

The Use of ARRK to Develop a COP at AO Victory

By Lieutenant Colonel Darryl W. Kothmann

The Automated Route Reconnaissance Kit (ARRK) has incredible potential to positively affect other warfighting functions outside of maneuver and protection. Using the ARRK to survey the Area of Operation (AO) Victory, European Command, distribution network improved the delivery of commodities to rotationally aligned forces (RAF) and served as a passive route refinement asset. Simply put, the employment of ARRK by the 3d Infantry Division Sustainment Brigade (3DSB), Fort Stewart, Georgia, synchronized mobility, distribution, and route refinement, significantly increasing shared understanding of the AO and ultimately creating safer conditions for Soldiers and civilians.

While deployed as the RAF division sustainment brigade assigned to V Corps in AO Victory, 3DSB executed frequent distribution missions, covering more than 3,000 kilometers in eight countries. The diversity of military and governmental agencies governing 3DSB movements provided a diverse problem set, particularly for moving military vehicles and commodities.

Movement throughout each of the countries in AO Victory is governed by a separate national movement coordination center (NMCC). The NMCCs are responsible for arranging clearances for all troop movements, and they frequently direct the exact routes of convoys. The rules and regulations governing the selection of routes are just as diverse as the roadway conditions between countries.

Not only do roadway conditions and traffic regulations differ between countries; they also vary within a single country. Roadway conditions frequently fluctuate between cities and villages. Rural roadways are often restrictive and navigation with military equipment complex. Heavy trucks, trailers, and recovery assets further impact the constrained infrastructure throughout AO Victory. And after drivers and vehicle commanders become familiar with the obstacles along their assigned portion of the distribution network, they are replaced by another RAF unit that must go through the same learning process. Failure to adopt a common operating picture (COP) between stakeholders further complicates the process.

When 3DSB arrived at AO Victory, no COP of the routes comprising the distribution network had been assembled.

Additionally, routes selected by the NMCC often contained obstacles that were unsuitable for the type of equipment necessary to execute the mission. Military vehicles often exceeded the height restriction imposed by an overpass or the turn width available at an intersection. Poorly selected routes resulted in vehicle accidents, equipment damage, risk of injury to personnel, and delayed delivery of commodities. 3DSB identified the need to properly assess the status of each route; reach a shared understanding between the RAF DSB, the NMCCs, and the other RAF units operating in AO Victory; and produce a distribution COP between stakeholders.

3DSB requested two ARRKs from the U.S. Army Engineer Research and Development Center (ERDC), Vicksburg, Mississippi. The primary components of the ARRK consist of a laptop computer and dashboard camera, both of which are simple to install on any vehicle. And Soldiers in any military occupational specialty and without any engineering experience can be trained to use the ARRK, which passively collects data on roadway conditions and

obstacles as a vehicle is traveling. The data collected is sent to ERDC and compiled into a file. Brigade geospatial intelligence analysts can then transcribe the ERDC file onto a map. Once 3DSB had the ARRKs on hand, it began formulating a plan for employment.

3DSB integrated the ARRKs into existing distribution missions by collecting data on obstacles throughout the distribution network in order to eventually build a COP to be used by 3DSB, the NMCCs, and other RAF or North American Treaty Organization units. Each route within the distribution network was assigned a name that all stakeholders used as a reference. ARRK data was also used to advise the NMCCs on route selection for planned convoy movements. The initial data collection through existing distribution missions was successful, resulting in further demand for additional collection.

Employment of the ARRKs eventually drifted from integration into existing distribution missions to utilization of nontactical vehicle (NTV) movements planned specifically for data collection. Constraining the ARRKs to existing missions limited the frequency and speed at which the ARRKs




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could collect information. Compared to the heavy DSB equipment, NTVs can travel longer distances, make fewer stops, and better navigate obstacles. In addition, NTVs are not limited by dictated NMCC routes and could be used to collect information along proposed alternative routes. With the ARRKs resourced and missions specifically designed for data collection, 3DSB was ready to begin compiling the COP.

The ARRKs collected data on roadway width, underpasses, chokepoints, restrictive turns, bridges, and other obstacles along routes throughout AO Victory. Data received from ERDC was processed by brigade security analysts and their assigned geospatial intelligence analysts. The security analysts named the routes between the nodes, selected alternative routes for recommendation to the NMCCs, and compiled all route names onto a single COP for AO Victory. The COP is now being presented to NMCCs and command posts at echelon to achieve shared understanding and implementation throughout AO Victory.

3DSB used the ARRKs to complete a survey of a massive distribution network in AO Victory in less than 3 months, and its new knowledge of the AO improved brigade readiness in the event of escalation to an armed conflict within theater. The favorable implication to other theaters is obvious and profound.

Once adopted, the distribution COP for AO Victory will assist NMCCs in selecting the most appropriate routes for the types of equipment assigned to convoys and provide RAF and North American Treaty Organization units with a planning resource for moving personnel and commodities throughout AO Victory. It will also create a common language and a shared understanding of the AO for route planners and command posts at the AO. Finally, it will reduce the number of incident reports and accidents, ultimately creating a safer operating environment for Soldiers, civilians, and partners in the AO. The ARRK has made all objectives possible.

The COP, made possible by the ARRKs, will synchronize mobility with distribution by exploiting the most underrated collection asset in the engineer inventory. The ARRK is easy to resource, train, and employ. Unfortunately, it's a capability employed primarily by engineers alone—even though neither an engineer designation nor engineer knowledge is required to request an ARRK from ERDC. The Engineer Regiment owes the warfighter greater knowledge and a better understanding of the ARRK capability. 

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