

Comprehensive Maritime Awareness (CMA) – Joint Capabilities Technology Demonstration (JCTD), FY 06-09

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BACKGROUND

The Comprehensive Maritime Awareness (CMA) Joint Capabilities Technology Demonstration (JCTD) vision is to share maritime shipping information and tracks throughout the world to deter use of commercial maritime shipping for terrorism, WMD proliferation, drugs, piracy, and human trafficking. The JCTD is intended to serve as an exemplar for developing a “culture of sharing” of maritime information between the U.S. and international partners. As such, the project is intended to take advantage of ongoing efforts, or proven technologies and current information sharing agreements. The JCTD is envisioned as having two main focus areas; 1) demonstrate the importance of information sharing toward improved maritime awareness – both interagency sharing and international sharing; and 2) demonstrate improved information management techniques – such as automated anomaly detection and application of the US Department of Defense Net-Centric Data Strategy – to enable effective management of large volumes of shared data. CMA will be developed cooperatively with the Republic of Singapore and a CMA information exchange capability will be available to Singapore and the U.S. at the end of 2006. Singapore’s position as the nexus for shipping in Southeast Asia, provides a unique opportunity for sharing information. Singapore will fuse its own disparate data sources with the information and share the information with the U.S.

1. MILITARY PROBLEM TO BE ADDRESSED

Effective Homeland Defense relies on ensuring air and maritime shipping is not used to transport WMD, other terrorist mechanisms or terrorists. However, resource limitations force the US to inspect and interdict only a fraction of all maritime shipping due to the volume of shipping coming into US ports and economic requirements to maintain rapid flow of goods. This is a global problem and our international friends and allies have the same problem.

U.S. and international information resources are available that can help focus inspection assets on the most probable threats. Some of these resources are from unclassified sources, whereas others are classified. Much of the information provided by these additional resources is exploitable through painstaking correlation approaches that can require hours of an analyst’s time for a single vessel of interest. A number of efforts are underway in the Department of Defense and Department of Homeland Security to address pieces of the problem for the U.S. This is an international problem, however, and many other nations are endeavoring to do

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the same as the U.S. Much of the information developed by both the U.S. and the international community is not shared. The current labor intensive processes and lack of sharing create inefficiencies, and missed opportunities to address threats as early as possible, prior to threats entering our ports.

Problem Statement:

Serious gaps exists in identifying and prioritizing world-wide maritime threats

- Maritime security and defense forces lack the capabilities and capacities to provide timely and accurate maritime situational awareness
- Lack automatic tools to identify and prioritize relevant and actionable information to avoid information overload
- Inability to acquire, fuse and manage disparate information limits timely cueing and focus
- Information sharing (technical, cultural) barriers limit the effectiveness of partner nations

2. PROPOSED SOLUTION

The Comprehensive Maritime Awareness (CMA) JCTD attempts to address the problems listed above by developing a “culture of sharing” between international partners and the U.S, and between U.S. agencies. It is our vision that we will be able to; 1) track 100% of the maritime movements within an AOR, 2) identify which tracks are potential threats, and 3) prioritize them for action. Our overall objective is to improve maritime security by acquiring, integrating, and exchanging relevant maritime activity information, identifying possible threats using available information, and then focusing limited interdiction and inspection assets on the most probable threats.

Draw information from multiple sources. The U.S. is not alone in desiring to obtain a more complete maritime picture. Many of our friends rely of maritime shipping for their existence. This information is obtained from multiple sources to include; the PACOM Common Operational Picture (COP), Automated Information System (AIS), Department of Defense systems, Department of Commerce databases, Department of Homeland Security information, as well as many others available. Singapore also offers many sources of information for correlation. This may include Port authority information, Singapore AIS information (to include Singapore’s desire to have AIS-like information on 100% of all maritime traffic), and other.

Correlate multi-source information to maritime contacts. Adding more sources of information will easily overwhelm maritime security forces and analysts searching the haystack for the needle unless the sources of information can be correlated. For CMA we want to automate this effort as much as possible to reduce the workload for maritime analysts.

Identify anomalies and threats. Once disparate sources of information are correlated and fused, the information can be used to identify anomalies leading to identification of threats. Identification of anomalies could be as simple as automatically finding discrepancies between various data sources. For instance, as a ship approaches the Strait of Malacca, its AIS indicates the ship name is the Tokyo Maru. However, the automated correlation searches its databases and shows the Tokyo Maru was seen in Rotterdam one day earlier. The track would be then flagged automatically. Another case could be a ship approaching Long Beach with an Advanced Notice of Arrival indicating crew size of 34, when the last port of call in Singapore shows crew size of 30. An automated report would flag the ship for investigation.



Define and Demonstrate Sharing Practices and Policies. Because Maritime threats are a concern to all maritime nations, sharing the identified anomalies and threats (within already established information sharing restrictions) is critical. As such, circuits for sharing classified information are available on the Coalition Enterprise Regional Information Exchange System (CENTRIXS). In addition, available automated security guards will be used to ensure that only releasable information is exchanged, in accordance with existing disclosure policies.

