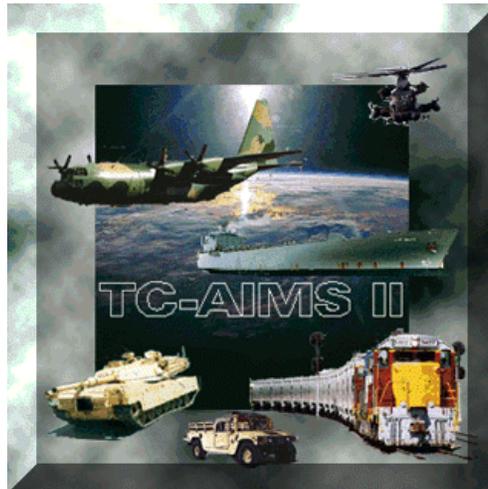


**Transportation Coordinators’–
Automated Information for Movements System II
(TC-AIMS II)**

**Command, Control, Communications,
Computers, and Intelligence Support Plan (C4ISP)
Version 2.1, Block 2**



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1.0 INTRODUCTION

1.1 Project Overview

TC-AIMS II is an Office of the Secretary of Defense (OSD) directed joint program designed to address joint interoperability among the services and agencies for the deployment and transportation of materiel and personnel in support of Department of Defense (DoD) operations. The Army is designated as Lead Service and is responsible for software development, initial training and life cycle maintenance for the system. The individual Services and Agencies are responsible for hardware procurement. The Commander, U.S. Joint Forces Command is the functional proponent for TC-AIMS II, chairs the Joint TC-AIMS II Requirements Board (JRB) and represents the user community to the acquisition milestone decision authority.

TC-AIMS II is a joint integrated transportation information system used for deployment, sustainment, and redeployment/retrograde operations. TC-AIMS II provides unit and installation transportation officers with an effective and efficient automated information system to support their unit move mission. This system integrates the outputs of numerous interfacing systems, and enables transportation management of unit movements, passengers, and cargo for day-to-day and contingency operations. This management, operating in either an enterprise or standalone configuration, includes all environments (Reception, Staging, Onward Movement and Integration [RSO&I] and battlefield operations).

TC-AIMS II falls within the scope of the Joint Deployment Systems (JDS) Capstone Requirements Document (CRD). The JDS CRD identifies and describes the overarching integration and interoperability requirements for the family of systems that support the joint deployment process. TC-AIMS II is an integral part of this family of systems. TC-AIMS II is identified as a supporting system to the Global Combat Support System (GCSS) family of systems in the GCSS CRD. In addition, the TC-AIMS II Operational Requirements Document (ORD) states that "TC-AIMS II will operate within the Global Combat Support System (GCSS) environment."

TC-AIMS II falls within the scope of the Global Information Grid (GIG) CRD. The GIG is defined as the globally interconnected, end-to-end set of information capabilities, associated processes, and personnel for collecting, processing, storing, disseminating, and managing information on demand to warfighters, policy makers, and support personnel. TC-AIMS II is an ACAT IAM program following an incremental development approach with five acquisition blocks. Block 1 is currently being fielded. The Block 2 Milestone C Decision Review is expected in December 2003. Development of Block 3 will commence in the January 2004 timeframe.

1.2 Purpose

The purpose of this version of the TC-AIMS II Command, Control, Communications, Computers, and Intelligence Support Plan (C4ISP) is to:

- 1) Describe the C4I support requirements for TC-AIMS II Block 2.
- 2) Identify and resolve implementation issues related to C4I infrastructure and support requirements
- 3) Identify C4I needs, dependencies and interface requirements
- 4) Focus attention on interoperability, supportability and sufficiency concerns.

1.3 Scope

This version of the TC-AIMS II C4ISP has been prepared to support the Block 2 milestone C decision review. Unless otherwise indicated, the remainder of the C4ISP is written against the “as built” Block 2 system. The next update to the C4ISP is scheduled for the summer of 2005 and will capture changes resulting from the Block 3 acquisition.

1.4 Point of Contact (POC)

The Point of Contact for TC-AIMS II is Ms. Jean Price, Chief, Systems Engineering and Accreditation, (703) 752-0778, jean.price@eis.army.mil.

2.0 SYSTEM DESCRIPTION

2.1 System Overview

TC-AIMS II is an effective and efficient automated information system used by unit and installation transportation officers to plan and execute joint deployments of personnel and equipment. The system integrates the outputs of numerous interfacing systems to enable transportation management of unit movements, passengers, and cargo for routine and contingency operations in different environments, e.g., Reception, Staging, Onward Movement and Integration (RSO&I), and battlefield operations. TC-AIMS II operates in an enterprise and/or breakaway configuration.

Figure 2.1 depicts the TC-AIMS II Block 2 enterprise system architecture at a high-level. In the enterprise configuration, server farms running TC-AIMS II application software will be located at Regional Access Nodes (RANs). Users will access TC-AIMS II functionality via a standard Web browser on their workstation or laptop. RAN database servers (running Sybase Adaptive Server, version 12.5) will host the TC-AIMS II operational databases and reference data, i.e., the Joint Data Library (JDL). System administration and help desk functions are performed by the Enterprise Management System (EMS) software and staff at the TIS Central Management Facility. In the breakaway configuration (also referred to as deployable and standalone), TC-AIMS II application software and data is loaded on either a laptop or a workgroup server to service an individual user or a locally connected workgroup.

The CONUS East regional access node and the TIS Central Management Facility will be operational to support Block 2 fielding. Additional RANs and the Continuity of Operations (CCOP) capability will be fielded beginning in FY 2004.

TC-AIMS II Block 2 will interface with 21 external systems. These system interfaces are described in detail at Appendix B-Information Exchange Matrix (IER, OV-3). At Full Operational Capability (FOC), TC-AIMS II will interface with 55 Service and Joint transportation, material, supply, munitions, personnel, finance, and command and control systems.

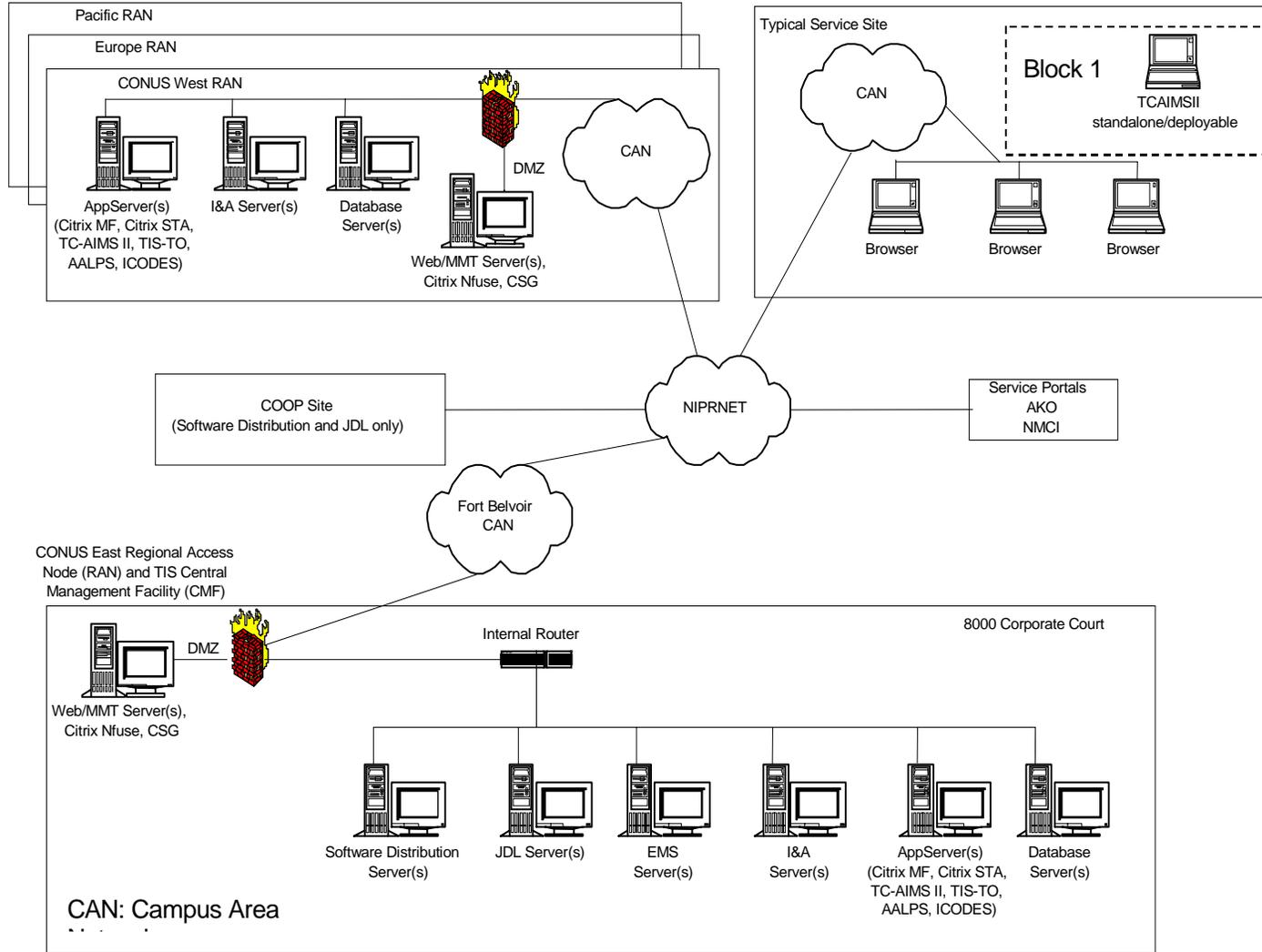


Figure 2.1: TC-AIMS II High-Level Enterprise Systems Architecture

2.2 Mission Essential Functions

TC-AIMS II is a mission critical system. TC-AIMS II supports routine and contingency transportation planning and coordination for both active and reserve forces. It supports origin shipping/receiving and deployment; automates sustainment and redeployment/retrograde processes; produces movement documentation and unit move data; and furnishes timely information to major commands (MAJCOMs/MACOMs) transportation source movement information systems. TC-AIMS II provides data for ITV and control over cargo and passenger movement. TC-AIMS II mission-essential functions are as follows:

- Maintaining equipment lists
- Maintaining personnel lists
- Building unit deployment lists
- Containerizing/palletizing cargo
- Creating movement plans
- Creating shipping labels
- Creating convoy plans
- Documenting hazardous cargo
- Scheduling movements
- Coordinating movements
- Selecting mode and carrier
- Printing movement documents
- Transmitting ITV data
- In-checking arriving cargo and personnel
- Discrepancy reporting.

2.3 Mission Functional Description

TC-AIMS II supports three major transportation functional areas targeting different user groups: Unit Move, Theater Operations, and Installation Transportation/Traffic Management (ITO/TMO).

2.3.1 Unit Move

The Unit Move functionality, contained in Blocks 1 and 2, assists the unit commander in creating, maintaining, managing and updating unit equipment and personnel lists. Specifically, TC-AIMS II provides an automated means to identify unit assets and requirements for force deployment and redeployment, and for deliberate and crisis action planning.

In a unit move, the unit is responsible for preparing its assigned equipment, cargo, and personnel for movement. This preparation is usually in response to tasking such as an Operation Order (OPORD). Unit movement starts with establishing unit move requirements and ends with the arrival of the required assets at the destination. It involves planning and executing convoy, rail,

air, and ship operations; and the assigning, loading, staging, moving, controlling, coordinating, and tracking of assets and personnel.

2.3.2 Theater Operations

Theater Operations functionality, targeted for Blocks 3 and 4, will provide support for Theater Reception, Staging, Onward Movement, and Integration (RSO&I), convoy scheduling and de-conflicting, vehicle load planning, movement control team operations, mode operations for Common Use Lift Transportation (CULT) assets, shipment management, and operational movement programming.

2.3.3 Installation Transportation/Traffic Management (ITO/TMO)

ITO/TMO functionality, targeted for Block 5, will provide installation level support for transportation functions to include procuring commercial carriers, capturing historical shipment information, supporting unit movements, and day-to-day traffic management operations. It will also include automated support tools to assist in load planning and execution. These functions begin with receiving valid requests for providing transportation of freight or personnel and end with completion of the customer service requirement including tracing inbound/outbound shipments and passing data to other systems.

2.4 System Capabilities

As defined in the ORD, TC-AIMS II provides the following capabilities:

- (a) Allow units, deployment support activities, movement control and coordination organizations, and traffic management organizations, to maintain equipment and personnel databases; and to manage, control, and direct organic and common user transportation assets.
- (b) Automate movement planning processes as defined by information flows for matching TPFDD cargo and personnel detail with actual unit deployment lists, convoy movement data, organic equipment availability reports, and DTS cargo movement procedures.
- (c) Automate the organization of deployment list data into aircraft, ship, rail (including COCOM-specific rail car data), truck, and container load planning data, such as air cargo chalks, or ship team assignments. For rail and truck movements, assist load planners in developing actual load plans.
- (d) Automate movement coordination and control activities as defined by joint tactics, techniques, and procedures for movement control and convoy operations.
- (e) Automate traffic management functions or theater distribution as defined by DTS procedures for cargo and personnel movement.
- (f) Read and write Automated Identification Technology (AIT) media.

Figure 2.2 depicts key functional capabilities provided by TC-AIMS II Block 2 during unit movements from the Point of Origin to Port of Embarkation (POE), Port of Debarkation (POD) and to Final Destination. The system provides the capability to produce all required documentation in support of air, water and surface movements of personnel and cargo using commercial and/or military means. Additionally, files are electronically passed to other transportation systems to provide ITV.

TC AIMS II Functional Capabilities

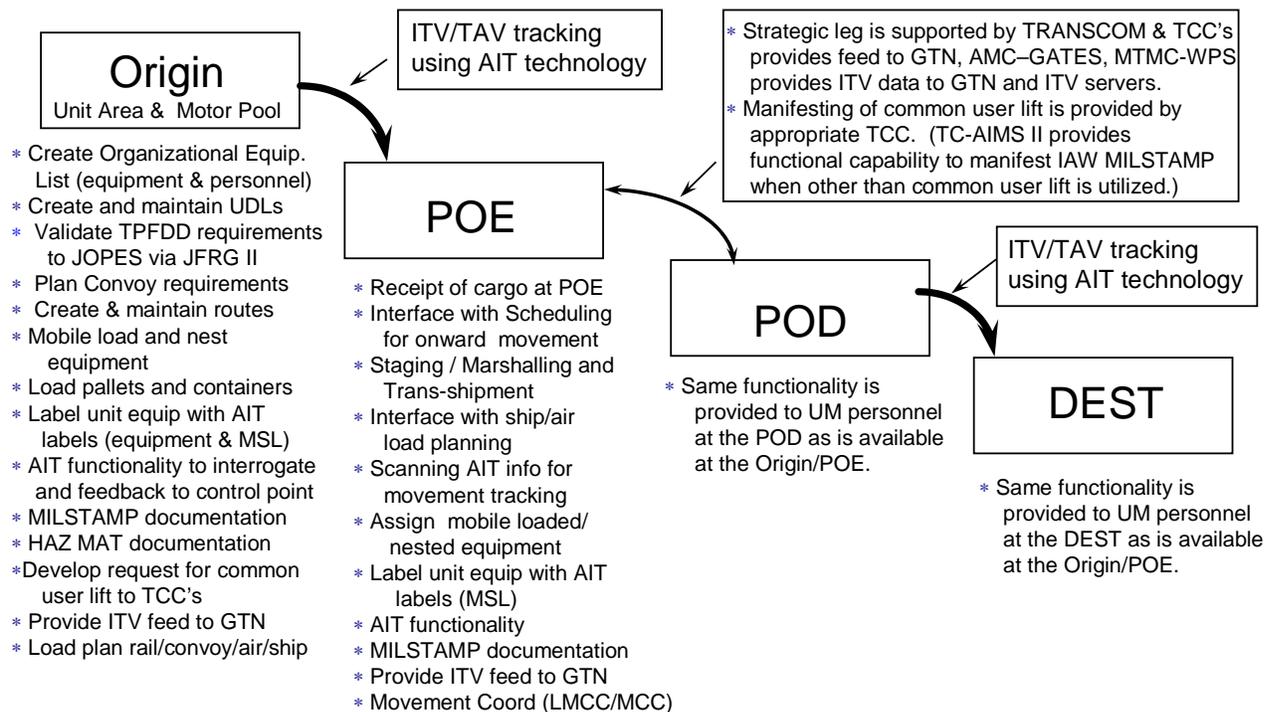


Figure 2.2: TC-AIMS II Block 2 Functional Capabilities

3.0 BLOCK 2 OPERATIONAL EMPLOYMENT

3.1 Operational Employment Concept

The Department of Defense (DoD) requires an automated capability to provide accurate and timely requirements and real-time visibility of movements to support deployment, redeployment, and sustainment of U.S. Forces from within, and to, CONUS installations and overseas theaters of operations. TC-AIMS II is used by transportation agents and deploying units of each service and other agencies to automate the processes of planning, organizing, coordinating, and controlling deployment, redeployment, and sustainment activities worldwide, in peace as well as during contingencies. It provides a modernized, integrated, and easily deployable Automated Information System (AIS) that supports reengineered functional processes throughout DoD. TC-AIMS II links all DoD component unit movement and installation transportation office/traffic management office (ITO/TMO) functionality into a consolidated, integrated, easily deployable, transportation management system.

TC-AIMS II must support the FY87 Joint Chiefs of Staff (JCS) direction and the FY89 Defense Guidance that provided a requirement for an automated capability to provide timely and accurate passenger/cargo movement information during force deployments. Further, system development and implementation must be consistent with FY95-99 Defense Guidance that called for support systems to provide "rapid strategic mobility and sufficient support and sustainment capabilities." TC-AIMS II must provide an integrated information transportation system capability for routine deployment, sustainment, and redeployment/retrograde operations by employing the same DoD and service shipment policies and procedures in peace and war and in both the active and reserve forces. This system must be integrated with installation, unit, and depot-level supply systems to manage inbound and outbound movement (less household goods) document and requisition information. TC-AIMS II must be capable of supporting routine and surge requirements and must automate origin shipping/receiving and deployment; sustainment and redeployment/retrograde processes; produce movement documentation (including forms required by foreign nations); unit move data; and furnish timely information to major commands (MAJCOMS/MACOMS), transportation component commands, USTRANSCOM, and the joint deployment community. As a DoD source movement information system, TC-AIMS II must provide data for in-transit visibility (ITV) and control over cargo and passenger movement. TC-AIMS II is critical to the realization of Joint Vision's operational concept of Focused Logistics and is a part of USTRANSCOM's FY00-05 Integrated Priority List.

TC-AIMS II can be employed at any level of command necessary to enable Unit Movement Offices to plan and execute deployments. It provides Unit Move Officers within all operational elements with a system to maintain assets, and deploy and track unit personnel and equipment to support routine and contingency operations. The system receives equipment and personnel asset files from other systems, helps transportation coordinators process data, and produces reports in the form of Military Shipping (MSL), AIT and electronic outputs to interfacing systems.

TC-AIMS II can be used 24 hours a day, seven days a week during deployments and real-world contingencies. Surges of activity are expected at the beginning of deployments and again during redeployment or onward movement of forces. The enterprise system design supports database and system maintenance activity scheduling that avoids interfering with deployment operations and exercises. Additionally, database and systems maintenance activities, specifically backups, will at no time preclude user access to the system.

Combatant Commander or Joint Task Force (JTF) deployment plans and schedules drive the volume of processing activity which is generally heaviest in the first 45 days of a deployment. The level of output products, such as reports and electronic interface traffic, can be derived from the number of strategic lift assets supporting a movement, together with local bus, truck, materiel handling equipment (MHE) support, convoy movement schedules, rail movement schedules and the volume of shipments in a given period.

For Blocks 1 and 2 of TC-AIMS II, the only mission area reflected in Section 2.3 that has been implemented is the Unit Move mission area. This mission area corresponds to the Joint Mission Area 2, Deployment/Redeployment, as stated in the DCJS Joint Mission Area memorandum CM-1014-00.

3.1.1 Operational Architecture Views

The operational deployment concept described in Section 3.1 above is depicted in the operation concept graphic in Figure 3.1. Since TC-AIMS II can be employed at various levels of the command structure, Defense Transportation System functional areas are depicted in Figure 3.1 instead of the typical operational elements.

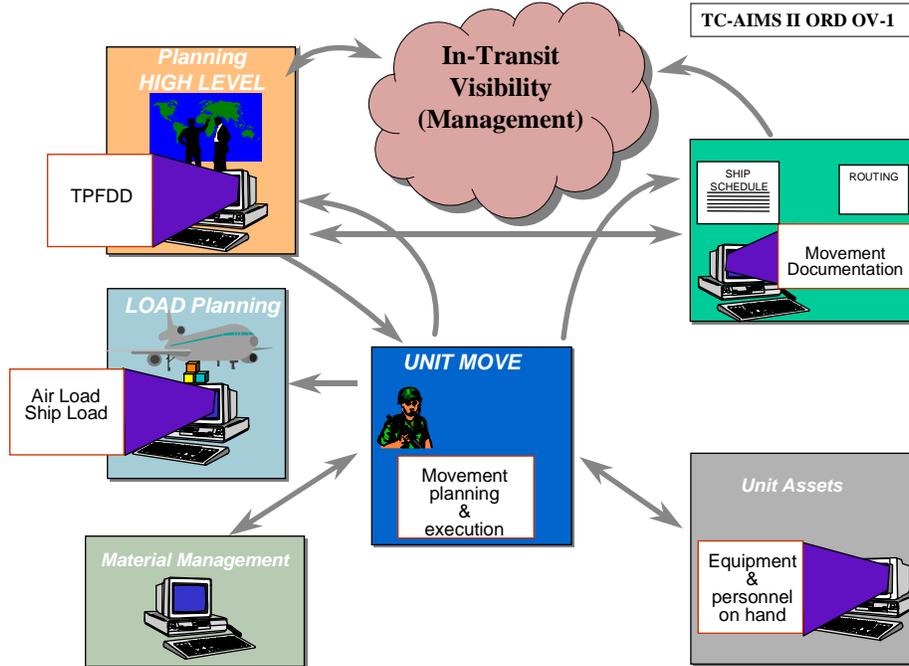


Figure 3.1: TC-AIMS II Block 2 High Level Operational Concept Graphic (OV-1)

The functional areas shown in Figure 3.1 are:

- Unit Move: TC-AIMS II provides unit move capabilities that automate the planning and execution of unit level moves. This is critical for successful deployment and redeployment of forces.
- High-Level Planning: TC-AIMS II provides high-level planning capabilities to prepare Time-Phased Force and Deployment Data (TPFDD) for unit moves.
- Load Planning: TC-AIMS II prepares load plans based on unit move data. This is critical for the proper implementation of unit moves.
- Materiel Management: TC-AIMS II provides access to materiel data used in the planning and execution of unit moves. This is critical to the proper accounting of materiel transferred in deployments and redeployments.
- Unit Assets: TC-AIMS II provides access to materiel data on a per-unit basis to be used in the planning and execution of unit moves. This is critical to the proper accounting of materiel transferred in deployments and redeployments.

In-Transit Visibility (ITV) is currently provided by other joint deployment systems. A native ITV capability will be implemented in TC-AIMS II Block 3 and beyond.

3.1.2 Information Exchange Requirements (IERs)

TC-AIMS II Block 2 will interface with 21 external systems as shown in Figure 3.2-Operational Node Connectivity diagram (OV-2). Each cloud represents a Defense Transportation System functional area. Detailed information regarding each external interface within the cloud is documented in the OV-3 in Appendix B, and in the individual System Interface Agreements (SIAs) listed in Appendix D.

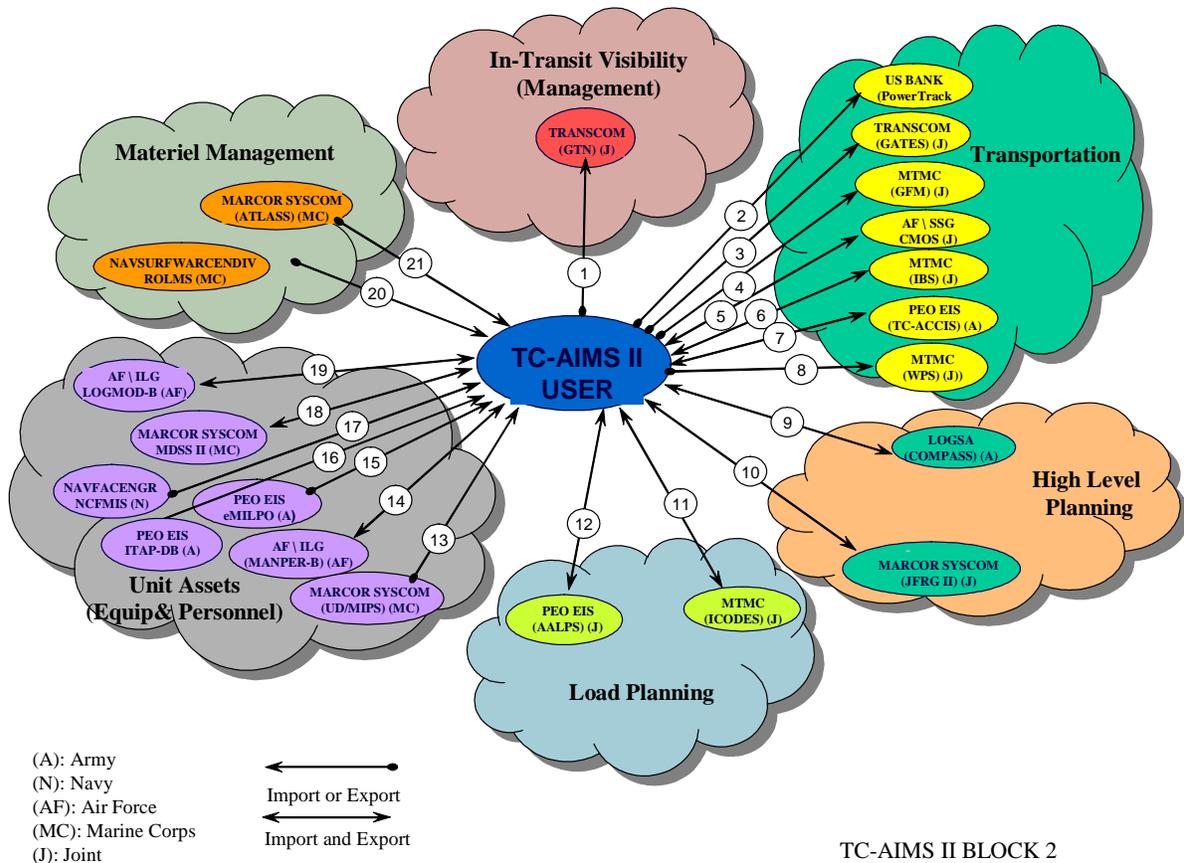


Figure 3.2: Operational Node Connectivity (OV-2)

The TC-AIMS OV-2 of Figure 3.2 shows several different Operational Facilities (OPFACs). These OPFACs are:

- **TRANSCOM:** U.S. Transportation Command is the unified command whose mission is providing synchronized transportation, distribution, and sustainment.
- **US Bank:** US Bank is a publicly-traded financial services corporation.
- **MTMC:** Military Traffic Management Command provides commercial and military transportation coordination for DoD global distribution.

- AF/SSG: The Standard Systems Group is responsible for acquisition, development, and sustainment of secure combat support information systems, and provides data processing and communications computer systems and capabilities to major commands and Air Force bases.
- PEO EIS: The Program Executive Office Enterprise Information Systems provides overall acquisition responsibility for Army and joint enterprise information systems.
- LOGSA: The Army Materiel Command Logistics Support Activity supports weapon systems maintenance, readiness, supply, transportation, equipment authorizations, asset and in-transit visibility.
- MARCOR SYSCOM: Marine Corps System Command is the Marine Corps principal agent for equipping the MC Operating Forces to accomplish their warfighting mission.
- AF/ILG: The Air Force Deputy Chief of Staff for Installation and Logistics is responsible for providing policy and resources for effective Agile Combat Support.
- NAVFACENGR: Naval Facilities Engineering Command manages the planning, design, and construction of Naval shore facilities.

Joint Interoperability is an ORD Key Performance Parameter (KPP). In order to accomplish transportation and deployment functions required by the ORD, TC-AIMS II must accept input and produce outputs in the form of electronic interfaces to external mode clearance, cargo booking, load planning, transportation C2, TPFDD Feeder, and common user transportation systems, as well as produce standard labels, RF tags, forms and reports.

The top level IERs will be satisfied by meeting 100% of the interface requirements identified as Threshold in Table 3.1-System Interfaces. The system must accept and provide properly formatted data in accordance with the SIAs from those systems with an “X” in the threshold column. The threshold requirements have been met with the Block 2 implementation. As capabilities are subsequently added, interoperability requirements will change, requiring adjustment to the top-level IERs.

The top level IERs for the objective system will be satisfied by meeting 100% of the interface requirements identified as “Objective” in Table 3.1. The objective requirements for all system interfaces will be fully met with implementation of Block 5. The requirements for Block 2 are the Threshold requirements, and as such are reflected in the current architecture views and not the Objective requirements.

Table 3.1: System Interfaces

System Acronym	Service	System Name	Threshold		Objective	
			Input	Output	Input	Output
AALPS	J	Automated Air Load Planning System	X	X	X	X
ATLASS-I	MC	Asset Tracking and Logistics Automated Support System I	X		X	X
CMOS	J	Cargo Movement Operations System	X	X	X	X
COMPASS	A	Computerized Movement Planning and Status System	X	X	X	X
eMILPO	A	Electronic Military Personnel Office	X		X	
GATES	J	Global Air Transportation Execution System		X	X	X
GFM	J	Global Freight Management System		X	X	X
GTN	J	Global Transportation Network		X		X
IBS	J	Integrated Booking System	X	X	X	X
ICODES	J	Integrated Computerized Deployment System	X	X	X	X
ITAP-DB	A	Integrated Total-Army Personnel Database	X		X	
JFRG II	J	Joint Force Requirements Generator II	X	X	X	X
LOGMOD	AF	Logistics Module	X	X	X	X
MANPER-B	AF	Manpower & Personnel Module – Base Level	X	X	X	X
MDSS II	MC	MAGTF Deployment Support System	X	X	X	X
NCFMIS	N	Naval Construction Force Management Information System	X		X	
PowerTrack	US Bank	Bank PowerTrack		X		X
ROLMS	MC	Retail Ordnance Logistics Management System	X		X	
TCACCIS	A	Transportation Coordinators' Automated Command and Control Information System	X	X	X	X
UD/MIPS	MC	Unit Diary/Marine Corps Integrated Personnel System	X		X	
WPS	J	Worldwide Port System		X	X	X

3.2 Operational Employment Requirements

TC-AIMS II receives data/input files from Common Access Cards (CAC) and other systems, and produces/writes: outputs in the form of reports, MSLs, linear and two dimensional barcodes (AIT), Radio Frequency (RF) tags, screen displays, and electronic outputs to interfacing systems.

TC-AIMS II will be employed by Embarkation and UMO sections at each level of command or task force that deals with detailed unit transportation and deployment data. It will be used in all garrisons/installations; and forward deployed locations where deployment planning and execution are accomplished, aboard ship, at remote ports, beaches, airfields, and traffic nodes. It is also used with traffic management and theater movement control.

TC-AIMS II will be employed during day-to-day traffic management and unit movement activities typically 12 hours a day, seven days a week. During deployment exercises and real-world contingencies, TC-AIMS II will be employed for 24 hours a day, seven days a week, with surges of activity occurring at the beginning of deployments, and again during redeployment or onward movement of forces.

The system design supports database and system maintenance activities that can be scheduled around deployment operations and exercises. Additionally, database and systems maintenance activities, specifically backups, will at no time preclude user access to the system.

COCOM or JTF deployment plans and schedules drive the volume of processing activity, which is generally heaviest in the first 45 days of a deployment. The level of output products, such as reports and electronic interface traffic, can be derived from the number of strategic lift assets supporting a movement, together with local bus, truck, MHE support, convoy movement schedules, rail movement schedules and the volume of shipments in a given period.

TC-AIMS II connectivity for enterprise configuration between the Regional Access Node and end users is implemented via a web browser connected to a Citrix server over the NIPRNET. Operating in this environment, Citrix requires a minimum of 20 kilobits per second per user (20 kbps) and enforces a maximum of 160 kbps per user. Information exchange with other systems is initiated at the RAN and will have no impact on communication links between the end user and the RAN.

Standalone and local area network users do not communicate with the RAN and do not have the Citrix communication requirements. However, they must exchange information directly with other systems. Their information exchange requirements are detailed in Appendix B.

The critical loading on the communication infrastructure occurs between the end user and either the RAN or CONUS systems. The per-user IERs as specified above must be multiplied by the number of concurrent users of the communication links.

Figure 3.3 - Operational Event-Trace Description (OV-6c) depicts a typical scenario in which TC-AIMS II (represented by the Unit Move Officer) is exchanging information with a number of other systems to support movement planning and execution. The vertical axis in the diagram represents time, which proceeds from the top of the diagram to the bottom.

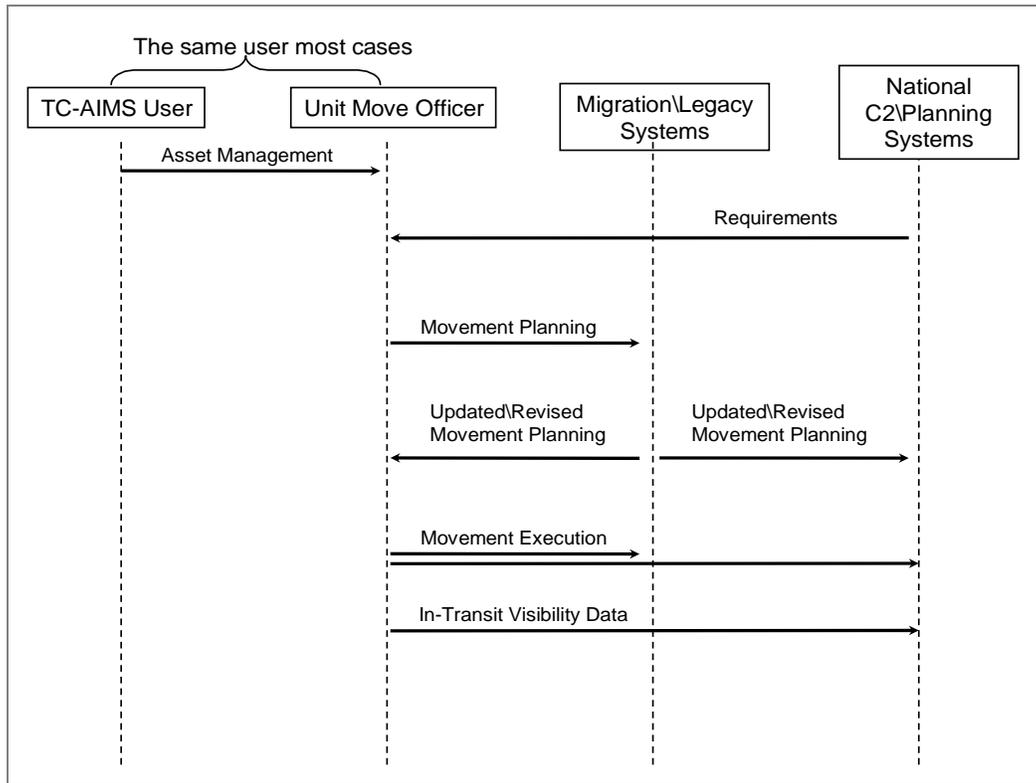


Figure 3.3: Operational Event/Trace Description (OV-6c)

3.2.1 Threats

The vast amounts of information that transportation and deployment systems store, process and transfer makes them lucrative targets of diverse worldwide threats intended to achieve compromise of information, data deception or corruption, information denial or loss, and physical destruction or damage. Some subsets of these threats most likely have specific tasking against US communications, networks, and computer systems. While the threat predominantly affects the operational phase of the system life cycle, it is present throughout system development and sustainment.

Threats may be both intentional and unintentional. Intentional events are malicious attempts to compromise security or operation of the TC-AIMS II system, and include: communications intercepts; infiltration and denial-of-service attempts on the TC-AIMS II application, operating system environment, or physical attacks on the TC-AIMS II hardware; and theft by deception of usernames and passwords from authorized users and system administrators. These vulnerabilities may be caused by weaknesses in the design of TC-AIMS II and/or operating

system components; unintentional vulnerabilities in the communication infrastructure; and inadequately trained authorized personnel violating security procedures.

Unintentional events may occur from internal causes such as bugs in the TC-AIMS II or operating environment software or hardware faults due to manufacturing error or product age. Externally caused events can occur from: physical destruction or damage from elements or accidents; communication failures or overloads; and operator error.

The detailed threat environment for information systems is described in the following Defense Intelligence Agency (DIA) validated publication: Automated Information System Threat Environment Description (U), NAIC-1574-0731-01, February 2001 (S//NF).

3.2.2 Battlefield Threats

The battlefield threats to the TC-AIMS II include physical destruction, reconnaissance and surveillance, information warfare; electronic warfare, chemical weapons, biological weapons, nuclear weapons and their electromagnetic pulse (EMP) effects, and directed energy weapons. It is possible that a threat force could detect, locate and target TC-AIMS II from its RF emissions. The electronic attack (EA) threat force that could detect and locate a TC-AIMS II data communication includes ground-based and airborne jammers. Radio frequency weapons (RFW) could assist in jamming, degrading or destroying critical command, control, communications, and computer devices and automated weapon control systems. Detailed threat information can be found in the DIA-Validated Aerial Surveillance and Reconnaissance Threat Environment Description (U), NAIC-1574-0732-01, August 2001 (S//NF) and Electronic Warfare TED referenced in section 3.2.1.

3.2.3 Adversarial Threats

The greatest threat to the TC-AIMS II system will be from Information Warfare (IW). IW could take the form of malicious code insertion, remote insertion of false data, Internet Protocol (IP) spoofing, unauthorized computer access, direct and indirect signal attack, and threat to cable communications. The most likely threat will come from attacks directed against the TC-AIMS II system and the data it contains. This threat will come from unauthorized users attempting to gain access to and alter or destroy the information in the TC-AIMS II software. Although the physical destruction of a TC-AIMS II computer on the battlefield is a likely possibility, the IW threat is more likely. This is due to the current reliance on split-based operations and reliance on commercial communications capability. Detailed threat information can be found in the DIA-Validated Aerial Surveillance and Reconnaissance Threat Environment Description (U), NAIC-1574-0732-01, August 2001 (S//NF) and Electronic Warfare TED referenced in section 3.2.1.

3.3 Systems Architecture View

The TC-AIMS II Block 2 enterprise system design includes commercial off the shelf (COTS) hardware and software products, government-off-the-shelf (GOTS) software products, and developed software. TC-AIMS II Block 2 has been designed to meet the GIG, JTA, and DII/COE requirements.

TC-AIMS II is being developed in Blocks using an incremental acquisition strategy. The Block 1 increment supports basic capabilities necessary to plan, coordinate, and execute deployment or re-deployment (initial unit move capabilities). The Block 2 increment optimizes the basic unit move capabilities and provides a more robust and flexible enterprise system architecture. The optimized Block 2 product provides web-enabled access to TC-AIMS II via a standard Web-browser.

Each Service is responsible for procuring workstations, laptops, AIT and other hardware in accordance with their Component distribution plans. The TC-AIMS II JPMO will provide the Services with the minimum hardware and software specifications required for TC-AIMS II application operation. These specifications are detailed in the latest version of the TC-AIMS II Software Installation Plan (SIP).

Figure 3.4 - System Interface Description Diagram (SV-1) depicts those Block 2 external systems that provide data to and/or receive data from TC-AIMS II. Systems are grouped by the functional area(s) being supported.

The information exchange capabilities, operation, and limitations of each of the external systems is presented in detail in the TC-AIMS II Interface Requirements Specification (IRS).

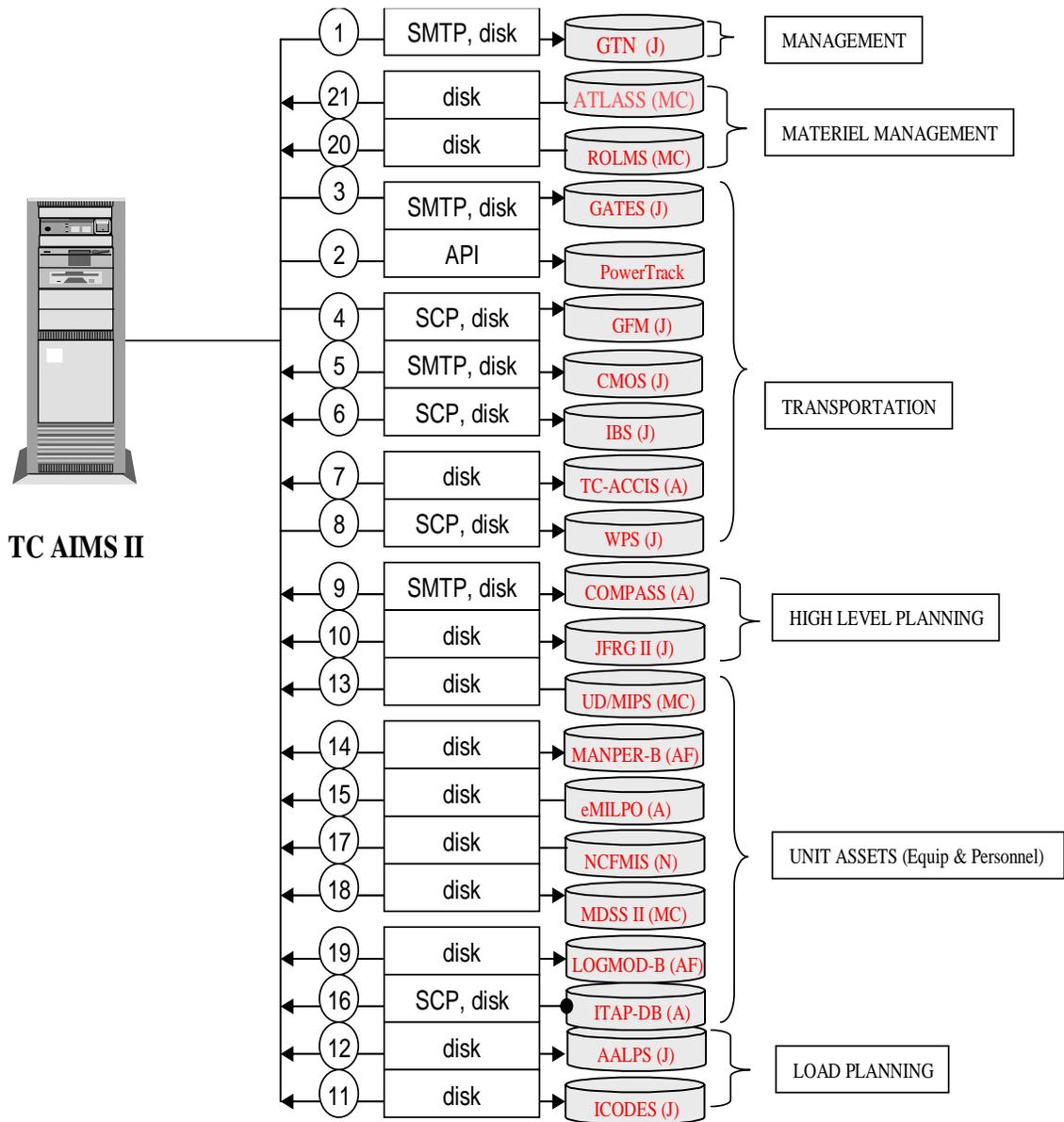


Figure 3.4: System Interface Description (SV-1)

3.3.1 TC-AIMS II System Performance Parameters

The TC-AIMS II system is being developed to meet the following ORD performance parameters:

- TC-AIMS II shall have a Mean Time between Operational Mission Failure (MTBOMF) of at least 300 hours (threshold), 500 hours (objective). Mission duration for one crew is 12 hours. MTBOMF is the anticipated length of time a system will be operational between operational mission failures, defined as that condition in which the system cannot perform or accomplish the stated mission and that there are no known workarounds. Failure can be due to software, hardware, or operator error.
- TC-AIMS II availability will beat least 0.95 (threshold); 0.975 (objective).
- Mean Time to Repair (MTTR) at the organizational level (system operation) will be no more than a threshold value 1 hour and an objective value of 30 minutes.
- Mean Time to Repair (MTTR) at the organizational level (lost information) will be no more than a threshold value of 8 hours and an objective value of 1 hour (objective).
- Fielding of TC-AIMS II to any unit should not require the assignment of additional occupational specialties to the organization. The threshold and objective criteria will be the same.

3.4 Systems IER Matrix Information

Appendix B – Information Exchange Requirements (IER, OV-3/SV-6) contains detailed information on each system interface.

3.5 Technical Architecture View

TC-AIMS II is a software intensive system. A system-wide Technical Architecture Profile has been developed in compliance with the GIG Architecture, and the Joint Technical Architecture (JTA), Version 5.0. Appendix C – TC-AIMS II Technical Architecture Profile (TV-01) contains a complete description of the standards applied in developing TC-AIMS II as well as the results of the DII COE Compliance Assessment as of May 5, 2000.

3.6 Defense-Wide Integrated Architectures

TC-AIMS II is consistent with the objectives of the GIG architecture. It is designed to interoperate extensively with other systems, and minimize duplication and duplicate entry of data (DODD 8000.1 Section 4.4.2). TC-AIMS II uses existing protocols and data standards to promote interoperability and integration with GIG networks and systems. It is designed for net-centric operations using the existing GIG networks to transmit to and receive data from interface systems.

4.0 DERIVED C4I SUPPORT REQUIREMENTS

4.1 C4ISR Support to Operations

During day-to-day operations, users will execute the TC-AIMS II application by connecting to their assigned regional access node via a standard web browser. When deploying, some TC-AIMS II users will disconnect from the network and operate in a breakaway mode. Before disconnecting from the enterprise configuration, user unit data will be downloaded and installed on the user's laptop or a deployed server. If not previously installed, the TC-AIMS II application will need to be downloaded and installed as well. This process will be automated to the maximum extent possible; however, some manual steps will be necessary by the user. The TIS help desk staff will be available to assist the user with any problems that they encounter when disconnecting from or reconnecting to the enterprise configuration.

JPMO TIS is responsible for support operations and maintenance of hardware and software products needed at the Central Management Facility, Continuity of Operations Site, and Regional Access Nodes. Each Service is responsible for procurement and maintenance of end user workstations, AIT devices, and deployable servers (if desired). The TC-AIMS II JPMO will provide specifications detailing the minimum capabilities of all hardware to be purchased by the Services. The cost of said hardware will depend on the Services business process and the size of the fielding effort.

No increase in manpower or a new Military Career Field is required by the Services to employ TC-AIMS II Block 2.

Software licenses and maintenance, for TC-AIMS II-related software throughout the lifecycle of the program will be funded by PM TIS. Services may install other software on their hardware assets, after coordination with PM TIS to ensure there are no conflicts, but each Service will be responsible for licenses and maintenance of any such additional software.

4.1.1 C4 Support to Operations

During day-to-day operations, TC-AIMS II will be operated in the enterprise configuration, as depicted in Figure 2.1. In this configuration, the end user requires network connectivity via the NIPRNET to the application servers at the Regional Access Node. Data is passed over this network connection using Secure HyperText Transfer Protocol (HTTPS), Simple Mail Transfer Protocol (SMTP), and Secure File Copy Protocol (SCP). These protocols are widely used on DoD networks and have no special quality-of-service requirements.

TC-AIMS II connectivity between the Regional Access Node and end users is implemented via a web browser connected to a Citrix server over the NIPRNET. Operating in this environment, Citrix requires a minimum of 20 kilobits per second per user (20 kbps) and enforces a maximum of 160 kbps per user.

TC-AIMS II also requires NIPRNET connectivity to support system interfaces. NIPRNET connectivity may be provided by any combination of satellite links, wireless local area net links, and terrestrial wired links. The system interfaces are implemented via SMTP and SCP and are tolerant of delay. When disconnected from the network, interfaces can be accomplished via an exchange of floppy disks between interfacing partners.

JFRG uses an air gap method to prevent classified data from being imported into TC-AIMS II. This is due to the fact that TC-AIMS II is an unclassified system whereas JFRG is a classified system.

The maximum potential data exchange volume between TC-AIMS II and external systems is shown in Table 4.1 below. The Table addresses the support required for a Major Theater War Deployment scenario with traffic management operations.

Table 4.1: Data Transfer Scenario

Scenario	Activity Description	Threshold	Data Size for Transfer
Major Theater War Deployment	Movement Planning of cargo and personnel detail – aggregate Unit Level Databases. (Capability to merge or “roll up” unit level databases up the Chain of Command, assuming an average of 300 cargo line items per ULN.)	Single Server: 10,000 Unit Line Numbers (ULNs) containing sourced cargo or personnel detail records matched to UTC cargo or personnel force requirement details	3.6 Gigabytes
Typical Scenario	Movement Planning of cargo and personnel detail – aggregate Unit Level Databases. (Capability to merge or “roll up” unit level databases up the Chain of Command, assuming an average of 63 cargo line items per ULN.)	Single Server: 80 Unit Line Numbers (ULNs) containing sourced cargo or personnel detail records matched to UTC cargo or personnel force requirement details	5.7 Megabytes

There is the potential for large amounts of data to be generated during a major theater movement, depending on the size of the deployment. Additionally, service network infrastructure constraints determine the data transfer method and the maximum transmission rate. Some of the constraints are the availability of a network and its local policies, local email policies concerning size limitations and COTS software limitations such as the maximum number of lines allowed in embedded SMTP transfers. Therefore, it is impossible to generalize regarding the level of

deployment activity that will trigger adverse TC-AIMS II performance. Given the typical high utilization and low bandwidth available for deployed NIPRNET links, it is likely that a major theater deployment will encounter bandwidth limitations. However, the performance of information exchange protocols used by TC-AIMS II degrade gracefully under load, and will manifest themselves as slower transfers and longer processing delays similar to other NIPRNET COTS-based applications in theater.

Service-specific business processes also place constraints on the transfer of movement data. Typical Service business processes would require portions of a movement to be transferred at different intervals.

The currently fielded TC-AIMS II Block 1 system was certified and accredited in accordance with DoDI 5200.40, "Defense Information Technology Security Certification and Accreditation Program," (DITSCAP). The Block 1 security test and evaluation was conducted by the US Army Information Systems Engineering Command (USAISEC), who served as the Certification Agent. The security accreditation for Block 1 was granted by the TC-AIMS II Designated Approval Authority (DAA) in April 2002.

The TC-AIMS II Block 2 system is going through another certification and accreditation process. USAISEC is again serving the role of Certification Agent and is scheduled to perform the Block 2 Security Test and Evaluation in August or September 2003. This should culminate in a recommendation to the DAA to accredit the "as built" Block 2 system which includes the TC-AIMS II application hosted on servers at the CONUS-East Regional Access Node and TIS Central Management Facility. The Block 2 certification and accreditation will be updated as additional regional access nodes are fielded.

TC-AIMS II employs end user hardware that is well within the capabilities of current COTS laptop specifications. The specific hardware and software requirements for TC-AIMS II is detailed in the TC-AIMS II Software Installation Plan (SIP).

4.1.2 ISR Support to Operations

TC-AIMS II does not require support from any Intelligence, Surveillance, and Reconnaissance (ISR) systems.

4.2 C4ISR Support to Other Functions

All installed communications and electronic equipment and subsystems, including any commercial or Non-Developed Item (NDI) shall comply with applicable DoD, National and International spectrum management policies and regulations. If the equipment is to be used outside US&P, a DD Form 1494 must be generated as releasable to the countries of interest and must be sent through spectrum management channels to the theater COCOMs, who will coordinate and obtain host nation equipment allocation and spectrum supportability comments. Once the equipment allocation process is complete, site-specific radio frequency licenses must

be obtained through the applicable Installation Spectrum Manager (ISM) prior to installation and use of this system.

4.2.1 C4ISR Support to Development

Support for implementing and maintaining system interfaces is required from each of the interfacing partners identified in Appendix D.

In an effort to meet unique Service requirements, draft Unit Move Scenarios were developed resulting in derived requirements that make the software more Service-centric than was originally planned. C4ISR Support is required to more firmly establish, maintain, and enforce joint deployment processes.

Data standardization is another issue that requires C4ISR support. Lessons learned have shown that reference data used by any combination of Services must adhere to the data standards established by the responsible organization (e.g., TRANSCOM). With legacy systems still in existence, the data formats, e.g., field size, data element, and data type, must also be standardized.

4.2.2 C4ISR Support to Testing

Support is required from the Services and from each system interface partner identified in Appendix D. This includes developmental and operational test and evaluation of all IERs and the interoperability KPP. Individuals will need to be made available based on coordinated test schedules to send, receive, and validate that data sent and received is correct and usable. The Joint Interoperability Test Command (JITC) will provide evaluators to certify interoperability. Details of the test support are in the TC-AIMS II Test and Evaluation Master Plan (TEMP).

4.2.3 C4ISR Support to Training

The TIS JPMO is responsible for providing New Equipment Training (NET) to TC-AIMS II users. This training is focused on teaching MOS-qualified users how to use TC-AIMS II to perform transportation and deployment functions. Each service will be responsible for ensuring TC-AIMS II operators are MOS-qualified and fully trained in the functional requirements of unit movement prior to taking the TC-AIMS II NET. C4ISR support is required by each of the Services to ensure that users are computer literate and are familiar with standard features of the Windows 2000 operating system.

A subset of the users will be provided with system and database administration training so that they can support TC-AIMS II users operating in breakaway configurations during deployments.

TC-AIMS II training is being provided via distance learning using the Army's distance learning classrooms and infrastructure fielded by PM Distributed Learning Systems (DLS).

Unit and Institutional training for TC-AIMS II is to be integrated into existing training programs in lieu of legacy systems training or as an addendum to existing courses.

TC-AIMS II uses computer-based multimedia training as refresher training for previously trained individuals. The multimedia training will be available on CD-ROM or from the user's regional access node. Training requirements for subsequent blocks will be identified in subsequent versions of this C4ISP.

5.0 POTENTIAL C4I SUPPORT SHORTFALLS AND PROPOSED SOLUTIONS

Table 5.1 identifies expected support shortfalls and provides proposed solutions for TC-AIMS II. The following sections discuss the shortfalls in more detail.

Table 5.1: C4I Support Shortfalls

Supporting/ Interfacing System	Shortfall	Impact of Shortfall	Solution/Mitigation
Any	Changes to interfacing systems	Data exchange failure	Notify JPMOs of changes in writing 120 days prior to implementation
N/A	Insufficient or outdated training	Improper use of TC-AIMS II	Coordinate training between JPMO and services
N/A	Insufficient software and/or hardware	Inability to field or use TC-AIMS II software	Mandate minimum hardware and software standards
Communications networks	Insufficient bandwidth and/or connectivity	Inability to access TC-AIMS II enterprise configuration	DISA, Services, and installations must ensure sufficient bandwidth availability
Any	Data format mismatches	Data exchange failure	Adhere to DoD Core Data Model; implementation of Joint Data Library
Any	Business process mismatches	Incompatible business processes with interfacing systems	Implement Joint Tactical Core Deployment Process; create Unit Move Scenarios for validation
Operating system	Insufficient system administration training	Improper configuration or use of TC-AIMS II software	Services must ensure proper system administration training
N/A	Insufficient unit move training	Improper use of TC-AIMS II software	Services must ensure proper unit move sustainment training

5.1 Operational Employment Shortfalls

Changes to interfacing systems, or changes to business processes that occur at a detail level have caused data exchanges to fail.

To minimize potential disconnects, the following statement included in each signed system interface agreement must be closely followed:

“During the lifecycle of (the specific external system) and TC-AIMS II, the PMO of either system may discover new or changed operational requirements that will affect this interface. All affected parties will be notified in writing 120 days prior to implementing the proposed/required changes(s). Notification will clearly describe the intended change(s) and will identify transaction changes that will affect the interface between (fill-in the specific external system) and TC-AIMS II.”

It is the responsibility of Configuration Management for each system to ensure that this is enforced.

Successful deployment depends upon the Service member’s ability to receive timely training away from organizational duties, and the operational sites having the hardware in place when needed.

Extensive coordination efforts between JPMO and each Service continues to ensure that each Service’s desired training and fielding plans can be met with the current training and fielding teams. Schedules for training and fielding need to be developed and adhered to. If training and fielding cannot occur according to schedule, sufficient time must be allotted by the Services to allow JPMO to reschedule. TC-AIMS II is a sophisticated system and testing has shown that adequate training is mandatory in order for the system to work at its best.

The TC-AIMS II enterprise system requires network connectivity and sufficient bandwidth for proper operation. It is the responsibility of DISA, the Services, and installations to provide connectivity and bandwidth. The JPMO will implement Enterprise System Management (ESM) capabilities to ensure proper system connectivity and operation.

It is the Services’ responsibility to acquire necessary hardware and software suites to support TC-AIMS II in both the garrison and the deployed environments. The TC-AIMS II JPMO has identified minimum to optimum hardware and software standards required for successful system operation. These standards are delineated in the latest version of the TC-AIMS II Software Installation Plan (SIP).

5.2 Other Shortfalls

5.2.1 Development Support Shortfalls

5.2.1.1 Data Standardization

There is a lack of data standardization amongst interfacing systems. This will continue as additional systems are interfaced with TC-AIMS II in subsequent blocks. Potential shortfalls associated with data standardization and availability may occur in the content of the data elements, transaction formats, accessibility to information, and source data capture capabilities. Where applicable, TC-AIMS II will use the Transportation Logical Data Model to minimize data incompatibility.

To help overcome data standardization issues the JPMO has implemented the Joint Data Library (JDL). The JDL ensures data standardization where no formal standard currently exists. Additionally, all interfacing partners have existing Systems Interface Agreements that describe the format of exchanged data elements. Where non-standard data is required or can not be converted to standard format before import into TC-AIMS II, the TC-AIMS JPMO and legacy system's Program office must agree on how the non-standard data will be manipulated by the application to conform to the JDL.

DoD has discontinued its effort to implement a single standard data model across DoD. In lieu of a DoD data model, DISA has been charged with forming communities of interest (COI) to develop data models for use within a specific community. JPMO TIS will participate in any applicable COI that is formed to develop a data model for transportation and deployment systems.

5.2.1.2 Joint Business Processes

The Operational Requirements Document mandates that:

“TC-AIMS II will be the standard joint transportation and deployment information management system. The TC-AIMS II architecture will be flexible enough to accommodate basic differences in the individual Services’ transportation and deployment processes.”

To help alleviate this problem, USTRANSCOM TCJ3/4, with support of JTCC, is leading an effort with the Services, Joint Staff J4, and JFCOM J4 to develop a Joint Tactical Core Deployment Process. This process will help to provide a baseline for development of joint business processes for the Services to be implemented in TC-AIMS II.

5.2.2 Testing Support Shortfalls

To mitigate the lack of an agreed upon Joint Deployment process and differing Service Unit Move requirements, the JPMO has worked with the Services to develop Unit Move Scenarios against which the TC-AIMS II software application has been validated. Because the Scenarios were developed late in the development process, the impact has been that the application contains numerous process/application workarounds, each of which had to be tested separately. Current Service-centric proposed design changes require a formal design change

process that involves all services to insure that the joint capabilities are fully supported. These changes will also have to be tested by the developer and the JPMO. Future testing schedules may be reduced if a Joint Deployment process is developed and provided to the Services.

5.2.3 Training Support Shortfalls

The TC-AIMS II training courses do not include systems administration training for Windows 2000. This is a prerequisite for designated Service members to successfully administer the TC-AIMS II application. Each Service is responsible for ensuring that their designated System Administrators have been fully trained in Windows 2000 systems administration to perform these tasks as needed.

In some instances, TC-AIMS II operators are not fully versed in Service specific unit movement functionality. Unit Movement sustainment training is necessary to ensure successful operation of the TC-AIMS II application. Each Service is responsible for ensuring unit movement sustainment training is adequate for each operator to perform TC-AIMS II task requirements.

Appendix A: References

1. Aerial Surveillance and Reconnaissance Threat Environment Description (U). NAIC-1574-0732-01. August 2001 (S/ /NF)
2. Automated Information System Threat Environment Description (U). NAIC-1574-0731-01. February 2001 (S/ /NF)
3. C4ISR Architecture Framework version 2.0, 18 Dec 1997
4. DJCS memorandum CM-1014-00. "Joint Mission Areas to Organize the Joint Operational Architecture", 6 Sept 2000
5. DoD Policy for Assessment, Test, and Evaluation of Information Technology System Interoperability. 04 December 2000
6. DoD Policy for Interoperability and Supportability of National Security Systems, and Information Technology Systems CJCSI 6212.01B, 8 May 2000
7. Global Combat Support System (GCSS) Capstone Requirements Document (CRD), Joint Staff J-4, 27 June 2000.
8. Global Information Grid (GIG) Capstone Requirements Document (CRD), U.S. Joint Forces Command, JROCM 134-01, 30 August 2001.
9. Interim Defense Acquisition Guidebook, 30 Oct 2002
10. Joint Deployment Systems (JDS), Capstone Requirements Document (CRD), U.S. Joint Forces Command, JROCM 183-01, 8 May 2003
11. Joint Publication (JP) 4-0 Doctrine for Logistics Support of Joint Operations, 06 April 2001
12. Joint Technical Architecture (JTA) Version 4.0, 17 July 2002
13. TC-AIMS II Acquisition Program Baseline (APB), Signed 4 Oct 2001
14. TC-AIMS II Acquisition Strategy, 14 May 2001
15. TC-AIMS II Integrated Logistic Support Plan (ILSP)
16. TC-AIMS II Interface Requirements Specification (IRS), Baseline Version 0.9.9-r13, 11 April 2003

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17. TC-AIMS II Mission Needs Statement (MNS), 7 August 1997
18. TC-AIMS II Operational Requirements Document (ORD), 4 December 2002
19. TC-AIMS II Software Installation Plan (SIP), latest available version
20. TC-AIMS II System Security Authorization Agreement (SSAA), June 2003
21. TC-AIMS II Test and Evaluation Master Plan (TEMP), 22 July 2003

Appendix B: Information Exchange Requirements (IER, OV-3/SV-6)

Rationale /UJTL Number	DTS Function Area	Information Characterization	Sending Node	Receiving Node	Reference:	Bi-directional	Critical	Format	Timeliness	Classification	Method
SN 1.2, SN 1.2.1, SN 1.2.4, SN 1.2.5, SN 6.4.1, ST 4.3.1	Manage Unit Personnel	Maintain organizational personnel roster. Information includes identification, skills, training, and assigned tasks. Becomes source data for deployment planning.	MANPER-B (AF)	TC-AIMS II	14	Yes	Yes	Data	24 hours	(U)	Disk
			eMILPO (A)	TC-AIMS II	15	No	Yes	Data	24 hours	(U)	Disk
			UD/MIPS (MC)	TC-AIMS II	13	No	Yes	Data	24 hours	(U)	Disk
			ITAP-DB (A)	TC-AIMS II	16	No	TBD	Data	TBD	(U)	Disk
SN 1.2, SN 1.2.1, SN 1.2.4, SN 1.2.5, SN 6.4.1, ST 1.1.6, ST 4.3.1	Manage Unit Assets	Maintain organizational equipment list. Information includes identification, maintenance status, and deployment configuration. Becomes source data for deployment planning.	LOGMOD (AF)	TC-AIMS II	19	Yes	Yes	Data	24 hours	(U)	Disk
			MDSS II (MC)	TC-AIMS II	18	Yes	Yes	Data	24 hours	(U)	Disk
			NCFMIS (N)	TC-AIMS II	17	No	Yes	Data	24 hours	(U)	Disk
			TC ACCIS (A)	TC-AIMS II	7	Yes	Yes	Data	24 hours	(U)	Disk
SN 1.2, SN 1.2.4, SN 1.2.5, SN 6.4.1, ST 1.1.6, ST 4.3.1, OP 4.5.1	Material Management	Manage equipment, supplies, and war reserve stocks that are moving in support of deployment or day-to-day operations. Includes status, location and quantity on hand.	ATLASS (MC)	TC-AIMS II	21	Yes	Yes*	Data	24 hours	(U)	Disk
			ROLMS (MC)	TC-AIMS II	20	No	Yes	Data	24 hours	(U)	Disk
SN 1.2, SN 1.2.2, SN 1.2.3, SN 1.2.6, SN 6.4.1, ST 1.1.2, ST 1.1.6, ST 4.3.1, OP 1.1.2, OP 1.1.3, OP 4.5.1	Load Planning	Plan the movement of personnel, equipment and supplies. Includes developing load lists for air, sea, truck, pallet, and container. Provide movement details to certified air and sea load planning systems.	TC-AIMS II	AALPS (J)	12	Yes	Yes*	Data	24 hours	(U)	Disk
			TC-AIMS II	ICODES (J)	11	Yes	Yes	Data	24 hours	(U)	Disk

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Rationale /UJTL Number	DTS Function Area	Information Characterization	Sending Node	Receiving Node	Reference:	Bi-directional	Critical	Format	Timeliness	Classification	Method
SN 1.2, SN 1.2.1, SN 1.2.2, SN 1.2.3, SN 1.2.4, SN 1.2.5, SN 1.2.6, SN 6.4.1, SN 6.4.2, SN 6.4.3, ST 1.1.2, ST 1.1.6, ST 4.3.1, OP 1.1.2, OP 1.1.3, OP 4.5.1	Transportation Management	Provide management of surface/air freight, passenger movement, and actual movement from Point of Origin (POO) through the Point of Embarkation (POE), and from the Point of Debarkation (POD) to final destination.	TC-AIMS II	PowerTrack(-)	2	No	Yes	Data	24 hours	(U)	API
			TC-AIMS II	CMOS (J)	5	Yes	Yes	Data	24 hours	(U)	SMTP, disk
			TC-AIMS II	GATES (J)	3	Yes	Yes*	Data	24 hours	(U)	SMTP, disk
			TC-AIMS II	GFM (J)	4	Yes	Yes*	Data	24 hours	(U)	Disk
			TC-AIMS II	IBS (J)	6	Yes	Yes	Data	24 hours	(U)	SCP, disk
			TC-AIMS II	TC ACCIS (A)	7	Yes	Yes	Data	24 hours	(U)	Disk
			TC-AIMS II	WPS (J)	8	Yes	Yes*	Data	24 hours	(U)	SCP, disk
SN 1.2, SN 1.2.1, SN 1.2.4, SN 1.2.5, SN 6.4.1, SN 6.4.2, ST 1.1.2, ST 4.3.1, OP 1.1.2, OP 1.1.3, OP 4.5.1	Movement Planning	Provide source data on equipment and personnel to the Time Phased Force Deployment Data (TPFDD) systems. Include the capability to assign modes of transportation, create unit deployment list (UDL), and convoy movement plans. Supports the day-to-day management of local and long haul shipments, and gross load planning to include estimation of blocking, bracing, and tie down materials.	TC-AIMS II	COMPASS (A)	9	Yes	Yes	Data	24 hours	(U)	SMTP, disk
			TC-AIMS II	JFRG II (J)	10	Yes	Yes	Data	24 hours	(U)	Disk
SN 1.2, SN 1.2.1, SN 1.2.2, SN 1.2.3, SN 1.2.4, SN 1.2.5, SN 1.2.6, SN 6.4.2, SN 6.4.3, ST 1.1.2, ST 1.1.6, ST 4.3.1, OP 1.1.2, OP 1.1.3	Command and Control	Provide movement information to include description, location, destination, mode and priority to leadership in order to influence operations by making hold, expedite, or divert decisions.	TC-AIMS II	GTN (J)	1	No	Yes	Data	24 hours	(U)	SMTP, disk

Appendix C: TC-AIMS II Technical Architecture Profile (TV-1)

JTA Service Area	Service	Standard	Short Title	OV-3 Cross Reference
Operating Environment	DII COE JTA 2.5.1.1(a)	DII COE Standards Compliance (Level 1) DII COE Level 1 DISA I&RTS, Version 4.1, October 2000 (Fully Compliant)	DII COE RTL 1	All
Operating Environment	DII COE JTA 2.5.1.1(a)	DII COE Network Compliance (Level 2) DII COE Level 2 DISA I&RTS, Version 4.1, October 2000 (Fully Compliant)	DII COE RTL 2	All
Operating Environment	DII COE JTA 2.5.1.1(a)	DII COE Workstation Compliance (Level 3) DII COE Level 3 DISA I&RTS, Version 4.1, October 2000 (Fully Compliant)	DII COE RTL 3	All
Operating Environment	DII COE JTA 2.5.1.1(a)	DII COE Bootstrap Compliance (Level 4) DII COE Level 4 DISA I&RTS, Version 4.1, October 2000 (Compliant w/ approved deviations and/or waivers.)	DII COE RTL 4	All
Operating Environment	DII COE JTA 2.5.1.1(a)	DII COE (Level 5) Minimal DII Compliance (Level 5) DII COE Level 5 DISA I&RTS, Version 4.1, October 2000 (Not fully compliant)	DII COE RTL 5	All
Information Processing	Data Management Services JTA 2.6.3(a)	ISO/IEC 9075-3:1995: Information Technology—Database Languages—SQL—Part 3: Call Level Interface (SQL/CLI)	ISO/IEC 9075-3	N/A

JTA Service Area	Service	Standard	Short Title	OV-3 Cross Reference
Information Processing	Data Management Services JTA 2.6.3(a)	ISO/IEC 9075:1992, Information Technology - Database Language – SQL, with amendment 1, 1996, as modified by FIPS PUB 127-2:1993, Database Language for Relational DBMS (Entry Level SQL)	ISO/IEC 9075	N/A
Information Processing	Operating System Services JTA 2.6.2.2(a)	Win32 APIs, as specified in Microsoft Platform SDK	Volume 1 Microsoft Win32 Programmers Reference Manual	N/A
Information Processing	User Interface Services JTA 2.6.2.2(a)	Win32 APIs, as specified in Microsoft Platform SDK	Volume 1 Microsoft Win32 Programmers Reference Manual	N/A
Information Transfer	Electronic Mail JTA 3.4.1.1(a)	IETF RFC 1870, Simple Mail Transfer Protocol Extension for Message Size Declaration, November 1995.	IETF RFC 1870	1,3,5,9
Information Transfer	Electronic Mail JTA 3.4.1.1(a)	IETF RFC 2821, Simple Mail Transfer Protocol, April 2001.	IETF RFC 2821	1,3,5,9
Information Transfer	Electronic Mail JTA 3.4.1.1(a)	IETF RFC 2822, Internet Message Format, April 2001.	IETF RFC 2822	1,3,5,9
Information Transfer	Electronic Mail JTA 3.4.1.1(a)	IETF RFCs 2045-2049, Multipurpose Internet Mail Extensions (MIME) Parts 1-5, November 1996.	IETF RFC 2045-2049	1,3,5,9
Information Transfer	Hypertext Transfer Protocol (HTTP) JTA 3.4.1.8.1(a)	IETF RFC-2616, Hypertext Transfer Protocol - HTTP/1.1, June 1999	IETF RFC-2616	N/A

JTA Service Area	Service	Standard	Short Title	OV-3 Cross Reference
Information Transfer	Transmission Control Protocol (TCP) JTA 3.4.1.10.1(a)	IETF-Standard 7/RFC-793, Transmission Control Protocol, Sep 1981. In Addition, PUSH flag and the Nagle Algorithm, as defined in IETF Standard 3, Host Requirements, are mandated.	IETF-Standard 7/RFC-793	All
Information Transfer	Internet Protocol (IP) JTA 3.4.1.11(a)	IETF Standard 5/RFC 791/RFC 950/RFC 919/RFC 922/RFC 792/RFC 1112, Internet Protocol, September 1981. In addition, all implementations of IP must pass the 8-bit Type of Service (TOS) byte transparently up and down through the transport layer as defined in IETF standard 3, Host Requirements.	IETF Standard 5/RFC 791	All
Information Transfer	Combat Net Radio (CNR) Networking JTA 3.8.3(a)	MIL-STD-188-220B, Interoperability Standard for Digital Message Transfer Device (DMTD) Subsystems, 20 January 1998	MIL-STD-188-220B	N/A
Information Transfer	Local Area Network (LAN) Access JTA 3.8.1(a)	IETF Standard 37/RFC-826, An Ethernet Address Resolution Protocol, November 1982	IETF Standard 37/RFC-826	N/A
Information Transfer	Local Area Network (LAN) Access JTA 3.8.1(a)	ISO/IEC 8802-3:1996, Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications, 10BASE-T Medium-Access Unit (MAU).	ISO/IEC 8802-3	N/A
Information Transfer	Local Area Network (LAN) Access JTA 3.8.1(a)	IETF Standard 41/RFC-894, Standard for the Transmission of IP Datagrams Over Ethernet Networks, April 1984	IETF Standard 41/RFC-894	N/A

JTA Service Area	Service	Standard	Short Title	OV-3 Cross Reference
Information Transfer	Network Management JTA 3.8.1(a)	IETF Standard 15/RFC 1157, Simple Network Management Protocol (SNMP) May 1990.	IETF Standard 15/RFC 1157	N/A
Human-Computer Interface	Domain-level Style Guides JTA 6.6.2	User Interface Specification for the Defense Information Infrastructure (DII), Version 4.1, 5 September 2002.	User Interface Specification for the Defense Information Infrastructure (DII), Version 4.1	N/A
Human-Computer Interface	Windows Style Guide JTA 6.6.2	Microsoft Windows User Experience, Microsoft Press, 8 September 1999.	Microsoft Windows User Experience	N/A
Information Modeling Metadata, and Information	Data Model JTA 4.6(a)	DoD Manual 8320.1-M-1, DoD Data Standardization Procedures, April 1998	DoD Manual 8320.1-M-1	N/A
Information Modeling Metadata, and Information	DoD Data Definitions JTA 4.7(a)	DoD Manual 8320.1-M-1, DoD Data Standardization Procedures, April 1998	DoD Manual 8320.1-M-1	N/A
Information Systems Security	Authentication Security Standards JTA 6.4.1.3.1(a)	FIPS PUB 112, Password Usage, 30 May 1985	FIPS PUB 112	All
Information Systems Security	Secure Web browsing JTA 6.4.1.1(a)	Secure Sockets Layer (SSL) Protocol, Version 3.0, 18 November 1996	SSL 3.0	1,3,4,5,6,9
Information Systems Security	Secure Web browsing JTA 6.4.1.1(a)	IETF RFC 2246, The Transport Layer Security (TLS) Protocol Version 1.0, January 1999.	IETF RFC 2246	1,3,4,5,6,9

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JTA Service Area	Service	Standard	Short Title	OV-3 Cross Reference
Information Systems Security	Evaluation Criteria Security Standards	NCSC-TG-005, Version 1, Trusted Network Interpretation, July 1987	NCSC-TG-005, Version 1	N/A
Information Systems Security	Human-Computer Interface (HCI) Security Standards	DoD HCI Style Guide, TAFIM Version 3.0, Volume 8, 30 April 1996	DoD HCI Style Guide, TAFIM Version 3.0, Volume 8	N/A
Information Systems Security	Operating-System Services Security	DoD 5200.28-STD, The DoD Trusted Computer System Evaluation Criteria, December 1985	DoD 5200.28-STD	N/A
Information Systems Security	Security Auditing and Alarms Standards	DoD 5200.28-STD, The DoD Trusted Computer System Evaluation Criteria, December 1985	DoD 5200.28-STD	N/A
Information Transfer	Uniform Resource Locator (URL) JTA 3.2.1.2.1.8.2	IETF RFC-1738, Uniform Resource Locators, 20 December 1994	IETF RFC-1738	N/A
Information Transfer	Uniform Resource Locator (URL) JTA 3.2.1.2.1.8.2	IETF RFC-2396, Uniform Resource Identifiers (URI) Generic Syntax, August 1998.	IETF RFC-2396	N/A
Transportation Data Standards	Configuration Management	IEEE 12207.0, Software Life Cycle Processes and series for Software CM, 1995		N/A
Transportation Data Standards	DOD 4000.25-1-M, Military Standard Requisition and Issue Procedures, May 87	DOD 4000.25-1-M, MILSTRIP	DOD 4000.25-1-M MILSTRIP	N/A

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JTA Service Area	Service	Standard	Short Title	OV-3 Cross Reference
Transportation Data Standards	Function Model	DOD 4500.9-R, Defense Transportation Regulation, Part II, Cargo Movement	DOD 4500.9-R DTR, Part II, Cargo Movement	All

Appendix D: System Interface Agreements (SIA)

System	Service	Description	Interface Agreement
AALPS	J	Automated Air Load Planning System	Signed Nov 98
ATLASS-I	MC	Asset Tracking and Logistics Automated Support System I	Signed May 99
CMOS	J	Cargo Movement Operation System	Signed Nov 98
COMPASS	A	Computerized Movement Planning and Status System	Signed Feb 98
eMILPO	A	Electronic Military Personnel Office	Signed Jun 99
GATES	J	Global Air Transportation Execution System	Signed Dec 98
GFM	J	Global Freight Management System	Signed Jul 99
GTN	J	Global Transportation Network	MOA signed
IBS	J	Integrated Booking System	Signed Dec 98
ICODES	J	Integrated Computerized Deployment System	Signed Feb 98
ITAP-DB	A	Integrated Total Army Personnel Database	
JFRG II	J	Joint Force Requirements Generator II	Signed May 99
LOGMOD	AF	Logistics Module	Signed Dec 98
MANPER-B	AF	Manpower & Personnel Module – Base Level	Signed Nov 98
MDSS II	MC	MAGTF Deployment Support System	Signed Nov-98
NCFMIS	N	Naval Construction Force Management Information System	Signed Nov-98
PowerTrack	US Bank	US Bank PowerTrack	
ROLMS	MC	Retail Ordnance Logistics Management System	Signed Dec 98
TC-ACCIS	A	Transportation Coordinators' Automated Command and Control Information System	Signed Dec 98
UD/MIPS	MC	Unit Diary/Marine Corps Integrated Personnel System	Signed Nov 98
WPS	J	Worldwide Port System	Signed Jan 99

Appendix E: Acronym List

AALPS	Automated Air Load Planning System
ABFC	Advanced Base Functional Component
ACAT	Acquisition Category
ACD	Automated Cargo Detachments
ADM	Acquisition Decision Memorandum
ADP	Automatic Data Processing
AFSC	Air Force Specialty Code
AIT	Automated Identification Technology (Device)
AMS	Automated Manifest System
AMSS	Ammunition Management Standard System
AoA	Analysis of Alternatives
APB	Acquisition Program Baseline
API	Application Programming Interface
APOD	Aerial Port of Debarkation
AS	Acquisition Strategy
ATAC-AF	Advanced Traceability and Control - Air Force
ATEC	Army Test and Evaluation Command
ATLASS-1	Asset Tracking Logistics Automated Supply System
BI	Background Investigation
BPR	Business Process Re-engineering
C2	Command and Control
C3I	Command, Control, Communications, and Intelligence
C4I	Command, Control, Communications, Computers, and Intelligence
C4ISP	Command, Control, Communications, Computers, and Intelligence Support Plan
CAISI	Combat Service Support Automated Information System Interface
CAN	Campus Area Network
CAS-B	Combat Ammunition System - Base Level
CBL	Commercial Bill of Lading
C-CA	Clinger-Cohen Act
CD-ROM	Compact Disc-Read Only Memory
CESMIS	Civil Engineer Support Management Information System
CFM	CONUS Freight Management (Now Global Freight Management)
CIM	Corporate Information Management
CINC	Commander in Chief
CIO	Chief Information Officer
CJCS	Chairman of the Joint Chiefs of Staff
CMB	Configuration Management Board
CMF	Central Management Facility
CMOS	Cargo Movement Operations System
COMPASS	Computerized Movement Planning and Status System
CONPLAN	Concept Plan

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CONUS	Continental United States
COTS	Commercial-Off-the-Shelf
CSSCS	Combat Service Support Control System
CULT	Common Use Lift Transportation
CUP	Core UTC Package
DAMMS-R	Department of the Army Movements Management System - Redesign
DAT	Digital Audio Tape
DeMS	Deployment Management System
DII/COE	Defense Information Infrastructure/Common Operating Environment
DISA	Defense Information Systems Agency
DITSCAP	Defense Information Technology Security Certification and Accreditation Process
DLA	Defense Logistics Agency
DMLSS	Defense Medical Logistics Standard System
DNACI	Defense National Agency Check with Inquiries
DoD	Department of Defense
DSS	Distribution Standard System
DTS	Defense Transportation System
DTTS	Defense Transportation Tracking System
EA	Electronic Attack
EA	Economic Analysis
EDI	Electronic Data Interchange
EMP	Electromagnetic Pulse
ENTNAC	Entrance National Agency Check
ESM	Enterprise Systems Management
FACTS	Financial and Air Clearance Transportation System
FDP&E	Force Deployment Planning and Execution
FOC	Full Operational Capability
FORSCOM	United States Army Forces Command
FRAP	Facilitated Risk Analysis Process
FSS	Federal Supply Service
FTP	File Transfer Protocol
GATES	Global Air Transportation and Execution System
GB	Giga Byte
GBL	Government Bill of Lading
GCCS	Global Command and Control System
GCSS	Global Combat Support System
GDSS	Global Decision Support System
GFM	Global Freight Management
GOPAX	Group Operational Passenger System
GOTS	Government-Off-the-Shelf
GSA/ADNET	General Services Administration/Depot Transportation Passenger System (Automated Distribution Network)
GTN	Global Transportation Network

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HEROS V	German Convoy Scheduler
HHG	Household Goods
I&R	Inventory & Registration
IATO	Interim Approval to Operate
IBS	Integrated Booking System
ICODES	Integrated Computerized Deployment System
IDO	Installation Deployment Officer
IDP	Incremental Development Package
IDS	Integrated Deployment System
IER	Information Exchange Requirement
ILSMIS	Integrated Logistics Support Management Information System
ILSP	Integrated Logistics Support Plan
ILS-S	Integrated Logistics System - Supply
IMDB	Inventory Management Database
IOC	Initial Operational Capability
IP	Internet Protocol
ITAP-DB	Integrated Total Army Personnel Database
ITO	Installation Transportation Officer
ITV	In-Transit Visibility
IW	Information Warfare
JCS	Joint Chiefs of Staff
JDC	Joint Deployment Community
JDL	Joint Data Library
JFRG II	Joint Force Requirements Generator II
JITC	Joint Interoperability Test Command
JOPEs	Joint Operational Planning and Execution System
JPMO	Joint Program/Project/Product Management Office (as appropriate)
JRO	Joint Requirements Office
JROC	Joint Requirements Oversight Council
JTA	Joint Technical Architecture
JTCC	Joint Transportation Corporate Information Management (CIM) Center
JTF	Joint Task Force
JTMB	Joint TC-AIMS II Management Board
KPP	Key Performance Parameter
LAN	Local Area Network
LCCE	Life Cycle Cost Estimate
LOGMOD	Logistics Module
MACOM	Major Command (Army)
MAGTF II	Marine Air Ground Task Force II
MAJCOM	Major Command (Air Force)
MANPER-B	Manpower Personnel Readiness Module
MARC	Multi-Technology Automated Reader Card
MB	Mega Bytes
MCOTEA	Marine Corp Operational Test and Evaluation Agency

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MDSS II	Marine Air Ground Task Force (MAGTF) Deployment Support System
MHE	Materiel Handling Equipment
MMS	Material Management System
MNS	Mission Need Statement
MOA	Memorandum of Agreement
MOB	Main Operation Base
MOBCON	Mobilization Control
MOS	Military Operational Specialty
MOU	Memorandum of Understanding
MPF	Maritime Pre-positioned Force
MPMIS	Military Police Management Information System
MS	Milestone
MTBOMF	Mean Time Between Operational Mission Failure
MTMC	Military Traffic Management Command
MTMS	Munitions Traffic Management System
MTS	Military Tracking System
NAC (I)	National Agency Check (with Inquiries)
NCF	Naval Construction Force
NCFMIS	Naval Construction Force Management Information System
NIMMS	NADEP Inventory Material Management System
NMCB	Naval Mobile Construction Battalion
NSIPS	Navy Standard Integrated Personnel System
NSN	National Stock Number
OCONUS	Outside the Continental United States
OMFTS	Operational Maneuver from the Sea
OOTW	Operations Other Than War
OPLAN	Operations plan
OPORD	Operational Order
ORD	Operational Requirements Document
OSD	Office of the Secretary of Defense
PERSCO	Personnel Contingency
PM	Program/Project/Product Manager (as appropriate)
POD	Port of Debarkation
POE	Program Office Estimate
RAID	Redundant Array of Independent (or Inexpensive) Disks
RAM	Random Access Memory
RAN	Regional Access Node
RF	Radio Frequency
RFW	Radio Frequency Weapons
ROI	Return on Investment
ROLMS	Retail Ordnance Logistics Management System
ROM	Read Only Memory
RSO&I	Reception, Staging, Onward Movement and Integration
SA	Systems Administrator

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SBSS/ILS-S	Standard Base Supply System
SBU	Sensitive But Unclassified
SCSI	Small Computer Systems Interface
SECDEF	Secretary of Defense
SHADE	Shared Data Environment
SIA	System Interface Agreement
SIDPERS 3	Standard Installation Division Personnel System
SMTP	Simple Mail Transfer Protocol
SPOD	Sea Port of Debarkation
SQT	System Qualification Test
SSAA	System Security Authorization Agreement
SUPMIS	Supply Management Information System
TAMMIS	Theater Army Medical Management Information System
TAV	Total Asset Visibility
TC	Transportation Coordinator
TCC	Transportation Component Command
TC ACCIS	Transportation Coordinators' Automated Command and Control Information System
TC-AIMS II	Transportation Coordinators' -Automated Information for Movements System II
TCMD	Transportation Control Movement Document
TCP/IP	Transmission Control Protocol/Internet Protocol
TDR	Tonnage Distribution Roster
TEMP	Test & Evaluation Master Plan
TMO	Traffic Management Office
TOA	Transportation Operating Agency
TOA	Table of Allowance
TPFDD	Time Phased Force and Deployment Data
TrAMS	Transportation Automated Measuring System
TUCHA	Type Unit Characteristics
UD/MIPS	Unit Diary/Marine Corps Integrated Personnel System
UDAPS (2)	Uniform ADP System (2)
UDL	Unit Deployment List
UDM	Unit Deployment Managers
UIC	Unit Identification Code
ULN	Unit Line Number
UMO	Unit Movement Office
US TRANSCOM	United States Transportation Command
USA	United States Army
USAF	United States Air Force
USATEC	US Army Test and Evaluation Command
USMC	United States Marine Corp
UTC	Unit Type Code
WPS	Worldwide Port System

WRS	War Reserve System
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