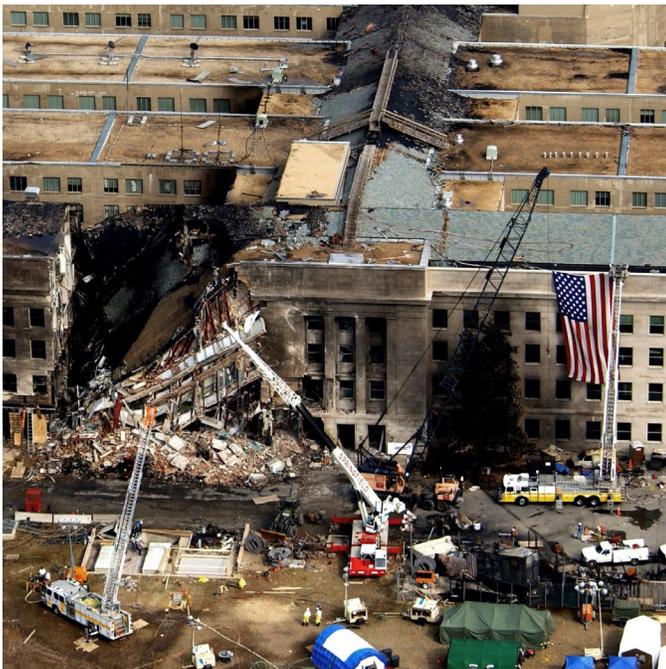


Keeping Weapons, Ammunition, and Vital Assets Out of the Hands of Terrorists: The Asset Tracking Solution

The global threat of terrorism is more apparent than ever, even as the world's superpowers continue to engage in counterterrorism efforts to eradicate – or at least control – threats posed by terrorism groups such as the Taliban, the Islamic State of Iraq and the Levant (ISIL, commonly known as ISIS), and Al-Qa'ida, as well as lesser-known actors. In a 2017 white paper, the Australian Government predicted that the global terror threat would remain high and perhaps even worsen over the next decade, noting that terrorists are taking advantage of communications equipment to direct and inspire increasingly sophisticated attacks. By taking advantage of new technologies, terrorists have the ability to create biological and chemical warfare agents, adding more complexity to the task of combating terrorism.

Perhaps most alarming is that terrorists are increasingly gaining access to the weapons and equipment the United States and other allied nations use to combat terrorism, from weapons, ammunition, and materials that can be used to make explosives, to secure communications equipment, body armor, and respirators. In essence, they use our own assets against us. Thus, implementing robust tracking mechanisms to gain better visibility into weapons and other assets has become paramount in the fight against terrorism.



The Threat Landscape

In a November 2017 [article in The Telegraph](#), Oliver Smith reveals that in 2016, total fatalities from terrorism fell for the second year in a row. However, more countries are being impacted by terrorism, with a total of 77 countries experiencing at least one death from terrorism that same year. It was not only a marked increase from 2015, when 65 countries had at least one death attributed to terrorism, but also the highest in 17 years. Including those without acts resulting in death, a total of 106 countries experienced at least one act of terrorism in 2016.

According to [The HALO Trust](#), the trafficking and trading of illicit weapons is growing, particularly in fragile regions such as the Middle East and Africa. In these and other regions, armed violence and political instability are aided by the diversion of poorly secured and ill-managed government assets, such as firearms, secure communications equipment, body armor, and man-portable air-defense systems (MANPADS). In early 2015, for example, assailants in Paris who attacked the offices of Charlie Hedbo, a satirical newspaper, appeared to be well-equipped with military-style gear including AK-variant rifles and load-bearing vests, also known as chest rigs, which are designed to hold ammunition, according to a [Washington Post report](#).

But it's not just intentional acts of terrorism that pose a threat; improperly stored weapons and ammunition stockpiles pose risks to the general public as well. Since 1979, there have been more than 500 serious unplanned explosions at munitions sites (UEMS) in more than 100 countries, according to The HALO Trust. In fact, in 2012, the number of casualties from such incidents exceeded the formal reported death tally attributed to mines and bombs.

The need for action is clear: Nations must implement improved tracking systems to better manage weapons and other assets desirable to terrorists.

How Terrorists Gain Access to Valuable Military Assets

Firearms might be the obvious, but they're not the only assets diverted to terrorists and terrorist organizations. Ammunition and explosive materials that can be used to make IEDs are a common target, as well as valuable supplies such as respirators and body armor that can be used for protection.

Secure communications devices pose a serious threat as well, enabling encrypted communication for inspiring and planning attacks. For instance, MANPADS, mentioned previously, pose a substantial threat to aviation security when they land in the wrong hands.

The U.S., U.K., and allies maintain a military presence in countries in fragile, war-torn regions such as Afghanistan. Currently, as part of **NATO's Resolute Support Mission (RSM)**, more than 16,000 personnel from 39 countries are deployed to Afghanistan to train, assist, and advise Afghan security forces. A non-combat mission, the RSM aims to help Afghan security forces and institutions develop sustainable capabilities to defend the country and protect its citizens.



Photo by 7th Special Operations Kandak

In March 2018, the Afghan Air Force **dropped a laser-guided bomb** on a Taliban compound, destroying the compound as well as equipment that the Taliban had stolen. And in August 2018, **a raid on a Taliban compound in Helmand province** destroyed 50 pounds of homemade explosives, weapons and ammunition, and 1,000 kg of fertilizer – used to make improvised explosive devices (IEDs).

In 2017, an operation carried out by the Syrian Army **discovered large warehouses** heavily stocked with US-made weapons and military equipment produced in Western Europe and Israel, including TOW anti-tank missile systems, 155 mm US field guns, Israeli intelligence reconnaissance aircraft, and a modern Israeli protective suit, as well as Hummers, some filled with explosives, tech for air and ground reconnaissance, satellite communications, and bags with C-4 explosives.

These discoveries aren't limited to countries like Syria and Afghanistan. In late 2015, officials in France **uncovered hundreds of weapons** – including dozens of military weapons – in raids on mosques, homes, and businesses believed to be linked to radicalization following the terrorist attacks in Paris on November 13, 2015. It's not a new phenomenon: Back in

1997, **The Independent** reported on an arms raid in Belgium, resulting in the seizure of eight tons of arms, ammunition, and explosives.



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There are countless examples. The frequency of activities resulting in the discovery, seizure, or destruction of stolen or diverted resources demonstrates the proliferation of the problem: terrorists are gaining access to assets that they can use to carry out violence, from the very entities that are mounting a defense against them.

But how do these assets land in the wrong hands in the first place?

Radicalization of Civilians or Military Personnel

As the 2015 raids in France indicate, radicalization is a growing problem. But it's not solely a civilian problem. In 2017, **The Guardian** reported that a **Royal Marine pled guilty** to terrorist attacks occurring between January 2011 and August 2016. After purchasing chemicals and other components, the charges allege that he made explosives and stored them in caches built specifically for the purpose in England and Northern Ireland. Authorities also alleged that he had a library of documents related to terrorism, including instructions on making explosives and documentation on tactics utilized by terrorists.

Once radicalized, members of the military and ordinary civilians leverage their access to weapons (depending on gun laws in the country) and other supplies to arm themselves and other individuals or groups.

Intentional Diversion by Arms Dealers

The black market proves lucrative for arms dealers. In 2017, Spanish police carried out an operation disrupting a European terror weapons ring, including the discovery of a massive cache of **more than 10,000 weapons**, including machine guns, revolvers, shells, grenades, anti-aircraft guns, and more intended for sale to terror groups and organized crime gangs throughout Europe. The operation included the

arrest of five suspected weapons dealers. While a major disruption to this particular network, the demand for illicit weapons diversion simply means others will fill the gap.



Photo via <http://www.heartpublications.co.uk/arms-cache-found/>

Insufficient Export Tracking

A [September 2015 report](#) from The Brussels Times sheds light on the issue of negligent reporting by some individual EU member states, noting that countries aren't always clear on where their weapons exports go – or where they eventually end up, in some cases, in the hands of terrorists. “EU member states are major global arms exporters, accounting for about 38 billion euro in exports in 2013, thereof 73 percent to non-EU countries,” according to the article. “Germany, France, United Kingdom and Italy are the biggest exporters. The world arms trade is dominated by the US and Russia, which together accounted for 58 % of total exports in 2010 – 2014 according to SIPRI (Stockholm International Peace Research Institute).” With reports of exported weapons found in the possession of terrorists, and even used to carry out attacks on European citizens, the European Parliament discussed the need for greater control over weapons exports.

Unsecured or Poorly Managed Stockpiles

According to [NATO Review](#), an estimated 6,300 metric tons exists in Afghanistan alone. When stockpiles aren't adequately secured or managed, supplies such as rounds of ammunition and pre-manufactured explosives, as well as detonators, plastic explosives, and other materials that can be used to make IEDs are easily diverted for illicit use.

In December 2016, [The Mirror reported](#) on widespread theft from armed forces bases across the U.K., including gun sights, camouflage gear, sniper rifles, night vision goggles, bullet-proof vests, and more, described as “a terrorist's shopping list of military equipment.” Even vehicles were stolen, including two Land Rovers, along with 10 spare wheels.

Inadequate Security During Transport

Robust security is required when transporting any supplies and equipment of value to terrorists. Transporting these materials without sufficient security opens the door to theft, loss, and diversion.

Black Market Diversion of Assets Provided to Forces

The United States and other countries, either directly or through NATO efforts, provide weapons and other supplies to forces in Iraq, Afghanistan, and other war-torn nations to help them combat terrorist groups like ISIS. Unfortunately, some of these supplies are diverted to the black market, where they commonly end up in the hands of terrorists.

For instance, in its [2015 budget](#), the U.S. Department of Defense requested \$1.3 billion to provide weapons for Iraqi government forces and \$24.1 million for the tribes. In November 2014, Col. Shaaban al-Obeidi of the internal security forces and a Sunni tribal leader in Anbar Province, told [The New York Times](#) that he advised the Americans to avoid giving weapons and supplies to the Iraqi army due to rampant corruption. “If each soldier is supposed to get 100 bullets, he will only get 50, and the officer will take and sell the rest,” Colonel Obeidi told reporter David D. Kirkpatrick. [Canadian-made guns](#) have also turned up for sale on the Iraqi black market.

Supplies Captured from Anti-Government Militias

In December 2017, [Wired reported](#) on the work of Damien Spleeters, a field investigator for Conflict Armament Research (CAR), a European Union-funded international organization that tracks weapons trafficking in war zones. Sometimes, CAR discovers weapons that have made their way into war zones in violation of international arms agreements. At that time, CAR had collected weapons data through 83 site visits in Iraq, resulting in a comprehensive database listing weapons and ammunition recovered in Iraq and Syria – which, at the time, consisted of 1,832 weapons and 40,984 pieces of ammunition.



At Iraqi military intelligence headquarters in Baghdad, weapons inspector Damien Spleeters (left) and his coworker, Haider al-Hakim, look through crates of ISIS ammunition. Photo by ANDREA DICENZ

While it's clear that terrorists, through whatever means they employ, are becoming increasingly well-armed. But perhaps more alarming is a series of modified rockets appearing in ISIS propaganda videos on YouTube and other social networks, which Spleeters believed were "captured from antigovernment militias in the Syrian civil war that had been secretly armed...."

CAR's first report, back in 2014, documented that ammunition provided by the United States to the Iraqi Army was obtained by ISIS, and the organization has continued to uncover covert arms and materials diversions, as well as production facilities and other valuable intelligence that provides insight into the advancing capabilities of terrorist groups like ISIS.



Existing Measures to Prevent Diversion

While well-funded terrorist organizations such as ISIS are developing their own manufacturing capabilities, the diversion of arms and supplies to terrorists continues to be a major threat. CAR's discoveries and other intelligence make it clear that in an effort to arm governments to defend themselves, the U.S. and other countries are arming the very terrorist groups those supplies are meant to defend against. A number of existing measures exist to combat this growing problem.

National Laws Governing the Control of Fire Arms and Munitions

The United Kingdom's [Firearms Act 1968](#) prohibits certain weapons and the possession, acquisition, manufacture, or purchase of certain weapons, ammunition, or missiles, particularly those intended for military use, without authority. It also grants the Secretary of State the power to prohibit the movement of arms and ammunition within Great Britain, from Great Britain to Northern Ireland, and for export from Great Britain, and outlines requirements for firearm certificates for

lawful possession and use of allowable weapons.

Many other countries have gun laws and policies, some more restrictive than others. Countries that do regulate access to firearms, like the U.K., typically restrict access to certain categories of weapons as well as limit that access to certain categories of people who may be granted a license. For instance, some weapons may be restricted to use by military or law enforcement personnel, while others are accessible to the general population. Many also require licensure for firearms, with different licenses for purposes such as hunting, self-defense, concealed carry, or for purposes such as collecting or target shooting, or sport shooting. Typically, there are different requirements for obtaining different types of licenses, as well as different permissions and responsibilities for license holders.

Gun control legislation also may restrict non-firearm weapons, such as crossbows, swords, and explosives, as well as firearm accessories like high-capacity magazines and silencers or sound suppressors. Additionally, legislation may impose restrictions on types of ammunition or on the quantity of ammunition that may be purchased in a particular time period.

The Second Amendment to the United States Constitution protects the right to keep and bear arms. However, both federal and state laws apply to the possession, ownership, and sale of firearms, and laws vary from state to state. Gun laws are enforced in the U.S. by the [Bureau of Alcohol, Tobacco, Firearms and Explosives \(ATF\)](#). The United States is considered to have permissive gun legislation, although there are a [number of regulations](#) that restrict possession and impose requirements on the sale and transfer of firearms.

"No Fly, No Buy" Legislation

In the United States, a bi-partisan group of nine United States Senators, led by Senators Susan Collins (R-ME) and Heidi Heitkamp (D-ND), [introduced a bill](#) that would prohibit suspected terrorists who are on the "No Fly" List (meaning they're prohibited from air travel) from purchasing firearms.

The legislation is intended to reform the nation's gun laws while also protecting citizens' Second Amendment rights, giving the Attorney General the authority to deny sales of firearms to individuals who appear on the No Fly List or the Selectee List and alert the FBI and local law enforcement of any attempted firearm purchases by any individual on one of the two watch lists during the prior five years.

A domestic measure only, this legislation does not address theft or diversion but does point to a growing awareness of the need to keep weapons out of the hands of terrorists and other dangerous individuals.

Sanctions

Terrorists control assets within the United States, including both funds and real and tangible property. The U.S. Department of the Treasury Office of Foreign Assets Control (OFAC) administers sanctions programs targeting international terrorists, terrorist organizations and supporters, including countries designated as state sponsors of terrorism. Sanctions include the blocking of assets held by terrorists within the United States, which can help to expose and isolate terrorists and their respective organizations and supporters.

According to OFAC's [Twenty-sixth Annual Report to the Congress on Assets in the United States Relating to Terrorist Countries and International Terrorism Program Designees](#), "The implementation of sanctions programs targeting international terrorist organizations has resulted in the blocking in the United States of approximately \$44 million in which there exists an interest of an international terrorist organization or other related designated party. Approximately \$199 million in assets relating to the three designated state sponsors of terrorism in 2017 have been identified by OFAC as blocked pursuant to economic sanctions imposed by the United States."



The Arms Trade Treaty

The [Arms Trade Treaty](#) (ATT) is the first international treaty aimed at regulating the [international trade of conventional arms](#) and utilizing accountability and reporting as a method of control. The ATT regulates the trade of small arms and light weapons, as well as tanks, helicopters, combat aircraft, large-caliber artillery systems, warships, missiles and missile launchers, etc. It focuses on trade, but does address tracking measures. However, the ATT falls short of fully addressing theft and diversion.

The HALO Trust

The [HALO Trust](#) works with national authorities recovering from conflict or seeking to strengthen human security, as well as the United Nations Mine Action Service (UNMAS).

HALO Trust provides training and infrastructure such as weapons and ammunition disposal programs, safe and secure storage sites, and assistance with weapons and ammunitions management systems, as well as a [Physical Security & Stockpile Management \(PSSM\) program](#), ensuring that ammunition stores are properly constructed, assessing ammunition for quality, type, and overall condition prior to storage, and other training and assistance to reduce the risk of harm. Additionally, The HALO Trust helps authorities develop national standards for activities and conducts assessments and provides guidance on weapon marking for tracing and record-keeping.

Trade / Export Controls

Export control regulations of a nation cover shipment of controlled physical items, such as scientific equipment that require export licenses from the United States to a foreign country, and transfers of controlled information, including technical data. These are not only designed to stop technology and assets being obtained by a foreign undesired nation but also implements controls to ensure they don't fall into terrorist organizations.

These controls are implemented and enforced via audits such as the US Blue Lantern program which monitors the end-use of defense articles, defense services, and brokering activities to ensure that "the recipient is complying with the requirements imposed by the U.S. government with respect to use, transfers, and security of defense articles and defense services," and that "such articles and services are being used for the purposes for which they are provided."

Governments aim to control the export of goods, depending on the nature and destinations of the proposed export. All countries have some form of an export control policy, legislation and enforcement mechanisms e.g. the US International Trade In Arms Regulations (ITAR)

Anything which is on a nations export control lists must have a licence before supplying to someone outside the export nation. The control lists include finished items or systems, raw materials and components. But also, but not limited to:

- Weapons and explosives
- Goods, technology, software or components designed or modified for military use (e.g. vehicles, aircraft, imaging equipment, cryptographic technology, training materials for a weapons system)
- Dual-use' goods, technology, software, documents or diagrams which meet certain technical standards and could be used for military or civilian purposes (e.g. chemical agents, computers, telecommunications equipment, marine or aerospace technology)

International Ammunition Technical Guidelines

The [International Ammunition Technical Guidelines](#) are technical guidelines for the stockpile management of conventional ammunition. The guidelines consist of a three-tiered, progressive approach: basic, intermediate, and advanced, enabling states to implement more stringent standards as they have the resources to do so over time. It consists of several components and recommendations, including:

- **Transportation:** Weapons and ammunition should be transported separately. (This principle can also apply to IED components.)
- **Marking & Accounting:** Markings should provide information to enable the explosives to be stored, handled and transported correctly; assist in the identification of the nature of the ammunition, and assist in proper accounting and control procedures.
- **Security Classification:** Materials of particular interest to terrorists should be classified as such, and a higher level of security should be applied to these materials compared to other ammunition, including potential IED components, such as detonators and certain explosives. Classifications are used to disrupt the operation of illicit networks or causing delays by blacklisting certain aircraft or rescinding licenses for the brokering of arms and military goods. Security classifications also allow for cross checking import, export, and transport documents to look for inconsistencies that may indicate an illicit shipment.

The International Ammunition Technical Guidelines provide important principles for enhancing international information sharing and cooperation, a crucial element in combating the global issue of the diversion of weaponry and other assets to terrorist groups. While the International Ammunition Technical Guidelines recommend consistent marking and tracking procedures, they're used by states on a voluntary basis. However, some countries are taking steps to make marking mandatory. In India, for instance, a Unique Identification Number (UID) issued by the Union Home Ministry is [mandatory for possessing guns or other arms](#) in the country.



Current Marking Standards

Firearms Marking

The marking of firearms is currently done either by the manufacturer during the manufacturing process or post-manufacture, by an entity other than the manufacturer. There are no mandatory, globally accepted standards that regulate firearms marking. The [International Small Arms Control Standards](#) (ISACS — ref: UN CASA, 2012) includes a module on marking and record-keeping, but adherence is voluntary, though it is growing in popularity.

The [UN International Tracing Instrument](#) (UNGA, 2005) also issues guidelines for marking firearms. According to the UNGA, markings must be:

- Conspicuous and on an exposed surface
- Visible without special tools or aids
- Easily recognizable
- Durable
- Readable

Under UNGA guidelines, markings must include the name of the manufacturer, the country of manufacture, and a serial number or other unique marking (UNGA, 2005, para. 8a). Other information, including the weapon type, model, and caliber, is encouraged, but not required.



Ammunition Marking

There is currently no global regulation or standardized system for ammunition marking, which means there's often variance between regions, states, and other entities, making identification, tracing, and tracking challenging. What's more, military and law enforcement follow different regulation systems than those used for civilian ammunition.

Most ammunition is marked at the time of manufacture for internal (proper safety, quality control and record-keeping) and external requirements (clients' demands based on regional or

national requirements). To overcome the space limitations on individual ammunition, markings are often placed on packaging and boxes used to transfer ammunition – or, if markings are placed on individual ammunition, it's typically minimal due to space constraints.

The most complete standardization for ammunition marking is **NATO's ammunition standards**. Formalized by NATO member states, there are several standardization agreements, each focused on a specific caliber, including a list of requirements linked to the physical characteristics and technical performance of the ammunition. Under NATO standards, military ammunition markings must include:

- NATO stock number (a 13-digit numerical code)
- Quantity and caliber of the ammunition
- Symbols representing the type of ammunition
- lot number (serial number, manufacturer initials, last two digits of the year of production)
- NATO symbol of interchangeability and design mark (if applicable)

Other Materials Marking

Military assets such as respirators, secure communications equipment, body armor, and other materials are also appealing targets for theft and diversion to terrorists. In the United States, **Military Standard 130** (MIL-STD-130) outlines **Unique Identification (UID) requirements** and practices for marking property of the U.S. Department of Defense. MIL-STD-130 requires that items have a Unique Item Identifier (UII) consisting of data matrix machine-readable information and outlines:

- Permitted materials
- Minimum text size and allowable fonts
- Format
- Syntax
- Rules for identifying marks on parts
- Required location for the mark

Additionally, UID marks must last for the lifespan of the item on which they're affixed, a requirement that applies even if the mark is on a label. This requirement is paramount, as the goal of MIL-STD-130 is to create a single port of information on every individual item in the Department of Defense Item Unique Identification (IUID) Registry, where every item's UII is registered after the item is marked.

The IUID Registry then provides a central point of access for information such as the date of purchase, cost, repair and maintenance history, and specific current location in the field for every marked item. It also provides a means to track and

manage every individual item throughout its lifecycle and streamlining both inventory and maintenance processes. If the mark becomes unreadable or doesn't remain affixed to the item, the item becomes untraceable.

DEF STAN 05-132 was established by the United Kingdom Ministry of Defence (UK MoD) and is based on MIL-STD-130. It establishes the Unique Identification (UID) standard for the U.K.'s entire defense inventory, including specific information on the UII's data matrix construction, what items must be marked, the location and structure of the UID mark, and the process for registering items in the UID registry database. It also supports the UK with International Traffic in Arms Regulations (ITAR) and Defense Trade Co-operation Treaty (DTCT) requirements through accurate and automatic reporting.



Also similar to MIL-STD 130, **STANAG 2290** is NATO's standard for the Unique Identification of items (UID) using a Unique Item Identifier (UII) for NATO and participating nations. Specifications include guidance on the construction of the UII and the marking of items with a UII. Participating nations are required to develop and maintain a registry or database of UII data and establish and support policies for UID marking, item registration, and revising or updating information. STANAG 2290 does not replace the **NATO Codification System**, which is the official program for naming, describing, classifying, and assigning NATO stock numbers to NATO equipment components and parts of the military supply systems. **MIL-STD 129**, the U.S. Department of Defense Standard Practice Military Marking for Shipment and Storage, provides marking requirements for shipment and storage of non-ammunition containers, unit packs, intermediate containers, and exterior shipping containers. Special marking requirements are provided for components of disassembled items with UIIs.

DEF AUST 1000C is the Australian Defence Force Packaging Standard, which describes packaging requirements for defense materials, including ammunition, explosives, non-commercial food products, vehicles, small craft, clothing, arms

