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NAVAL SURFACE WARFARE CENTER
INDIAN HEAD DIVISION

06 May 2026

Joint Modular Intermodal Container in Contested Logistics Resupply

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NSWC IHD STRATEGIC LOCATIONS

*Contractor numbers not included

CRANE, INDIANNA
(2) CIVILIANS
(0) MILITARY
Design and construct portable armories
Provide automation for front gates

OGDEN, UTAH
(16) CIVILIANS
(0) MILITARY
Co-located at Hill Air Force Base
CAD/PAD Air Force Integrated Product Team

CAMP PENDLETON, CALIFORNIA
(8) CIVILIANS
(0) MILITARY
Demonstration and Assessment Team
Assigned to D Department

LEGEND:

Other Sites Supported
- Yokusuka
- Rota
- Yorktown
- San Diego

AMERICA'S NAVY

INDIAN HEAD, MARYLAND (2 SITES)
(1,708) CIVILIANS
(63) MILITARY
NAVSEA Center of Excellence for Energetics
DoD EOD Program Lead
Expeditionary Exploitation Unit ONE (EXU-1)

PICATINNY, NEW JERSEY
(259) CIVILIANS
(4) MILITARY
Located at the Picatinny Arsenal
Joint CoE for Guns and Ammo
Navy Package, Handling, Storage and Transportation, Guns and Ammo

NORFOLK, VIRGINIA
(30) CIVILIANS
(0) MILITARY
Demonstration and Assessment Team
Guns Division
CBR-D

LOUISVILLE, KENTUCKY
(10) CIVILIANS
(0) MILITARY
Naval Guns

MCALESTER, OKLAHOMA
(45) CIVILIANS
(0) MILITARY
McAlester Army Ammunition Plant

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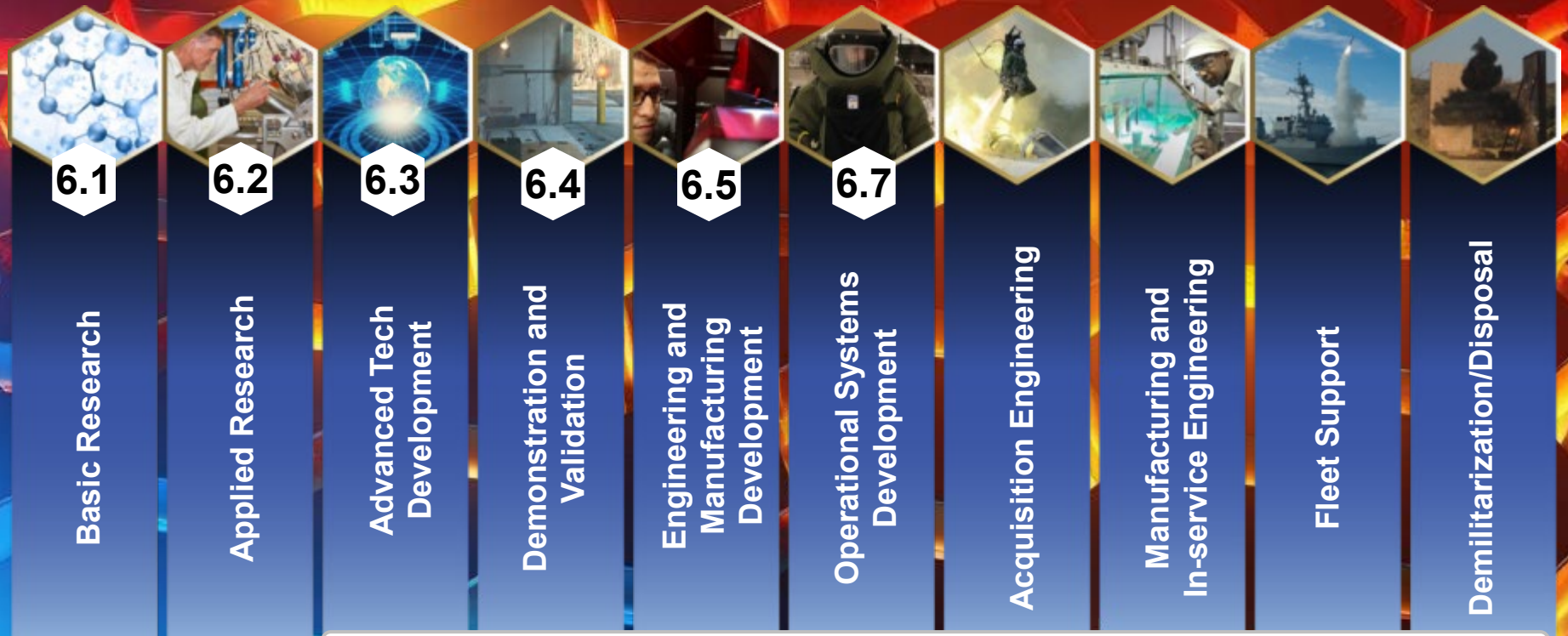
MOLECULE TO MISSION



Only DON activity delivering both energetics and EOD technology solutions from basic research through disposal

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NAVAL PHST CENTER

Command: Naval Surface Warfare Center Indian Head Division

Location: Picatinny Arsenal, NJ

Experience: 70+ years of ordnance logistics safety solutions

Personnel: 80 engineering and technical professionals

In-House Capabilities:

- 80 personnel, government & contractor
- CAD Design and Analysis
- Test & Evaluation Lab
- Technical Data Package Support
- In-Service Engineering Agents

AMERICA'S NAVY

Provides engineering solutions and in-service support throughout a weapon's lifecycle.

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NAVAL PHST MISSION

Research, develop, test, evaluate (RDT&E), and provide in-service engineering support of logistics solutions for the Navy and DoW. Provide Soldiers, Marines, Sailors and Airmen with the capability to safely package, handle, store, and transport critical weapons systems and ordnance/munitions.

PACKAGING

- Missiles
- Torpedoes
- Shaped Charges
- Unmanned Systems
- Conventional Ammunition
- Insensitive Munitions
- Underway Replenishment

HANDLING

- Slings
- Beams
- Tilt Fixtures
- Carts / Roll Stands
- Ordnance Rated Forklifts
- Shipboard Mobile Cranes
- Shipboard Pallet Jacks

STORAGE

- US Navy Combatant Ships
- Military Sealift Command
- On-Station Magazines
- Mobile Magazines
- Increase overall stowage density

TRANSPORTATION

- UN POP
- COE / CAA Certification
- MILAIR
- Custom Truck / ISO Loads
- Custom Trailers/Restraints
- Custom Railcars

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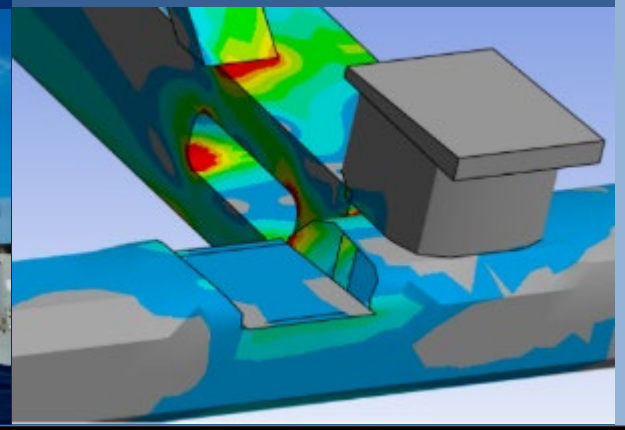
NAVAL PHST CORE COMPETENCIES

Works with NAVSEA 05E Ordnance PHST Technical Warrant Holder to ensure weapon operability throughout the logistics cycle. Ensures ordnance is safely handled and complies with all US and UN regulations. Evaluates ease of handling using new or available equipment and maximizes storage density. Manages support documentation for containers and handling equipment.

Project Management	Engineering/Development	Test & Evaluation	Ordnance Logistics
• Program & Sponsor Interface • NAVSEA, NAVAIR, Marine Corps, Joint Projects • PHST Lifecycle Management • Financial/Schedule Planning • Risk Tracking/Mitigation • Contracting/Procurement	• Custom Container and Handling Equipment Solutions • Static & Dynamic Structural Analysis • Contractor Design/Analysis Review • Equipment Failure Review • MIL-STD-648, MIL-STD-1365	• Design Qualification • First Article / Lot Testing • R&D / Experimental Testing • MIL-STD-810 Environmental Testing • MIL-STD-1660 Ammo Unit Load Testing	• OHE and MHE ISEA • Lifecycle Support Documents • Equipment Performance Specifications • Certified Weight Test Facility Management • OHE Allowancing • Cataloging



RESUPPLY CHALLENGES IN CONTESTED AREAS

- Resilient resupply logistics maintain battle momentum.
- Start of Russian-Ukraine War relied heavily on truck convoys.
  - Russian forces could only carry days worth of supplies.
  - Ukraine attacks on resupply convoy stalled resupply of food, water, fuel, ammunition, and medical supplies to forward deployed units.
  - Operational gains near Kyiv stalled within a week and were reversed within a month as units were forced to fall back due to lack of supplies.
- Best military can effectively operate for limited time with insufficient resupply capability.
- Current resupply efforts require a lot of time, manpower, and risks.
- Navy ships steam away from contested areas to safely resupply at sea or pierside.
  - Results in days/weeks of delay.

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AUTONOMOUS RESUPPLY VISION

Autonomous resupply logistics from ship-to-ship, ship-to-shore, and expeditionary needs.

Image courtesy of Actus Advanced Systems

CARGO UAS VISION

- Need
  - Increase resupply range and logistics resilience while reducing risk to human life in expanded contested areas.
- Solution
  - Inject autonomous distribution and resupply capabilities across all military sustainment operations.
  - Identify a family of standardized systems for Autonomous Resupply
    - 3,000 lbs, unit lift via JMIC → Airbus UH-72
    - 8,000 lbs, medium lift via Quadcon → Sikorsky UH-60
    - 20,000 lbs, heavy lift via 20ft ISO Container → Boeing CH-47

Courtesy of Jennifer McCollum, S-FCD RSA

WHY JMIC?

- Coordinated in-field resupply focuses on 3,000 lbs JMIC as the smallest standardized unit for final delivery.
  - Standardized container and top lift interface.
  - Accommodates versatile loads, will fit materiel to include a loaded 40”x48” pallet.
  - Interfaces with existing assets such as ISO containers, Quadcon containers, 463L Pallet, 7 Ton MTVR, and HMMWV.
  - Approved for ammunition loads.
  - Helicopter sling load and air-drop certified.
- Quadcon can fit 4 JMICs
- 20ft ISO container can fit 16 JMICs, equivalent to 4 Quadcons

Resupply Advances

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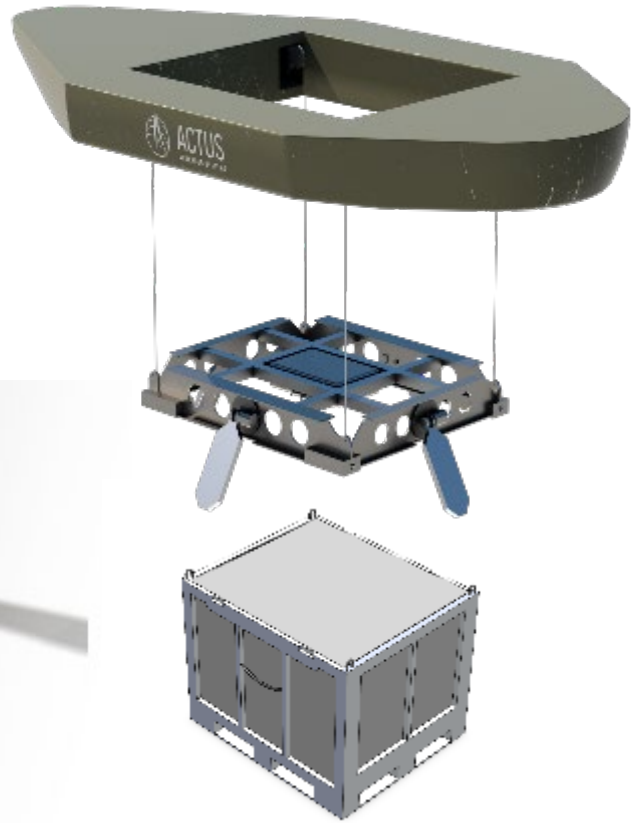
JMIC CLAW

- JMIC Container Lift Autonomous Winch (CLAW)
- Allows for autonomous external cargo operations, to include latching, lifting, and transport of JMICs.
- Goal: Compatible with existing military rotary aircraft – targeting UH-60 style platform, for rapid deployment for existing crewed and future uncrewed aircraft.



Courtesy of Nathan Bishop, Actus Advanced Systems

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ISO CLAW

- ISO Container Lift Autonomous Winch (CLAW)
- Allows for autonomous external cargo operations, to include latching, lifting, and transport of 20ft ISOs.
- Goal: Compatible with existing military rotary aircraft – targeting heavy airlift platforms, for rapid deployment for existing crewed and future uncrewed aircraft.

Courtesy of Nathan Bishop, Actus Advanced Systems

MQ-72

- MQ-72 – Airbus with L3Harris, Parry Labs, and Shield AI for Marine Corps
- Modified UH-72 for fully autonomous missions.
- Autonomous obstacle avoidance demonstrated.
- Targeted external lift capability – 3,000 lbs.

Images courtesy of Airbus

UH-60MX

- UH-60MX – Sikorsky MATRIX autonomy suite, delivered March 2026 to Army
- Allows for crewed and uncrewed flights.
- Autonomous external sling load demonstrated.
- Medium lift capability – 8,000 lbs.

Images courtesy of Sikorsky

CH-47F Block II

- CH-47F Block II – Boeing Chinook Modernization Program
- Currently equipped with Digital Automatic Flight Control System (DAFCS)
- Expanding to Active Parallel Actuator Subsystem (APAS)
- Targeted heavy lift capability – 20,000 lbs.

Image courtesy of Boeing

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JMIC RAPD WITH COMPOSITE BASE

JMIC Rapid Agile Platform for Deployment (RAPD):

Increase Capability: 25% weight reduction to bring JMIC under 200 lbs tare weight to increase resupply capacity.

Improve Affordability: At least 25% cost reduction through replacing large and costly aluminum components with recycled plastic to reduce cost for contested logistics resupply.

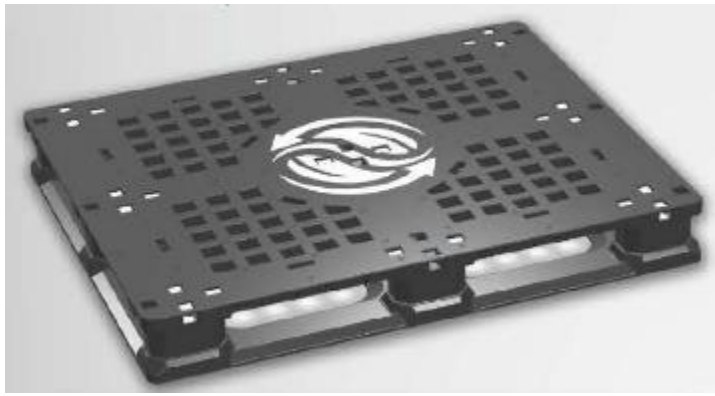
- 3.0K JMIC Cost per Unit: ~$5200 (2025 DLA)
- 1.5K JMIC Cost per Unit: ~$2400 (2025 DLA)
- GCS Pallet Cost per Unit: $70 (no modification)

3.0K JMIC Base Weight: 152lbs

1.5K JMIC Base Weight: 93lbs

Green Current Pallet Weight: 50lbs

Estimated V1 RAPD Base Weight 90lbs



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JMIC RAPD WITH COMPOSITE BASE

- Composite base using Green Current Solutions pallet that met MIL-STD-1660 Ammunition Unit Load, Level B tests at 4,000 lbs gross weight.
- V1 RAPD keeps standard 3.0K JMIC sidewalls, cover, and lift points. No interlock or deck aircraft fittings.
- NSWC Indian Head, Det. Picatinny CRADA with Green Current Solutions in progress.
- Successfully tested at Ambient, Cold at -65°F, and Hot at +160°F.
- 160°F Hot Drops deformation and recovery after load removal.

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4.5K JMIC

- Weight: 4,500 lbs gross, 470 lbs tare
  - Allows for 4000 lbs payload
- Challenge:
  - Initial Prototype made with no longer available NanoSteel material. Switching to US Steel (USS) material.
  - Components have been redesigned and optimized with USS for lower cost.
- Current status:
  - Building two pilot units for manufacturing feasibility and will go thru testing. Q2 -2026
  - If successful, 8 units will be prepared by USS to showcase.

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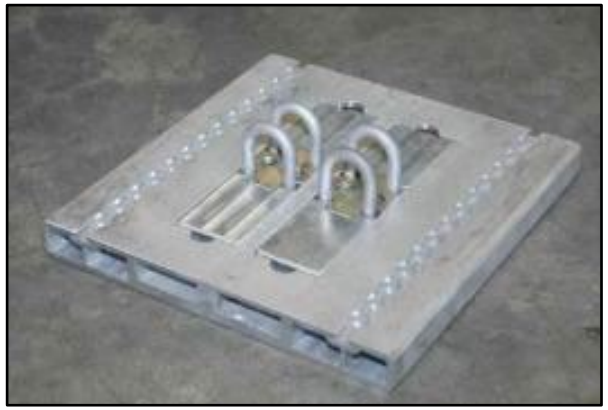
JMIC JCRS

- JMIC Compatible Restraint System (JCRS).
- Intended to be implemented into new and existing logistics platforms to fully integrate JMIC without need for additional restraints.



FUTURE NEEDS

- Primary drivers for autonomous efforts is through industry developed capabilities with some government oversight.
- Autonomous Air Resupply Vehicles have identified and coordinate efforts across Military Services
- Target to coordinate Surface and Expeditionary Autonomous Resupply efforts to align with Air efforts currently in progress.
- Coordinating standard autonomous resupply platforms across services is critical to reduce manpower needs and human risk to meet expanded contested logistics areas.

THANK YOU

- MAJ Jordan J. Brooks, Program Manager, Army Applications Lab / T2COM
- Ms. Jennifer McCollum, Capability Developer, Sustainment – Future Capability Directorate (S-FCD)
- Mr. Nathan Bishop, Founder & CEO, Actus Advanced Systems

Backup Slides

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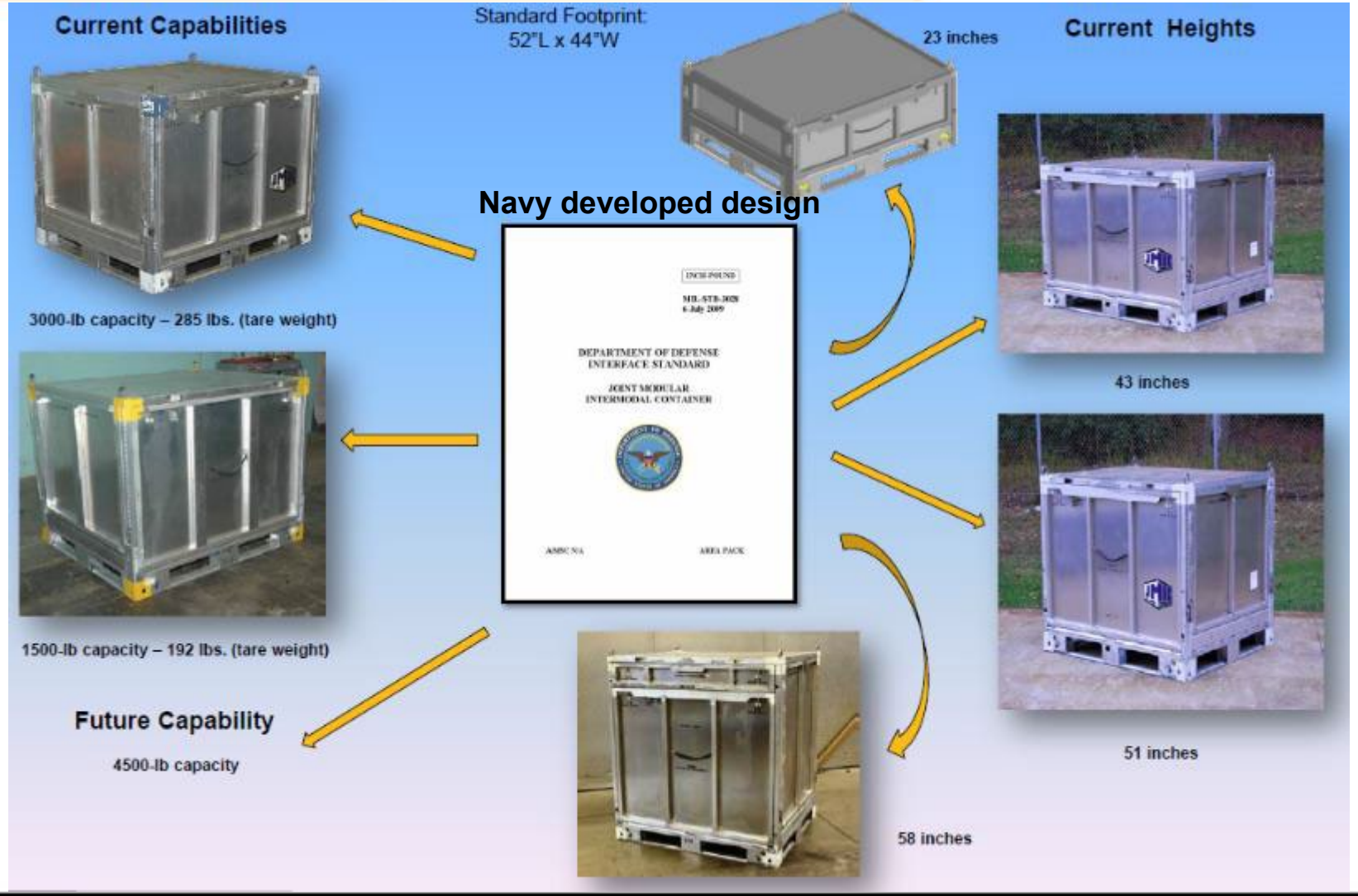
CURRENT JMIC CAPABILITIES



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CURRENT JMIC CAPABILITIES

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