Army Integrated Air and Missile Defense
Program Overview

Any Warfighter - Anywhere - All The Time
False Impression Statement

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Why Do We Need Army IAMD

Experience in Recent Conflict

- Ambiguous Air Picture
- Lower level soldiers making critical decisions without adequate information
  
  **Result => Fratricide**
- Limited sensor/shooter choices based on MC stovepipes
- Antiquated MC architecture
  
  **Result => Missed CM/TBM**
- Lack of flexibility in employing assets
  
  **Result => Overdeployed Forces, Logistics Burden**

Current Gaps

- Lack of Single Integrated Air Picture (SIAP) = Unacceptable level of confidence in Classification, Identification & Discrimination (CID) of Aerial Objects
  
  **ADDRESSED BY IBCS**
- Lack of integrated fire control – “Stove-piped” capabilities
  
  **ADDRESSED BY IBCS**
- Cannot adequately defend Critical Assets and Maneuvering Force against full range of aerial threats (BM, CM, UAS, RAM, ASR)
  
  **MITIGATORS: IBCS, P3I, MSE, IFPC/Avenger**
- Lack of Critical BLoS Enablers (Comms & Sensors)
  
  **MITIGATORS: IBCS, P3I**

Technical Benefits

- **Net Centric Shared Situational Understanding and Control**
  - Fused composite sensor measurement data with Combat Identification capability
  - Positive control and awareness of lower and higher echelon situation and actions
  - From Fire Unit to Joint Air Operations level

- **Integrated Fire Control**
  - Increased Effectiveness, Coverage, and Efficiency
  - Reduced Fratricide Risk

- **Reduced MC Footprint**
  - From 9 to 1 configuration of AMD Ops Centers
  - Efficient Task Force Tailoring
  - Reduced Logistics Burden
  - More Efficient and Effective Training

Operational Benefits

- **Improved Mission Command**
  - Greater Situational Awareness and Understanding optimizes engagement decisions
  - Significantly Improves Combat Identification (improved friendly protect, reduced fratricide)
  - Improved ability to Battle Manage Weapons and conserve magazines

- **Dynamic Defense Design**
  - Fully Integrated Defense Design
  - Allows automated planning for Scalable and Tailorable Force Packages

- **Tailoring of AMD Forces to Counter the Complex, Integrated Threat**
  - Responsive engagement in complex integrated attack scenarios
  - Flexibility in Choice of Interceptors, AMD components
  - Larger Defended Area Against Full Spectrum of Threats with advanced engagement capability

All gaps rank in top 1/3 of TRADOC’s Warfighting Function Ordered Gap List
AIAMD Program Overview

**Program Description:**
- Provides common mission command across all Army AMD echelons and integrates with Joint IAMD architecture.
- Critical enabler addressing TRADOC Warfighting Operational Gaps
  - Single Integrated Air Picture (SIAP)
  - Integrated Fire Control (IFC)
  - Critical asset defense against full range of threats
- Architecture provides flexibility to respond to evolving threat (sensor, interceptor, EW)

**Program Components:**
- Engagement Operations Center (EOC)
  - Army AMD mission command center provides AIAMD command, staff and engagement functions
- Integrated Fire Control Network (IFCN)
  - WIN-T based network with WIN-T configuration managed
  - Tactical Mast Trailers equipped with IBCS B-side adaptation kits
- IBCS Software
  - Common mission command software
- Adaptation Kits (A-Kits)
  - Adapts sensors/shooters to the IFCN (Sentinel, PATRIOT, IFPC/Avenger)

"AIAMD is much more than integrating sensors and shooters"
Army IAMD Description

AIAMD Description

• Army Integrated Air and Missile Defense (AIAMD) integrates sensors and weapons and a common mission command capability across a single, integrated fire control network providing a high-fidelity Single Integrated Air Picture (SIAP) for Army and is the Army contribution to Joint IAMD (JIAMD) capabilities.

• The common mission command element (IAMD Battle Command System or IBCS) provides the functional capabilities to control and manage the AIAMD sensors and weapons.

• AIAMD integrates Patriot Radar and Launcher, Improved Sentinel, IBCS components and future AMD capabilities to support engagement of AMD threats.

• Each sensor and weapon platform will have a ‘plug and fight’ interface module, which supplies distributed battle management functionality to enable network-centric operations (on a high band width, low latency WIN-T sub-network).

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Major End Items

 • Significantly Improves Combat ID (fratricide prevention)

 • Larger Defended Area Against Full Spectrum of Threats (CM, BM, UAV & LCR)

 • Positive Mission Command (MC) of AMD assets across full area of operation through advanced collaborative tools enabling effective Engagement Operations and Force Operations

 • Responsive engagement in complex operational scenarios with advanced engagement techniques

 • Far Greater Situational Awareness/Situational Understanding of the 3rd Dimension through a composite/integrated and distributed air picture

 • Enables Flexibility in Choice of Interceptors = More Efficient Use of limited and often high cost interceptors

 • Ability to Battle Manage across all sensors and Shooters on the IFC Net – No “Single Points of Failure”

 • Enables Scalable and Tailorable Force Packages

 • Training and Logistics Efficiencies across IAMD Force (common Warfighter machine interface and hardware)
IAMD Battle Command System (IBCS) Physical and Functional Components

Engagement Operations Center (EOC)

EOC Hardwall Shelter (RDT&E Hardware)

Plug and Fight Processing Unit (RDT&E Hardware)

Integrated Fire Control Network

IFCN Network Enclosure (RDT&E Hardware)

Plug & Fight Kits

Patriot Launcher Integration Kit
Integrated Collaborative Environment (ICE)

Current Operations
- FCO - Intel
- WCO - Force Prot
- WCO - S3 Battle CPT
- IDO - ICO
- SO - Sustainment

Future Operations
- XO - Maintenance
- S3 Plans - Logistics
- S3 Asst - NBC
- S2 Plans - Comms
- S2 Asst - Personnel

2 Large Screen Displays
- Display Common Operational Picture in up to 6 separate windows
10 Workstations per tent
- Provides FCE and ABCS capability as configured
IFC Network

Common Products
- Common EOC Configuration
- Common P&F Capability

Common Software
- Mission Support
- Legacy FAAD-C2
- CDLIS
- IBCS 606f
- NDI Developmental Network
- Staff Functions
- Sensor Services
- Weapon Services
- Mission Control
- Embedded Training
- System Modeling

Roadside
- Battalion Configuration
- Battery Configuration
- HNR Radio
- Sentinel
- IFCN Relay
- Patriot Launcher
- Patriot Radar
- PATRIOT Radar Interface Unit
- Battalion Configuration
- Battery Configuration

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IFCN Relay

Description
- Provides IAMD interface for Adapted Sensors and Weapons
- Supports Mission Data, Precise Timing and Voice
- Supports Sensor and Multiple Simultaneous Launcher Connections
Patriot Radar Integration Strategy

• Initial IAMD Operational Capability
  – Modified Patriot Engagement Control Station (ECS) retained as the Radar Interface Unit (RIU)
    ➢ RIU performs PATRIOT sensor-related functions
    ➢ ECS/RIU option selected at boot
    ➢ No Operator Engagement Operation functionality
    ➢ Provides interface to IFCN Relay or EOC

• Patriot Radar directly on the IFCN
  – Radar Digital Processor Enables Elimination of the RIU
  – ECS functionality integrated into the Radar

Future Radars Designed/Developed with Embedded Capability
Launcher Integration

The Launcher Integration Network Kit (LINK) is the interface between the IBCS and Integrated Fire Control Network (IFCN) and the PATRIOT Launcher(s)

- LINK Enables Launcher on the Net (LOTN)
  - Connects the PATRIOT launcher to the IBCS network via a Tactical Fiber Optics interface with the IBCS EOC Shelter or Tactical Mobile Tower
  - Plug and Fight capability for 901s (PAC-2), 902s (PAC-2/3), and 903s (MSE) Launchers
  - Provides a daisy chain capability to allow multiple launchers to connect to the IBCS network

- LINK serves as a Interface Data Language (IDL) Translator
  - LINK processes and translates messages to PATRIOT synchronous serial messages

Fielding the IAMD Battle Command System (IBCS) Capability is the AMD User’s Number One Priority
AIAMD Program Scope includes synchronization with Army and Joint Interagency Intergovernmental Multinational (JIIM) Programs and Systems.

AIAMD Program Utilizes a Modular Open System Architecture Allowing the Integration of New Capabilities as They Become Available.

AIAMD Program is tightly coupled with the S&T Community to Integrate the Capability Improvements as They are Being Developed.

Program Supports the Fires Center Concept of Fires.

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