


AAPA Smart Ports

Cyber Management for Ports Panel

Small Port Cyber Security Workshops

March 6, 2018

1200 New Jersey Ave., SE | Washington | DC 20590
www.dot.gov

MARAD
U.S. MARITIME ADMINISTRATION

Port Infrastructure Development

MARAD

- More than 300 U.S. ports (approximately 175 public ports) serve as Gateways to world markets for U.S. products and as intermodal hubs for exports and domestic distribution.
- Waterborne commerce contributes more than $649 billion annually to the U.S. GDP, and sustains more than 13 million jobs.
- 42% of the value of exports and imports (71% by volume) leaves or enters the U.S. by water.

Intermodal Touch-points

Marine Terminal Information Systems

MARAD

Cargo handling equipment at the port/railway interface

Commercial Long-Haul Trucks

Port Security and Access Controls (physical, CCTV, gates, TWIC, ID cards)

Automated cargo handling equipment, vehicles and similar conveyances

Container Cranes (or liquid cargo handling systems at oil, chemical and LNG terminals) at vessel/port interface

Shore-based systems that directly support safe vessel operation and navigation:

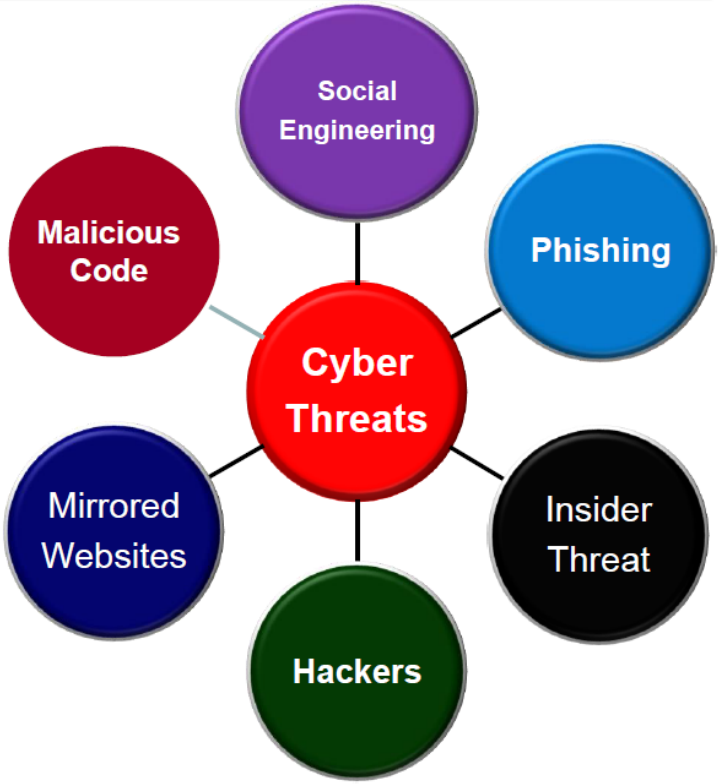
- GPS
- Lock operation
- Communications
- Maintenance and management
- Systems aboard USCG vessels, tugs, fire boats, port police
- Pollution response systems

Automated Cargo Container Tracking Systems

Terminal Operating Center (financial, communications, customs, security and other back office functions)

Types of Cyber Threats We are Facing

- Hackers/Intrusion Sets
- Phishing
- Social Engineering or Elicitation
- Malicious Code
- Watering Holes
- DDoS/SQL Injections
- Ransomware



Maritime Administration

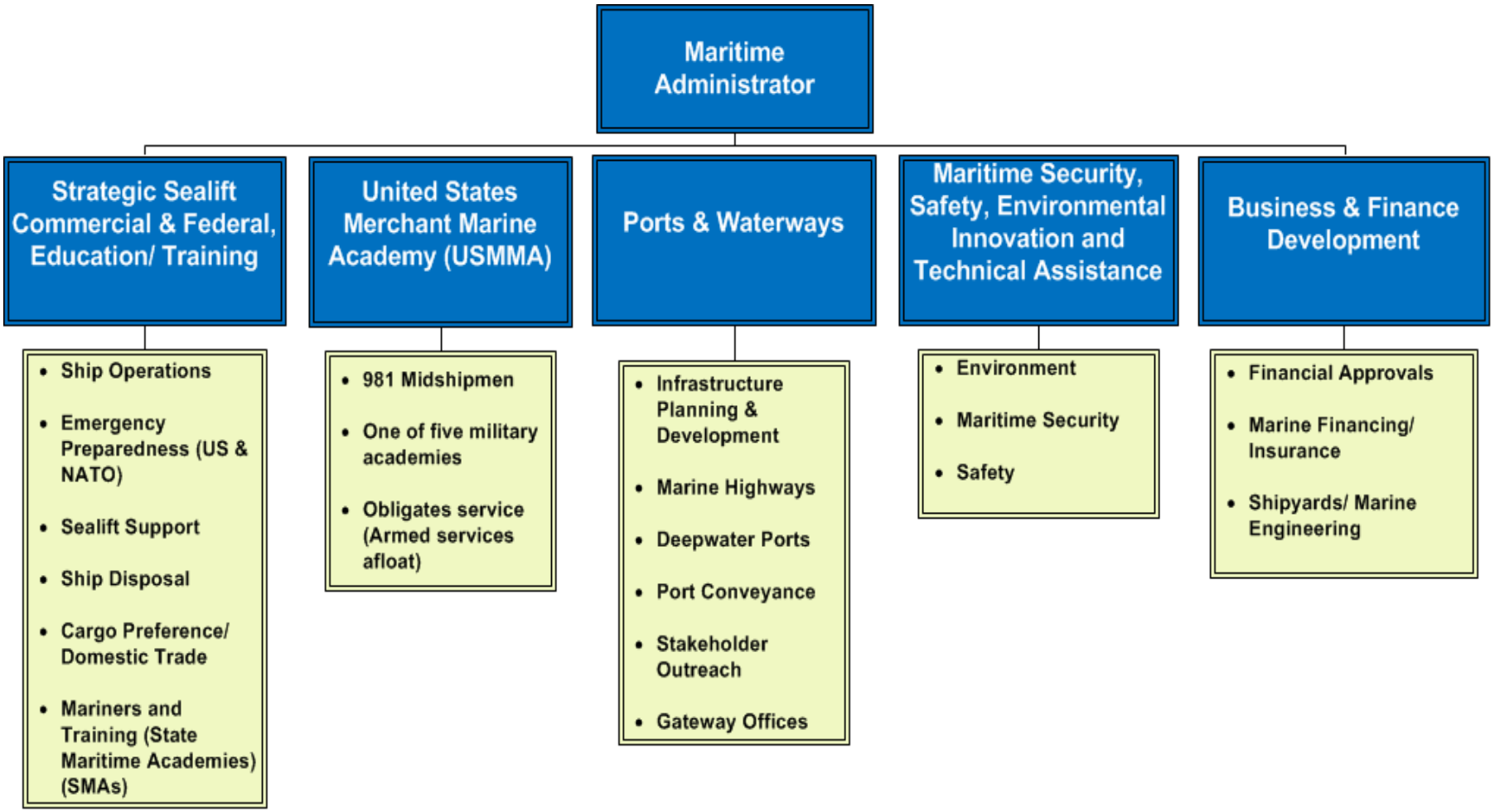
MARAD

MISSION:
Strengthen the U.S. marine transportation system including infrastructure, industry and labor to meet the economic and security needs of the Nation.

STRATEGIC GOALS:

- **CARGO:** Develop domestic and international transportation opportunities to modernize and sustain a competitive commercial U.S.-flag fleet that ensures the Nation's economic and national security
- **READINESS:** Ensure the availability of a capable U.S. Merchant Marine fleet with modern U.S.-flag vessels, skilled labor and global logistics support to drive the Nation's economy and to meet national maritime transportation requirements in peacetime emergencies and armed conflicts
- **INFRASTRUCTURE:** Support the development of America's ports, shipyards and related intermodal infrastructure as key integrated components of an efficient, resilient and sustainable national transportation system and freight network
- **ADVOCACY:** Advance awareness of the necessity and importance of a strong U.S. Marine Transportation System

MARAD Program Elements



Ports & Waterways Infrastructure

MARAD

- Provide Port and Intermodal Planning Assistance
- Access Funding and Financing Options for Port Modernization and Expansion
- Educate re: P3 Opportunities
- Expand domestic movement of freight by waterborne transportation
- Administer Grants and Loans for Projects
  - These services are offered to Port Authorities, State Departments of Transportation, Metropolitan Planning Organizations, and Regional and Local communities.
  - Also offered to privately owned port terminal operators, vessel operators, export industry groups, manufacturers, and other stakeholders.
- **Technology Development – Cargo Handling Cooperative Program**

Cargo Handling Cooperative Program

MARAD

BACKGROUND:

- The Cargo Handling Cooperative Program (CHCP) was established in 1983 by the Maritime Administration (MARAD) to work on the issue of productivity in the marine freight transportation sector. The CHCP was set up as a public-private partnership designed to foster research and technology development to increase productivity of cargo operations. In 1996 the CHCP revised its membership to include all intermodal entities.

ORGANIZATION:

- The CHCP is run by its members with MARAD acting as sponsor and catalyst. The head of the CHCP is a Chair person who is assisted by a Vice-Chair, both are elected by the membership. The CHCP also has a Treasurer to oversee all financial activities of the organization, also elected by the members. The day-to-day activities are performed by a Program Administrator, which is currently done by MARAD.

Cargo Handling Cooperative Program (cont.)

MARAD

FOCUS:

- The overall focus of the CHCP is to assist the intermodal industry with its own technology priorities. This focus is critical for the movement of international and domestic freight. It has been proven that the use of advanced technologies can lead to (1) more efficient infrastructure design, (2) more productive international transportation networks, and (3) better communication and information flows. This approach allows technology to be used in segments of the transportation network to help the total transportation system work more efficiently.

PROJECTS:

- ISO 10374 – Automatic Identification of Freight Containers 1991
- Optical Character Recognition at Marine Terminals 1996
- Chassis Tag Location on Container Chassis 2001
- Electronic Seals for Container Security 2003
- Marine Terminal Productivity Study 2010

Cargo Handling Cooperative Program (cont.)

Recently, MARAD and the CHCP have identified a specific group within the maritime sector that has a need for assistance in the increasingly complex area of cybersecurity. Small ports (those with fewer than 50 employees or under 20 million tons of cargo) are having a difficult time navigating the issues that arise from cybersecurity requirements.

Cybersecurity is an evolving area that has many facets. With so much emphasis on data movement and electronic processing, ports, marine terminals and their customers are vulnerable to a number of security problems.

MARAD, through the CHCP, has teamed with Hudson Analytix to develop a small port cyber security workshop program. MARAD staff contacted several small ports to seek their interest in participating in a workshop to assess their individual readiness under a number of different criteria. The results of the individual assessments are only known by the port. MARAD an the CHCP have been provided a combined view of all three assessments.

Small Ports Cybersecurity Workshop Project

MARAD

- **Geographic Diversity of Ports**
  - East Coast
  - West Coast
  - Great Lakes
- **Variety of Cargo Types**
  - Bulk
  - Project cargo
  - Containers
- **Cargo Tonnage Handled**
  - 1 port < 20 million tons
  - 2 ports < 10 million tons
- **Staff Size**
  - <40 full time staff members

HudsonAnalytix, Inc. offers integrated risk management and technical advisory services to the global maritime industry. Clients include:

- Port Authorities and terminal operators
- National and regional port systems
- Integrated oil/gas companies
- National oil companies
- Global maritime transportation companies
- Insurance companies
- Governments

Operating Divisions:

- **HudsonCyber - Cybersecurity + Risk Management**
- **HudsonSystems - Software Solutions**
- **HudsonTrident - Security (Physical and Operational)**
- **HudsonMarine - Operational Marine Management**
- **HudsonTactix - Consequence Management**

HudsonAnalytix
Complexity made simple.

Key Facts

- Established in 1986
- Worldwide Presence:
  - Philadelphia (Global HQ)
  - Washington, DC
  - San Diego, CA
  - Houston, TX
  - Santo Domingo, Dominican Republic
  - London, UK
  - Rome, Italy
  - Piraeus, Greece
  - Jakarta, Indonesia (JV)
  - Manila, Philippines

Objectives

1. Identify the current state of cyber risk in and provide recommendations to MARAD- and CHCP-designated ports
2. Provide MARAD with a summary of project findings and recommendations for how to support small US ports with future cyber risk management activities
3. Explore how to modify the *HACyberLogix* application for the maritime terminal environment.

Cybersecurity Capability Maturity

MARAD

…what is it?

Common Strengths

MARAD

- Cyber Risk Management
- Governance
- Workforce and Training
- Change Management
- Situational Awareness
- Information Sharing
- Threat and Vulnerability Management
- Commercial
- Information and Communications Technology
- Incident Response and Continuity of Operations
- Physical Security
- Cyber Program Management

Common Areas for Improvement

MARAD

- Cyber Risk Management
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- Commercial
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- Incident Response and Continuity of Operations
- Physical Security
- Cyber Program Management

Priority Recommendations

- Establish governance framework
- Develop strong cybersecurity program
- Implement basic course required for all personnel
- Train executives
- Establish roles and responsibilities
- Update procurement policies, procedures, and notification reporting
- Update/amend FSPs to include cyber risk factors
- Establish and maintain activities to coordinate the collection, aggregation, and use of data, such as log data, from critical IT and OT assets
- Leverage existing structure to establish information-sharing mechanisms with port community, law enforcement, and regulatory bodies
- Establish dedicated and sustainable budgets for addressing cyber risks