*Paratroopers of the 2nd Battalion, 319th Airborne Field Artillery Regiment, 2nd Brigade Combat Team, 82nd Airborne Division, fire newly fielded M119A3 howitzers on Fort Bragg, N.C., Nov. 22. The 2-319th AFAR became the second artillery battalion in the 82nd Abn. Div. to receive new howitzers equipped with a digital fire control system that contains software similar to the Army's M777A2 howitzers.* ***(Photo by Staff Sgt. Jason Hull)***

# Multinational Fires:

## Enabling Responsiveness with ASCA

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### Multinational Fires: Enabling Responsiveness with ASCA

As tensions increase in Europe, the North Atlantic Treaty Organization's (NATO) ability to deliver responsive fires through multinational cooperation is crucial for supporting maneuver commanders. Commanders must prepare to work with NATO allies and establish systems and procedures, primarily through the Joint Fire Support Element (JFSE). The JFSE integrates, synchronizes, and coordinates fire support–delivered by air, maritime, and land forces–to achieve a common land operational objective, ensuring fires are delivered at the right time, in the right place, and for the right purpose, according to AArtyP-5 (NATO Fire Support Doctrine.) This article will examine the challenges of multinational fires in Large-Scale Combat Operations (LSCO) and provide leaders with points of friction, methods to mitigate those frictions, and prepare units to effectively utilize Artillery Systems Cooperation Activities (ASCA).

### Frictions in Multinational Fires

Multinational fires in LSCO present significant challenges and frictions. NATO's 32 member nations employ 29 different native languages and a diverse range of fire support systems–including cannons, mortars, rockets, and both fixed-wing and rotary-wing aircraft–to generate effects in support of operations. However, many of these systems operate using software programmed in their country of origin, creating technical interoperability challenges. Further complicating matters, nations maintain separate networks with varying classification levels and distinct rules governing foreign system access, exemplified by the United States' Secret Internet Protocol Router (SIPR) Network. Allied nations require formal agreements and security accreditation to gain access, which is strictly controlled.

When systems fail to connect, Fire Support Command and Control (FSC2) must manually transfer critical data between national systems. This involves taking information from one country's FSC2 and relaying it to an operator from another country for manual input, known as a "swivel chair." This process significantly increases the time required to process fire missions, disseminate fire support coordination measures (FSCM), update firing unit locations and ammunition statuses, and share meteorological data. Because all this information requires manual entry, the risk of human error is increased, potentially leading to firing incidents or fratricide.

Nations also differ significantly in their fire support procedures. Each country employs unique methods for controlling firing intervals, establishing control measures, and

managing airspace with differences largely stemming from national size and the availability of joint assets. An example of this from the NATO Standardization Office is Restricted When Ready, "a method of control given by the observer to fire from a specific time and for a time window, measured in minutes from a specified start time." While the United States does not employ this method, other nations do.

## Mitigating Frictions in Multinational Fires

NATO Standardization Agreements (STANAG) provide procedural guidance for NATO Allies operating in a joint environment. STANAG 2934, AArtyP-1, *NATO Joint Fire Support (JFS) Procedures for Land Operations* states that "the differences in national procedures, language, capabilities and the limited scope of this agreement make the presence of Fire Support Liaison Officers essential." These Officers ensure effective communication of procedural differences between national elements, enabling accurate and timely fires in support of maneuver elements. To be effective, Liaison Officers must thoroughly understand their formation's capabilities, as well as their national doctrine and procedures. Proficiency in the language of the supported force is also highly desirable, though not always attainable.

Digital Fire Control Systems (DFCS) face challenges because interoperability issues, approval processes for network connections, multi-level security concerns, and varying equipment reliability impede the rapid establishment of multinational information networks, according to FMN Spiral 5 Procedural Instructions for Fires. To maintain responsive fires, cross-national exchanges establish Federated Mission Networks (FMNs). FMNs are secure, interoperable networks that connect disparate national systems, enabling data and message exchange despite differing security classifications and technical standards. These FMNs enable Artillery Systems Cooperation Activities (ASCA) to facilitate communication between DFCS.

*Paratroopers of the 2nd Battalion, 319th Airborne Field Artillery Regiment, 2nd Brigade Combat Team, 82nd Airborne Division, load a 105 mm artillery round into a newly fielded M119A3 howitzer on Fort Bragg, NC. The 2-319th AFAR became the second artillery battalion in the 82nd Abn. Div. to receive new howitzers equipped with a digital fire control system that allows artillery crews to emplace the gun and begin firing rounds in less than two minutes.* ***(Photo by Staff Sgt. Jason Hull)***

*U.S. Army Staff Sgt. Boett Stovall, with the B-Battery, 1st Infantry Battalion, 7th Field Artillery Regiment, 1st Infantry Division, reads a Paladin Digital Fire Control System in a Paladin M109 Alpha-6 Howizter to provide a digital link to the fire support network for calls-for-fire and mission data during exercise Eager Lion 2016, at Al Zarqa, Jordan* ***(U.S Army photo by Spc. Kevin Kim/ Released)***

ASCA is a message format defined by the Common Technical Interface Design Plan (CTIDP), based on STANAG 2432, AArtyP-3, *Artillery Procedures for Automatic Data Processing (ADP) System Interoperability*. ASCA dictates how messages are formatted using NATO 7-bit code and how nations program their DFCS to transmit the required messages for communication with allied nations. Although each DFCS continues to communicate in its native coding with its own firing units, it utilizes ASCA messages to communicate with multinational partners' DFCS through a component known as the ASCA Gateway, but never directly with another nation's weapon systems.

## Preparing Units to Effectively Utilize ASCA

Units scheduled to deploy to Europe need to prepare their DFCS to utilize ASCA and develop standard operating procedures (SOPs) to minimize disruptions. ASCA does not communicate with multinational systems using the standard Unit Reference Numbers (URN) found in the Joint Master Unit List (JMUL). Instead, ASCA uses the NATO Alias to communicate across the interface in messages to identify the message's originator, its destination, and any pertinent information such as the firing unit in a fire mission or a message to observer (MTO).

According to their standards, the NATO Alias must adhere to the format "X.X.X.XXX.XXX," accepting both letters and numbers. Currently, units within the JMUL receive a default NATO Alias based on their URN; however, this system lacks a consistent naming convention across the ASCA interface. For example, a unit with an URN of 874234 would receive a default NATO Alias of 0.0.0.874.234. To resolve this issue, units should define their NATO Alias with a naming convention that provides clarity within the ASCA interface. The Advanced Field Artillery Tactical Data System (AFATDS) technical manual 11-7010-689-SAM recommends structuring the NATO Alias to include the section, platoon,

battery, battalion, and the brigade or division. As an example, Gun 1 of 1st Platoon, Alpha Battery, 2nd Battalion 77th Field Artillery, 2nd Brigade Combat Team, 4th Infantry Division has a NATO Alias of "1.1.A.277.4ID" and all other howitzers and systems follow this same convention. Currently, the United States Army has established a NATO Alias for 5.93% of its units, while the United States Navy, including the Marine Corps, has established it for 67.53% of its units.

Prior to the establishment of an interface, the information described below needs to be agreed upon and exchanged for entry into the interfacing national systems. All data will be collected on the ASCA-013-01-Annex E. The mandatory information required includes the Nation Code, Call Sign, ASCA Type (Firing Unit, General Unit, or Target Acquisition Unit), NATO Alias, and the ASCA Gateway's NATO Alias. ASCA Gateways are required to provide IP Address, Subnet Mask, Listening Port, and ASCA Version. Firing Units are required to provide System Type, System Model, Number of Systems, and Unit Size. This information is required to build units into the DFCS database in order to establish a digital connection and enable fire support operations. Once units capture this information in ASCA-013-01-Annex-E, they must document it in their Digital Standard Operating Procedures (DIGSOP). This DIGSOP should be readily available to provide ASCA-013-01-Annex E to multinational partners establishing a digital connection.

Technical rehearsals and familiarity with the National Interface Operating Procedures (NIOP) complete a unit's preparation for deployment. Each unit must study and understand its NIOP, especially Liaison Officers. The NIOP details the capabilities and limitations of a nation's DFCS system. It outlines any deviations from CTIDP and updates continuously as systems receive software patches and undergo improvements. During Digital Sustainment Training at home station, units practice sending ASCA messages to prepare for supporting NATO operations.

*Paratroopers of the 2nd Battalion, 319th Airborne Field Artillery Regiment, 2nd Brigade Combat Team, 82nd Airborne Division, fire a newly fielded M119A3 howitzer on Fort Bragg, NC. The 2-319th AFAR became the second artillery battalion in the 82nd Abn. Div. to receive new howitzers equipped with a digital fire control system that allows artillery crews to emplace the gun and begin firing rounds in less than two minutes.* ***(Photo by Staff Sgt. Jason Hull)***

## Conclusion

This paper examined the challenges of multinational fires in LSCO and equipped leaders with an understanding of inherent frictions, mitigation methods, and guidance for preparing units to effectively utilize ASCA. As demonstrated, the diversity of national systems, varying procedures, and complex network access requirements significantly obstruct seamless fire support integration. To overcome these obstacles, we recommend implementing Federated Mission Networks, prioritizing the establishment of NATO Aliases within the JMUL, documenting required data from ASCA-013-01-Annex E in DIGSOPs, and conducting technical rehearsals. These actions, coordinated by technically and tactically proficient liaison teams, will ensure timely, accurate, and coordinated fire effects.

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