Black Saber Group Shares How They Began and Where They are Now

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How the E-Clip & E-Dock are the Solution for Encrypted Voice and Tracking for the Iridium Extreme® over the Iridium® Network

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In 2018 Black Saber Group engaged and listened to potential customers around the world, it became clear that the customers' top priority wasn't just basic satellite connectivity, it was point-to-point encrypted voice communication, along with full control over their own encryption keys and key management systems. Black Saber Group began searching for a device that could deliver encrypted voice over a satellite network. At one point, BSG believed they had found a solution through an existing provider. Unfortunately, it was later confirmed that the capability BSG was seeking—true, end-to-end encrypted voice over Iridium—simply did not exist. Determined to meet the customers' needs, BSG regrouped internally and conducted an exhaustive, legally compliant search for a viable solution. Despite extensive efforts, BSG was unable to find any company willing—or able—to take on the challenge. So, as a small but determined team of seven—including members with a combined 74 Years of military experience, the mission was clear: develop a solution that enables AES-256 encrypted voice communication over the Iridium network, with complete user control over their encryption keys and management. BSG knew this capability was critical for organizations to implement a truly resilient PACE plan—and understood that delivering this solution would define BSG's success. Black Saber Group was committed to make it happen—not just for our customers, but also for the future security and utility of the Iridium platform.

After two years of research and development, Black Saber Group (BSG) now offers the only commercially available solution to this problem: the E-Clip and E-Dock—with the "E" standing for Encryption. These solutions maintain the full functionality of the Iridium Extreme® while enhancing it with secure AES-256 encrypted telephony and encrypted Position Location Information (PLI). The E-Clip and the E-Dock are FIPS 197 validated (Advanced Encryption Standard—AES), meeting federal standards for secure encryption. Black Saber Group's goal is to protect the integrity of critical communications while preserving ease of use and operational readiness.

Background:

The Iridium Extreme® is a satellite phone sold by Iridium, a prominent satellite company in the

industry. It functions off the Iridium Network which consists of 66 active Low Earth Orbiting Satellites (LEO). The advantages of the Iridium Extreme® are that due to the closer proximity of the satellites to the Earth compared to other satellites, it leads to a lower latency, a stronger signal quality, and offers LEO PNT (position, navigation, and timing).

The Iridium Extreme® is commercially available to the general public, which is an important distinction—satellite phones remain a common and often essential means of communication for mission partners. This is particularly relevant because not all mission partners can be equipped with NSA-level encryption devices.

For decades, the majority of multinational operations and exercises have been conducted without granting mission partners access to classified encryption capabilities. This limitation has often prevented the sharing of vital information, hindering mission success and coalition effectiveness.

However, with the integration of the Iridium Extreme®, E-Clip, and E-Dock, BSG can now offer a commercially available solution that enables secure communications with mission and emergency response partners. Even incremental improvements in communication security significantly improve operations for an overall success rate on missions. The investment in these tools is justified by their ability to resolve long-standing interoperability challenges between personnel with different clearance levels and enable secure voice and position location information exchanges—empowering U.S. forces, partner agencies, and emergency responders to communicate more effectively in complex operational environments.

How did the E-Clip and E-Dock get started?

Over several years, Fatah Muraisi, CEO of Black Saber Group, built a strong relationship with a key customer by establishing a reputation for honesty, trust, and consistently fulfilling both his own and others' commitments. This customer required a secure, encrypted method to communicate over satellite phones and the ability to transmit encrypted PLI. In addition, they wanted full control over the key management of their devices, something rarely offered in commercial solutions.

Black Saber Group was working with a vendor that claimed to have the perfect solution for the customer's requirements. However, it was later revealed that the solution was not real, putting Black Saber Group's reputation at risk. With limited time and failure not being an option, the team—working closely with Iridium—conducted an extensive search for a device that could meet the contract's specifications. That search confirmed a difficult reality: no such device existed anywhere in the world that met the customer requirements.

Black Saber Group made the strategic decision to develop its own solution to address a global market need: a commercially available device capable of encrypting both voice and position location information over the Iridium network. The customer approved the concept with the

stipulation that, once the devices were manufactured, they would be subject to a comprehensive Factory Acceptance Test (FAT).

To fulfill the contract with the customer, Black Saber Group received authorization from Iridium to pursue the development of a device that could attach to the Iridium Extreme®, encrypt telephony and position location information, and include a key management system. Iridium expressed support for the initiative but cautioned that success was not guaranteed. They made it clear that while they would support the effort as much as possible, Black Saber Group would need to assume the full financial risk of development.

The objective was to create a lightweight, easily attachable device that seamlessly integrated with the Iridium Extreme® and was user-friendly. To achieve this, Black Saber Group assembled a team of engineers—comprising both full-time staff and consultants—and developed the E-Clip and E-Dock, both of which operate in conjunction with the BSG Key Management System (KMS).

The E-Clip encrypts telephony and position location information for outdoor use.
The E-Dock provides encrypted telephony for indoor environments such as vessels, buildings, and transportation platforms.
The BSG KMS is the secure platform allows users to independently generate, modify, and manage encryption keys, set position location intervals, handle key group registration and management, and perform software updates.
All devices are commercially available and non-ITAR restricted, making them accessible to both government and commercial clients worldwide.

Upon completion of development, Black Saber Group manufactured and assembled several hundred E-Clips and numerous E-Docks for the customer. In addition, over the past seven months, Black Saber Group conducted more than 2,000 combined tests to validate the performance and reliability of the devices. The next phase in the process was the execution of the FAT.

Factory Acceptance Test (FAT)

Black Saber Group was committed to ensuring the customer had complete confidence that they had selected the right solution for their PACE plan. To achieve this, BSG developed a comprehensive FAT checklist that went above and beyond the contractual requirements. Completion and approval of the FAT signifies that the devices and the KMS have been formally tested, validated, and accepted by the customer.

The Factory Acceptance Test included a complete evaluation of the E-Clip functional operation, key generation, call and push-to-talk communication reliability, tracking accuracy, and serial number and IMEI verification.

Before the customer visited BSG headquarters in Tampa, Florida, BSG prepared all the devices

for testing. The clients randomly selected 10% of the E-Clips and 10% of the E-Docks for evaluation.

The client with BSG performed the tests, and the client approved the E-Clip and E-Dock as fully functional. BSG passed all the required tests.

Proposed Solution:

Telephony and position location information transmitted via the Iridium Extreme® are not innately encrypted, leaving users vulnerable to interception by those seeking to exploit sensitive data. The E-Clip and E-Dock, supported by the BSG Key Management System (KMS), offer a secure and effective solution by enabling AES-256 encrypted satellite communications and encrypted position location information. Together, these devices and the KMS platform give users full control over their security posture, including end-to-end encryption, key ownership, and the integrity of their communications.

Conclusion:

The customer approved the conceptual solution, conducted a Factory Acceptance Test (FAT) with Black Saber Group, and formally validated the E-Clip and E-Dock, supported by the BSG Key Management System (KMS), as an effective and user-friendly method for encrypting both telephony and position location information on the Iridium Extreme®.

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