



1 October 2017

USTRANSCOM

UNITED STATES TRANSPORTATION COMMAND



*Automatic Information
Technology (AIT)
&
In-Transit Visibility (ITV)
101*



USTRANSCOM Component Commands

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Gen. Darren W. McDew
Commander, U.S. Transportation Command



“USTRANSCOM Provides Full-Spectrum Global Mobility Solutions & Related Enabling Capabilities for Supported Customers’ Requirements in Peace and War.”



Transportation Pipeline

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Although logistics does not possess the drama of battle, it does underlay strategy and determine victory or defeat.

After all, the relative combat power that military forces can bring to bear against an enemy is enabled by a nation's capability to plan for, gain access to, and deliver forces and materiel to the required points of application across the range of military operations.





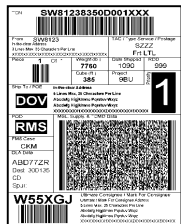
AIT and ITV Definitions

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Automatic Identification Technology (AIT):

A suite of technologies enabling the *automatic* capture of data, thereby enhancing the ability to identify, track, document, and control assets (e.g. materiel), deploying and redeploying forces, equipment, personnel, and sustainment cargo.

AIT encompasses a variety of data storage or carrier technologies, such as *linear bar codes*, *two-dimensional symbols*...*satellite tracking transponders*, and *radio frequency identification tags* that are used for marking or "tagging" individual items, equipment, 463L pallets, or containers. (Source: JP 4.09 Distribution Operations)



Linear bar Code



Satellite tracking transponders



Radio Frequency Identification (RFID) tag example



RFID reader/interrogator (fixed and mobile examples)



AIT and ITV Definitions

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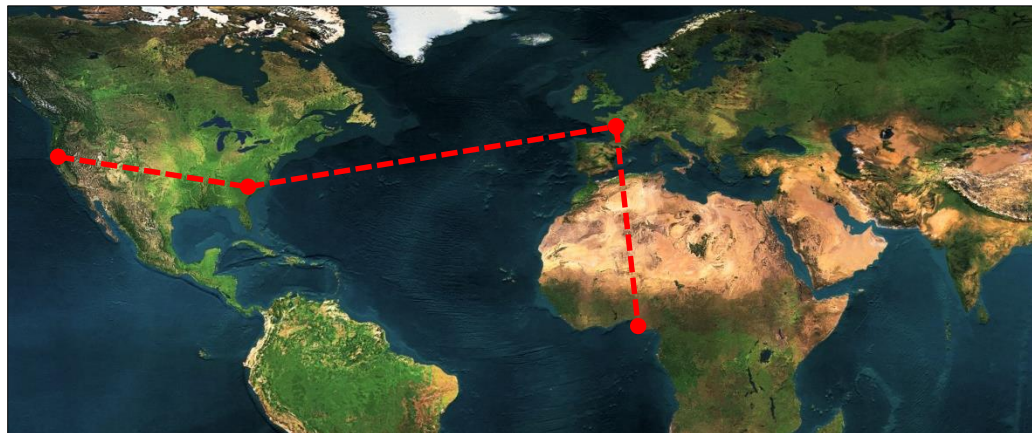
In-Transit Visibility (ITV):

The ability to track the identity, status, and location of DoD unit and non unit cargo (excluding bulk petroleum, oils, and lubricants) and passengers, patients, and personal property from origin to destination across the full range of military operations.

(Source : JP 1.02 DoD Dictionary of Military and Associated Terms)

ITV scenario:

Medical helicopter traveling via C-17 aircraft from Travis AFB, California to Cameroon, Africa with stopping points at Dover AFB, Delaware and Ramstein AB, Germany.





Active RFID Network



NORTHCOM
465R / 409W Sites

United Kingdom
38R / 4W Sites



EUCOM
170R / 118W Sites



CENTCOM
141R / 206W Sites



AFRICOM
4R / 0W Sites



PACOM
170R / 102W Sites



SOUTHCOM
6R / 0W Sites

Australia
1R / 0W Sites

World's largest Active RFID network
Reporting to the RF-ITV Server

- 1,790+ Read (R) and Write (W) sites
- 550+ Satellite-Base Tracking Systems reporting to the RF-ITV Tracking Portal
- 42 countries, 16,000+ registered users

1 Week Activity
Tags Written: 3,712
Tags Read: 54,347

NATO
10R*
*exercise support



In-Transit Visibility For Whom?

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ITV data is
used at all
levels



Strategic

- Macro Metrics
- Direct Vision

“Open a second port to
increase throughput.”



Operational

- Flow/velocity
- Scheduling
- Mission

“Re-direct that shipment!”



Tactical

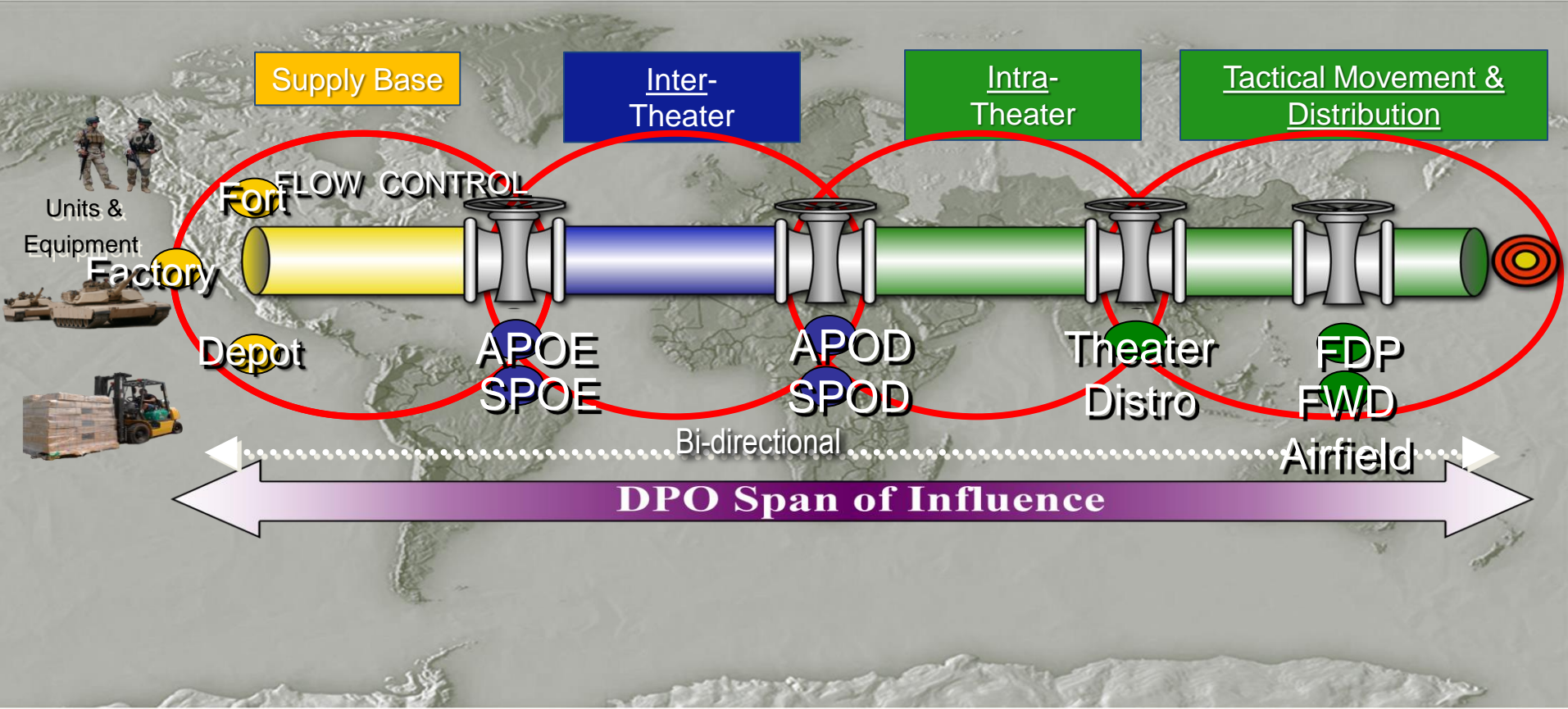
- Content
- Location
- On-time delivery

“Where’s my stuff?”



Visibility

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Strategy for Improving DoD Asset Visibility

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DEPARTMENT OF DEFENSE

Strategy for Improving DoD Asset Visibility

Third Edition – August 2017



Assistant Secretary of Defense
for Logistics and Materiel Readiness

- DoD Stakeholders – OSD, Joint Staff/J4 (CCMDs), Services, USTRANSCOM, DLA
- Guides and integrates DoD-wide efforts to improve asset visibility, reduce supply chain risk, and improve decision making strategy
- Provides framework to coordinate and integrate efforts to improve end-to-end supply chain asset visibility
- Builds on existing infrastructure, current business process, and system requirements
- Establishes Asset Visibility (AV) and Item Unique Identification (IUID) Working Groups to work collaboratively to identify and share visibility capabilities and opportunities
- Supporting Execution Plans (SEP) for addressing process, data, and technical improvements to improve asset visibility
- 3rd Edition was published in August 2017



DoD AIT Framework (CONOPS) for Supply & Transportation Processes

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Automatic
Identification Technology
(AIT)
for Department of
Defense (DoD)
Supply and
Transportation Processes



26 September 2014

- Signed by Commander USTRANSCOM
- Foundation document, focuses on current AIT media employed throughout the supply and transportation pipeline
- Active and passive RFID tags, barcodes, and satellite transponders are the backbone of the DoD AIT toolbox



-CN		SW81238350D001XXX		
From: SW8123	TAC 7: 999	SZZZ		
In-Header Address: ABCDEFGHIJKLMNOPQRSTUVWXYZ		Frt LTL		
Piece 1	Ct 1	Weight (lb) 7760	Date Shipped 1090	RDO 999
Cubes (U) 385		Project 9BU		
SHP, TS, PDE		In-Header Address		1
DOV		9 Lines Max, 35 Characters Per Line Alphabet High/Low/Pan/Noz AbcdEfgHijKlmnopQrstuvWxyz 0123456789@*+~!@#\$%^&*~!@#\$%^&*~!@#\$%^&*~!@#\$%^&*		
RMS		2D Matrix Barcode		
FMS Case CKM	DCA Data: ABD77ZR		Dest: 30D135	
SPJr:		W55XGJ		
Ultimate Consignee / Mark For Consignee		3 Lines Max, 35 Characters Per Line Alphabet High/Low/Pan/Noz AbcdEfgHijKlmnopQrstuvWxyz 0123456789@*+~!@#\$%^&*~!@#\$%^&*~!@#\$%^&*		

Linear

2D

Linear





Automatic Identification Technology (AIT) as an ITV Enabler

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AIT VISION: Enhance asset visibility to maximize deployment and distribution operational efficiencies through the use of Automatic Identification Technology (AIT)

Types of AIT

✈ Bar Codes



Bar Code



✈ Radio Frequency Identification (RFID) – Active and Passive



Active RFID



Passive RFID



✈ Satellite tags



Satellite tag

AIT enables ITV

✈ Ensures timely location updates

✈ Significantly reduces the possibility of human error

✈ Provides capability to efficiently track, document, and control the deployment of personnel and materiel



AIT Media

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Asset
Visibility

A family of commercial
technologies providing a
range of capabilities.

In-Transit
Visibility

Business Process
Improvement





Layers of Consolidation for Shipments

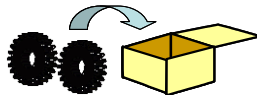
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Layer 0 – Individual Item



2D Matrix Bar Code

Layer 1 – Package



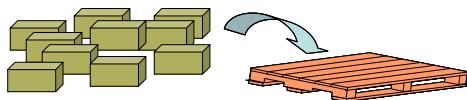
Passive RFID Bar Code

Layer 2 – Transport Unit
(cartons, boxes)



Passive RFID Bar Code

Layer 3 – Unit Load (warehouse pallet)



Passive RFID Bar Code

Layer 4 – Freight Container
(SEAVAN containers, 463L air pallets)

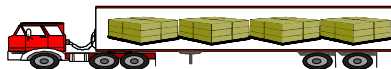


Active RFID License Plate Bar Code

Future Baseline AIT



Layer 5 – Movement Vehicle (truck, aircraft, ship, train)



“Premium” AIT: Data-Rich Active RFID, Satellite/Cellular, & Sensor...

...Applied for: Safety, Security, Perishables, Location, and/or Content Detail



ITV Components

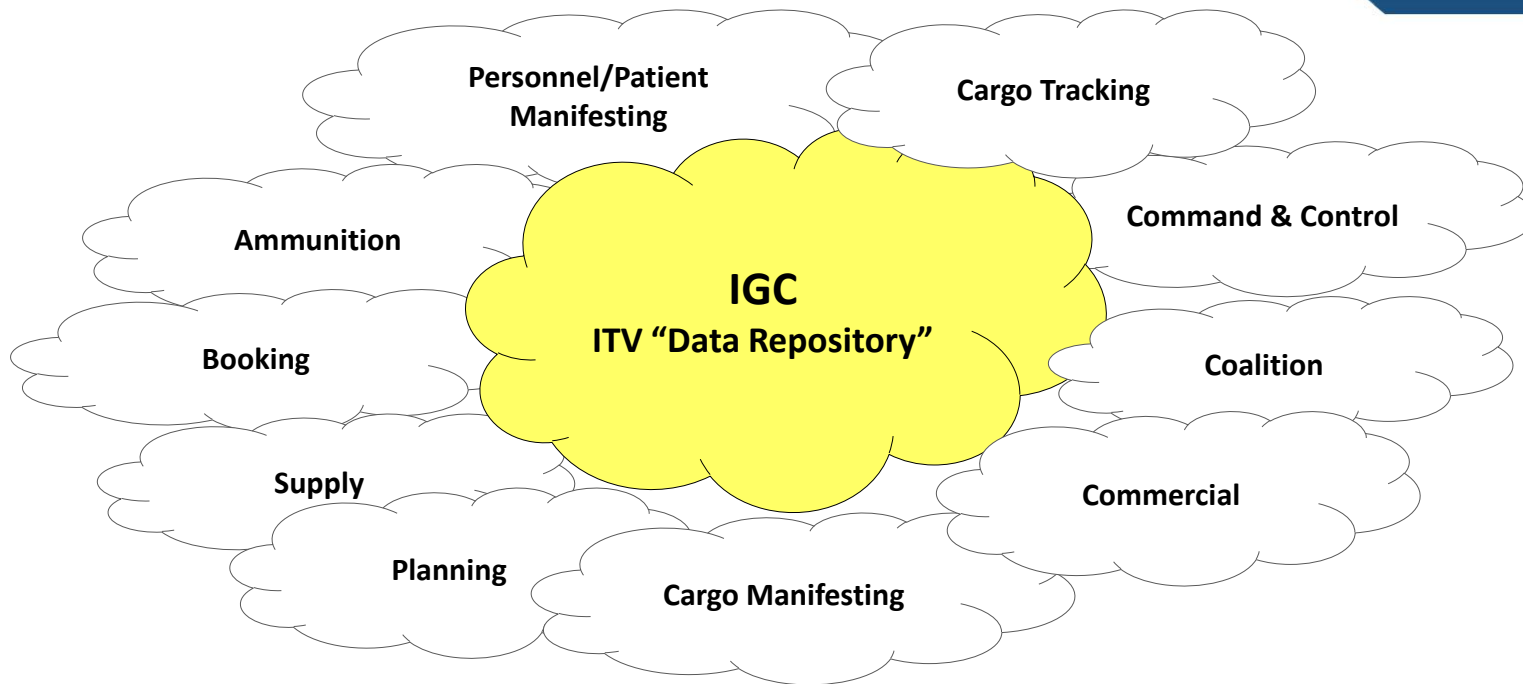
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- ITV is achieved through Automatic Information Systems (AIS)
- There are only **TWO** recognized ITV systems
 - IGC
 - RF-ITV Tracking Portal (Radio Frequency In-Transit Visibility)
 - ***IGC is DoD's authoritative source for ITV***
- Business Process Systems



DoD Deployment and Distribution Information Systems

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Data Input/Capture + AIS + Trained User = ITV



Bottom Line

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***Automatic Identification Technology and
In-Transit Visibility puts the Trust into the Supply Chain***





Automatic Identification Technology (AIT) as an ITV Enabler

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