

Training the Shield Arm

How U.S. Army Air Defense Forces Are Embracing Field Manual 3-0 and Preparing for Large-Scale Ground Combat

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It was early in the morning on 5 March 2019. The 108th Air Defense Artillery (ADA) Brigade staff, headquartered at Fort Bragg, North Carolina, assembled in their expeditionary main command post, now located on the MacGregor Range Training Complex at Fort Bliss, Texas. They were on day five of Roving Sands, an air defense training exercise set in a large-scale combat scenario. The staff knew that this day would be both crucial and stressful. Late the prior evening, their higher

headquarters, II Corps, had set conditions for the transition into Phase IIIC and the corps' decisive operation: a three-brigade attack to defeat an enemy armor brigade occupying a hasty defense. While the II Corps staff—or rather, a small contingent of 32nd Army Air and Missile Defense Command (AAMDC) soldiers that replicated the corps staff for the scenario—had released the latest fragmentary order directing the attack, the 108th ADA Brigade staff was busy redesigning the



air defense posture that would protect the corps' critical assets and enable the success of that decisive operation.

The brigade's Patriot and Terminal High Altitude Air Defense (THAAD) systems had already engaged dozens of simulated ballistic and cruise missiles in this exercise, but the hundreds of kilometers traveled across the rough terrain of the operational area were taking their toll on the sensitive radar and launcher equipment. This day would be no different, as the corps maneuver fight would require at least a battalion's worth of air defense assets to displace and extend coverage to new critical assets—a complex move that could significantly interfere with the maintenance plan.

Adding to these tactical stressors, the 108th ADA Brigade staff also had to prepare input for the corps commander's update brief occurring later that morning, as well as participate in numerous internal and external working groups. The brigade's morning report to the corps staff was due soon. Fortunately, the staff had grown more comfortable with the corps' battle rhythm and formats over the previous five days, but consolidating, translating, and verifying data before reporting it to a maneuver headquarters still took hours.

The idea of tough and realistic training setting conditions for success on the battlefield is as old as the idea of military training itself. However, the stressors described above created a challenge that was unlike anything a U.S. Army Forces Command (FORSCOM) ADA brigade had encountered in training for years. The 108th ADA Brigade was among the first units to have a new focus for air defense training: support to large-scale combat operations (LSCO) on a highly contested modern battlefield.

To create change in the modern Army, leaders must first amend doctrine, adjust organizations, and then train those organizations to become comfortable with the new tasks they must perform, the conditions they must endure, and the standards they must meet. In October 2017, the U.S. Army Combined Arms Center published a major update to Field Manual (FM) 3-0, *Operations*, in order to reintroduce the LSCO framework

at the division, corps, and theater army echelons. In the foreword to FM 3-0, Lt. Gen. Michael D. Lundy clearly identifies that this doctrinal update must drive the Army's preparation for LSCO and the execution of such operations.¹ The 32nd AAMDC listened, and through research, planning, and some debate, it developed an ambitious training strategy to prepare ADA units to meet that challenge. Of course, it learned many tough lessons along the way. The FORSCOM air defense enterprise is embracing the LSCO framework from FM 3-0.

Background

In the modern U.S. military, senior leaders primarily use Patriot and THAAD systems as operational and strategic assets in missions with high visibility and sometimes direct political implications. However, this high-tempo operational and strategic alignment has not always been the norm for air defense forces. As recently as 1996, the Army had aligned an air defense brigade with each corps. Within the continental United States, the Army reserved only the 11th ADA Brigade, headquartered at Fort Bliss, Texas, for echelons-above-corps missions. The corps air defense brigades—the 108th ADA Brigade aligned with the XVIII Airborne Corps, the 69th ADA Brigade aligned with V Corps, the 35th ADA Brigade aligned with I Corps, and the 31st ADA Brigade aligned with III Corps—existed to provide a tactical corps commander the capability to defend critical points on the battlefield from an increasingly sophisticated and proliferate air threat.²

Due to concerns about standardization of Patriot forces, this alignment was short-lived. With the reactivation of the 32nd AAMDC in 1998, the Army consolidated all air defense brigades at Fort Bliss, Texas, where they could benefit from shared facilities and training areas as they worked toward standardized operations.³ This, of course, came at a cost to their previous tactical alignment. The consolidation at Fort Bliss, Texas, was also short-lived. A result of the 2005 base realignment and closure strategy, the 32nd AAMDC's air defense brigades received orders to relocate to new posts. In fact, the 35th Air Defense Artillery Brigade had relocated to Korea a year prior.⁴ This move had the potential to redevelop the corps air defense relationships; however, the Army had concurrently decided to reorganize its operational forces from divisions organically equipped for independent operations into brigade combat teams (BCTs). For better

Previous page: Bravo Battery, 1st Battalion, 7th Air Defense Artillery, trains on expeditionary deployment operations and air and missile defense operations in March 2019 during the Roving Sands exercise near Orogrande, New Mexico. (Photo courtesy of 3rd Marine Aircraft Wing, Marine Aircraft Group 39, Marine Light Attack Helicopter Squadron 469, U.S. Marine Corps)

or worse, this step down in functional echelons served to deemphasize corps-level operations. This rapidly changing relationship with maneuver headquarters was not a pressing concern to the 32nd AAMDC or its brigades. In the meantime, FORSCOM ADA had started a new mission, which was proving to be very time-consuming.

In October 2006, the Department of Defense (DOD) ordered the deployment of a Patriot battalion headquarters and two firing units to Qatar in support of the Doha Asian Games.⁵ This deployment demonstrated a commitment to Qatar while serving to protect the American service members and materiel stationed forward at Al Udeid Air Base and Camp As Sayliyah. The Doha Asian Games concluded at the end of November 2006. Instead of retrograding the air defense battalion, the DOD issued a change of mission that extended the deployment to twelve months. In early 2007, an additional Patriot battalion headquarters and two firing units deployed to Kuwait, doubling the air defense posture within the U.S. Central Command (CENTCOM) area of responsibility. Over the next six years, FORSCOM increased its Patriot presence to three battalion headquarters and eleven firing units.⁶ Patriot launchers stayed in Qatar and Kuwait, and new Patriot units deployed to Bahrain, Jordan, and the United Arab Emirates. By 2013, the 32nd AAMDC had a full brigade's worth of air defense deployed in this new area of operations. The deployed Patriot units occupied and improved tactical sites from which they could provide air defense to U.S. assets and interests along the Arabian Gulf. Slowly, these tactical sites were hardened into fixed positions.

The Arabian Gulf mission had become the primary tactical influence on an entire generation of air defense soldiers and officers. Because of the mission requirements, Patriot units increasingly prioritized training their technical skills, referred to as air battle management, over the tactical skills required for supporting large-scale maneuver. This heavy focus on technical training continued to grow in earnest until 2018, when the DOD reduced its CENTCOM Patriot allocation down to eight firing units—a net reduction of a full battalion.⁷ The 32nd AAMDC support to the CENTCOM mission has remained essential to national security objectives; however, the global increase in regional-power competition demanded a new posture outlook for FORSCOM air defense forces. Moreover, FORSCOM air defense forces needed to adjust their training to a new operational construct: LSCO.

Roving Sands

With a reduction in the CENTCOM air defense mission and a renewed focus on training toward LSCO, the senior leadership of the 32nd AAMDC developed and implemented a strategy for modernizing the way the 32nd AAMDC trains. Central to this strategy is a yearly brigade-size field exercise designed around LSCO. In keeping with tradition, the 32nd AAMDC leaders named this exercise “Roving Sands” after a 1986–2005-era joint air defense exercise, which had ended with a shift in priorities to the high demands of the Global War on Terrorism. Besides the ambitious scale of the exercise, the modern Roving Sands has little in common with its predecessor.

At face value, Roving Sands provides the opportunity for an entire air defense brigade—from the brigade commander down to the newest soldiers—the opportunity to execute individual and collective tasks within the LSCO

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framework. However, the existential value of the exercise is as a change agent for all FORSCOM air defense training. As combat training centers provide a forcing function for corps, division, and BCT commanders to adapt to Army combat maneuver and logistics changes, the modern Roving Sands exercise seeks to instill change in air defense training as commanders and leaders at every level train for success in the exercise, and by extension, large-scale combat execution.

When the 32nd AAMDC developed Roving Sands, it focused exercise design on three primary training objectives. First, *create tactical proficiency in the air defense role during LSCO*. To enable this kind of proficiency, the exercise controllers required the 108th ADA Brigade to defend a prioritized list of critical assets while simultaneously planning to adjust local defense postures for future phases of the operation. Exercise controllers also used time as a training stressor, providing final information on the locations and dimensions of future critical assets to the 108th ADA with a limited amount of time to plan, reconnoiter, move, and occupy new tactical sites to support the adjusted defense.

The second training objective was to *reinforce technical air defense skills*. The exercise designers enabled this training objective by networking the participating air defense systems into Pelorus, a simulation device that allowed the operators to see and engage virtual enemy ballistic missiles, cruise missiles, and fighter sorties that were integrated into the scenario.⁸

The third training objective was to *develop tactical skill in security and movement control through the consolidation area*. The training audience was required to practice field craft and secure movements and assembly areas against Level I threats.⁹

Exercise designers created the tactical scenario for Roving Sands using Training Circular 7-101, *Exercise Design*; FM 3-0; and the Decisive Action Training Environment 3.0.¹⁰ In the Roving Sands road to war, a division tactical group of the opposing force attacked south across the international border of a NATO partner nation to seize key terrain and natural resources. A combined and joint coalition comprised of a U.S. Army corps, with two U.S. divisions and one United Kingdom division, conducted force flow and staging operations to attack north, defeat the enemy formation, and reestablish the international border. A corps operation order and a projected set of fragmentary orders would develop the scenario and provide the in-line adjustments to the corps' critical-asset list to stimulate planning and execution in the 108th ADA Brigade. Exercise designers also created two different mission command nodes to enable execution of the exercise (see figure 1, page 73). The first node,

Bravo Battery, 3rd Battalion, 4th Air Defense Artillery Regiment, conducts a mission readiness exercise in February 2019 at McGregor Base Camp, New Mexico, prior to participating in Roving Sands. (Photo by Capt. Brandon Nalley, U.S. Army)





exercise control, provided overall mission command of the exercise, oversight of the observer-coach/trainers (sourced from the 11th ADA Brigade, 31st ADA Brigade, and 69th ADA Brigade), and control over the simulation architecture and contents. The second node, the II Corps response cell (in the role as high command), was designed to serve as the direct mission command node for the 108th ADA Brigade; it issued orders, received reports, and executed regular battle-rhythm events. Both of these mission command nodes were sourced from the 32nd AAMDC headquarters personnel. Given the small size of the 32nd AAMDC staff—a division-level headquarters with one-third of a maneuver division's manning—this aspect was challenging. However, dedicating personnel to serve as a simulated higher headquarters created authenticity for the training audience and prevented the blending of tactical and administrative functions.

From the 108th ADA Brigade's perspective, Roving Sands challenged the status quo and forced the staff to adjust to a new type of operation by working directly for a corps commander as an air defense brigade. Supporting a ground maneuver fight forced the brigade staff to think and plan more dynamically, especially as the critical-asset list remained situationally fluid to continue to achieve the commander's objectives. This type of fight was a significant departure from the current ADA mission in CENTCOM, where locations of ADA assets remain largely static through an entire deployment. To gain and maintain the initiative during Roving Sands, the corps had to prioritize and protect key tactical assets such as

Vehicles from 3rd Battalion, 4th Air Defense Artillery Regiment, 108th Air Defense Artillery Brigade, are downloaded and refueled 11 February 2019 at the rail yard for the Roving Sands Exercise at Fort Bliss, Texas. (Photo by Sgt. LaShawna Custom, U.S. Army)

forward area resupply points, divisional support areas, and command posts (see figure 2, page 74). Complicating the problem, these assets moved regularly in support of the maneuver plan. These conditions compelled the ADA brigade, battalion, and battery leaders to understand the maneuver and support plans; coordinate tactical movements with the operational environment owners; and plan and resource external force protection assets based on mission, enemy, terrain, troops available, time, and civilian considerations well in advance of their movements and missions.

The brigade planners' success centered on shifting the mindset from a mature theater of operations with well-established tactics, techniques, and procedures, and rehearsed movements in accordance with a standing and well-understood operation plan, to an immature theater of operations in a contested environment. Contrary to a theater air defense mission, the 108th ADA Brigade entered Roving Sands as the senior ADA command in the corps. The brigade planners took an in-depth look at capabilities and limitations of the Patriot and THAAD weapon systems task-organized under their control, as well as the assets the corps commander directed them to defend. The commander and staff analyzed

Executing Roving Sands also highlighted the challenge of communicating between a technically specialized branch and general maneuver forces. The ADA brigade staff had to translate its detailed internal tracking mechanisms and reports into standardized formats to enable shared understanding with the corps commander and staff. At first, this proved more difficult than anticipated. Air defense planners and staff are accustomed to reporting directly to technical experts at a U.S. Air Force air operations center capable of understanding and interpreting the nuances of air defense data. During Roving Sands, the brigade commander and staff performed much of the interpretation of this data themselves to communicate effectively with their maneuver higher headquarters. Communication improved over time as the brigade staff became comfortable interacting with their corps counterparts. With experience, the staff developed systems that facilitated

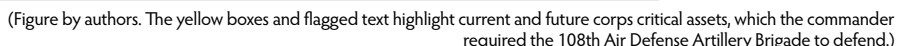
As the uppermost air defense echelon in the decisive-action operation, the brigade planners found themselves in a position to influence the process of selecting which assets they should defend. At the theater level, nominating the prioritization of a critical-asset list is a function of an AAMDC headquarters. Army Techniques Publication (ATP) 3-01.94, *Army Air and Missile Defense Operations*, describes this theater-level process in detail.¹¹ Doctrine does not clearly describe the process by which a tactical corps headquarters would prioritize assets for an assigned or attached air defense capability. Roving Sands tested this construct, requiring the ADA brigade to perform analysis and nomination of a prioritized corps commander's critical-asset list. This concept of corps critical and defended assets is sure to be controversial to doctrinal hard-liners; however, during LSCO in an immature theater, an ADA brigade staff may need to perform this analysis in the absence of an AAMDC. Roving Sands



Figure 1. Roving Sands Exercise Design Concept

Roving Sands also provided the 108th ADA Brigade's subordinate battalions a significant opportunity to train on tactical operations. The high tempo of the battle forced leaders at the battery and battalion level to conduct rapid planning and simultaneous execution to stay abreast of the supported maneuver force. Patriot units, long used to execute movements based on unit availability and maintenance, learned that they must execute their moves in accordance with the corps plan or risk desynchronizing the corps scheme of maneuver.

Perhaps the most important lesson learned for commanders and planners was the critical role of logistics in enabling operational reach. Unit commanders quickly realized that Patriot units will not always be the priority for support in LSCO. For many leaders at the brigade, battalion, and battery, Roving Sands was the first opportunity in their careers where they directly planned and operated with a combat sustainment support battalion. The last thirteen to fifteen years of static air defense operations have accustomed



unit leaders to “tailgate” logistics, whereby all necessary classes of supply are delivered to the customer at a fixed location. In a static mission, error in a logistics status report has minimal consequences. Commanders can request additional fuel, food, or medical supplies through local base support to correct the error. In Roving Sands, however, an inaccurate logistics status report potentially meant catastrophic mission failure. A unit’s inability to accurately forecast requirements meant that resupply might not have been planned, emergency resupply was potentially unavailable, and critical shortages could possibly halt operations. It was a hard but valuable lesson learned that will remain with those leaders for years to come. From the brigade to the battery level, Roving Sands served as an opportunity for leaders to participate, often for the first time, in a maneuver-centric, LSCO exercise.



Takeaways and Future Application

In the final after action report for the exercise, one theme was abundantly clear: Roving Sands provided a tremendous opportunity for reenergizing the skills particular to large-scale combat, but it also highlighted the need for renewed focus on training tactics at every echelon and further repetitions as an institution.

One major takeaway from Roving Sands was the need for clear command emphasis on training for LSCO across all echelons. To codify this within the FORSCOM air defense community, Maj. Gen. Clement Coward, the 32nd AAMDC commander, has published command training guidance identifying his expectation for training at echelon and the 32nd AAMDC strategy for future major training events such as Roving Sands. To aid ADA leaders, the 32nd AAMDC staff published this document with a summary of required individual and collective tasks that support large-scale combat at each echelon and a suggested long-range training schedule at the battalion level that complements those tasks.

A second major takeaway from the exercise is the need to conduct an orderly integration of mission-focused training (such as preparing for a deployment) into the overall training plan for large-scale combat.

Soldiers from Bravo Battery (Terminal High Altitude Area Defense, or THAAD), 62nd Air Defense Artillery Regiment, 69th Air Defense Artillery Brigade, based out of Fort Hood, Texas, conduct THAAD reload training 5 March 2019 during the Roving Sands Exercise at Fort Bliss, Texas. (Photo by Sgt. LaShawna Custom, U.S. Army)

It is likely that FORSCOM ADA units will maintain a high operational tempo of deployments for the foreseeable future. Like BCTs continuing to rotate through train, advise, and assist missions, air defense brigades must balance current mission requirements with training for large-scale combat. Many (but not all) skills parallel.

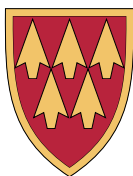
A final takeaway from planning this exercise is the value of reading and applying new doctrine. Recent doctrinal updates include reference publications, which are highly readable and highly useful for learning and applying the Army's new operational construct. Exercise designers relied upon references such as FM 3-0, *Operations*; Army Doctrine Publication 3-37, *Protection*; FM 3-94, *Theater Army, Corps, and Division Operations*; Army Doctrine Reference Publication 5-0, *The Operations Process*; FM 6-0, *Commander and Staff Organization and Operations*;

ATP 6-0.5, *Command Post Organization and Operations*; FM 7-0, *Train to Win in a Complex World*; and others.¹² 32nd AAMDC planners could not have executed an exercise such as Roving Sands without that clear direction and guidance. Leaders who wish to train to the Army's new operational construct are recommended to start there.

Conclusion

In his September-October 2018 *Military Review* article, "Meeting the Challenge of Large-Scale Combat Operations Today and Tomorrow," Lundy characterizes FM 3-0 as a "pivot point to steer the Army toward both persistent competition below armed conflict and, when necessary, armed conflict against highly lethal and adaptive peer and near-peer

Primary Units in this Article



Unit: 32nd Army Air and Missile Defense Command (AAMDC)

Mission: On order, 32nd AAMDC rapidly deploys forces worldwide to conduct air and missile defense operations in order to protect critical assets and support regional security.

Commander: Maj. Gen. Clement S. Coward

Garrison: Fort Bliss, Texas



Unit: 108th Air Defense Artillery Brigade (ADA)

Mission: On order, 108th ADA brigade rapidly deploys worldwide to defend U.S. forces and critical assets from aerial threats in order to support combatant commander operational and strategic objectives.

Commander: Col. Charles E. Branson

Garrison: Fort Bragg, North Carolina

enemies.”¹³ For the 32nd AAMDC, Roving Sands is the next turn in the road. Should armed conflict in a highly contested environment demand the services of the air defense, the 32nd AAMDC will be trained, ready, swift, and sure. ■

Notes

1. Michael D. Lundy, foreword to Field Manual (FM) 3-0, *Operations* (Washington, DC: U.S. Government Publishing Office [GPO], 2017).

2. John A. Hamilton, *Blazing Skies: Air Defense Artillery on Fort Bliss, 1940–2009* (Washington, DC: U.S. Government Printing Office, 2009), 290–91.

3. *Ibid.*, 292–93.

4. *Ibid.*, 330–32.

5. "Qatar Emiri Air Force (QEAF) Air and Missile Defense," GlobalSecurity.org, accessed 18 February 2020, <https://www.globalsecurity.org/military/world/gulf/qatar-air-force-bmd.htm>.

6. Gregory J. Brady, *The Army Needs More Patriots* (Carlisle, PA: U.S. Army War College, 2013), 4–5.

7. Gordon Lubold, "U.S. Pulling Some Missile Defense Systems Out of Middle East," *Wall Street Journal* (website), 26 September 2018, accessed 18 February 2020, <https://www.wsj.com/articles/u-s-pulling-some-antiaircraft-and-missile-batteries-out-of-middle-east-1537954204>.

8. "About Us," Jessix, accessed 15 January 2020, <https://jessix.com/>.

9. Joint Publication 3-10, *Joint Security Operations in Theater* (Washington, DC: U.S. GPO, 25 July 2019), fig. I-1. There are three threat levels; Level I threats include agents, saboteurs, sympathizers, terrorists, and civil disturbances.

10. FM 3-0, *Operations*; Training Circular 7-101, *Exercise Design* (Washington, DC: U.S. Government Printing Office, November 2010); U.S. Army Training and Doctrine Command (TRADOC) G-2, *Decisive Action Training Environment*, ver. 3.0 (Fort Leavenworth, KS: ACE Threats Integration, July 2017), accessed 15 January 2020, https://wss.apan.org/3084/Decisive%20Action%20Training%20Environment/DATE_3.0.pdf.

11. Appendix B, "Critical and Defended Asset Methodology," in Army Techniques Publication (ATP) 3-01.94, *Army Air and Missile Defense Operations* (Washington, DC: U.S. GPO, 2016).

12. FM 3-0, *Operations*; Army Doctrine Publication 3-37, *Protection* (Washington, DC: U.S. GPO, 2019); FM 3-94, *Theater Army, Corps, and Division Operations* (Washington, DC: U.S. GPO, 2014); Army Doctrine Reference Publication 5-0, *The Operations Process* (Washington, DC: U.S. Government Printing Office, 2012 [obsolete]); FM 6-0, *Commander and Staff Organization and Operations* (Washington, DC: U.S. GPO, 2014); ATP 6-0.5, *Command Post Organization and Operations* (Washington, DC: U.S. GPO, 2017); FM 7-0, *Train to Win in a Complex World* (Washington, DC: U.S. GPO, 2016).

13. Michael D. Lundy, "Meeting the Challenge of Large-Scale Combat Operations Today and Tomorrow," *Military Review* 98, no. 5 (September-October 2018): 113.