Solutions for Expeditionary MCM

Facing the mine threat
The concept of Mine Counter-Measures (MCM) has been traced as far back as the German use of Minenraummutterschiffes for Minesweeping during World War One, where Battleships were converted for use as mine-sweeping ships to gain access through the Atlantic’s ‘North Sea Mine Brigade’ planted by the British and Americans. Naturally, western technology has progressed significantly since the days of wood-constructed pre-dreadnought battleships, and MCM missions are now conducted globally using state of the art hardware and advanced planning methods. However, the threat of mine warfare is now more prominent than ever, and with 95% of the world’s commerce moving by sea and 95% of commercial cargo travelling through the littorals, the security of our waters, coastlines and military personnel remains a key issue for navies. Therefore, ensuring the availability of the best and most efficient equipment is imperative.

Current MCM capabilities
Currently, navies are investing heavily in Unmanned Underwater Vehicles (UUV) to conduct MCM missions in support of their Explosive Ordnance Disposal (EOD) teams in challenging conditions. The vehicles are used to detect, classify and identify mines. The traditional method for conducting MCM missions was through the use of manned ships and divers, which was a costly, time-consuming and dangerous procedure, putting expensive equipment and personnel at risk. By introducing the use of UUVs equipped with high resolution sonars and other advanced sensors, these issues are lessened.

Post-Afghanistan – measures must be taken to ensure that MCM investments in equipment and personnel are sensibly utilised. Autonomous Underwater Vehicle’s (AUV) are fully automated in their operation, in that they conduct a mission without an operator in the loop, but in reality they are often used as nothing more than data collection. At present, the procedures for conducting an MCM mission are highly operator dependent. Operators are expected to possess the skills required to expertly control all hardware involved in each mission, and with an abundance of new hardware making its way into fleets and new personnel joining MCM platoons, ensuring adequate operator skill-sets is proving a costly and time-consuming expense.
Software solutions to meet the new technology challenge

With millions of dollars being spent globally on the hardware required to conduct MCM missions, investment in software capabilities is the answer to the successful and most efficient utilisation of UUVs and off-board assets in the MCM domain. SeeByte has created a variety of product offerings to help manage MCM assets, providing situational awareness that helps EOD personnel gain a single, integrated picture of the battlespace by processing data across all assets.

SeeTrack Military is currently the chosen MCM software solution for sixteen of the world’s navies. At its core, SeeTrack Military is a mission planning, monitoring and post processing tool for rapid on-site analysis and data fusion. It is used to operate leading brand AUVs, ROVs and Diver Handheld Navigation systems, and can process large amounts of sensor data, including sidescan, imaging sonar and video. SeeTrack Military allows AUV operators to plan, execute and assess an MCM mission in a fraction of the time and with fewer false alarms than would be possible with conventional tools.

The SeeTrack Military product offers operators many additional MCM specific modules. An ATR (Automatic Target Recognition) module has been developed to automatically highlight potential targets captured within the sensor data, assess how ‘mine-like’ each target appears to be and present these to the operator. This module can also be utilised in tandem with the Performance Analysis and Training Tool which allows simulated mine-like objects to be inserted into real side-scan data, providing an economic way of evaluating the system’s performance. This means the users can obtain information on the probability of detection and false alarms for any given survey region.

Using an intuitive user interface the operator can simply plan and save their required mission and run the post-mission analysis for all off-board assets. With the mission saved though SeeTrack Military, future repeat missions can be conducted and contrasted simply and efficiently. Whereas, originally an operator would have had to plan and program the mission with expert knowledge of each piece of hardware, launch the UUV and, upon its return, individually assess all data gathered during the mission from each sensor and sonar before finally repeating any parts of the mission which were unsuccessful.
One software solution to bring all your hardware together

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Other assets and sensors may already be supported by SeeTrack Military, please contact SeeByte for full support specifications.

What this means for the user

"By choosing SeeTrack Military within the COIN application, we have procured a system that allows us to analyse and display all of our underwater and airborne sensors, and to integrate very shallow water mine counter measures with global command and control systems. We can now generate a common picture of our operational environment, share that picture within the warfare commanders and be even more effective with our field operations."


"SeeByte, Ltd and the SeeTrack Military system continues to provide state-of-the-art tools and the technical support we need to integrate data and planning across our entire mine counter measure assets, including autonomous underwater vehicles (AUVs), remotely operated vehicles (ROVs), divers and towed sonar. We are able to seamlessly work with other nations through SeeTrack’s use of open standards, and through the built-in links, supporting ESRI, MINTACS and MEDAL."

Commander Gordon Stamp, Director of the Royal Navy, New Zealand. The Royal Navy, New Zealand operate AUVs, Towed Side-scan and Diver handheld Systems.
“Our navy has used SeeTrack Military for many years now to assist with mission planning and post processing of data from our REMUS AUVs and our Shark Navigators. We believe that it is a very effective package available to us to help run our MCM and harbour protection missions, and train the operators. SeeByte also offers first rate support, which is one of the reasons why we have chosen to accompany our licence purchase with additional support and maintenance for the next five years.”

Lt Cdr Guido Fretz, representative of the Netherlands Ministry of Defence. The Royal Netherlands Navy operate AUVs, Diver hand-held systems and ROVs.

“When we designed our new capability it was clear that we needed SeeTrack Military. We like that the interface has been designed in order to make AUV operations simple. We are able to plan for missions and post-process the data using the same intuitive interface. We are also able to create contact reports soon after the AUVs have been recovered and we can plan the next mission over the existing legacy data. Though our initial focus was MCM we now realise this is also a great tool for carrying out search and recovery missions.”

Lieutenant Risto Saimla from the Estonian Navy. The Estonian Navy operates AUVs.

“SeeTrack Military is more than just mosaics. It is a software that allows us to run our AUV operations, supporting all the mission life-cycle Planning, Execution, Analysis and Data Dissemination. Importantly, the SeeByte software provides functionalities not easy to find as an all-in-one software; the output products coming from SeeTrack increase the interoperability of our MCM Teams with MCM International Community. Our GAVIA systems are currently unique in the international MCM community and with SeeTrack Military we are able to deliver outputs useful to the wider NATO community.”

Lieutenant Commander Carlos Afonso, Head of PO Navy MW Department, Portuguese Navy. The Portuguese Navy operates AUVs.

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