

Leading the Way—General William Tuttle, Jr., USA (Ret.)
Overcoming Barriers to Force Movement

DTJ *Defense*
ransportation
Journal

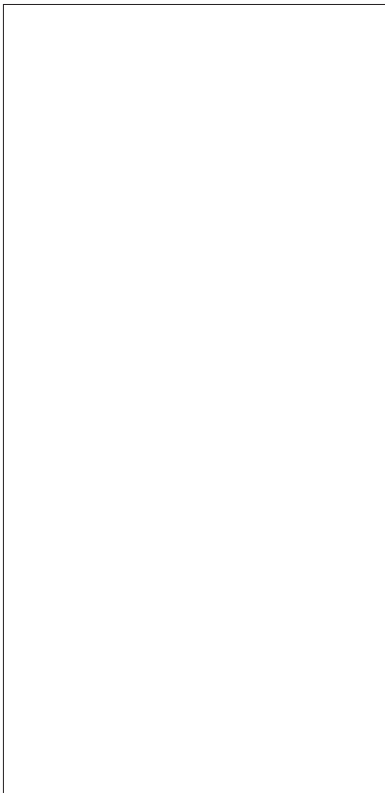
June 2008

www.ndtahq.com



Transportation Challenges

**ATLANTIC
REGIONAL FORUM**
Hershey, PA



CONTENTS

June 2008



DTJ Defense ransportation Journal

June 2008 • Vol 64, No. 3

PUBLISHER

LTG Ken Wykle, USA (Ret.)

EDITOR

Kent N. Gourdin

MANAGING EDITOR

Karen Schmitt | karen@ndtahq.com

CONTRIBUTING EDITOR

Denny Edwards

CIRCULATION MANAGER

Leah Ashe

PUBLISHING OFFICE

NTDA

50 South Pickett Street, Suite 220
Alexandria, VA 22304-7296
703-751-5011 • F 703-823-8761

PRODUCTION MANAGER

Margaret Howard

GRAPHIC DESIGN

Debbie Bretches

ADVERTISING ACCOUNT EXECUTIVE

Don Perkins

ADVERTISING & PRODUCTION

Carden Jennings Publishing Co., Ltd.
Custom Publishing Division
375 Greenbrier Drive, Suite 100
Charlottesville, VA 22901
434-817-2000, x143 • F 434-817-2020



Defense Transportation Journal (ISSN 0011-7625) is published bimonthly by the National Defense Transportation Association, a non-profit research and educational organization: 50 South Pickett Street, Suite 220, Alexandria, VA 22304-7296, 703-751-5011. Copyright by NDTA. Periodicals postage paid at Alexandria, Virginia, and at additional mailing offices.

SUBSCRIPTION RATES: One year (six issues) \$35. Two years, \$55. Three years, \$70. To foreign post offices, \$45. Single copies, \$6 plus postage. The *DTJ* is free to members. For details on membership, visit www.ndtahq.com.

POSTMASTER: Send address changes to:
Defense Transportation Journal
50 South Pickett Street, Suite 220
Alexandria, VA 22304-7296

FEATURES

- | | |
|--|-----------|
| In Contrast | 9 |
| NDTA Atlantic Regional Forum
Hershey, PA | 12 |
| Leading the Way
General William G.T. Tuttle, Jr. USA (Ret.) | 14 |
| 2008 National Transportation Week
Poster Contest | 17 |
| Air Force Soars Toward
Alternative Fuel Goals | 18 |
| 2008 SDDC Symposium NDTA Expo
McCollister's Photo Album | 23 |
| Developing a Unique DOD Unit Movement
Transportation Tracking Number
Overcoming Barriers to
Force Movement Visibility | 27 |

DEPARTMENTS

- | | |
|---|----|
| A-35 NEWS Ms. Lori Leffler | 4 |
| EDITORIAL Dr. Kent N. Gourdin | 5 |
| PRESIDENT'S CORNER LTG Ken Wykle, USA (Ret.) | 7 |
| GOVERNMENT NEWS | 32 |
| INDUSTRY NEWS | 33 |
| HOMELAND SECURITY Mr. Lee Jackson | 34 |
| PROFESSIONAL DEVELOPMENT Mr. Jerry Cothran | 35 |
| PAGES PAST COL Denny Edwards, USA (Ret.) | 37 |
| HONOR ROLL | 38 |
| CHAIRMAN'S CIRCLE | 39 |
| INDUSTRY INROADS Ms. Denise Bailey | 40 |
| BOOKSHELF IDEAS | 40 |
| INDEX OF ADVERTISERS | 40 |

OVERCOMING BARRIERS to Force Movement Visibility

By David A. Vail, CIV, USTRANSCOM (TCJ3-IR)

“Logistics sets the campaign’s operational limits. The lead time needed to arrange logistics support and resolve logistics concerns requires continuous integration of logistic considerations into the operational planning process. This is especially critical when available planning time is short. Constant coordination and cooperation between the combatant command and component staffs—and with other combatant commands—is a prerequisite for ensuring timely command awareness and oversight of deployment, readiness, and sustainment issues in the theater of war.”

— Joint Pub 1: Joint Warfare of the Armed Forces of the United States

LEARNING FROM INDUSTRY

The commercial distribution sector has had widespread success by adopting web-based, web-assigned tracking numbers. Their underlying motive is certainly the “bottom-line”; and to affect that “bottom-line,” companies have sought to better serve their customer needs through the application of information technology. The assignment of unique life-cycle tracking numbers for customer visibility is a cornerstone strategy for corporate America. Today, nearly every successful enterprise uses some form of tracking number to manage their products and services.

Whether it is a mega-volume small package carrier such as FedEx, DHL or UPS a large retail chain such as Wal-Mart; an international ocean carrier such as APL, SeaLand or Maersk; or even a fish and game wildlife environmentalist; every one relies upon unique life-cycle tracking numbers to hold business information together as it passes through enterprise databases. They realize that by tightly integrating corporate data, they can provide quick, simple and understandable responses to any customer inquiry. In the end, satisfied customers breed more business opportunity, and more business opportunity breeds larger “bottom-lines.”



In addition to the tangible customer benefits from this data integration strategy, there are internal corporate benefits as well. The strategy also allows these organizations to track critical corporate information across domain boundaries; e.g. operations, finance, inventory/tracking, scheduling (planning), marketing and resource management. Without a business focused integration strategy to share information, the business becomes fragmented and critical business information becomes compartmentalized, and eventually loses inherent value to the business as a whole.¹

So, if this approach is being used so successfully by so many, why has the Department of Defense (DOD) not yet realized the value to be gained by the in-

roduction of a unique tracking number for unit deployments? Over the past 20 years, the DOD’s joint planning and execution community has continued to seek ways to compare actual execution detail with its associated planned movement. This has continually been identified as a major command and control goal—to accurately depict a “plan versus actual” view and make needed adjustments as real world events affect the plan. However, the fundamental pitfall of this goal has always been that the classified planning domain of Joint Operation Planning and Execution System (JOPES) and the unclassified execution domain of the Defense Transportation System (DTS) use significantly different data models with differing levels of detail. For that very reason, an accurate, detailed portrayal of “plan versus actual” has met with failure.

The United States Transportation Command (USTRANSCOM) and United States Joint Forces Command-sponsored Transportation Tracking Number (TTN) initiative finally addresses this issue.

EARLY EFFORTS TO TRACK UNIT MOVEMENTS

Subsequent to September 11, 2001, the high volume deployments supporting

US operations in Afghanistan mandated better deployment data visibility. Early analysis revealed extensive variance in the accuracy and completeness of unit deployment data and, over time, the reported operational picture of the unit deployment status was significantly distorted.

When viewing Unit Line Number (ULN) requirements in the JOPES, the corresponding scheduling and movement

regularly occur in the execution-planning cycle, and provided fertile areas for attacking unit move visibility problems in order to develop a long-term solution.

Overall the study revealed that systems work as designed when provided all critical data at the beginning of the process. However, it also revealed that the lack of process discipline and continuous human intervention with the data created signifi-

This early look into deployment data uncovered significant data breakdowns that regularly occur in the execution-planning cycle, and provided fertile areas for attacking unit move visibility problems in order to develop a long-term solution.

visibility was no better than 27 percent. When the same unit deployment data was researched in the Global Transportation Network (GTN) with the Unit Identification Code (UIC), 85 percent of the unit shipment data was visible.

Of significant interest was the magnitude of “key” data element errors across multiple systems and processes; e.g. incorrectly constructed Transportation Control Numbers (TCNs), missing and/or incorrect Unit Line Numbers (ULNs). This early look into deployment data uncovered significant data breakdowns that

regularly occur in the execution-planning cycle, and provided fertile areas for attacking unit move visibility problems in order to develop a long-term solution.

Overall the study revealed that systems work as designed when provided all critical data at the beginning of the process. However, it also revealed that the lack of process discipline and continuous human intervention with the data created significant voids in the ability to maintain these critical data associations. New tools, new procedures, and a greater emphasis on data quality will be needed in the future to affect a long-term solution.

In the deployment planning and execution domains, there are crucial pieces of information represented by data elements that must be understood. During contingencies, initial movement requirements are defined in an aggregated fashion in JOPES; while the actual shipment detail during movement of these requirements is recorded in DTS systems.

To get a “planned versus actual” perspective, critical pieces of information from the plan and execution space must be held together from the very beginning of movement planning through closure at the end of movement. It is only by maintaining cross-domain linkages of these relationships that a user can ultimately understand the status of deployment and determine how real-world events are affecting that movement. The initial steps of our data analysis effort were to understand the realities of these critical data relationships during deployments to Afghanistan and Iraq.

To achieve quality in-transit visibility (ITV) for unit moves from the planned requirement through its execution and delivery, the relationship of these four critical data elements must be fully understood:

- OPLAN Identification (PID)
- Unit Line Number (ULN)
- Unit Identification Code (UIC)
- Transportation Control Number (TCN)

It is absolutely essential to hold these elements together in order to fully trace JOPES planned records with its DTS execution detail. Since the JOPES domain is limited to an aggregation of data in contrast to the DTS execution systems that contains item level detail, all critical data relationships must be maintained throughout the entire deployment planning and movement life cycle as the data passes from system to system.

Remembering that the planning data in JOPES differs significantly from the movement data in the DTS systems, these DTS systems must eventually roll the details up into aggregated data sets for JOPES. Once this aggregated data is in JOPES, the details of the deployment can no longer be understood.

The process can be likened to melting ten pennies into a copper mass. Once accomplished, one can no longer read details that were stamped on the coins; all independent detail is lost in the aggregation process. Additionally, if any critical data linkages for the cargo are lost, an accurate rollup is again impossible. With two disparate domains operating two independent databases any rollup picture is, at best, a very precarious one.

In spite of deployment doctrine and policy, data standardization, business rules

1/4 Page Ad

and personnel training in deployment processes, this decentralized approach to manually generating critical data elements has opened the door for users to regularly introduce non-compliant and inconsistent data into deployment execution systems. Although the Defense Transportation Regulations (DTR) states that unit move TCNs must be unique, they are not, especially over relatively short timeframes and across OPLANs. Currently, there is no unique key created at the beginning of requirement identification process in JOPES that remains tightly associated with shipment data throughout the deployment process. Our current decentralized process is very cumbersome and labor intensive, such that enforcement of doctrine, policy, data standardization and business rules is non-existent.

OPERATIONS ENDURING FREEDOM AND IRAQI FREEDOM

Deployment data quality was consistently monitored throughout the last five years of OEF/OIF. The first report, completed in October 2002, reflected that of the 123,730 unit move TCN shipment records, only 29 percent contained a ULN needed for possible return to JOPES. During the intervening period from October 2002 to January 2003, a software change was made to a DTS air manifesting system, improving the data quality to 46 percent. In February 2003, USTRANSCOM and the Army's Forces Command (FORSCOM) personnel reconfigured a data exchange between the COMPASS and GTN Systems to obtain a post-FORSCOM-edited data feed, vice the existing pre-edit feed, resulting in a significant improvement (61 percent) in Army data quality.

As far as real data quality is concerned, USTRANSCOM has begun to move from the art of guessing to the initial stages of applied scientific research to help identify and point to the resolution of data quality issues across the DTS. Even with these first steps, there is no real data quality visibility inside these segments of data. By January 2004, the level of data quality reached 77 percent, yet within a year that number had fallen to 65 percent and has remained representative.

OVERCOMING THE PROBLEM

To overcome the data integrity issues outlined above, USTRANSCOM, in part-

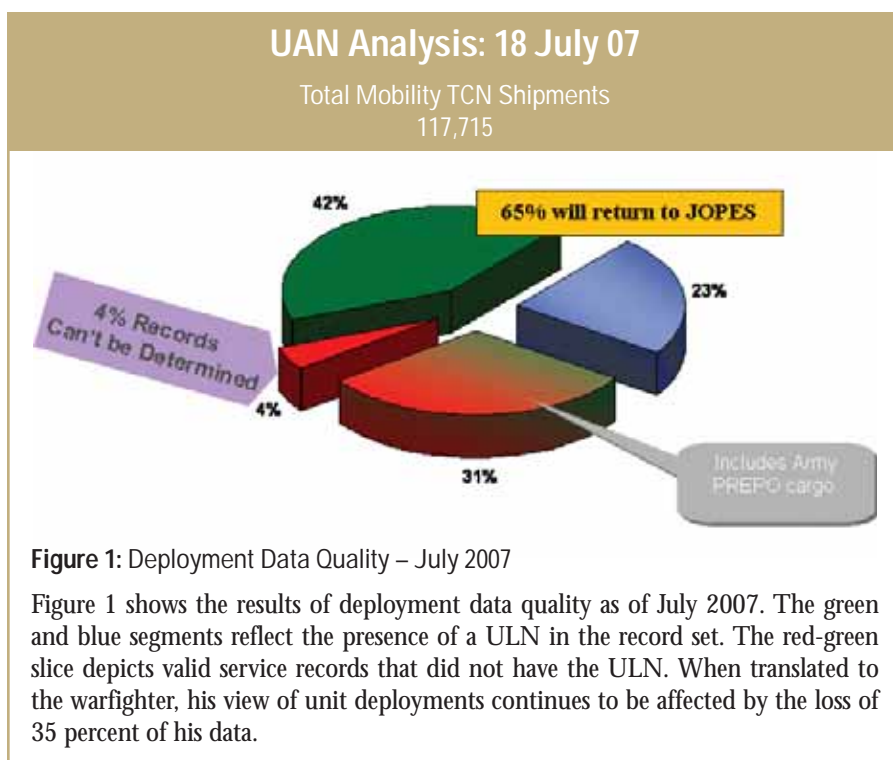


Figure 1: Deployment Data Quality – July 2007

Figure 1 shows the results of deployment data quality as of July 2007. The green and blue segments reflect the presence of a ULN in the record set. The red-green slice depicts valid service records that did not have the ULN. When translated to the warfighter, his view of unit deployments continues to be affected by the loss of 35 percent of his data.

nership with JFCOM, has sponsored a FedEx-like tracking number concept for all DOD unit deployment cargo. This initiative is called the Transportation Tracking Number (TTN). The basic concept for the unit movement TTN has several critical characteristics that must be kept in focus. These characteristics are:

- each number is truly unique over a significant timeframe (upwards of ten years);
- each number is a data key that can cross classification boundary without comprising OPSEC;
- the number is assigned as early in the deployment planning process as possible; and
- this number remains associated with the shipment data in every system that processes and stores transportation data.

The TTN will ensure all unit move requirements are reported back to JOPES for a fully-realized “plan vs. actual,” capability-based closure assessment.

TRANSPORTATION TRACKING NUMBER INITIATIVE

Fundamentally, the TTN concept has two parts. Account numbers are estab-

lished in JOPES at the highest level and are subsequently used as a “seed” for creating individual tracking numbers for each shipment. At the outset of any new deployment requirement in JOPES, a system generated account number would be ascribed to each requirement. It would be based on an algorithm that represents a combination of JOPES PID and ULN data. It would not be a concatenation of these values, but would be a newly generated randomized customer TTN Account Number (TTAN).

Two key aspects of the number are: (1) it does not have innate intelligence in and of itself; and (2) it remains unique throughout its life-cycle to prevent reuse or duplication within the transportation domain.

The TTAN will be established sometime prior to, or during, the planning/sourcing process. This account number is established electronically in JOPES at the moment a requirement record (ULN) is created. As unit movement documentation is created, a sequential counter for each shipment is added to the TTN to create a complete TTN. This TTN is collected in a service-owned deployment repository, as well as processed through all the other DTS systems and eventually collected in the TRANSCOM global

ITV database. As the shipment is moved through the execution environment, the TTN serves as the “data key” for ensuring data reliability throughout the complete movement.

To gain visibility of actual movements, the TTNs are available on the unclassified systems for TTN Account Number

able. The TTN provides JOPES the single unique data key that can be used to hold the entire life cycle of planning and execution data together.

Because there is no embedded intelligence in the creation of the basic TTN in JOPES, it is not restricted from the classified-to-unclassified data flow...thus

provides the linkages across JOPES and the unclassified transportation systems, it offers the opportunity to assemble an accurate “plan vs. actual” picture at the item-level of detail. The essence of the “plan vs. actual” picture is that it provides a true relationship of the plan requirements and all the detail about unit movements. The TTN enhances command and control of deployment from origin to destination, affording commanders better insight for posturing support, coordinating delivery and conducting capability assessments.

The orchestration of this detail data enables the combatant commander and staff to better understand force capability and the synchronization and integration of that capability before, during and after deployment of their forces. Strategic and theater replanning is empowered by the availability of accurate deployment planning and execution data that provides any aggregation needed by strategic, operational and tactical stakeholders; e.g. ULNs, UICs, Force Tracking Numbers (FTN) or even type equipment and the related capability. Significantly, the TTN allows unit equipment to be moved on any plane or ship without the loss of ITV, and more importantly, its OPLAN relationship. It is this final point that opens the potential to transform the financial process for billing and paying for lift. The TTN offers the opportunity to transform the world of deployment data. *DTJ*

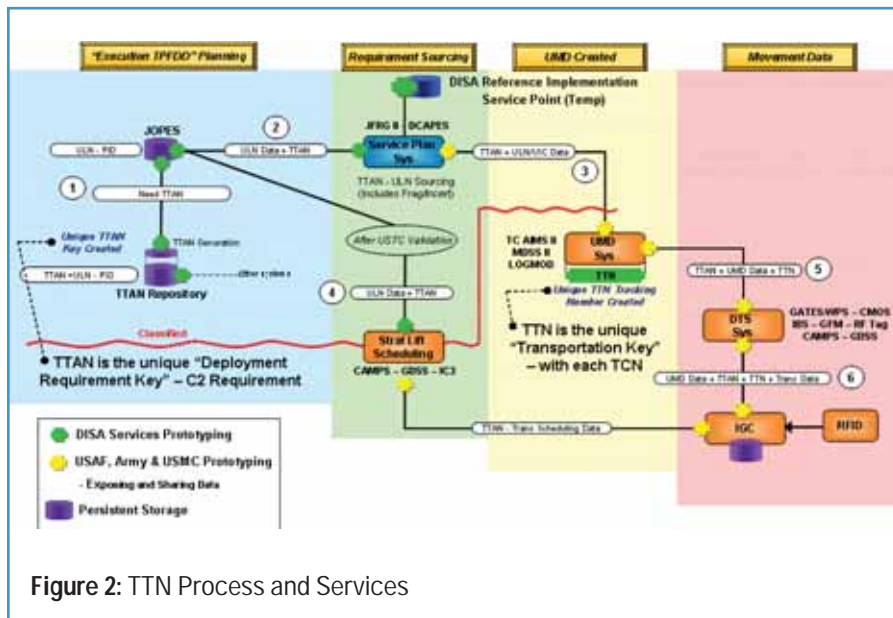


Figure 2: TTN Process and Services

queries. Additionally, at various points in the execution, the TTNs movement event updates would be reported to the C2 environment for the comprehensive planned versus actual assessments.

Within the Joint Staff's Operations Directorate (J3), its Command Systems Operations Division has taken the lead in having the Defense Information Systems Agency (DISA) engineer the TTN initiative and support services, thus setting the stage for the FY08 prototyping in preparation for future implementation. In this effort, DISA will be providing a range of Service Oriented Architecture (SOA) services and documentation for developers to use in their prototype and eventual implementation efforts. Figure 2 identifies a basic view of the systems and where various SOA services are envisioned.

REMOVING OLD BARRIERS

Since the TTN is designed for machine-to-machine data exchange, there is no human user involved in its creation, exchange or processing; it remains guaranteed unique and traceable and unalter-

removing the requirement for: (1) establishing an alias for the PID to be used on unclassified systems; and (2) maintaining the classified PID to unclassified “PID-alias” cross-reference table. Through the TTN, the PID-ULN relationship can be freely exchanged across the classified boundary without violating operational security. The unalterable and unintelligent TTN removes any motivation for customer changes which traditionally destroy embedded intelligence in current TCN, such as changing sustainment TCNs into unit move TCNs to avoid HAZMAT restrictions or to avoid billing by moving on contingency missions.

Finally, the TTN removes the dependency on process enforcement for any success in achieving improved unit move data quality.

NEW CAPABILITIES ENABLED BY TTN

In the simplest terms, the TTN resolves many long-standing issues with deployment data quality, while at the same time fulfilling critical command and control objectives. Because the TTN initiative

David Vail is a senior civilian in the Operations Integration Division, Operations & Plans Directorate, United States Transportation Command, Scott AFB, IL., overseeing the design and development of the Transportation Tracking Number (TTN) initiative. Significant contributions to the TTN effort and this article have been provided by Randall Heim, Jim Donovan, and Tom Black of MITRE.

ACKNOWLEDGEMENTS

In addition to the MITRE team mentioned above, the following agencies have made significant positive contributions to the advancement of the TTN initiative: Joint Staff J3-CSOD, DISA PEO-C2C, CENTCOM AJ3, TRANSCOM J5/4, and JFCOM J9 JDPO.