CHAPTER 4

LOGISTICS AUTOMATION SYSTEMS & ENABLERS

References

The United States Army Modernization Plan, 13 April 1998
Handbook for Army Logistics Automation, 3rd Edition, 1998

Introduction

The Army has been using automated information systems for years. Most of these systems were developed prior to the establishment of the world-wide-web and as a result, were developed by functional organizations meeting previously manual systemic needs. While improvements in the interoperability of these systems has been improved upon over time, most of these early systems are still largely independent and do not interface well with other CSS systems. The list of actual systems and applications used throughout the Army is extensive. While there are many systems currently deployed throughout the Army, the systems used to support the force illustrated in this text are a sizable sampling of those related to logistical efforts to support the warfighter. This chapter is broken down to illustrate current systems in place throughout the Army and some that are being developed. The systems have been divided into the two broad categories of Command and Control Systems and Business Systems for ease of delivery. Please note that the systems described herein, are only a selection of the systems being used by the U.S. Army, not all. Figure 4-1 shows the Army's C4I architecture.

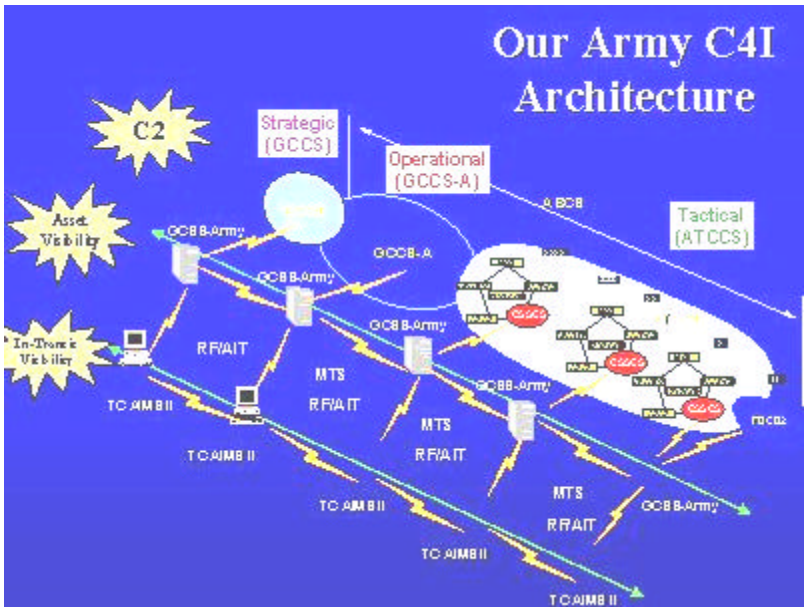


Figure 4-1. Army Command, Control, Communications & Computing (C4I) Architecture

COMMAND AND CONTROL SYSTEMS

Army Battlefield Command System (ABCS)

MISSION -- Link automation assets, communications media, and operational facilities to support commanders and their staffs in collecting and analyzing information, developing plans and orders, and monitoring the tactical battlefield, while simultaneously planning future operations.

DESCRIPTION AND SPECIFICATIONS -- Army Battle Command System (ABCS) is the Army 's component of the Global Command and Control System (GCCS). It is a complex system of systems that provides the mechanism to receive and transmit information among the joint forces. The ABCS consists of subsystems for the battlefield functional areas (BFA), each of which supports and provides information to other systems, and provides situational awareness of the battlefield. By integrating the ABCS components through the Joint Common Database (JCDB), the common tactical picture can be viewed at any workstation, to the operator 's specific requirements. In addition, ABCS subsystems provide an array of specialized capabilities and applications for commanders of diverse units at all levels. The adjacent table shows the ABCS subsystems and describes their functions.

ABCS Subsystem Functionality – The ABCS has multiple interfacing systems which facilitate the decision making and command and control systems.

Maneuver – Maneuver Control System (MCS), Force XXI Battle Command Brigade & Below (FBCB2), Plans, coordinates, and controls current Embedded Battle Commands (EBC) and future operations. Develops situational awareness and the common tactical picture.

Fires – Army Field Artillery Tactical Data System (AFATDS): Provides automated support for the planning, coordination, control, and execution of close support and deep fires from Army and joint assets. Topographic DTSS Produces tactical topographic products, services including digital and full color paper maps of the battlefield.

Air Defense – Forward Area Air Defense Command & Control (FAADC2): Integrates air defense units, sensors, and command and control centers into a system to defeat low-altitude airborne threats and enables the commander to plan and control the counter-air fight.

Combat Service Support – Combat Service Support Command System (CSSCS): An automated system for logistical, medical, financial, and personnel support to assist decision-making and the battle planning process.

Weather (IMETS): Provides weather information, based on information from Air Weather Service and other sensors.

Airspace – (A2C2): Provides the capability to plan air management movements and track aircraft during movement, and to enable deconfliction with weapons systems planning and operations.

Global Command and Control System (GCCS)

GCCS is an automated information system designed to support deliberate and crisis planning with the use of an integrated set of analytic tools and flexible data transfer capability. It is the mid-term implementation of the Command, Control, Computers, Communications and Intelligence for the Warrior (C4IFTW) concept, which fulfills a requirement for a capability to move a U.S. fighting force on the globe at anytime, and to provide it with information and direction to complete its mission. GCCS provides a fused picture of the battlespace within a modern C4 system capable of meeting warfighter needs into the 21st century. GCCS incorporates the core planning assessment tools required by combatant commanders and their subordinate joint force commanders and meets the readiness support requirements of the Services. GCCS has replaced the World-wide Military Command and Control System (WWMCCS) and is the system of record. Functionality and operational improvements are fielded/distributed in the form of version releases. GCCS mission applications include:

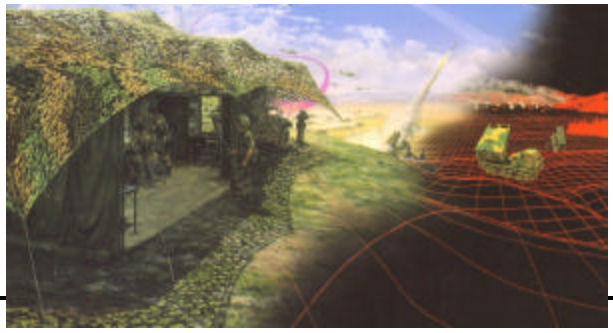
- Joint Operation Planning and Execution System (JOPES) and its applications.
- Global Reconnaissance Information System (GRIS).
- Evacuation System (EVAC).
- Fuel Resources Analysis System (FRAS).
- Global Status of Resources and Training (GSORTS).
- Joint Maritime Command Information System (JMCIS).
- Theater Analysis and Replanning Graphical Execution Toolkit (TARGET).
- Joint Deployable Intelligence Support System (JDISS).
- Air Tasking Order (ATO).

More information is on the GCCS home page at http://gccs.disa.mil/gccs/index.html

Global Command and Control System-Army (GCCS-A)

GCCS-A will provide a single seamless command and control system built around the Joint Common Operating Environment (JCOE) and is being integrated with the GCCS. Integration will be partially achieved from the "best of breed" process as GCCS-A and GCCS share and reuse software modules. These software modules are being identified by the Joint Service/Agency GCCS engineering team, sponsored by the Defense Information Systems Agency (DISA). GCCS-A is fundamentally GCCS with additional Army functionality.

For more information on GCCS-A: http://jitc.fhu.disa.mil/gccsiop/interfaces/gccs_a.htm



Combat Service Support Command System (CSSCS)

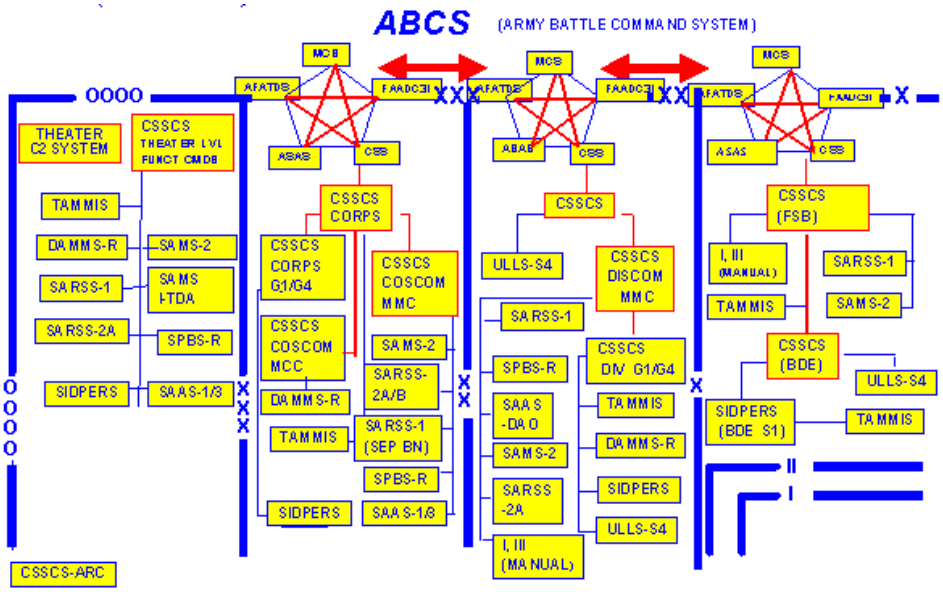


Figure 4-2. CSSCS Objective Architecture

MISSION -- Provide timely situational awareness and force projection information to determine capability of supporting current operations and sustaining future operations as a key logistical enabler for the Army Vision.

DESCRIPTION AND SPECIFICATIONS -- The Combat Service Support Control System (CSSCS) (Figure 4-2) is a decision-support system that assists commanders and their staff in planning and executing CSS operations. The CSSCS will rapidly collect, store, analyze, and disseminate critical logistics, medical, financial, and personnel information. Currently, CSS commanders and staffs manually gather, correlate, and analyze volumes of technical data from the existing Standard Army Management Information Systems (STAMIS) and the Army Tactical Command and Control System. The CSSCS extracts summary information from the STAMIS; accepts input from other elements of the CSS community; and exchanges information with other automated systems to evaluate CSS information about the force-level commander 's tactical courses of actions.

The CSSCS is the combat service support component of the Army Battle Command System (ABCS). The CSSCS is organic to CSS units and headquarters staffs, within the maneuver brigades, separate brigades, armored cavalry regiments, divisions, corps, and echelons above corps. The CSSCS is comprised of computer units, common operating environment software, and CSSCS-unique software. The CSSCS is deployable in a tabletop configuration, with or without storage/transit cases, and can also be housed in the family of Standardized Integrated Command Post Systems (SICPS). While the current sources of CSS data are the STAMIS systems and manual entry, the future data sources are automated links to FBCB2 and GCSS-A.

Joint Operations Planning and Execution System (JOPES)

JOPES is the integrated, joint, conventional command and control system used by the Joint Planning and Execution Community (JPEC) to conduct joint planning, execution and monitoring activities. JOPES supports senior-level decision-makers and their staffs at the National Command Authority (NCA) level and throughout the JPEC. It is a combination of joint policies, procedures, personnel, training and a reporting structure supported by automated data processing systems, reporting systems, and the GCCS. JOPES is a GCCS application.

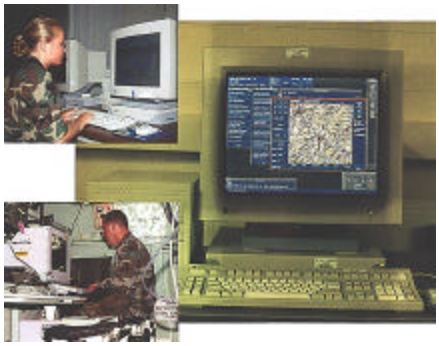
During peacetime conditions, JOPES is used for deliberate planning to produce OPLANs, CONPLANS, and concept summaries. In crisis, JOPES is used for Crisis Action Planning (CAP) to produce OPORDs. JOPES facilitates rapid building and timely maintenance of OPLANs, Concept of Operations (CONOPS), and concept summaries. In CAP, it supports rapid development of effective options and OPORDs in no-plan situations or when existing plans must be adapted. JOPES is used to conduct a transportation feasibility analysis after the CINC, supporting CINCs and Service components develop the TPFDD. It supports effective management of operations in execution across the spectrum of mobilization, deployment, employment, sustainment, and redeployment activities.

The Army proponent for JOPES is the DA Deputy Chief of Staff for Operations and Plans (DCSOPS). Overall proponent for JOPES is the Joint Staff J3.

Army Mobilization and Operations Planning and Execution System (AMOPES)

AMOPES is the Army supplement to JOPES. Army components plan Army forces and resources to meet combatant commanders needs using JOPES. AMOPES provides the interface between unified plans for deployment and Army plans for mobilizing forces and resources. AMOPES identifies active and reserve component major Army combat forces available to execute operational plans. It sets priorities for the apportionment of CS and CSS units in conjunction with the OPLANs. AMOPES provides mobilization and deployment definitions and guidance for planning and execution along with a detailed description of the Army's Crisis-Action System.

The Army staff AMOPES proponent is the DA DCSOPS-ODO-M. Address and telephone is the same as for JOPES above.



BUSINESS SYSTEMS

Standard Army Management Information Systems (STAMIS)

- Unit Level Logistics System (ULLS)
- Standard Army Maintenance System (SAMS)
- Standard Army Ammunition System (SAAS)
- Standard Army Retail Supply System (SARSS)
- Standard Property Book System - Redesigned (SPBS-R)
- Standard Installation Division Personnel Information System (SIDPERS)
- Theater Army Medical Management Information System (TAMMIS)
- DA Movement Management System-Redesigned (DAMMS-R)
- Transportation Coordinators Automated C2 Information System (TC ACCIS)
- Transportation Coordinators Automated Information for Movement System (TC AIMS)

Unit Level Logistics System (ULLS)

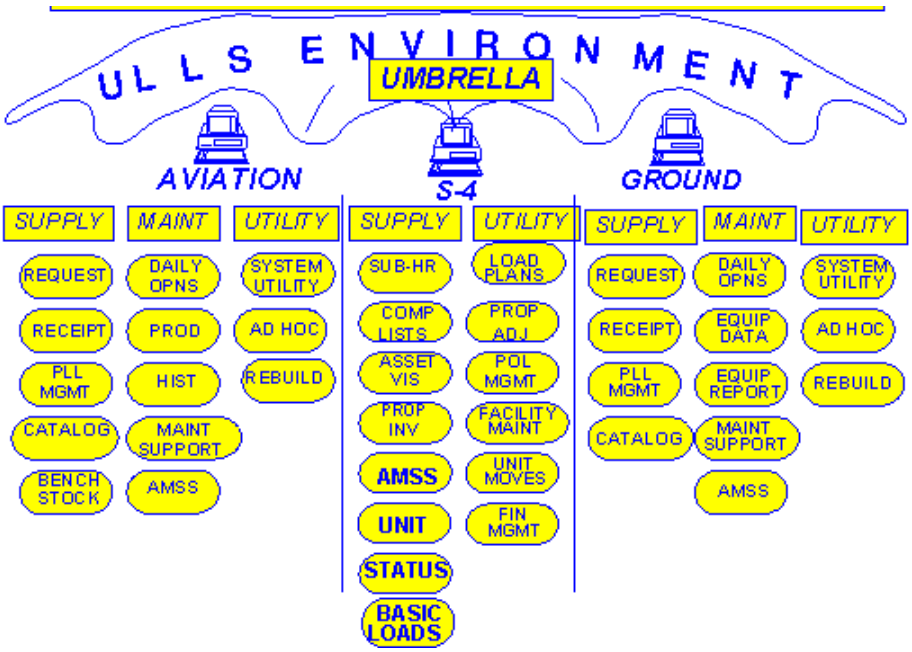


Figure 4-3. Unit Level Logistics System (ULLS)

There are three versions of ULLS (shown in Figure 4-3) that appear in different types of units. Each performs slightly different functions. The three versions are:

- **Unit Level Logistics System - Ground (ULLS-G) --** ULLS-G is located at any unit that has an organizational maintenance facility. It automates vehicle dispatching, PLL management, and TAMMS. ULLS-G interfaces with SARSS-1, SAMS-1, IVIS,

vehicle sensors, and ULLS-S4. The AIT Interrogator is connected directly to the ULLS-G. ULLS-G is linked to the wholesale supply system through OSC.

- **Unit Level Logistics System - Aviation (ULLS-A)** -- ULLS-A is located in all aviation units. It performs those functions for aviation that ULLS-G performs for ground units.
- **Unit Level Logistics System - S4 (ULLS-S4)** -- Unit Level Logistics System-S4 (ULLS-S4) is located at unit level supply rooms, as well as battalion and brigade level S4 staff sections. ULLS-S4 automates the supply property requisitioning/document register process, hand/sub-hand receipts, component, budget, and logistical planning activities at the Unit Supply, Bn, and Bde S4 levels. It also receives and produces AMSS Reports generated by ULLS-G/A systems or by another ULLS-S4 system. The AIT Interrogator is connected directly to ULLS-S4. ULLS-S4 interfaces with the Standard Property Book System-Revised (SPBS-R), Unit Level Logistics-Ground (ULLS-G) and Unit Level Logistics-Aviation (ULLS-A) (for budget and AMSS data transferring), Standard Army Ammunition System (SAAS), Standard Army Retail Supply System-Objective (SARSS-O) at the Direct Support Level, the Standard Army Intermediate Level Logistics System Supply (SAILS), the Objective Supply Capability (OSC) SARSS Gateway and the Combat Service Support Control Systems (CSSCS).

Standard Army Maintenance System (SAM)

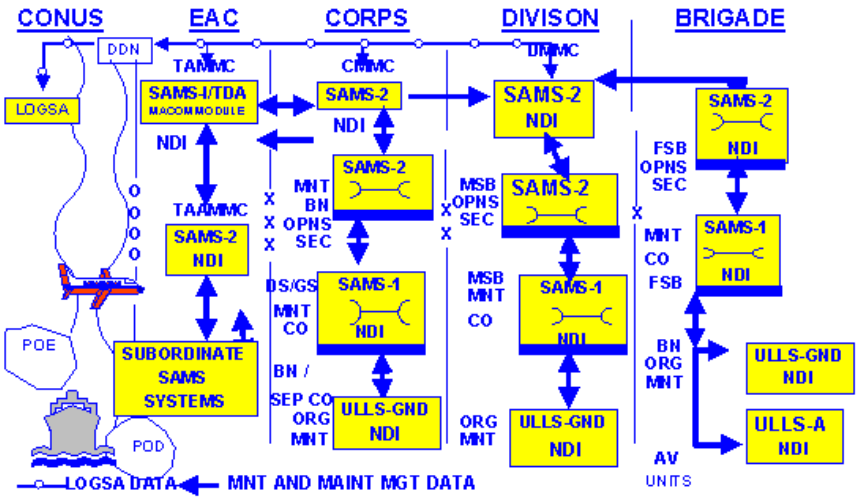


Figure 4-4. Standard Army Maintenance System (SAMS)

SAMS-1

SAMS-1 is an automated maintenance management system used at the direct support (DS) maintenance company found in the separate brigade, division, corps, and echelons above corps and the general support (GS) maintenance company at echelons above corps. The system automates work order registration and document registers. It automates inventory control and reorder of shop and bench stock as well as automating

work order parts and requisitioning. It produces pre-formatted and ad hoc reports and allows extensive on line inquiry.

SAMS provides the capability for automated processing of DS/GS maintenance shop production functions, maintenance control work orders and key supply functions previously performed manually. Requisitions are prepared automatically and automatic status is received from SARSS-1. It also provides completed work order data to the LOGSA for equipment performance and other analyses.

SAMS-1 automates maintenance documentation and information gathering and transmittal; provides management of work orders and work order tasks; allows transfer of repair parts and/or dues-in between work orders and shop stock; accounts for direct, indirect, and non-productive man-hours; simplifies and standardizes the collection and use of maintenance data; improves readiness management and visibility by providing equipment status and asset data; raises the quality and accuracy of performance, cost, backlog, man-hour, and parts data through improved maintenance management.

SAMS-1 operates on commercial off the shelf hardware with a Master server/workstation and a Remote workstation. The server and the remote form a local area network (LAN). The server is the central computer, responsible for managing the LAN. In addition to managing the LAN, the server is a workstation.

SAMS-1 has interfaces with the following systems:

- Unit Level Logistics System - Ground (ULLS-G)
- Standard Army Maintenance System (SAMS-2)
- Standard Army Maintenance System –Installation /Table of Distribution and Allowance (SAMS-I/TDA)
- Standard Army Retail Supply System (SARSS-1)
- SARSS Gateway

SAMS-2

SAMS-2 is an automated maintenance management system used at the main support battalion (MSB), the forward support battalion (FSB) in the division, and the materiel office of functional maintenance battalions and support groups in the corps and echelons above corps (EAC). It is also used at the material management center (MMC) and in the division support command (DISCOM), corps support command (COSCOM), and the theater Army area command (TAACOM).

SAMS-2 is used by the field commands to collect and store equipment performance and maintenance operations data. This is used to determine guidance to be given to their subordinate maintenance units. SAMS-2 provides the capability of monitoring equipment non-mission capable status and controlling and coordinating maintenance actions and repair parts utilization to maximize equipment availability.

SAMS-2 receives and processes maintenance data to meet information requirements of the manager and to fulfill reporting requirements to customers, higher SAMS-2 sites, and

the wholesale maintenance level. Data can be accessed instantly to fulfill management's needs in controlling, coordinating, reporting, analysis and review.

SAMS-2 maintains equipment status by line number and unit within the command; maintains a record of critical repair parts and maintenance problem areas; provides visibility of backlog and planned repair requirements; provides maintenance performance and cost evaluation tools.

SAMS-2 provides Maintenance and Management information to each level of command from the user to the division or corps, wholesale and DA levels. SAMS-2 collects, stores, and retrieves maintenance information from SAMS-1 sites, and allows managers to coordinate maintenance workloads. SAMS-2 passes significant maintenance and supply information to higher commands for the purpose of maintenance engineering and readiness reporting.

SAMS-2 has interfaces with the following systems:

- Unit Level Logistics System (ULLS)
- Standard Army Maintenance System (SAMS-1)
- Standard Army Maintenance System (SAMS-2)
- Standard Army Maintenance System (SAMS-I/TDA)
- LOGSA
- Combat Service Support Control System (CSSCS)

Standard Army Ammunition System (SAAS)

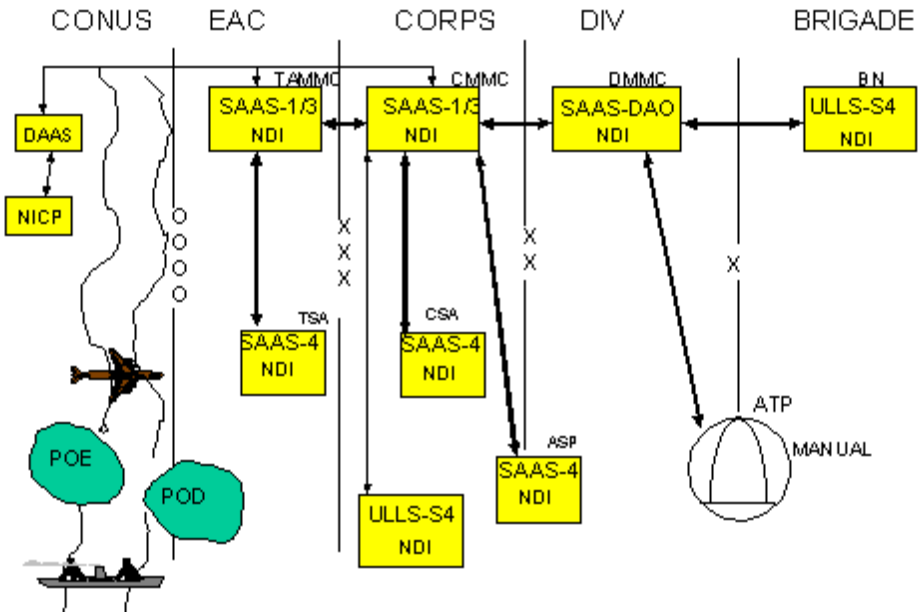


Figure 4-5. Standard Army Ammunition System (SAAS)

SAAS (Figure 4-5) provides centralized information management to support ammunition management functions on the battlefield and in CONUS/OCONUS

MACOMS. Current development effort modernizes system fielded in the mid to late 80's and provides improvements/functionality as identified during operations Desert Shield and Desert Storm. New system design accommodates the force projection Army.

SAAS-1/3 automates ammunition management functions in the Army Corps and Theater materiel management centers. (Fielded). SAAS-4 automates the receipt, storage, and issuing operations at Army-operated TOE/TDA ammunition supply points. (Fielded). SAAS-DAO - automates the ammunition operations within the division ammunition office. (Fielded). SAAS-MOD - merges the fielded SAAS Versions into a single Open System compliant application. "Modular" design allows selection of functions to support level of employment. (Development). Will operate on a variety of platforms from "laptops" to mini-computers operating LANS with PC class workstations.

Standard Army Retail Supply System (SARSS)

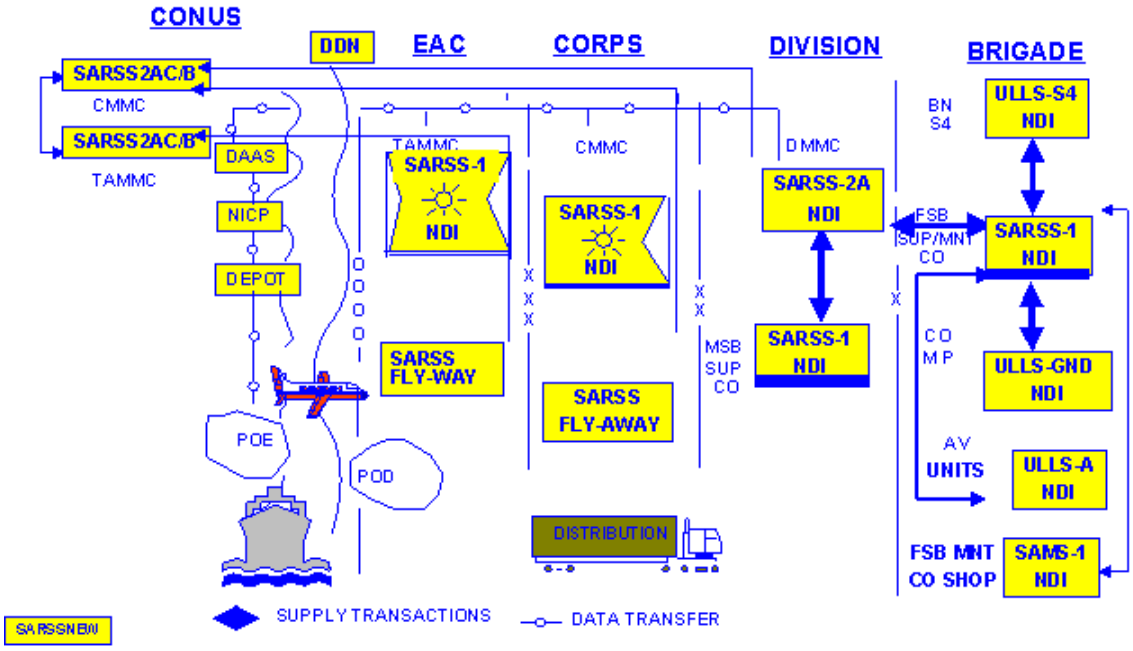


Figure 4-6. Standard Army Retail System (SARSS)

Standard Army Retail Supply System – Objective: SARSS-O is the primary automation system for supply units operating in the Brigade and Division areas. It processes customer requests from ULLS, Standard Army Maintenance System (SAMS) and Standard Property Book System-Redesign (SPBS-R). SARSS maintains stock record balances and reports them to the higher echelon SARSS systems.

SARRS functions are:

- Financial management
- Asset visibility
- Redistribution/referral
- Accountable records

- Materiel release control system

SARSS-O Systems Overview

Today's newer CSS systems address the short-falls of earlier systems. Modern microcomputers provide interactive processing and capabilities formerly found only in mainframe computers. While these systems are great improvements, they do not support vertical inventory management to the degree called for by doctrine and the requirements of the Defense Management Review (DMR). It also shows the interfaces between structures from the tactical to the strategic level. SARSS-O is to be a multi-level supply management system. It will operate in peacetime or war. It will operate at every level of supply, from the DSU/general support unit (GSU) through the theater Army in a theater of operations. It will also operate from the warehouse through the installation supply division in CONUS. The system consists of SARSS-1, 2A, and 2B that are subsets of the entire SARSS-O system.

Standard Army Retail Supply System-2A (SARSS-2A)

SARSS-2A will perform time-sensitive supply management functions at the MMC level. It will rapidly respond to documentation received from subordinate SARSS-l, SARSS-2A, or DS4 activities. It is to be an on-line, transaction-oriented, management system allowing users to enter data and query the system using a keyboard. It will use near-real-time batch processing for transactions received from other activities. SARSS-2A, like the other SARSS subsystems, will maintain control of transactions by assignment of serial numbers to the frequent small batches of data passed between activities. It will maintain asset visibility of subordinate SARSS-1 accounts, provide requisition routing, and perform lateral searches of stocks to fill unsatisfied requirements. It will also release controlled items, provide gross obligation of consumer funds, and provide disposition instructions for redistribution or retrograde of excess material.

Standard Army Retail Supply System-2B (SARSS-2B)

This module is also scheduled to replace elements of the SAILS and the DS4. It will perform less time-sensitive actions. These include demand history and analysis, document history, and cataloging. It will process on corps/ theater automated service centers (CTASCs) at the operational and tactical levels. It will process on the Army Standard Information Management System (ASIMS) at installations.

Standard Property Book System – Redesign (SPBS-R)

SPBS-R (Figure 4-7) is a Standard Army Management Information System (STAMIS) that automates property accounting systems. It operates in a centralized or decentralized mode. It also provides asset visibility where there is a requirement. System operators are Unit Supply Specialists - 92Y and Property Accounting Technicians - 920A.

There is one per Property Book Team at each Heavy Division, Light Division, Airborne Division, Separate Combat Brigade, Separate Group/Brigade, Non-Division Battalion, Separate Company, and one per CSSAMO at each Division Support

Command (DISCOM), Corps Support Command (COSCOM), Corps Support Group (CSG), Theater Army Command (TAACOM), Area Support Group (ASG), Armored Calvary Regiment (ACR), Separate Brigade, and Separate Battalion.

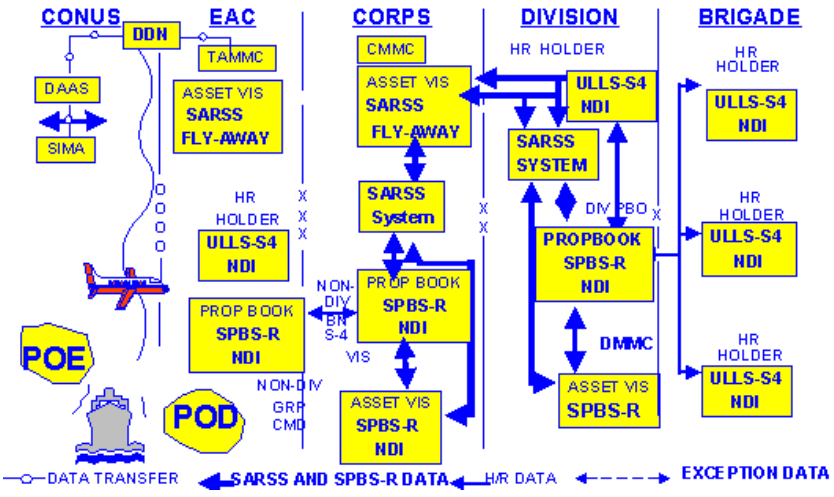


Figure 4-7. Standard Property Book System – Redesign (SPBS-R)

Future: There will not be any developmental changes to this system. The functionality of SPBS-R and Unit Level Logistics System - S4 (ULLS-S4) will be consolidated into the Supply Property Module (SPR) for GCSS-Army.

Standard Installation / Division Personnel System (SIDPERS)

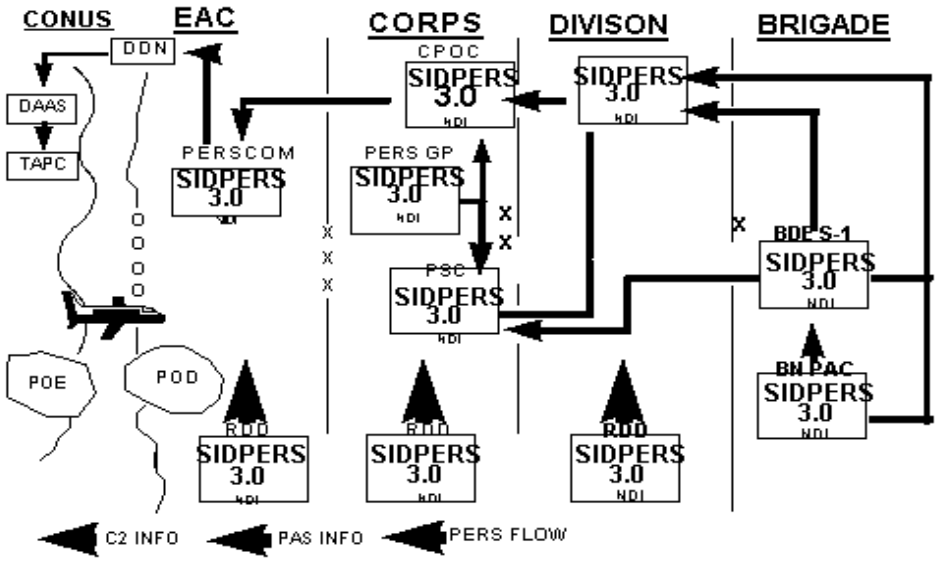


Figure 4-8. Standard Installation / Division Personnel System (SIDPERS)

SIDPERS-3 (Figure 4-8) is an advanced personnel information system supporting personnel operations at battalion/separate unit to installation/division

level. SIDPERS-3 Software replaced SIDPERS 2, 2.5 and version 2.75. SIDPERS-3 hardware replaced the TACCS device. SIDPERS-3 is not a CORPS or Theater Army Level system, but through data extracts does support decision making at CORPS/Theater level. SIDPERS-3 provides a modern, more efficient and effective automated personnel system. It automates more of the processes currently performed manually. The SIDPERS-3 work center is a personal computer (PC) based system, consisting of a host terminal data server, a printer, and up to four smart workstations. There is both a desk top and laptop version of the workstation. The host terminal data server contains the SIDPERS-3 software and database, with the workstations emulating terminals of the host server. When not being used for SIDPERS-3 operations, the workstations can be used for office automation purposes.

SIDPERS-3 features includes a greatly expanded database (more than 1500 data elements per soldier) and is the primary input source for the Department of the Army Total Army Personnel Database (TAPDB). The SIDPERS-3 database is relational and distributed, allowing improved responsiveness over previous versions of SIDPERS in ad hoc queries and the ability to independently update information on unit personnel as it changes. Unit updates constantly refresh the installation database and provides the basis for updates to TAPDB.

Also included in SIDPERS-3 are many improvements in labor-saving functionality. An example is the ability to produce an Officer or Enlisted Record Brief (ORB or ERB) at any level down to battalion or separate unit, and the ability to view and print management information and reports at each echelon was done centrally with SIDPERS-2. The SIDPERS-3 ORB, though formatted differently, is equivalent to and contains more data than the current TOPMIS ORB. The ERB is a new product designed to provide an enlisted equivalent of the ORB and replaces the DA Form 2A, which is no longer used. The reassignment module includes enlisted assignment data on permanent party, basic trainees, and advanced individual training soldiers. SIDPERS-3 uses the data to automate assignment notification, movement interview, and reassignment orders production.

In addition to TAPDB, SIDPERS-3 interfaces with seven other major Army automated systems. They are:

- The Army Authorization Documentation System - Revised (TAADS-R),
- Defense Joint Military Pay System (DJMS),
- Reception Battalion Automation Support System (RECBASS),
- Theater Army Medical Management Information System (TAMMIS),
- HQDA Installation Support Modules (ISM),
- Army Company Information System (ARCIS), and
- Combat Service Support Control System (CSSCS).

Additionally, to support short-term deployments/manifesting, SIDPERS-3 will soon interface with a flyaway module of SIDPERS-3 called the Tactical Personnel System (TPS).

The functional proponent for SIDPERS-3 is the Deputy Chief of Staff for Personnel, but functional oversight is provided by the Adjutant General, U.S. Army Personnel Command. The Field Systems Division, TAGD, provides functional specifications for the system, test condition requirements and functional test situations for software qualification testing, and a Help desk operation to support resolution of field user problems. The Program Manager SIDPERS-3 provides system budget, development and technical design, engineering, and oversight.

Theater Army Medical Management Information System (TAMMIS)

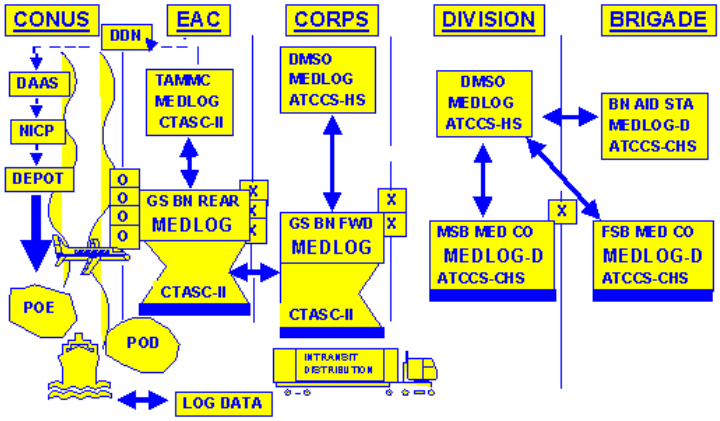


Figure 4-9. Theater Army Medical Management Information System (TAMMIS)

TAMMIS (Figure 4-9) was designed to focus primarily on wartime operations, but it is used also for training, contingency operations, and supporting some peacetime functions. It supports readiness missions in garrison and during training exercises; therefore, ensuring transition from peacetime to wartime. TAMMIS improves timeliness, accuracy, and resolution of information for medical and combat service support commanders concerning the status of medical units, medical supplies and equipment, and patients, to support the tactical commander on the extended battlefield.

TAMMIS consists of six subsystems supporting logistics and patient administration functions. The TAMMIS subsystems supporting logistics are Medical Supply (MEDSUP), Medical Assemblage Management (MEDASM), and Medical Maintenance (MEDMNT). These subsystems currently run on several hardware platforms. The Everex-486 is used primarily at Level III Table of Organization and Equipment (TO&E) field medical units to include the Medical Logistics (MEDLOG) Battalions. The CASS-M will be used primarily at the Medical Logistics (MEDLOG) Battalion level. The Hewlett Packard 9000 is used at Level IV and V Table of Distribution and Allowances (TDA) hospitals. The TAMMIS subsystems supporting patient administration are Medical Regulating (MEDREG), Medical Patient Accounting and Reporting (MEDPAR), and MEDPAR Command and Control (MEDPAR-CC). These subsystems currently operate on the EVEREX-486 hardware platform at Level III TO&E units.

TAMMIS is capable of interfacing with other Department of Defense (DOD) management information systems and programs such as the Defense Medical Regulating Information System (DMRIS), the Standard Installation/Division Personnel System-3 (SIDPERS), Prime Vendor Program, Standard Financial System (STANFINS) and many, many more. TAMMIS automates communications by setting up a transmission schedule to remote locations and automating re-transmissions. TAMMIS can relay information between units in various ways. The preferred methods use Tactical Terminal Adapter (TTA) or Local Area Network (LAN). Both methods rely on the use the Mobile Subscriber Equipment (MSE) military communications system. Because communications cannot be assured in wartime, units can also pass information by standard telephone lines, DDN, International Maritime Satellite (INMARSAT) using a commercial modem, over a stand-alone LAN (without MSE), by floppy diskette or tape delivered by courier or by high frequency (HF) radio. All methods preclude re-entering data at the receiving unit.

DA Movements Management System – Redesigned (DAMMS-R)

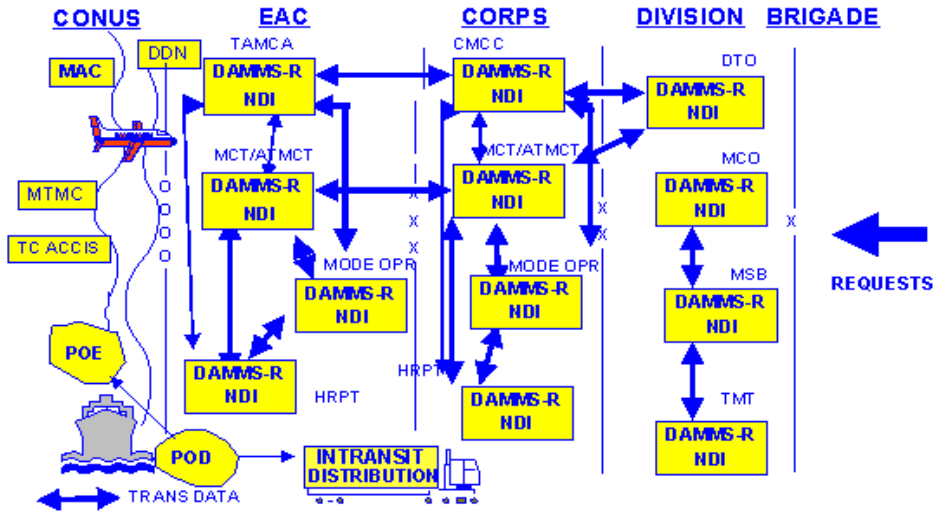


Figure 4-10. DA Movements Management System – Redesigned (DAMMS-R)

DAMMS-R (Figure 4-10) provides an automated movement information management capability to managers involved in providing movement control and allocation of land transportation in a theater. It provides theater mode operators with a management tool to assist in tasking personnel, equipment, and terminal/trailer transfer points. The system has a financial management capability to assist in maintaining records and payment for commercial movements. DAMMS-R consists of six separate but interrelated subsystems used by transportation planners, movement managers, mode operators, traffic controllers, trans-shippers, and UMO. These subsystems are the shipment management, movement control team operations, mode operations, convoy planning, highway regulation and transportation addressing modules.

Currently DAMMS-R is fielded in two Blocks. Block 1 includes the shipment management, movement control team operations, mode operations and transportation addressing modules. Block 2 has the highway regulation and convoy planning modules.

DAMMS-R Block 3 will replace Block 1 and it will offer improved functionality for the modules currently in Block 1. Selected functionality will migrate to TACIMS-II in time. DAMMS-R POC is PM-ILOG; DSN 687-6047/6646/6653; or (804) 734-6047/6646/6653.

Transportation Coordinators Automated Information for Movement System II (TC-AIMS II).

TC-AIMS II is a joint information management system that provides functionality for facilitating the movement of unit personnel, equipment, and supplies during peace and war, and provides visibility data of those forces from home station to the conflict and back. Its primary mission is to support the warfighter in the planning and execution of deployment, sustainment, and redeployment of forces during peace and war. TC-AIMS II will integrate current DOD transportation systems supporting installation and unit movement requirements into a single system.

TC-AIMS II includes functionality found in three separate Service legacy systems: the Air Force's Cargo Movement Operational System (CMOS), the Army's TC-ACCIS, and the Marine Corps Transportation Coordinator's-Automated Information Management System (TC-AIMS). Planned system functionality includes providing source item level detail information on equipment and personnel to the separate Service and/or Joint TPFDD system (s), rail loading and convoy planning/scheduling, automated Military Standard Transportation and Movement Procedures (MILSTAMP) documentation, common user lift requests to TCCs, creating and maintaining UEL/DEL, and sharing load plan information with air/ship stow planning systems. The system will also provide GTN with unit movement ITV information for passengers and cargo. TC-AIMS II is currently in prototype development.

Questions concerning TC-AIMS II can be addressed to TC-AIMS II-JPMO; Attn: SFAE-PS-TC; 9350 Hall Road, Suite 142; Ft Belvoir, VA 22060-5526. Telephone is DSN 656-0525 or commercial (703) 806-0525. Also see: http://www.tcaimsii.belvoir.army.mil.

Transportation Coordinator-Automated Command and Control Information System (TC-ACCIS)

The TC-ACCIS is an information management and data communications system that all Army units (AC & RC) use to plan and execute deployments. Its capability has the ability to create and maintain unit movement data, prepare convoy requests, create military shipping labels and other movement documentation, and preparing vehicle load cards and vehicle/container packing lists. Principal system users are the UMOs, ITO, UMCs, and IC-UMOs. Selected TC-ACCIS functionality will migrate to TC-AIMS II.

Units maintain their AUEL and develop their DEL using TC-ACCIS. Its software is in computers at CONUS installation ITOs and ITOs or movement control units OCONUS. The ITO, using the central computer, consolidates requirements and sends equipment lists and transportation requests to systems outside TC-ACCIS. E.g., CONUS ITOs transmit AUEL and DEL to FORSCOM's COMPASS database. The information can then be used to update JOPES. The ITO also provides MTMC deployment requirements (such as DEL), domestic routing requests, export traffic release requests, and passenger transportation requirements.

Questions concerning TC-ACCIS should be directed to PM, TC-ACCIS; 9350 Hall Road, Suite 142; Ft Belvoir, VA 22060-5526. Telephone is commercial (703) 923-1062.

Global Combat Support System – Army (GCSS-A)

Background. Existing CSS information management and operations systems are focused mainly on vertical information flows within a stovepipe structure. Current automation systems, where available, operate at single locations with no interface or non-real time interoperability among other systems. Communications is generally reduced to the use of "sneaker net" – the passing of floppy diskettes. A key issue identified in the Total Distribution Action Plan after Operation Desert Storm was the "lack of a multifunctional STAMIS using a common shared relational database." For these and other reasons, the Chief of Staff of the Army (CSA) has identified logistics automation as one of the Army's top three programs. To that end, he has called for a Revolution in Military Logistics. In July 97 at the Senior Leadership Training Conference, the CSA established the GCSS-Army General Officer Working Group (GOWG). This group, chaired by the TRADOC Commander has the responsibility to guide and direct the integration of all Army CSS information systems to ensure responsiveness to warfighting requirements through information dominance. The Deputy CG AMC is the GOWG Deputy Director and CG CASCOM is the Executive Agent for the group. They, in turn, are supported by a Council of Colonels and a Standing Integrated Concept Team (ICT) comprised of wholesale & retail functional representatives.

GCSS-Army Description. GCSS-Army is being designed to support Army CSS including the functions of manning, arming, fixing, fueling, moving, and sustaining. The system will establish interfaces with other CSS automated systems in order that users can maximize the amount of information available with the minimum amount of data entry. It will be a commercial off the shelf (COTS) hardware solution, using the Windows NT operating system, and programmed using Oracle Design. GCSS-Army is following a three-tier developmental strategy:

Tier 1 – Initial Operational Capability (Integration and Modernization). In this tier, an initial operational capability (IOC) will be developed through incremental integration and modernization of current tactical logistics STAMIS. The principal ones to be integrated include ULLS, SARSS, SPBS, SAAS, and SAMS. The products of this integration will be the six GCSS-Army modules listed below:

(1) *Supply/Property:* will integrate supply operations and property accountability in units.

(2) *Maintenance:* integrates ground, aviation, and water equipment maintenance operations at all levels.

(3) *Ammunition Supply Point* integrates Class V management and operations at ASPs.

(4) *Supply Support Activity* integrates supply management and operations at the SSAs.

(5) *Integrated Materiel Management* integrates supply, property, ammunition, and maintenance management in the MMC.

(6) *Management* that will integrate all the above information, as well as data exchange with other CSS Joint automated systems.

All components of GCSS-Army must communicate flexibly. The system will be designed to take advantage of all available methods of communications including tactical packet networks, circuit switch networks, wireless networks, defense information switching network, telephone networks, and strategic communications capabilities. Sneaker net will be used only as necessary to transfer information on removable media.

Tier 2 – Enhanced Operational Capability (Wholesale and Retail Integration). This tier will enhance the IOC provided in Tier 1 by the redesign of CSS business practices to include integrating wholesale CSS functionality. Design and development will capitalize on advanced technology, electronic data interchange, advanced warfighting experiments, emerging battlefield distribution concepts, Force XXI initiatives, decision support tools, interfaces with wholesale automated systems, and integrating the Army Total Asset Visibility System. The initial focus is on Logistics Modernization (LOG MOD) which is intended to privatize the functions of the current wholesale SDS and CCSS automated systems.

Tier 3 – Full Operational Capability (joint Integration). This tier will implement all required interfaces with automated systems in the joint community, national sustaining base, and applicable allied systems. Access will be available to CSS data sources and complete interoperability will be achieved when operating in the open system environment. This capability will provide a seamless, integrated, modular, interactive, and interoperable CSS automated system for the total Army.

GCSS-A System Status. Current efforts are focused on the Tier 1 system design. This includes the software itself, as well as the necessary hardware to ensure peak performance. Methods for soldier training are being evaluated and initial documentation such as the Operational Requirements Document (ORD) and High Level Functional Description (HLFD) have been completed. (These documents are available elsewhere on this homepage.) Test bed units at Ft. Hood, currently scheduled to begin in November 98, have been identified, and the follow on fielding schedule is being formulated. The Basis of Issue Plan (BOIP) to identify the system placements is in development as well.

ADDITIONAL TRANSPORTATION RELATED AUTOMATED SYSTEMS AND CAPABILITIES

There are a number of transportation related command and control systems, automated information systems (AISs), models and simulations, and automated identification technologies (AITs) designed to assist in transportation planning, management and execution. What follows is a description of selected systems and capabilities. Where applicable, worldwide web (WWW) locations and POCs for systems/capabilities have been included.

Computerized Movement Planning and Status System (COMPASS)

COMPASS is a FORSCOM system that provides deployment-planning systems with accurate Army unit movement requirements. COMPASS describes unit property and equipment in transportation terms. It converts UMD into a COMPASS AUEL and maintains UMD for use in mobilization and deployment planning. This data originates from the UMD provided by Army units. The preferred system to transmit UMD to COMPASS is TC-ACCIS. ITOs (UMCs) validate and transmit the data to FORSCOM COMPASS. COMPASS then reformats the data and updates JOPES. Detailed guidance on how to prepare and submit UMD is in FORSCOM Regulation 55-2, *Unit Movement Data Reporting and Systems Administration*.

Global Transportation Network (GTN)

GTN is an automated command and control information system that provides transportation users and providers with an integrated view of transportation information. It provides USTRANSCOM the ability to perform command and control operations, planning and analysis, and business operations to meet customer requirements. GTN also provides ITV for the defense transportation system (DTS). GTN collects and integrates transportation information from selected DOD systems for use by transportation data customers--the NCA, CINCs, USTRANSCOM, and the Services. The system provides these users the ability to monitor movement of forces, cargo, passengers, and patients and movement of military and commercial airlift, sealift and surface assets.

GTN achieved IOC in Mar 97 and is available in both WWW and client server applications. The initial operational capability contains the ITV functionality. The command and control functionality and other capabilities are scheduled in subsequent deliveries leading to the planned GTN full operational capability (FOC) in Aug 99.

The GTN Program Management Office is located at USTRANSCOM; TCJ6, Attn GTNPMO; 508 Scott Drive; Scott Air Force Base, IL 62225. Telephone is DSN 576-2866 or commercial (618) 256-2866. The POC for GTN training is USTRANSCOM J4-JTO, DSN 576-8042 or commercial (618) 256-8042. The POC for user accounts is USTRANSCOM J4-MSS, DSN 576-8015 or commercial (618) 256-8015. More information about the GTN system is available at http://wwwgtn.safb.af.mil/homepage/. Appendix A provides instructions for obtaining access to GTN.

Joint Total Asset Visibility (JTAV)

JTAV is being developed as a joint task force logistics management AIS to provide an in-theater total asset visibility (TAV) capability. JTAV provides the capability to fuse information from selected AISs into one picture. Through JTAV, theater logisticians will access in-transit, in-storage, and in-process information in the Global Transportation Network (GTN), the Inventory Control Point (ICP) AIS, and the Logistics Information Processing System (LIPS). Additionally, JTAV will interface with Military Service logistics databases to capture visibility of assets held by theater forces and with the theater transportation information system to provide visibility of shipments within the theater. JTAV will merge this information with in-theater unit information and other in-

theater-related logistics information for both inbound and outbound assets. Theater CINCs and JTF commanders will use the logistics information in JTAV to enhance planning for the deployment, reception, and onward movement of forces and materiel; the diversion of forces and materiel in-transit, if required, to meet changing contingency requirements; the management of in-theater assets to improve their utilization, cross-leveling, and distribution; and the redeployment of forces and retrograde of materiel.

JTAV is currently in the development stage, with prototypes constructed for USEUCOM, USCENTCOM and USACOM. Questions concerning JTAV can be addressed to Joint Total Asset Visibility Office; 6301 Little River Turnpike, Suite 210; Alexandria, VA 23312. Telephone is DSN 328-1081 or commercial (703) 428-1081. More information is available at http://204.255.70.40/tavfa/jtavo.html.

Defense Transportation Tracking System (DTTS)

The mission of the DTTS is ensure the safe and secure movement of all DOD sensitive conventional arms, ammunition and explosives (AA&E) and other sensitive material (OSM) using satellite technology and 24-hour staff oversight, and to support DOD's ITV and TAV initiatives. DTTS monitors all shipments of AA&E and OSM, including non-ordnance related classified, pilferable, hazardous, and high value cargo moving from consignor to consignee. The monitoring is accomplished by using hourly satellite positioning and other coded/text messages from equipped vehicles. DTTS also identifies and coordinates responses to intransit accidents/incidents. DTTS provides ITV and expedites movements within CONUS for all Military Services and other DoD and government agencies and programs. The ITV data is also provided to GTN. The DTTS is currently fielded and in operation in CONUS.

Questions concerning DTTS can be addressed to DTTS PM; Naval Ordnance Center; Farragut Hall, Bldg D323 (N4D); 23 Strauss Ave; Indian Head, Md 20640-5555. Telephone is DSN 354-6055 or commercial (301) 743-6055.

Automated Air Load Planning System (AALPS)

AALPS provides an automated information system to support the process and functions of aircraft estimation, aircraft gross load planning, deliberate load planning and execution, and tracking of movement statistics during deployments. AALPS reached IOC in Apr 97 and over 400 systems are currently fielded. FOC is planned for Jul 99. Selected Computer Aided Load Manifesting (CALM) functionality is scheduled to be available in AALPS in Mar 98, with the CALM system being terminated in Jun 99. AALPS functionality is also scheduled for migration to TACIMS II.

Questions concerning AALPS can be addressed to HQ MTMC; Attn: MTIM-AL; Room 517; 4040 N. Fairfax Drive; Arlington, VA 22203. Telephone is DSN 426-8205 or commercial (703) 696-8205.

Enhanced Logistics Intratheater Support Tool (ELIST)

ELIST is a theater transportation (road, rail, inland waterway, pipeline, airlift) simulation which can evaluate the logistical feasibility of the theater transportation

portion of a course of action. ELIST addresses the question of whether a theater's infrastructure and transportation lift allocations are adequate to support the movements of specified force structures and supplies to their theater destinations on time. ELIST flows the TPFDD over the theater transportation infrastructure. Other ELIST capabilities include a detailed model of the transportation network, start-stop capability, mode optimization, line item level detail, and a stand-alone system capability or operation as part of a larger suite of models. ELIST is currently fielded and routinely used by Unites States Forces Korea (USFK), United States European Command (USEUCOM), United States Atlantic Command (USACOM), United States Central Command (USCENTCOM), USTRANSCOM and USAREUR. ELIST is also developing a capability to provide an event simulation for CONUS origin to POE movements.

ELIST achieved IOC in Feb 96 and is scheduled for FOC in Jun 99. Questions can be addressed to Program Manager-ELIST; Military Traffic Management Command Transportation Engineering Agency; 720 Thimble Shoals Boulevard, Suite 130; Newport News, VA 23606. Telephone is DSN 927-5266 or commercial (757) 599-1663.

Model for Intertheater Deployment by Air/Sea (MIDAS)

MIDAS is a strategic sealift and airlift model, which can simulate multiple strategic deployment scenarios. The model is designed to measure the capability of a given set of strategic transportation assets to deploy a specified force. MIDAS projects schedules over a planning period, makes mode selection based on required delivery date, and adapts scenarios to expected and unexpected events. POC for MIDAS is OSD-PA&E (Projection Forces); Pentagon Rm 2E314; Washington DC, 20301-1800. Telephone is DSN 225-0539 or commercial (703) 695-0539.

Joint Flow and Analysis System for Transportation (JFAST)

JFAST is a Windows NT-based multi-modal transportation analysis model. JFAST is used to determine transportation requirements, perform course of action analysis, evaluate what if scenarios, and project delivery profiles of troops and equipment by air, land, and sea. JFAST is primarily used during the planning phase of OPLAN development to determine an OPLAN's transportation feasibility. As a transportation-planning tool JFAST schedules military units from their installations to their airports and seaports of debarkation within the theater of operations. JFAST routes trucks, trains, busses, convoys, aircraft, and ships over appropriate networks to forecast potential congestion points, determine lift requirements, and project force closures.

JFAST *is an operational system*.

The functional proponent for JFAST is the USTRANSCOM TCJ3-OPJ; 508 Scott Drive; Scott AFB, IL 62225. Telephone is DSN 576-6898 or commercial (618) 256-6898. The project manager is within USTRANSCOM TCJ6-GTNPMO (same street/city address), telephone DSN 576-8017 or commercial (618) 256-8017. The JFAST Web site is http://jfast.prg.utk.edu/. Questions concerning JFAST passwords/access should be directed to the functional proponent.

Automated Identification Technology (AIT).

AIT encompasses a variety of read and write storage technologies that capture asset identification information. These technologies include bar codes, magnetic strips, integrated circuit cards, optical memory cards (OMCs) and radio frequency (RF) identification tags. They are used for marking or "tagging" individual items, multipacks, air pallets, and containers. AIT devices offer a wide range of data storage capacities from a few characters to thousands of bytes. The devices can be interrogated using a variety of means including contact, laser, or RF. The information obtained from the interrogations can then be provided electronically to automated information systems. AIT includes the hardware and software to create the storage devices, read the information stored on them, and integrate that data with other logistics data. AIT also includes the use of satellites to track and redirect shipments.

Bar Codes. A bar code is an array of parallel, narrow, rectangular bars and spaces that represent a group of characters in a particular symbology. Bar codes are applied on labels, paper, plastic, ceramic, and metal by a variety of marking techniques. A reader scans the bar code, decodes it, and transfers data to a host computer. Within DOD and the Army a common use of linear bar codes is the military shipping label which contains the TCN and other transportation information. For the future, DOD plans to phase in two-dimensional bar codes for selected areas of use. Two-dimensional bar codes have a greater data capacity and are more durable than linear bar codes.

Radio Frequency Identification (RFID) Tags: RFID is used to identify, categorize, and locate people and materiel automatically within relatively short distances (a few inches to 300 feet). The RFID labels are known as tags or transponders. They contain information that can range from a permanent ID number programmed into the tag by the manufacturer to a variable 128-kilobyte memory that can be programmed by a controller using RF energy. The controller is usually referred to as a reader or an interrogator. An interrogator and a tag use RF energy to communicate with each other. The interrogator sends a RF signal that "wakes up" the tag, and the tag transmits information to the interrogator. In addition to reading the tag, the interrogator can write new information on the tag, thus permitting a user to alter the tag's information within the effective range. Interrogators can be networked to provide extensive coverage for a system.

The Army uses an active RF tag that accommodates line-item detail information to provide ITV and stand-off, in the box visibility of container contents. As an example, the tag, which contains data on the container contents, is placed on the container and then read as it passes interrogators located at nodes or other critical locations within the transportation system. RFID capabilities provided by active RF tags are beneficial when a user needs to locate and redirect individual containers. RFID may also be used in an austere environment where there are inadequate systems or communications infrastructure and to facilitate the AIS capture of asset data. The active RFID capability offers significant capabilities for yard management, port operations, and ITV. USAREUR currently uses RF tags to track cargo.

Optical Memory Cards OMCs use the optical technology popularized by audio compact disks (CDs) and audio-visual CD-ROM (read only memory) products. Although users of those products can write-once/read-many (WORM) times, the OMC differs in

that information is written to the card in increments rather than at one time. An OMC can have data written to it in a sequential order on many occasions until all available memory has been used. An OMC is similar in size to a credit card and can be easily carried. DoD activities use OMCs when extensive content detail is required, such as for multi-pack, air pallet, container, trailer, and rail-car shipments. The Defense Logistics Agency's Automated Manifest System (AMS) uses a DoD standard OMC. The primary objective of AMS is to facilitate automated receipt processing. OMCs are used best when a data audit trail is required or an extensive amount of data has to be stored.

Satellite-Tracking Systems: A satellite-tracking system provides the ability to track the exact location of vehicles and convoys. The latitude and longitude locations of trucks, trains, and other transportation assets equipped with a transceiver are transmitted periodically via a satellite to a ground station. Some systems also provide two-way communications between a vehicle operator and a ground station for safety, security, and rerouting. Satellite tracking uses a cellular or satellite-based transmitter or transceiver unit to communicate positional information, encoded and text messages, and (in the case of sensitive DoD ordnance movements in the CONUS) emergency messages from in-transit conveyances to the ground station. Transceiver-based technologies also permit communications from a ground station to the in-transit conveyance. A user can compose, transmit, and receive messages with small hand-held devices or with units integrated with computers. The U.S. European Command is using satellites, via the Defense Transportation Reporting and Control System (DTRACS), to track convoys and critical shipments as they move to and from Bosnia.

The following description, using USEUCOM as an example, clarifies how a satellite-tracking system works. A system has five components -- a subscriber unit, satellite, earth station, network control center (NCC), and logistics managers. A subscriber unit is installed on the conveyance being tracked. The unit exchanges information with an earth station via satellite. The earth station is connected to an NCC that stores information in electronic mailboxes. Logistics managers access their mailboxes to receive information from subscriber units and return information to them.

Questions concerning AIT for the Army can be addressed to DA DCSLOG, US Army Logistics Integration Agency; Attn: LOIA-LS; 5001 Eisenhower Ave; Alexandria VA 22333-0001. Telephone is commercial (703)-617-4493 or DSN 767-4493. More information is available on AIT at WWW site https://lia13-www.army.mil/ait/index.htm

FBCB2 Vehicle System

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