTY communications architecture for a Joint, deep attack that was overcome through a series of rehearsals, and dynamic actions to maintain a Joint, permissive environment across the PACE plan, allowing the DIVARTY to successfully execute its deep attack.

LSCOs are conducted under harsh, challenging environments that constantly induce friction across all echelons. The NTC provides a fantastic opportunity for Division-level main command posts to stress systems and processes in a tough, realistic scenario played out in real-time, in a harsh, physical environment. These stressors are not found during a warfighter, or command post exercise conducted in a comfortable, classroom-esque setting. DIVARTYs should invest valuable training time operating under canvas with organic mission command equipment to develop expertise at home stations in scenarios that replicate LSCO environments. A Tactic, Technique, and Procedure for moving toward this end state is to utilize the Division DST program in a field environment to build proficiency on equipment, validate command post layouts, and train mission-essential tasks. A Division's Fires Enterprise can define success at the NTC by rapidly enabling a Joint, permissive Fires environment across a well-thought-out and understood communications architecture, a solid targeting cycle capable of transitioning from future operations planning to current operations, and well-rehearsed operations to better synchronize the Division's shaping efforts across all warfighting functions. Staff-to-staff coordination is critical between the DIVARTY and subordinate Battalion headquarters since DIVARTY's are not currently task-organized with subordinate rocket or cannon units. It is important to invest time into understanding the requirements before reception, staging, onward movement, and integration which significantly reduces friction between the formations, and improves the DIVARTYs' ability to synchronize fire support in contact. The complex, simultaneously physical and virtual construct of Rotation 20-10 enabled a Division Artillery HQ to provide Joint Fires in support of a Division's deep shaping efforts and develop lessons learned for future home station training, and additional future Division-level operations at the National Training Center.

LTC Derek R. Baird is Wolf 07, the National Training Center Senior Fires Trainer. His former assignments include Commander of the 3-16th Field Artillery Regiment, Joint Fire Support Officer for the 1st German-Netherlands Corps (a NATO Rapid Deployable Corps), 3rd Infantry Division Artillery S3, and the 1-9th Field Artillery Regiment S3. LTC Baird has three combat tours (two to Iraq and one to Afghanistan), and one Regionally Aligned Force deployment.

Fire Support Officers/Non-Commissioned Officers (FSO/FSNCO) synchronize Fires with Maneuver. They do this through triggers.

Synchronizing Fires: Trigger Math 101

By MAJ George L. Cass

You need to convert tactical triggers to technical triggers. Many of us going through Combat Training Center rotations have heard our Observers, Coaches, or Trainers (OC/Ts) say that to us, but what does it mean? This article will prepare FSOs/FSNCOs at the Company, Battalion, and Brigade level to provide different methods to solicit tactical triggers from Maneuver Commanders and planners and then to convert those tactical triggers to technical triggers. Effective trigger planning is how we truly synchronize Fires with Maneuver and support the Concept of Operations.

Does doctrine effectively cover this subject and the method to do this for all scenarios? Army Training Publication (ATP) 3-09.30 *Observed Fires* provides the framework for planning triggers for moving targets. Many smartbooks and Tactical Standard Operating Procedures throughout the Fire Support community try to address this, but none give a step action drill that simplifies the process. The Field Artillery Basic Officer Leader Course (FA BOLC) provides a trigger planning worksheet that assists but still falls short of addressing the multitude of ways to plan triggers. This article will address the many ways that FSO/FSNCOs and Commanders at the Company and Battalion level can determine triggers to initiate Fires against moving targets or to synchronize with friendly Maneuver.

Reflections of a Stryker Company FSO

So, there I was…Training day six of our rotation at the National Training Center. The sun had just come up and it was already hot. It was eight o'clock in the morning and already hot. How could it be so hot this early? We were in a hasty defense after we had seized Brigade Hill the night before. A radio call over the Command Net alerted the formation to Suspension of Battlefield Effects. I was relieved the fight was over. Finally, my Company would get a break after not getting any sleep the night before. Some of us had been averaging only two to four hours over the previous week. I couldn't remember the last time I ate because I was so busy with Troop Leading Procedures. I was constantly engaged in cross-talking with the Forward Observers and Platoon Leaders on the plan before the Line of Departure. I was consumed with battle tracking and monitoring multiple radio nets during the operation. Now it was time to get some chow and enjoy the relief. However, that sense of relief only lasted for a few minutes.

Anxiety started to rush through me when I thought about the previous evening's operation and the After Action Review that would follow. I thought about what would be discussed by my OC/T. I knew the OC/T would talk about my multiple failures to properly synchronize Fires in the previous days, but last night showed no improvement. For a second time, I did not synchronize Fires properly. The trigger to initiate suppression and obscuration in support of my Company seizing Brigade Hill was off. The 1st Platoon was in the Support by Fire (SBF) position with M2s, Mk19s, and Javelins suppressing enemy battle positions, and 2nd Platoon had dismounted and begun movement from the assault position toward the objective. As they crested the last covered position, I gave the call to fire target group A2E.

I anxiously waited for the call "SPLASH" to come over the net and observe the simultaneous impact of company 60 mm, 120 mm mortars, Battalion 120 mm mortars, and 155 mm cannon artillery. We were echeloning Fires in true form to doctrine. Death would rain down from the sky upon the enemy. However, I waited and waited.

My Commander kept yelling at me on the Command Net, "Where are my Fires?" Troop 60s and 120s were effectively suppressing the planned targets, but where were the Battalion 120s and cannon artillery? The 2nd Platoon began taking significant direct fire contact and now we're in the prone still three kilometers away from the objective with little cover between them and the enemy. They needed supporting Fires.

Finally, Battalion mortars started coming in, but no artillery. The artillery was needed because it was going to provide a Battery of six, high-explosive rounds to suppress and then a 500-meter smoke screen for 30 minutes to obscure the enemy battle positions from placing effective direct fire on 2nd Platoon. At this point, 2nd Platoon was taking casualties and performing care at the point of injury. They could not evacuate their wounded to the Casualty Collection Point, because they were still in contact. Still no artillery coming in. It has been five minutes since I had called fire on target A2E. Where is the artillery? Over the Command Net, 2nd Platoon Leader relayed that a Stryker was destroyed by an Anti-tank Guided Missile (ATGM). He had three wounded. Still no artillery. Now 1st Platoon called up and was taking direct fire contact resulting in five wounded. The situation was getting worse. Seven minutes had passed and we were still waiting for artillery. The 2nd Platoon took more ATGM fire resulting in two more Strykers destroyed, and five more wounded. The 2nd Platoon was rendered combat ineffective.

The Company Commander was faced with the dilemma of ordering 3rd Platoon to assume the role as assault element under the same direct fire contact that destroyed 2nd Platoon or have 3rd Platoon establish another SBF and break contact. It had been 15 minutes and suddenly the artillery rounds started coming in. Smoke was billowing and suppression was effective. I called repeat on the Troop and Battalion mortars and had finally gotten A2E in full to provide effects. The Company Commander ordered 3rd Platoon to assume assault, 2nd Platoon to break contact and evacuate casualties and in a matter of 30 minutes our objective was seized and casualties were en route to the aid station. However, I was left with the guilt of failing to synchronize Fires resulting in the loss of a Platoon of combat power. What happened? What did I do wrong?

General explanation of Tactical and Technical Triggers

Like most things, fire support, planning Tactical and Technical Triggers is a combination of art and science. The art is the Maneuver Commander providing the tactical trigger by describing to the Fire Support planner the desired effect in time and space. The science is the FSO doing the math to establish the technical trigger. The purpose of the technical trigger is to account for all the variables that add time to a target being serviced. Once the call to fire is received, a planned target is given from the observer and then it has several intermediaries before it gets to the delivery asset.

For example: Platoon Forward Observer -> Company FSO -> Battalion FSE -> Brigade FSE -> FA Battalion FDC -> Platoon FDC -> Howitzer Section.

Ideally, this would take 10 seconds across each intermediary to transmit data. This adds up very quickly. Once on the Howitzer Section, it could take 45 seconds at best to get fired.

There are three main considerations you base a trigger on; enemy movement, friendly movement, and cease loading for friendly forces. There are also many ways for a Commander to describe when and where they want an effect. The following will give the most common techniques used.

Tactical Triggers

Who is responsible for Tactical Triggers?

Maneuver Commanders are responsible for articulating tactical triggers. FSOs must recommend and solicit feedback from the Commander to determine the tactical trigger for planned targets. Once the tactical trigger is identified, the FSO can plan the technical trigger. The tactical trigger should be based on the enemy or friendly movement or actions. In the offense, it is most common to plan triggers based on friendly movement.

Who is responsible for Technical Triggers?

Technical triggers are the responsibility of the FSO/FSNCO. They have the understanding of gathering the information needed for the math problem to determine where the trigger will be placed. The FSO/FSNCO will determine the technical trigger to consider transmission time, mission processing time, time of flight, build time for effect, and Rate of March.

ATP 3-09.30 *Observed Fires* defines this as the intercept point which is where the enemy will be when the rounds are impacting. The formula to determine the distance from the trigger point to the intercept point is (Transmission Time + Mission Processing Time + Time of Flight + Effect Build Time) x Rate of March in meters/second (m/s) = Distance. This is the basic formula to determine triggers based on moving enemy or friendly units. However, this can be modified based on how the tactical triggers are specified by the Commander. Some of the factors can be removed.

- Mission processing time is the length of time it takes for the element that is shooting to process data and shoot the first round.
- Time of flight is how long the munition will take once shot to impact on the target.
- Build time for effect is the amount of time it takes for a smokescreen to build or an effect such as suppression to be achieved. You cannot assume that the first round will suppress an enemy that is dug in.
- Rate of March is the speed at which the friendly or enemy element is moving in which the trigger is based.
- Distance is the distance from the intercept point to where the trigger point will be on the route or the enemy or friendly unit is taking.
- Transmission time is the amount of time it takes for a unit to transmit over digital or voice

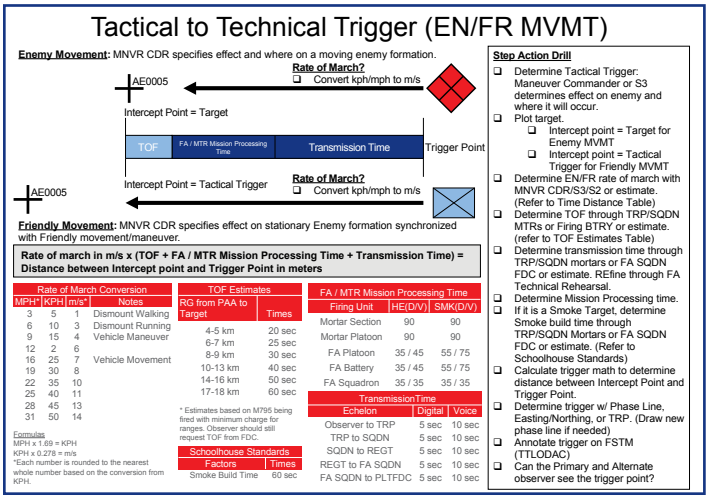
Frequency Modulation radio to get the targeting data to the element that is shooting.

- Effect build time is the amount of time it takes for an effect to be achieved after initial round impacts. It is most commonly used for smoke missions to account for the time it takes for the smoke to billow and create a full smokescreen that will achieve screening or obscuration. It can also be used to estimate how long it will take for suppression to occur. Initial rounds impacting on an enemy battle position that has good defilade and armor vehicles, might not be considered suppressed until after one minute of rounds impacting in that location. However, for softer targets, initial rounds might be considered good to achieve the effect and it is not necessary to incorporate this factor into the math problem.

Types of Triggers

Good trigger planning in the field starts with having tools that make it easier to do when you are sleep-deprived and short on time. Figure 1 is an example of a smart sheet that has a step action drill that walks the fire support planner through what they need to plan triggers and who has the information for planning assumptions. In the absence of having the information provided by someone, the tables with data are used as planning assumptions. We will use this smart sheet as we go through the types of triggers.

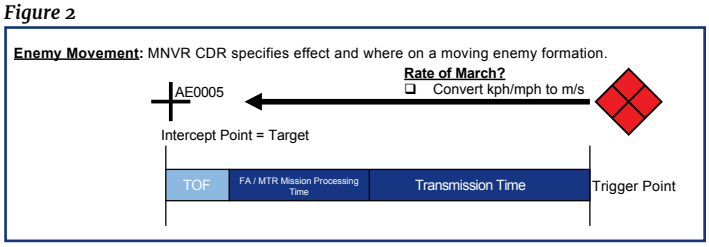
Figure 1



Moving Target

The most common technical trigger among fire supporters is planning to engage a Moving Target. This is ill-advised because it is extremely difficult to hit a Moving Target to get good effects. However, it is still feasible to disrupt enemy formations and slow movement. Fire support planners frequently plan fires on Moving Targets in the defense for targets that are moving toward Engagement Areas (EAs) to slow formations, cause them to button up, and force them to transition from movement to Maneuver. The most significant consideration to planning for a Moving Target is determining where on the ground the Commander wants to affect the enemy.

Figure 2



Tactical Trigger

For a Moving Target, the Commander needs to articulate where along the enemy's axis of advance he/she wants to achieve an effect. An example of this is, "I want Fires to turn the disruption force into EA Jackson." Another example is, "I want Fires to disrupt the enemy at the 34 easting to cause the enemy to transition from formations that allow rapid movement to maneuver at a slower Rate of March." With this information, the fire support planner can plan a Technical Trigger.

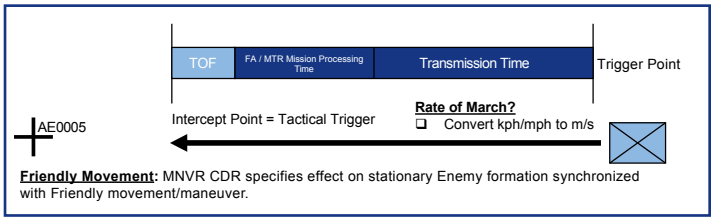
Technical Trigger

With this information, the fire support planner can use Figure 1 as a tool to plan out the Technical Trigger. The formula to determine the trigger point is (Transmission Time + Mission Processing Time + Time of Flight) x Rate of March in m/s = Distance. When in doubt on the Rate of March always lean toward the fastest. This gives the observer the Fires earlier and while still achieving an effect rather than shooting too late and the enemy already bypassed the intercept point. In the example, the fire support planner would calculate the math problem and determine the distance from the 34 easting along the enemy axis of advance to where the trigger point is located. The fire support planner would need to confirm that observers could range with sensors to observe the trigger point. If ground observers will not be in range to observe trigger points, the fire support planner must inform the Commander.

Friendly Movement

The second trigger that is common is based on Friendly Movement. This is often used to time targets in the offense and is crucial for suppression and obscuration targets in support of a combined arms breach and facilitating the infill during a seizure of an urban objective.

Figure 3



Tactical Trigger

There are different techniques to do this. Both require the Commander to determine the point on the ground where friendly elements will be when he/she wants the effect to be achieved. For instance, the Commander can say, "I want suppression and obscuration of the enemy Battle Position (BP) when the breach force comes within direct fire range of the BP." The Commander could also say, "I want suppression and obscuration on enemy BPs to be fired when SBF position is set and once smoke builds and BPs are suppressed, the Breach Force will move forward to reduce the obstacle." Both can be effective, but tempo must be considered in the different techniques.

Technical Trigger

The FSO/FSNCO would go through the math steps similar to above, but the distance determined is based on the location along the Route of March that the Commander wants the effect achieved. With this example, it is common to use the effect build time to factor in time for smoke and suppression to build good effects.

Cease Loading

The third Technical Trigger commonly planned is a trigger to call Cease Loading during an Echeloning of Fires and during a Combined Arms Breach when the Assault Force is moving through the Obstacle Belt. The formula for this is (Transmission Time + Time of Flight) x Rate of March in m/s = distance between intercept point Risk Estimate Distances (REDs) or Minimum Safe Distances (MSDs) and Trigger Point.

Tactical Trigger

For determining to cease loading triggers, it is not necessary for the Commander to articulate the tactical trigger. The REDs or MSDs in training should be used to determine the intercept point of the friendly movement.

Technical Trigger

The FSO/FSNCO would go through the math steps similar in Figure 4 to determine where the Trigger Point is for the observer to call "Cease Loading" over the net. When in doubt, the fire support planner should predict a faster Rate of March so Fires are ending sooner and do not impede tempo or put friendly forces at risk. This calculation should be discussed with the Commander to determine the risk to mission/force when considering how close the Fires should cease in proximity to movement.

Conclusion

Successful synchronization of Fires at the Battalion and Company level requires clear tactical triggers articulated by Commanders and good technical triggers planned by Fire Supporters. These skills will solidify an effective Fires plan where targets are not just concepts drawn on an overlay, but planned with good technical triggers. The ability of Battalion and Company FSO/FSNCOs to incorporate technical triggers into planning can directly affect the accomplishment of Brigade operations.

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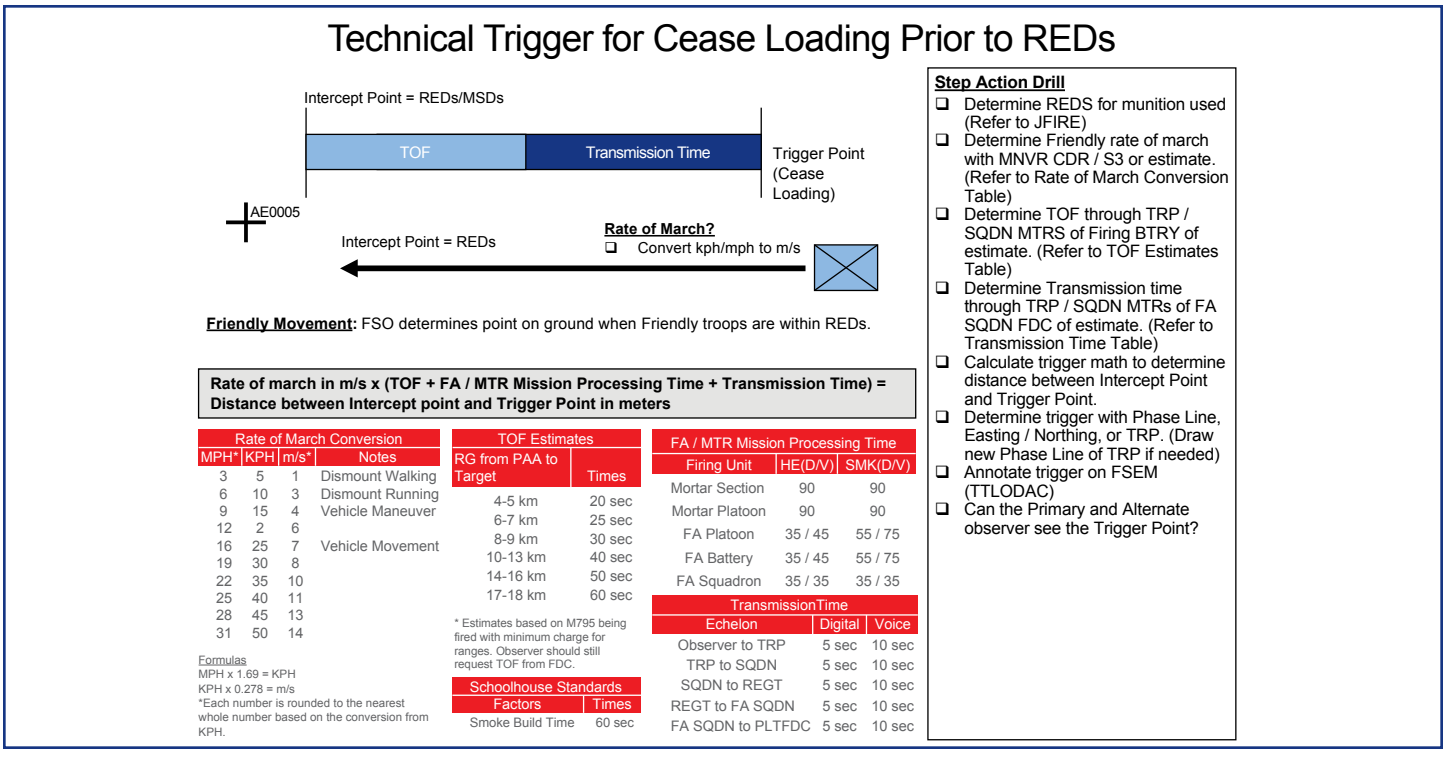
Figure 4



Bravo Battery, 2-2nd FA BN conducts a live fire exercise on the M777A2 (155 mm) howitzer with members of the Fort Sill Office of the Staff Judge Advocate on Dec. 1, 2020. *(Ygal Kaufman, PAO, Fort Sill)*

Managing Talent: Field Artillery Majors to the Mission Command Training Program Post-Key and Developmental

By MAJ James (Jim) Bean and MAJ Josh Jacquez

This article was co-written by Field Artillery officers who currently serve as Observers, Coaches, or Trainers (OC/Ts) at the Mission Command Training Program (MCTP) at Fort Leavenworth, Kansas. It serves as an addendum to "Managing Talent: FA Majors to Combat Training Centers Post-Key and Developmental (KD)," that was written by MAJs Benjamin Culver, Kurt Knoedler, and Robin VanDeusen, who were OC/Ts from the National Training Center (NTC), Joint Readiness Training Center (JRTC), and the Joint Maneuver Readiness Center (JMRC) which appeared in the *Fires Bulletin* July-August issue and *The Field Grade Leader* in 2019. While that article covers what AR 350-50, *Combat Training Center Programs*, refers to as MCTP or dirt Combat Training Center (CTC) sites in-depth, this article will explore the advantages of serving in the Army's fourth CTC, MCTP.

Serving as an OC/T at MCTP is an incredible opportunity for Post-Key, and Developmental (KD) Majors, enabling them to become masters of graduate-level warfighting during Large Scale Combat Operations (LSCO) at the Division, Corps, and Army Service Component Command (ASCC) level. Most service members are knowledgeable about NTC, JRTC, and JMRC due to their own rotational experience or hearing stories from colleagues, but far fewer are familiar with MCTP. According to AR 350-50, *Combat Training Center Program*, the MCTP located at Fort Leavenworth, Kansas, is the Army's primary (and

only) CTC supporting the training of functional and multifunctional Brigades, Divisions, Corps, ASCCs, and Joint Force Land Component Commanders to conduct LSCO at worldwide locations. MCTP creates training experiences, which enable the Army's senior mission Commanders to develop current, relevant, and campaign quality, Joint Expeditionary Mission Command instincts and skills. So, while Maneuver CTC OC/Ts focus their efforts on improving units at lower tactical levels, their MCTP counterparts focus on aiding Army units at higher echelons to improve their processes and procedures. This focus becomes even more important in LSCO where the Corps is a tactical formation, and Divisions are the unit of action.

As Field Grade Officers begin to navigate the Army Talent Alignment Process upon completion of their KD assignments, they face an Assignment Interactive Module 2.0 marketplace full of opportunities to serve in a plethora of assignments. Post-KD assignments are a complex problem for both FA Branch and the individual service members. The Army must balance Readiness (Army Requirements), Leader Development (Training, Education, and Experience—covered in DA PAM 600-3, *Commissioned Officer Professional Development and Career Management for all Branches*), and Expectations (Officer Preference and Other Considerations), while individual officers must balance their professional considerations such as career timeline/goals, desired skills and experience and personal considerations such as family time and their spouse's career. Officers must weigh personal and professional goals when making their preferences in the ATAP Market. MCTP offers opportunities to fulfill a balance in those factors that most officers do not have the chance to experience outside of attendance at the Command and General Staff College. Like our colleagues at NTC, JRTC, and JMRC, we believe that MCTP is, "A tremendous experience and learning environment for Majors as they make the transition from running a Battalion to commanding one."

Culver, Knoedler, and VanDeusen laid out three "clear advantages" to requesting a nominative CTC position: seeing rotational units execute collective training, observing Battalion Commanders/Fire Support Coordinators (FSCOORDs) during operations, and receiving mentorship from post-Battalion and Brigade Commanders. We will take a look at those advantages from the perspective of an MCTP OC/T.

MCTP counterparts focus on aiding Army units at higher echelons to improve their processes and procedures.

First, let's examine the advantage of seeing rotational units conducting training. Each year Maneuver CTC OC/Ts have the opportunity to see nine to 11 Brigade Combat Teams and multinational units operate in a Decisive Action Training Environment scenario during a similar number of rotations. MCTP OC/Ts participate in five Warfighter Exercises during a calendar year, but during that time MCTP will train one to two Corps, eight to nine Divisions, approximately 22 Functional and Multi-Functional Brigades, 10 Sustainment Brigades, and one to three Special Operations Forces Headquarters. Thus, MCTP trains more units during fewer exercises. Each of these exercises will include at a minimum two Division training audiences, providing an opportunity for an FA OC/T to interact with Division Artillery (DIVARTY), Field Artillery Brigade (FAB), Division, and Corps Fire Support Elements and other staff sections. The Joint Air Ground Integration Center and multiple Air Support Operation squadrons is another focus area for MCTP that separates it from the Maneuver CTCs. These elements provide FA OC/Ts the opportunity to observe airspace deconfliction at echelon from the Joint Force Land Component Command through Corps.

FA OC/Ts also have the opportunity to participate in ASCC exercises, such as Lucky Warrior (U.S. Army Central), Vibrant Response (U.S. Army North), Defender (U.S. Army Europe), Judicious Response (U.S. Army Africa), and Yama Sakura (U.S. Army Pacific) MCTP OC/Ts served as the primary OC/Ts for Joint Warfighter Assessment (JWA) 19, which included evaluating the use of Extended Range Cannon Artillery, the Hyper Velocity Projectile, Extended Range Guided Multiple Launch Rocket System, the Land-Based Anti-Ship Missile, and operations of the Multi-Domain Task Force. Observations from Joint Warfighting Assessment 19 will likely shape/influence how our doctrine will direct the employment of formations and systems in future operations. Opportunities like these allow MCTP OC/Ts to truly influence the Army at the operational and strategic levels.

Second, let's examine the advantage of observing a Battalion Commander /FSCOORD during operations. While MCTP OC/Ts only see Battalion Commander /FSCOORDs within Response Cells or Work Cells, they observe DIVARTY and FAB commanders in their roles as Division and corps FSCOORDs in LSCO. This allows future Battalion Commanders the opportunity to have a more informed perspective on Division and Corps operations. MCTP OC/Ts share the ability to look back on two to three years of examples of units who successfully negotiate challenges and those unable to overcome them with their

Maneuver CTC counterparts. However, they also see a wider breadth of training audiences involved in a given Warfighter Exercise (WFX), thus also have the ability to see how one unit's success or failure impacts another training audience as well as influence the overall operation. This allows an MCTP OC/T to see how unit training and operations should be coordinated with adjacent units and nested with higher headquarters. It also gives FA OC/Ts a glimpse at several ways that commanders/FSCOORDs "coach up" to help Division and Corps staffs to more effectively employ their formations and other fire support assets available to their respective headquarters. Divisions and Corps are the units of action in LSCO. So, if an officer truly wants to understand LSCO, they have to know how Divisions and Corps fight. While the Maneuver CTCs do train LSCO, it is at a much smaller scale than what is experienced at an MCTP WFX. The Maneuver CTCs are making progress in this area, but they still fall short compared to MCTP, which has dramatic implications for FA officers and their understanding of the application of joint Fires and the employment of a DIVARTY/FAB in LSCO.

Third, let's look at the advantage of receiving mentorship from post-Battalion and Brigade Commanders. Culver, et. al. adeptly point out that Maneuver CTC OC/Ts "not only receive the experience of observing rotational unit commanders and FSCOORDs but more importantly can be mentored by… a post-battalion command officer (Field Artillery Battalion Senior Trainer, in this case) and a Post-Command Brigade Commander [the Commander of the Operations Group (COG)]." MCTP OC/Ts share these same opportunities with multiple Senior Trainers and COGs across Operations Groups, but also have the added advantage of the Highly Qualified Expert – Senior Mentor (HQE-SM) Program. These 24 Senior Mentors are retired General Officers who coach, teach, and mentor Senior-Unit Commanders in the exercise of Mission Command and participate in the training process. There are typically 11 HQE-SMs involved per exercise, with one being assigned to each training audience. Their leadership experiences include commanding at the Theater Sustainment Command, Corps, Division, Combined Arms Center, North Atlantic Treaty Organization-Land Command, etc. level with operational experience in multiple theaters and levels to include a former International Security Assistance Force Commander. These HQE-SMs often interact with OC/Ts during Mission Command Training and Warfighter Exercises, providing invaluable counsel and guidance to OC/Ts that continues during and beyond their tour of duty with MCTP.

Much like our Maneuver CTC counterparts, MCTP OC/Ts find fulfillment in coaching the leaders and staffs of our training audiences.

Much like our Maneuver CTC counterparts, MCTP OC/Ts find fulfillment in coaching the leaders and staffs of our training audiences. From before a unit conducts their Mission Command Training/Warfighter Academics until even beyond the completion of their Warfighter Exercise, MCTP OC/Ts provide the coaching and training in an effort to aid commanders and staffs to better see themselves and improve their ability to plan, prepare, fight, and win during LSCO. Each of those Warfighters also serve as a test for approved as well as new and emerging Joint/Army doctrine to design and control Warfighter Exercises that afford opportunities for stimulating training objectives. Operations Group use doctrine to observe, coach, and teach training units; develop informed After Action Reviews, produce Final Exercise Reports; and provide Annual Observation Reports. These processes and products, along with MCTP relationships with Training and Doctrine Command organizations such as Center for Army Lessons Learned, Combined Arms Doctrine Directorate and the Centers of Excellence, aid in the continued development of Army and Joint Doctrine. The aforementioned HQE-SMs also meet with the Army Chief of Staff at the conclusion of every WFX, and can use OC/T observations to influence changes on important doctrinal, equipment, and training strategy issues at the highest levels of the Army.

Beyond the professional considerations, we cannot overlook an individual officers' concerns for choosing to request an assignment as an MCTP OC/T such as spousal employment, Exceptional Family Member (EFMP) needs, and other family considerations. Initially, it seems our Maneuver CTC counterparts have an advantage in this case since all of their rotations are at their home station, while a vast majority of WFX take place at various CONUS and OCONUS locations. While MCTP prides itself on connecting with the operating force, bringing training to the Soldier, and building capabilities for progression (training), we have already discussed that there are fewer rotations per year for an MCTP OC/T. That leaves a fair amount of time for the family, which is typically highly sought after following tough KD jobs and before possible battalion command. In fact, MCTP refers to the individual considerations of education, health, housing, child

care, spousal employment, and recreation as the "Six Quality of Life Pillars," and uses these pillars as a framework to recruit not just the officer, but also their spouse and family. From an education standpoint, on-post schools are often rated the best in Kansas, and the schools in Platte City and Lansing are also highly regarded. There are some incredible hospitals in the Kansas City area, including Children's Mercy Hospital Network to provide care for EFMP needs. Housing, both on and off the post, is plentiful and exceptionally affordable, providing opportunities to live in a metropolitan, urban, or rural environment. Child and Youth Services offers on-post childcare, and there are multiple off-post care centers. Spousal employment opportunities exist both on and off the post, with Civilian Personnel Advisory Center and Army Community Services providing aid to spouses searching for a job in the area. Chances to enjoy recreational activities near Fort Leavenworth are plentiful. While our Maneuver CTC colleagues extolled the advantages of driving for "only several hours" from their stateside CTCs to enjoy the attractions, Fort Leavenworth is only about 30 minutes from several Kansas City sites such as the Power and Lights District or Legends Area. If you are interested in watching a major sporting event live, the venues for the National Football League, Major League Baseball, Major League Soccer, and National Association for Stock Car Auto Racing are all less than an hour from the post. There are also many opportunities for hunting, fishing, or other outdoor activities in the surrounding areas. While JMRC OC/Ts have the easiest time traveling to another country, Kansas City International Airport is less than 30 minutes from post, so international travel is easily accessible for those that want to travel abroad.

We agree with our Maneuver CTC colleagues that an assignment to a CTC is a chance to, "maintain the edge at the tactical level prior to selection to battalion command," but we believe MCTP also serves as a chance to prepare for assignments beyond the Battalion level. With that said, following the 2021 O-5 Centralized Selection List Board and Battalion Commander Assessment Program, the MCTP saw the highest number of personnel selected for command (Primary and Alternate) in its 35-year history. Additionally, multiple OC/Ts were selected for Joint Duty Assignment List (JDAL) positions as follow-on assignments in the 21-02 move cycle. We further agree with our colleagues that Army senior leaders should guide their talented officers to serve as OC/Ts at one of the CTCs. However, we would implore those senior leaders not to forget the Army's fourth CTC as MCTP is the premier deployable combat training center for implementing, observing, coaching, and facilitating collective training opportunities and leadership experiences for Commanders and staffs at our Army's highest tactical and operational echelons (Division, Corps, ASCC, etc.).

…a chance to maintain the edge at the tactical level prior to selection to Battalion Command …

We highly encourage post-KD MAJs to strongly consider coming to MCTP to serve as a Fire Support and Field Artillery OC/T. The assignment will allow you to further strengthen and advance your skill levels in Fire Support at the Division and Corps level and Field Artillery Operations (DIVARTY and FAB) in support of Division and Corps Operations concerning LSCO. It will also further your understanding of all Warfighting Functions and how to integrate and synchronize them within LSCO, while integrating and synchronizing Joint Fires and Army Aviation assets in Division and Corps-level operations. Serving as an OC/T at MCTP is an incredible opportunity for post -KD MAJs, enabling them to become masters of graduate-level warfighting during LSCO at the Division, Corps, and ASCC level as they prepare for what comes next in their careers. In the end, MCTP provides OC/Ts the opportunity to remain professionally relevant and competitive for Battalion Command, while still providing incredible opportunities for family time and recreation while serving in a nominative, broadening assignment.

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MAJ Josh Jacquez is currently serving as a Fire Support and OC/T for Mission Command Training Program, Operations Group – Bravo at Fort Leavenworth, Kansas. He holds a B.A. in Kinesiology from the University of Texas at Arlington. He has served at the Division, DIVARTY, IBCT, and Armored Brigade Combat Team (ABCT) level with operational experience in OIF, OEF, OIR, and Operation Spartan Shield. He completed his KD time in 2nd Brigade, 1st Armored Division (ABCT), and recently served as Executive Officer for 1st AD DIVARTY.

FIELD ARTILLERY WARRANT OFFICER

Define a Warrant Officer?

(DA PAM 600-3)

"The Army Warrant Officer is a self-aware and adaptive technical expert, combat leader, trainer, and advisor. Warrant Officers are innovative integrators of emerging technologies, dynamic teachers, confident warfighters, and developers of specialized teams of Soldiers."




- WO1 – Basic
- CW2 – Intermediate
- CW3 – Advanced
- CW4 – Senior
- CW5 – Master

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- SQDN Targeting Officer
- BCT Field Artillery Intelligence Officer
- DIVARTY Counterfire Officer
- DIVARTY Asst. Counterfire Officer
- Cyber Targeting Officer




Subject Matter Expert

- BCT Targeting Officer
- DIVARTY Targeting Officer
- DIV Field Artillery Intelligence Officer
- Special Forces Group Targeting Officer
- WOBC Intructor
- CTC/MCTP OC-T

Field Artillery Warrant Officer Prerequisites

- Be a SSG or SFC. (SGT for ARNG and Reserve)
- Be an ALC graduate.(All phases) (BLC for ARNG and Reserve)
- Currently hold MOS 11B, 11C, 13B, 13J, 13F, 13M, 13R, 19D, or 19K with 5 years minimum experience in a feeder MOS.
- Have baseline scores of 110 for FA and TECH.
- Have six (6) hours of English composition and three (3) hours of math ("C" grade or higher) from a regionally-accredited college or university.
- Must have 2 years of documented (by NCOER) Section Chief, Squad Leader or higher level of leadership experience in a feeder MOS. (Not waiverable)
- The majority of NCOERS must reflect outstanding and exceptional duty performance ratings noted with "among the best" ratings by the Rater and "successful" and "superior" ratings by the Senior Rater.
- Soldiers must be fully deployable, able to take and pass a standard three event APFT (push ups, sit-ups, and 2 mile run) IAW FM 7-22 and meet height/weight standards IAW AR 600-9. (Not waiverable)
- Have a written endorsement letter (LOR) from an interview with a CW3-CW5. (CW2 CW5 for National Guard) Active duty candidates must receive their LOR from a 131A who is currently on active duty. (Not waiverable)

Preferred qualifications for Active Component

- Hold an associate degree or higher from an accredited college or university.
- Battle Staff NCO Course.
- Have 8 years or less of Active Federal Service (AFS)
- 40 hours or more of AFATDS, JADOCS and CPOF classes.
- Complete the following correspondence courses on Doctrine Networked Education & Training (DOCNET): All Intelligence, Operations, Targeting, and Joint & Planning courses.

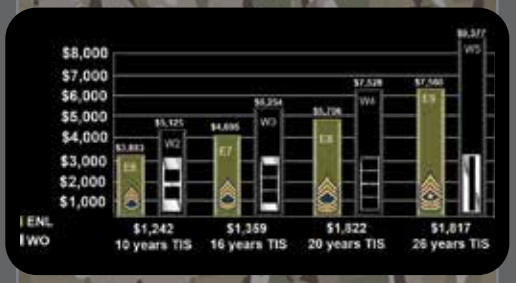
http://www.dtic.mil/doctrine/docnet/courses/courses.htm

131A

Benefits

PREDICTABLE PROMOTIONS

BETTER PAY



Approx Snapshot
E5 vs W1 at 6 years TIS = $1016
E6 vs W1 at 8 years TIS = $793
E7 vs W1 at 10 years TIS = $397

RETIREMENT COMPARISON

RANK	YRS SVC	PAY (1% BASE)
W3	20	$3,548 (50%)
E7	20	$2,548 (50%)
W4	24	$4,910 (60%)
E8	24	$3,662 (60%)
W5	30	$7,385 (75%)
E9	30	$5,954 (75%)

BASIC REQUIREMENTS

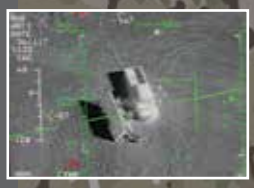
- US Citizenship (No ETP)
- ASVAB General Technical (GT) Score of 110 or higher (No ETP)
- Minimum of High School Diploma or GED certificate (No ETP)
- FINAL SECRET Security Clearance (No INTERIM, No ETP)
- Must have at least 12 months remaining on Enlistment Contract (Waiver Avail.)
- Pass Commissioning Physical for Tech or Flight Physical for Aviators (ETP Avail.)
- Age: Technicians <46 yrs/ Aviators <33 yrs at time packet is boarded (ETP Avail.)
- Active Federal Service: Refer to website for aviator and tech. requirements (ETP Avail.)
- Pass the standard 3-event Army Physical Fitness Test (APFT) (ETP Avail.)

ETP = Exception To Policy




Excellent Communicator

- *DIV Targeting Officer*
- *DIV Field Artillery Intelligence Officer*
- *CORPS Field Artillery Intelligence Officer*
- *Battlefield Coord Det. Targeting Officer*
- *Cyber Targeting Officer*
- *WOAC Instructor*


Dynamic Problem Solver

- *CORPS Targeting Officer*
- *CORPS Field Artillery Intelligence Officer*
- *ASCC Targeting Officer*
- *Nuclear Targeting Officer*
- *Theater Fires Targeting Officer*

For questions about Field Artillery prerequisites, contact:

FA Proponent Warrant Officer
Fires Center of Excellence
W: 580-442-4962
usarmy.sill.fcoe.mbx.fa-proponent-warrant-officer@gmail.mil

DO YOU HAVE WHAT IT TAKES?

The 4th Infantry Division's Field Artillery Intelligence Officer: Leveraging JADOCS to enable Joint Fires

By CW2 Adam G. Connolly

The diligent use of the Joint Automated Deep Operations Coordination System (JADOCS) combined with the team's dedication to winning contributed to the 4th Infantry Division's success during a Large Scale Combat Operations (LSCO) Warfighter Exercise (WFX). This article highlights two key elements contributing to Division Fires' success in targeting: techniques the Field Artillery Intelligence Officer (FAIO) incorporated into deliberate and dynamic targets and the digital architecture developed to enable those efforts.

FAIO Tactics, Techniques and Procedures

The 4th ID used the FAIO to bridge the gap between information collection and the execution of deliberate and dynamic targeting. The targeting officers also conducted Target System Analysis following the Military Decision Making Process within the Analysis Control Element (ACE) and the Division's Intelligence Targeting Cell (G2T). Key elements that enabled the FAIO's procedures are the positioning of the FAIOs in Current Operations (CUOPS), their ability to leverage multiple assets to cross-cue the detection of High Payoff Targets (HPT), the vetting and validation process, and their ability to create a Common Operating Picture (COP) with JADOCS and various stakeholders in the Targeting Enterprise.

Positioning the FAIO in CUOPS

We placed the FAIO on the CUOPS floor embedded with the G2's Strike Cell, contrary to the normal positioning of the FAIO within the Division ACE. Our decision derived from best practices with the Full Motion Video (FMV), Signal Intelligence (SIGINT), and the Ground Moving Target Indicator (GMTI) operators and systems in direct view of the FAIO and Strike Cell Chief for immediate situational awareness. The precarious positioning allowed the face-to-face communication with the Processing, Exploitation, and Dissemination (PED) operators for target development focus, prioritization of confirmed HPTs, and proximity to the Joint Air and Ground Integration Center (JAGIC). The JADOCS compatibility to each internal and external Mission Command System, the on-screen ability to view the GMTI, current air picture, and the Strike Cell Chief's availability provided the ease of dynamic target cross-cueing and target processing. The FAIO quickly became one of the most situationally aware team members on the CUOPS floor.

Cross-Cueing Assets to identify HPTs

The PED teams first provide the targetable information through Distributed Common Ground System-Army (DCGS-A), create a Target Indicator Data (TIDAT), and finally send it to the FAIO's JADOCS for validation. The target is then sent to the JAGIC Advanced Field Artillery Tactical Data System (AFATDS) to clear Fires and execute with DIVARTY. Each AFATDS was configured to receive TIDATs for redundancy.

The immediate acknowledgment and planning against the limited reach of available information collection platforms, specifically Grey Eagles, will save time during LSCO. Our Grey Eagles were restricted to collect along the Division's Coordinated Fire Line (CFL) due to the adversary's Integrated Air Defense Systems capabilities unless layered with Electronic Warfare protection assets. This reality presented a significant obstacle to shaping operations. This threat forces the team to determine what else is available to leverage for proactive engagements.

Assets in orbit receive numerous Overhead Persistent Infrared Signatures that provide locations and times. The non-lethal section should analyze the signatures, time, and terrain to determine a predicted center grid. They will finally decide whether it meets approved targeting priorities and share that information with the FAIO.

Target development continues as the grid and analysis are received by the FAIO and Strike Cell Chief. The ability to see the FMV, GMTI, and SIGINT screens is optimized due to the FAIO's positioning and the CUOPS floor layout.

This connection allowed credentialed individuals to log in and run JADOCS client software while simultaneously using standard SIPR functions. You must account for the Internet Protocol (IP) addresses for each client

and secure additional addresses for possible enablers joining the team later. Be aware of how many clients are operating at once on each server to avoid network latency. The 4th ID's DMAIN server facilitated the use of nine clients with minimal interruption. Network firewalls are essential considerations when dealing with multiple systems. Ensure the Computer Network Defense (CND) personnel enable communication messages to and from the JADOCS and other operating systems for successful interoperability.

Target development continues as the FAIO and Strike Cell Chief receive the OPIR signature coordinates. The FAIO's physical location on the CUOPS floor optimizes situational awareness with the ability to view the FMV, GMTI, and SIGINT screens in one location. We then provide the GMTI section with the instruction to monitor and extrapolate suspected enemy formations and patterns. Ensure to include this information with the number of wheeled and or tracked vehicles (Enemy Order of Battle) in the formation for another fragment of your target development.

We marked the locations of where and when the enemy moved positions with a box (you can use any marker) upon indication of a suspected enemy formation. The location is clear once a pattern is established with the time of the march, the direction of the march, and how long they were stationary. By knowing these critical pieces of information, you could begin to anticipate where they will be next and at what time. Snapshot example below:

GMTI Box 1, Box 2, and Box 3 are created and assumed as primary, alternate, and tertiary firing points for an enemy formation. The formation travels in a clockwise direction that takes 30 minutes from Box 1 to Box 2, 25 minutes from Box 2 to Box 3, and 20 minutes from Box 3 to Box 1 after initial movement is detected. The decision is made to engage the suspected target proactively. Create the target in JADOCS or have the Strike Cell Chief create the TIDAT, conduct initial FAIO clearance battle drill (described later), send the target to JAGIC, announce to preclear green and blue air, and hold the specific target number in their box until you inform them to send the mission to the guns for execution.

You must account for the munition time of flight and an average shot time. Add them together, and that is how long before you tell the AFATDS operator to send the fire mission to achieve effects at the future location (Box 1, 2, or 3) of the enemy formation. Continue to monitor the GMTI screen. If you notice a large scatter of movement, there was a minimum of suppression effects. If there is none or minimal activity observed, it is safe to assume you have reduced the target or most of the formation from the battlefield. Take note of the target number for the Targeting Working Group (TWG) to identify the need for an available asset to observe in the future for more accurate assessments.

Target Vetting Process

Immediate actions will coincide with the targeting priorities of the TWG and the approved targeting products as the suspected target is identified by the PED operators. When intelligence is assessed as a targetable entity, proceed with target processing.

Once the JADOCS receives the TIDAT, conduct the FAIO's initial clearance battle drill via JADOCS to ensure the location is beyond the CFL and short of the Fire Support Coordination Line (FSCL). Then verify conflicts within the JADOCS so it does not violate a Fire Support Coordination Measure, No-Strike List (NSL), or Restricted Target List. If beyond FSCL or cross-boundary Fires presents themselves, follow the unit respective battle drill, but provide an executable target with "coordination required" to emphasize violations within the JADOCS Land Component Fires manager. Once the target is in the manager's list, look to the "conflict" column. If it is red, it means there is a conflict you must resolve before sending it to the JAGIC. Double click your highlighted target in your managers' list and select the conflict tab. In red print, you will notice a list of every conflict for situational awareness. Coordination measures are mostly avoidable from your position because the JAGIC procedures will clear those. The most noteworthy violation or conflict is the No Strike Entities (NSE) from your already uploaded NSL within the JADOCS databases. An essential responsibility of the FAIO is to provide targets to the JAGIC. The JAGIC Chief has full authority to deny or process the fire mission upon receipt, regardless of how well one vets and validates the target.

The JADOCS will provide the distance from your target grid to the identified NSE. If there is no collateral concern to the vetted target, send it to the JAGIC for execution and follow your unit Tactics, Techniques, and Procedures (TTPs) for other predetermined necessary announcements. If the NSE was close (predetermined distance) or deemed a collateral concern, then you must make it known to the JAGIC Chief before executing. Awareness of the delegation authority matrix is useful at this point. If the JAGIC Chief can make the call to engage, then let them make an informed decision, as it is their overall responsibility.

If the decision is made to engage, the NSE details are added in Transverse chat with the target number. Each workstation is aware of the situation by doing this, followed by the JAGIC Chief's announcement. Use the JADOCS as a primary source of fratricide avoidance since the operator automatically receives alerts of various types of violations.

Common Operating Picture amongst various stakeholders

The interoperability of the JADOCS paid dividends to the Division continuously. The JADOCS fuses informa-

tion from AFATDS, Tactical Air Integration System, Intelligence Fusion Server (IFS), and Air Defense Systems Integrator to illustrate control measures, GMTI, and air tracks all on one screen. This combination provided the 4th Infantry Division's near-real-time targeting capability and a Joint Fires COP. This integration is what kept the JAGIC lethal throughout the WFX.

The JADOCS also received the Air Tasking Order (ATO), the Airspace Control Order (ACO), the GMTI feed, friendly air tracks, enemy air tracks, and DIVARTY's counterfire picture. This timely receipt allowed JADOCS to drastically contribute to the situational awareness and information sharing across the Division and our adjacent units with minimal effort. The DIVARTY Targeting Officer provided precise guidance, bottom-up refinement, and enemy locations with their Call For Fire Zones and Artillery Target Intelligence Zones overlays. The overlays shared with the Division FAIO and adjacent units' JADOCS accelerated dynamic targeting efforts and extended cross-boundary intelligence sharing.

Once the ATO is accessed through JADOCS, the approved ASRs can be created in the Target Development Manager as a reference, and refinements can be shared with the Tactical Air Control Party (TACP), as they direct sorties. This TTP can assist the TACP in their proactive endeavor to provide fixed-wing assets the most current target data and used as supplemental awareness for the FAIO.

Joint Fires digital architecture

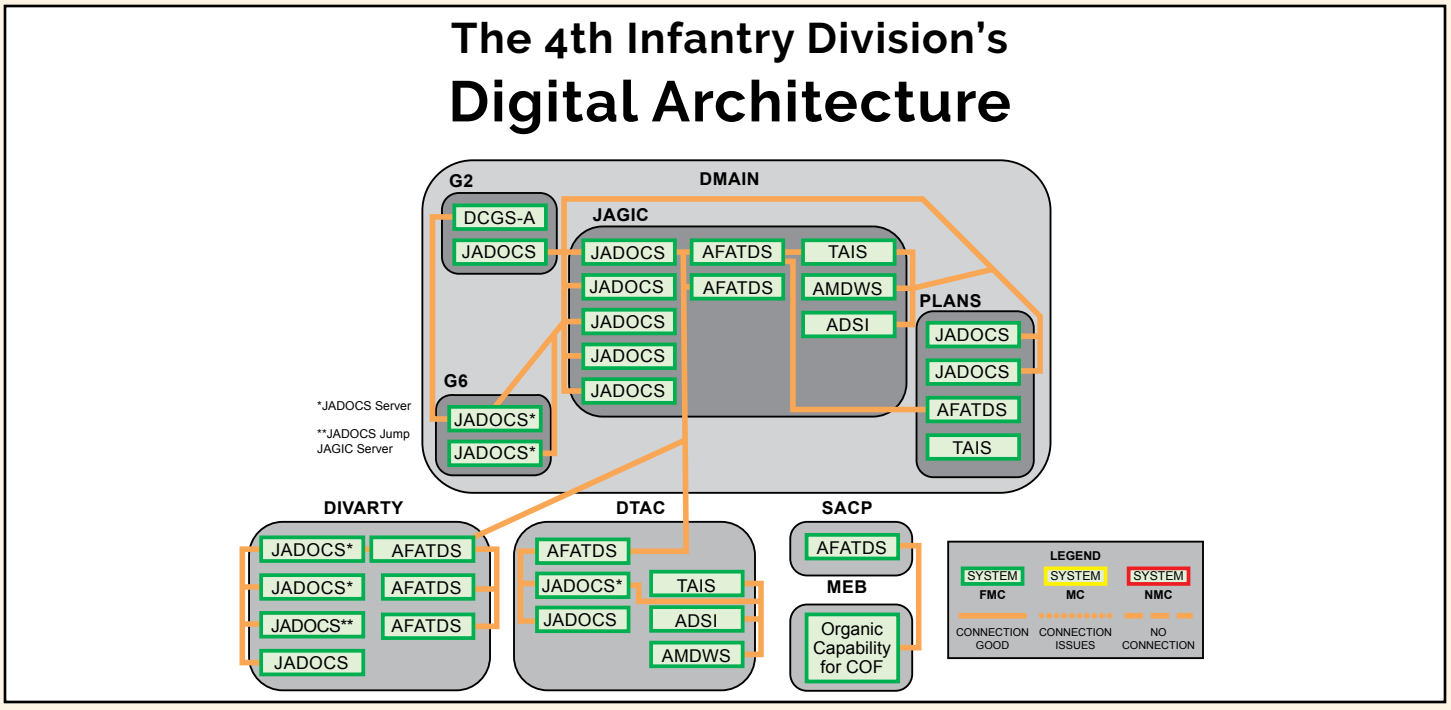
The 4th Infantry Division's digital targeting architecture enabled success during LSCO.

The entire Division's targeting architecture originates in the Battle Command Common Services stack within the G6. The Division Main Headquarters had two JADOCS servers in this stack. The backup server was created as a replica of the primary server after fine-tuning was complete. This redundancy provided confidence there would be no loss of efforts. The FAIO accessed the server through one of G6's virtual machines via a remote terminal. We could run our second server simultaneously with proper configuration file adjustments if the additional server's need was presented. For good practice, ensure to have Compressed ARC Digitized Raster Graphics, Controlled Image Base, and Digital Terrain Elevation Data Map data transferred onto the G6 stacks. Each client should map to them and download them directly to their computer for local client access before operations.

Relationship building and staff collaboration

G6 was the most important relationship for our initial JADOCS starting point. Admin accounts must be created and authorized by server techs to facilitate the ease of access and maintenance of the server and client architecture. The JADOCS program is enabled for use on the unit's Secret Internet Protocol Router (SIPR) domain network. This connection allowed any credentialed individual to log in and start JADOCS as a client while simultaneously using other common SIPR functions. This also accounted for the Internet Protocol addresses for each client, and secured additional addresses for enablers joining the team later. By being aware of how many clients are operating at once on each server, the DMAIN server can facilitate the use of nine clients.

The primary focus should be on the digital interoperability side with G2, even though the relationship



between the Field Artillery Intelligence Officers and G2T was a vital part of our WFX's success. The IFS Technician and NCOIC were essential links to determine how to send TIDATs to the JADOCS with a Distributed Common Ground System-Army (DCGS-A) client. TIDAT to JADOCS was a long, challenging endeavor. However, after the IFS messaging parameters were configured correctly, we never had to troubleshoot further because the IFS personnel became just as dedicated to making it work as we were with the JADOCS. Note: our updated Targeting Digital SOP has the "how-to" compatibility procedures for every system in the targeting enterprise (G2, G6, AMD, G3 Aviation, and Fires) to connect to JADOCS.

Division Fires incorporated the Staff Judge Advocate (SJA) into target processing and installed the JADOCS software on their computers. They could access NSEs in the Division's area of operation. The SJA officers were able to view the targeting products via TWG and focused on which Named Areas of Interest (NAIs) were active by ATO day. This capability allowed them to utilize JADOCS and search for NSEs within those specified NAIs to build a briefing tool depicting the NSEs for the commander's awareness.

Sections/Units involved

Our JADOCS server maintained successful communications with many different units and echelons at various locations including III Corps (Fort Hood, Texas), 505th Air Operations Center Combat Training Center (Hurlburt, Florida), 28th Infantry Division (Pennsylvania National Guard), 3rd Infantry Division (Fort Stewart, Georgia), 65th FAB (III Corps), 4th ID DIVARTY, and 4th ID DTAC. Aside from the communication requirements across the Division and adjacent units, Hurlburt's connection was most rewarding.

The JADOCS is essential for the United States Air Force to access the ATO so the Division can manage fixed air support and be successful. The JADOCS was the only platform that had access to the ATO because the AF had connectivity issues. So without JADOCS and USAF connectivity, the Division would have no knowledge of the ATO which would severely degrade Division operations.

Units must be involved in the establishment of the JAGIC in the DIVARTY Tactical Operations Center during the DMAIN displacement. We only transferred the systems deemed essential and offered specific permissions while ensuring the configuration file was complete and installed on a predetermined server stack or server box in DIVARTY.

A major selling point to any unit commander is the JADOCS is a complementary system of systems within the network's reach. The pertinent orders and the NSL were disseminated to the 4th Infantry Division, Division Tactical; 4th Infantry Division, Division Artillery; 28th Infantry Division; 65th Field Artillery Brigade; and III Corps daily with all published changes through our JADOCS. This capability carried on as the primary means until Air Force links were sufficiently established.

Specific issues and special considerations

The intricacies of JADOCS are even more desirable to learn as future software updates have been approved and are currently being facilitated by system engineers. As Division Fires personnel implement solutions, some concerns require collaboration with the Fires and Intelligence system engineers to be fully resolved.

The TIDAT received from the DCGS-A is not 100% parsed once ingested by the JADOCS and typically requires careful editing. This inefficiency may seem like a lot of wasted time, but it is habitual after performing multiple repetitions. The received target grids round up, down, or both – it is sent as a 10-digit grid but received as an 8-digit grid (for example 12X XX 12354 09876 will be received as 12X XX 12350 09880). An incident investigation traced from the DCGS-A logs of sent TIDATs with a 10-digit grid, the JADOCS logs of an 8-digit grid were sent to the AFATDS and executed. This outcome will result in a bad day for the FAIO.

The elevation is also missing (possibly need Digital Terrain Elevation Data in our IFS) and must be added to the target data before sending it to the AFATDS. The timing of the TIDAT is adjusted by approximately six hours – all systems were set to Zulu time zone and verified. Target types and target descriptions do not always parse. You will have to use AFATDS target types when adjusting in the JADOCS for best practices. When the JADOCS sends targets to the AFATDS, the target strength does not transfer, so it must be announced to the AFATDS operator. I have reached out to multiple JADOCS experts with these concerns, and they are aware of them.

Conclusion

The FAIOs inherit the responsibility of developing the Fires enterprise's digital architecture. The Commander expects the Fires digital functionality to be the primary source of communication between the JAGIC, Division Tactical, Support Area Command Post, adjacent units, and higher headquarters for the Fires Warfighting Function.

Our confidence in JADOCS progressively increased during our training glide-path, allowing us to utilize its capabilities with maximum effectiveness. JADOCS provides a unique capability by fusing multiple data sources into the COP to view and collaborate on target prosecution.

CW2 Adam G. Connolly is a 131A Field Artillery Targeting Technician and currently serves as the Field Artillery Intelligence Officer for the 4th Infantry Division Fire Support Element in Fort Carson, Colorado. He has served as a Target Acquisition Platoon Leader, Battalion Targeting Officer, and Brigade Field Artillery Intelligence Officer.

The Red Ruse:

A look at near-peer deception tactics for a Large Scale Combat Operation fight

By CPT Mark Chapman

This article seeks to provide a brief qualitative analysis of some of the deception tactics employed by our potential adversaries and propose a solution for countering them. All of the evidence used in this article is open-source, meaning that the Russians and the Chinese are no longer (if they were ever) hiding these methods for tactical deception.

As early as 2010, the Russian military unveiled a series of inflatable military vehicles that many outside the Kremlin found laughable. Western media sources touted these inflatables as negligent spending as Valdemar Putin poured billions of rubles into rebuilding his military. Nearly four years later, the Russians launched an incursion into the Crimea and since have launched a formidable array of forces into Syria. And at the forefront of both these incursions have been the use of the Russian tactic of *Maskirovka*.

Maskirovka, or masking, is the Russian form of deception widely used at both the tactical and strategic levels. At the strategic level, *Maskirovka* can be as complex as a military exercise in the Baltic Sea that draws worldwide press releases. While at the same time, large quantities of weapons are quietly shipped to a dictator in Latin America. Conversely, tactical *Maskirovka* can be as simple as a map with incorrect graphics that is left to "fall in enemy hands" and sow confusion. The *New York Times* gave the following insight, "The idea behind *Maskirovka* is to keep the enemy guessing, never admitting your true intentions, always denying your activities and using all means political and military to maintain an edge of surprise for your soldiers."[1]

An integral part of Putin's plan to rebuild the military is a revitalization of deception tactics. As part of this plan, the Kremlin has contracted Rusbal, a toy company, to begin making an extensive array of inflatable military vehicles. From MiG 31 fighter jets and T-80 main battle tanks to RADAR stations and surface-to-air batteries, the toy company makes 1:1 scale inflatable look-alike copies of its most important vehicles and systems.[2]

At the price of roughly $496,000 and with a setup time of only about two hours, the Russians can emplace a battalion of tanks at a strategic location, such as over watching an obstacle belt, a critical intersection, or on an enemy's flank.[3] This battalion-sized element positioned at a crucial juncture is meant to propagate confusion and chaos by clogging the enemy's decision-making progress by forcing them to react to a new threat while causing the intelligence section to respond to additional information. Thus from the platoon level where a lieutenant is reporting the tanks, to the brigade level where the staff is trying to react to and decide what, if any, assets can be diverted to deal with the threat, the plans process and the operational tempo is slowed if not ground to a complete halt. This gives the Russians a window of opportunity to react to or counteract their enemy's plan. Done at a critical location such as a piece of terrain or an obstacle belt, even a company-sized armored formation (especially in a light Infantry Brigade Combat Team fight) could cause the enemy to alter their entire plan.

Furthermore, many of these same vehicles and systems are also found on a Brigade or Division Commander's High Payoff Target List (HPTL). The HPTL is a ranked order of systems and or vehicles whose destruction the commander has deemed necessary for him to accomplish their mission. Inflatable versions of weapon systems such as the S-300 surface-to-air missile battery, the Tochka, short-range tactical ballistic missile system, and even RADARs are being deployed by the Russians. These are the same systems

1 Kramer, A. (2016, October 12). *New York Times*. Retrieved from *New York Times*: https://nyti.ms/2dWBU8A
2 Prigg, M. (2016, October 13). *Something else for the Russians to blow up: Putin's secret inflatable army of decoys that are designed to fool the enemy into thinking Russia is more powerful than it is*. Retrieved from *Daily Mail*: https://www.dailymail.co.uk/sciencetech/article-3837009/Something-Russians-blow-Putin-s-secret-inflatable-army-decoys-revealed.html
3 Mizokami, K. (2016, October 12). *Popular Mechanics*. Retrieved from *Popular Mechanics*: https://www.popularmechanics.com/military/weapons/a23348/russias-army-inflatable-weapons/

that Commanders at the tactical level rank as the most important to destroy: RADAR, Air Defense, and Armor. At the tactical level, the Kremlin uses *Maskirovka* to clog their enemy's information collection systems and divert the use of precious resources like Fixed-Wing Air Assets or Rocket and Cannon Artillery to destroy a threat only to find that they were perceived. Worse, tactical *Maskirovka* diverts critical assets and exposes them to counterfire, bringing critical enemy assets out of the fight. An example of how a threat like this can be convincing can be seen in Syria. In 2017, as U.S. and Iraqi forces continued to drive Islamic State West back into Syria, the Russians mobilized as well, deploying forces to the region to back President Bashar al-Assad. One of the key weapons systems deployed was the newest version of the S-300. The S-300 is a long-range, surface-to-air missile system designed to intercept both fixed-wing aircraft and ballistic missiles. Because of this potential threat, the United States quickly curtailed its use of critical airpower in specific locations over the Syrian border. Were all, if any, of the S-300s real? Or were they inflatable versions of the weapon system, produced by Rusbal, meant to deter American intervention in the region? We may never know, but the introduction of that threat, real or perceived, was enough to divert important air assets from the area.

Conversely, on the strategic scale, in an age dominated by instantiable access to information via social media, merely having the appearance of a few battalion-sized elements of tanks along an international boundary can have global implications. Facebook, Twitter, and a myriad of other outlets can relay information in real-time, spreading chaos and fear in civilian and military circles. And while the media propagates the story, the Kremlin is quietly and methodically maneuvering, in the shadows, to reach its real objectives. Thus, the appearance of a few battalions of Rusbal's inflatable vehicles has the legitimate possibility of shifting entire national strategies and playing right into Putin's hand.

In conflicts of the future, inflatable vehicles like this will be arrayed in defensive positions, under camouflage nets, and postured forward in critical points on the battlefield with the intent to disrupt the enemy's tempo. *(Photo: Dummy of 9A331 fighting vehicle of the Air Defense System TOR-M1 by Rusbal)*

Likewise, the Chinese have followed a very similar suit with their deception tactics. Citing Sun Tzu, who said, "All warfare is based upon deception. Therefore, when capable, feign incapacity; when active, inactivity. When near, make it appear that you are far away; when far away, that you are to lure him; feign disorder and strike him. When he concentrates, prepare against him. Anger his general and confuse him. Pretend inferiority and encourage his arrogance."[4] To enable these tenants of warfare on the modern battlefield, the People's Liberation Army (PLA) is incorporating deception tactics into their large-scale combat strategy.

In keeping with President Xi's vision of turning China into a world-class fighting force by 2030, one that can compete with Western armies, the Chinese military is actively seeking ways to bridge the gap. They are doing this, in part, by flooding the battlefield with specific decoys that are designed to mimic targets on the HPTL, much like the Russians. However, unlike the Russians, the Chinese will seek to have a 1 to 1 ratio of fake formations to real ones, effectively making their force seem twice as large.[5] This should be alarming to Western military leaders because these tactics will spread fear and chaos through our formations. All the while, the PLA will be masking their true intentions and capabilities behind a well-constructed wall of deception.

Like their Russian counterparts, these decoys will mimic the real vehicles. They will also be camouflaged and concealed under RADAR scattering nets. However, the Chinese go further still, adding another layer to the ruse by providing soldiers to operate them and maintain security in fighting positions around them as if they were a real fighting formation. Furthermore, to confuse adversaries, some of these decoys have been built to give off a heat signature by pumping hot

4 Tzu, S. (n.d.). *The Art of War: The Definitive Interpretation of Sun Tzu's Classic Book of Strategy* 1st Edition. Rutlage: Tuttle Publishing.

5 Jensen, A. (2020, August 08). *Deception Is Key to Chinese Military Strategies*. Retrieved from the *Diplomat*: https://thediplomat.com

Inflatable tanks like this are being developed by the Russian military as part of an elaborate deception tactic known as *Maskirovka*. *(Photo by Rusbal)*

water through them[6]. Thus, even with thermal optics, adversaries may not be able to differentiate between a real threat and a decoy.

Furthermore, the PLA has also begun incorporating solid metal decoys that "maintain nearly the exact shape of the impersonated vehicle."[7] The PLA boasts the reality of their decoys, which they claim are "difficult to distinguish from real equipment from a distance of 100 meters."[8] This tactic's intent is clear; by placing large numbers of decoys on the battlefield, the Chinese seek to impede the enemy's decision-making process and sow confusion at the tactical level. Capitalizing on the disorder, the PLA will strike, actively employing tenants of Sun Tzu's military treatise.

Yet, another aspect of these deceptive tactics ought to be particularly concerning to the Fires community. As Ph.D. candidate Aaron Jensen notes in his article *Deception is Key to Military Strategies*, "…used effectively, decoys can draw enemy surveillance and attacks from high-value targets and deceive the enemy about the number and location of friendly weapons, troops, and equipment. Decoys can also increase friendly firepower by making it easier to locate and target enemy forces once they have revealed their position by attacking the decoy."[9]

Used effectively, decoys can draw enemy surveillance and attacks from high-value targets and deceive the enemy about the number and location of friendly weapons, troops, and equipment.

Placing large formations of decoys at critical junctures or that match key, specific targets on the maneuver commander's HPTL, both the PLA and the Russians seek to trick their enemy into committing their artillery to the fight. If they can cause their enemy to commit their artillery to the fight early and expose their locations, it makes them very susceptible to counterfire. The destruction of artillery by the PLA or the Russians would prove devastating to their adversary as it negates a powerful combat multiplier. However, equally important, the destruction of the enemy indirect fire weapon system also allows the PLA or Russians indirect Fires without fear of counterfire.

Thus far, this piece has examined a series of short articles that must not be viewed as independent, instead of as a chain of linked items like puzzle pieces. Combined, these puzzle pieces form a grim picture of an adversarial capability that is very, very real. It is a threat that must be taken seriously. To prepare ourselves for a confrontation where we will face deceptive tactics, we must actively train against it. In addition to training against it at the Combat Training Centers (CTCs) like the Joint Military Readiness Center or the National Training Center, we must revitalize the Long-range Reconnaissance and Surveillance (LRS) teams who actively collect intelligence on the enemy at those critical junctures for extended periods.

There persists an attitude within the military that we will simply come across these decoys parked in a field somewhere or catch the PLA in the act of inflating them and merely bypass them. However, our days of fighting amateurs with outdated equipment are over. Both the PLA and the Russian military are commanded by professionals who are as good, if not better than, we

6 Ibid
7 Ibid
8 Ibid
9 Ibid

are. Adversarial commanders will implement their decoys with additional assets designed to layer the deception and add credibility to the ruse. To complete their deception, the PLA and Russia will dedicate engineer assets to build defensive positions for their inflatable tanks, provide crews and nets for their inflatable RADAR systems, and possibly move their decoys as they would their real systems around the battlefield.

To build familiarization with these tactics and the stress that they will induce on fighting formations in the field, the United States Military and its allies must actively incorporate them into their collective training. This should be done at all Battalion and Brigade-level training events where there is an element who is playing the role of a near-peer opposing force. At the very least, the opposing forces at the CTCs should employ inflatable or hardened decoys to sow confusion and stress intelligence assets.

Having the ability for Company and Battalion Commanders to train against these deceptive tactics, build familiarization, and conduct After Action Reviews as part of collective training will pay dividends when they fight against an adversary that employs deceptive tactics. It is not enough to simply annotate the use of decoys or the units which target them either. Both Commanders and the Observer, Coach or Trainer (OC/T) at the CTCs must capture and share the lessons learned. By developing and publishing a set of best practices and tactics, techniques and procedures, Commanders and the OC/Ts can better teach the force and prepare it for a large-scale fight where the enemy will use deceptive measures.

The other way that the United States Military must actively combat these tactics is to bring back the LRS concept for its Brigade and Division-level fighting forces. In a peer fight, the United States and its allies must have a dedicated, long-range reconnaissance asset capable of collecting intelligence on specific Named Areas of Interest for extended periods. In an environment where airspace and the electromagnetic spectrum will be contested, we cannot rely on the assets we have become used to in the counterinsurgency environment. Instead, we must deploy Soldiers forward of the Forward Line of Troops (FLOT) to gain valuable data. When trained and equipped correctly, these troops can overwatch areas and ascertain whether or not formations of tanks are real or inflatable, if RADAR assets are cuing or not, and if surface-to-air threats are real or perceived. These LRS teams must be comfortable pushing out into contested areas and staying out there for up to 96 hours to accurately ascertain where the enemy formations are and what they are doing.

Until the need for LRS is realized, Reconnaissance Squadrons at the Brigade level must actively train their Troops and attached fire supporters to be sensors. This is particularly true of the Dismounted Reconnaissance Troops, which currently fill this critical gap as an intelligence collection asset for the Brigade Combat Team. Unmanned aerial assets cannot fill this gap alone with limited loiter time and an even smaller scope of view. We must have a dedicated human sensor on the ground, forward of the FLOT, to watch and report. Until there is a Division or Corps-level force whose mission is reconnaissance with a dedicated targeting cell, the responsibility must rest upon the Cavalry Squadron. The Squadron Fire Supporters must internalize this threat and must take the time to educate their reconnaissance brethren on Russian and PLA deception tactics.

Or, at the very least, we risk shooting the wrong target, wasting critical ammunition. At the same time, the real threat moves unhindered around the battlefield.

It is not enough to realize this threat; it is incredibly imperative to actively train our forward observers and the Brigade's Reconnaissance Squadron against this threat. If we fail to do so, we risk losing our artillery to counterfire early in the fight, leaving the brigade without its most significant organic combat multiplier. Or, at the very least, we risk shooting the wrong target, wasting critical ammunition. At the same time, the real threat moves unhindered around the battlefield.

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Operation Bull Wings: A Multi-Domain Solution for Rapid Fires Power Projection within the Indo-Pacific

By CPT Joseph D. Schmid

The United States Indo-Pacific Command (USINDOPACOM) Area of Responsibility (AOR) encompasses about half the earth's surface, stretching from the waters off the west coast of the U.S. to the western border of India, and from Antarctica to the North Pole…More than one-third of Asia-Pacific nations are smaller, island nations that include the smallest republic in the world and the smallest nation in Asia.

A complex problem

Due to the vast amount of littoral environment found within USINDOPACOM, numerous leaders have observed a unique friction point associated with maintaining effective mission command while projecting combat power. For example, after operationalizing the Multi-Domain Task Force (MDTF) during Pacific Sentry 2019 and Talisman Saber 2019, both MAJ Branton Irby and CPT Austen Boroff remarked "challenges arose due to the lack of available communication equipment and accessible networks."[1]

During these two exercises the ability to communicate was largely degraded by the lack of appropriate communications platforms as well as an unfamiliarity with the limited long-range communications platforms on hand.

Furthermore, CPT Corey Hill remarked "the current communications plan for a standard High Mobility Artillery Rocket System (HIMARS) Battalion currently revolves around the Advanced System Improvement Program radio which lacks the requisite long-range capability conducive to Pacific AOR operations."[2] Under the current Modification Table of Equipment, the HIMARS battalion, arguably the MDTF's most destructive land-to-land or land-to-sea platform, could potentially struggle to communicate while operating in a disaggregated manner. Therefore, given these two examples, one may reasonably assume the friction point stems from an archaic communications architecture unable to integrate into a Multi-Domain Solution whose purpose is to project Cross-Domain Fires within limited windows of opportunity across vast land, air, and maritime distances.

1 Branton, Irby; Boroff, Austen. "The Multi-Domain Task Force from a Division Artillery Headquarters" *Field Artillery Professional Bulletin*, 2020, Iss. 2, p. 20.
2 Hill, Corey. "Back to the Future: Limiting Factors and Proposed Courses of Action to Increase the Effectiveness of the Field Artillery in Multi-Domain Operations" *FA Journal*, 2020, Iss. 1, p. 30.

The Joint Multi-Domain Solution

The following is "a way" of showing how a Joint task force is organized and synchronized as low as the Battalion level supported by a Division Artillery Headquarters, which then can rapidly project combat power leveraging a Multi-Domain strategy to quickly infill and exfill across littoral island chains such as those found within the South China Sea. The combat power projected during this exercise conducted on Jan. 21, 2021, termed "Operation Bull Wings" included a Army M119A3 105 mm Howitzer platoon augmented with one five-man Fire Support Team from the 25th Division Artillery and a Marine Communications Specialist from A Battery, 1-112th. This formation traveled from the Hickam Aerial Port of Embarkation (APOE) on the island of Oahu via one Airforce C-17 to arrive at the Kona Aerial Port of Debarkation located on the island of Hawaii. Upon arrival at Kona, the firing platoon conducted a 48-mile ground assault convoy (GAC) to firing point 417 located on the Pohakuloa Training Area within the interior of the island. This movement was mission commanded by a Joint Army-Marine Main Command Post using the Joint Battle Command-Platform, multiple AN/PRC-150 High-Frequency radios, and Marine Mobile User Objective Systems as primary, secondary, and tertiary means of communication able to bridge the 205-mile distance between Oahu and the island of Hawaii. Upon emplacing at FP 417, the Battalion Fire Direction Center (FDC) located on Schofield Barracks, Oahu, successfully exerted tactical fire control over the Platoon FDC located on the island of Hawaii who completed one time on target mission firing 48x rounds of M1 High Explosive. After firing, the platoon quickly conducted a 35-mile GAC to the Kona Dockyard to load all equipment onto a maritime logistics support vessel (LSV). Once the equipment was loaded all artillery raid passengers boarded a Army CH-47 for the 1.5-hour exfill trip back to Wheeler Army Air Base.

This example portrays how a small artillery raid formation leveraged air, land, and maritime domains in the form of C-17s, LSVs, and CH-47s as well as its organic vehicles to rapidly project combat power within 24 hours across a littoral region. Our three communications platforms made use of multiple satellites located within the spatial domain to overcome the communication challenges inherent in littoral operations. Lastly, the

platoon's duel Defense Advanced GPS Receiver kit filled with black keys mitigated potential adversarial cyber jamming efforts aimed at disrupting the firing platoon's capability to emplace. The raid incorporated four military services to include Army, Marine, Air Force, and Navy formations all working as one team to project combat power, exert tactical fire control, and safely retrograde combat power. This scenario of "island-hopping," when applied to the Indo-Pacific region, has multiple applications during deterrence operations as well as armed conflict.

Application to USINDOPACOM

As China continues to consolidate military power while remaining below the threshold of armed conflict, U.S. Joint efforts will be primarily focused on implementing a strategy of credible deterrence to counter an increasingly sophisticated Chinese Anti-Access/Area Denial system. The National Defense Authorization Act 2020 states "to change the calculus of our adversary, we must deny their ability to control the air and sea around the First Island Chain… this challenge can only be met by conducting a series of high-end, multi-domain exercises with a continuous campaign of Joint experimentation."[3]

To further change the calculus of a strategic competitor such as China, the Multi-Domain scenario depicted in Operation Bull Wings on the archipelago of Hawaii can easily be overlaid onto numerous other littoral hotspots within the Indo-Pacific. For instance, take into account China's man-made islands within the South China Sea. According to the Asia Maritime Transparency Initiative, "China has 20 outposts in the Paracel Islands and seven in the Spratlys.. [they have] engaged in unprecedented dredging and artificial island-building in the Spratlys, creating 3,200 acres of new land, along with a substantial expansion of its presence in the Paracels."[4]

Instead of projecting from a Hickam APOE, like in Operation Bull Wings, various forms of combat power could initially project into the South China Sea from outlying nations such as the Philippines, Singapore, or Vietnam. Maintaining this capability and demonstrating it in exercises like Operation Bull Wings strengthens the credible deterrence strategy implemented by USINDOPACOM.

Furthermore, these types of power projection exercises, when coupled with emerging Land-Based Anti-Ship Missiles (LBASM), generate exciting new capabilities within contested areas of the Indo-Pacific region. For example, in written testimony to the Senate Armed Services Committee, the Marine Corps stated "a ground-based anti-ship missile capability will provide anti-ship Fires from land as part of an integrated naval anti-surface warfare campaign… This forward-deployed and survivable capability will enhance the lethality of our naval forces and will help to deny our adversaries the use of key maritime terrain."[5]

The Multi-Domain scenario depicted in Operation Bull Wings on the archipelago of Hawaii can easily be overlaid onto numerous other littoral hotspots within the Indo-Pacific.

Now imagine the Army using its power projection capabilities demonstrated in Operation Bull Wings coupled with a Marine LBASM in the South China Sea. Conceptualizing these Joint concepts and applying them to contested geographical hotspots is the first step to deconstructing China's anti-access and area denial strategy in the Indo-Pacific.

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3 USINDOPACOM. "NATIONAL DEFENSE AUTHORIZATION ACT (NDAA) 2020, SECTION 1253 ASSESSMENT" 2020, p. 4.
4 "China Island Tracker" Asia Maritime Transparency Initiative, accessed 23 January, 2021 at https://amti.csis.org/island-tracker/china/.
5 Larter, David B. "To combat the China threat, US Marine Corps declares ship-killing missile systems its top priority." *Defense News*, 5 March, 2020, accessed at https://www.defensenews.com/naval/2020/03/05/to-combat-the-china-threat-us-marine-corps-declares-ship-killing-missile-systems-its-top-priority/.

P. 34 Lower Left: An assistant gunner puts his collimator into action during howitzer occupation at the Pohakuloa Training Center.

P. 34 Lower Right: SGT Perez, the 1st PLT Fire Direction NCO secures his fire direction center vehicle to an Airforce C-17.

P. 35: LSV used to transport all rolling stock from the island of Hawaii to Oahu after the fire mission. All Soldiers retrograded back to Oahu via Chinook.

P. 37 Top Left: Airforce loadmasters load a M119A3 gun section onto a C-17.

P. 37 Top Right: SGT Impat from 2nd SEC, 1st PLT fires a high explosives round at the Pohakuloa Training Center during Operation Bull Wings. This exercise demonstrated the rapid indirect fire power projection capability of the 25th Division Artillery while leveraging four separate military services, four modes of transportation, and three techniques of long distance communication.

P. 37 Bottom: M119A3 secured onto its C-17.

All photos were taken by Tech. Sgt. Anthony Nelson Jr.

National Training Center

Observations on how to improve the employment and effectiveness of digital calls for Fire processing FY 2020

By MAJ James "Jim" Nemec and COL Thomas "Tom" Caldwell

The deliberate and dynamic use of Fires in support of Maneuver remains the hallmark of combining arms during Large Scale Combat Operations. The speed and offensive audacity of Armored and Stryker Brigade Combat Teams on today's battlefield requires fire support of the same character. Providing timely, accurate, and effective "digital" Fires in consort to consistently meet or exceed the Commander's Intent for Fires by organic and/or Echelons above Brigade fire support remains a methodical enterprise. The purpose of this article is to provide context and solutions from both active duty and National Guard units' efforts during National Training Center Decisive Action Training Environment rotations to provide Fires digitally via current doctrinal, training, and material means. The context and solutions will be provided in the aspects of defining our Digital Fire Support Capabilities, Digital Sustainment Training (DST), Maintenance, Tactical Employment, and Leadership/Unit Culture.

Desired takeaways from the defined aspects

1. There is a divergent understanding of what Digital Fires is comprised of and the responsibilities of the Combined Arms Community from simple 10-level tasks and collective relative application into unit operating procedures.

2. There is no substitute for regimented, disciplined, enforced, comprehensive and rigorous DST.

3. Maintenance to include incorporation of high usage parts into the unit Shop Stock List. Leaders must track the maintenance statuses of both primary and complimentary Fire Support equipment to properly maintain the sensor-to-shooter link to meet expectations.

4. Tactical employment of RETRANS, Fire Support sensor equipment, RADARS, and properly "trained" personnel must be a deliberate process to fundamentally be at the right location, with the right systems (optics, entry device, communications), and shared understanding.

5. Leaders at all echelons and Warfighting Functions must understand how they enable the complexity of digital Fires by setting conditions through accountability and unit culture. Honest dialogue of issues and opportunities within the Sensor-to-Shooter network at echelon both vertically and horizontally is key to meet or exceed expectations.

Defining Digital Fire Support Capabilities

During the Civil War, SGT Milton Humphrey proved by ordering a Soldier to a nearby hilltop to achieve indirect cannon Fires, that reliable communications between observers (sensors) and the guns (shooters) were key. A century and a half later the expectations for communications between the two entities have significantly changed based on the 21st-century character of warfare and significant advancements in technology. Today's U.S Army Fire Support enterprise has a myriad of systems to digitally target, transmit, tactically/technically process, and deliver Calls for Fire. Despite a comprehensive suite of digital systems, rotational units at NTC are challenged with establishing and maintaining reliable digital communications between Observation Posts (OP) and the firing unit and immediately default to utilizing conventional voice communications. The use of Frequency Modulated (FM) digital communication and Upper Tactical Internet to send fire missions from an OP through the requisite Fire Support Elements (FSEs) at echelon to a firing unit can provide the optimal speed, efficiency, and accuracy to achieve and exceed the desired effects. The equipment currently fielded to Forward Observers (FO) in active duty and National Guard units enable them to pull a target grid from a digital map and send a digital Call for Fire via text that is received and processed instantly through echelons of Advanced Field Artillery Tactical Data Systems' (AFATDS) intervention points, Fire Support Coordination Measures protocols, and gunnery computations, resulting as a fire order on the guns. Forward Observer Software (FOS), comprised of the Remote Handheld Terminal Unit-Mounted and the Stand Alone Computer Unit, is the most prevalent suite of gear utilized at NTC. FOS is a multi-mode, user-configurable Fire Support software application with two modes: FO/Fire Support Team (FIST) mode for processing fire missions and Fire Support Officer (FSO)/Commander

Mode for planning and controlling Fires and fire support operations. In support of dismounted operations, the Precision Fires-Dismounted is replacing the Pocket Forward Entry Device and acts as a Fires planning tool while also sending digital Calls for Fire, Close Air Support requests, and is compatible with all dismounted targeting devices. These Call for Fire systems, both mounted and dismounted, require a reliable network.

Digital Sustainment Training

At NTC, Fire Supporters at echelon cannot properly employ and troubleshoot assigned equipment routinely. This observation is confirmed by the omission of leaders during each final NTC Fire Support After Action Review being a result of not executing salient DST and FIST certifications. All commanders at echelon should systematically invest in quality DST and certifications of all digital Call for Fire systems, by deliberately scheduling and executing training in accordance with TC 3-09.8 *Fire Support and Field Artillery Certification and Qualification*[1] and the 8-Step Training Model. Ensuring an accountable quality of training builds operator confidence and mitigates friction before and after crossing any line of departure. While at home station, DST is most effective as a weekly battle rhythm event properly de-conflicted with other competing demands. DST is best achieved when it begins on the same day as command maintenance to set conditions but is exclusively executed on another day of the week or throughout the week. DST should be a Brigade-level event led by the Brigade Fire Support Coordinator (FSCOORD)[2] or FSO along with the Brigade FSNCO and Brigade Digital Master Gunner who are the proponents for the training using the Brigade's Digital Standard Operating Procedure (DIGSOP) as a guide. The most effective DIGSOPs inform how the Brigade communicates digitally, codifying the Brigade's order of precedence for communication: Primary, Alternate, Contingency, and Emergency (PACE) plans, and provides standard troubleshooting methods. Like all SOPs, the DIGSOP should be reviewed and updated routinely, especially following any applicable major training event.

Ensuring an accountable quality of training builds operator confidence and mitigates friction before and after crossing any line of departure.

A six-week progression that includes the Brigade FSEs, all Battalion FSEs, the Field Artillery Battalion's Fire Direction Centers (FDC), and guns provides the most efficient means to an effective enterprise. As early as possible, DST should incorporate Call-for-Fire Trainers (CFFT), to collectively train FO proficiency to enforce Fire Support systems employment and proficiency. DST requires daily incorporation of Preventive Maintenance Checks and Services on equipment to address maintenance issues, install parts that have arrived, and properly practice cross leveling of equipment or controlled substitution of parts. The first week of DST begins with everyone in the motor pool focusing on the digital linkage between platoons, companies, and battalion FSEs. The second week focuses on the routing of digital Calls for Fire from the observers to the gunline and the observers to the brigade FSE. The third week incorporates the Brigade's PACE Plan and the routing of digital Calls for Fire from the observer to the Brigade FSE and the observer to the guns. For the fourth week, battalion and platoon FDCs should move 6-10 kilometers away from the motor pool to train digital capabilities at distance. In the fifth week, observers move out of the motor pool and occupy OPs or the CFFT, testing their PACE plan at distance. For the sixth week, all elements of the digital chain should move out of the motor pool and test their ability to send digital missions from platoon observer to brigade, FDCs, and the gunline with each platform in the PACE plan. A successful Brigade DST progression includes realistic scenarios complimenting concurrent training including Brigade RETRANS, RADARS, and other enablers.[3] DST is an important factor

1 TC 3-09.8 Fire Support and Field Artillery Certification and Qualification Figure 1-1 and Chapter 1. Field Artillery Home Station Training Strategy.
2 FM 3-09 Fire Support and Field Artillery Operations re-establishes that the senior FA Commander in an organization is the FSCOORD and that this "dual responsibility institutionalizes Fire Support as commander's business, and requires the FA commander to know the functions and objectives of the ground force, the operation of the FS system, and the technical aspects of FA fire as the maneuver commander's most available attack/delivery system.
3 Units execute effective individual and collective training based on the Army's principles of training. See ADP 7-0 Training for a discussion of each of these principles: (Train as you fight. Training is commander driven, Training is led by trained officers and noncommissioned officers, Train to standard, Train using appropriate doctrine, Training is protected, Training is resourced, Train to sustain, Train to maintain, Training is multi-echelon and combined arms)

in improving the effectiveness of digital Call for Fire systems but is only effective if the equipment is maintained properly.

Maintenance

Commanders must emphasize in their maintenance, command and supply discipline programs to place special emphasis on maintaining digital Call for Fire equipment due to it uniquely spanning multiple Army programs of record, Brigade staff sections, and subordinate Battalions. For example, the M7 Bradley Fire Support Team is tracked as Fully Mission Capable if their chassis meets all operational readiness requirements, but their FS3 and SCU2's are Not Mission Capable (NMC). As a result, regulatory reporting such as Unit Status Reports (USR) does not account for digital systems NMC therefore the requisite command emphasis is not placed on the proper maintenance and sustainment of these systems. Units preparing for NTC must identify NMC Fire Support equipment and operationalize a plan to repair or replace it. Battalion and Brigade maintenance, S4, and S6 shops assist with the digital call by understanding the required logistics and prioritization necessary to maintain the network. Unit Shop Stock List and apportionment of the limited Fire Support systems in accordance with mission priorities of effort should be incorporated in staff processes. The FSNCO at BN and BDE levels are key in providing the FSCOORD, FSO, S4' and S6's with information from running estimates from a comprehensive and managed Fire Support platform, sub-systems, and complementary equipment tracker. Information provided by the tracker will provide the necessary information to inform maintenance efforts and capabilities management/cross leveling based on defined equipment essential to digital Fires.

Tactical employment

Proper tactical employment of digital Call for Fire systems at NTC begins during the Military Decision Making Process. The BN and BDE S6 is responsible for the planning and application of the cogent line of sight analysis through System Planning Engineering and Evaluation software to ensure the best employment of RETRANS teams and Operations (Ops). Line-of-sight analysis uses a variety of variables including terrain elevation, antennae height, and distances to provide Brigades with data to properly synchronize RETRANS and OP[4] placement, especially during rehearsals. During RSOI[5] (Reception, Staging, Onward-Movement, and Integration) units conduct a Digital Validation Exercise (DVE) to test their digital equipment at distance. Successful units use every aspect of the DVE to troubleshoot faulty connections and address friction points in their digital communication plan. Successful units leverage the experience of their Observer, Coach, or Trainers to improve their digital communications and are willing to listen and adapt their plan if necessary. Oftentimes, units assume they are testing their FM digital link but forget to turn off their tactical Local Area Network to ensure their AFATDS is functional on the FM digital network. In order to ensure proper FM digital connection and troubleshooting, RETRANS teams must be trained in testing the FM Digital network. RETRANS must know how to set up radios correctly, otherwise, the digital network is not going to function properly during distributed operations. Prior to operations, Brigades should plan and rehearse Primary and Alternate OPs as well as Primary and Alternate Digital Communications. At the Intelligence Collection/Fires (IC/Fires) Rehearsal, units should rehearse each target from sensor to shooter, including Primary and Alternate observers and Communication Systems. The Brigade S6 should attend and participate in the IC/Fires Rehearsal to explain the communications plan and how he/she will respond to points of friction. Once operations begin, units often rely too much on upper time, including the Joint Capabilities Release (JCR), to send fire missions. This becomes problematic because JCR is not a primary platform for fire missions and is easily convoluted within the receipt and transmission of multiple messages. Brigades should anticipate and plan for friction with digital communication during OP occupation, Tactical Operations Center/Tactical Air Control jumps, and

Successful units leverage the experience of their Observer, Coach, or Trainers to improve their digital communications…

4 Observation Post (OP) planning is a deliberate effort requiring both Maneuver Commander and Fire Supporter input to set conditions to properly initiate both preplanned and dynamic targets. The utilization of the Trigger, Location, Observer, Delivery System, Attack Guidance, Communication (TTLODAC) and Security, Location, Communication, Targets, Observation, Position improvement (SLCTOP) to ensure capabilities.

5 RSOI during an NTC rotation consist of an operationalized Digital Validation Exercise (DVE) and Field Artillery calibration. Both of these RSOI requirement are intended to give units the time, resources, and opportunity ensure the success of their Fires Digital network. Units often rush through this process in order to provide Fires in support of an aggressive Cavalry Squadron reconnaissance LD.

transitions. The more informed and trained units are at a home station on digital communications from sensor to shooter, the better position they will be upon arrival at the NTC. The more thorough a unit plans and the more discipline it executes, accounting for friction prior to operations and nullifying issues as they arise, the better they will perform during the rotation.

Leadership/unit culture

Many issues relating to a digital Call for Fire systems stem from the old maxim: *A Soldier must first master his/her assigned equipment before they can trust it will work*. Soldiers attending Advanced Individual Training (AIT) as Joint Fire Support Specialists are taught to plot targets and Call for Fire using a map, protractor, binoculars, a compass, and a radio. Throughout AIT, Soldiers are introduced to digital systems and are trained to resort back to analog systems when digital systems are down. Without leader presence and accountability, there is a natural reluctance to make the digital equipment work properly through routine maintenance and informed troubleshooting. The observed trend is that operators will resort to FM voice especially during high intensity and time-constrained situations. If allowed to prematurely resort to FM voice, Soldiers never properly familiarize themselves with their equipment, let alone master it, and assume it does not work. The success of any unit endeavor is based on command emphasis and support.

Conclusion

The purpose of this article is to review the current digital Call for Fire systems and provide recommendations for increasing the effectiveness of these systems through defining our digital fire support capabilities, digital sustainment training, maintenance, tactical employment, and leadership/unit culture. Units at home station conducting quality weekly DST and maintenance build confidence in their digital Call for Fire systems and are best prepared to tactically employ these systems once at the NTC. In the event the digital system goes down, units provided with the right points of contact and the knowledge to troubleshoot will quickly remedy the issue and continue the fight. Soldiers and Leaders at all levels should possess a common understanding of where to go for assistance with a digital Call for Fire systems. The Army Capability Manager - Fires Cell at Fort Sill (580) 442- 5719 has 13F subject matter experts tasked with assisting units with their digital call for fire systems. These seasoned Non-Commissioned Officers and Civilians are knowledgeable resources, prepared to assist with training, troubleshooting, component acquisition, and can reach out to the right people to find the answers to tough questions. They also serve as a conduit of best practices, linked in with the Combat Training Centers to follow trends and capability gaps for the force.

The Army Capability Manager… has 13F subject matter experts tasked with assisting units with their digital call for fire systems.

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FY 18, 19, and 20 National Training Center Fires Support Division Training Analysis and Feedback Team

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DIVARTYs in 2021 and beyond

Much more than "Everything old is new again"

By Dr. John Grenier

The potential for Large Scale Combat Operations (LSCO) against peer and near-peer competitors convinced the Army in 2014 to return to Division Artillery (DIVARTY), vice individual Brigade Combat Teams (BCTs), to plan, prepare, execute, and assess Field Artillery (FA) Fires below the Corps level.[1] Furthermore, the Multi Domain Operations (MDO) concept built on Fires in Five Domains—Land, Air, Sea, Space, and Cyber—makes DIVARTYs even more necessary to Command and Control (C2), coordinate, and deconflict Joint precision Fires. Effective and efficient MDO Fires are impossible to execute without robust C2 structures at Echelons above Brigade (EAB). Fortunately, the Army does not need to "recreate the wheel" with its DIVARTYs: history shows us that DIVARTYs—a staple of Army Divisions from World War II through the early 2000s—offers an ideal C2 structure to maximize FA Fires for Maneuver-force commanders.

The early 20th century saw revolutionary developments in the diversity, range, and lethality of cannon artillery, much like the more recent advancements in Precision-Guided Munitions such as Precision Guidance Kit and Excalibur rounds as well as delivery platforms like the Extended Range Cannon Artillery. World War I armies possessed and deployed a cornucopia of cannons and rounds, from light and mobile short-range 75 mm Howitzers to massive 12-inch siege guns that required railroad tracks to transport them. Commanders recognized that massed Fires truly made artillery the King of Battle: FA accounted for nearly 90% of WWI battlefield casualties. The use of armored forces, for example, initially focused on protecting Infantry from the devastating effects of FA as much as a search for the means to bring mobility to the battlefield. Furthermore, major technological breakthroughs in communications technologies—wired telegraphs and rudimentary radios (then called "wireless")—coupled with rapidly maturing airpower, which armies initially combined primarily as reconnaissance assets, piqued the interest of FA professionals. For the first time since the birth of the Infantry-Cavalry-Artillery Combined-Arms Synthesis of the 17th century, it seemed Artillerymen might offer Maneuver Commanders accurate and lethal indirect Fires. But before U.S. Redlegs could fully experiment with and then perfect the Tactics, Techniques, and Procedures (TTPs) to maximize indirect Fires, the relentlessly grinding reality of trench warfare pulled them back to the here-and-now of the Westeran Front, where precision stood as less of a concern than volume. As a result, the U.S. Army used its FA Battalions to support the Maneuver element (most often a Regiment) directly on the Battalion's front. Nonetheless, it was readily apparent at the end of the war that EAB could benefit from organizational structures that allowed them to both command, and more importantly, control and mass Fires across a broad range of fronts.

Commanders recognized that massed Fires truly made artillery the King of Battle.

The Interwar Period between World War I and World War II paradoxically marked a period of both stagnation and growth of FA for the U.S. Army. While the Army tightened its belt in the face of small budgets and reduced manpower authorizations, it also encouraged thought on new organizational constructs and experimentation to make full use of advancements in mechanization and communications. Tracked and heavy truck-towed artillery pieces, some apportioned to tank destroyer units, entered the FA inventory, replacing the horse-drawn limbers and caissons that had dominated the force for half a millennia.[2] More importantly, Redlegs created, tested, and evaluated the TTP that enabled them to leverage telephone and radio networks to rapidly and accurately mass Fires from multiple FA Battalions on a single target. Much has been written (and fetishized) about

1 ATP 3-09.90, *Division Artillery Operations and Fire Support for the Division* (October 2017), 1-1, https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN5999_ATP%203-09x90%20FINAL%20WEB%201.pdf.

2 John Grenier, "A Cautionary Lesson from History for FA Doctrine Development: FA and Tank Destroyers in World War II," Fires Bulletin, https://sill-www.army.mil/fires-bulletin-archive/archives/2019/jul-aug/jul-aug.pdf.

From the days of the horse and carriage: the Half Section charges during a ceremony at Fort Sill, Oklahoma.
Photo by Ygal Kaufman
Public Affairs Office, Fort Sill.

the Germans' adoption of Blitzkrieg in the 1930s as a revolutionary breakthrough in the art of war at the operational levels. That said, the U.S. Army's mastery of engaging and destroying enemy formations through forward-observed Time-on-Target (TOT) fire missions from multiple FA Battalions that executed precise and indirect Fires marked one of the most significant doctrinal and TTP changes of the interwar period.

The key to a successful TOT fire mission was (and is) the ability of a single organization to C2 the Fires of multiple, geographically separated FA Battalions. Hence the Army embraced DIVARTYs: entities that could coordinate, direct, and deconflict all Fires for a Division, then the Army's primary Maneuver formation. DIVARTYs, of course, required specifically trained experts to operate smoothly: not every GI could be expected to choreograph the dance of the big guns. GEN George Patton, for instance, noted that American DIVARTYs throughout World War II plied their craft, "by methods known only to God and the Artillery." Indeed, the raw and inexperienced U.S. Divisions that made up the Army 1942 and early 1943 learned quickly that they went forward without their DIVARTY, let alone their artillery, at their peril. The 32nd Infantry Division, for example, fought on New Guinea in November 1942 while its DIVARTY and cannons remained stuck on the other side of the Owen Stanley Range. Until Army and Navy air forces brought air-to-ground Fires to bear on the Japanese forces, unsupported Allied attacks stalled and could not break through into "Bloody Buna."[3] Three months later, II Corps, with most of its artillery, including the 9th ID's DIVARTY, 800 miles to the west in Morocco, barely escaped disaster in Tunisia. The Germans shredded the Corps's Infantry and Armored Divisions at the battle of Kasserine Pass in February 1943; only a 100-hour forced march by the 9th ID's DIVARTY to Thala Pass, and the 1,904 rounds its FA Battalions fired throughout February 21 through 22 and finally halted GEN Irwin Rommel's advance. The synchronized and coordinated Fires from the 9th ID's DIVARTY did more than blunt the Nazi attack: their sheer volume rattled German commanders' confidence, and it suggested to them that fresh Allied reinforcements had entered the fray.[4] The Germans retreated to the east, content with a limited spoiling attack that failed to disrupt the Allied buildup in North Africa. Patton's oft-quoted observation that "I do not have to tell you who won the war. You know our artillery did." was more than hyperbole.[5] By 1944, DIVARTYs

3 John Grenier, "Three Days at Bloody Buna: An Introduction for Redlegs to an Advanced Battle Analysis (ABA) of the 1st Battalion, 128th Infantry, 32nd Infantry Division," FA Journal, https://www.fieldartillery.org/news/fa-journal-issue-4-2020.
4 Robert C. Baldridge, "How Artillery Beat Rommel after Kasserine," Field Artillery, https://sill-www.army.mil/fires-bulletin-archive/archives/2002/MAY_AUG_2002/MAY_AUG_2002_FULL_EDITION.pdf.
5 Patton quotes from David E. Johnson and David D. Halverson, "Massed Fires, Not Organic Formations: The Case for Returning Field Artillery Battalions to the DIVARTY," https://www.ausa.org/publications/massed-fires-not-organic-formations-case-returning-field-artillery-battalions-divarty.

had perfected their TTP, and U.S. Commanders could mass and coordinate observed Fires in combinations that often devastated German and Japanese formations before they even could make contact with Allied Infantry and Armored Forces.

The Army that emerged from World War II, especially in the face of the Soviet Union's Red Army and its Warsaw Pact allies, wholly embraced the DIVARTY concept. Massed and synchronized Fires become Redlegs' mantra and the "first line of defense" in Germany's Fulda Gap. Further developments in Positioning, Navigation, and Timing (PNT) technologies allowed for the perfection of indirect Fires, which promised to help overcome the challenges that the much larger and more heavily gunned Red Army posed. The Army expected to engage the Soviets in LSCO on dynamic and rapidly moving battlefields, where PNT—provided neither side employed nuclear weapons—could kill as much as mass. In the late 1950s, when it stood up its Pentomic Divisions, the Army assigned FA units (including "Honest John" Surface-to-Surface Nuclear Rocket Battalions) to DIVARTYs, as opposed to the new Divisions' five "battle groups." By the early 1960s, Pentomic Divisions' fundamental weakness—a lack of combat power to cope with Soviet Armored Forces in conventional (aka non-nuclear) battle—led the Army to create the ROAD (Reorganization Objective Army, Divisions.) Each ROAD received a DIVARTY, which consisted of a missile Battalion, a 105 mm Self-propelled Howitzer Battalion, and a 155 mm self-propelled Howitzer Battalion that included one 8-inch Howitzer Battery. The Army took its ROADs to Vietnam, where formations designed to counter the Soviets in Central Europe proved ill-suited for fighting the elusive North Vietnamese Army and Viet Cong. While DIVARTYs remained part and parcel of U.S. Divisions, especially those focused on the Soviets, Redlegs commanded and controlled the bulk of FA Fires in Vietnam from individual Fire-Support Bases (FSBs) equipped with Batteries rather than Battalions. Nonetheless, untold numbers of U.S. and Army of the Republic of South Vietnam (ARVN) Soldiers owed their lives to their supporting Fires from the FSBs that blanketed South Vietnam. After the Army withdrew from Vietnam, and it refocused on working with NATO partners as opposed to the ARVN, it concentrated on the Soviet threat. "Such would begin a seemingly perpetual process of studies, reorganizations, and modifications that has never really ended," one RAND Corporation report noted 20 years ago, and still rings true today.[6] Division 86—the Army's plan for what its Divisions should look like in 1986—gave the Army the "Heavy Division" structure that is plugged into Air-Land Battle Doctrine, and which is employed through Operation Desert Storm in 1991. Army doctrine throughout the 1980s and 1990s dictated that Divisions must possess the ability to fight when cut off from Corps, which meant that each Division must maintain a robust capability to C2 its Fires. DIVARTYs, of course, were already well-schooled and highly effective at that. Thus, while technologies and overarching divisional structures changed from Pentomic through ROAD to Division 86, DIVARTYs remained a constant, especially for LSCO.

The Army will expect today's DIVARTYs to make the most of technological advances

The heavy Division structure stayed with the Army until 2003 when it reorganized itself around BCTs vice Divisions. Modularized BCTs, as opposed to task-organized formations, promised more flexibility, both in terms of executing the Counterinsurgency (COIN) Operations in Iraq and Afghanistan and winning budgetary battles in Washington, D.C. In the process of making a modularized force, the Army made all Divisional non-Maneuver Battalions, including FA Battalions, organic to the BCT. In 2004, because COIN saw relatively little need for FA and less for DIVARTY, the Army de-flagged its DIVARTYs to free up scarce manpower for other essential security missions. Individual BCTs, so said the briefing slides, could manage all FA tasks, from organization, training, and equipping their FA Battalions to execute the FA Fires they needed.[7]

Not surprisingly, the Army's changes alarmed the FA community. Skills across FA formations rapidly deteriorated as Artillerymen found themselves tasked as basic-skills trainers, convoy escorts, and checkpoint guards rather than fire supporters.[8] Yet change again loomed on the horizon. The possibility of LSCO, especially against a resurgent Russia in the Suwalki Gap or

6 Richard W. Kedzior, Evolution and Endurance: The U.S. Army Division in the Twentieth Century (Santa Monica: RAND, 2000), 35, https://www.rand.org/content/dam/rand/pubs/monograph_reports/2007/MR1211.pdf.
7 Patrovick G. Everett, "The Role of Field Artillery in Counterinsurgency Operations," Command General Staff College thesis, https://apps.dtic.mil/dtic/tr/fulltext/u2/a463835.pdf.
8 Johnson and Halverson, "Massed Fires, Not Organic Formations."

an expansionist China or an aggressive North Korea in the Pacific, demanded that the Army repair the damage the years of salutary neglect caused in the FA Branch. In 2014, mostly free from Iraq and Afghanistan, the Army again returned DIVARTYs to each of its Combat Divisions.[9]

Some have questioned whether the return of the DIVARTY in 2014 was another case of, "everything old is new again." The DIVARTYs of the 2020s most certainly will look different than the DIVARTYs of old, however. The Army will expect today's DIVARTYs to make the most of technological advances. This offers both challenges and opportunities. The once-daunting task of coordinating TOT Fires for a single Division on the World War II model, for example, now seems like child's play when compared to ensuring that a Division's FA Fires fit properly in multiple Army, Joint, Interagency, and Multinational targeting cycles and kill chains. It is inconceivable that a BCT, especially when we consider the requirements of MDO, can execute the complex Fires tasks of LSCO. In fact, it may even exceed the capacity of DIVARTYs and require Corps and even Army-level Artillery Headquarters to mass and deconflict Fires that now span hundreds, if not thousands of miles. But the DIVARTYs will form the essential building blocks of the FA Enterprise. DIVARTYs, therefore, are back, and they will need TTP to evolve and be manned with superbly trained FA professionals, for tomorrow's LSCO.

Dr. John Grenier is the FA Branch/USAFAS Historian.

9 "DIVARTY: A Force multiplier for BCT and Division," Fires Bulletin, https://sill-www.army.mil/fires-bulletin-archive/archives/2014/nov-dec/05_DIVARTYWP.html as force multiplier news release

Combined Arms Training Strategy

A critical tool for the operational planner

By LTC Eric J. Kunak and Mr. Gregory D. Plant
with special thanks to Mr. Houston E. Lesley and Mr. Jimmy F. Monk

Why use Combined Arms Training Strategy (CATS)

This is directed to the Majors, Captains, and NCOs who plan and resource operations every day in every Battalion across our Army. When you work in the S-3 shop, you are tasked to develop a unit-specific training plan to ensure that your unit is ready to fight in Large Scale Combat Operations and win. Where do you begin? Most planners dust off the PowerPoint presentation found on the shared drive, add events to the unit training calendar and execute. The Unit Training Plan (UTP) may have been good or it may have missed a lot of opportunities. There is a better way to ensure you capture critical tasks into your training plan before gaining approval from the Commander. It is called the Combined Arms Training Strategy (CATS). CATS focuses on how to sustain readiness and identify training resource requirements. It is the proponent that develops CATS to enable the operational Commander, staff, and leaders to develop UTPs. With UTPs, which units develop using CATS, they tailor their training needs to their requirements and training support environment.

CATS was designed to train the mission, function, and capabilities to identify in the Table of Organization and Equipment (TO&E), and the Table of Distribution and Allowances. CATS enables commanders, staff, and leaders to develop UTPs. CATS supports unit training and collective readiness. It enables units with a holistic approach to training while remaining focused on their Mission Essential Task List (METL). CATS is developed based on a thorough review of mission, doctrine, and the TO&E. CATS provides a complete strategy using collective tasks on the Unit Task List for all of the mission, functions, and capabilities that a given unit is designed to perform. Important to CATS is the Task Set (TS) that was created to support unit collective training efforts. TS is a grouping that logically can be trained together during concurrent training events. A CATS TS is based on what capabilities that unit is designed, for example:

Task Set Number 06-TS-2401
Task Set Category: Unit-Specific
Proponent: Field Artillery
Echelon: Battery
War Fighting Function:
Mission Command
Staff Function: N/A
Army Operation(s): N/A

Description:

This TS contains events to train the FA Battery personnel to operate and communicate, both vertically and horizontally, using the various types of electronic communication platforms found within the unit.

Capabilities & Functions Trained:

Although not specifically stated in the TO&E narrative, the FA Battery can utilize several forms of electronic communications equipment (Tactical Satellite, Tactical Local Area Network, Frequency Modulated, as well as others) to provide mission command and supervision for Battery operations and operate the Battery Network Control Station.

It may also be used by other units not mentioned, when they also can perform this function, are given an "out of design" mission, or are training a Functional CATS.

Training guidance:

Training events within this TS enable the unit to progressively achieve proficiency in digital communications over a year of training. The Commander may select those tasks on which to train during each event depending on personnel turnover and his assessment from previous training. Successive events allow the unit's Soldiers to build upon past training. There are several options for this training with regard to the environment. It may be conducted as a 'stand-alone event; integrated as concurrent training with staff-level training events; conducted in conjunction with unit maintenance to verify connectivity within the Battalion/Battery, and should include placing the retransmission sections at doctrinal distances to ensure all elements are exercised.

It is recommended that Commanders be creative with the employment of digital systems during routine garrison operations. Incorporating these systems into routine garrison operations may reduce the frequency of training.

Task descriptions:

There could be as many as four types of tasks within a TS: HQDA standardized Mission Essential Tasks (MET), Supporting Collective Tasks (SCT), associated tasks, and tasks that must be performed

to standard to master the TS capability. METs are collective tasks an organization must train to be mission or capability proficient. METs are displayed in a bold, blue font and will display first in the list of tasks. SCTs are proponent developed and are tasks that enable, or may enable, the successful performance of the MET; these tasks are listed as SCTs in the MET's TE&O. SCTs are also highlighted in bold, blue font and are indented below the METS. Associated tasks are all the tasks that make up a TS, they are tasks that are logically trained together to give a unit a complete and holistic capability or ability to perform a function. Finally, there are tasks annotated with an asterisk, which must be performed to standard in order to master the TS (these tasks may be METs, SCT, or associated tasks).

CATS provides purpose, outcome, guidance, conditions, training aids, devices, simulations and simulators, training support packages, frequency, recommended training audience, and resources to sustain readiness. It also incorporates existing material resources such as ammunition, fuel, ranges, and time requirements. You do not need to guess or operate off of an old document, CATS provides the structure you need for your unit to be successful. These events are based on the methodology of crawl, walk, run which has been proven to sustain unit readiness. CATS is integrated from the Section/Squad through the Brigade Level.

06-TS-2401 (Conduct Digital Sustainment Training Battery)

- 06-BTRY-1063 Establish an Operations Center
- 06-BTRY-5424 Process Fire Missions
- 06-PLT-1063 Establish an Operations Center
- 06-SEC-5016 Determine Firing Data
- 06-SEC-5044 Process Fire Plans
- 06-SEC-5090 Locate Targets with the Lightweight Counter-Mortar RADAR
- 06-SEC-6047 Locate Targets with a RADAR System
- 11-5-1102 Operate a Single Channel Ground and Airborne Radio System Frequency Hopping Net
- 11-CW-8013 Operate a Combat Network Radio System

What CATS is

CATS is descriptive, event-based groups of tasks that provide Commanders with a strategy and, combined with their training efforts, provides a means to remain or become proficient/trained. CATS is developed based on a thorough review of mission, doctrine, organization, or emerging requirements. CATS is METL based and assists units to train to the required level of proficiency.

There are two key types of CATS: Unit CATS and Functional CATS. Unit CATS is what most Command-

OTD Team reviewing a CATS before fielding to the Operational Force-November 2020

ers would be interested in using. Unit CATS is based on the TO&E, mission, purpose, and capability of a specific unit type. An example of this would be the M109A6 Battery (3x6) or HQ MLRS Battalion.

Functional CATS is common to multiple units and echelons. A few examples of this would be Peace Keeping Operations and new capabilities such as the Multi-Domain Task Force during the initial stages of development.

Who builds and maintains CATS?

The primary responsibility of building and maintaining CATS is the Operational Training Division (OTD) within the Directorate of Training and Doctrine (DOTD). The subject matter expert is the CATS Analyst who works with a contractor (CATS Developer) to review, revise and create all CATS by TO&E every Fiscal Year. OTD works off the prioritization of CATS reviewed and approved by the Commandant (Proponent). CATS' development generally follows three phases: Front End Analysis, Coordinating Draft, and Final Draft which become the baseline design. Before approval and publication, all CATS are staffed out to the Operational Force for review and comments. The comments provided by the Operational Force are adjudicated and integrated into the CATS. The CATS Analysts and CATS Developers for the Field Artillery or Air Defense Artillery review, revise and maintain the CATS, using CATS Development Tool, which is resident in the Army Training Management System that captures and documents the process. What is important to understand, is that operational units (the user) have an opportunity to review and provide feedback on their Unit CATS or Functional CATS. CATS is sent out to all field units by TO&E and requests feedback in 30-day incremental periods.

How to access CATS

Anyone who has access to the Army Training Network can access a multitude of CATS resources. You can request a CATS Team Visit, review CATS Briefings, Digital Training Management System (DTMS) and CATS tutorials, Frequently Asked Questions and a CATS Graphic Training Aid 07-09-003 developed by the Maneuver Center of Excellence.

Units may access their CATS on the Army Training Network, Army Training Management System, and DTMS by contacting the Site Administrator Mr. Mark A. Forrester at mark.a.forrester4civ@mail.mil, (913) 684-7653.

Here is how you access it: Once in DTMS (Figure 1) select "CATS" from the top menu that will land you on the "CATS Planning Tools" page (Figure 2). On this page, you can either search for unit CATS or functional CATS. Select "Search for CATS" on the "CATS Planning Tools" page. Use the "Search for CATS" page where you can search for CATS by the proponent, type, number, title or TO&E. Select the proponent by scrolling down and highlighting that proponent. Select the search button (Figure 3). The result of your search will show up in the bottom half of the window where you can select your echelon of CATS from the list provided (Figure 4).

CATS are broken down into the Headquarters, Headquarters Battery or battery type and by TO&E to support the Headquarters Department of the Army Standardized METL. The most important entry on this page is the "Date Published" so you know that you have the most current and approved CATS. (Figure 5) Select your CATS and look below in the "Report" field. Using the drop-down you can access multiple types of reports, however, the most common would be the "CATS Report." Select the "CATS Report" and click on the "Generate Report" button. You can either "Save" or "Open" the CATS in Adobe PDF.

One key factor about the "Training Event Matrix" report is that you must remember that the task

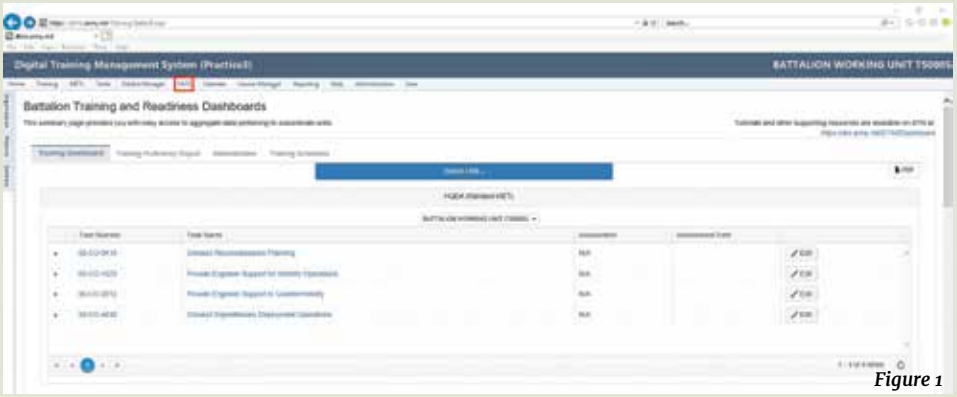

Figure 1

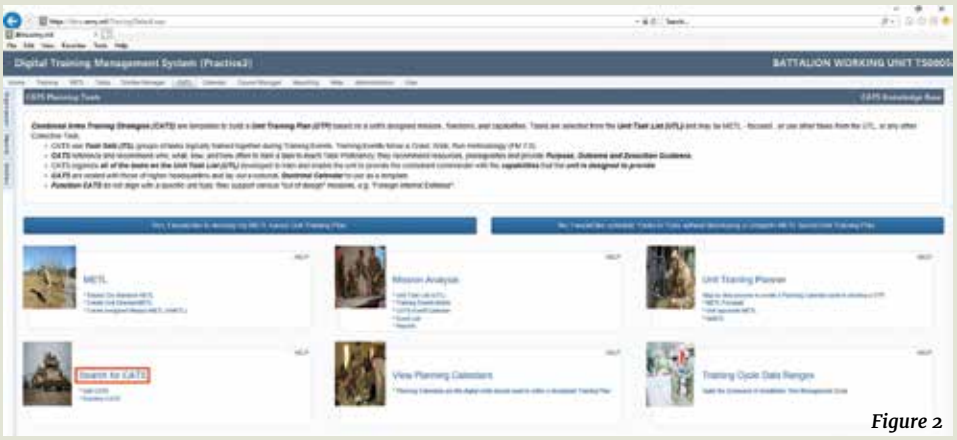

Figure 2

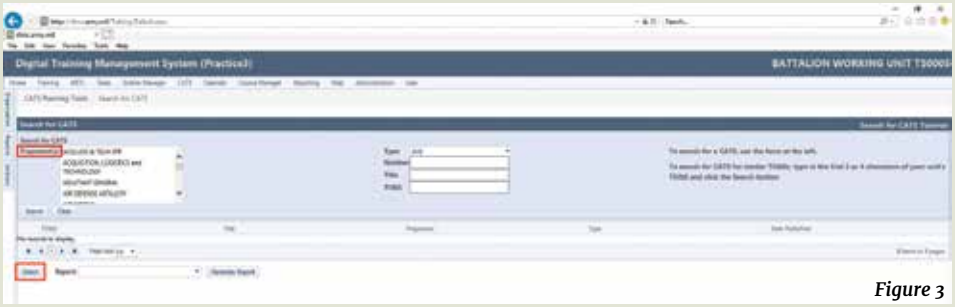

Figure 3

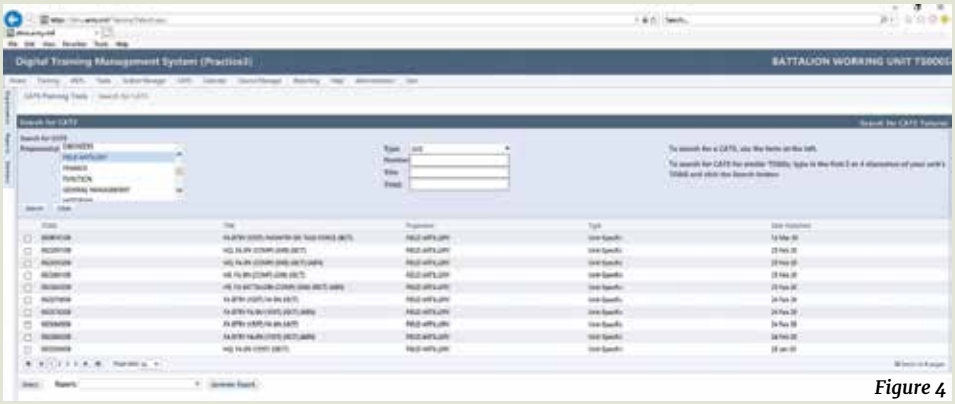

Figure 4

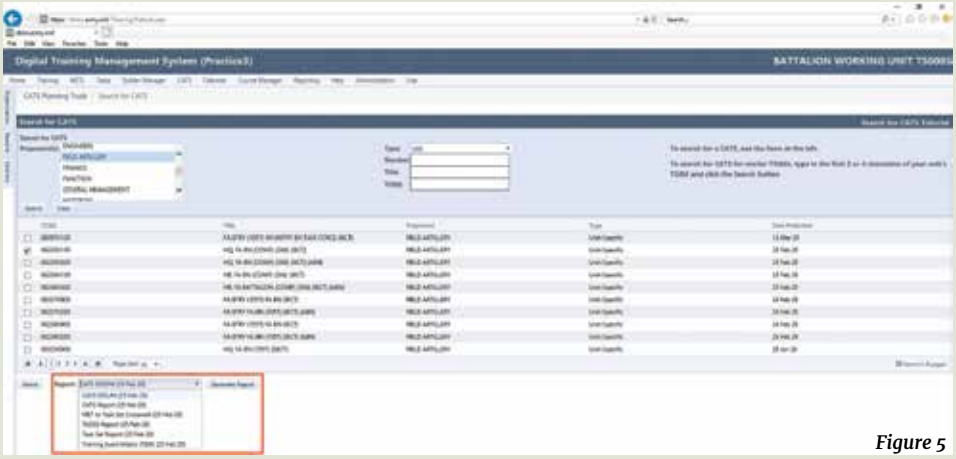

Figure 5

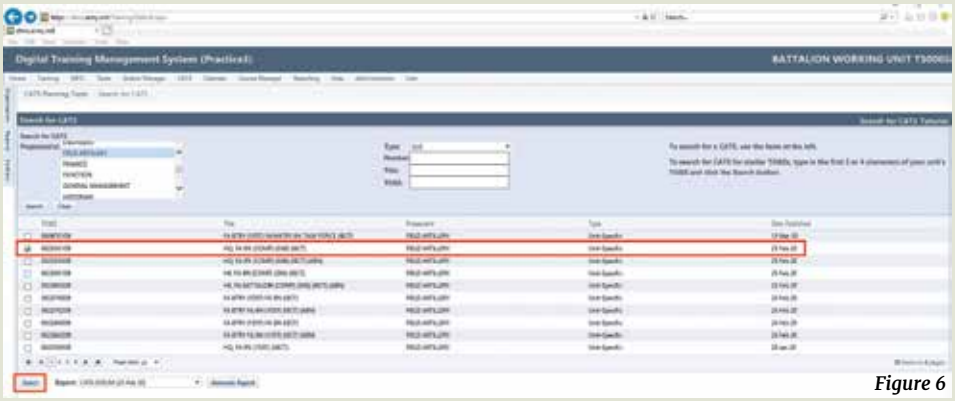

Figure 6

Figure 7

sets, frequency, and events are identified for each training cycle, "Prepare and Ready" for the Active Component and "Prepare 1, 2, 3, 4 and Ready" for the Army National Guard. Another way to see the entire organization CATS structure is to put a checkmark in the box next to your CATS and click on the "Select" button next to the "Report" field (Figure 6). Once on the "CATS Planning Tool" page you access the "CATS Overview, METL, UTL, Training Events Matrix, CATS Event Calendar, Event List and Reports" (Figure 7). When you select a unit, either by TO&E number or name, the information in the tabs is unique to that echelon if you started with the HQ's from the previous page.

The ability to access and use CATS for units will assist the unit plan and prepare their training strategies, synchronize resources and training events such as certifications for all Field Artillery platforms that exist in your organization. Now you are ready to go.

If you need assistance with CATS please contact Fort Sill's Directorate of Training and Doctrine's (DOTD) Operational Training Division (OTD) CATS Analysts, Mr. Houston E. Lesley (FA) at (580) 442-2831 email houston.e.lesley.civ@mail.mil or Mr. Jimmy F. Monk (ADA) at (580) 558-0345 email jimmy.f.monk.civ@mail.mil.

Reference: TRADOC Pamphlet 350-70-1, *Training Development in Support of the Operational Domain*.

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Mr. Gregory Plant is currently the deputy chief of the Operational Training Division at the Directorate of Training and Doctrine, Fort Sill, Oklahoma. Prior to becoming a civil service civilian, he served in the Army as a first sergeant and a brigade master gunner/Field Artillery Advisor.

The Marines fire the Triple-7, an M777A2 (155 mm,) during live fire training exercises at Fort Sill, Oklahoma.
Photo by Ygal Kaufman, Public Affairs Office, Fort Sill

The 2021 submission deadlines for the Field Artillery Professional Bulletin:

Winter edition, Sept. 1

Submit your articles to:
sharon.g.mcbride4.civ@mail.mil

A Soldier training at Fort Sill, Oklahoma.
Photo by Ygal Kaufman
Public Affairs Office, Fort Sill

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