REDLEG Update

The United States Army Field Artillery Branch's Newsletter

Keep Up The Fire!

2018 KNOX, HAMILTON & GRUBER

CTC Senior Fires Support Trainers' Corner

Challenges and Recommendations for Accurate Battle Damage

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Purpose: Founded in 2011, the *Redleg Update* provides past and present Field Artillery leaders with a monthly update of informational highlights to assist in their individual, collective and professional training efforts, as well as report on activities occurring throughout the Field Artillery community.

Official Distribution: The *Redleg Update* is distributed by the Commandant of the U.S. Army Field Artillery to key members of the Field Artillery chain of command across the U.S. Army. The current edition can be found @
http://sill-www.army.mil/USAFAS/index.html

Past and current editions are also archived online @
http://sill-www.army.mil/USAFAS/redleg/page.html

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RFIs, Notes, and Notices: To submit a Request for Information (RFI), please email the POC listed below.

Points of Contact:
We appreciate those who have provided announcements, notices, articles and lessons learned.

Additionally, if you have a story of interest or wish to initiate a discussion on any topic or issue facing the Field Artillery community, contact Ms. Sharon McBride, Field Artillery Public Affairs Officer, at (580) 558-0836 or sharon.g.mcbride4.civ@mail.mil

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From the FA Commandant's desk
Keep Up The Fire!

Greetings from the land of Block House Signal Mountain!

We're very excited about this issue of the Redleg Update, and even more excited about the level of ongoing intellectual dialogue within our Branch as we continue to increase our proficiency in our LSCGO skills.

Let me say first of all CONGRATULA-TIONS to our Knox, Gruber, and Hamilton award recipients! All of the nominations were top notch and are indicative of the fantastic work occurring across our Branch. The competition was tough; the decision even tougher. Thanks to all of the leaders out there who took the time to nominate these outstanding units and individuals. CSM King will make the rounds to present these coveted awards.

Thank you for the incredible articles, and keep up the sustained rate of fire! If you don't see your article in this issue of the Redleg Update, rest assured we'll get them into a future edition.

Our priorities here at Sill remain the same as we provide GSR fires to everyone in the Operational Force. I am very pleased with the progression of our Doctrine efforts, our rigorous FTX based CTEs in AIT and BOLC-B, and the ongoing engagement from the field informing all of our DOTMLP-F efforts...please keep it up!

I'll close by saying that I continue to receive unsolicited feedback from our Maneuver CDR's across the globe regarding the fantastic FS/FA expertise in their formations from BCT to theater levels. You all have the utmost con-

BG Stephen G. Smith

fidence from your Commanders in your ability to integrate, synchronize, and provide devastating fires in support of their plans and intent. This is the ultimate compliment for Artillerymen and your efforts are having a direct impact on the future of our Branch including organizational growth and expedited modernization. Well done!

Enjoy the Redleg Update and keep the articles coming!

As always thank you for reading. Keep those discussions going, and those articles coming.

Keep up the Fire!
King of Battle!

2018 KNOX, HAMILTON, GRUBER AWARDS RECIPIENTS ANNOUNCED

HENRY A. KNOX AWARD

The 2018 Field Artillery Henry A. Knox Award has been awarded to:
Headquarters and Headquarters Battery, 101st Division Artillery

This award recognizes the outstanding active duty Army Field Artillery Battery of the Year for superb mission accomplishment and overall unit excellence.

In 2018, HHB DIVARTY deployed in support of both domestic and worldwide missions, sending headquarters elements and radars to Bagram Airfield, Afghanistan in support of Operations Resolute Support and Freedom's Sentinel, and Soldiers and communications equipment to North Carolina in support of Hurricane Florence relief efforts.

HHB DIVARTY also executed the 101st Airborne Division (AASLT) Warfighter 18-03 exercise, partnered with National Guard and joint active duty forces for worldwide training exercises, provided fires training readiness and oversight for the 101st Airborne Division (AASLT) field artillery battalions, conducted a vigorous leader development program, and further strengthened bonds with community partners.

U.S. Army photos released

ALEXANDER HAMILTON AWARD

The winner of the 2018 Field Artillery Alexander Hamilton Award has been awarded to:

Alpha Battery, 2nd Battalion, 138th Field Artillery Battalion, Kentucky National Guard

This award recognizes the outstanding U.S. Army National Guard Field Artillery Battery of the Year for superb mission accomplishment and overall unit excellence.

In 2018, Battery A, 2/138th FA BN executed a Commander's Maintenance Evaluation Team (COMET) with 97% overall compliance rating. Additionally, the unit executed a Command Supply Discipline Program inspection with a 98% overall rating. Battery A was the first unit to complete FA Table VI qualification.

Battery A also successfully conducted a tactical movement over 500 miles to Camp Grayling, MI where they successfully fielded the Precision Guided Kit (PGK), becoming one of the first National Guard FA units to do so. This was done in addition to completing FA Table XII during the battalion Live Fire Exercise. The unit flawlessly executed all training to standard in a unfamiliar environment, exceeding all expectations. Additionally, the battery led the battalion by winning the Top Gun Award for the 3rd consecutive year, conducting direct fire missions for the first time since 2005.

Battery A closed FY18 at 96% assigned strength, trending upward with superior retention and recruiting initiatives. They also achieved 100% for DMOSQ. Along with these accomplishments, the unit conducted several State Active Duty missions that either augmented the local law enforcement or assisted the local community during events, providing various static displays for recruiting and retention purposes.

U.S. Army photos released

EDMUND L. GRUBER AWARD

The winner of the 2018 Field Artillery Edmund L. Gruber Award is:

**CPT Christopher M. Dixon, 2nd Battalion,
3rd Field Artillery Regiment, 1st Armored Division Artillery**

This award recognizes an outstanding Field Artillery Soldier for superb individual thought, innovation and overall excellence that results in significant contributions to or the enhancement of the Field Artillery's war fighting capabilities.

Throughout his tenure as the Fire Direction Officer for 2nd Battalion, 3rd Field Artillery Regiment, 1st Stryker Brigade Combat Team, CPT Dixon has proven himself to be an officer of the highest caliber; demonstrating an acumen for leadership, mentorship, and dedication to this unit's success.

As a Field Artillery Officer, CPT Dixon has excelled in all positions he has filled. Before assuming his role as the Battalion Fire Direction Officer in 2nd Battalion, 3rd Field Artillery Regiment, CPT Dixon served as the Battalion Fire Support Officer for 3rd Battalion, 41st Infantry. His experience gained from serving in a variety of roles has helped him to develop into a highly qualified officer with the ability to think critically, creatively, and objectively. CPT Dixon is described, by both peers and subordinates, as a professional, confident, approachable, and physically fit officer who demonstrates aptitude well above his years and experience.

As the Battalion Fire Direction Officer, CPT Dixon's performance has exceeded all expectations and thus the entire battalion performed exceptionally during a rigorous gated training strategy culminating in NTC Rotation 19-02.

CPT Christopher M. Dixon, U. S, Army photo released

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CTC Senior Fires Support Trainers' Corner

"Observations of the challenge of being both the Brigade Combat Team Fire Support Coordinator (FSCOORD) and Direct Support Field Artillery Battalion Commander"

Levels of Training Dictate FSCOORD Location

Managing Risk in Army Targeting Methodology during LSGCO

*By LTC David Pasquale
JMRC Senior Fires Trainer*

Often at the Combat Training Center (CTC) the BCT commander and personal preferences dictate the location of the Fires Support Coordinator (FSCOORD). It is important for the BCT that an informed dialogue occurs about the capabilities of the BCT Staff and the Field Artillery Battalion (FA BN) to identify the risk to mission across the elements of the Army Targeting Process - Decide, Detect, Deliver, Assess (D3A). The location of the FSCOORD is best viewed as a risk mitigation strategy to ensure the commander's priorities are met and the right level of experience is located at identified points of friction. Unique to the Joint Multi-national Readiness Center (JMRC) are training opportunities with Allied maneuver brigades that allow US FSCOORDs the opportunity to (1) synchronize Joint and Allied detection and deliver assets for a Combined BCT (2) gain repetitions at running the targeting process (3) build knowledge on the risk associated throughout the targeting process.

Upon forming the team, the BCT needs to assess where they are across the spectrum of D3A to engage in the dialogue required to prioritize training at the BCT level.

BCT Fire Support Coordinator And Direct Support Field Artillery Battalion Commander

How to see yourself, define, and execute proper leader presence in DATE

*By LTC Thomas A. Caldwell
NTC Senior Fires Trainer*

Since assuming my post as a Senior Fires Trainer, the most frequent questions that Field Artillery Commanders preparing to come to the National Training Center as me is- "How much time should I spend between my duties of being the BCT Fire Support Coordinator (FSCOORD) and the Direct Support (DS) Field Artillery Battalion Commander? What is the percentage of time that I need to spend between both?" These are very valid questions and I believe the answer relies on aspects of the individual, organizational, and operational environment. There is no black and white or cookie cut answer. I am

BCT Fire Support Coordinator And Direct Support Field Artillery Battalion Commander

How to Mission Command

*By LTC Richard Johnson
JRTC Senior Fires Trainer*

The senior fires leader in a BCT must always remember that they are a fire supporter first and foremost, one which coincides with the responsibilities, burdens, and rewards of battalion command. That responsibility manifests itself in two distinct roles, that of the FA BN CDR, and the FSCOORD. It is an inherently challenging premise which can cause an unintentional diffusion of effort, absent a focused conversation with the BCT Commander regarding his expectations. It's hard ... but then again, nobody pays to see a guy juggle one ball. The Army does, however, pay that leader to extend their influence beyond their physical presence. Therein lies the best opportunity to solve the inherent tension in these two critical roles for the BCT.

Commanders must drive the operations process, and two of my observations from decisive action rotations over the past year bear out a helpful trend. First, commanders who give their staffs specific planning guidance at each step of the MDMP can effectively drive

Levels ... Continued from Page 7

To enable this dialogue the below questions cover that spectrum and enable the BCT CDR and FSCOORD to identify the risk associated with D3A execution. Trends over the last two years at JMRC inform the basis for these questions. Intended to provide the opportunity to identify risk across the spectrum of D3A, they also create a framework to engage in a discussion on training management prioritization that when focused, will reduce risk to mission and force across the BCT's fights. Ideally, the answers to these questions inform BCT level training guidance with the BCT CDR providing the emphasis needed to ensure prioritization for the fight the CDR is responsible.

At the BCT -Level: (Decide, Detect, Assess)

1. How much effort have you and the BCT placed in training the collective BCT Intelligence and Fires teams? How does this translate into the BCT Commander's confidence in the BCT's ability to execute the Decide, Detect, Deliver, Assess (D3A) process in your absence?

2. How involved is the BCT Commander in the targeting process? Is the commander an active participant in the Targeting Working Group (TWG) and / or the Targeting Decision Board (TDB) or is the commander absent and to whom has the commander delighted targeting decision authority to? Has the commander delighted that authority to the FSCOORD, thus keeping the FSCOORD on the CUOPs floor?

3. What is the experience level of the BCT staff in the targeting process? How many repetitions does the staff have in synchronizing detection and delivery assets in the close and deep fight? Has the BCDR CDR communicated clear guidance for how the BCT will prioritize these two fights? Has the BCT's targeting standard operating procedure (SOP) been validated by the current team?

4. How much investment has the BCT made to make the BCT's Operations Synchronization (OPSYNC) effective to transition the BCT's targeting effort (FUOPs) to the current operations (CUOPs) floor? Does the team that will execute D3A on the CUOPs floor understand the synchronization and prioritization coming out of the TDB or does the FSCOORD need to coach the process by being present?

5. Has the BCT Commander attended the BCT Commander's Fires Orientation Course at the Fires Center of Excellence? Has the FSCOORD and Commander engaged in dialogue on the course topics to shape the training priorities for the BCT's D3A process and SOPs?

6. Has the BCT staff and Commander invested the time in Course of Action (COA) Analysis to validate proper positioning of indirect fire assets to allow engagement of the BCT's high payoff target list in established target area of interest (TAI) with a sustainable and permissive unit airspace plan (UAP)?

At the FA BN-Level: (Deliver)

1. How much effort has the FA BN CDR placed in training the FA BN S3 to fight the BN in their absence? Does this training need to continue in the fight? Have the FA BN CDR and the staff identified the information requirements the CDR needs when at BDE and the means over which those requirements are communicated?

2. Did the FA BN CDR train the staff to develop the FA BN decision support matrix (DSM) through a thorough COA Analysis in order to identify the friendly force information requirements (FFIR) and Priority Information Requirements (PIR) to enable an understanding of the operational environment required for decisions to be made in the FA BN CDR's absence? Has the FA BN CDR delegated decision making authority through a published and rehearsed DSM?

3. Are the FA BN field grade officers trained to execute the Military Decision Making Process (MDMP) with limited guidance through a validated Planning SOP (PSOP) that defines outputs for the FA BN CDR's decision? Are those touch points synchronized in the BN's battle rhythm with the FSCOORD's required attendance at BCT battle rhythm events?

4. Has the FSCOORD linked the BCT's PSOP and outputs to their MDMP to the Digital SOP (DIGSOP) database inputs for the AFATDS and TAIS that allows for guidances (AGM, TSS, HPTL) and prioritization of fire missions execution in an environment that is permissive for fires?

Though not all-inclusive, these questions when coupled with those provided by our sister CTCs, provide a path on which the BCT CDR and the FSCOORD can link their assessment of the BCTs capabilities across the functions that enable the Army's targeting process. The answers to these questions provide an opportunity to assess the risk that requires mitigation – through the placement of the FSCOORD – during execution. Ideally, the dialogue that happens is before a CTC rotation or execution in support of a Combatant Commander and therefore informs the prioritization of training that mitigates this risk.

Mission Command ... Continued from Page 7

the plans process without being physically present throughout the process. As such, this enables the commander to spend time at both locations and ensure his intent for joint fires is informing a collaborative (not sequential) planning effort. Additionally, I've observed that commanders who vehemently protect a daily touch point with their Battery Commanders (via a Commanders' Update Brief) and their Battalion FSOs (via a Fires Synch Meeting) are the only ones who are able to achieve a shared understanding of risk and opportunity across the Fires warfighting function for the BCT as they execute operations.

In a similar vein, my rotational observations clearly show that BCTs with the most effective targeting cycles have the FSCOORD driving that iterative process as well. FSCOORDs who prioritize the Target Working Group and the Target Decision Board are generally the most successful in ensuring the resulting HPTL, AGM, and TSS disseminate across the BCT and actually synchronize the fires system. Also, the detailed outputs of a Target Working Group should include positioning guidance and munitions forecasting for the field artillery battalion.

A common counter-argument to the dual roles is that the Army rightly prioritizes the command billet, and the FSCOORD role relegates that leader to a staff function for the BCT. And to be clear, this is a common pitfall. However, the aforementioned synchronization products and outputs to the artillery battalion directly addresses what we generally see as the primary drivers for unresponsive fires: the asynchronous and indiscipline fire mission processing before it ever reaches a Fire Direction Center, many out-of-traverse missions, and ammunition constraints. So a leader who focuses solely on getting his field artillery battalion as close as possible to the TC 3-09.8 time standards might have the 'fastest' battalion in the Army, but without the right mechanisms to tactically apply that capability, it may be irrelevant for the supported maneuver commanders.

This sounds like a lot, and it is. The attendant demands of command responsibility and leader development in an artillery battalion are enough to overwhelm any leader, and many of those aspects cannot be delegated. So how do we reconcile the inherent tension in the two roles? For starters, don't try to delicately balance time between the two roles, since a mathematical ratio will be hard to formulate and even harder to assess. Instead, the most successful leaders are stringently purposeful with their time at both the BN and the BCT. This might seem a bit equivocal for some readers, so here are some pointed questions that can help guide that purposeful apportionment of time and focus:

1. What decisions will I have to make for my Battalion, and what decisions will I have to make for the BCT?

2. Where can I gain the best situational awareness to integrate and mass joint fires for the BCT?

3. Where is my relative strength in fires leaders (Battalion CSM, Battalion XO, Battalion S3, and BCT FSO), and who among them are the best-suited to operate within my intent?

4. Which medium am I going to use to maintain shared understanding with both my Battery Commanders and my Battalion FSOs?

The principles of mission command should be apparent as the underlying logic in the four questions above. These guiding questions can also form the basis for the recurring dialogue with the BCT Commander to ensure that the FSCOORD is operating within his intent, thereby enabling him to fight the BCT as a combined arms team.

In summary, the best guidance for a battalion commander struggling to reconcile this inherent tension between the two roles is to not obsess with getting it perfect, just get it right. Conditions change. You may spend an entire day at the BCT Main Command Post for the usual targeting cycle meetings, a Fires Synch Meeting, and coordination with the JAGIC. You might spend the next day entirely at the FA Battalion Main Command Post reviewing a sensitive investigation with the CSM, mentoring a young FDO, circulating to see a firing battery, and driving a wargaming session. And that's all right if your Battalion CSM and XO can fight the battalion for 24 hours, and the BCT FSO can be entrusted to keep joint fires synchronized in your physical absence. Most can, if you give them the opportunity and provide them with a cogent set of expectations. If you have the right mission command systems in place to provide the requisite guidance, you can keep the field artillery battalion's operations process and the BCT's targeting cycle running effectively.

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convinced that both roles are mutually important and demanding. The FSCOORD duty has a similar but more layered span of influence than the DS FA Battalion Commander. Organizationally, the FSCOORD must synchronize the efforts of a HQ's/ Staff element represented by the BCT Fires and Effect Cell and four Fire Support Teams/Platoons with requisite equipment (BFISTs, M1068, AFATDS, etc).

Based on my experience and observations, the answer relies on how you answer and understand the following questions.

1. How confident is your BCT Commander in your role as his FSCOORD, does his confidence in effective Joint Fires rely on your proximity to him, i.e. co-located in the Mobile Command Group, BCT Main or TAC?

2. How is your relationship with the Squadron Commander? Does he compliment your responsibilities to ensure an effective intelligence collection and observer plan?

3. Can you established a permissive Joint Fires Environment that your team can maintain and transition without you directly driving the process?

4. How effective / talented is the BCT Fires and Effects Cell in fighting the BCT's Deep and Close Fights with Joint Fires (integrating EAB assets, clearing air and ground, and managing the counter fire fight)?

5. How effective is your Targeting Process to include Targeting Working Groups, IC/Fires, and Fires Technical Rehearsals?

6. How effective is the BCT Staff in integrating Joint Fires, specifically DS Cannon Fires into the BCT's Planning Process?

7. How effective/ talented are the FA Battalion S3, XO and staff? How well does your S3 fight the battalion?

8. Where are you willing to assume risks in your Team in order for your Leaders to learn, gain context and competency?

There are additional relevant questions that we can pose, but the answers to these significantly affect your necessitated degree of Leader presence in your two important roles. The Joint Fires Enterprise, from sensor to shooter, is a major undertaking and the FSCOORD sets the tone. Despite the complexities, he

or she simply must make it work.

Realistically you cannot be everywhere and influence everything. You also cannot do a litany of things to a high degree of quality and sustain that effort in a Decisive Action Training Environment. The FSCOORD can fight from a number of places and influence both duties through an achievable P.A.C.E plan and touch points

1. The mobile command group
2. Brigade Main CUOPS floor
3. BCT TAC
4. FA BN TOC

Here are some TTPs to assist as you define your span of control and position.

With a trusted agent such as your CSM, clearly identify, define, and prioritize your points of friction. When you have done so, enable those leaders within your direct span of control to assist you in problem solving and mitigating this friction. Fundamentally I recommend these Leaders to be the BN CSM, BDE FSNCO, BN XO, HHB CDR, and Master Gunner. These leaders have the ability to flow freely around the battlefield with proper situational awareness and experience to be your effective proxies.

Write your own Commander's Intent per mission that encompasses all aspects of establishing, maintaining, and transitioning a permissive Joint Fires Enterprise.

Put rigor into your CCIR, and specifically your FFIR. Ensure that you have quality Fighting Products (TLWS, FASM, FSEM, DSM) validated by a comprehensive war game. The fundamental aspects of maintaining a permissive Joint Fires Environment are maintaining the Five Requirements for Accurate Fires, establishing In Position Ready to Fire (IPRTF) times, and In Position Ready to Observe (IPRTO) postures.

Be disciplined regarding the execution and quality of informative touch points such scheduled Commander's Update Briefs.

The most important question of all is-What risk are you going to underwrite to develop your entire team Sensor to Shooter?

Managing Talent: FA Majors to Combat Training Centers Post-KD

By MAJ Benjamin Culver, MAJ Robin VanDeusen and MAJ Kurt Knoedler

As highly competitive field grade officers complete Key and Developmental (KD) jobs, many face a decision of going to a Combined Training Center (CTC) or a myriad of other possibilities. The fact that this next assignment fills the important time between KD time and the possibilities of a tactical battalion (BN) command highlights the importance of this decision. Factors that weigh into an officer's decision for post-KD assignment include career progression, time available time for family, and location, among others. The Army's three Combat Training Centers located in California, Louisiana, and Germany, offer opportunities to fulfill all of the aforementioned factors, as well as a tremendous experience and learning environment for majors as they make the transition from running a battalion to commanding one.

U.S. Army photo released

Consideration of whether to request a nominative CTC position should include what an observer, coach, trainer (OC/T) does and how it will affect themselves and family. There are several clear advantages. First, each year you have the opportunity to see nine to 11 Brigade Combat Teams (BCTs) and multinational units execute the highest level of collective training. As a FA OC/T, you also have a front-row seat to observe a current battalion commander (CDR) and Fire Support Coordinator (FSCOORD) operate in a Decisive Action Training Environment (DATE). Third, one has the opportunity to work closely with a post-battalion command officer (FA BN Senior Trainer, in this case) and a post-command brigade commander (the Commander of the Operations Group). This type of close mentorship is invaluable for a future battalion commander and, more importantly, FSCOORD. The OC/Ts not only receive the experience of observ-

ing rotational unit commanders and FSCOORDs, but more importantly can be mentored by the team Senior Trainer and COG on their rich experience, lessons learned, and best practices. I cannot think of any other position that provides the level of experience and environment to learn and grow.

Involvement in multiple DATE rotations as an OC/T enables the future FSCOORD to draw upon those experiences as they lead their unit. Field Manual 7-0 says commanders must "develop and communicate a clear vision" for training guidance, and a key aspect of this is determining "what to train." A former OC/T can look back on two to three years' of examples to inform them on what their unit needs to emphasize during a training cycle because they see units who successfully negotiate these challenges and those unable to overcome them. Likewise, the OC/T becomes very familiar with the development required of leaders at echelon to succeed and is able to use this knowledge to inform junior leader development and the unit training plan. Moreover, OC/Ts conduct regu-

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lar AARs and gain experience assessing training that directly benefits a future commander.

Being an OC/T sheds light on how lieutenant colonels balance the challenging roles as both a battalion commander and FSCOORD. Coming out of KD time, you have no doubt identified gaps in your own military experience and tactical knowledge required to be a successful commander. OC/Ts observe the rotational units' field grade officers execute their duties and have the opportunity to evaluate and address one's own gaps. Additionally, OC/Ts get to coach and train leaders across the battalion and increase their own knowledge in systems not previously mastered. When executing training as a participant, the stresses of combat affect leaders and their ability to step back and see the bigger picture. The CTC provides the OC/T a unique opportunity to be a part of that training from a more informed perspective – one in which you have more rest and situational awareness than those conducting the training.

Another question field grade officers need to ask themselves is whether being an OC/T is personally rewarding. For most, a large part of the job satisfaction comes from coaching rotational units and their leaders. From the time a unit arrives at Leader Training Program (LTP) until after the rotation, OC/Ts provide the coaching and training required to help units see themselves and improve their organizations. It requires leaders to know and understand the most current Joint and Army doctrine. There is a constant dialog with the Fires Center of Excellence (FCOE) for both current rotational trends as well adjustments required to doctrine. An OC/T has the ability to observe trends and articulate necessary training adjustments to leaders across the Army enterprise. Often, Army senior leaders visit the CTCs allowing the OC/T express this feedback through face-to-face exchanges, driving timely changes on important doctrinal, equipment, and training strategy issues.

An often-misunderstood aspect to being an OC/T is the impact on your family. After completing KD time, most officers desire to take their foot off the proverbial gas pedal and give time back to their family. During the rotation, OC/Ts have the flexibility to adjust coverage to allow time to return for special occasions, such as anniversaries, birthdays, sports

games, etc. During a 14-day rotation, OC/Ts work in a few overnight "refits" to take a shower, do laundry, and conduct physical fitness. When not on rotation, weekends are turned into 4-days to give back the time to families, helping build that time "savings account" up prior to the possibility of command. As we have all seen, being a battalion commander is both rewarding and challenging for the leader and their respective family.

What you do with family time while assigned to a CTC is of course your decision. The closest town to the Joint Readiness Training Center (JRTC) is Leesville, Louisiana. True, Leesville is not a large town, but it is filled with a community that loves its military and for just a tank of gas, you have access to much larger cities. Most OC/Ts at JRTC spend time hunting, fishing or camping in the year-round moderate climate. The advantages of assignment to the Joint Multination Readiness Center in Hohenfels, Germany, are obvious as the CTC is centrally located in Europe with access to many countries. In addition to the travel, the immediate area and communities surrounding Hohenfels are filled with events and fests throughout the year. The National Training Center (NTC) is only several hours away from the beaches, theme parks, and historical attractions of Southern California. There is a lot more to CTCs than the "box," which is what most people think of when they see the OC/T job on the list of possibilities.

As Army senior leaders start to vote on the future groups of commanders, it is our recommendation to guide their talented officers to serve as OC/Ts at one of the CTCs. As leaders mentoring captains and majors, we must to help them see the complete picture of how a tour at a CTC a can help them be proficient tactical battalion commanders. Additionally, assignments officers must continue to have honest dialogue with talented officers across the force and fill the CTCs with the requisite talent. Senior commanders are the first line of communication counsel their field grade officers – they need to encourage them towards the tremendous opportunity available to maintain the edge at the tactical level prior to selection to battalion command.

Joint Air-Ground Integration Center Certification - A Way Forward using DOTMLPF

By CPT Shane Arguello and MAJ Ed Guelfi

Following the recent conclusion of Warfighter 19-01, the 25th Infantry Division (ID) in partnership with the 25th Air Support Operations Squadron (ASOS) set out to remodel how the two organizations would train, certify and when called, fight its Joint Air-Ground Integration Center (JAGIC). The 2018 National Defense Strategy has directed the United States Military to prepare for a new era of long-term strategic competition from a near-peer competitor. While the larger strategic context of how this fight would evolve the 25th Infantry Division Headquarters during Warfighter 19-01 was tasked to certify its ability to mission command and synchronize all warfighting functions across multiple domains against a near-peer threat. This exercise would train and certify many different aspects of the Division Command Post and ensure that the JAGIC could employ joint fires and manage division level airspace in order to mass fires within the division assigned battlespace. During the training and execution of the Warfighter exercise, the 25th ID fires team identified gaps in how it had prepared and certified the JAGIC team for the exercise. In evaluating the current doctrine, organization, training, material, leadership and education, personnel and facilities (DOTMLPF) the 25th ID JAGIC team set out to develop "a way" forward to train, certify and fight its JAGIC that other Divisions could also model.

Currently the United States Army only has two published resources for JAGIC operations, only one of which is doctrine. The first is Army Techniques Publication (ATP) 3-91.1 The Joint Air-Ground Integration Center published in June 2014. This ATP, while essential for laying the groundwork for building and executing JAGIC operations, listing positions, supporting concepts, and basic equipment necessary falls short in the tactics, techniques and procedures that would be used to fight the JAGIC when called. The second source is the Center for Army Lessons Learned (CALL) handbook on Joint Air Ground Integration Center published in July 2017. This handbook helped

to establish the TTPs that ATP failed to establish and goes into depth in the detailed execution of the JAGIC. These manuals, while useful in informing the JAGIC team in their core concepts, have limited information on the how-to. The 25th ID has relied heavily upon a peer-sharing network of JAGIC teams across the Army to help mend that gap. Standard Operating Procedures (SOP), product sharing, and division JAGIC-internal knowledge management, has become the primary way that division JAGICs have been preparing their teams for operations. While every unit may differ slightly in its operating procedures, there is a clear need for procedure standardization, time hacks, systems infrastructure guides, certification schedules and plans. The 25th ID has bridged this gap by producing a Joint SOP with the 25th ASOS that was co-written, edited and rehearsed so that the product remains a joint product that can be used to fight the JAGIC. In the long-term, there must be a joint initiative to publish JAGIC doctrine that is co-written and edited by the US Army and Air Force to ensure the shared capabilities of the JAGIC.

Training and education for the JAGIC is not standardized across the Army or Air Force. Currently, the Army Joint Support Team (AJST) in Hurlburt Field, FL, is the knowledge nexus for JAGIC operations. They give two classes several times throughout the year: the Echelons Above Brigade Airspace Course (EABAC) and the Specialized Joint Aerospace Training (SJAT). The EABAC is a two week course that teaches its students the basics of airspace control above brigade (namely at the division) and joint fires planning in conjunction with a developed information surveillance and reconnaissance (ISR) plan. The SJAT is a week long course that trains, evaluates, and critiques a division's JAGIC in its procedures. Both of these courses are phenomenal tools in preparing the JAGIC for operations and the staff at the AJST clearly shows their expertise and passion for the subject. However, outside of ATP 3-91.1, these courses are the only standardized sources of information and training for the JAGIC. While the courses given by the
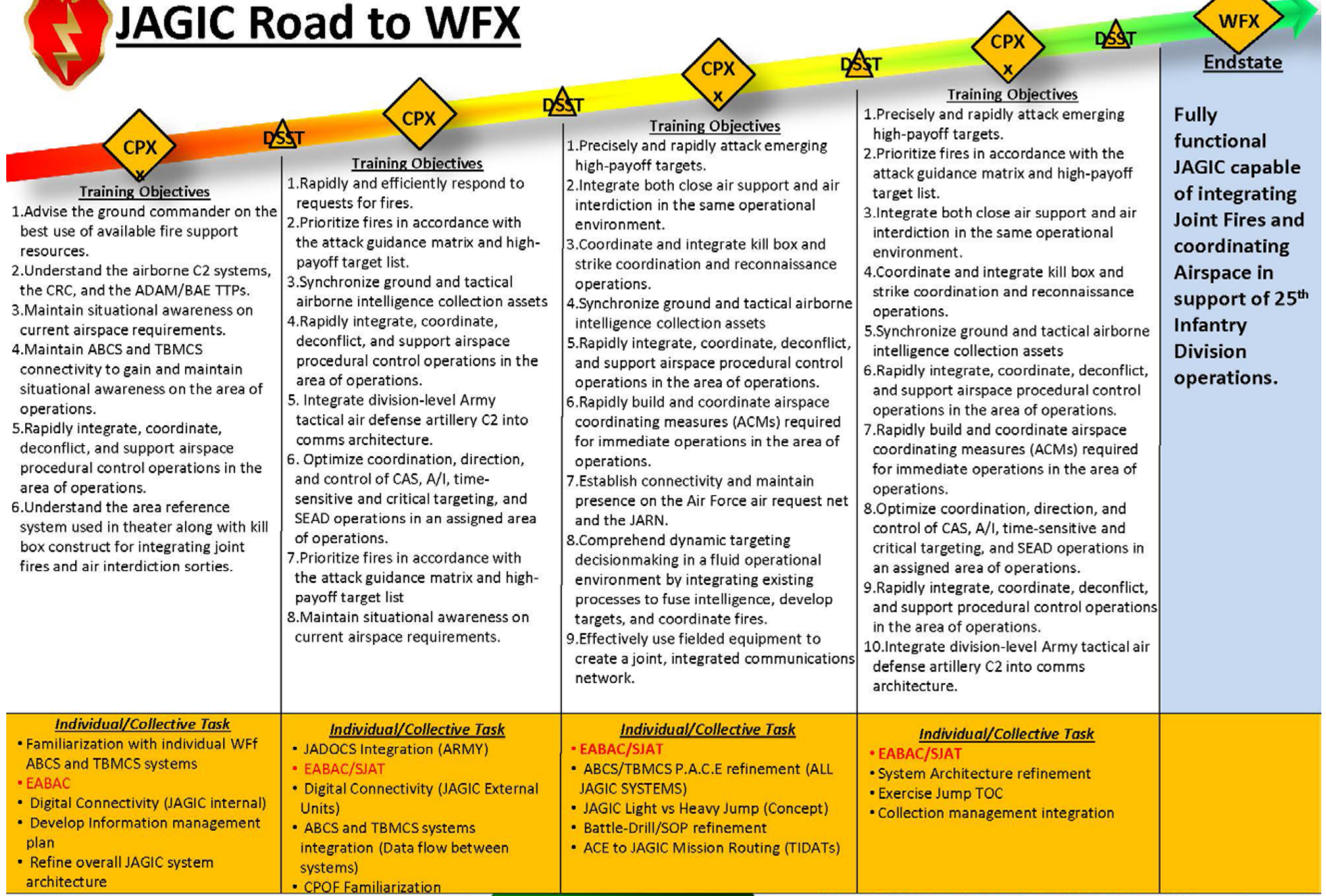

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25TH INFANTRY DIVISION

JAGIC Road to WFX

CPX — DSST — CPX — DSST — CPX — DSST — CPX — DSST — WFX — **Endstate**

Training Objectives

1. Advise the ground commander on the best use of available fire support resources.
2. Understand the airborne C2 systems, the CRC, and the ADAM/BAE TTPs.
3. Maintain situational awareness on current airspace requirements.
4. Maintain ABCS and TBMCS connectivity to gain and maintain situational awareness on the area of operations.
5. Rapidly integrate, coordinate, deconflict, and support airspace procedural control operations in the area of operations.
6. Understand the area reference system used in theater along with kill box construct for integrating joint fires and air interdiction sorties.

Training Objectives

1. Rapidly and efficiently respond to requests for fires.
2. Prioritize fires in accordance with the attack guidance matrix and high-payoff target list.
3. Synchronize ground and tactical airborne intelligence collection assets
4. Rapidly integrate, coordinate, deconflict, and support airspace procedural control operations in the area of operations.
5. Integrate division-level Army tactical air defense artillery C2 into comms architecture.
6. Optimize coordination, direction, and control of CAS, A/I, time-sensitive and critical targeting, and SEAD operations in an assigned area of operations.
7. Prioritize fires in accordance with the attack guidance matrix and high-payoff target list
8. Maintain situational awareness on current airspace requirements.

Training Objectives

1. Precisely and rapidly attack emerging high-payoff targets.
2. Integrate both close air support and air interdiction in the same operational environment.
3. Coordinate and integrate kill box and strike coordination and reconnaissance operations.
4. Synchronize ground and tactical airborne intelligence collection assets
5. Rapidly integrate, coordinate, deconflict, and support airspace procedural control operations in the area of operations.
6. Rapidly build and coordinate airspace coordinating measures (ACMs) required for immediate operations in the area of operations.
7. Establish connectivity and maintain presence on the Air Force air request net and the JARN.
8. Comprehend dynamic targeting decisionmaking in a fluid operational environment by integrating existing processes to fuse intelligence, develop targets, and coordinate fires.
9. Effectively use fielded equipment to create a joint, integrated communications network.

Training Objectives

1. Precisely and rapidly attack emerging high-payoff targets.
2. Prioritize fires in accordance with the attack guidance matrix and high-payoff target list.
3. Integrate both close air support and air interdiction in the same operational environment.
4. Coordinate and integrate kill box and strike coordination and reconnaissance operations.
5. Synchronize ground and tactical airborne intelligence collection assets
6. Rapidly integrate, coordinate, deconflict, and support airspace procedural control operations in the area of operations.
7. Rapidly build and coordinate airspace coordinating measures (ACMs) required for immediate operations in the area of operations.
8. Optimize coordination, direction, and control of CAS, A/I, time-sensitive and critical targeting, and SEAD operations in an assigned area of operations.
9. Rapidly integrate, coordinate, deconflict, and support procedural control operations in the area of operations.
10. Integrate division-level Army tactical air defense artillery C2 into comms architecture.

Fully functional JAGIC capable of integrating Joint Fires and coordinating Airspace in support of 25th Infantry Division operations.

Individual/Collective Task
- Familiarization with individual WFf ABCS and TBMCS systems
- EABAC
- Digital Connectivity (JAGIC internal)
- Develop Information management plan
- Refine overall JAGIC system architecture

Individual/Collective Task
- JADOCS Integration (ARMY)
- EABAC/SJAT
- Digital Connectivity (JAGIC External Units)
- ABCS and TBMCS systems integration (Data flow between systems)
- CPOF Familiarization

Individual/Collective Task
- EABAC/SJAT
- ABCS/TBMCS P.A.C.E refinement (ALL JAGIC SYSTEMS)
- JAGIC Light vs Heavy Jump (Concept)
- Battle-Drill/SOP refinement
- ACE to JAGIC Mission Routing (TIDATs)

Individual/Collective Task
- EABAC/SJAT
- System Architecture refinement
- Exercise Jump TOC
- Collection management integration

America's Pacific Division   UNCLASSIFIED//FOUO   *WE STRIKE LIKE TROPIC LIGHTNING!*

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JAGIC... Continued from Page 13

AJST are instrumental in preparing the JAGICs for conflict, divisions must carve their own way ahead with a formalized year-long plan to integrate, train, and test their own teams leading to a deployment or a Warfighter. This can be difficult because of the nature of how a JAGIC is formed from within the division. Often times the JAGIC can be a "hodgepodge" crew thrown together before a Warfighter Exercise or other major event. It's not wise to have this crew of Soldiers who have never worked in a joint environment, let alone outside of their MOS, to suddenly perform (and be expected to succeed) at the varsity level of joint fire support and information collection. Divisions need to have a program in place that socializes the members of the team, trains them according to the current published doctrine, and certifies them with the subject-matter experts at the AJST in accordance with a deliberate Crawl-Walk-Run glide path (see JAGIC Training Plan Example). In the future, the JAGICs need to operate off of a published joint publication that codifies and standardizes the expectations of the Army and Air Force in manning, training, equipping and execution of the JAGIC and its operations.

Another essential part of the training of the JAGIC is establishing a strong communications plan and preparing the team members to correctly configure the systems in the division main. The JAGIC must work closely with the Division G6 in order to understand the careful requirements that go into establishing: SIPR connectivity, correct accounts on each computer, the correct accesses to Transverse chat windows, the correct configuration between the AFATDS and TAIS so that the TAIS populates fire mission trajectories in order to clear airspace, the integration of Fires Command Web in the cell, the correct networking of Army JADOCS to Navy JADOCS for joint fire mission processing, establishing the correct networking that allows for the AFATDS to receive target intelligence data (TIDAT) from the All-Source Collection Element (ACE) and Field Artillery Intelligence Officer (FAIO), and more. Having the correct network and communications setup is decisive to the JAGIC. Without it, the JAGIC would not be able to synchro-

nize fires, clear airspace, control aircraft, or observe with an Intelligence Surveillance Reconnaissance (ISR) platform. Current doctrine, training, and education don't contribute enough to the specifics on how to properly configure each system to talk to the necessary systems. As a result, division JAGICs must also make a deliberate plan to train their team members on the specific details of establishing the expansive systems architecture.

Material and facilities for JAGIC certification seem to be under whelming. The contributing organizations for the JAGIC have the materiel and facilities they need to conduct their own section-internal certifications. For example, the fires personnel of the JAGIC will have certified and recertified their Advanced Field Artillery Tactical Data System (AFATDS) operators so

> "While training and certifying the Division's JAGIC does have unique challenges, it is absolute necessary for the team to be successful in achieving the Division's Warfighting duties and responsibilities."

that they can perform their duties on the JAGIC floor. Likewise, the aviation personnel will be certified on the Tactical Airspace Integration System (TAIS) prior to assuming their role in the JAGIC. The individual organizations have the material and facilities they need to train and certify alone. The problem arises when the organizations aren't trained together at the same time as one cohesive joint team. In this sense of interagency training, the JAGICs are lacking. The 25th ID Division fires cell attempts to bridge this gap by working with the 25th ASOS to conduct monthly JAGIC validation exercises. These exercises are conducted inside the 25th ASOS Joint Theater Air-Ground Simulation System (JTAGSS) simulation room. The room contains four tables joined together lengthwise in two rows that replicate what the JAGIC floor looks like. Each computer comes loaded with Transverse, JADOCS, and other ABCS while the Army provides an AFATDS and TAIS for the JAGIC floor and for the white cell. The white cell, located past a partition in the room, uses the JTAGSS to help test and evaluate the team on its individual and collective ability to

JAGIC... Continued from Page 16

conduct joint fires. During the simulations, the team has begun training with entry level JAGIC tasks. For fires, this means processing fire missions and sending them to subordinate brigade headquarters. For the Air Force, this means reading the air tasking order, prosecuting missions, and reacting to immediate air support requests. For aviation, this means clearing airspace and tracking the movement of its troops. At this point the total time spent preparing for execution is about 3 hours and the total time spent executing is about 4 hours. This small amount of time is enough for the JAGIC to synchronize joint fires, improve processes, establish new tactics, techniques, and procedures to react to unique events, familiarize the team with their roles, and to allow the team to establish working relationships with our Joint Partners and one another. This local collective training allows the JAGIC to train and prepare for a near-peer fight with a realistic scenario, and allow the team to learn and make mistakes in the simulation room. Most ASOS have the JTAGSS at their disposal which their Army counterparts may not know about. The Army divisions and their Air Force ASOS counterparts should work together to create a formal training partnership, using the JTAGGS and the JAGIC contributing organizations to make the best use of the material and facilities available.

Personnel and leadership are perhaps the most important components to a way forward in the creation of a JAGIC certification program. It is imperative that divisions and ASOSs identify the personnel that man the JAGIC early on so that those personnel can be trained to work as members of the Joint team. The JAGIC Chief is in the best position to lead the certifi-

cation program because he or she knows the contributing organizations and understands best how all the operational pieces fit together as the senior fires representative. To prevent the JAGIC from failing because of the tendency to man the JAGIC with whomever is available, the JAGIC Chief together with the Senior Air Director from the ASOS, must work with Division Aviation, Division Collection, and other necessary Liaison Officers to gather the personnel and leaders as often as possible to train, learn, and work together. They need to keep the pulse on section individual certification, their collective training, and the partnership building that's a key part of the JAGIC's operations.

While training and certifying the Division's JAGIC does have unique challenges, it is absolute necessary for the team to be successful in achieving the Division's Warfighting duties and responsibilities. The gaps in DOTMLPF are not so exaggerated that preparing the JAGIC for conflict is impossible. It only requires creative and more deliberate effort on the part of the division to create the quality team that its warfighters deserve. Ideally with time, we will see a joint publication for JAGIC procedures and standards, integrated facilities for all divisions for JAGIC training, and an increased emphasis on deliberately manning the JAGIC with the correct people. A robust training plan going forward ensures that JAGIC procedures are done well and to standard so that when called upon the Division not only fights and wins, but does so decisively and as part the Joint Team.

HIMARS Over the Horizon Communications -The Way Forward at the HIMARS Battery and Below-

By CPT Jonathan Fanelli and MAJ Jacqueline Allen

Abstract

Long range communications are critical for General Support (GS) Field Artillery units to ensure their ability to coordinate for and deliver fires in a responsive manner. GS Field Artillery units must maintain reliable and effective communications over vast distances with supported units, coordinate with higher and adjacent units to deconflict airspace, ensure ground is clear, and deliver fires rapidly and accurately. The ability of GS Artillery today is extraordinary, however, organic supporting communications equipment is woefully ill equipped to communicate effectively over large distances at the battery and below. Incorporating new systems for a robust P.A.C.E. plan, including placing upper TI capabilities at the battery and below has been tested and proven in CENTCOM, JRTC, and at multi-service exercises such as WSINT to enable the communications required for successful mission command from sensor to shooter in HIMARS units.

Current HIMARS Long Range Communications

HIMARS have been effectively employed in numerous training and combat scenarios in Light HIMARS Packages (LHP). A LHP is a modular, tailorable, and scalable HIMARS element that is executing a specified mission to provide fires capabilities, and enables the CFLCC and joint force commander. The term LHP alone does not denote the size, capabilities, or command and support relationship of the element, but in most cases, LHPs require external support for adequate distributed mission command and distant communications with their higher element or liaison package. Currently, a HIMARS battery has three organic methods of communication employed by both its fire direction elements and its HIMARS. [1]

1 Per FY19 and FY20 MTO&E

The first is an FM intranet using ASIP radios and the Internet Controller Card, or INCC, integrated on the right side of the VRC[2], as a modem allowing the ASIP Radio to operate in the packet mode of operation.[3] This method is commonly referred to as DCOMS. The fire control panel on the HIMARS is connected to the INCC which is connected to the ASIP Radio, and in most cases, a power amplifier. Similarly, the Fire Direction Center has an AFATDS connected via CAT5 cable to a 5500 series router linked to the INC and with its own ASIP and power amplifier. As long as the elements have their equipment configured properly and are on the same station, a message transmitted by a receiving element will be automatically relayed by any element operating with the same frequency until the message finds its intended recipient or fails.[4]

The practical application of this method is a battery operation center (BOC) to a distant platoon. A BOC can be outside of direct FM communications range of 25 miles[5] from 1st Platoon's PAA, but if 2nd Platoon's PAA is half way between the BOC and 1st Platoon's position, a message sent from the BOC will be automatically relayed through 2nd Platoon's operation center (POC) and HIMARS to 1st Platoon as long as the entire battery is operating on the same digital fire direction net. This ability to have messages automatically relay through systems operating on the same DCOMS configuration allows messages to travel across greater distances by leapfrogging from elements running the same configuration. The practical application increases even further when the use is extrapolated to the battalion level. It also helps to minimize the impact of limited capability jamming by

2 ATP 3-09.60 Techniques for MLRS and HIMARS Operations, para 2-19
3 ATP 6-02.52 Techniques for Tactical Radio Operations, para 3-20
4 ATP 6-02.53 Techniques for Tactical Radio Operations, para 3-22
5 ATP 6-02.53 Techniques for Tactical Radio Operations, para 3-7

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allowing the message to utilize frequency hopping and cypher text encryption that many Soldiers are familiar with loading to prevent eavesdropping and counter jamming environments. DCOMS works very well for FM range FDC to HIMARS communications at limited ranges.

The second long range communications employed by HIMARS at the battery and below is the Joint Capability Release, or JCR. Each HIMARS, by MTO&E, has a JCR as do the platoon operation centers and the battery commander. JCR allows for status updates and encrypted communications via satellite communications. There are two distinct disadvantages to JCR however. First, JCR hard drives and transceivers require different configurations between combatant commands. This limits their ability for use in a rapid deployment scenario and potentially delays their employment on the battle field. The equipment requires FSR support to loaded the image of the specific geographic region. The second disadvantage is the JCR does not directly interface with the fire control panel in the HIMARS, nor does it interface with the AFATDS. This requires operators on both ends need to manually input the fire mission data leading to the increased potential for human errors. More complex missions, such as a Multiple Precision Aimpoint Mission (MPAM) will cause significant delay due to their complexity and time consuming input and verification process.

The third method used for long range communications is the Harris RT-1594D High Frequency (HF) Radio. This enables long range communications by allowing individual stations talking to each other to pick the best communicating channel from a channel plan to transmit data over long distances by bouncing it off various layers of the earth's ionosphere and the surface of the earth itself. The effectiveness of the transmission of HF depends on a number of factors, including wavelength (determined by frequencies or channels assigned for communications between the individual radios of those users in this case), location compared to a receiving station, time of day, antenna configura-

tion and space weather.[6] We tend to underestimate the effect sun spots and solar flares have on communications. In reality, HF comms are heavily reliant on solar activity.[7] There is currently a lull in the 11 year sun spot cycle, this is causing less solar radiation to invigorate various layers of the ionosphere, decreasing transmission effectiveness and diminishing the ability to communicate as effectively around long distances.

There are also issues with how the Harris Automatic Link Establishment (ALE) programing interacts between stations using their radios. Digital communications over Harris HF is comparable to playing a game of catch. One station can only talk to one other station at a time, as opposed to DCOMs where messages go out like a ripple on a pond. This is due to the channel plan programing and ALE that Harris radios use, understanding that each outstation could potentially be using a different channel to ensure the best transmission quality, a transmitting station can only talk to one receiving station at a time on a specific

> "We tend to underestimate the effect sun spots and solar flares have on communications. In reality, HF comms are heavily reliant on solar activity."

channel.[8] The ALE programing will attempt to send out a message to multiple users at once on the channel that has scored highest for all the outstations on the channel plan the message is intended for[9], but this has not worked effectively or in a timely manner in practice. AFATDS sends and receives a number of messages between itself and the fire control panel, as well as with other AFATDS. This can cause issues with long transmission times and message failures. A considerable problem with this is that AFATDS is programed to notify the operator if a transmission fails to send.[10]

6 ATP 6-02.53 Techniques for Tactical Radio Operations, para 3-83
7 ATP 6-02.53 Techniques for Tactical Radio Operations, para B-39 through B-44
8 "ALE – The Coming of Automatic Link Establishment," Ronald E. Menold (AD4TB), QST Vol. 79, Feb 1995
9 ATP 6-02.53 Techniques for Tactical Radio Operations, para 3-101
10 Based off AFATDS version 6.8.1.1

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With HF transmission, however, AFATDS will not reliably inform the operator that a message failed to send. This factor makes it difficult to recommend the use of HF as a primary or alternate communications method in a combat environment because it can be difficult to assess whether a HIMARS or FDC received the fire mission without verification from a secondary means of communication.

Another difficulty of HF communications with HIMARS is the HF loop antenna fielded to HIMARS units. While it is a capable on the move style of HF antenna, it is far too delicate to operate in wooded and some urban areas without risking damage to the receiving element that can render it inoperable from striking tree branches, low hanging bridges, and low slung power lines. While many cottage industry fixes by various HIMARS units have been put into use, the most common TTP is to remove the antenna while on the move, further reducing HF as a reliable means of communication. The 32ft whip antenna that is fielded with AN/VRC-104 is an ineffective substitute as it is not an on-the-move type antenna and is more effective radiating on the ground. Additionally, the whip antenna has limited use with sky waves that are needed for long range HF communications.

Required communications capabilities for HIMARS units

While training in home station environments, batteries and below are able to configure their communications plan to meet the needs of the higher headquarters with their organic equipment. It is easy for batteries and below to adapt their communications to adequately communicate with the battalion or brigade, due to the similarities between the communications platforms, assigned channels, and IP configurations. For instance, within a field artillery brigade, each battalion has a DCOMS frequency used throughout the entire battalion and the DCOMS IP addresses are standardized within the brigade. Difficulties arise with communicating outside of FM voice and digital over ASIP ranges.

HIMARS units at battery and below require two

types of communications for effective operational employment: AFATDS communication between higher and lower FDCs, and AFATDS to HIMARS fire control panel communication. In some instances of degraded communication, sending data derived from an AFATDS over FM voice or JCR from an FDC to a HIMARS crew, or sending AFATDS data from a higher FDC to a lower FDC via FM voice, SIPR phone, or secure chat client will fill the requirement. These degraded methods are less reliable than direct AFATDS to AFATDS and AFATDS to fire control panel communications, and impose greater chance of injecting operator error.

Adequate communications between an FDC and a HIMARS are ensured by using communications methods that talk digitally between these systems. While not essential for operations, SIPR/NIPR computer connectivity and secure voice communications, such as SIPR VoIP phones, greatly enhance the ability of HIMARS batteries and below to conduct sustained operations. These Warfighter Information Network

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> "The common factor in how HIMARS units at the Battery and below operate outside of the garrison training environment is that they require outside resources, either from their battalion, a support unit, or via Theater Provided Equipment (TPE)."

Tactical (WIN-T) systems simplify trouble shooting, allow for target list worksheets to be published to FDCs as a check of fire plans sent via AFATDS, while also providing computer systems that can process requirements other than fire missions such as email, ammunition expenditure reports, signing hand receipts, and other administrative functions.

Over the course of multiple CTCs, multi-service exercises, and operations in deployed environments, AFATDS to AFATDS communications over LAN provided by WIN-T upper TI have been the most common and most often utilized communication platforms between smaller HIMARS elements and supported units. Other successful methods of communication include using AN/PRC-117G using Integrated Waveform (IW) SATCOM between supported unit and HIMARS FDCs and LNO teams from a HIMARS battalion

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equipped with a Harris HF radio to interface between the HIMARS FDC and the LAN requirement of a supported unit using the LNO team's AFATDS. HIMARS units are also equipped with the ability to use 220C digital radio communications over ASIP radios using TACLANE cards and TACLANE USBs to external units using the same configuration on a 220C network between AFATDS, a communications method available to the FECC at a BCT. This method is not typically used in training or combat environments because running a 220C network on an AFATDS while running another type of network off the same AFATDS causes AFATDS software crashes more often than other types of communications configurations.

The common factor in how HIMARS units at the Battery and below operate outside of the garrison training environment is that they require outside resources, either from their battalion, a support unit, or via Theater Provided Equipment (TPE). HIMARS units have historically borrowed equipment, such as a SNAP or GRRIPS from a supported unit, however this can only be done when the supported unit can accommodate it. It is possible to ask a higher headquarters to task a signal unit to provide equipment and personnel for use during specific exercises or missions, but this would only be feasible for short term durations.

Possible Way Forward for HIMARS Long Range Communications at Batteries and Below

Frequently an LHP is stationed or directed to perform mission sets where their organic communications capabilities are inadequate to talk to their higher headquarters effectively[11]. This forces them to rely on external support for communications capability needed to execute their assigned mission. HIMARS units equipped with TPE equipment in ARCENT for Operation Spartan Shield (OSS), Operation Inherent Resolve (OIR), and Operation Freedom's Sentinel (OFS) missions using WIN-T upper TI assets at battery and below have enabled HIMARS units to accomplish their mission more effectively and with increased flexibility. Additionally, WIN-T assets are used with great success to supplement organic communications in CONUS training environments at the battery

and below. Using AFATDS over a LAN connection reduces the burden on supported units that utilize HIMARS as a GS Artillery asset. Most units either do not have Harris HF capabilities or are unfamiliar with their use. If a supported unit has Harris HF capabilities they typically utilize a different pre-established channel plan. Adding upper TI capabilities to the LHP at the FDC would supplement, not replace, the current communications methods used currently. Capabilities such as the SIPR-NIPR Access Point (SNAP) would only add one additional M1102 HMMWV trailer to an LHP's foot print, while smaller options such as the Tactical Edge Communications Kit- VSAT (TECK-V) or Global Rapid Response Information Packages (GRRIPs) could easily be put into a HMMWV or FDC itself without adding to the foot print of the LHP.

As the Army moves to a more holistic tactical network utilizing WIN-T, communication systems supplied to the battery level and below are recommended to be interoperable with the larger network nodes found within the WIN-T family. SATCOM assets must be capable of supporting voice and data on both NIPR/SIPR enclaves and a Colorless Core enclave to secure the network from enemy intercept. Historically, SATCOM has not only provided most of these requirements, but has maximized the capabilities of the AFATDS by providing a LAN connection to the tactical network which increases accuracy and decreases the time required for fire mission processing in comparison to Radio and HF systems. Assessments in both training and these real world scenarios have concluded that small easily deployable SATCOM terminals are optimal due to increased bandwidth and the requirement to push fire mission processing through AFATDS digitally, the primary method of communication within echelons above battalion.[12] SATCOM certified for Ka and/or X band capability has provided interoperability with other Department of Defense wide band global SATCOM Satellites and Mission Command Systems and are recommended when filling capability gaps.

The addition of Ku band compatibility to SATCOM assets allows for commercial satellite access therefore creating greater opportunity to interface with coalition partners and networks. Currently, commer-

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11 ATP 3-09.60 Techniques for MLRS and HIMARS Operations, para 2-13

12 ATP 3-09.60 Techniques for MLRS and HIMARS Operations, para 2-94

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cial-off-the-shelf satellite terminals systems such as SNAPs, Teck-V, and GRRIPs have been fielded in theater in support of OIR, OSS, and OFS and are equip with the previously stated capabilities. Though these systems are proven to support the current communication needs of a GS Field Artillery unit dispersed across the entire AOR. Other options are available and could prove more suitable for interoperability with the Army's WIN-T INC II platform, Special Forces, sister services, and coalition networks. Other known options include: Tampa Microwave 1.3 SATCOM Terminal set, Special Operations Forces deployable Node (SDN Lite), Transportable Tactical Command Communication (T2C2) Lite, and Inflatable SATCOM Antennas (ISA).

Looking further out, it is recommended the Field Artillery project offices start preparing HIMARS units at the FDC and launcher levels for robust P.A.C.E. plans for future use. Utilizing UHF communications such as the Link-16 over MIDS radio via AFATDS would allow HIMARS FDCs to utilize equipment that is already an Army system of record and one that could facilitate integration into the ADAM cell at the brigade level and Air Force to conduct clearance of airspace in addition to offering NATO interoperability.[13] Utilizing UHF also increases our options on the radio frequency spectrum in the event a HIMARS unit must fight in a jamming environment. Utilizing frequencies on the UHF spectrum offers an advantage because most cell communications are also on the UHF spectrum, making it disadvantageous for the enemy to jam, especially in an asymmetric environment, since they would have to interrupt their own mobile phone communications to jam within the UHF spec-

trum. Other systems, such as the MUOS (Mobile User Object System) Radio, another UHF option via satellite, would be worth linking into the HIMARS panel itself as well as FDCs, giving a HIMARS next generation satellite communications capability to process fire missions and send reports via the panel[14] without being limited by line of sight.[15] This would be of particular benefit to ground or air raids. The raid capability of HIMARS was designed for can be made more effective and flexible by diversifying and modernizing the communications packages that the HIMARS and FDCs are equipped with.

The use of an Operational Needs Statement (ONS) or changing a HIMARS battalion and battery MTO&E would provide relief from requiring supported units to provide upper TI communications for a non-organic asset and stymie the need for TPE equipment to provide upper TI. Organic upper TI capability make HIMARS units at battery and below rapidly deployable and allow for the ground commander to move an LHP to an area best suited to their employment without connectivity concerns. Additionally, it will allow for operators at the echelons that utilize the equipment to train on the equipment they will rely on prior to deploying. Integrating newer systems and capabilities into FDCs and HIMARS will help to provide a more robust P.A.C.E. plan and allow LHPs, and the supported commander, the flexibility to operate in more areas more easily and ensure these units are training on and deployed with adequate communications and resistance to jamming.

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13 ATP 6-02.53 Techniques for Tactical Radio Operations, para 6-3

14 ATP 3-09.60 Techniques for MLRS and HIMARS Operations, para 2-20

15 ATP 6-02.53 Techniques for Tactical Radio Operations, para 4-13

Challenges and Recommendations for Accurate Battle Damage Assessments in a Division Artillery (DIVARTY) Brigade:

Lessons Learned from 25th DIVARTY War Fighter Exercise 19-01

By MAJ Clint Adair and 1LT Amy Saxton

Introduction

The Division Artillery (DIVARTY) Brigade holds a unique role as the Division's proponent fires organization. According to ATP 3-09.90, "the role of the DIVARTY is to plan, prepare, execute and assess fires using precision and area munitions for the Division. The DIVARTY employs fires and capabilities to create desired effects in support of the Division Commander's objectives." One of the ways in which DIVARTY can achieve desired effects of fires is to conduct Battle Damage Assessment (BDA) reporting and analysis. BDA is used to provide a timely and accurate estimate of damage for any application of lethal or non-lethal military force; typically in a DIVARTY, this is the effect of direct and indirect fires. This paper addresses DIVARTY's capabilities, current challenges, and recommendations to streamline BDA collection and analysis to support the targeting process within Large Scale Ground Combat Operations (LSGCO).

Why Track Battle Damage Assessments (BDA)?

Within the "Assess" portion of the Decide, Detect, Deliver and Assess (D3A) targeting methodology, the DIVARTY staff provides the current friendly targeting effects on an enemy for the following reasons:

"REPEAT!" Fire missions might need to be repeated if they failed to achieve desired effects and the opposing force is not sufficiently shaped for follow on operations.

"Where Are My Rounds?" Sustainment allocation, specifically Class V, requires an accurate assessment of targeting efforts in order to project the means available to achieve the desired effects on the enemy.

"What Are the Odds?" The assessment process ensures that friendly force ratios are able to achieve

mission success against the opposition in future operations.

According to Army Training Publication 3-60, Targeting (para 2-86): "BDA in targeting pertains to the results of lethal and nonlethal engagements on targets designated by the Commander." ATP 3-60 also highlights the need for intelligence and operations sections to identify and resolve discrepancies between BDA reporting from all echelons. The quantity and quality of available collection assets within the various echelons of the Division influence the reliability of assessments. The task to evaluate physical, functional, and target system effects within a LSGCO takes time, resources, and fusion of the right information to produce a relevant assessment. Current doctrine fails to standardize a process that mitigates the ambiguous nature of how BDA is reported and utilized within the targeting process.

How Can a DIVARTY Get Accurate BDA?

The DIVARTY staff has multiple platforms and entities to collect information that can be used to determine accurate BDA.

Fire Control Element (FCE). The FCE provides Mission Fired Reports (MFRs) and the Attack Guidance Matrix (AGM) that are used to assess lethal and nonlethal effects on the battlefield. During War Fighter 19-01, the FCE actioned over 100 fire missions a day from various observation platforms. MFRs are generated by the AFATDS after every fire mission is completed. These reports do not give information on confirmed BDA, but they do track when fire missions are executed and can be used to request further confirmation from forward observers or other collection sources regarding specific fire missions. Knowing how long it takes a given enemy system to displace from

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a known location is also used as part of an assessment on whether a follow-on fire mission is required to achieve desired effects. The FCE also produces the AGM, which assigns a specific amount of ammunition and type of delivery system to achieve desired effects. Often, the AGM is used for assessed BDA in the absence of observing physical damage of an enemy target.

Counter-Fire (CF) Cell. The CF Cell also provides MFRs from counter-fire missions. In Warfighter 19-01, the CF Cell acquired approximately 100-200 enemy artillery fires a day. However, with such a high volume of acquisitions and coverage of the Division Area of Operations, much of the critical information can get lost if not reported and consolidated in a timely manner. The CF Cell has the capability to confirm BDA through acquisitions and shape analysis of enemy force compositions.

Processing, Exploiting and Dissemination (PED) Cell. The primary responsibilities of the PED Cell are to collect and process intelligence from the sensors on the battlefield. Part of the BDA process includes the collection of observed BDA from Full Motion Video (FMV), GEOINT (GMTI) and SIGINT sources, leading to the initial fusion of information for BDA assessments. A dedicated Gray Eagle FMV asset to a DIVARTY is the most reliable platform for turning assessed BDA into confirmed BDA. However, with only four lines that can fly at any given time, the Gray Eagle is one of the most demanded ISR assets within a Division and often unavailable to support the DIVARTY fight. Even with additional ISR coverage, FMV platforms cannot realistically observe fire missions that cover the entire battlefield, but they can be prioritized to observe specific preplanned fire missions and counter-fire missions. During the War Fighter Exercise, the Ground Target Movement Indicator (GMTI) feed in the Brigade Tactical Operations Center (TOC) proved to be very useful to track enemy artillery movements from a Point of Origin (POO) site following a friendly counter-fire mission in order to determine if the damage criteria from the CF on the enemy was met.

Current Operations (CUOPS). As a centralized information center, the CUOPS are able to track and consolidate Significant Activity (SIGACT) reporting

from various subordinate and adjacent units. Enemy-initiated SIGACTs can provide insight on the enemy's ability to conduct attacks and shape an assessment of the remaining combat power of the opposing force. This is especially critical if the enemy is capable of conducting attacks with weapon systems usually on the HPTL such as Indirect Fires (IDFs) with key artillery platforms or surface-to-air attacks from Air Defense Artillery (ADA) systems.

Protection Cell. The Air Defense Airspace Management and Brigade Aviation Element (ADAM/BAE) with the Tactical Air Integration System (TAIS) tracks and reports enemy air assets throughout the battlespace. Like SIGACTs, these reports also indicate the enemy's composition of aviation assets such as UAS and attack aviation. The Chemical Cell, with a deeper knowledge of Chemical effects on the battlefield, brings the analysis of the enemy's offensive chemical stockpiles and delivery methods.

Challenges of Accurate BDA in a DIVARTY

In most LSGCO scenarios, ADA and Long Range Artillery (LRA) are at the top of the High Payoff Target List (HPTL). Typically, a DIVARTY or Field Artillery Brigade (FAB) is responsible for collecting and analyzing BDA for two reasons: 1) to kill ADA systems that prevent friendly air movement, and 2) to focus counter fire against enemy LRA systems. To enable the overall Division fight and support targeting efforts, it is paramount for the DIVARTY to report the most accurate BDA possible. Currently, a DIVARTY has to overcome some key challenges in order to do so.

1. High Volume of Reporting

The high volume of reporting that comes from multiple sources throughout the DIVARTY fight can delay effective recording of BDA, especially when the DIVARTY has to request confirmed BDA from completed fire missions that was not reported by the responsible friendly firing unit. Given that multiple entities within the DIVARTY staff have inputs to BDA, sharing and consolidating the information is essential for an accurate overall assessment. For the counter-fire cell specifically, the current version of Advanced Field Artillery Tactical Data System (AFATDS) software stores the counter-fire mission data, erases it, and then

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resets the MFRs every 12 hours. A specific forum or battle rhythm procedure among the DIVARTY staff can help consolidate this critical information before it is lost.

2. Clarifying Assessed vs. Confirmed BDA

Division collection platforms, to include a variety of Unmanned Aerial Systems (UAS) and Gray Eagles (MQ-1C), provide capabilities to confirm battle damage at a known location. This confirmed BDA measures the physical damage to a particular target and indicates actual effects of a fire mission that can be used to determine whether further engagement is required to achieve desired effects. When it is not feasible to observe BDA on the battlefield, the DIVARTY must conduct a broad assessment of the overall impact of all types of attack against an entire enemy system. This assessment requires inputs from different staff sections that hold collection equities within DIVARTY. The goal is to use confirmed BDA to the greatest extent possible in conjunction with assessed BDA to produce highly reliable analysis for the Commander.

3. Mixed Enemy Flags

The Opposition Force (OPFOR) in a War Fighter Exercise operates as a world class peer competitor. It is important to know the enemy's composition, task organization, and combat strength in order to conduct effective planning and decision-making. However, one of the most difficult issues with BDA collection is accurately assigning damaged equipment to specific enemy units, especially when the BDA reporting comes from multiple sources. One method used during the Warfighter Exercise was incorporating "score cards" from the I Corps Targeting SOP to keep track of the total number of specific enemy systems ranked by priority and updating them to reflect BDA information, as seen below. This method helps the

DIVARTY Commander see the overall picture of enemy force projections and make decisions for the HPTL and future target nominations.

A Way for a DIVARTY to Win the BDA Game

Below are some recommendations that can be implemented internally among the DIVARTY Staff to help mitigate the "fog of war" as it pertains to approaching the BDA problem set.

Take Time to Consolidate Information. The most significant challenge for assessing accurate BDA information within a DIVARTY staff is designating a specific time and forum to share accumulated data from multiple sources. Much like the process of Intelligence Preparation of the Battlefield (IPB), BDA assessments also require the entire staff. Given multiple competing interests in a high operational tempo (OPTEMPO) environment, the assessment portion of D3A can be challenging but remains extremely critical. All stakeholders within the DIVARTY staff need a scheduled and predictive time to routinely gather data from the FCE, CF Cell, PED Cell, CUOPS and
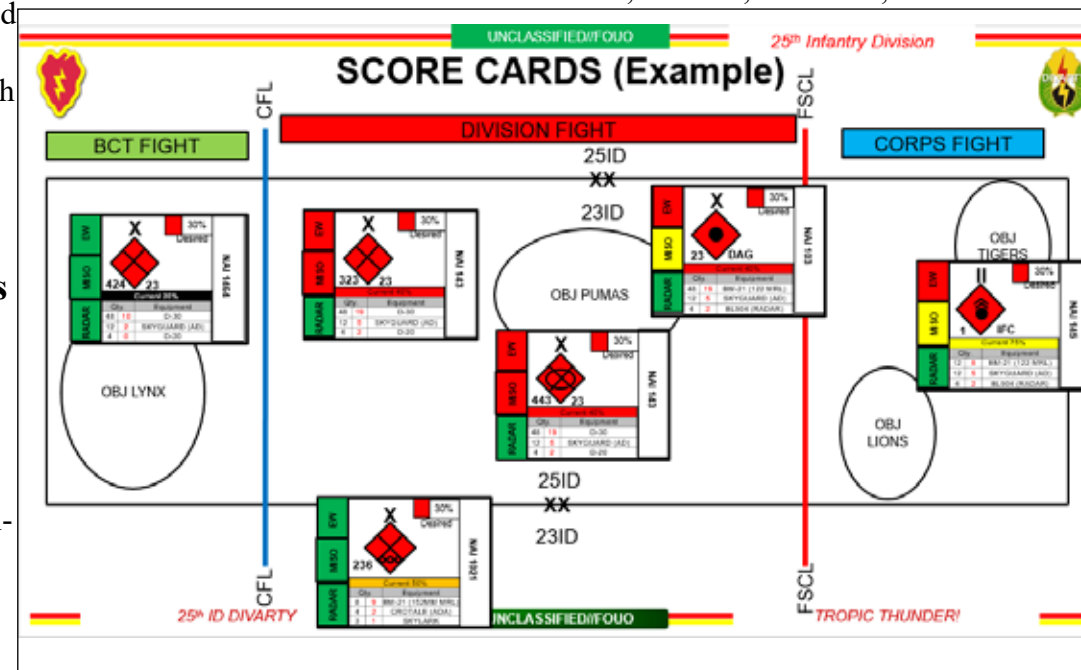
the Protection Cell and then send it to the DIVARTY S2 section for fusion. The S2 section is responsible for consolidating the information and providing an assessment that includes enemy force ratio projections.

Validate Assessments. It is important to capitalize on the tools within a DIVARTY to improve the accuracy of BDA assessments. Even when BDA cannot

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be collected immediately, knowing the target location gives the opportunity for Geospatial Intelligence (GEOINT) or Overhead Persistent Inferred (OPIR) to evaluate effects on the ground. A deliberate collection plan can help predict triggers and general locations of enemy LRA in time and space in order to help observe and generate accurate BDA. Focusing on enemy equipment and their locations helps build force ratios for future operations and allows Commanders to better understand and visualize the opposing force in terms of targeting weapon systems in known locations.

Manage and Share the Knowledge. The methods used to report BDA must be commonly understood and easily shared with multiple entities. The use of Size, Activity, Location and Time (SALT) reports, for example, could mitigate reporting confusion and provide only the essential information for BDA. Simple reporting will streamline the process and can easily be built in an excel list, pasted into a chat window, or built as a paste board in the Command Post Of the Future (CPOF) and shared within the DIVARTY staff or with Division G2. Another suggestion is to share the consolidated BDA assessment at the beginning of the DIVARTY Targeting Working Group in order to establish a common understanding of the enemy that can help influence future target nominations.

Recommendations for the Fight Tomorrow

The challenges of determining accurate BDA are not new to the Army. Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) shifted the Army's focus to counterinsurgency operations and unconventional warfare. In these environments, fewer fire missions were being conducted at the same rate and tempo as we saw from previous conventional wars. Like many other pre-9/11 skill sets, battle damage assessment processes atrophied as a result.

Suggested Solutions

Doctrine, Training and Specialty Tracks. Currently, there is no Army-wide standard for assessing BDA, which creates unit interoperability issues and, most importantly, a lack of emphasis on the process. The Army must make the "Assess" step in D3A a priority and develop a standardized process across the force with the same terminology. Much like other

career tracks within the Intelligence branch, such as Signals Intelligence or Geospatial Intelligence, a BDA specialty or Additional skill Identifier (ASI) along with a professional military education center should be developed to ensure trained and uniformed approaches to the BDA problem set. Like a dedicated targeting officer leads the targeting process, this trained professional would be able to leverage the multiple sources of BDA information from the FCE, CF and PED cells and lead the staff throughout the BDA process.

Materials and Software. One of the greatest hindrances to the BDA process is the inefficacy of sharing and consolidating information in a dynamic environment. The OPTEMPO in a LSGCO does not allow time to produce a fancy power point slide or excel spreadsheet, or even the bandwidth to share large files. Instead, the BDA process should capitalize on the multiple Battle Command Systems (BCS) which have the ability to distribute information in real-time. SSG Timothy Ramos from the 25th ID G2 Targeting Cell shares his perspective on incorporating this process:

"During recent 25th Infantry Division Command Post Exercises (CPX) and Warfighter Exercise (WFX 19-01), Brigades submitted Battle Damage Assessment (BDA) reports to facilitate situational understanding of remaining opposing force (OPFOR) composition. The primary mechanism by which units reported BDA included a (Division-provided) Microsoft (MS) Excel spreadsheet, designed to report results of friendly operations in a restricted, standardized, and data-uniformed manner. Units experienced several challenges with this method ranging from variances in Brigade and Division specific information requirements, levels of MS Office proficiency, and the personnel/time intensive process. The lack of a timely process affected planning and reduced the Division's Operational Tempo (OPTEMPO), generating the need to refine the BDA reporting process and identify methods to employ Army Mission Command/Warfighting Function systems to capture, organize, and report information essential to enabling operations.

During the 3/25 IBCT Validation Exercise (VALEX) in October 2018, the Division targeting staff tested various methods to improve the functionality and communications processes for BDA. Phase

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I comprised the creation/management of OPFOR organizations, order of battle, and equipment into the Tactical Entity Database (TED). Phase II focused on increased utilization of US Message Traffic Format (USMTF) messages throughout the Brigade and HICON and feeding the contents directly into the TED; potentially eliminating separate spreadsheet maintenance requirements. The results of this test demonstrated the possibility of tracking OPFOR units using one piece of software. The next step in this developmental-testing phase requires identifying methods to create circular relationships between Army Mission Command systems and USMTF communications and determining whether an algorithm exists to update unit strength in real-time based on effects within the OE."

- SSG Timothy Ramos

Currently, the Distributed Common Ground System – Army (DCGS-A) can "talk" to the AFATDS in forms of passing target information data sourced from multiple collection platforms. However, the AFATDS cannot pass MFRs to the DCGS, requiring the extra task of AFATDS operators to use a secondary method to relay the fire mission data, which is problematic in a high OPTEMPO. The communication of these two platforms needs to be a two way street. A Data Distribution Service (DDS) does allow for multiple systems to share information between each other, but there are current limitations in what data systems can publish and subscribe from other systems. Sharing MFRs is one of these limitations.

The first step to streamlining the BDA collection process is to build a MFR distribution capability between the AFATDS and DCGS-A. This would allow for automated sharing between the fires cells and S2 without the need for cumbersome secondary digital or analog systems. The next step would be to develop software that can calculate the multiple factors within a MFR such as the description and number of targets, the amount and type of munition fired, and the time it takes to fire in real time in order to provide a con-

fidence ratio of the effect of the fire mission on the target based off those data points. This program could use factors and predictive ratios from the Joint Munitions Effects Manager and current AGM as a baseline to automate the required assessed BDA analysis. The output of the program would be an analysis-backed confidence level or percentage of the assessed effects. This process is particularly critical for counter-fire missions, which might not be able to be observed by a UAV operator but becomes one of the biggest BDA producers within a LSGCO. The end state is an automated BDA system that can calculate fire mission data and consolidate it in real time across several units and echelons to feed a Common Intelligence Picture (CIP) or Common Operational Picture (COP). This shared understanding would allow the Commander and staff to visualize current enemy combat strengths from BDA in time and space and contribute to more accurate targeting processes.

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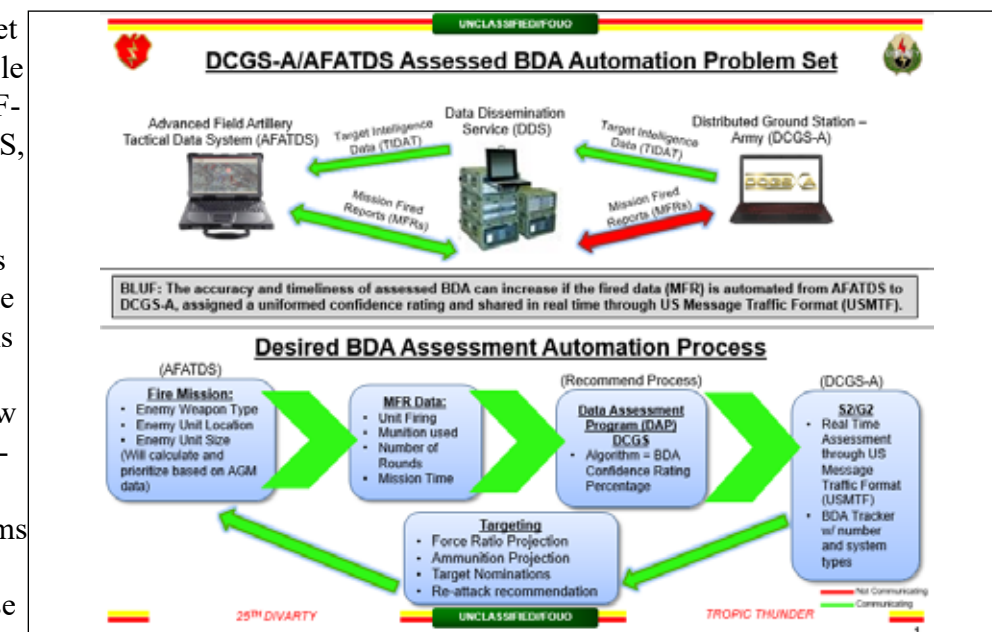
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FIRES
Knowledge Management

Fires Knowledge Network: gathering and organizing actionable knowledge to successfully accomplish the mission.

"Today's Army is much less about the knowledge you have so much as the knowledge you can share."

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The Redleg Update was founded in 2011. It provides past and present Field Artillery leaders with bi-monthly update of informational highlights to assist in their individual, collective and professional training efforts, as well as report on activities occurring throughout the Field Artillery community.

The Redleg Update is looking for articles and short features on present or future programs, equipment, tactics, techniques, procedures, leadership styles or other issues affecting our Branch. Our editions are closely tied with the Field Artillery Commandant Priorities however; our goal is to publish timely, useful articles that will be relevant to the field regardless of topic.

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Your article doesn't have to agree with doctrine, official policy or approved techniques or procedures. But it must
- Have no classified information in it.
- Promote SAFE techniques and procedures.
- Be clearly written with your bottom line (article's thesis) somewhere up front.
- Prove your thesis.
- Have "meat," such as lessons learned or applications for or relevance to Redlegs today.
- Be accurate, logical and complete.

Your Submission:

Your submission should include the following:
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- Pictures, photographs, charts, maps, graphs, posters, crests, etc., to illustrate your article.

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2018-2019 Field Artillery Commandant Priorities:
- IMT/PME Culture Shift to LSGCO & Increase Rigor
- Artillery Capstone Doctrine Updates IAW 3.0 (ADP 3-09, FM 3-09)
- Talent Management
- Degraded Operations across all DOTMLPF
- Maintain 2xway communication with MNVR/FA/Joint Fires/Intel/Sustainment communities