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A Shared Data Environment for the Military Traffic Management Command Directorate of International Traffic

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FOR THE UNITED STATES
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Energy Division

A SHARED DATA ENVIRONMENT FOR THE MILITARY TRAFFIC MANAGEMENT COMMAND DIRECTORATE OF INTERNATIONAL TRAFFIC

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EXECUTIVE SUMMARY

The Military Traffic Management Command (MTMC) Directorate of International Traffic (MTIT) requested the assistance of Oak Ridge National Laboratory (ORNL) in the analysis of a potential Shared Data Environment (SDE) for MTIT automated systems. This report describes ORNL's understanding of this SDE at the end of September 1991. The SDE envisioned by ORNL is not merely a repository of information required by users of MTIT systems; it is a full-fledged system that provides MTMC high-level access to and control over international cargo traffic processes. SDE objectives are to provide global visibility for international cargo traffic, support data exchanges, maintain historical data for analysis, automate the processing of shared data, conform to standards for data elements, and provide a consistent set of standard MTIT cargo management data elements.

The primary MTIT systems to be participating in the SDE [the Integrated Booking System (IBS) and the Worldwide Port System (WPS)] are currently under development. ORNL analyzed the information that is available from prototypes of these systems and examined three design options: (1) inclusion of the SDE within IBS or WPS, (2) the SDE as a separate system, and (3) the SDE as a distributed database.

One of the requirements of the SDE is to assist with ship manifest production and distribution. ORNL examined manifest requirements and discussed manifesting in relation to each of the three design options. Based on a general analysis of MTIT objectives for the SDE and a specific analysis of manifest production and distribution, ORNL recommends the development of an SDE architecture that includes the following aspects:

- a loosely coupled, replicated database that encompasses (initially) all IBS and WPS sites,
- high-speed communications among all SDE sites,
- remote access capabilities for SDE users at non-SDE sites,
- a distributed relational database management system (DBMS) that is capable of supporting a single-system perception of data that is physically partitioned among DBMSs from various vendors,
- identification of the data requirements and generation of the physical schema for supporting high-value transactions,
- agreement on message formats and transfer procedures for low-value transactions, and

- a reevaluation of computing resources (particularly memory and disk space) for IBS and WPS.

ORNL developed a software tool to aid in comparing the data elements of participating systems. This tool, based on Unix shell scripts that access Ingres database management software, was implemented on an Intel 486-based personal computer. ORNL analyzed information that is available from prototypes of IBS and WPS as well as information available from two other systems which are potential users of the SDE: the Transportation Discrepancy Report (TDR) and the Unit Deployment Manifest (UDM) ship tracking system used in the Headquarters MTMC Emergency Operations Center. The software tool used for this data analysis can be adapted by MTIT for future comparison of databases that were not analyzed by ORNL. This prototype data dictionary tool and some of its results are described in this document.

ABSTRACT

In September 1991, Oak Ridge National Laboratory (ORNL) completed tasking to assist the Military Traffic Management Command Directorate of International Traffic (MTIT) in the analysis of a potential Shared Data Environment (SDE) for MTIT automated cargo traffic systems. This analysis was a preliminary effort with emphasis on documentation of requirements, examination of design alternatives, and identification of specific MTIT systems' data sharing problems. This report records the results of the ORNL analysis.

The SDE envisioned by ORNL at this point in the analysis is not merely a repository of information; it is a also a system that allows processing of distributed data. To provide high-level access to and control over international cargo processes, ORNL recommends a loosely coupled, replicated database design with high-speed communications among all sites.

1. OVERVIEW

1.1 PURPOSE OF THIS ANALYSIS

This analysis was conducted by Oak Ridge National Laboratory (ORNL) for the Department of Defense (DOD) Military Traffic Management Command (MTMC) Directorate of International Traffic (MTIT). ORNL studied the possibilities of and problems in developing a shared data environment (SDE)[1] for MTIT. This report describes the general requirements of the SDE, possible architectural designs, and technical issues. It also includes a description of a software tool developed by ORNL for MTIT which aids in comparing the data elements of participating systems and producing reports. Reports from this rudimentary data dictionary tool, running under UNIX on a personal computer (PC), include a preliminary draft SDE data dictionary and a mapping of data elements in the proposed corporate database to those in each contributing system.

It must be noted that this report is based on incomplete information concerning the nature of the SDE envisioned by MTIT and on an initial understanding of the systems and data elements involved. It contains the results of the ORNL requirements analysis as of the end of September 1991, a recommendation for the proposed corporate database design, and output products from the software tool. The primary audience for this document is the group of MTMC personnel who must determine the research and system development path for a corporate database. Additional tasking to be performed by ORNL will extend the results presented in this report.

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[1]Throughout this report, the terms "shared data environment" and "corporate database" are used interchangeably to describe the proposed integration of MTIT processes that support worldwide traffic management of surface cargo.

1.2 OBJECTIVES OF THE SDE

MTIT systems support traffic management of surface cargo worldwide. From initial booking to final delivery of the cargo at the Port of Debarkation (POD), MTIT needs to have continuous access to information about international cargo movement. Currently data is contained in several systems operated by various organizations within MTMC, by shippers and carriers, and by MTIT individual sites. In addition, much of the tracking of cargo movement is handled manually. Data sharing among these organizations is either nonexistent or primitive and slow. The objectives of the SDE, at this time, are as follows:

- To provide "global visibility" (status, from booking through manifesting) for international surface cargo movement and support for automated tracking mechanisms.
- To support communications to and from participating organizations and systems and to facilitate data exchanges.
- To provide a limited (two years) source of historical data for analysis.
- To provide certain operational processing capabilities, including forms access for reading from and writing to the shared database, report generation, and graphical displays of information.
- To conform, insofar as practical, to DOD, Department of the Army, MTMC, and American National Standards Institute (ANSI) standards for data elements.
- To provide a consistent set of standard data elements used by all MTIT cargo management systems.

MTMC may see fit to expand the scope of these objectives to include the participation of other MTMC Directorates [e.g., rating/routing (MTMC Directorate of Inland Traffic) and finance/payment systems (MTMC Directorate of Resource Management)] in the SDE. However, for the tasking being conducted by ORNL, these systems are not being examined.

1.3 USER COMMUNITY

The two major MTIT systems that would participate in the SDE are the Integrated Booking System (IBS) and the Worldwide Port System (WPS). These two systems, currently under development, will supersede the many separate systems within MTIT for traffic management of international surface cargo. IBS is planned for implementation at the Eastern and Western Area Commands (ACs) by late 1994, and a prototype of WPS is currently being tested at the Western AC.

Two other MTMC systems are generally considered as prime candidates for participation in the SDE. The Transportation Discrepancy Report (TDR), which is MTMC's form for collecting data on transportation problems, could benefit immediately from the use of data in the SDE. The TDR supplies Headquarters MTMC (HQMTMC) with incoming data for the Loss and Damage Reporting and Analysis System. The SDE could facilitate this data transfer for those discrepancies with records in the SDE. The data elements of the Unit Deployment Manifest (UDM) Ship Tracking System, developed for use in Operation Desert Storm by the HQMTMC Emergency Operation Center (EOC), would also benefit from incorporation in the SDE. It must be noted, however, that the UDM contains classified data and would not interface directly with the SDE.

Additional systems have been identified that could potentially be included in the SDE. These include the following:

- Automated Carrier Interface (ACI). It is possible that an interface with the ACI is desirable; however, because design plans call for ACI interfaces with both WPS and IBS, this link may not be necessary, depending on the final design of the SDE.
- Financial Management System (FMS). FMS is the finance/payment system operated by MTMC's Directorate of Resource Management. According to MTIT staff, FMS should interface with the corporate database in the future.
- Continental United States (CONUS) Freight Management (CFM). It is possible that the MTMC Directorate of Inland Traffic's system might interface with the corporate database to provide inland rating and routing information for booking purposes.

- The Global Transportation Network (GTN). GTN interfaces are currently being analyzed by the United States Transportation Command (USTRANSCOM). Data received by GTN from MTIT systems will provide capability for command and control, planning, and in-transit visibility. This interface will be via automatic electronic file transfer and will consist only of unclassified data.

- Various other classified systems. The current perception is that the SDE will not contain classified data; however, there may be a future requirement to exchange data with classified systems (e.g., the UDM, as described above). The Strategic Deployment System (STRADS) may provide a link (if needed) between the SDE and USTRANSCOM's Joint Operation Planning and Execution System (JOPES). Another classified system with a potential need to interface is the Military Sealift Command's Crisis Management System (CMS). Because these systems operate in a classified environment, procedures would need to be established for downloading and uploading data, perhaps through removable electronic media. Thus, these systems would not be "true" participants in the SDE, unless at some future time (when the technology becomes available), the SDE becomes a multi-level secure system.

At a bare minimum, the initial SDE should support the database and communications domains of IBS and WPS. Data elements used in these two systems are the primary ones considered in this requirements analysis, although data elements from the TDR and UDM were also reviewed.[2] Other than assimilating the appropriate TDR data elements and transmitting them to HQMTMC, no actual TDR processing would be conducted within the SDE. IBS, WPS, and the TDR are unclassified; the UDM is classified. A more detailed discussion of each follows.

1.3.1 IBS

The main objective of IBS is to provide a consistent worldwide booking system for both unit and nonunit moves. IBS will be an unclassified system and will replace current automated and manual systems. Development is expected to begin during 1992 and be completed in CONUS late in 1994.

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[2]Data elements and definitions (where available) from IBS, WPS, TDR, and UDM were collected for analysis. See Appendixes F-I.

The final platform for IBS development has not been determined at this time, although it is expected that an open system architecture including a client/server Relational Database Management System (RDBMS) and Fourth-Generation Language (4GL) will be used. Because IBS will be used at the ACs for booking cargo, the largest sizing load requirement is at the Eastern AC. It is expected that 84 concurrent users and at least 400 user identifiers (IDs) must be supported. Data storage requirements at Eastern AC are estimated to be at least 705 megabytes (MB) of hard disk space (including program files). IBS must also function at smaller sites. [Western AC performs only about half as many booking operations as Eastern AC, and the sizing requirements for Outside CONUS (OCONUS) sites are unknown, though it is suspected that they would be even smaller than for Western AC.] Telecommunications will include the use of the Defense Data Network (DDN), direct distance dialing (DDD) via remote login, possibly wide-area networks (WANs), and gateways to other RDBMSs. Removable electronic media will also bridge the data-transfer gap between classified systems and IBS.

1.3.2 WPS

The purpose of WPS is to provide a standard terminal documentation and cargo accountability system. WPS will replace multiple systems that are currently in operation throughout the world.

MTIT is using the Oracle RDBMS and its associated 4GL tools for development of WPS. WPS is currently being developed on AT&T 3B2/600G minicomputers and on microcomputers from the Desktop III contract in a fileserver-workstation architecture. WPS will operate at the shipping terminals (71 port sites worldwide). Its database at each port site will be small in comparison with IBS sizing requirements. It has been estimated that WPS requires about 154 MB of storage space on the file server located at each terminal site. In addition to WPS residing at the shipping terminals, regional databases are also currently in the design for WPS. These regional sites were initially described as repositories of duplicate copies of data contained in the active databases located at the

shipping terminals. The current concept for the WPS regional database includes functional processes and system requirements far beyond the scope of this initial concept. Plans call for WPS communications to be handled through DDN, DDD, and the Automatic Digital Network (AUTODIN).

1.3.3 TDR

The TDR is a request for information submitted on Standard Form (SF) 361 to MTMC reporting worldwide cargo loss and damage. SF 361 provides basic information needed for initial entry of data into the Loss and Damage Reporting and Analysis System. HQMTMC (MTIT, Inland Traffic, and Safety Security and Intelligence/Provost Marshal) and MTMC ACs [International Traffic, Inland Traffic, and terminals, outports, and transportation terminal units (TTUs)] all participate in the resolution of these problems. The information submitted on the SF 361 form is input into the HQMTMC automated database. Discrepancy reporting using the TDR does not always involve international cargo problems. Thus, TDR entries into the HQMTMC loss and damage system will originate from sources other than MTIT, and the SDE will not be the sole repository of TDR data.

1.3.4 UDM

The Ship Tracking System is one of several UDM components developed for the HQMTMC EOC during Desert Storm. The classified system currently operates on a local area network (LAN) of 386/486 clients, using the Advanced Revelation DBMS. The tables analyzed in this report support deployment and redeployment of ships. There are also various reference tables as well as components for redeployment of rail and water.

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1.5 TERMS AND ABBREVIATIONS

A-2000	AUTOSTRAD 2000
AC	Area Command
ACI	Automated Carrier Interface
ANSI	American National Standards Institute
ASCII	American Standard Code for Information Interchange
ATCMD	Advanced Transportation Control and Movement Documents
AUEL	Automated Unit Equipment List
AUTODIN	Automatic Digital Network
CASE	Computer-Aided Software Engineering
CFM	CONUS Freight Management
CMS	Crisis Management System
COMPASS	Computerized Movement Planning and Status System
CONUS	Continental United States
CPU	Central Processing Unit

DA	Data Administrator/Data Administration
DAAS	Defense Automated Address System
DBA	Database Administrator/Database Administration
DBMS	Database Management System
DDD	Direct Distance Dialing
DDN	Defense Data Network
DLSS	Defense Logistics Standard System
DOD	Department of Defense
DODAAC	DOD Activity Address Code
DOE	Department of Energy
DOS	Disk Operating System
ETR	Export Traffic Release
ETRR	Export Traffic Release Request
EOC	Emergency Operation Center
FMS	Financial Management System
FORSCOM	U.S. Forces Command
GB	Gigabyte
GBL	Government Bill of Lading
GSA	General Services Administration
GTN	Global Transportation Network
GUI	Graphical User Interface
HQMTMC	MTMC Headquarters in Washington D.C.
IBS	Integrated Booking System
ID	Identifier
IEEE	Institute of Electrical and Electronic Engineers
ITO	Installation Transportation Office
JCCO	Joint Container Control Office
JOPES	Joint Operation Planning and Execution System
LAN	Local Area Network
LDD	Logical Data Dictionary
LDM	Logical Data Model
LOGDRMS	Logistics Data Resource Management System
LOGMARS	Logistics Application of Automated Marking and Reading Symbols
MB	Megabyte
MILSTAMP	Military Standard Transportation and Movement Procedures
MILSTRIP	Military Standard Requisitioning and Issue Procedures
MSC	Military Sealift Command
MTIT	MTMC, Directorate of International Traffic
MTMC	Military Traffic Management Command
OCONUS	Outside the Continental United States
ODT	Open Desktop
OO	Object-Oriented
OODB	Object-Oriented Database
ORNL	Oak Ridge National Laboratory
PC	Personal Computer

PDD	Prototype Data Dictionary
POD	Port of Debarkation
POE	Port of Embarkation
POSIX	Portable Operating System Interface for Computing Environments
POV	Privately Owned Vehicle
QA	Quality Assurance
QBF	Query-By-Forms
RAM	Random Access Memory
RBF	Report-By-forms
RDBMS	Relational Database Management System
SCAC	Standard Carrier Alpha Code
SDE	Shared Data Environment
SF	Standard Form
SITREP	Situation Report
SOCO	Shipping Order/Clearance Order
SPLC	Standard Point Location Code
SQL	Structured Query Language
STRADS	Strategic Deployment System
TAC	Transaction Account Code
TC ACCIS	Transportation Coordinator's Automated Command and Control Information System
TCMD	Transportation Control and Movement Document
TCN	Transportation Control Number
TCP/IP	Transportation Control Protocol/Internet Protocol
TDR	Transportation Discrepancy Report
TTU	Transportation Terminal Unit
UCR	Unit Cargo Release
UDM	Unit Deployment Manifest
UIC	Unit Identification Code
UMD	Unit Movement Data
USMTF	United States Message Text Formatting
USTRANSCOM	U.S. Transportation Command
VCC	Vessel Completed Card
WAN	Wide Area Network
WIN	WWMCCS Intercomputer Network
WPS	Worldwide Port System
WWMCCS	Worldwide Military Command and Control System
4GL	Fourth-Generation Language

2. GENERAL REQUIREMENTS OF THE SDE

2.1. MODERNIZATION

MTMC's AUTOSTRAD Modernization Program (A-2000) consists of a plan to support the MTMC DOD-wide mission through modernization of data processing and communications systems. The A-2000 plan encourages use of advanced technology and requires that the hardware and software platform be expandable in order to satisfy future requirements without major redesign. A-2000 encourages flexibility, transportability, and compatibility. The open-architecture approach is a requirement.

To accomplish open-architecture interface requirements, the following generic software, hardware, and communications capabilities are proposed: (1) a POSIX-compatible operating system (probably UNIX or a UNIX clone); (2) IEEE 802.3 and TCP/IP Ethernet communication protocols for LANs, DDN access (one gateway for each site) with X.25 protocol, and dial-in capability for remote PC access over IEEE 802.3 protocol; and (3) an RDBMS with access through Structured Query Language (SQL).

2.2 COMPLIANCE WITH STANDARDS

Data sharing requires conformance by all participating systems to certain policies and rules to ensure that:

- data, when entered into the database, is of acceptable quality, and
- data is not degraded while residing in the database.

A set of policies which must be developed for the SDE will include procedures for user access, data entry (naming conventions, formatting, etc.), maintenance, archiving, and other data administration issues.

As soon as the SDE standards are developed, all participating systems should begin the process of conforming. Incorporating changes will obviously be easier for systems still in development, but the effort (and final cost) will be reduced even more by prioritizing the standardization efforts.

The following standards must be examined in detail to determine which is most applicable for the shared data environment. The WISDIM passive data dictionary includes a set of transportation data elements. The Defense Logistics Standard System (DLSS) Division is responsible for the Department of Defense Logistics Data Resource Management System (DOD LOGDRMS). This dictionary, which includes dial-in access, must be referenced for use of standardized data elements, whenever applicable. The DOD Manual for Standard Data Elements (DOD 5000.12-M, July 1989) lists standard data elements and codes for all DOD data elements. This voluminous manual covers far more than just logistics data. During development of the Logical Data Model (LDM), these data standards should be examined further and ranked for which standard takes precedence when there is disagreement. Also, ANSI standards should be examined to determine how they differ from the DOD standards.

In general terms,[3] the following guidelines should be followed for naming and describing data elements in the SDE.

- The data element should have one and only one meaning.
- A data element should be uniform in domain. Uniformity constraints include data type, length, and actual values.

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[3]These "standard" rules are derived from two articles by Robert Giordano and Barbara von Halle in recent issues of Database Programming & Design (see references in Sect. 1.4).

- The domains of data elements should be mutually exclusive. This rule applies especially to codes (e.g., those that are defined primarily to save space on a hard-copy report or a computer screen).

- The data element should be constructed so that it cannot be decomposed into smaller pieces without a loss of meaning. (Some data elements are truly composites; zip codes, for example, should be maintained in standard zip code format, even though each digit has a "meaning," because they are always used in that form.)

- A data element should be uniquely named. Using data element naming policies and understanding the full scope of a data element prior to naming it will help maintain this rule.

- Names and descriptions of business-oriented data elements should be meaningful to the end users. In the SDE, the business definition should be commonly understood across organizational boundaries.

- If derived data elements are included in the data model, they should also conform to the rules defined above.

2.3 FUNCTIONAL REQUIREMENTS

The general objectives of the SDE are given in Sect. 1.2. The following sections list specific functional requirements for the SDE.

2.3.1 Database Inquiries and Reports

This section describes requirements for the querying function of the SDE.

All phases of both export and import cargo must be trackable within a region and between regions. A typical user session might include queries concerning booking information, cargo movement milestones, and current status details.

The system must provide two types of query capability. First, frequently used queries will be programmed as integral parts of the applications. These queries should be presented to

the user as normal menu and form options within the SDE. The database administrator (DBA) should manage access to fields based on the user's login profile. In addition, a more flexible capability should be provided to sophisticated users via the DBMS mechanisms (e.g., Query-By-Forms).

The total number of user IDs has not yet been determined, but it is estimated to be on the order of 2600 for a worldwide user base. This estimate is based on (1) the IBS lower-bound estimate of 400 user IDs at the Eastern AC and a similar number for WPS at a hypothetical WPS Eastern AC regional database and (2) an assumption that approximately 1800 user IDs would be required for all other regional sites worldwide (possibly located at Western AC, Europe, Pacific, and Far East). Most database access should be handled by local database servers; the maximum number of concurrent SDE processes at each server is expected to be on the order of 200. Most responses to simple queries that are handled by the local database server should be instantaneous (i.e., less than 3 seconds). For queries that require more than 3 seconds to complete (i.e., complex queries or those that involve remote servers), the display should include a "working" message.

To enhance response time, the database will be partitioned into active records and history records. A record will be transferred to the history file according to a schedule based on receipt and payment dates. Most cargo records will be maintained in the active area for 90 days after receipt of the cargo at the final destination. Archiving and subsequent retrieval will be transparent to the user making the inquiry. The system application handling the query will determine the required tables (active or history) and access the appropriate data on the basis of the user's entry of values for one or more of the fields listed in Table 2.1.

Table 2.1. Principle fields for SDE query formulation

Transportation Control Number (TCN), by first 14, 15, 16, or 17 positions
Van owner and/or container number
Social security number
Personal property name of owner
Commodity, model, or national stock number
Consignee or Unit Identification Code
Consignor
Voyage number
Port of Embarkation (POE)
Port of Debarkation (POD)
Measurement information (e.g., shipment weight, shipment cube)
Dates (e.g., container spot date, POE receipt, transfer, lift, sail, POD receipt, POD discharge, consignee delivery)

It must be noted that information requested from the SDE will range from very specific (e.g., a cargo description for an individual TCN, a detailed listing of all cargo in a single shipment) to very broad (e.g., a summary listing of all cargo shipped from all ports on the East Coast for the past six months). Thus, in order to clearly delimit the query, the application screen for constructing the query must allow the user to fill in one or more of the fields listed in Table 2.1 and to enter one or more data values (or a range) for each field. The user should be able to enter the appropriate data from the keyboard or, whenever reasonable, to select (by mouse or keyboard) the desired data from a "pick list" of choices generated from the database.

The user will be able to retrieve the results of the query to the screen, to a file, to a DDN mailbox, or to a printer. An output menu screen will provide options from which the user will make choices. The output can be a listing of the contents of individual data fields, an aggregation of data, or a statistical analysis of the data. The numerical output can be either tabular or graphical.

Certain preformatted reports should be available. A menu screen will list all available preformatted reports and allow the user to choose the desired report and select appropriate delimiters for the data that will be included in the report. Options for appropriately sorting and summarizing the data in each report will be provided.

In the past, various operational and management reports were produced on a routine basis (daily, weekly, monthly). The routine reports that will be required of the SDE are yet to be determined; however, it is assumed that users with a need to know can access these reports and download them to the screen or to a printer as desired. A preliminary list, notably incomplete, of management reports the SDE should provide to support AC activities is given in Appendix C.

2.3.2 Data Exchanges

This section describes interfacing systems that will exchange data with the SDE. In addition, individual users with update privileges will be able to enter and/or update data in the SDE.

Data exchanges with IBS and the ACI should be on a real-time basis as much as possible. These exchanges include skeletal Advanced Transportation Control and Movement Documents (ATCMDs), vessel records, and cargo status updates. Procedures for handling message traffic and database synchronization are discussed in Sect. 3, Design Options.

Data exchanges with WPS (i.e., the WPS terminals) should be as close to "real-time" as possible within the constraints of cost and technical feasibility. These exchanges include ATCMDs, bookings, and cargo status updates. Automated verification retransmittal procedures must be established. Procedures for handling message traffic and database synchronization are discussed in Sect. 3, Design Options.

Although an interface with FMS is not being analyzed in this report, a brief description of this interface is in order. The long-term objective is an efficient automated system interface between MTIT and MTMC's Directorate of Resource Management. Ideally, the contractor payrun should be prepared and produced at the WPS shipping terminal with transmittal of the record to the SDE for distribution to FMS. An interim design option (in case WPS at the shipping terminals cannot support the contractor payrun) is to process the contractor payrun at the SDE and transmit this information to the terminals as well as to FMS. It is assumed that, in the future, FMS personnel should have the ability to update the rate tables at the SDE, which in turn would automatically update the rate tables used by the WPS terminals.

Rather than requiring multiple interfaces to the GTN (one for each MTIT system), it is logical to assume that the SDE will be the primary MTIT interface point for the GTN. Analyses have been conducted on interfaces between GTN and the following MTMC systems: Terminal Manangement System (TERMS), Terminal Support Module (TSM), Mechanized Export Traffic System (METS II), and Department of the Army Standard Port System - Enhanced (DASPS-E). Because of the existing documentation describing these interfaces (see references in Sect. 1.4)[4], the SDE interface with the GTN is not analyzed further in this report.

The interface with STRADS is also not analyzed in this report. This interface is assumed to be with the STRADS Execution Module and should be analyzed further.

Other interfaces may include the Defense Automated Address System (DAAS) for transmittal of the TK7 report data now provided by TERMS in standard MILSTEP format. The MILSTAMP Tracer Request is currently also supported by TERMS. This capability should be provided in the general query capability of the SDE.

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[4]Similar documentation describing the GTN interfaces with IBS and WPS does not currently exist.

Once it is clearly determined which of the above systems can be considered "internal" to the SDE and which are "external," interface design documents must be developed for each of the external interfaces. The recommendations at the conclusion of this report are based on the assumption that the major systems encompassed by the SDE are IBS and WPS.

2.3.3 Operational Requirements

The SDE must provide authorization for users to edit/correct records, as appropriate. This authorization must be determined on the basis of each individual user and must be revisable.

The SDE will provide ATCMD processing. For unit moves, IBS will submit ATCMDs to the SDE for processing (see Sect. 3.3.2).[5] For nonunit moves, the SDE may receive ATCMDs from various sources, in both automated and manual formats. For the SDE to receive ATCMDs directly, an automated interface with ACs and shipping activities, with input screen designs similar to those of IBS, should be provided. The SDE will provide an edit routine (similar to that currently provided by TERMS), which will determine whether the ATCMDs can be released to the terminals or must be rejected and held for up to 5 days awaiting correction via an ATCMD correction screen (an SDE application). If the record is not corrected within 5 days, it will be deleted. A daily error report should be provided to the ACs and HQMTMC. This error report should be sorted; those ATCMDs which originated with shippers should be transmitted to the originating shipper, and those ATCMDs which originated at the terminals (records beginning with a "V" in the Document Identifier Code) should be transmitted to HQMTMC. It is important that the terminals have access to any ATCMD in the SDE database. Records with invalid Document Identifier Codes should be checked to see if they should be transferred to another processing module (e.g., booking, tracer, etc.). The multivehicle ATCMD must be

[5]Throughout this report, the acronyms "ATCMD" and "TCMD" are used to designate sets of booking information that are similar for both unit and nonunit moves.

expandable into multiple TCNs with the last position of the TCN changing from A-Z (except X).

The SDE must support the creation, distribution, and modification of the ship manifest. Because this is a major activity, it will be used in Sect. 3 as the example to describe the SDE options. Generally speaking, the manifest record will be sent by the port to the SDE. Durrently, it is assumed that, if necessary, a copy of the manifest record can be edited in the SDE after transmittal. On the basis of logic residing in the SDE, the SDE will select appropriate recipients for the manifest report as well as the appropriate communications medium (DDN, AUTODIN, hard-copy via mail, ACI, and possibly others) and distribute the manifest. The list of "appropriate recipients" will include PODs, HQMTMC, Military Sealift Command (MSC), and MSC ACs. If it becomes necessary to retransmit a manifest record, this should be a simple procedure.

The SDE must provide the capability to edit the Transaction Account Code (TAC). The SDE will verify the information received on all incoming ATCMDs against TAC tables of valid values and produce a daily error report sorted by TCN. Updating of the TAC tables should be an assigned responsibility of the Data Administrator (DA). This updating must be communicated to all appropriate parties on a real-time basis.

The SDE must provide capability to produce Ocean Government Bills of Lading (GBLs). This includes the ability to produce continuation sheets based on manifested cargo using logic similar to that currently residing in TERMS.

The SDE must provide capability to identify data appropriate for the TDR and transmittal of an automated form of the SF 361 to HQMTMC. The receipt and proper distribution of TDR problem resolution information when received from HQMTMC should be an automated feature of the SDE.

Finally, the SDE must provide standard system reports automatically. These reports include the following:

- journal events and an audit trail/log,
- quality assessment (QA) and other statistical usage reports, and
- production of error reports.

The SDE will require system administration, database administration, and data administration support.

To fulfill all requirements, the SDE requires a very sophisticated design. Table 2.2 summarizes the software quality factors that must be incorporated into the SDE system development plan to ensure that the programs perform according to specifications.

Table 2.2. Quality factors to be tested during SDE software development

Factor	Criteria
Correctness	Traceability, completeness, consistency
Reliability	Consistency, accuracy, simplicity, error tolerance
Flexibility	Modularity, generality, expandability, self-descriptiveness
Portability	Software system and hardware independence
Usability	Training, communicativeness, operability
Inter/intra operability	Modularity, data commonality, communication commonality
Efficiency	Execution efficiency, storage efficiency
Integrity	Access control, access audit
Maintainability	Consistency, simplicity, conciseness, modularity, self-descriptiveness
Survivability	Generality, modularity, software/hardware independence, self-descriptiveness

A comprehensive Test Plan and Configuration Management Plan should be produced in the early stages of SDE system development.

2.4 USER INTERFACE REQUIREMENTS

The proposed SDE should be accessible to the organizational units and systems identified in Sects. 1.3 and 2.3.2. In addition, it is anticipated that individual users at other sites will require login access to the SDE to extract information, to correct errors, and to request printed reports. The user interface for these interactions must conform to high-quality user interface architectural designs and to Worldwide Military Command and Control Systems (WWMCCS) guidelines. The IBS prototype was designed under these guidelines and could be used as a model for screen layout, display colors, etc.

The SDE should be a menu-based system that allows fast-key access for sophisticated users. A graphical user interface (GUI) windowing system with mouse input (probably based on X Windows) should be supported.

It is assumed that primary access to the SDE will be through high-resolution monitors capable of bit-mapped graphics. Capability of graphical representation of statistical analysis of data is required. However, some remote access may also require the SDE to be downward compatible with character-based terminals or PCs, depending on the user's login profile.

A programmer's toolkit that takes full advantage of the architecture should be employed for system development.

2.5 ADDITIONAL ASSUMPTIONS

Because the system must be accessible from a worldwide user base, it is assumed that the SDE would be accessible for 24 hours per day.

Depending on the design, primary SDE database servers will be physically located at about four or five sites worldwide. Implementation and operation of the SDE will require, at a

minimum, support staff (at multiple sites) for maintaining the operating system, SDE applications, network, database, and data quality. These individuals must be thoroughly trained in the technologies employed.

Current schedules (as of the end of September 1991) indicate that WPS will be implemented in CONUS in January 1993. Thus, if the SDE is to replace the WPS regional database concept,[6] it must be operational by this date.

The DOD mandate to eliminate the use of AUTODIN should be factored into the system design. Although DDN is not fully operational in the Far East, it is assumed that DDN will be implemented worldwide by the time the SDE is implemented in the Far East.

[6]Because the WPS regional database and the SDE concepts are still evolving, it is impossible to say at this time whether or not they are mutually exclusive. If the SDE serves as the basis for a corporate MTIT database, it may include some or all of the functionality planned for the WPS regional database.

3. DESIGN OPTIONS

This section discusses three SDE architectural design options that fulfill, with varying degrees of efficiency, the system requirements described in Sect. 2. Additional design options, which were examined and discarded fairly early in the analysis, are briefly discussed in Appendix A.

3.1 OVERVIEW OF DESIGN OPTIONS

The three options can be described briefly as follows:

- **Inclusion of the SDE within IBS or WPS.** The SDE would be a subsystem belonging to one of the two major participating systems. Communications would be necessary only for the external systems involved (including the other of the two major systems, i.e., either IBS or WPS) and for any remote users. Figure 3.1 illustrates this architecture.

- **The SDE as a separate system.** The SDE would be located on its own hardware at sites that might not correspond to IBS or WPS sites. Communications would be required for all participating systems. Figure 3.2 illustrates this architecture.

- **The SDE as a distributed database.** There are several different possibilities corresponding to the various degrees of data distribution, but the focus in this report is on what can be termed a *loosely coupled, replicated database*. Figure 3.3 illustrates this architecture.

3.2 COMPARISON OF DESIGN OPTIONS

A more detailed comparison of each of the three design options follows.

3.2.1 Option 1: Inclusion of the SDE within IBS or WPS

This option (see Figure 3.1) presupposes that the system requirements could be met if the SDE were a component of either IBS or WPS. We will assume, for purposes of discussion, that the SDE is a subsystem of WPS.[7]

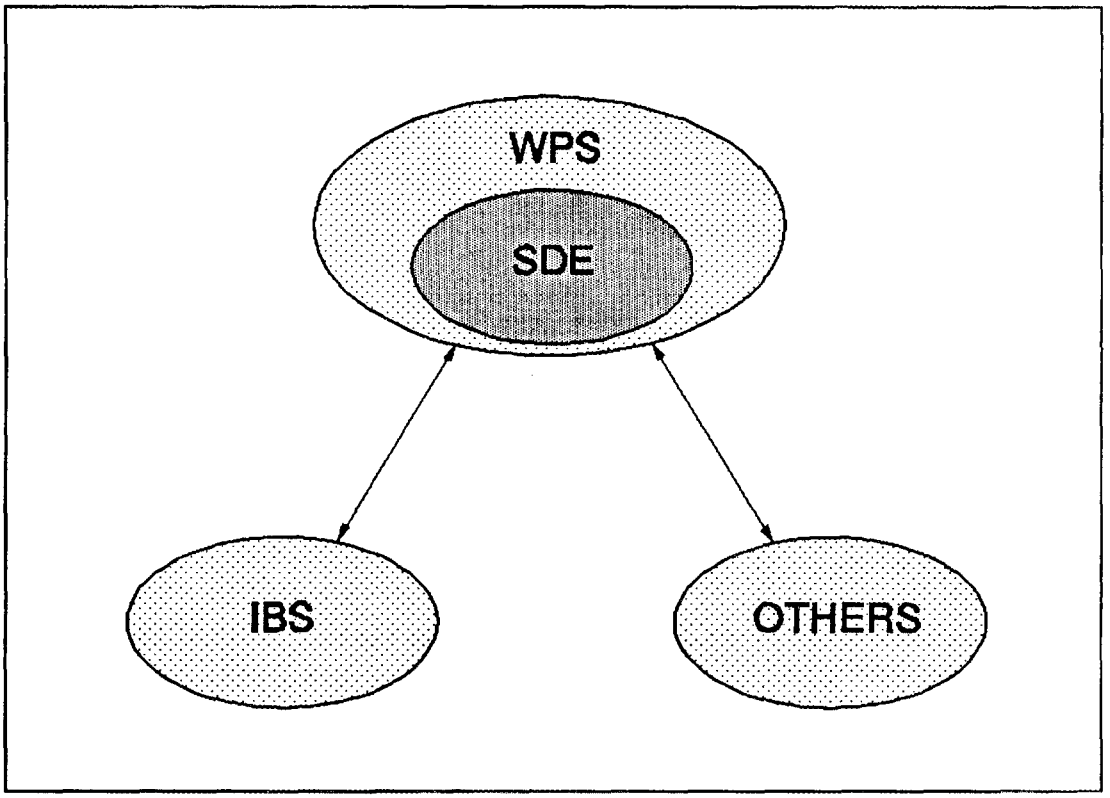

Figure 3.1. Inclusion of the SDE within IBS or WPS (Option 1).

The means of exchanging data with the SDE would be by standardized messages between WPS and each participating system. A common set of rules [e.g., United States Message

[7]Throughout this paper, Option 1 discussions will refer to the SDE being a component of WPS. The examples would be similar if the SDE were a part of IBS instead. Where specific problems would result from one association as opposed to the other, the text is explicit.

Text Formatting (USMTF)] should be adopted by MTIT and established as the official messaging standard for all systems that talk to the SDE. This standard should be inclusive enough to support a variety of individualized message formats. Since each system deals with different collections of data, there will undoubtedly be a number of actual message formats (within the constraints of the standard) for each system.

Message parsers, necessary to trap errors and to translate messages to databases and vice versa, would be written to handle both ends of each messaging pipeline. As a general rule, there would be two parsers for each message exchange, since (1) the data would have to be mapped to the particular database involved, and (2) each system would have its own method for handling errors. The message formats (and, therefore, the parsers) would have to be amended whenever the information flows changed. Procedures for handling bad messages (data transmission errors) and bad data (unacceptable key values) would be incorporated into each parser or written as separate code that is tightly coupled to the parser. Each message exchange would also involve data transfer rules concerning unsuccessful events. These rules would have to be procedurally coordinated between each pair of systems.

Certain data that was originally generated by processes in IBS (and other systems) would be replicated in the SDE. There would, therefore, be a set of procedures for detecting and resolving data discrepancies. Some differences might turn out to be tolerable; others would not. It is essential that key fields, especially identifiers of common entities (e.g., carriers, ships, geolocation codes), conform to an inter-system standard (which currently does not exist). Identifier mismatches (especially the formats of key fields) are disastrous for RDBMS-based systems. Inconsistency detection would also involve periodic execution of procedures to determine if data that was transferred successfully had become corrupted since the original transfer.

An important consideration is the ability of WPS computing facilities to handle the additional requirements generated by the SDE. If the current server platform (AT&T 3B2) is found to be only marginally capable of supporting the operational WPS, as

suspected by MTIT, it will certainly prove to be insufficient for WPS plus the SDE. (Similarly, if the SDE were to become an IBS component, further consideration and possible expansion of the IBS platform would be mandated.) Additional provisions (e.g., dedicated lines) would be required to equip WPS for handling remote access by the full SDE user community.

Most of the difficulties in Option 1 stem from the fact that application code must be written to handle data sharing. By itself, the technology of message transfers and parsers is not especially complex. The complications arise when developers from various systems must coordinate message design and database synchronization procedures. Relegating all such inter-system adjustments to application code within disparate systems makes this option labor-intensive to design, implement, and maintain. Although most systems now deal with data sharing in this way, it is a short-range solution with inherent difficulties for the inevitable modifications to message design and synchronization procedures.

Because both IBS and WPS are in the early stages of development, an encompassing strategy to standardize critical system elements might still succeed in minimizing architectural and database design disparities between the two major systems. Even if both systems used the same DBMS and operating system, however, the discussion above is still germane.

The success of an SDE based on the Option 1 architecture depends on the following factors:

- a high level of agreement (among the designers of the interfaces) on message design and synchronization procedures,
- the overall management of message traffic and data format issues by MTIT, and
- the volume of SDE data, which must not overtax the containing system.

3.2.2 Option 2: The SDE as a Separate System

With the Option 2 design (see Figure 3.2), the SDE is an independent system that communicates with other systems (including IBS and WPS) as required.

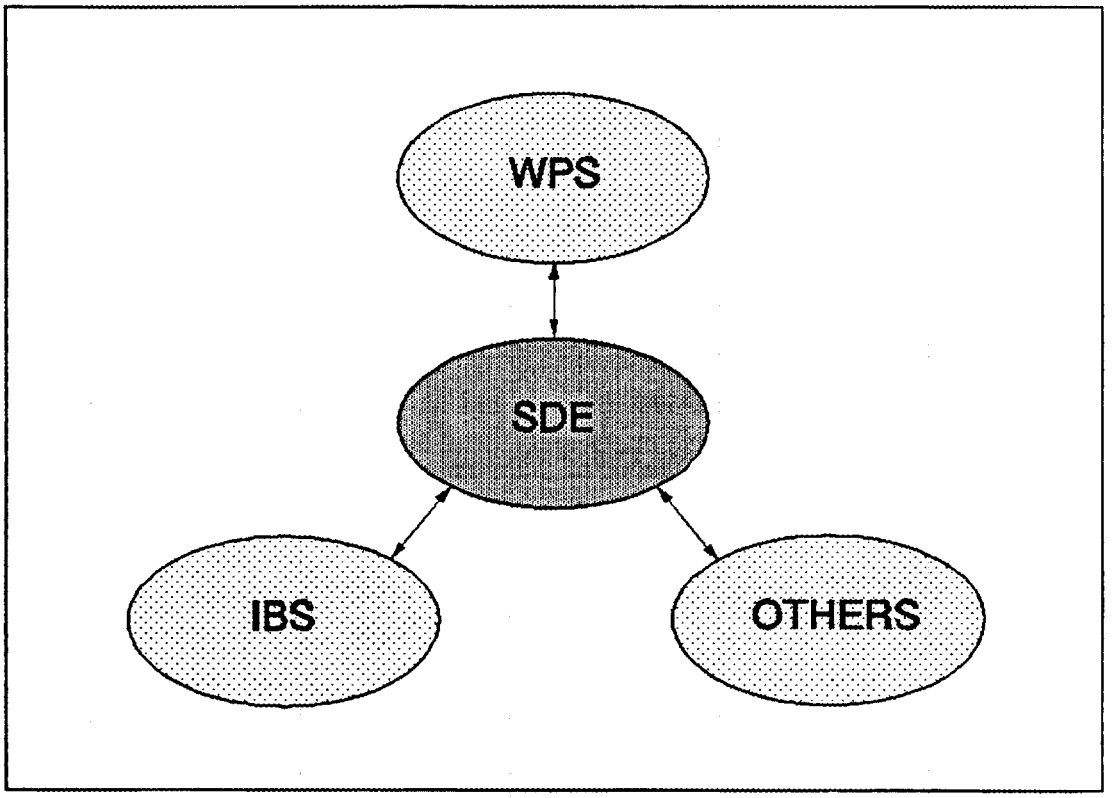

Figure 3.2. The SDE as a separate system (Option 2).

This architecture is more flexible than that of Option 1, by virtue of the fact that implementation details can be handled independently. Otherwise, most of the comments concerning Option 1 are applicable to this design as well, except that in Option 2, virtually *all* SDE data is a replica of data in other systems. Obviously, the messaging is even more complex here, because of the additional transfers between WPS and the SDE.

Again, the success of Option 2 depends on the following factors:

- a high level of agreement (among the designers of the interfaces) on message design and synchronization procedures,
- the overall management of message traffic and data format issues by MTIT, and
- the volume of SDE data, which must not overtax the communications lines between the SDE and each participating system.

3.2.3 Option 3: The SDE as a Distributed Database

If, as in Option 3 (see Figure 3.3), the SDE employs a distributed database[8] design, MTIT users would perceive IBS and WPS (and other participating systems) as portions of a single, integrated system. The determination of the sites throughout the system where data is actually stored would be based on performance factors associated with the use of the data.

Sharing of common data elements is rapidly becoming a business requirement. Corporations are searching for ways to integrate multiple existing stovepipe systems that use a variety of technologies. Several software tools companies now offer products that "solve" these disparate database problems. Their solution is to roll up the data and present it to the user as if it came from a single database. Companies using this technique generally claim that their products are "open" and that they facilitate full communication between databases of any type. In fact, these tools are appropriate only for read-only, decision-support applications. It should be noted that even the first generation of distributed DBMS products are much more comprehensive than this type of product.

There are many different ways to implement distributed databases and/or cooperative processing of distributed data. To avoid confusion, this report focuses on two of the major

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[8]Distributed database, until recently, was an esoteric and primarily academic abstraction, but many major RDBMS vendors are now supplying or developing distributed database features.

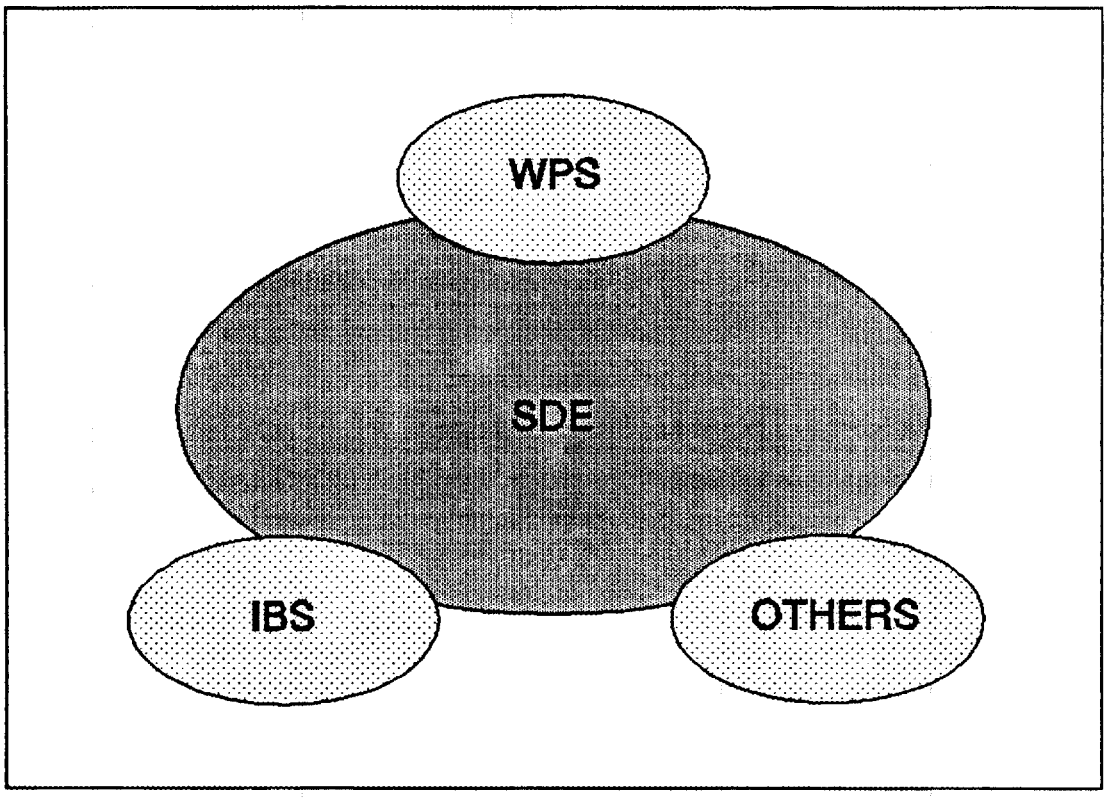

Figure 3.3. The SDE as a distibuted database (Option 3).

concepts: a tightly coupled, distributed database and a loosely coupled, replicated database. Distributed and replicated databases are employed in real-world processing by 24-hour bank tellers and airline reservation systems, among others.

Tightly coupled, distributed database

The primary goal of distributed database systems is to provide users with a "single-system image," even when the data itself is widely dispersed at various physical sites. In a tightly coupled, distributed database, the single-system image holds true for application programmers as well as end users; that is, database code would not specify where the data is actually stored. Only the database administration (DBA) team would be aware of the physical details of data location. Throughout system development and maintenance, the

DBA would continue to modify the physical design in response to changing requirements of the SDE and the participating systems.

A tightly coupled, distributed database necessitates a common database schema (i.e., full agreement of database table structures) among all participating systems (and a DBA function that spans all sites). While there might be advantages to this approach, the current and evolving MTIT systems that would benefit from participation in an SDE are autonomous. Adoption of a common database schema among all these systems is unrealistic, as only a small percentage of data elements are actually shared among the existing autonomous systems. Thus a tightly coupled, distributed database is not considered further in this report.

Loosely coupled, replicated database

A rule of thumb for most databases is that 20% of the data is used 80% of the time. While a full analysis of SDE data has not yet been undertaken, it may be true that only a small number of data elements are actually involved in high-value transactions. In this report, a high-value transaction is considered to be any database update that

- is crucial to the overall business of tracking worldwide cargo movement,
- involves data that is of interest to a wide spectrum of users, not just users at a single site or users of a single component of a participating system, and
- needs to be propagated immediately throughout the SDE user community.

Examples of high-value transactions include:

- cargo cancellations after the release has been approved and sent, and
- carrier notification of ship unavailability.

For purposes of discussion, a low-value transaction is a database update that either:

- involves data that is of interest only to users at a single site or within a single component of a participating system,
- involves data that can be propagated throughout the SDE user community periodically at a predefined frequency, or
- is available as required, though access is not as rapid as it is for replicated data used in the high-value transactions.

In an SDE that is based on a loosely coupled, replicated database, the high-value transactions would be coordinated among all the participating sites. Although the data would actually exist at various sites, all users would have a single-system image of this crucial information; in other words, widely separated users would see the same data changes occurring at roughly the same moment. They would also have write access to the data that supports their participation in the high-value transaction. All sites would either "agree" (through distributed RDBMS control) to commit each transaction at roughly the same moment or they would all roll back to the previous state.

The results of low-value transactions would also be propagated throughout the system, but according to less stringent timing requirements. Low-value transactions would still be processed locally (as they are now designed) in portions of the database that are autonomously designed and managed. Periodic transfers would be required to support SDE processes (e.g., reports) as well as normal system-to-system communications. Those sites that have a clear need to see certain information would receive periodic updates as part of the overall SDE communications procedures or as part of the normal message traffic initiated by each participating system. Similar message trafficking rules and procedures as described under Option 1 would apply to SDE handling of low-value transactions. The quantity and criticality of the transfers would be diminished because distributed database processing would be employed for high-value transactions.

The loosely coupled, replicated database design may be viewed as a hybrid of Option 1 and a tightly coupled, distributed database. Containing features of both designs, it applies these features as appropriate to data of differing criticality. A portion of each system's database would be specialized to support the high-value transactions that must be accessible by all sites. One way, although certainly not the only way, to implement the distributed design would be for each system to address the shared data as a physically distinct database. Several DBMS products allow the addressing of database fields as a dot-delimited full name (parts of which default to the local objects if they are omitted) as follows:

SiteName.DatabaseName.OwnerName.TableOrViewName.FieldName

Full name addressing makes the local use of several databases straightforward and efficient.

The Option 3 design requires high-speed network connections, a distributed RDBMS, and standardization among participating systems of that portion of the database schemas that supports the high-value transactions.[9]

DBMS necessities include the use of "intelligent," distributed server software, since database synchronization cannot be left up to the applications. To allow for multi-site updating by the distributed DBMS, a two-phase commit facility[10] is required. Global and local data dictionaries are also system requirements. The distributed DBMS must be able to use the global data dictionary to intervene in situations that might otherwise lead to

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[9]The hardware platform, especially memory and disk space, of each participating system will undoubtedly require augmentation of current capabilities. The full extent will depend on a thorough analysis of the data volumes present in the high-value transactions.

[10]A good discussion of two-phase commit is found in C. J. Date's An Introduction to Database Systems. See Sect. 1.4 for full reference.

deadlock.[11] Another desirable feature is open database server technology that allows a server to appear as a client to another server, while still maintaining its identity as a server to its own regular clients.

The distributed system must be able to survive the loss of any number of sites due to Central Processing Unit (CPU), disk, or network failures. A proven recoverability strategy that minimizes or eliminates offline time is essential. The goal is to keep all other sites running, while gracefully bringing the broken site back into synchronization.

The Option 3 design strategy involves a high degree of replicated data worldwide. It does not guarantee synchronization of all data (e.g., the information involved in low-value transactions) within a short time frame (i.e., seconds). It does, however, provide for a single system image and tighter coupling where synchronization is essential. Transparent data replication is done at the database level while at the same time preserving a large share of the autonomy of participating systems.

The success of the Option 3 design depends on the following factors:

- the adoption of a proven distributed DBMS,
- the identification of a database design that supports high-value transactions (i.e., the replicating of critical data elements),
- thorough preliminary analysis of data usage to minimize hardware and communications costs associated with readjusting the physical storage strategy,
- the volume of high-value transaction replicated data, which must not overtax the network that supports the distributed RDBMS, and
- the development of a support staff for designing, coding, and maintaining the integration of local autonomous systems with the global SDE.

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[11]A good discussion of deadlock is found in C. J. Date's An Introduction to Database Systems. See Sect. 1.4 for full reference.

3.3 EXAMPLE: CREATING, DISTRIBUTING, AND MODIFYING THE SHIP MANIFEST

Manifest documentation for unit equipment shipments was chosen as an example because both IBS and WPS will participate in development and communication of the manifests. The booking system creates the ATCMD, which evolves into the TCMD and becomes the basis for the manifest.[12] The booking system then feeds this data (i.e., the ATCMD) into the terminal support system which completes the manifest documentation. (Sections 3.3.1 and 3.3.2, respectively, describe current and proposed booking/terminal support systems.)

Per MILSTAMP, TCMDs provide the basis for preparing manifests. Within CONUS, MTMC prepares the manifests; otherwise, the POE is responsible for the preparation of the manifests. The terminal operator adds the necessary loading detail to the TCMDs. Manifests are used to verify delivery of cargo, support billing services, and justify claims. Documents related to the manifest include the manifest recapitulation, manifest summary, and the cargo traffic message.

3.3.1 Current MTMC Systems

ASPUR is supplied an Automated Unit Equipment List (AUEL) from the U.S. Forces Command (FORSCOM) Computerized Movement Planning and Status System (COMPASS) as the basis for the ASPUR database. The Installation Transportation Office (ITO) submits Unit Movement Data (UMD) via the Transportation Coordinator's Automated Command and Control Information System (TC ACCIS) to provide the most up-to-date detail information to be used by ASPUR. The listing which contains records common to both of these two systems constitutes the *expected cargo* at the port. ASPUR creates skeletal ATCMDs from the detail data in its own database.

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[12]The acronyms "ATCMD" and "TCMD" are used to designate the set of data elements transferred from ASPUR to TERMS (eventually, from IBS to WPS).

These ATCMDs are then loaded into the TERMS On-Line System (TOLS) at the AC to become the basis of the manifest document. Prior to creating the master file, TOLS validates the data fields and produces error listings for erroneous data. Records with fatal errors are rejected. Other records may produce warnings to the operator that certain fields need modifications.

When the unit equipment arrives at the terminal, the Logistics Application of Automated Marking and Reading Symbols (LOGMARS) system is used to read the TCN off each item. The LOGMARS data is loaded into TOLS to update the enroute records with *actual cargo* received at the port. TOLS is updated again when the equipment is loaded onto the vessel. A load list modifies the status of the enroute records as cargo is actually lifted onto the vessel.

A *vessel completed card* (VCC) is submitted to TOLS when the ship sails. The VCC notifies TOLS to change all records with a "load" status for the given voyage number and ship name to "sail" status. Also included on the VCC is the POE, POD, julian date sailed, and time ship sailed. The manifest is created when the VCC is added to the enroute records.

An automated message of the manifest must be released from the POE to the POD within 72 hours of sailing if the transit time is 7 days or less; it is required within 5 days, if transit time is 8 days or greater. The POD and MSC receive automated messages. Paper copies of the manifest are released to the "world" - any organizations interested in the ship's cargo and/or itinerary. Recipients of the manifest include the POE and its clearance authority, local agent of carrier, sponsoring service, and MTIT ACs. After 90 days from sailing, the manifest record is retired to history.

Problems with a manifest are generally discrepancies between expected cargo and actual cargo.[13] Per MILSTAMP, true adjustments to a manifest are considered errors or omissions in already dispatched manifests. These modifications are sent to the same addressees as the original manifest via the original method. Under the current operations, sometimes these adjustments are successfully implemented and sometimes they are not.

3.3.2 Proposed MTMC Systems[14]

FORSCOM will supply AUEL data to IBS to form the basis of the IBS unit moves database. Since TC ACCIS maintains the most up-to-date unit equipment listings, TC ACCIS will submit UMDs to IBS which update the AUEL data. From its unit equipment detail data, IBS will create skeletal ATCMDs for input to the regional WPS. These ATCMDs provide WPS with listings of cargo expected at the port.

Once the ATCMDs are received by the regional WPS, they will form the basis for the manifest. Error checking and validation will be performed. The regional WPS will then distribute ATCMDs electronically to WPS terminal mailboxes for retrieval by the terminal. These notifications provide the terminals with a "heads-up" of what to expect at the ports. Via the regional database, a port will have the ability to download ATCMDs for other terminals.

As equipment arrives at the port, TCNs will be scanned with LOGMARS and the data uploaded into WPS. This new data is added to the enroute records (ATCMDs) to create

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[13]For example, if ATCMDs project 25 tanks are to arrive at the port of Charleston on Wednesday and only 20 arrive, then TOLS must be updated to confirm receipt of only 20 tanks. However, if two more tanks arrive the following Monday, TOLS must be updated again to show two additional tanks.

[14]These paragraphs describe one potential path for ATCMD data exchanges between IBS and WPS. Because these systems are still in the conceptual stage, this description is preliminary and subject to revision.

the manifest with the details of the cargo that is actually received at the port. When the cargo is lifted onto a vessel, records within WPS are updated to reflect a loaded status. When the vessel finally sails, WPS will again be updated.

Although the regional WPS will not always replicate data in the WPS terminal systems, the regional WPS will try to maintain updates that are as close to "real-time" as possible with frequent uploads from the terminals. The frequency will be determined based on cost and technical feasibilities.

Once WPS at a POE updates the regional database for the POD with a vessel's final manifest, the manifest will be transmitted to the appropriate recipients via the predetermined communications medium. The necessary addresses and media selection criteria will be maintained at the regional level. The 72-hour and 5-day deadlines for release of manifests should be easily met for the majority of the PODs. Manifests will still be kept active for up to 90 days within the regional database.

One goal of the regional database is to make manifest adjustments available in a more timely manner than by redispatching updates from the terminals.

3.3.3 Problems with Existing/Proposed Systems

The central shortcoming of the evolving MTIT systems and procedures regarding manifest creation and distribution is that a "global" view of the entire cargo movement is impossible to achieve because no single system contains a complete information store. IBS loses visibility after the skeletal ATCMD is passed to WPS, and WPS cannot view the original data used to create the ATCMD. Thus, at different times information about the cargo movement is processed in various forms:

- AUEL and UMD
- ATCMD (expected cargo)

- enroute records
- actual cargo received at the port
- load list
- VCC
- manifest
- manifest adjustment

These stages in manifest production can be seen as milestones in the data-driven processes, but they are not necessarily sequential. It is desirable that detailed information at each of these steps be immediately available to those users with a need to know.

It may be possible to force global visibility onto the framework of the emerging architecture by allowing users of one system (e.g., IBS shippers) to have access to WPS in order to determine the status of their cargo. Allowing "outside" users to have authorized WPS accounts may constitute a threat to the integrity of the WPS database unless this access is meticulously controlled (i.e., by individual user accounts, not by a general purpose group account).

The speed at which requests are processed is also crucial. In the absence of a corporate SDE, the data updates will be periodically "frozen" and sent to other sites. The recipients will rely only on the final version of the message, which may not be transmitted efficiently, especially if the user is talking to a remote site on the phone. The latter alternative -- establishing contacts via telephone with users who are authorized to query WPS -- establishes a time-consuming and personnel-intensive procedure.

Additional problems exist with the present means of updating manifests. Rather than forwarding entire manifests, some adjustments result in messages that consist of line item updates. This requires the recipient to maintain a previous version of the manifest which is then manually updated with the line item change. A replicated database offers a complete, up-to-date manifest that is available to all authorized users in a near real-time environment.

3.3.4 Discussion of Design Options

This section addresses the three proposed SDE design options as they are related to the manifest example.

Option 1: Inclusion of the SDE within IBS or WPS

How much IBS data should be replicated in the WPS-contained SDE? Since the SDE will not replicate *all* IBS data, visibility over cargo data prior to creation of the ATCMD will be limited to IBS users. At a minimum, the skeletal ATCMDs will result in messages to WPS. But if the expected cargo changes, through some agent reporting to IBS, that information must also be sent to WPS.

Will the entire IBS community be authorized to login to the SDE through WPS? If so, WPS must be designed to handle the extra user burden (including non-IBS users). It not, provisions must be made to refresh all non-WPS users with messages whenever important manifest information is changed in WPS. If the processing of enroute records and the load list is of continual interest to users other than those at the terminals, it must be decided how often this information is to be disseminated.

It is not clear whether the WPS regional databases will each contain a complete set of cargo status information or whether the data will be geographically partitioned, that is, with each database managing data only for its immediate region. If the latter, WPS may need to support transparent access to all the information required by SDE users.

Option 2: The SDE as a separate system

All important manifest messages must be parsed by WPS and sent to the SDE parser. This option relieves WPS of the burden of processing message traffic from all other systems

involved (the SDE will handle it separately), but the immediate availability of the shared data to WPS users is diminished.

Is it feasible to replace regional WPS processing with the SDE? IBS would provide constant booking information to the SDE from the time requests are received. The SDE would be dependent on IBS to maintain the status of the booking records and to submit ATCMDs at the appropriate time. If the SDE replaced the regional WPS database, the ATCMDs would then be processed in the SDE instead of at the regional WPS database. After the ATCMDs were made available to the WPS terminal systems, the ports would then exchange data with the SDE rather than the regional WPS.

If manifest adjustments are sent by WPS to the SDE, they will in turn be sent by the SDE to all who received the original manifest. The recipients of these messages cannot be assured that additional adjustments are not already in the pipeline (which might take more than a few seconds to transmit). In addition, if the adjustment is a line item change, it is the responsibility of each recipient to match it up to the original manifest. Mismatches due to faulty transmission or WPS error will reverberate among all users until a correct transmission succeeds. Each user will require a method of backing out the incorrect adjustment and replacing it with the correct one.

Option 3: The SDE as a distributed database

In addition to fulfilling the needs of a regional WPS, this option also offers the most attainable "real-time" environment. Based on their login profiles, users would be able to access manifest data in IBS, WPS, and other databases. Queries would be constructed in a user-friendly SDE interface, not requiring the user to have knowledge of the physical location of the data. This strategy also protects data integrity.

The major difficulty is in determining which data is to be replicated and which data is to be messaged. If it is determined that the high-value transactions include, for example,

AUEL/UMD processing status and manifest creation, these portions will be available to all SDE users as if they existed within a single system. But the continual traffic on the network to support this single system image may prove to be excessive. An alternative design, such as requiring message traffic for expected cargo data visibility, might be a more workable strategy. Resorting to alternatives such as this re-introduces the messaging problems described above.

3.4 ADDITIONAL DATABASE DESIGN ISSUES

There are certain aspects of SDE database development that apply to all of the design options described above. These are discussed briefly below.

3.4.1 Logical Data Model and Data Dictionary

The development of an LDM is highly recommended for the SDE. An SDE LDM is especially crucial because of the nonexistence of LDMs for IBS and WPS. This shortcoming will make the creation of an SDE LDM, which requires the participation of both IBS and WPS systems developers, more difficult and time-consuming.

All of the information entities (and their attributes) associated with the corporate database support for MTIT should be detailed in a Logical Data Dictionary (LDD). The LDD should also include mappings between the SDE and the data in each participating system.[15] The LDM and its supporting LDD should be maintained throughout system development, long after they have been translated to their physical equivalents. The final SDE Data Dictionary should maintain information about data and processes that form the operational SDE.

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[15]Preliminary data element mappings to the IBS and WPS prototypes were developed. Examples may be seen in Appendixes D and E.

3.4.2 Database Integrity and Data Quality

Database integrity is of primary importance to maintaining data-driven systems that rely on RDBMS technology. Because RDBMSs address data by its *values*, not by its *locations*, the management of key field correctness is crucial to internal synchronization. A database that is not in a state of integrity, due to key field value corruption, is difficult, if not impossible, to correct.

Modern RDBMS products supply features that support database integrity and data quality at the database level, for example:

- triggers -- a trigger is a collection of SQL code that will automatically execute when some action (e.g., insertion, deletion) is performed on a table;
- rules -- a rule is a detailed definition of the allowed values or range of values that are appropriate for a field; and
- defaults -- a default supplies a value for a field if the application fails to supply one when it inserts a row into the containing table.

These features are obviously a superior means of achieving integrity and quality goals than by programming such issues at the application level. RDBMS triggers, rules, and defaults allow the database designers to incorporate integrity constraints as part of the schema shared by all applications. If these aspects of the design change, they need only be changed once, at the database level. The alternative -- tracking down all the applications that affect the tables and fields in question -- is time-consuming and error-prone.

3.4.3 Evolving RDBMS Capabilities

The principal DBMS vendors are currently struggling to provide the most intelligent database server for the low-end workstation/high-end PC market. This will undoubtedly

remain a major item on their agendas throughout the next decade. Closely related industry developments are the growing number of distributed RDBMS features and multi-level secure systems.

Another technological trend in the database area is the growing importance of object oriented (OO) techniques. These techniques allow the specification of data/code "packages" that behave in predictable ways and are described by the messages to which they respond. A particular object can be used to perform a similar action for a wide variety of requestors. The development of Object Oriented Database (OODB) products has influenced some traditional RDBMS vendors to incorporate hooks to established OO products (e.g., C++, Ada). Incorporating OO techniques within UNIX RDBMS products has been facilitated by the development of X-Windows. Some RDBMS vendors have expanded their application development tools and user interfaces to include X-Window toolset (e.g., Motif) features. Others have added a software layer above the client/server interface that is adaptable to a variety of local windowing environments.

Suggestion of a particular RDBMS and related software (e.g., 4GL application development tools that allow both GUI and character-mode access) cannot be made until the SDE design is more fully established. It should be clear that agreement among all participating systems on a single, widely used DBMS product that supports distributed features (e.g., Ingres, Sybase, Oracle) is preferable to reconciling databases implemented in DBMSs from different vendors. The choice of software tools that make use of evolving technologies should be based on the identified needs of the SDE.

4. PROTOTYPE DATA DICTIONARY

To identify and describe potential data elements in the SDE, a Prototype Data Dictionary (PDD) was constructed and populated with the available information from several MTIT systems. Analysis (facilitated by the PDD) of data elements from these systems was undertaken to support the recommendations in Sect. 5.

4.1 GENERAL DESCRIPTION OF THE SOFTWARE TOOL

The PDD is a Unix PC-based DBMS tool that facilitates analysis of data requirements related to the SDE. In its initial implementation, it is a stand-alone tool; it is not currently connected to the data catalog of any participating system. Section 4.2 describes the PDD hardware and software platform.

The primary purposes of the PDD are:

- to report on similar data elements in the participating systems,
- to propose standardized formats for certain data elements that are perceived as belonging to the SDE, and
- to identify problems that might arise if certain shared data elements in the participating systems are not standardized.

Certain critical data elements (but not all data elements) from the following systems are contained in the PDD:

- IBS,
- WPS,
- TDR, and
- UDM.

A listing of all data elements currently perceived as part of the SDE is contained in Appendix C.

Listings of SDE fields cross referenced to fields in participating systems and vice versa are contained in Appendixes D and E.

Listings of data element definitions (where available) in the participating systems are contained in Appendixes F-I.

It should be noted that because of the preliminary nature and the lack of documentation of the above systems, the PDD is by no means a final product. The outstanding logical data modeling tasks associated with the PDD are discussed in Sect. 4.5.

The PDD is not designed as a user-friendly application, but rather as a tool to be used only by database designers and database administrator/data administrator (DBA/DA) teams. For example, metadata from participating systems must be entered and maintained manually, either through SQL-based DBMS utilities (e.g., bulk copy from Unix files) or through the standard data entry features of the DBMS. PDD scripts (e.g., reports) are readily accessible from the Unix command line, and the shell routines that initiate them are self-documenting. Section 4.4 and Appendix K present a more detailed discussion and listing, respectively, of these information retrieval and maintenance applications.

4.2 HARDWARE/SOFTWARE PLATFORM

The PDD is currently implemented on an Intel 486-based PC running Santa Cruz Operation's (SCO) Open Desktop (ODT) software. ODT (release 1.1) supports SCO Unix System V/386 (release 3.2.2) and disk operating system (DOS; version 3.3) in a fully integrated filesystem. Bundled with ODT is Ingres, a relational DBMS that supports forms-based access to the database as well as standard report generation facilities. Neither

of the tools, Query-By-Forms (QBF) and Report-By-Forms (RBF), is required for use of the PDD scripts. ODT provides C, Bourne, and Korn shells.

The PDD scripts are Korn shell routines that insert, retrieve, and/or update database information (by using the Ingres **sql** utility). In most cases output is filtered with various Unix tools (e.g., **awk**). Standard output is to the screen but may be redirected to a file. [Note: Script usage is also available to users whose default shell is not the Korn shell.]

ODT (release 1.1) requires a 386 or 486 computer based on ISA, EISA, or MCA, a graphics display system such as EGA or VGA (for X Windows), a mouse, and, for the basic single-user system, 6 MB RAM (8 MB is recommended), and 100 MB disk space. For the "Development System," 140 MB disk space is required, and for the "Server Upgrade," 180 MB disk space is required for the system, with .5 MB for each user.

4.3 DATABASE ORGANIZATION

The PDD currently consists of five permanent tables that store information pertaining to the SDE and participating systems. Documentation of the PDD database structure is available by running the *sdetabfld* script at the Unix prompt. The output of *sdetabfld all* (for all PDD tables) is given in Appendix J.

4.4 RETRIEVAL AND MAINTENANCE APPLICATIONS

Each of the PDD scripts is self-documenting; if the name of the script is entered at the Unix prompt, the screen output shows the usage and definition of the script. In addition, documentation on how to use all PDD scripts is available by running the *sdehelp* script at the Unix prompt. The results of *sdehelp* are given in Appendix K; examples of some of the PDD scripts are given in Appendix L.

4.5 POSSIBLE FURTHER DEVELOPMENT

Various tasks remain for data modeling associated with the SDE. This section discusses several possible enhancements to the PDD that would facilitate overall SDE development.

It should be noted that the PDD is currently a limited tool. Its major benefit will be to identify those data elements that pose risks to the effective sharing of information (either through the SDE or elsewhere). These risks arise primarily because data formats and/or domains are not standardized.

Currently the PDD maintenance is a manual DBMS procedure that is facilitated by the PDD reports. To make the PDD a dynamic tool (even before the SDE is initiated), it should be connected to the working catalog of a principal participating system such as WPS. This would obviate the need for manually updating the PDD (e.g., when the associated structures and definitions change, when SDE field names are standardized). Once the SDE database development is sufficiently underway, the PDD could be reconnected to the SDE catalog.

If a computer-aided software engineering (CASE) tool is employed in the development of the SDE, connections between the PDD and the CASE tool should be explored. The use of a CASE tool that interfaces to a standard DBMS (i.e., Ingres) would be preferable to ASCII file transfers, but either implementation is workable. Of vital importance to continuing benefits from the PDD-CASE tool connection is the ability to manage data and processes in an integrated way (i.e., a "where used" facility).

Additional PDD tables, alterations of existing PDD tables, and augmentation of the scripts to include new reports and/or updates are all readily achievable by database designers familiar with Unix. Some possibilities include:

- a cross reference of SDE field names to a standard set of data element names from the yet-to-be-chosen MTMC data administration standard,

- automated entry (including temporary "best guess" cross reference to existing SDE field names) of data elements from "new" participating systems or from new portions of current participating systems,
- a field to capture the conversion rules that need to be applied to data in each of the SDE-system interfaces, and
- error-checking routines in the scripts could be made more comprehensive, thus making the PDD more robust.

It should also be noted that the definitions of data elements that comprise the initial SDE are preliminary in nature. Fuller and more accurate information on the meaning and use of each data element, its datatype (including size and precision), domain (allowed values) and units of measurement are required before database design can succeed in organizing data elements into tables. In addition, a more complete analysis of which system fields should be replicated is crucial to the success of the SDE.

5. SUMMARY AND RECOMMENDATIONS

MTMC is in the process of designing and implementing several new automated systems to replace antiquated data management procedures (both manual and automated). This rapid modernization could result in costly redesign and long-term maintenance problems if a "quick fix" approach is chosen over thorough analysis and design. Rapid prototyping -- while efficient if managed competently -- tends to create a momentum of systems development that is unable to respond to crucial improvements, even when all involved parties agree the improvements are essential.

MTIT is currently studying the concept of an SDE for global visibility of surface transportation cargo movement data. This report has briefly explored SDE system requirements and three specific design options.

MTIT should analyze its data-related problems and arrive at a strategy for maintaining accurate and complete information among all automated systems. This strategy, which should establish a basic information architecture that will survive into the foreseeable future, should include an SDE based on distributed database principles and technologies.

A distributed database approach is recommended because of the need for information availability and synchronization throughout the globally distributed SDE user community. Worldwide transportation systems, by their very nature, are forging the real-world use of distributed database tools. Other means of providing read and write access to information at widely separated sites are proving to be inefficient and unmaintainable.

The distributed database, to be effective immediately, should restrict its scope to coordinating only high-value updates at multiple sites. Distributed RDBMS features that are essential for this approach are:

- intelligent database servers,
- a two-phase commit facility, and
- both global and local data dictionaries.

A loosely coupled, replicated database will provide for continued autonomy of participating systems as well as SDE-wide propagation of high-value transactions.

No matter what architecture the SDE eventually adopts, the transfer of information around the world will require the highest-speed networking facilities available. Fortunately, dramatic bandwidth improvements within the next few years are expected by most industry analysts. Similarly, raw computing power (also expected to increase dramatically) will need to be utilized by intelligent database servers. If a computing platform other than those currently envisioned for IBS and WPS is employed, it should be based on a scalable, upwardly-compatible family of computers that would allow for re-hosting with minimal impact as improved machines in the family appear.

As previously stated, these recommendations are based on the assumption that the major systems encompassed by the SDE are IBS and WPS. The conclusions are not significantly altered (except in terms of the power of the computing platform) by the incorporation of additional systems.

In summary, the design for the MTIT SDE should fit within an overall MTMC information architecture. In the recommended design, the key issue to be resolved is how to communicate high-value transactions rapidly in a loosely coupled, replicated database that is integrated with the variety of local databases. The major organizational impact will be the development of distributed RDBMS expertise. However, the cost of developing DBA and DA proficiency will be more than offset by the value of global availability of crucial information to the user community.

ORNL thus recommends the development of an SDE architecture that includes the following aspects:

- a loosely coupled, replicated database that encompasses (initially) all IBS and WPS sites,
- high-speed communications among all SDE sites,
- remote access capabilities for SDE users at non-SDE sites,
- a distributed RDBMS that is capable of supporting a single-system perception of data that is physically partitioned among DBMSs from various vendors,
- identification of the data requirements and generation of the physical schema for supporting high-value transactions,
- agreement on message formats and transfer procedures for low-value transactions, and
- a reevaluation of computing resources (particularly memory and disk space) for IBS and WPS.

Appendix A. ALTERNATIVE DESIGNS

Preliminary ORNL research on the SDE examined various design options other than those described in Sect. 3. Three ideas that were briefly considered before being rejected are discussed in this appendix.

1. Since both IBS and WPS are still in the early stages of development, one design approach is to allow each system to address the problem domain previously reserved for the other. In other words, the scope of both system development plans would expand so that WPS would replicate the functionality of IBS and vice versa. Since this design is not a part of the charter of either system (nor in the general mode of MTIT systems development) and because it would entail "duplicated" costs and might lead to long-term system redundancy, it was not considered further.

2. A simple means of accumulating data to support the majority of MTIT cargo movement traffic management processes is to batch load information from IBS into WPS. In this design, the concerns of the two systems are viewed as separated by timing. For example, IBS would complete all booking procedures and then transmit the export request and booking information to the appropriate WPS terminal site. The two systems would remain disconnected, except for this simple data transfer.

This design is fundamentally flawed by its failure to provide a single system to support retrieval of international cargo movement information. The main shortcoming lies in the simplistic assumption that IBS and WPS (and other systems) are temporally separated. It is unrealistic to think that IBS data would be "frozen" at a point early enough to be useful for WPS processing. There would have to be an active two-way data transfer for effective utilization of both systems. Furthermore, write access to shared information by a global

user community is not even addressed. Because this architecture does not fulfill the requirements of a corporate SDE, it was not considered further.[16]

3. Another design option includes a windowing environment that would allow users to access each participating system in a window of its own. The systems would still be separated, as far as data was concerned, but information would be visible in the various windows, and cutting and pasting from one window to another might be facilitated.

Because this design option does fulfill the requirements of the SDE, it received additional consideration.

Technical questions posed by this alternative include:

- Does each system have an architecture that would allow it to be executed in a windowing environment?
- Is it possible to run each system remotely or would they need to be co-located at each site?
- Are security levels compatible? If not, technologies such as compartmented-mode workstations (to prevent information flow between windows) might be necessary.

Advantages of the SDE design option recommended in this report over windows-bound systems include:

- Ease of information retrieval. For example, users inquiring about the status of a particular shipment would query only one system, the SDE.
- Consistency of user interface. Only one set of tools (i.e., menus, forms, commands) would have to be learned to query the SDE. For windows-bound systems, the user would need to be able to navigate successfully through all systems containing the data of interest.

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[16]An elaboration of this rudimentary concept that does fulfill the SDE requirements is described as Option 1 in Section 3.2.1.

- Completeness of information. Data from all appropriate systems would be collected and displayed by the SDE so that its users need not worry about failing to query a particular source.

- Security. The architecture of the SDE would be explicitly controlled so that users would have access to only that information which they require to perform their jobs. All users of a collection of windows-bound systems would have to have accounts on each of those systems, and the security levels would have to be coordinated to provide access to the appropriate information.

Conceivable advantages of windows-bound systems over an SDE include:

- Up-to-date information. The required information may be in a state of flux due to last-minute changes. If most of the data updates are handled by one site at a time, the most timely data will reside at that site.

- Faster development time. The development will focus on communications issues rather than the building of a new database and user interface to support the SDE. (This assumes that IBS and WPS, as the main participants, would be windows-based systems; as noted elsewhere, non-windows-based systems may require substantial modifications, thereby increasing the development time.)

The question of SDE expandability is difficult to judge at this stage. If systems other than those currently under consideration need to be incorporated into the SDE at a later date, they could be added transparently to the user. However, this could require modification of the shared database schema and/or processing of high-value transactions, an expense which might be greater than adding a window for the new system (provided its architecture is compatible with the windowing environment).

Although this alternative is not completely unreasonable, the advantages of the SDE design represented in this report are clearly superior. The main mitigating factor, up-to-date information, may not emerge as a constraint if only a few high-value transactions are identified and these can be expedited by networking, operating system, and/or RDBMS technological advances.

The critical system consideration that led to the rejection of the above three alternatives is the likely need to manage international traffic from a central location during contingencies. Lessons learned in Operation Desert Storm include the wartime subsuming of certain AC functions by HQMTMC. The rejected designs would not significantly facilitate the dispersal of information from a central location during contingencies.

Appendix B. REPORTS LISTING

A tentative list of reports necessary to support AC activities is given below. Additional analysis should determine which reports will be produced automatically (i.e., without explicit user requests) and the frequency of production (daily, weekly, etc.). In addition, the data elements required by these reports should be compared with the SDE Data Dictionary to ensure that all data elements for report production are available to the SDE.

Two preliminary draft lists follow; the first was supplied by the Eastern AC, and the second by the Western AC.

EASTERN AC REPORTS

Report Code	Report Title
6070210	Invalid TAC Report
6070110	Batch Input
6070180	Sorted Input Listing
6070200	Daily Error Report
6070700	Manifest Recap MTON by POE
6070620A	Manifest Detail
6070620D	Manifest EDMA/Error List
6070641E	Daily Manifest Card Transmission Batches
8195710Q	Communication Center Report
6075960A	Manifest Recap Breakdown Summarized by POE Area
6075370A	Aged over 30 On-Hand Shippage
6070560A	Command Tonnage Summary Report
6072190A	Weekly Export Personal Property Inventory
6075390A	Weekly On-Hand Hold Cargo Inventory
6075240	Container Status Report
6130200	Import Input List
6130100	Import Input Analysis
6130110E	Input Error Edit
6130220	Import Detail Manifest
6130630	Import Vessel Pending Manifest

WESTERN AC REPORTS

Report Code	Report Title
W6073000	Input Analysis Report
W6073220	TK7 XCVR Tape Header and Trailer Log
W6073230	TK7 Input/output Listing
W6073240	TK7 Input Listing
W6073550	Quarterly Cumulative Dispositions
W6074240	METS TCMD Reship Disc TWX CNV
W6074260	Match of TM1 with TOL File
W6074270	TM1 Tracer Card
W6076180	TCNs in Load Status Rpt
W6076190	Export on Hand Inventory Report
W6078040	TK7 Input/Output Listing
W6078140	Monthly Analysis Cargo Manifest
W6078150	VSL Sailing and Arrival Report
W6070110	HA, HB VCC Cards, Surs Input/Reject Listing, AO Cards, Nonfinal VCC
W6070180	Input Listing
W6070200	Daily Composite Error Report
W6070210	Invalid TAC Report
W6070270	Matched/Unmatched CTM Batch
W6070280	Matched/Unmatched CTN Batch - Milstamp Classified List RI/Address Dump to Print - Cargo CTM XCVR
W6070290	HA1, HB and HC edit
W6070350	VCC Error Report
W6070400	Unmatched VCC Listing
W6070590	Cumulative Export Disp.
W6070600	PP Disposition
W6070610	Manifest Error/Check List
W6070620	End MA/Error. - Manifest Detail Mats - Attachment to Manifest Summary
W6070640	Daily Manifest Card XCVR Batch - Manifest XCVR A/M Batch
W6070660	Manifest Adjustment XCVR Batch List
W6070670	Manifest Summary
W6070690	Seavan TCMD Recap on Paper - Manifest Error/Check list - Manifest Recap Mats
W6070700	Manifest Recap M/To by POE
W6707010	Daily Manifest Distribution List
W6070740	Manifest Error/Check List
W6070770	Classified Manifested Cargo List - Import Input Error List
W6130110	Import Batch Totals
W6130110	Import Input List

Report Code	Report Title
W6130120	Import TAC Error Report
W6130140	Import Sort 6130110
W6130170	Import Pending Manifest & Extract
W6130200	Import Input List
W6130220	Import Detail Manifest
W6130240	Import Recap Manifest
W6130360	Import Seavan List By Seavan Number
W6130410	Import Daily Composite Error Report
W6130450	Import Cum Gen Cargo Disposition
W6130460	Import PP Disposition Report
W6130520	Import Daily Transaction Report
W6133020	Import Terminal Workload
W6132700	Import Weekly Trans/OH Summary
W6134300	POV Performance Report
W6316900	TML Cargo MVMT Report
W6317000	Western Area Cargo MVMT Report
W6316950	Regional Cargo MVMT Report
W6317050	Western Area Seavan Commodity Report
W6317100	Alaska Agreement MVT Report
W6130620	Import TCNS Pending Manifest
W6130630	Import VSL Pending Manifest
W6130700	Import TCN Inventory Report
W2350350	Invalid TAC Monthly Rec
W8195710	Autodin Transmit Utility Report

Appendix C. SDE FIELD DEFINITIONS

The following preliminary field definitions are for data elements identified in the SDE.

SDE FIELD NAME: aci_status
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ACI status

SDE FIELD NAME: actual_arrival_pod_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date of actual arrival at POD

SDE FIELD NAME: actual_num_lifted_pieces
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Actual number of cargo pieces lifted

SDE FIELD NAME: adjustment_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Adjustment code

SDE FIELD NAME: air_wheeled_track_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating transit by air, wheel, or track

SDE FIELD NAME: ald
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Available to load date

SDE FIELD NAME: ald_cday
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ALD in C-days

SDE FIELD NAME: ammo_facility_flag
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: Y/N
DEFINITION: Flag indicating facility is capable of handling ammunition

SDE FIELD NAME: army_location_code
DATA TYPE: char
LENGTH: 5
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating site is an Army location

SDE FIELD NAME: arrival_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating arrival_date is either actual or expected

SDE FIELD NAME: arrival_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Datetime of cargo arrival

SDE FIELD NAME: average_cargo_mtons
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: mtons
DOMAIN: numeric
DEFINITION: Average amount of cargo in mtons

SDE FIELD NAME: barge_arrival_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date of barge arrival

SDE FIELD NAME: barge_id
DATA TYPE: char
LENGTH: 6
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ID number of barge

SDE FIELD NAME: barge_name
DATA TYPE: char
LENGTH: 12
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of barge

SDE FIELD NAME: berth_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Estimated or actual datetime ship is berthed

SDE FIELD NAME: berth_date_flag
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: Y/N
DEFINITION: Flag indicating berth_date is either estimated or actual

SDE FIELD NAME: booking_description
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Booking description

SDE FIELD NAME: booking_id
DATA TYPE: char
LENGTH: 5
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Booking number

SDE FIELD NAME: booking_reason_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating reason for booking

SDE FIELD NAME: booking_remarks
DATA TYPE: vchar
LENGTH: 240
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Booking remarks

SDE FIELD NAME: breakbulk_code
DATA TYPE: char
LENGTH: 6
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Breakbulk code

SDE FIELD NAME: cancellation_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating type of cancellation

SDE FIELD NAME: cancellation_code_posted_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Datetime cancellation_code posted

SDE FIELD NAME: cancellation_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date cancelled

SDE FIELD NAME: cancellation_reason
DATA TYPE: vchar
LENGTH: 60
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Reason request cancelled

SDE FIELD NAME: cargo_allocated_flag
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: Y/N
DEFINITION: Flag indicating cargo has been allocated

SDE FIELD NAME: cargo_classification_code
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating classification level of cargo

SDE FIELD NAME: cargo_cube
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: cubic_feet
DOMAIN: numeric
DEFINITION: Size of cargo in cubic feet

SDE FIELD NAME: cargo_height_feet
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: feet
DOMAIN: numeric
DEFINITION: Height of cargo in feet

SDE FIELD NAME: cargo_length_feet
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: feet
DOMAIN: numeric
DEFINITION: Length of cargo in feet

SDE FIELD NAME: cargo_lifted_mtons
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: mtons
DOMAIN: numeric
DEFINITION: Amount of cargo lifted in mtons

SDE FIELD NAME: cargo_mtons
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: mtons
DOMAIN: numeric
DEFINITION: Total amount of cargo in mtons

SDE FIELD NAME: cargo_status_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating status of cargo

SDE FIELD NAME: cargo_type
DATA TYPE: char
LENGTH: 25
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Description of type of cargo

SDE FIELD NAME: carrier_booked_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date cargo booked with carrier

SDE FIELD NAME: carrier_id
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ID for cargo carrier

SDE FIELD NAME: carrier_usage_rate_percent
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: percentages
DOMAIN: 0.0-100.0
DEFINITION: Carrier's usage rate expressed as a percentage

SDE FIELD NAME: cas_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating controlled atmosphere service

SDE FIELD NAME: channel_name
DATA TYPE: char
LENGTH: 15
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Channel name and definition

SDE FIELD NAME: city_name
DATA TYPE: char
LENGTH: 30
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of city

SDE FIELD NAME: classified_protected_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating classified or protected cargo

SDE FIELD NAME: commercial_bus
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Commercial bus

SDE FIELD NAME: commercial_voyage_id
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Commercial voyage number

SDE FIELD NAME: commodity_handling_code
DATA TYPE: char
LENGTH: 5
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating commodity and special handling

SDE FIELD NAME: compatibility_group
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Compatibility group

SDE FIELD NAME: consignee_dodaac
DATA TYPE: char
LENGTH: 6
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Consignee DODAAC

SDE FIELD NAME: consignee_name
DATA TYPE: char
LENGTH: 20
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of consignee of shipment

SDE FIELD NAME: consignor_name
DATA TYPE: char
LENGTH: 6
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of consignor of shipment

SDE FIELD NAME: container_release_units
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Number of container release units

SDE FIELD NAME: container_seal_id
DATA TYPE: char
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ID number of seal on container

SDE FIELD NAME: country_state_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Country or state code

SDE FIELD NAME: country_state_long_name
DATA TYPE: char
LENGTH: 15
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Country or state long name

SDE FIELD NAME: created_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date record created

SDE FIELD NAME: cutoff_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Cutoff date

SDE FIELD NAME: daily_flow_factor
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Daily flow factor

SDE FIELD NAME: delay_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating type of delay

SDE FIELD NAME: delay_code_posted_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Datetime delay_code posted

SDE FIELD NAME: deletion_activity_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating activity responsible for deletion

SDE FIELD NAME: deletion_reason_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating reason for deletion

SDE FIELD NAME: deletion_user_id
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ID of user responsible for deletion

SDE FIELD NAME: delivered_cargo_cube
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: cubic_feet
DOMAIN: numeric
DEFINITION: Size of delivered cargo in cubic feet

SDE FIELD NAME: destination_city_name
DATA TYPE: char
LENGTH: 15
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of destination city

SDE FIELD NAME: destination_country_name
DATA TYPE: char
LENGTH: 15
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of destination country

SDE FIELD NAME: destination_rail_splc
DATA TYPE: char
LENGTH: 9
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Destination rail SPLC

SDE FIELD NAME: destination_truck_splc
DATA TYPE: char
LENGTH: 9
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Destination truck SPLC

SDE FIELD NAME: discharged_cargo_activity_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating activity responsible for discharging cargo

SDE FIELD NAME: discharged_cargo_cube
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: cubic_feet
DOMAIN: numeric
DEFINITION: Size of discharged cargo in cubic feet

SDE FIELD NAME: discharged_cargo_pod
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Water port where cargo is discharged

SDE FIELD NAME: discharged_cargo_stons
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: stons
DOMAIN: numeric
DEFINITION: Weight of discharged cargo in stons

SDE FIELD NAME: discharged_cargo_user_id
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ID of user entering discharged cargo data

SDE FIELD NAME: discharged_completion_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date cargo discharge completed

SDE FIELD NAME: discharged_start_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date cargo discharge started

SDE FIELD NAME: discrepancy_cargo_stons
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: stons
DOMAIN: numeric
DEFINITION: Weight (stons) of cargo in discrepancy report

SDE FIELD NAME: discrepancy_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating type and cause of discrepancy

SDE FIELD NAME: diverted_cargo_cube
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: cubic_feet
DOMAIN: numeric
DEFINITION: Size of diverted cargo in cubic feet

SDE FIELD NAME: diverted_cargo_pod
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Water port to which cargo is diverted

SDE FIELD NAME: dodaac
DATA TYPE: char
LENGTH: 6
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: DOD reporting activity code

SDE FIELD NAME: dodic
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: DOD Identification Code

SDE FIELD NAME: domestic_ucr
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Domestic UCR

SDE FIELD NAME: drop_frame
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Drop frame

SDE FIELD NAME: due_at_poe_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date cargo due at POE

SDE FIELD NAME: ead
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Earliest arrival date

SDE FIELD NAME: ead_cday
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: EAD in C-days

SDE FIELD NAME: effective_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Effective date

SDE FIELD NAME: entry_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Entry date

SDE FIELD NAME: equipment_length_feet
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: feet
DOMAIN: numeric
DEFINITION: Length of equipment in feet

SDE FIELD NAME: estimated_completion_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Estimated date of completion

SDE FIELD NAME: eta
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Estimated time of arrival

SDE FIELD NAME: etr_release_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date ETR released

SDE FIELD NAME: etr_release_poe
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: POE to which ETR is released

SDE FIELD NAME: etrr_received_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date ETRR received

SDE FIELD NAME: export_import_flag
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: Y/N
DEFINITION: Flag indicating export or import

SDE FIELD NAME: export_ucr_flag
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: Y/N
DEFINITION: Flag indicating export UCR

SDE FIELD NAME: flash_point
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Flash point

SDE FIELD NAME: freight_classification_code
DATA TYPE: char
LENGTH: 6
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Freight classification number

SDE FIELD NAME: freight_classification_index
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Freight classification index

SDE FIELD NAME: funding_agency_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Funding agency code

SDE FIELD NAME: gbl
DATA TYPE: char
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Government Bill of Lading

SDE FIELD NAME: gbl_office_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating GBL office

SDE FIELD NAME: generic_port_location
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating generic location of port

SDE FIELD NAME: geolocation_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Geolocation code as specified in quarterly GEOFILE from JDSSC

SDE FIELD NAME: gsa_city_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: GSA city code

SDE FIELD NAME: gsa_country_code
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: GSA country code

SDE FIELD NAME: gsa_state_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: GSA state code

SDE FIELD NAME: hazardous_cargo_flag
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: Y/N
DEFINITION: Flag indicating that cargo is hazardous

SDE FIELD NAME: heavy_lift_dimension_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Heavy lift/dimension code

SDE FIELD NAME: icao_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Standard International Civil Aviation Organization identifier of an airport

SDE FIELD NAME: installation_type_code
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Installation type code

SDE FIELD NAME: julian_date
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Julian date

SDE FIELD NAME: lad
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Latest arrival date

SDE FIELD NAME: lad_cday
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: LAD in C-days

SDE FIELD NAME: lading_term_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating lading term

SDE FIELD NAME: lift_activity_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating activity responsible for lifting cargo onto vessel

SDE FIELD NAME: lift_capability_sq_ft
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: square_feet
DOMAIN: numeric
DEFINITION: Lift capability of ship in square feet

SDE FIELD NAME: lift_cargo_sq_ft
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: square_feet
DOMAIN: numeric
DEFINITION: Amount of cargo lifted in square feet

SDE FIELD NAME: lift_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date cargo lifted

SDE FIELD NAME: lift_user_id
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ID of user entering lifted data

SDE FIELD NAME: line_item_id
DATA TYPE: char
LENGTH: 6
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Line item number

SDE FIELD NAME: load_completion_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date loading of ship is completed

SDE FIELD NAME: logistics_planning_report_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Logistics planning and reporting code

SDE FIELD NAME: long_tons
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Long tonnage of cargo

SDE FIELD NAME: lot_id
DATA TYPE: char
LENGTH: 14
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Lot number

SDE FIELD NAME: lowboy
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Commercial lowboy

SDE FIELD NAME: majority_unit_loaded_name
DATA TYPE: char
LENGTH: 15
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: In-the-clear name of "biggest" unit loaded

SDE FIELD NAME: manifest_actual_arrival_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Actual datetime of cargo arrival on manifest

SDE FIELD NAME: manifest_cargo_cube
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: cubic_feet
DOMAIN: numeric
DEFINITION: Size (cu ft) of shipment on manifest

SDE FIELD NAME: manifest_cargo_stons
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: stons
DOMAIN: numeric
DEFINITION: Weight (stons) of cargo on manifest

SDE FIELD NAME: manifest_carrier_name
DATA TYPE: char
LENGTH: 20
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of cargo carrier on manifest

SDE FIELD NAME: manifest_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date of shipment on manifest

SDE FIELD NAME: manifest_flag
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: Y/N
DEFINITION: Flag indicating if manifest exists

SDE FIELD NAME: manifest_loading_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date of loading on manifest

SDE FIELD NAME: manifest_sent_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Datetime manifest sent to SPOE

SDE FIELD NAME: manifest_shipment_id
DATA TYPE: char
LENGTH: 17
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ID of shipment on manifest

SDE FIELD NAME: manifest_type_cargo_code
DATA TYPE: char
LENGTH: 5
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating type of cargo on manifest

SDE FIELD NAME: message_id
DATA TYPE: char
LENGTH: 15
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Message identifier

SDE FIELD NAME: milstrip_project_code
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating MILSTRIP project

SDE FIELD NAME: mton_factor
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: NA
DOMAIN: numeric
DEFINITION: MTON factor

SDE FIELD NAME: navy_ocean_area_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating navy ocean area

SDE FIELD NAME: net_explosive_weight_stons
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: stons
DOMAIN: numeric
DEFINITION: Net weight of explosive cargo in stons

SDE FIELD NAME: num_actual_loading_minutes
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: minutes
DOMAIN: numeric
DEFINITION: Time it actually took to load ship in minutes

SDE FIELD NAME: num_barges_at_port
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of barges at the associated port

SDE FIELD NAME: num_barges_loaded
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of barges loaded on the ship at the associated port

SDE FIELD NAME: num_barges_stuffed
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of barges that have been stuffed at the associated port

SDE FIELD NAME: num_containers
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Total number of containers

SDE FIELD NAME: num_containers_delivered
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of containers delivered

SDE FIELD NAME: num_containers_discharged
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of containers of discharged cargo

SDE FIELD NAME: num_containers_diverted
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of containers diverted

SDE FIELD NAME: num_discrepancy_pieces
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of cargo pieces in discrepancy report

SDE FIELD NAME: num_manifest_pieces
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of cargo pieces on manifest

SDE FIELD NAME: num_manifest_shipment_units
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of shipment units loaded on manifest

SDE FIELD NAME: num_persons_shipped
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of persons shipped with cargo

SDE FIELD NAME: num_pieces
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Total number of pieces of cargo

SDE FIELD NAME: num_pieces_discharged
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of pieces of discharged cargo

SDE FIELD NAME: num_rail_transit_days
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: days
DOMAIN: numeric
DEFINITION: Number of days required for rail transit

SDE FIELD NAME: num_shipment_units
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of shipment units

SDE FIELD NAME: num_standard_loading_minutes
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: minutes
DOMAIN: numeric
DEFINITION: Standard time for loading ship in minutes

SDE FIELD NAME: num_tcn_adn_errors
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of TCN or ADN errors requiring entry of Type 3 records

SDE FIELD NAME: num_transit_hours
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: hours
DOMAIN: numeric
DEFINITION: Transit time in hours

SDE FIELD NAME: num_unstuffed_cargo_pieces
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of pieces of unstuffed cargo

SDE FIELD NAME: num_vans_released
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of vans released

SDE FIELD NAME: num_vans_required
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Number of vans required

SDE FIELD NAME: ocean_commodity_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating ocean commodity

SDE FIELD NAME: ocean_cost
DATA TYPE: money
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Overocean cost from POE to POD

SDE FIELD NAME: offered_to_carrier_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date booking offered to carrier

SDE FIELD NAME: offering_type_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating type of booking offer

SDE FIELD NAME: operation_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Operation code

SDE FIELD NAME: operation_phase_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating the phase of the voyage's operation

SDE FIELD NAME: origin_city_name
DATA TYPE: char
LENGTH: 15
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of the city associated with the origin of the cargo movement

SDE FIELD NAME: origin_geolocation_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Geolocation code of origin of cargo movement

SDE FIELD NAME: origin_name
DATA TYPE: char
LENGTH: 28
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of origin of cargo movement

SDE FIELD NAME: origin_poe_drayage_cost
DATA TYPE: money
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Drayage cost from origin to POE

SDE FIELD NAME: origin_rail_splc
DATA TYPE: char
LENGTH: 9
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Origin rail SPLC

SDE FIELD NAME: origin_state_name
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of state of origin on cargo movement

SDE FIELD NAME: origin_truck_splc
DATA TYPE: char
LENGTH: 9
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Origin truck SPLC

SDE FIELD NAME: poc_at_poe_name
DATA TYPE: char
LENGTH: 20
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of point of contact at POE

SDE FIELD NAME: poc_at_poe_phone
DATA TYPE: char
LENGTH: 10
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Telephone number of point of contact at POE

SDE FIELD NAME: pod
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Port of debarkation

SDE FIELD NAME: pod_destination_drayage_cost
DATA TYPE: money
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Drayage cost from POD to destination

SDE FIELD NAME: pod_zone
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Major POD zone

SDE FIELD NAME: poe
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Port of embarkation

SDE FIELD NAME: poe_geolocation_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Geolocation code of POE

SDE FIELD NAME: poe_handling_cost
DATA TYPE: money
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Port handling cost at POE

SDE FIELD NAME: poe_mode
DATA TYPE: char
LENGTH: 5
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: POE mode

SDE FIELD NAME: port_area_name
DATA TYPE: char
LENGTH: 25
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: In-the-clear port area name

SDE FIELD NAME: port_call_file_id
DATA TYPE: char
LENGTH: 6
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Port call file number

SDE FIELD NAME: port_commander_name
DATA TYPE: char
LENGTH: 20
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Port Commander's name

SDE FIELD NAME: port_name
DATA TYPE: vchar
LENGTH: 80
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Full name of port

SDE FIELD NAME: port_sequence_id
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Port sequence number

SDE FIELD NAME: port_short_name
DATA TYPE: char
LENGTH: 20
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Short name of port

SDE FIELD NAME: portcall_id
DATA TYPE: char
LENGTH: 5
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Portcall number

SDE FIELD NAME: pov_color_code
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating POV color

SDE FIELD NAME: pov_license_tag
DATA TYPE: char
LENGTH: 5
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: POV license tag number

SDE FIELD NAME: pov_license_tag_state_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: POV state of license tag

SDE FIELD NAME: pov_make_model_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: POV make and model

SDE FIELD NAME: pov_manufacture_year
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: POV year manufactured

SDE FIELD NAME: primary_destination_rail_scac
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Primary destination rail SCAC

SDE FIELD NAME: primary_origin_rail_scac
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Primary origin rail SCAC

SDE FIELD NAME: prime_geolocation_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Prime geolocation code

SDE FIELD NAME: private_siding_flag
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: Y/N
DEFINITION: Flag indicating private siding

SDE FIELD NAME: projected_release_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Projected release date

SDE FIELD NAME: providence_code
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Providence code

SDE FIELD NAME: providence_name
DATA TYPE: char
LENGTH: 14
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Providence name

SDE FIELD NAME: record_id
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Record number

SDE FIELD NAME: record_type_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating type of header record

SDE FIELD NAME: region_code
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Region code

SDE FIELD NAME: release_id
DATA TYPE: char
LENGTH: 14
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Release number

SDE FIELD NAME: release_routing_id
DATA TYPE: char
LENGTH: 7
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Release's routing ID

SDE FIELD NAME: reoffer_poe
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: POE to which request is reoffered

SDE FIELD NAME: reoffer_posted_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date reoffer posted

SDE FIELD NAME: repair_port_eta
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Estimated datetime of arrival at port of repair

SDE FIELD NAME: repair_replacement_cost
DATA TYPE: money
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Total cost of repair or replacement

SDE FIELD NAME: reponsible_org_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating organization type responsible for discrepancy

SDE FIELD NAME: reporting_activity_area_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating reporting activity area of operation

SDE FIELD NAME: requestor_dodaac
DATA TYPE: char
LENGTH: 6
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Requestor DODAAC

SDE FIELD NAME: requestor_id
DATA TYPE: char
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ID of requestor

SDE FIELD NAME: requestor_name
DATA TYPE: char
LENGTH: 20
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of requestor

SDE FIELD NAME: requestor_phone
DATA TYPE: char
LENGTH: 10
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Telephone number of requestor

SDE FIELD NAME: requestor_routing_id
DATA TYPE: char
LENGTH: 7
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Requestor's routing ID

SDE FIELD NAME: required_delivery_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date by which cargo delivery is required

SDE FIELD NAME: reserve_unit_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code for reserve unit(s) that manage the port

SDE FIELD NAME: responsible_uic
DATA TYPE: char
LENGTH: 6
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: UIC of responsible organization

SDE FIELD NAME: sail_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date ship begins voyage

SDE FIELD NAME: second_destination_rail_scac
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Secondary destination rail SCAC

SDE FIELD NAME: second_origin_rail_scac
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Secondary origin rail SCAC

SDE FIELD NAME: self_sustaining_flag
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: Y/N
DEFINITION: Flag indicating self-sustaining mode

SDE FIELD NAME: service_type_code
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Code indicating type of service

SDE FIELD NAME: ship_agent_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating Ship agent

SDE FIELD NAME: ship_barge_capacity
DATA TYPE: char
LENGTH: 5
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Ship's barge capacity

SDE FIELD NAME: ship_call_sign
DATA TYPE: char
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Ship's call sign

SDE FIELD NAME: ship_id
DATA TYPE: char
LENGTH: 50
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Ship number

SDE FIELD NAME: ship_inactive_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date vessel becomes inactive

SDE FIELD NAME: ship_loading_percent
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: percentages
DOMAIN: 0.0-100.0
DEFINITION: Percentage of the ship loaded with cargo

SDE FIELD NAME: ship_name
DATA TYPE: char
LENGTH: 20
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of ship

SDE FIELD NAME: ship_nationality_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating the flag under which the ship is sailing

SDE FIELD NAME: ship_speed_knots
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: knots
DOMAIN: numeric
DEFINITION: Ship speed in nautical miles per hour

SDE FIELD NAME: ship_status_code
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating condition of ship

SDE FIELD NAME: ship_subtype_code
DATA TYPE: char
LENGTH: 15
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating subtype of ship

SDE FIELD NAME: ship_type_code
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating type of ship

SDE FIELD NAME: shipment_correction_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date of correction of shipment record

SDE FIELD NAME: shipment_correction_user_id
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ID of user responsible for correction

SDE FIELD NAME: shipment_method_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating method used for initial shipment from origin

SDE FIELD NAME: shipper_dodaac
DATA TYPE: char
LENGTH: 6
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Shipper DODAAC

SDE FIELD NAME: shipping_document_id
DATA TYPE: char
LENGTH: 10
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Shipping document number

SDE FIELD NAME: shipping_document_type_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating type of shipping document

SDE FIELD NAME: shipping_name
DATA TYPE: vchar
LENGTH: 50
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Shipping name

SDE FIELD NAME: sitrep_listing_flag
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: Y/N
DEFINITION: Flag indicating ship's final listing on SITREP

SDE FIELD NAME: soco_carriage_terms
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating SOCO terms of carriage

SDE FIELD NAME: soco_routing_index
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: SOCO routing index

SDE FIELD NAME: soco_vessel_id
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: SOCO vessel number

SDE FIELD NAME: splc
DATA TYPE: char
LENGTH: 6
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: SPLC

SDE FIELD NAME: spoe_name
DATA TYPE: char
LENGTH: 50
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of SPOE

SDE FIELD NAME: spot_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Spot date

SDE FIELD NAME: sro_due_at_pod_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date due at POD on SRO

SDE FIELD NAME: sro_id
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ID of Standing Route Order

SDE FIELD NAME: sro_poe
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: POE on SRO

SDE FIELD NAME: sro_transportation_mode_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating SRO transportation mode

SDE FIELD NAME: station_name
DATA TYPE: char
LENGTH: 9
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Abbreviated station name

SDE FIELD NAME: stow_factor
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Stow factor

SDE FIELD NAME: stowage_capacity
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Ship's stowage capacity

SDE FIELD NAME: stuffing_activity_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating activity responsible for stuffing container

SDE FIELD NAME: stuffing_user_id
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ID of user entering stuffing data

SDE FIELD NAME: supplement_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date of supplement

SDE FIELD NAME: supplement_id
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ID number of supplement

SDE FIELD NAME: tactical_zone
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating tactical zone

SDE FIELD NAME: tcmd_preparation_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Preparation date of TCMD

SDE FIELD NAME: tcn
DATA TYPE: char
LENGTH: 17
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Transportation Control Number

SDE FIELD NAME: teu
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Transportation equivalent units

SDE FIELD NAME: total_cargo_movement_cost
DATA TYPE: money
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Total cost of cargo movement

SDE FIELD NAME: total_cargo_stons
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: stons
DOMAIN: numeric
DEFINITION: Total weight of cargo in stons

SDE FIELD NAME: total_num_barges_loaded
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Total number barges loaded on ship from all ports

SDE FIELD NAME: tractor
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: numeric
DEFINITION: Commercial tractor

SDE FIELD NAME: transaction_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Transaction code

SDE FIELD NAME: transmitted_date
DATA TYPE: date
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: datetime
DEFINITION: Date transmitted

SDE FIELD NAME: transportation_mode_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating mode of transportation

SDE FIELD NAME: transportation_priority_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating priority of transportation

SDE FIELD NAME: type_packing_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating type of packing

SDE FIELD NAME: uic
DATA TYPE: char
LENGTH: 6
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Unit identification code

SDE FIELD NAME: uln
DATA TYPE: char
LENGTH: 7
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Unit line number

SDE FIELD NAME: un_class_division_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: United Nations class and division numbers from the International Maritime Dangerous Goods Code (IMDGC) 49 CFR 172.102. This code is part of the Unit Movement Data (UMD) detail from TC AIMS.

SDE FIELD NAME: un_na_code
DATA TYPE: char
LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: UN/NA indicator

SDE FIELD NAME: un_na_id
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: UN/NA number

SDE FIELD NAME: unit_move_flag
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: Y/N
DEFINITION: Flag indicating unit move

SDE FIELD NAME: unit_name
DATA TYPE: char
LENGTH: 30
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Name of unit

SDE FIELD NAME: unload_minutes
DATA TYPE: integer
LENGTH: 4
PRECISION: NA
UNITS: minutes
DOMAIN: numeric
DEFINITION: Time it takes to unload ship in minutes

SDE FIELD NAME: unstuffed_activity_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating activity responsible for unstuffing container

SDE FIELD NAME: unstuffed_cargo_cube
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: cubic_feet
DOMAIN: numeric
DEFINITION: Size of unstuffed cargo in cubic feet

SDE FIELD NAME: unstuffed_cargo_stons
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: stons
DOMAIN: numeric
DEFINITION: Weight of unstuffed cargo in stons

SDE FIELD NAME: unstuffed_user_id
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: ID of user entering unstuffing data

SDE FIELD NAME: van_id
DATA TYPE: char
LENGTH: 8
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Van number

SDE FIELD NAME: van_owner_code
DATA TYPE: char
LENGTH: 4
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating van owner

SDE FIELD NAME: van_size
DATA TYPE: float
LENGTH: 8
PRECISION: 1
UNITS: NA
DOMAIN: numeric
DEFINITION: Van size

SDE FIELD NAME: van_type_code
DATA TYPE: char
LENGTH: 1
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Code indicating van type

SDE FIELD NAME: vehicle_mton_factor
DATA TYPE: float
LENGTH: 8
PRECISION: 2
UNITS: NA
DOMAIN: numeric
DEFINITION: Vehicle MTON factor

SDE FIELD NAME: voyage_document_id
DATA TYPE: char
LENGTH: 5
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Voyage Document Number

SDE FIELD NAME: water_commodity_code
DATA TYPE: char
LENGTH: 3
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Water commodity code

SDE FIELD NAME: zip_code
DATA TYPE: char
LENGTH: 5
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: Zip code

Appendix D. SDE FIELD CROSS REFERENCE

The following report contains SDE fields cross referenced to fields in the participating systems.

sde_field_name	system	table_name	field_name
aci_status	IBS	CMR_RU	ACISTAT
actual_arrival_pod_date	WPS	VSNR	ACTL_DATE_ARV
actual_arrival_pod_date	WPS	XVSNR	ACTL_DATE_ARV
actual_num_lifted_pieces	UDM	ST	ST.PIECES.LIFTED
adjustment_code	WPS	SHIPMENT	ADJ_CODE
air_wheeled_track_code	IBS	DETAIL	AWT
air_wheeled_track_code	IBS	MSTRDET	AWT
ald	IBS	CHANNELS	ALD
ald	IBS	JOPESE3	ALD
ald_cday	IBS	JOPESE3	CALD
ammo_facility_flag	IBS	PORTTHRU	AMMO_F
army_location_code	IBS	GEOFILE	ARMY
arrival_code	IBS	VESSCHED	ARRIVE_T
arrival_date	IBS	VESSCHED	ARRIVE_D
average_cargo_mtons	IBS	LOADTIME	MTON_AVG
barge_arrival_date	WPS	SHIPMENT	BARGE_ARRIVAL_DATE
barge_id	WPS	SHIPMENT	BARGE_NO
barge_name	WPS	SHIPMENT	BARGE_NAME
berth_date	UDM	ST	ST.BERTHED.DATE.TIME
berth_date_flag	UDM	ST	ST.BERTHED.EST.OR.ACT
booking_description	WPS	SHIPMENT	BOOKING_DESC
booking_id	WPS	SHIPMENT	BOOKING_NR
booking_reason_code	IBS	CMR_RU	BOOK_RSN
booking_remarks	IBS	CMR_RU	BOOK_REM
breakbulk_code	IBS	MADD	BBULKCD
cancellation_code	IBS	CMR_RU	CANCEL_C
cancellation_code_posted_date	IBS	CMR_RU	CANC_D
cancellation_date	IBS	GEOFILE	CANCELLED
cancellation_reason	IBS	CMR_RU	CANC_RSN
cargo_allocated_flag	IBS	CHANNELS	ALLOCATED
cargo_allocated_flag	IBS	SHORTFAL	ALLOCATED
cargo_classification_code	IBS	DETAIL	CCC
cargo_classification_code	IBS	MSTRDET	CCC
cargo_cube	IBS	CHANNELS	CUBE
cargo_cube	IBS	CMR_OUT	CUBE
cargo_cube	IBS	CMR_RU	CUBE
cargo_cube	IBS	CMR_SU	CUBE
cargo_cube	IBS	DETAIL	CUBE
cargo_cube	IBS	MSTRDET	CUBE
cargo_cube	WPS	EXPLOSIVE	CUBE
cargo_cube	WPS	OUTSIZE	CUBE
cargo_cube	WPS	SHIPMENT	CUBE
cargo_height_feet	WPS	OUTSIZE	HEIGHT
cargo_length_feet	WPS	OUTSIZE	LENGTH
cargo_lifted_mtons	UDM	ST	ST.MTONS.LIFTED
cargo_mtons	IBS	ALLOCATE	MTON
cargo_mtons	IBS	CHANNELS	MTON
cargo_mtons	IBS	CMR_RU	MTON
cargo_mtons	IBS	PORTTHRU	MTON

cargo_mtons	IBS	SHIPCHAR	MTON
cargo_mtons	IBS	SHORTFAL	MTON
cargo_status_code	WPS	SHIPMENT	CARGO_STATUS
cargo_type	IBS	STOWFACT	CARG_TYPE
carrier_booked_date	IBS	CMR_RU	BOOKED
carrier_id	IBS	ACHARGE	CARR_ID
carrier_id	IBS	CMR_RU	CARR_ID
carrier_id	IBS	CONTRATE	CARR_ID
carrier_id	IBS	CONUSDR	CARR_ID
carrier_id	IBS	MT_FACT	CARR_ID
carrier_id	IBS	OCONUSDR	CARR_ID
carrier_id	IBS	VESSEL	CARR_ID
carrier_usage_rate_percent	IBS	CONTRATE	PERCENT
cas_code	IBS	ACHARGE	CAS_CODE
channel_name	IBS	ALLOCATE	CHANNEL
channel_name	IBS	CHANNELS	CHANNEL
channel_name	IBS	CHNLEUCR	CHANNEL
channel_name	IBS	SHORTFAL	CHANNEL
city_name	IBS	DODAACS	CITY
city_name	IBS	MADD	CITY
classified_protected_code	TDR	?	CLASS/PROT CODES
commercial_bus	IBS	MSTRHDR	BUS
commercial_voyage_id	IBS	VESSCHED	COMVOYNO
compatibility_group	IBS	DETAIL	GROUP
compatibility_group	IBS	MSTRDET	GROUP
consignee_dodaac	IBS	CMR_RU	C_DODAAC
consignee_dodaac	IBS	CMR_SU	C_DODAAC
consignee_name	IBS	HEADER	CONSIGNEE
consignee_name	IBS	MSTRHDR	CONSIGNEE
consignee_name	WPS	SHIPMENT	CONSIGNEE
consignor_name	WPS	SHIPMENT	CONSIGNOR
container_release_units	WPS	SHIPMENT	CONTAINER_RELEASE_UNITS
container_seal_id	WPS	SHIPMENT	SEALNO
country_state_code	IBS	DODAACS	STATE
country_state_code	IBS	HEADER	STATE
country_state_code	IBS	MSTRHDR	STATE
country_state_code	TDR	?	COUNTRY/STATE CODE
country_state_long_name	IBS	GEOFILE	CS_LN
country_state_long_name	IBS	PORTS	CS_LN
created_date	IBS	GEOFILE	CREATED
cutoff_date	IBS	VESSCHED	CUTOFF_D
daily_flow_factor	IBS	CMR_RU	FLOW_FCT
delay_code	IBS	CMR_RU	DELAY_C
delay_code_posted_date	IBS	CMR_RU	DELAY_D
deletion_activity_code	WPS	SHIPMENT	DELETE_ACTV_CD
deletion_reason_code	WPS	SHIPMENT	DELETE_REASON
deletion_user_id	WPS	SHIPMENT	DELETE_USER_ID
delivered_cargo_cube	WPS	VOYDOC	DELIVERED_CUBE
destination_city_name	IBS	OCONUSDR	DESTCITY
destination_country_name	IBS	OCONUSDR	DESTCTRY
destination_rail_splc	IBS	HEADER	D_R_SPLC
destination_rail_splc	IBS	MSTRHDR	D_R_SPLC
destination_truck_splc	IBS	HEADER	D_T_SPLC
destination_truck_splc	IBS	MSTRHDR	D_T_SPLC
discharged_cargo_activity_code	WPS	SHIPMENT	DISCHARGE_ACTV_CD
discharged_cargo_cube	WPS	SHIPMENT	DISCHARGED_CUBE
discharged_cargo_cube	WPS	VOYDOC	DISCHARGED_CUBE
discharged_cargo_pod	WPS	SHIPMENT	DISCHARGE_POD
discharged_cargo_stons	WPS	SHIPMENT	DISCHARGED_WEIGHT

discharged_cargo_user_id	WPS	SHIPMENT	DISCHARGE_USER_ID
discharged_completion_date	WPS	VOYDOC	DISCH_COMP_DATE
discharged_start_date	WPS	VOYDOC	DISCH_START_DATE
discrepancy_cargo_stons	TDR	?	DISCREP. WEIGHT
discrepancy_code	TDR	?	CAUSE OF DISCREPANCY
diverted_cargo_cube	WPS	VOYDOC	DIVERTED_CUBE
diverted_cargo_pod	WPS	SHIPMENT	DIVERTED_POD
dodaac	IBS	DODAACS	DODAAC
dodaac	TDR	?	DODAAC
dodic	IBS	DETAIL	DODIC
dodic	IBS	MSTRDET	DODIC
dodic	WPS	SHIPMENT	DODIC
domestic_ucr	IBS	MSTRHDR	DUCR
drop_frame	IBS	MSTRHDR	DROP
due_at_poe_date	IBS	CMR_RU	D_DUE_POE
ead	IBS	CHANNELS	EAD
ead	IBS	JOPESE3	EAD
ead_cday	IBS	JOPESE3	CEAD
effective_date	IBS	MADD	EFFECTIVE
entry_date	IBS	VESSCHED	ENTRY_D
entry_date	IBS	VESSEL	ENTRY_D
equipment_length_feet	IBS	ACHARGE	EQUIP_LEN
estimated_completion_date	WPS	VSNR	EST_COMP_DATE
estimated_completion_date	WPS	XVSNR	EST_COMP_DATE
eta	WPS	SHIPMENT	ETA
eta	WPS	VSNR	ETA
eta	WPS	XVSNR	ETA
etr_release_date	IBS	CMR_RU	REL_D
etr_release_poe	IBS	CMR_RU	REL_POE
etrr_received_date	IBS	CMR_RU	RECD_D
export_import_flag	WPS	SHIPMENT	EXPORT_IMPORT_IND
export_import_flag	WPS	SUPPLEMENT	EXPORT_IMPORT_IND
export_import_flag	WPS	VOYDOC	EXPORT_IMPORT_IND
export_import_flag	WPS	VSNR	EXPORT_IMPORT_IND
export_import_flag	WPS	XVOYDOC	EXPORT_IMPORT_IND
export_import_flag	WPS	XVSNR	EXPORT_IMPORT_IND
export_ucr_flag	IBS	HEADER	EUCR
export_ucr_flag	IBS	MSTRHDR	EUCR
flash_point	IBS	DETAIL	FLASHPT
flash_point	IBS	MSTRDET	FLASHPT
freight_classification_code	IBS	DETAIL	FRGTNO
freight_classification_code	IBS	MSTRDET	FRGTNO
freight_classification_index	IBS	DETAIL	FRGTNDX
freight_classification_index	IBS	MSTRDET	FRGTNDX
funding_agency_code	IBS	CMR_RU	FUND_AG
funding_agency_code	IBS	CMR_SU	FUND_AG
gbl	WPS	SHIPMENT	GBL
gbl_office_code	IBS	HEADER	GBLOC
gbl_office_code	IBS	MSTRHDR	GBLOC
generic_port_location	UDM	ST	ST.PORT.COMMAND
geolocation_code	IBS	GEOFILE	GEOCODE
geolocation_code	IBS	PORTS	GEOCODE
gsa_city_code	IBS	GEOFILE	GSACITY
gsa_country_code	IBS	GEOFILE	GSACOUNTY
gsa_state_code	IBS	GEOFILE	GSASTATE
hazardous_cargo_flag	IBS	DETAIL	HAZARD
hazardous_cargo_flag	IBS	MSTRDET	HAZARD
heavy_lift_dimension_code	IBS	DETAIL	HLDC
heavy_lift_dimension_code	IBS	MSTRDET	HLDC

icao_code	IBS	GEOFILE	ICAO
installation_type_code	IBS	GEOFILE	ITC
julian_date	TDR	?	DATE
lad	IBS	CHANNELS	LAD
lad	IBS	JOPESE3	LAD
lad_cday	IBS	JOPESE3	CLAD
lading_term_code	IBS	CMR_RU	LTC
lift_activity_code	WPS	SHIPMENT	LIFT_ACTV_CD
lift_capability_sq_ft	UDM	ST	ST.LIFT.CAP.SQ.FT
lift_cargo_sq_ft	UDM	ST	ST.SQ.FT.LIFTED
lift_date	IBS	CMR_RU	LIFT_D
lift_user_id	WPS	SHIPMENT	LIFT_USER_ID
line_item_id	IBS	DETAIL	LIN
line_item_id	IBS	MSTRDET	LIN
load_completion_date	WPS	XVOYDOC	LOAD_COMP_DATE
load_completion_date	WPS	XVSNR	LOAD_COMP_DATE
logistics_planning_report_code	IBS	GEOFILE	LPRC
long_tons	IBS	CMR_RU	LTON
lot_id	WPS	EXPLOSIVE	LOT
lowboy	IBS	MSTRHDR	LOWBOY
majority_unit_loaded_name	UDM	ST	ST.MAJORITY.UNIT.LOADED
manifest_actual_arrival_date	UDM	ST	ST.MFST.ARIV.SPOD.DATE
manifest_cargo_cube	WPS	SHIPMENT	MANIFEST_CUBE
manifest_cargo_stons	WPS	SHIPMENT	MANIFEST_WEIGHT
manifest_carrier_name	UDM	ST	ST.MNFST.CARRIER
manifest_date	WPS	SHIPMENT	MANIFEST_DATE
manifest_flag	WPS	SHIPMENT	MANIFEST_IND
manifest_loading_date	WPS	VOYDOC	MNFST_LOADED_DATE
manifest_loading_date	WPS	XVOYDOC	MNFST_LOADED_DATE
manifest_sent_date	UDM	ST	ST.MNFST.SENT.DATE.TIME
manifest_shipment_id	UDM	ST	ST.MNFST.SHIPMENT.ID
manifest_type_cargo_code	UDM	ST	ST.MNFST.TYPE.CARGO
message_id	IBS	PCALLMSG	MSGID
milstrip_project_code	WPS	SHIPMENT	PROJECT_CODE
mton_factor	IBS	MT_FACT	MTFACTOR
navy_ocean_area_code	IBS	GEOFILE	NAVY
net_explosive_weight_stons	WPS	EXPLOSIVE	NET_EXPLOSIVE_WT
num_actual_loading_minutes	UDM	ST	ST.HOURS.WORKED
num_barges_at_port	UDM	ST	ST.PORT.TOTAL.BARGES
num_barges_loaded	UDM	ST	ST.PORT.BARGES.LOADED
num_barges_stuffed	UDM	ST	ST.PORT.BARGES.STUFFED
num_containers	IBS	VESSEL	NO_CONT
num_containers_delivered	WPS	VOYDOC	DELIVERED_CONTAINERS
num_containers_discharged	WPS	VOYDOC	DISCHARGED_CONTAINERS
num_containers_diverted	WPS	VOYDOC	DIVERTED_CONTAINERS
num_discrepancy_pieces	TDR	?	DISCREP. PIECES
num_manifest_pieces	WPS	SHIPMENT	MANIFEST_PIECES
num_manifest_shipment_units	WPS	XVOYDOC	MNFST_LOADED_SU
num_persons_shipped	UDM	ST	ST.SUPER.CARGO
num_pieces	IBS	CMR_OUT	PCS
num_pieces	IBS	CMR_RU	PCS
num_pieces	IBS	CMR_SU	PCS
num_pieces	WPS	EXPLOSIVE	PCS
num_pieces	WPS	OUTSIZE	PCS
num_pieces	WPS	SHIPMENT	PCS
num_pieces_discharged	WPS	SHIPMENT	DISCHARGED_PIECES
num_rail_transit_days	IBS	INTRANS	RAIL_D
num_shipment_units	IBS	CMR_RU	NO_SU
num_standard_loading_minutes	UDM	ST	ST.LOAD.STANDARD.DAYS

num_tcn_adn_errors	TDR	?	NO. TCN/ADN ERRORS
num_transit_hours	IBS	OCNTIME	DAYS
num_transit_hours	IBS	OCNTIME	HOURS
num_unstuffed_cargo_pieces	WPS	SHIPMENT	UNSTUFF_PIECES
num_vans_released	IBS	CMR_RU	VAN-RLSD
num_vans_required	IBS	CMR_RU	VAN_REQD
numeric_state_code	IBS	MADD	NUM_STCD
ocean_commodity_code	IBS	CMR_RU	OCN_COMM
ocean_cost	IBS	CMR_RU	OCEAN_COST
offered_to_carrier_date	IBS	CMR_RU	OFFERED
offering_type_code	IBS	CMR_RU	TYPE_OFFER
operation_code	WPS	SHIPMENT	OPCODE
operation_phase_code	UDM	ST	ST.PHASE
origin_city_name	IBS	CONUSDR	ORIGINC
origin_geolocation_code	IBS	MSTRHDR	ORIGIN-G
origin_name	IBS	INTRANS	ORIGIN
origin_poe_drayage_cost	IBS	CMR_RU	CONUS_COST
origin_rail_splc	IBS	HEADER	O_R_SPLC
origin_rail_splc	IBS	MSTRHDR	O_R_SPLC
origin_state_name	IBS	CONUSDR	ORIGINS
origin_truck_splc	IBS	HEADER	O_T_SPLC
origin_truck_splc	IBS	MSTRHDR	O_T_SPLC
poc_at_poe_name	IBS	CHNLEUCR	POEPOC
poc_at_poe_name	IBS	EUCR	POEPOC
poc_at_poe_phone	IBS	CHNLEUCR	POEFONE
poc_at_poe_phone	IBS	EUCR	POEFONE
pod	IBS	CHANNELS	POD
pod	IBS	CMR_RU	POD
pod	IBS	CMR_SU	POD
pod	IBS	JOPESE3	POD
pod	IBS	MADD	POD
pod	WPS	SHIPMENT	POD
pod	WPS	SUPPLEMENT	POD
pod	WPS	VOYDOC	POD
pod	WPS	XVOYDOC	POD
pod_destination_drayage_cost	IBS	CMR_RU	OCONS_COST
pod_zone	IBS	CONTRATE	PODZONE
poe	IBS	CHANNELS	POE
poe	IBS	CMR_RU	POE
poe	IBS	INTRANS	POE
poe	IBS	JOPESE3	POE
poe	IBS	PCALLMSG	POE
poe	WPS	SHIPMENT	POE
poe	WPS	SUPPLEMENT	POE
poe	WPS	VOYDOC	POE
poe	WPS	XVOYDOC	POE
poe_geolocation_code	IBS	INTRANS	POE_G
poe_geolocation_code	IBS	PORTTHRU	POE_G
poe_handling_cost	IBS	CMR_RU	POE_COST
poe_mode	IBS	PORTTHRU	POE_MOD
port_area_name	IBS	PORTS	PORTAREA
port_call_file_id	IBS	CMR_OUT	PCFN
port_call_file_id	IBS	CMR_RU	PCFN
port_call_file_id	IBS	CMR_SU	PCFN
port_commander_name	UDM	ST	ST.PORT.CMDRS.NAME
port_name	IBS	PORTS	PORTNAME
port_sequence_id	UDM	ST	ST.PORT.SEQ
port_short_name	IBS	PORTS	SHORTPORT
portcall_id	WPS	SHIPMENT	PORTCALL_NUMBER

pov_color_code	WPS	SHIPMENT	POVCOLOR
pov_license_tag	WPS	SHIPMENT	POVLICENSE
pov_license_tag_state_code	WPS	SHIPMENT	POVSTATE
pov_make_model_code	WPS	SHIPMENT	POVMAKE
pov_manufacture_year	WPS	SHIPMENT	POVYR
primary_destination_rail_scac	IBS	HEADER	P_D_R_SCAC
primary_destination_rail_scac	IBS	MSTRHDR	P_D_R_SCAC
primary_origin_rail_scac	IBS	HEADER	P_O_R_SCAC
primary_origin_rail_scac	IBS	MSTRHDR	P_O_R_SCAC
prime_geolocation_code	IBS	GEOFILE	P_GEO
private_siding_flag	IBS	HEADER	PSI
private_siding_flag	IBS	MSTRHDR	PSI
projected_release_date	IBS	CMR_RU	PRP_REL_D
providence_code	IBS	GEOFILE	PROV_CD
providence_name	IBS	GEOFILE	PROV_N
record_id	WPS	EXPLOSIVE	RECNO
record_id	WPS	OUTSIZE	RECNO
record_id	WPS	REMARKS	RECNO
record_id	WPS	SHIPMENT	RECNO
record_type_code	TDR	?	RECORD TYPE
region_code	IBS	ACHARGE	REG_CODE
release_id	IBS	CHNLEUCR	RELEASE
release_id	IBS	EUCR	RELEASE
release_id	IBS	EUCR4	RELEASE
release_id	IBS	HEADER	RELEASE
release_id	IBS	MSTRHDR	RELEASE
release_routing_id	IBS	CMR_RU	REL_ROUTID
reoffer_poe	IBS	CMR_RU	REOFFR_POE
reoffer_posted_date	IBS	CMR_RU	REOFFR_D
repair_port_eta	UDM	ST	ST.REPAIR.PORT.ETA
repair_replacement_cost	TDR	?	REPAIR COST
reponsible_org_code	TDR	?	RESPONSIBILITY CODE
reporting_activity_area_code	TDR	?	AREA OF OPERATION
requestor_dodaac	IBS	CMR_RU	R_DODAAC
requestor_dodaac	IBS	EUCR	R_DODAAC
requestor_dodaac	IBS	HEADER	R_DODAAC
requestor_dodaac	IBS	MSTRHDR	R_DODAAC
requestor_id	IBS	CMR_RU	R_ID
requestor_id	IBS	EUCR	R_ID
requestor_id	IBS	HEADER	R_ID
requestor_id	IBS	MSTRHDR	R_ID
requestor_name	IBS	HEADER	REQNAME
requestor_name	IBS	MSTRHDR	REQNAME
requestor_phone	IBS	HEADER	REQPHONE
requestor_phone	IBS	MSTRHDR	REQPHONE
requestor_routing_id	IBS	CMR_RU	REQ_ROUTID
required_delivery_date	IBS	CMR_RU	RDD
required_delivery_date	IBS	CMR_SU	RDD
required_delivery_date	IBS	HEADER	RDD
required_delivery_date	IBS	MSTRHDR	RDD
required_delivery_date	WPS	SHIPMENT	RDD
reserve_unit_code	UDM	ST	ST.PORT.TTU
responsible_uic	IBS	GEOFILE	UIC_RESP
sail_date	IBS	ALLOCATE	SAIL_D
sail_date	IBS	VESSCHED	SAIL_D
second_destination_rail_scac	IBS	HEADER	S_D_R_SCAC
second_destination_rail_scac	IBS	MSTRHDR	S_D_R_SCAC
second_origin_rail_scac	IBS	HEADER	S_O_R_SCAC
second_origin_rail_scac	IBS	MSTRHDR	S_O_R_SCAC

self_sustaining_flag	IBS	SHIPCHAR	SS
service_type_code	IBS	ACHARGE	TYPE_SERV
ship_agent_code	WPS	VSNR	SHIP_AGENT
ship_agent_code	WPS	XVSNR	SHIP_AGENT
ship_barge_capacity	UDM	ST	ST.SHIPS.BARGE.CAP
ship_call_sign	IBS	VESSEL	CALLSIGN
ship_code	WPS	SHIPMENT	SHIP_CODE
ship_id	IBS	PCALLMSG	SHIPNUMBR
ship_id	WPS	SHIPMENT	VSNR
ship_id	WPS	SUPPLEMENT	VSNR
ship_id	WPS	VOYDOC	VSNR
ship_id	WPS	VSNR	VSNR
ship_inactive_date	WPS	VSNR	DATE_INACT
ship_inactive_date	WPS	XVSNR	DATE_INACT
ship_loading_percent	UDM	ST	ST.PERCENT.LOADED
ship_name	IBS	ALLOCATE	SHIPNAME
ship_name	IBS	CHNLEUCR	VESSELNAME
ship_name	IBS	EUCR	VESSELNAME
ship_name	IBS	VESSEL	SHIPNAME
ship_name	IBS	VOYAGE	SHIPNAME
ship_nationality_code	IBS	VESSEL	FLAG
ship_speed_knots	IBS	OCNTIME	SPEED
ship_speed_knots	IBS	SHIPCHAR	SPEED
ship_status_code	UDM	ST	ST.SHIP.STATUS
ship_status_code	WPS	SHIPMENT	VSTAT
ship_status_code	WPS	SUPPLEMENT	VSTAT
ship_status_code	WPS	VOYDOC	VSTAT
ship_status_code	WPS	XVOYDOC	VSTAT
ship_subtype_code	IBS	LOADTIME	SUBTYPE
ship_subtype_code	IBS	SHIPCHAR	SUBTYPE
ship_type_code	IBS	LOADTIME	SHIPTYPE
ship_type_code	IBS	SHIPCHAR	SHIPTYPE
ship_type_code	IBS	STOWFACT	SHIPTYPE
ship_type_code	IBS	VESSEL	SHIPTYPE
ship_type_code	IBS	VOYAGE	SHIPTYPE
ship_type_code	UDM	ST	ST.TYPE.VESSEL
shipment_correction_date	WPS	SHIPMENT	CORRECTION_DATE
shipment_correction_user_id	WPS	SHIPMENT	CORRECTION_USER_ID
shipment_method_code	TDR	?	METHOD SHIPMENT
shipper_dodaac	IBS	CMR_RU	S_DODAAC
shipper_dodaac	IBS	HEADER	S_DODAAC
shipper_dodaac	IBS	MSTRHDR	S_DODAAC
shipping_document_id	TDR	?	SHIPPING DOC. NO.
shipping_document_type_code	TDR	?	TYPE CODE
shipping_name	IBS	DETAIL	SHPGNAME
shipping_name	IBS	MSTRDET	SHPGNAME
sitrep_listing_flag	UDM	ST	ST.SITREP.FLAG
soco_carriage_terms	IBS	CMR_RU	SOCO_TERM
soco_routing_index	IBS	CMR_RU	SOCO_R_NDX
soco_vessel_id	IBS	CMR_RU	SOCO_VES
splc	IBS	MADD	SPLC
spod_actual_arrival_date	UDM	ST	ST.MNFST.ARIV.SPOD.DATE
spoe_name	IBS	PCALLMSG	SPOENAME
spot_date	IBS	CMR_RU	SPOT_D
sro_due_at_pod_date	IBS	CMR_RU	SRO_DUE_D
sro_id	IBS	CMR_RU	SRO_ID
sro_poe	IBS	CMR_RU	SRO_POE
sro_transportation_mode_code	IBS	CMR_RU	SRO_MODE
station_name	IBS	HEADER	STATION

station_name	IBS	MSTRHDR	STATION
stow_factor	WPS	SHIPMENT	STOW
stowage_capacity	IBS	VESSEL	STOW_CAP
stuffing_activity_code	WPS	SHIPMENT	STUFFING_ACTV_CD
stuffing_user_id	WPS	SHIPMENT	STUFFING_USER_ID
supplement_date	WPS	SUPPLEMENT	SUP_DATE
supplement_date	WPS	XVOYDOC	SUP_DATE
supplement_id	WPS	SHIPMENT	SUPNO
supplement_id	WPS	SUPPLEMENT	SUPNO
supplement_id	WPS	XVOYDOC	SUPNO
tactical_zone	IBS	GEOFILE	TAC_ZONE
tcmd_preparation_date	WPS	VOYDOC	TCMD_PREP_DATE
tcn	IBS	CMR_OUT	TCN
tcn	IBS	CMR_SU	TCN
tcn	IBS	DETAIL	TCN
tcn	IBS	EUCR4	TCN
tcn	IBS	MSTRDET	TCN
tcn	WPS	SHIPMENT	TCN
teu	IBS	SHIPCHAR	TEU
total_cargo_movement_cost	IBS	CMR_RU	TOTAL_COST
total_cargo_stons	IBS	CHANNELS	WGT
total_cargo_stons	IBS	CMR_OUT	WGT
total_cargo_stons	IBS	CMR_RU	WGT
total_cargo_stons	IBS	CMR_SU	WGT
total_cargo_stons	IBS	DETAIL	WGT
total_cargo_stons	IBS	MSTRDET	WGT
total_num_barges_loaded	UDM	ST	ST.SHIP.TOTAL.BARGES.LOADED
tractor	IBS	MSTRHDR	TRACTOR
transaction_code	IBS	DETAIL	ACTION
transaction_code	IBS	HEADER	ACTION
transaction_code	IBS	MSTRDET	ACTION
transaction_code	IBS	MSTRHDR	ACTION
transmitted_date	IBS	HEADER	TRANSMTD
transmitted_date	IBS	MSTRHDR	TRANSMTD
transportation_mode	IBS	PORTTHRU	MODE_C
transportation_priority_code	WPS	SHIPMENT	TPRI
transportation_priority_code	IBS	CMR_RU	PRIORITY
transportation_priority_code	IBS	CMR_SU	PRIORITY
transportation_priority_code	IBS	HEADER	PRIORITY
transportation_priority_code	IBS	MSTRHDR	PRIORITY
type_packing_code	WPS	SHIPMENT	PKG
uic	IBS	ALLOCATE	UIC
uic	IBS	CHANNELS	UIC
uic	IBS	DETAIL	UIC
uic	IBS	EUCR	UIC
uic	IBS	HEADER	UIC
uic	IBS	JOPESE3	UIC
uic	IBS	MSTRDET	UIC
uic	IBS	MSTRHDR	UIC
uic	IBS	SHORTFAL	UIC
uln	IBS	ALLOCATE	ULN
uln	IBS	CHANNELS	ULN
uln	IBS	DETAIL	ULN
uln	IBS	EUCR	ULN
uln	IBS	HEADER	ULN
uln	IBS	JOPESE3	ULN
uln	IBS	MSTRDET	ULN
uln	IBS	MSTRHDR	ULN
uln	IBS	SHORTFAL	ULN

uln	WPS	SHIPMENT	ULN
un_class_division_code	IBS	DETAIL	UN_CLASS
un_class_division_code	IBS	MSTRDET	UN_CLASS
un_class_division_code	WPS	SHIPMENT	UN_CLASS
un_na_code	IBS	DETAIL	UNNA_IND
un_na_code	IBS	MSTRDET	UNNA_IND
un_na_id	IBS	DETAIL	UNNA_NO
un_na_id	IBS	MSTRDET	UNNA_NO
unit_move_flag	IBS	VOYAGE	UNITMOVE
unit_name	IBS	HEADER	UNITNAME
unit_name	IBS	MSTRHDR	UNITNAME
unload_minutes	IBS	LOADTIME	UNLOAD
unstuffed_activity_code	WPS	SHIPMENT	UNSTUFF_ACTV_CD
unstuffed_cargo_cube	WPS	SHIPMENT	UNSTUFF_CUBE
unstuffed_cargo_stons	WPS	SHIPMENT	UNSTUFF_WEIGHT
unstuffed_user_id	WPS	SHIPMENT	UNSTUFF_USER_ID
van_id	WPS	SHIPMENT	VAN_NO
van_owner_code	WPS	SHIPMENT	VAN_OWNER
van_size	WPS	SHIPMENT	VAN_SIZE
van_type_code	IBS	MT_FACT	VAN_TYPE
vehicle_mton_factor	IBS	MT_FACT	VFACTOR
voyage_document_id	WPS	SHIPMENT	VOYDOC
voyage_document_id	WPS	SUPPLEMENT	VOYDOC
voyage_document_id	WPS	VOYDOC	VOYDOC
voyage_document_id	WPS	XVOYDOC	VOYDOC
voyage_document_id	WPS	XVSNR	VOYDOC
water_commodity_code	IBS	CMR_RU	COMMODITY
water_commodity_code	IBS	CMR_SU	COMMODITY
water_commodity_code	IBS	DETAIL	COMMODITY
water_commodity_code	IBS	MSTRDET	COMMODITY
water_commodity_code	WPS	SHIPMENT	COMMODITY
zip_code	IBS	DODAACS	ZIP
zip_code	IBS	MADD	ZIP

Appendix E. SYSTEM FIELD CROSS REFERENCE

The following report contains fields in the participating systems (IBS, WPS, TDR, and UDM, in that order) cross referenced to SDE fields.

Cross referenced fields in IBS

table_name	field_name	sde_field_name
CMR_RU	ACISTAT	aci_status
DETAIL	ACTION	transaction_code
HEADER	ACTION	transaction_code
MSTRDET	ACTION	transaction_code
MSTRHDR	ACTION	transaction_code
CHANNELS	ALD	ald
JOPESE3	ALD	ald
CHANNELS	ALLOCATED	cargo_allocated_flag
SHORTFAL	ALLOCATED	cargo_allocated_flag
PORTTHRU	AMMO_F	ammo_facility_flag
GEOFILE	ARMY	army_location_code
VESSCHED	ARRIVE_D	arrival_date
VESSCHED	ARRIVE_T	arrival_code
DETAIL	AWT	air_wheeled_track_code
MSTRDET	AWT	air_wheeled_track_code
MADD	BBULKCD	breakbulk_code
CMR_RU	BOOKED	carrier_booked_date
CMR_RU	BOOK_REM	booking_remarks
CMR_RU	BOOK_RSN	booking_reason_code
MSTRHDR	BUS	commercial_bus
JOPESE3	CALD	ald_cday
VESSEL	CALLSIGN	ship_call_sign
GEOFILE	CANCELLED	cancellation_date
CMR_RU	CANCEL_C	cancellation_code
CMR_RU	CANC_D	cancellation_code_posted_date
CMR_RU	CANC_RSN	cancellation_reason
STOWFACT	CARG_TYPE	cargo_type
ACHARGE	CARR_ID	carrier_id
CMR_RU	CARR_ID	carrier_id
CONTRATE	CARR_ID	carrier_id
CONUSDR	CARR_ID	carrier_id
MT_FACT	CARR_ID	carrier_id
OCONUSDR	CARR_ID	carrier_id
VESSEL	CARR_ID	carrier_id
ACHARGE	CAS_CODE	cas_code
DETAIL	CCC	cargo_classification_code
MSTRDET	CCC	cargo_classification_code
JOPESE3	CEAD	ead_cday
ALLOCATE	CHANNEL	channel_name
CHANNELS	CHANNEL	channel_name
CHNLEUCR	CHANNEL	channel_name
SHORTFAL	CHANNEL	channel_name
DODAACS	CITY	city_name
MADD	CITY	city_name
JOPESE3	CLAD	lad_cday
CMR_RU	COMMODITY	water_commodity_code
CMR_SU	COMMODITY	water_commodity_code
DETAIL	COMMODITY	water_commodity_code
MSTRDET	COMMODITY	water_commodity_code
VESSCHED	COMVOYNO	commercial_voyage_id
HEADER	CONSIGNEE	consignee_name

MSTRHDR	CONSIGNEE	consignee_name
CMR_RU	CONUS_COST	origin_poe_drayage_cost
GEOFILE	CREATED	created_date
GEOFILE	CS_LN	country_state_long_name
PORTS	CS_LN	country_state_long_name
CHANNELS	CUBE	cargo_cube
CMR_OUT	CUBE	cargo_cube
CMR_RU	CUBE	cargo_cube
CMR_SU	CUBE	cargo_cube
DETAIL	CUBE	cargo_cube
MSTRDET	CUBE	cargo_cube
VESSCHED	CUTOFF_D	cutoff_date
CMR_RU	C_DODAAC	consignee_dodaac
CMR_SU	C_DODAAC	consignee_dodaac
OCNTIME	DAYS	num_transit_hours
CMR_RU	DELAY_C	delay_code
CMR_RU	DELAY_D	delay_code_posted_date
OCONUSDR	DESTCITY	destination_city_name
OCONUSDR	DESTCTRY	destination_country_name
DODAACS	DODAAC	dodaac
DETAIL	DODIC	dodic
MSTRDET	DODIC	dodic
MSTRHDR	DROP	drop_frame
MSTRHDR	DUCR	domestic_ucr
CMR_RU	D_DUE_POE	due_at_poe_date
HEADER	D_R_SPLC	destination_rail_splc
MSTRHDR	D_R_SPLC	destination_rail_splc
HEADER	D_T_SPLC	destination_truck_splc
MSTRHDR	D_T_SPLC	destination_truck_splc
CHANNELS	EAD	ead
JOPESE3	EAD	ead
MADD	EFFECTIVE	effective_date
VESSCHED	ENTRY_D	entry_date
VESSEL	ENTRY_D	entry_date
ACHARGE	EQUIP_LEN	equipment_length_feet
HEADER	EUCR	export_ucr_flag
MSTRHDR	EUCR	export_ucr_flag
VESSEL	FLAG	ship_nationality_code
DETAIL	FLASHPT	flash_point
MSTRDET	FLASHPT	flash_point
CMR_RU	FLOW_FCT	daily_flow_factor
DETAIL	FRGTNDX	freight_classification_index
MSTRDET	FRGTNDX	freight_classification_index
DETAIL	FRGTNO	freight_classification_code
MSTRDET	FRGTNO	freight_classification_code
CMR_RU	FUND_AG	funding_agency_code
CMR_SU	FUND_AG	funding_agency_code
HEADER	GBLOC	gbl_office_code
MSTRHDR	GBLOC	gbl_office_code
GEOFILE	GEOCODE	geolocation_code
PORTS	GEOCODE	geolocation_code
DETAIL	GROUP	compatibility_group
MSTRDET	GROUP	compatibility_group
GEOFILE	GSACITY	gsa_city_code
GEOFILE	GSACOUNTY	gsa_country_code
GEOFILE	GSASTATE	gsa_state_code
DETAIL	HAZARD	hazardous_cargo_flag
MSTRDET	HAZARD	hazardous_cargo_flag
DETAIL	HLDC	heavy_lift_dimension_code

MSTRDET	HLDC	heavy_lift_dimension_code
OCNTIME	HOURS	num_transit_hours
GEOFILE	ICAO	icao_code
GEOFILE	ITC	installation_type_code
CHANNELS	LAD	lad
JOPESE3	LAD	lad
CMR_RU	LIFT_D	lift_date
DETAIL	LIN	line_item_id
MSTRDET	LIN	line_item_id
MSTRHDR	LOWBOY	lowboy
GEOFILE	LPRC	logistics_planning_report_code
CMR_RU	LTC	lading_term_code
CMR_RU	LTON	long_tons
PORTTHRU	MODE_C	transportation_mode
PCALLMSG	MSGID	message_id
MT_FACT	MTFACTOR	mton_factor
ALLOCATE	MTON	cargo_mtons
CHANNELS	MTON	cargo_mtons
CMR_RU	MTON	cargo_mtons
PORTTHRU	MTON	cargo_mtons
SHIPCHAR	MTON	cargo_mtons
SHORTFAL	MTON	cargo_mtons
LOADTIME	MTON_AVG	average_cargo_mtons
GEOFILE	NAVY	navy_ocean_area_code
VESSEL	NO_CONT	num_containers
CMR_RU	NO_SU	num_shipment_units
MADD	NUM_STCD	numeric_state_code
CMR_RU	OCEAN_COST	ocean_cost
CMR_RU	OCN_COMM	ocean_commodity_code
CMR_RU	OCONS_COST	pod_destination_drayage_cost
CMR_RU	OFFERED	offered_to_carrier_date
INTRANS	ORIGIN	origin_name
MSTRHDR	ORIGIN-G	origin_geolocation_code
CONUSDR	ORIGINC	origin_city_name
CONUSDR	ORIGINS	origin_state_name
HEADER	O_R_SPLC	origin_rail_splc
MSTRHDR	O_R_SPLC	origin_rail_splc
HEADER	O_T_SPLC	origin_truck_splc
MSTRHDR	O_T_SPLC	origin_truck_splc
CMR_OUT	PCFN	port_call_file_id
CMR_RU	PCFN	port_call_file_id
CMR_SU	PCFN	port_call_file_id
CMR_OUT	PCS	num_pieces
CMR_RU	PCS	num_pieces
CMR_SU	PCS	num_pieces
CONTRATE	PERCENT	carrier_usage_rate_percent
CHANNELS	POD	pod
CMR_RU	POD	pod
CMR_SU	POD	pod
JOPESE3	POD	pod
MADD	POD	pod
CONTRATE	PODZONE	pod_zone
CHANNELS	POE	poe
CMR_RU	POE	poe
INTRANS	POE	poe
JOPESE3	POE	poe
PCALLMSG	POE	poe
CHNLEUCR	POEFONE	poc_at_poe_phone
EUCR	POEFONE	poc_at_poe_phone

CHNLEUCR	POEPOC	poc_at_poe_name
EUCR	POEPOC	poc_at_poe_name
CMR_RU	POE_COST	poe_handling_cost
INTRANS	POE_G	poe_geolocation_code
PORTTHRU	POE_G	poe_geolocation_code
PORTTHRU	POE_MOD	poe_mode
PORTS	PORTAREA	port_area_name
PORTS	PORTNAME	port_name
CMR_RU	PRIORITY	transportation_priority_code
CMR_SU	PRIORITY	transportation_priority_code
HEADER	PRIORITY	transportation_priority_code
MSTRHDR	PRIORITY	transportation_priority_code
GEOFILE	PROV_CD	providence_code
GEOFILE	PROV_N	providence_name
CMR_RU	PRP_REL_D	projected_release_date
HEADER	PSI	private_siding_flag
MSTRHDR	PSI	private_siding_flag
HEADER	P_D_R_SCAC	primary_destination_rail_scac
MSTRHDR	P_D_R_SCAC	primary_destination_rail_scac
GEOFILE	P_GEO	prime_geolocation_code
HEADER	P_O_R_SCAC	primary_origin_rail_scac
MSTRHDR	P_O_R_SCAC	primary_origin_rail_scac
INTRANS	RAIL_D	num_rail_transit_days
CMR_RU	RDD	required_delivery_date
CMR_SU	RDD	required_delivery_date
HEADER	RDD	required_delivery_date
MSTRHDR	RDD	required_delivery_date
CMR_RU	RECD_D	etrr_received_date
ACHARGE	REG_CODE	region_code
CHNLEUCR	RELEASE	release_id
EUCR	RELEASE	release_id
EUCR4	RELEASE	release_id
HEADER	RELEASE	release_id
MSTRHDR	RELEASE	release_id
CMR_RU	REL_D	etr_release_date
CMR_RU	REL_POE	etr_release_poe
CMR_RU	REL_ROUTID	release_routing_id
CMR_RU	REOFFR_D	reoffer_posted_date
CMR_RU	REOFFR_POE	reoffer_poe
HEADER	REQNAME	requestor_name
MSTRHDR	REQNAME	requestor_name
HEADER	REQPHONE	requestor_phone
MSTRHDR	REQPHONE	requestor_phone
CMR_RU	REQ_ROUTID	requestor_routing_id
CMR_RU	R_DODAAC	requestor_dodaac
EUCR	R_DODAAC	requestor_dodaac
HEADER	R_DODAAC	requestor_dodaac
MSTRHDR	R_DODAAC	requestor_dodaac
CMR_RU	R_ID	requestor_id
EUCR	R_ID	requestor_id
HEADER	R_ID	requestor_id
MSTRHDR	R_ID	requestor_id
ALLOCATE	SAIL_D	sail_date
VESSCHED	SAIL_D	sail_date
ALLOCATE	SHIPNAME	ship_name
VESSEL	SHIPNAME	ship_name
VOYAGE	SHIPNAME	ship_name
PCALLMSG	SHIPNUMBR	ship_id
LOADTIME	SHIPTYPE	ship_type_code

SHIPCHAR	SHIPTYPE	ship_type_code
STOWFACT	SHIPTYPE	ship_type_code
VESSEL	SHIPTYPE	ship_type_code
VOYAGE	SHIPTYPE	ship_type_code
PORTS	SHORTPORT	port_short_name
DETAIL	SHPGNAME	shipping_name
MSTRDET	SHPGNAME	shipping_name
CMR_RU	SOCO_R_NDX	soco_routing_index
CMR_RU	SOCO_TERM	soco_carriage_terms
CMR_RU	SOCO_VES	soco_vessel_id
OCNTIME	SPEED	ship_speed_knots
SHIPCHAR	SPEED	ship_speed_knots
MADD	SPLC	splc
PCALLMSG	SPOENAME	spoe_name
CMR_RU	SPOT_D	spot_date
CMR_RU	SRO_DUE_D	sro_due_at_pod_date
CMR_RU	SRO_ID	sro_id
CMR_RU	SRO_MODE	sro_transportation_mode_code
CMR_RU	SRO_POE	sro_poe
SHIPCHAR	SS	self_sustaining_flag
DODAACS	STATE	country_state_code
HEADER	STATE	country_state_code
MSTRHDR	STATE	country_state_code
HEADER	STATION	station_name
MSTRHDR	STATION	station_name
VESSEL	STOW_CAP	stowage_capacity
LOADTIME	SUBTYPE	ship_subtype_code
SHIPCHAR	SUBTYPE	ship_subtype_code
CMR_RU	S_DODAAC	shipper_dodaac
HEADER	S_DODAAC	shipper_dodaac
MSTRHDR	S_DODAAC	shipper_dodaac
HEADER	S_D_R_SCAC	second_destination_rail_scac
MSTRHDR	S_D_R_SCAC	second_destination_rail_scac
HEADER	S_O_R_SCAC	second_origin_rail_scac
MSTRHDR	S_O_R_SCAC	second_origin_rail_scac
GEOFILE	TAC_ZONE	tactical_zone
CMR_OUT	TCN	tcn
CMR_SU	TCN	tcn
DETAIL	TCN	tcn
EUCR4	TCN	tcn
MSTRDET	TCN	tcn
SHIPCHAR	TEU	teu
CMR_RU	TOTAL_COST	total_cargo_movement_cost
MSTRHDR	TRACTOR	tractor
HEADER	TRANSMTD	transmitted_date
MSTRHDR	TRANSMTD	transmitted_date
CMR_RU	TYPE_OFFER	offering_type_code
ACHARGE	TYPE_SERV	service_type_code
ALLOCATE	UIC	uic
CHANNELS	UIC	uic
DETAIL	UIC	uic
EUCR	UIC	uic
HEADER	UIC	uic
JOPESE3	UIC	uic
MSTRDET	UIC	uic
MSTRHDR	UIC	uic
SHORTFAL	UIC	uic
GEOFILE	UIC_RESP	responsible_uic
ALLOCATE	ULN	uln

CHANNELS	ULN	uln
DETAIL	ULN	uln
EUCR	ULN	uln
HEADER	ULN	uln
JOPESE3	ULN	uln
MSTRDET	ULN	uln
MSTRHDR	ULN	uln
SHORTFAL	ULN	uln
VOYAGE	UNITMOVE	unit_move_flag
HEADER	UNITNAME	unit_name
MSTRHDR	UNITNAME	unit_name
LOADTIME	UNLOAD	unload_minutes
DETAIL	UNNA_IND	un_na_code
MSTRDET	UNNA_IND	un_na_code
DETAIL	UNNA_NO	un_na_id
MSTRDET	UNNA_NO	un_na_id
DETAIL	UN_CLASS	un_class_division_code
MSTRDET	UN_CLASS	un_class_division_code
CMR_RU	VAN-RLSD	num_vans_released
CMR_RU	VAN_REQD	num_vans_required
MT_FACT	VAN_TYPE	van_type_code
CHNLEUCR	VESSELNAME	ship_name
EUCR	VESSELNAME	ship_name
MT_FACT	VFACTOR	vehicle_mton_factor
CHANNELS	WGT	total_cargo_stons
CMR_OUT	WGT	total_cargo_stons
CMR_RU	WGT	total_cargo_stons
CMR_SU	WGT	total_cargo_stons
DETAIL	WGT	total_cargo_stons
MSTRDET	WGT	total_cargo_stons
DODAACS	ZIP	zip_code
MADD	ZIP	zip_code

Cross referenced fields in WPS

table_name	field_name	sde_field_name
VSNR	ACTL_DATE_ARV	actual_arrival_pod_date
XVSNR	ACTL_DATE_ARV	actual_arrival_pod_date
SHIPMENT	ADJ_CODE	adjustment_code
SHIPMENT	BARGE_ARRIVAL_DATE	barge_arrival_date
SHIPMENT	BARGE_NAME	barge_name
SHIPMENT	BARGE_NO	barge_id
SHIPMENT	BOOKING_DESC	booking_description
SHIPMENT	BOOKING_NR	booking_id
SHIPMENT	CARGO_STATUS	cargo_status_code
SHIPMENT	COMMODITY	water_commodity_code
SHIPMENT	CONSIGNEE	consignee_name
SHIPMENT	CONSIGNOR	consignor_name
SHIPMENT	CONTAINER_RELEASE_UNITS	container_release_units
SHIPMENT	CORRECTION_DATE	shipment_correction_date
SHIPMENT	CORRECTION_USER_ID	shipment_correction_user_id
EXPLOSIVE	CUBE	cargo_cube
OUTSIZE	CUBE	cargo_cube
SHIPMENT	CUBE	cargo_cube
VSNR	DATE_INACT	ship_inactive_date
XVSNR	DATE_INACT	ship_inactive_date
SHIPMENT	DELETE_ACTV_CD	deletion_activity_code
SHIPMENT	DELETE_REASON	deletion_reason_code
SHIPMENT	DELETE_USER_ID	deletion_user_id
VOYDOC	DELIVERED_CONTAINERS	num_containers_delivered
VOYDOC	DELIVERED_CUBE	delivered_cargo_cube
VOYDOC	DISCHARGED_CONTAINERS	num_containers_discharged
SHIPMENT	DISCHARGED_CUBE	discharged_cargo_cube
VOYDOC	DISCHARGED_CUBE	discharged_cargo_cube
SHIPMENT	DISCHARGED_PIECES	num_pieces_discharged
SHIPMENT	DISCHARGED_WEIGHT	discharged_cargo_stons
SHIPMENT	DISCHARGE_ACTV_CD	discharged_cargo_activity_code
SHIPMENT	DISCHARGE_POD	discharged_cargo_pod
SHIPMENT	DISCHARGE_USER_ID	discharged_cargo_user_id
VOYDOC	DISCH_COMP_DATE	discharged_completion_date
VOYDOC	DISCH_START_DATE	discharged_start_date
VOYDOC	DIVERTED_CONTAINERS	num_containers_diverted
VOYDOC	DIVERTED_CUBE	diverted_cargo_cube
SHIPMENT	DIVERTED_POD	diverted_cargo_pod
SHIPMENT	DODIC	dodic
VSNR	EST_COMP_DATE	estimated_completion_date
XVSNR	EST_COMP_DATE	estimated_completion_date
SHIPMENT	ETA	eta
VSNR	ETA	eta
XVSNR	ETA	eta
SHIPMENT	EXPORT_IMPORT_IND	export_import_flag
SUPPLEMENT	EXPORT_IMPORT_IND	export_import_flag
VOYDOC	EXPORT_IMPORT_IND	export_import_flag
VSNR	EXPORT_IMPORT_IND	export_import_flag
XVOYDOC	EXPORT_IMPORT_IND	export_import_flag
XVSNR	EXPORT_IMPORT_IND	export_import_flag
SHIPMENT	GBL	gbl
OUTSIZE	HEIGHT	cargo_height_feet
OUTSIZE	LENGTH	cargo_length_feet
SHIPMENT	LIFT_ACTV_CD	lift_activity_code
SHIPMENT	LIFT_USER_ID	lift_user_id
XVOYDOC	LOAD_COMP_DATE	load_completion_date

XVSNR	LOAD_COMP_DATE	load_completion_date
EXPLOSIVE	LOT	lot_id
SHIPMENT	MANIFEST_CUBE	manifest_cargo_cube
SHIPMENT	MANIFEST_DATE	manifest_date
SHIPMENT	MANIFEST_IND	manifest_flag
SHIPMENT	MANIFEST_PIECES	num_manifest_pieces
SHIPMENT	MANIFEST_WEIGHT	manifest_cargo_stons
VOYDOC	MNFST_LOADED_DATE	manifest_loading_date
XVOYDOC	MNFST_LOADED_DATE	manifest_loading_date
XVOYDOC	MNFST_LOADED_SU	num_manifest_shipment_units
EXPLOSIVE	NET_EXPLOSIVE_WT	net_explosive_weight_stons
SHIPMENT	OPCODE	operation_code
EXPLOSIVE	PCS	num_pieces
OUTSIZE	PCS	num_pieces
SHIPMENT	PCS	num_pieces
SHIPMENT	PKG	type_packing_code
SHIPMENT	POD	pod
SUPPLEMENT	POD	pod
VOYDOC	POD	pod
XVOYDOC	POD	pod
SHIPMENT	POE	poe
SUPPLEMENT	POE	poe
VOYDOC	POE	poe
XVOYDOC	POE	poe
SHIPMENT	PORTCALL_NUMBER	portcall_id
SHIPMENT	POVCOLOR	pov_color_code
SHIPMENT	POVLICENSE	pov_license_tag
SHIPMENT	POVMAKE	pov_make_model_code
SHIPMENT	POVSTATE	pov_license_tag_state_code
SHIPMENT	POVYR	pov_manufacture_year
SHIPMENT	PROJECT_CODE	milstrip_project_code
SHIPMENT	RDD	required_delivery_date
EXPLOSIVE	RECNO	record_id
OUTSIZE	RECNO	record_id
REMARKS	RECNO	record_id
SHIPMENT	RECNO	record_id
SHIPMENT	SEALNO	container_seal_id
VSNR	SHIP_AGENT	ship_agent_code
XVSNR	SHIP_AGENT	ship_agent_code
SHIPMENT	SHIP_CODE	ship_code
SHIPMENT	STOW	stow_factor
SHIPMENT	STUFFING_ACTV_CD	stuffing_activity_code
SHIPMENT	STUFFING_USER_ID	stuffing_user_id
SHIPMENT	SUPNO	supplement_id
SUPPLEMENT	SUPNO	supplement_id
XVOYDOC	SUPNO	supplement_id
SUPPLEMENT	SUP_DATE	supplement_date
XVOYDOC	SUP_DATE	supplement_date
VOYDOC	TCMD_PREP_DATE	tcmd_preparation_date
SHIPMENT	TCN	tcn
SHIPMENT	TPRI	transportation_priority_code
SHIPMENT	ULN	uln
SHIPMENT	UNSTUFF_ACTV_CD	unstuffed_activity_code
SHIPMENT	UNSTUFF_CUBE	unstuffed_cargo_cube
SHIPMENT	UNSTUFF_PIECES	num_unstuffed_cargo_pieces
SHIPMENT	UNSTUFF_USER_ID	unstuffed_user_id
SHIPMENT	UNSTUFF_WEIGHT	unstuffed_cargo_stons
SHIPMENT	UN_CLASS	un_class_division_code
SHIPMENT	VAN_NO	van_id

SHIPMENT	VAN_OWNER	van_owner_code
SHIPMENT	VAN_SIZE	van_size
SHIPMENT	VOYDOC	voyage_document_id
SUPPLEMENT	VOYDOC	voyage_document_id
VOYDOC	VOYDOC	voyage_document_id
XVOYDOC	VOYDOC	voyage_document_id
XVSNR	VOYDOC	voyage_document_id
SHIPMENT	VSNR	ship_id
SUPPLEMENT	VSNR	ship_id
VOYDOC	VSNR	ship_id
VSNR	VSNR	ship_id
SHIPMENT	VSTAT	ship_status_code
SUPPLEMENT	VSTAT	ship_status_code
VOYDOC	VSTAT	ship_status_code
XVOYDOC	VSTAT	ship_status_code

Cross referenced fields in TDR

table_name	field_name	sde_field_name
TDR	AREA OF OPERATION	reporting_activity_area_code
TDR	CAUSE OF DISCREPANCY	discrepancy_code
TDR	CLASS/PROT CODES	classified_protected_code
TDR	COUNTRY/STATE CODE	country_state_code
TDR	DATE	julian_date
TDR	DISCREP. PIECES	num_discrepancy_pieces
TDR	DISCREP. WEIGHT	discrepancy_cargo_stons
TDR	DODAAC	dodaac
TDR	METHOD SHIPMENT	shipment_method_code
TDR	NO. TCN/ADN ERRORS	num_tcn_adn_errors
TDR	RECORD TYPE	record_type_code
TDR	REPAIR COST	repair_replacement_cost
TDR	RESPONSIBILITY CODE	reponsible_org_code
TDR	SHIPPING DOC. NO.	shipping_document_id
TDR	TYPE CODE	shipping_document_type_code

Cross referenced fields in UDM

table_name	field_name	sde_field_name
ST	ST.BERTHED.DATE.TIME	berth_date
ST	ST.BERTHED.EST.OR.ACT	berth_date_flag
ST	ST.HOURS.WORKED	num_actual_loading_minutes
ST	ST.LIFT.CAP.SQ.FT	lift_capability_sq_ft
ST	ST.LOAD.STANDARD.DAYS	num_standard_loading_minutes
ST	ST.MAJORITY.UNIT.LOADED	majority_unit_loaded_name
ST	ST.MNFST.ARIV.SPOD.DATE	spod_actual_arrival_date
ST	ST.MNFST.CARRIER	manifest_carrier_name
ST	ST.MNFST.SENT.DATE.TIME	manifest_sent_date
ST	ST.MNFST.SHIPMENT.ID	manifest_shipment_id
ST	ST.MNFST.TYPE.CARGO	manifest_type_cargo_code
ST	ST.MTONS.LIFTED	cargo_lifted_mtons
ST	ST.PERCENT.LOADED	ship_loading_percent
ST	ST.PHASE	operation_phase_code
ST	ST.PIECES.LIFTED	actual_num_lifted_pieces
ST	ST.PORT.BARGES.LOADED	num_barges_loaded
ST	ST.PORT.BARGES.STUFFED	num_barges_stuffed
ST	ST.PORT.CMDRS.NAME	port_commander_name
ST	ST.PORT.COMMAND	generic_port_location
ST	ST.PORT.SEQ	port_sequence_id
ST	ST.PORT.TOTAL.BARGES	num_barges_at_port
ST	ST.PORT.TTU	reserve_unit_code
ST	ST.REPAIR.PORT.ETA	repair_port_eta
ST	ST.SHIP.STATUS	ship_status_code
ST	ST.SHIP.TOTAL.BARGES.LOADED	total_num_barges_loaded
ST	ST.SHIPS.BARGE.CAP	ship_barge_capacity
ST	ST.SITREP.FLAG	sitrep_listing_flag
ST	ST.SQ.FT.LIFTED	lift_cargo_sq_ft
ST	ST.SUPER.CARGO	num_persons_shipped
ST	ST.TYPE.VESSEL	ship_type_description

Appendix F. IBS PROTOTYPE SCHEMA

The following tables and fields are those identified by IBS developers as prime candidates for inclusion in the SDE. Table and field definitions that do not match those contained in the *Database Specification for the Integrated Booking System Prototype (IBS-P)* were altered during preliminary SDE analysis in coordination with IBS-P developers.

TABLE: ACHARGE
DEFINITION: Accessorial Charges (Miscellaneous Rates)

field_name	datatype	size	nullable	definition
CARR_ID	Character	4	N	carrier ID
CAS_CODE	Character	1	Y	controlled atmosphere service
COMM_C	Character	3	N	commodity code
EQUIP_LEN	Numeric	2	Y	equipment length
RATE	Numeric	7	Y	carrier's usage rate
REG_CODE	Character	3	N	region code
TYPE_SERV	Numeric	1	N	type service
VAN_SZ	Character	1	N	van size

TABLE: ALLOCATE
DEFINITION: Cargo Allocation

field_name	datatype	size	nullable	definition
CHANNEL	Character	15	N	channel name/definition
MTON	Numeric	10	Y	measurement tons
PORTCODE	Character	4	Y	port of embarkation
SAIL_D	Date	8	Y	sail date
SHIPNAME	Character	20	Y	ship name
UIC	Character	6	N	unit identification number
ULN	Character	7	N	unit line number
VOY_DOC_NO	Character	5	Y	voyage document number

TABLE: CHANNELS
DEFINITION: Channels Definition

field_name	datatype	size	nullable	definition
ALD	Date	8	Y	available to load date
ALLOCATED	Character	1	Y	allocated (yes/no)
CHANNEL	Character	15	N	channel name
CUBE	Numeric	10	Y	total volume
EAD	Date	8	Y	earliest arrival date
LAD	Date	8	Y	latest arrival date
MTON	Numeric	10	Y	measurement tonnage
OTIME	Numeric	2	Y	ocean transit time
POD	Character	3	Y	port of debarkation
POE	Character	3	Y	port of embarkation
QTY	Numeric	10	Y	quantity
SQFT	Numeric	10	Y	square feet
TYPEUMD	Character	2	Y	type UMD
UIC	Character	6	N	unit ID code
ULN	Character	7	N	unit line number
VOY_DOC_NO	Character	5	Y	voyage document number
WGT	Numeric	10	Y	total weight

TABLE: CHNLEUCR
DEFINITION: UCR Channel Information

field_name	datatype	size	nullable	definition
CHANNEL	Character	15	N	channel name
POEADDR1	Character	15	Y	POE address 1
POEADDR2	Character	15	Y	POE address 2
POEADDR3	Character	15	Y	POE address 3
POEADDR4	Character	15	Y	POE address 4
POEFONE	Character	10	Y	point of contact phone
POEPOC	Character	20	Y	POE point of contact
RELEASE	Character	14	N	release number
REMARKS	Character	140	Y	remarks
VESSELNAME	Character	17	Y	vessel name
VOY_DOC_NO	Character	5	Y	voyage document number

TABLE: CMR_OUT
DEFINITION: CMR Outsized Cargo

field_name	datatype	size	nullable	definition
CUBE	Numeric	5	Y	total volume
HGT	Numeric	3	Y	height
LEN	Numeric	3	Y	length
ORDER	Numeric	1	Y	record number
PCFN	Character	6	N	port call file number
PCS	Numeric	5	Y	number of pieces
REMARKS	Character	240	Y	remarks
TCN	Character	17	N	transportation control number
WGT	Numeric	7	Y	weight
WID	Numeric	3	Y	width

TABLE: CMR_RU
DEFINITION: CMR Header Record File

field_name	datatype	size	nullable	definition
ACISTAT	Character	1	Y	ACI status
BOOKED	Date	8	Y	date booked with carrier
BOOK_REM	Character	240	Y	booking remarks
BOOK_RSN	Character	2	Y	booking reason
CANCEL_C	Character	1	Y	cancel code
CANC_D	Date	8	Y	date cancel code posted
CANC_RSN	Character	60	Y	reason request cancelled
CARR_BK_NO	Character	17	Y	carrier's booking number
CARR_ID	Character	4	Y	carrier ID
COMMODITY	Character	5	Y	commodity and special handling
CONUS_COST	Numeric	7	Y	drayage cost origin to POE
CUBE	Numeric	5	Y	total volume
C_DODAAC	Character	6	N	consignee DODAAC
DELAY_C	Character	1	Y	delay code
DELAY_D	Date	8	Y	date delay code posted
D_AVAIL	Date	8	Y	date available
D_DUE_POE	Date	8	Y	date due at POE
FLOW_FCT	Character	2	Y	daily flow factor
FUND_AG	Character	1	Y	funding agency code
LIFT_D	Date	8	Y	lift date
LTC	Character	1	Y	lading term code
LTON	Numeric	4	Y	long tonnage

MTON	Numeric	4	Y	measurement tonnage
NO_SU	Numeric	2	Y	number of shipment units
OCEAN_COST	Numeric	8	Y	overocean cost POE to POD
OCN_COMM	Character	1	Y	ocean commodity code
OCONS_COST	Numeric	7	Y	drayage cost POD to destination
OFFERED	Date	8	Y	date offered to carrier
PCFN	Character	6	N	port call file number
PCS	Numeric	5	Y	total number of pieces
POD	Character	3	Y	port of debarkation
POE	Character	3	Y	port of embarkation
POE_COST	Numeric	7	Y	port handling cost
PRIORITY	Character	1	Y	transportation priority
PROJ_C	Character	3	Y	project code
PRP_REL_D	Date	8	Y	projected release date
RDD	Date	8	Y	required delivery date
RECD_D	Date	8	Y	date ETRR received
RECD_T	Character	4	Y	time ETRR received
REL_D	Date	8	Y	date ETR released
REL_POE	Character	3	Y	POE ETR released to
REL_ROUTID	Character	7	N	release's routing ID
REL_T	Character	4	Y	time ETR released
REMARKS	Character	240	Y	remarks
REOFFR_D	Date	8	Y	date reoffer posted
REOFFR_POE	Character	3	Y	request reoffered to POE
REQ_ROUTID	Character	7	Y	requestor's routing ID
R_DODAAC	Character	6	N	requestor DODAAC
R_ID	Character	7	N	requestor ID
SCRATCH	Memo	10	Y	memo field
SOCO_R_NDX	Character	2	Y	SOCO routing index
SOCO_TERM	Character	2	Y	SOCO terms of carriage
SOCO_VES	Character	4	Y	SOCO vessel number
SPOT_D	Date	8	Y	spot date
SRO_DUE_D	Date	8	Y	SRO date due at POD
SRO_ID	Character	4	Y	Standing Route Order ID
SRO_MODE	Character	1	Y	SRO transportation mode
SRO_POE	Character	3	Y	SRO POE
STATUS	Character	1	Y	booking status (CMR)
S_DODAAC	Character	6	N	shipper DODAAC
TOTAL_COST	Numeric	11	Y	total cost of move
TYPE_OFFER	Character	1	Y	type offer code
USR_ID	Character	14	Y	user ID

VAN-RLSD	Numeric	3	Y	number of vans released
VAN_REQD	Numeric	2	Y	number of vans required
VAN_SZ	Character	1	Y	van size
VOY_DOC_NO	Character	5	Y	voyage document number
WGT	Numeric	7	Y	total weight

TABLE: CMR_SU
DEFINITION: Cargo Movement Requirement Shipment Unit

field_name	datatype	size	nullable	definition
COMMODITY	Character	5	Y	commodity and special handling
CUBE	Numeric	5	Y	total volume
C_DODAAC	Character	6	Y	consignee DOAAC
FUND_AG	Character	1	Y	funding agency code
PCFN	Character	6	N	port call file number
PCS	Numeric	5	Y	number of pieces
POD	Character	3	Y	port of debarkation
PRIORITY	Numeric	1	Y	transportation priority
PROJ_C	Character	3	Y	project code
RDD	Date	8	Y	required delivery date
REMARKS	Character	240	Y	remarks
TCN	Character	17	N	transportation control number
TYPEPACK	Character	2	Y	type pack code
WGT	Numeric	7	Y	total weight

TABLE: CONTRATE
DEFINITION: MSC Container Rates

field_name	datatype	size	nullable	definition
CARR_ID	Character	4	N	carrier ID
COMM_C	Character	3	N	commodity code
PERCENT	Numeric	5	Y	carrier's usage rate
PODZONE	Character	2	N	major POD zone
RATE	Numeric	7	Y	rate per MTON
REMARKS	Character	2	Y	reference remarks
ROUTE_NDX	Character	2	N	route index
VAN_SZ	Character	1	N	van size

TABLE: CONUSDR
DEFINITION: CONUS Drayage/Line-Haul Rates

field_name	datatype	size	nullable	definition
CARR_ID	Character	4	N	carrier ID
ORIGINC	Character	15	Y	origin city
ORIGINS	Character	2	Y	origin state
PORTCODE	Character	3	Y	POE port code
RATE	Numeric	7	Y	carrier's usage rate
VAN_SZ	Character	1	Y	van size

TABLE: DETAIL
DEFINITION: UMD Detail Records

field_name	datatype	size	nullable	definition
ACTION	Character	1	N	transaction code
AWT	Character	1	Y	air/wheeled/track flag
CCC	Character	3	Y	cargo classification code
CLASSIFY	Character	25	Y	hazardous cargo classification
COMMODITY	Character	5	Y	commodity code
CUBE	Numeric	7	Y	volume
DESC	Character	21	Y	line item description
DODIC	Character	4	Y	DOD ID code
FLASHPT	Character	4	Y	flash point
FRGTNDX	Character	2	Y	freight classification index
FRGTNO	Character	6	Y	freight classification number
GROUP	Character	1	Y	compatibility group
HAZARD	Character	1	Y	hazardous cargo indicator
HGT	Numeric	4	Y	height
HLDC	Character	1	Y	heavy lift/dimension code
LEN	Numeric	4	Y	length
LIN	Character	6	Y	line item number
LINNDX	Character	2	Y	line item number index
LOAD	Character	1	Y	load indicator
MODE	Character	1	Y	mode to POE
MODEL	Character	6	Y	model
NSN_FSC	Character	13	Y	NSN/FSC/NNSN
QTY	Numeric	3	Y	quantity
REMARKS	Character	50	Y	remarks
ROUNDS	Numeric	8	Y	round count
SHPGNAME	Character	50	Y	shipping name

TCN	Character	17	N	transportation control number
TYPEBACK	Character	2	Y	type pack
TYPEUMD	Character	2	N	type UMD
UIC	Character	6	N	unit ID code
ULN	Character	7	N	unit line number
UNNA_IND	Character	2	Y	UN/NA indicator
UNNA_NO	Character	4	Y	UN/NA number
UN_CLASS	Character	2	Y	UN class number
WGT	Numeric	7	Y	weight
WID	Numeric	4	Y	width

TABLE: DODAACS
DEFINITION: DODAAC Information

field_name	datatype	size	nullable	definition
CITY	Character	30	Y	city
DODAAC	Character	6	N	DODAAC
NAME	Character	80	Y	name
STATE	Character	2	Y	state
ZIP	Character	9	Y	zip

TABLE: EUCR
DEFINITION: Export UCR Header Record

field_name	datatype	size	nullable	definition
MODE	Character	1	Y	deployment mode
ORIGIN_G	Character	4	Y	origin geolocation code
POEADDR1	Character	15	Y	POE address line 1
POEADDR2	Character	15	Y	POE address line 2
POEADDR3	Character	15	Y	POE address line 3
POEADDR4	Character	15	Y	POE address line 4
POEFONE	Character	10	Y	POC's telephone number
POEPOC	Character	20	Y	point of contact at POE
RELEASE	Character	14	N	release number
REMARKS	Character	140	Y	reference remarks
R_DODAAC	Character	6	Y	requestor DODAAC
R_ID	Character	8	Y	requestor identifier
TYPEUMD	Character	2	Y	type umd
UIC	Character	6	N	unit ID code
ULN	Character	7	N	unit line number

VESSELNAME	Character	17	Y	vessel name
VOY_DOC_NO	Character	5	Y	voyage document number

TABLE: EUCR4
DEFINITION: Export UCR TCN Records

field_name	datatype	size	nullable	definition
RELEASE	Character	14	N	release number
TCN	Character	17	Y	transportation control number

TABLE: GEOFILE
DEFINITION: GEOFILE Data

field_name	datatype	size	nullable	definition
ARMY	Character	5	Y	Army location code
CANCELLED	Numeric	6	Y	date cancelled
CHANGED	Numeric	6	Y	date changed
CLASS	Character	1	Y	security classification
COORD	Character	15	Y	geographical coordinates
CREATED	Numeric	6	Y	date created
CS_CD	Character	2	Y	country/state code
CS_LN	Character	15	Y	country/state/long name
CS_SN	Character	5	Y	country/state name
GEOCODE	Character	4	N	geolocation code
GSACITY	Character	4	Y	GSA city code
GSACOUNTY	Character	3	Y	GSA county code
GSASTATE	Character	2	Y	GSA state code
ICAO	Character	4	Y	international civil aviation
ITC	Character	3	Y	installation type code
LPRC	Character	2	Y	logistics planning and reporting
NAME	Character	17	Y	in-the-clear name
NAVY	Character	2	Y	Navy ocean area code
PROV_CD	Character	3	Y	providence code
PROV_N	Character	14	Y	providence name
P_GEO	Character	4	Y	prime GEOCODE
REGION	Character	1	Y	command area for GEOCODE
STATUS	Character	1	Y	record status
TAC_ZONE	Character	2	Y	tactical zone
UIC_RESP	Character	6	Y	UIC of responsible organization

TABLE: HEADER
DEFINITION: UMD Header Records

field_name	datatype	size	nullable	definition
ACTION	Character	1	N	transaction code
CONSIGNEE	Character	20	Y	consignee name
D_AVAIL	Date	8	Y	date available
D_R_SPLC	Character	9	Y	destination rail SPLC
D_T_SPLC	Character	9	Y	destination truck SPLC
EUCR	Logical	1	Y	export UCR flag
GBLOC	Character	4	Y	GBL Office Code
MODE	Character	1	Y	deployment mode
ORIGIN_G	Character	4	Y	origin GEOCODE
O_R_SPLC	Character	9	Y	origin rail SPLC
O_T_SPLC	Character	9	Y	origin truck SPLC
PRIORITY	Character	1	Y	transportation priority
PROJ_C	Character	3	Y	project code
PSI	Character	1	Y	private siding indicator
P_D_R_SCAC	Character	4	Y	primary destination rail SCAC
P_O_R_SCAC	Character	4	Y	primary origin rail SCAC
RDD	Date	8	Y	required delivery date
RELEASE	Character	14	Y	release number
REQNAME	Character	20	Y	requestor name
REQPHONE	Character	10	Y	requestor phone
R_DODAAC	Character	6	Y	requestor DODAAC
R_ID	Character	8	Y	requestor ID
STATE	Character	2	Y	state
STATION	Character	9	Y	abbreviated station name
S_DODAAC	Character	6	Y	shipper DODAAC
S_D_R_SCAC	Character	4	Y	secondary destination rail
S_O_R_SCAC	Character	4	Y	secondary origin rail SCAC
TAC	Character	4	Y	transportation account code
TRANSMTD	Date	8	Y	date transmitted
TYPEUMD	Character	2	N	type UMD
UIC	Character	6	N	unit ID code
ULN	Character	7	N	unit line number
UNITNAME	Character	30	Y	unit name

TABLE: INTRANS
DEFINITION: Inland Transit Times

field_name	datatype	size	nullable	definition
ORIGIN	Character	28	Y	origin name
ORIGIN_G	Character	4	N	origin GEOCODE
POE	Character	28	Y	port of embarkation
POE_G	Character	4	N	SPOE GEOCODE
RAIL_D	Numeric	2	Y	days by rail
TRUCK_D	Numeric	2	Y	days by truck

TABLE: JOPESE3
DEFINITION: JOPES ASCII Input

field_name	datatype	size	nullable	definition
ALD	Date	8	Y	available to load date
CALD	Character	4	Y	ALD C-day
CEAD	Character	4	Y	EAD C-day
CLAD	Character	4	Y	LAD C-day
EAD	Date	8	Y	earliest arrival date
LAD	Date	8	Y	latest arrival date
POD	Character	3	Y	port of debarkation
POE	Character	3	Y	port of embarkation
UIC	Character	6	N	unit identification code
ULN	Character	7	N	unit line number

TABLE: LOADTIME
DEFINITION: Load Time Database

field_name	datatype	size	nullable	definition
LOAD	Numeric	2	Y	load time
MTON_AVG	Numeric	7	Y	average MTONs
SHIPTYPE	Character	3	Y	ship type
SUBTYPE	Character	15	Y	ship subtype
UNLOAD	Numeric	2	Y	unload time

TABLE: MADD
DEFINITION: Master Address File

field_name	datatype	size	nullable	definition
ADDRESS1	Character	35	Y	mailing address line 1

ADDRESS2	Character	35	Y	mailing address line 2
ADDRESS3	Character	35	Y	mailing address line 3
ADDRESS4	Character	35	Y	mailing address line 4
ADDRESS5	Character	35	Y	mailing address line 5
BBULKCD	Character	6	Y	breakbulk code
CITY	Character	6	Y	city name
EFFECTIVE	Date	8	Y	effective date
MADCD	Character	6	N	DODAAC
NAME	Character	35	Y	name
NUM_STCD	Character	2	Y	numeric state code
POD	Character	3	Y	preassigned POD
SHORTNAME	Character	35	Y	name/address abbreviation
SPLC	Character	6	Y	SPLC
STATE_CTRY	Character	2	Y	state/country code
STCTRY_LN	Character	20	Y	state/country long name
ZIP	Character	5	Y	zip code

TABLE: MSTRDET
DEFINITION: Master IBS Detail File

field_name	datatype	size	nullable	definition
ACTION	Character	1	N	transaction code
AWT	Character	1	Y	air/wheeled/track flag
CCC	Character	3	Y	cargo classification code
CLASSIFY	Character	25	Y	hazardous cargo classification
COMMODITY	Character	5	Y	commodity code
CUBE	Numeric	7	Y	volume
DESC	Character	21	Y	item description
DODIC	Character	4	Y	DOD ID code
FLASHPT	Character	4	Y	flash point
FRGTNDX	Character	2	Y	freight classification index
FRGTNO	Character	6	Y	freight classification number
GROUP	Character	1	Y	compatibility group
HAZARD	Character	1	Y	hazardous indicator
HGT	Numeric	4	Y	height
HLDC	Character	1	Y	heavy lift/dimension code
LEN	Numeric	4	Y	length
LIN	Character	6	Y	line item number
LINNDX	Character	2	Y	line item number index
LOAD	Character	1	Y	load indicator
MODE	Character	1	Y	mode to POE

MODEL	Character	6	Y	model number
NSN_FSC	Character	13	Y	NSN/FSC/NNSN
QTY	Numeric	3	Y	quantity
REMARKS	Character	50	Y	remarks
ROUNDS	Numeric	8	Y	round count
SHPGNAME	Character	50	Y	shipping name
TCN	Character	17	N	TCN
TYPEPACK	Character	2	Y	type pack
TYPEUMD	Character	2	N	type UMD
UIC	Character	6	N	unit ID code
ULN	Character	7	N	unit line number
UNNA_IND	Character	2	Y	UN/NA indicator
UNNA_NO	Character	4	Y	UN/NA number
UN_CLASS	Character	2	Y	UN class number
WGT	Numeric	7	Y	weight
WID	Numeric	4	Y	width

TABLE: MSTRHDR
DEFINITION: Master IBS Header File

field_name	datatype	size	nullable	definition
ACTION	Character	1	N	transaction code
BILEVEL	Numeric	2	Y	bilevel
BUS	Numeric	2	Y	commercial bus
CABOOSE	Numeric	2	Y	caboose/guardcar
CARGOS	Numeric	2	Y	supercargoes
CONSIGNEE	Character	20	Y	consignee name
CONTONCAR	Numeric	2	Y	container on flatcar
DODX54	Numeric	2	Y	54' DODX heavy duty flatcar
DODX68	Numeric	2	Y	68' DODX heavy duty flatcar
DROP	Numeric	2	Y	drop frame
DUCR	Logical	1	Y	domestic UCR
D_AVAIL	Date	8	Y	date available
D_R_SPLC	Character	9	Y	destination rail SPLC
D_T_SPLC	Character	9	Y	destination truck SPLC
EUCR	Logical	1	Y	export UCR
FLAT40	Numeric	2	Y	40' flatbed
FLAT45	Numeric	2	Y	45' flatbed
FLAT48	Numeric	2	Y	48' flatbed
GBLOC	Character	4	Y	GBL Office Code
GOND53	Numeric	2	Y	53' gondola

GOND65	Numeric	2	Y	65' gondola
LOWBOY	Numeric	2	Y	commercial lowboy
MODE	Character	1	Y	deployment mode
ORIGIN-G	Character	4	Y	origin GEOCODE
O_R_SPLC	Character	9	Y	origin rail SPLC
O_T_SPLC	Character	9	Y	origin truck SPLC
PRIORITY	Character	1	Y	transportation priority
PROJ_C	Character	3	Y	project code
PSI	Character	1	Y	private siding indicator
P_D_R_SCAC	Character	4	Y	primary destination rail SCAC
P_O_R_SCAC	Character	4	Y	primary origin rail SCAC
RDD	Date	8	Y	required delivery date
RELEASE	Character	14	Y	release number
REQNAME	Character	20	Y	requestor name
REQPHONE	Character	10	Y	requestor phone
R_DODAAC	Character	6	Y	requestor DODAAC
R_ID	Character	8	Y	requestor ID
STATE	Character	2	Y	state
STATION	Character	9	Y	abbreviated station name
S_DODAAC	Character	6	Y	shipper DODAAC
S_D_R_SCAC	Character	4	Y	secondary destination rail
S_O_R_SCAC	Character	4	Y	secondary origin rail SCAC
TAC	Character	4	Y	transportation account number
TIE54	Numeric	2	Y	54' chain tie down flatcar
TIE60	Numeric	2	Y	60' chain tie down flatcar
TIE89	Numeric	2	Y	89' chain tie down flatcar
TRACTOR	Numeric	2	Y	commercial tractor
TRANSMTD	Date	8	Y	date transmitted
TRILEVEL	Numeric	2	Y	trilevel
TRLRONCA	Numeric	2	Y	trailer on flatcar
TYPEUMD	Character	2	N	type UMD
UIC	Character	6	N	unit ID code
ULN	Character	7	N	unit line number
UNITNAME	Character	30	Y	unit name
VAN20	Numeric	2	Y	20' seavan
VAN40	Numeric	2	Y	40' seavan

TABLE: MT_FACT
DEFINITION: MTON Factors Database

field_name	datatype	size	nullable	definition
CARR_ID	Character	4	N	carrier ID
MTFACTOR	Numeric	4	Y	MTON factor
VAN_SZ	Numeric	2	N	van size
VAN_TYPE	Character	1	N	van type
VFACTOR	Numeric	2	Y	vehicle MTON factor

TABLE: OCNTIME
DEFINITION: Ocean Distance and Transit Times

field_name	datatype	size	nullable	definition
DAYS	Numeric	2	Y	transit time days
DISTANCE	Numeric	5	N	distance
HOURS	Numeric	2	Y	transit time hours
SPEED	Numeric	2	N	ship speed

TABLE: OCONUSDR
DEFINITION: OCONUS Drayage/Line-Haul Rates

field_name	datatype	size	nullable	definition
CARR_ID	Character	4	N	carrier ID
DESTCITY	Character	15	N	destination city
DESTCTRY	Character	15	N	destination country
PORTCODE	Character	3	N	POD port code
RATE	Numeric	7	Y	rate
VAN_SZ	Character	1	N	van size

TABLE: PCALLMSG
DEFINITION: Port Call Message Database

field_name	datatype	size	nullable	definition
CONVREPT01	Character	50	Y	convoy consignee 1
CONVREPT02	Character	50	Y	convoy consignee 2
CONVREPT03	Character	50	Y	convoy consignee 3
CONVREPT04	Character	50	Y	convoy consignee 4
EQUIPCONS1	Character	50	Y	equipment consignee 1
EQUIPCONS2	Character	50	Y	equipment consignee 2
EQUIPCONS3	Character	50	Y	equipment consignee 3

EQUIPCONS4	Character	50	Y	equipment consignee 4
GBLCOPY1	Character	50	Y	GBL address line 1
GBLCOPY2	Character	50	Y	GBL address line 2
GBLCOPY3	Character	50	Y	GBL address line 3
GBLCOPY4	Character	50	Y	GBL address line 4
INPOC	Character	80	Y	IN point of contact
ITPOC	Character	80	Y	IT point of contact
MSGFROM	Character	70	Y	message from
MSGID	Character	15	N	message identifier
MSGINFO	Memo	10	Y	copies to list
MSGTO	Memo	10	Y	message to
OPERATION	Character	70	Y	military operation
PARA_1	Memo	10	Y	memo field 1
PARA_2	Memo	10	Y	memo field 2
POE	Character	3	Y	port of embarkation
PORTPOC	Character	80	Y	port point of contact
SHIPNUMBR	Character	50	Y	ship number
SPOENAME	Character	50	Y	SPOE name

TABLE: POE2POD
DEFINITION: POE to POD Mileages

field_name	datatype	size	nullable	definition
FROM_PORT	Character	3	N	water port code for 1st port
MILEAGE	Numeric	6	Y	mileage from 1st to 2nd port
TO_PORT	Character	3	N	water port code for 2nd port

TABLE: PORTS
DEFINITION: Port Information

field_name	datatype	size	nullable	definition
CS_LN	Character	12	Y	country/state long name
GEOCODE	Character	4	Y	geolocation code
PORTAREA	Character	25	Y	in-the-clear port area name
PORTCODE	Character	3	N	water port code
PORTNAME	Character	80	Y	port name
SHORTPORT	Character	20	Y	short port name

TABLE: PORTTHRU
DEFINITION: Port Throughput

field_name	datatype	size	nullable	definition
AMMO_F	Character	1	Y	ammo handling facility
MODE_C	Character	1	Y	transportation mode
MTON	Numeric	6	Y	MTON cargo capacity
POE_G	Character	4	N	POE GEOCODE
POE_MOD	Character	5	Y	POE mode

TABLE: REP1
DEFINITION: Printer Definition Strings

field_name	datatype	size	nullable	definition
PRINTF	Character	132	Y	character print string

TABLE: SHIPCHAR
DEFINITION: Ship Characteristics Database

field_name	datatype	size	nullable	definition
DRAFT	Numeric	3	Y	draft
LEN	Numeric	4	Y	length
MTON	Numeric	7	Y	MTON
QTY	Numeric	3	Y	quantity
SHIPTYPE	Character	3	N	ship type
SPEED	Numeric	5	Y	ship speed
SQFT	Numeric	7	Y	square feet
SS	Logical	1	Y	self-sustaining
SUBTYPE	Character	15	N	ship subtype
TEU	Numeric	5	Y	transportation equivalent units
TYPE	Character	25	Y	type of ship

TABLE: SHORTFAL
DEFINITION: Cargo Allocation Shortfall

field_name	datatype	size	nullable	definition
ALLOCATED	Character	1	Y	allocated (yes/no)
CHANNEL	Character	15	N	channel definition
MTON	Numeric	10	Y	measurement tonnage
PORTCODE	Character	3	Y	port of embarkation
REASON	Character	40	Y	reason shortfall

UIC	Character	6	N	unit identification code
ULN	Character	7	Y	unit line number
VOY_DOC_NO	Character	5	Y	voyage document number

TABLE: STOWFACT
DEFINITION: Stow Factors by Ship Type

field_name	datatype	size	nullable	definition
CARG_TYPE	Character	25	Y	cargo type
SHIPTYPE	Character	3	N	ship type code
SHP_TYP_ID	Character	2	Y	ship type ID code
STOW_FACTR	Numeric	3	Y	stow factor
TYPE	Character	24	Y	ship type

TABLE: VESSCHED
DEFINITION: Vessel Schedule Information

field_name	datatype	size	nullable	definition
ARRIVE_D	Date	8	Y	arrival date
ARRIVE_T	Character	1	Y	arrival actual/expected
ARRIV_TIME	Character	4	Y	arrival time
COMVOYNO	Character	2	Y	commercial voyage number
CUTOFF_D	Date	8	Y	cutoff date
ENTRY_D	Date	8	Y	entry date
PORTCODE	Character	3	Y	port code
SAIL_D	Date	8	Y	sail date
SAIL_T	Character	1	Y	sailing actual/expected
SAIL_TIME	Character	4	Y	sailing time
TERMINAL	Character	7	Y	terminal
TERMS_1	Character	2	Y	terms of carriage 1
TERMS_2	Character	2	Y	terms of carriage 2
TERMS_3	Character	2	Y	terms of carriage 3
TERMS_4	Character	2	Y	terms of carriage 4
TERMS_5	Character	2	Y	terms of carriage 5
TERMS_6	Character	2	Y	terms of carriage 6
VOY_DOC_NO	Character	5	N	voyage document number

TABLE: VESSEL
DEFINITION: Vessel Definitions Database

field_name	datatype	size	nullable	definition
CALLSIGN	Character	8	Y	ship's call sign
CAPACITY	Numeric	10	Y	total ship capacity
CARR_ID	Character	4	Y	carrier ID
ENTRY_D	Date	8	Y	entry date
FLAG	Character	2	Y	flag ship is sailing under
NO_CONT	Numeric	4	Y	number of containers
SHIPNAME	Character	20	N	ship name
SHIPTYPE	Character	3	N	ship type
STOW_CAP	Numeric	10	Y	ship's stowage capacity

TABLE: VOYAGE
DEFINITION: Voyage Identification Data

field_name	datatype	size	nullable	definition
SHIPNAME	Character	20	Y	ship name
SHIPTYPE	Character	3	Y	ship type
UNITMOVE	Logical	1	Y	unit move (yes/no)
VOY_DOC_NO	Character	5	N	voyage document number

Appendix G. WPS PROTOTYPE SCHEMA

The following tables and fields are those identified by WPS developers as prime candidates for inclusion in the SDE. These tables represent a small subset of the tables actually used in the current WPS prototype.

TABLE: EXPLOSIVE
DEFINITION: Active import explosive.

field_name	datatype	size	nullable	definition
CUBE	NUMBER	22	Y	?
LOT	CHAR	14	Y	?
NET_EXPLOSIVE_WT	NUMBER	22	Y	?
PCS	NUMBER	22	Y	?
RECNO	NUMBER	22	N	?
WT	NUMBER	22	Y	?

TABLE: HISTORY
DEFINITION: History import shipment unit. Same as SHIPMENT.

TABLE: HSEXPLO
DEFINITION: History import explosive. Same as EXPLOSIVE.

TABLE: HSOUTSZ
DEFINITION: History import outsize. Same as OUTSIZE.

TABLE: HSREMRK
DEFINITION: History import remarks. Same as REMARKS.

TABLE: HSSUPMNT
DEFINITION: History import supplement. Same as SUPPLEMENT.

TABLE: HSVOYDOC
DEFINITION: History import voyage document. Same as VOYDOC.

TABLE: HSVSNR

DEFINITION: History import vessel. Same as VSNR.

TABLE: OUTSIZE
DEFINITION: Active import outsize.

field_name	datatype	size	nullable	definition
BII	NUMBER	22	Y	?
CUBE	NUMBER	22	Y	?
HEIGHT	NUMBER	22	Y	?
LENGTH	NUMBER	22	Y	?
MODEL	CHAR	6	Y	?
PCS	NUMBER	22	Y	?
RECNO	NUMBER	22	N	?
SERLNO	CHAR	13	Y	?
WIDTH	NUMBER	22	Y	?
WT	NUMBER	22	Y	?

TABLE: REMARKS
DEFINITION: Active import remarks.

field_name	datatype	size	nullable	definition
RECNO	NUMBER	22	N	?
REMARK	CHAR	26	Y	?
SEQNO	CHAR	1	Y	?

TABLE: SHIPMENT
DEFINITION: Active import shipment unit.

field_name	datatype	size	nullable	definition
ADJ_CODE	CHAR	1	Y	?
ADV_PROC_DATE	NUMBER	22	Y	?
BARGE_ARRIVAL_DATE	DATE	7	Y	?
BARGE_INFO_DATE	DATE	7	Y	?
BARGE_NAME	CHAR	12	Y	?
BARGE_NO	CHAR	6	Y	?
BARGE_RRO_FLAG	CHAR	1	Y	?
BARGE_TCMD_DATE	DATE	7	Y	?
BOOKING_DESC	CHAR	4	Y	?
BOOKING_NR	CHAR	5	Y	?
CARGO_STATUS	CHAR	1	Y	?
CDIST	CHAR	1	Y	?

CNXNO	CHAR	5	Y	?
COMMODITY	CHAR	3	Y	?
CONSIGNEE	CHAR	6	Y	?
CONSIGNOR	CHAR	6	Y	?
CONTAINER_RELEASE_UNITS	CHAR	2	Y	?
CORRECTION_DATE	NUMBER	22	Y	?
CORRECTION_USER_ID	CHAR	3	Y	?
CUBE	NUMBER	22	Y	?
CURRENT_LOCATION	CHAR	5	Y	?
CUSTOMS_PAPER_IND	CHAR	1	Y	?
CXCNT	CHAR	2	Y	?
DAMAGE_CODE_1	CHAR	3	Y	?
DAMAGE_CODE_2	CHAR	3	Y	?
DAMAGE_CODE_3	CHAR	3	Y	?
DATESHP	NUMBER	22	Y	?
DATE_302_AVAILABLE	DATE	7	Y	?
DATE_302_PREP	DATE	7	Y	?
DATE_302_REQUESTED	DATE	7	Y	?
DELETE_ACTV_CD	CHAR	4	Y	?
DELETE_REASON	CHAR	1	Y	?
DELETE_USER_ID	CHAR	3	Y	?
DIC1	CHAR	1	N	?
DIC2	CHAR	1	N	?
DIC3	CHAR	1	N	?
DISCHARGED_CUBE	NUMBER	22	Y	?
DISCHARGED_PIECES	NUMBER	22	Y	?
DISCHARGED_WEIGHT	NUMBER	22	Y	?
DISCHARGE_ACTV_CD	CHAR	4	Y	?
DISCHARGE_DATE	NUMBER	22	Y	?
DISCHARGE_LOCATION	CHAR	5	Y	?
DISCHARGE_POD	CHAR	3	Y	?
DISCHARGE_PROC_DATE	NUMBER	22	Y	?
DISCHARGE_USER_ID	CHAR	3	Y	?
DISPOSITION_ACTV_CD	CHAR	4	Y	?
DISPOSITION_DATE	NUMBER	22	Y	?
DISPOSITION_PROC_DATE	NUMBER	22	Y	?
DISPOSITION_USER_ID	CHAR	3	Y	?
DIVERTED_POD	CHAR	3	Y	?
DODIC	CHAR	4	Y	?
DPMNETWT	NUMBER	22	Y	?
ETA	CHAR	1	Y	?

EXPORT_IMPORT_IND	CHAR	1	Y	?
GANG	CHAR	1	Y	?
GBL	CHAR	8	Y	?
GLOC	CHAR	1	Y	?
GRADE	CHAR	2	Y	?
GROUP_COMPATABILITY	CHAR	1	Y	?
HDLG	CHAR	1	Y	?
HISTORY_DATE	NUMBER	22	Y	?
HISTORY_STATUS	CHAR	1	Y	?
HOLD_IN_DATE	NUMBER	22	Y	?
HOLD_OUT_DATE	NUMBER	22	Y	?
INITIALS	CHAR	2	Y	?
INPCD	CHAR	2	Y	?
INSIDE_CUBE	NUMBER	22	Y	?
LASTNAME	CHAR	13	Y	?
LIFT_ACTV_CD	CHAR	4	Y	?
LIFT_DATE	NUMBER	22	Y	?
LIFT_PROC_DATE	NUMBER	22	Y	?
LIFT_USER_ID	CHAR	3	Y	?
MANIFEST_CUBE	NUMBER	22	Y	?
MANIFEST_DATE	NUMBER	22	Y	?
MANIFEST_IND	CHAR	1	Y	?
MANIFEST_PIECES	NUMBER	22	Y	?
MANIFEST_WEIGHT	NUMBER	22	Y	?
MDE	CHAR	1	Y	?
MILVAN_BEAM_ASM	CHAR	2	Y	?
NATIONAL_STOCK_NO	CHAR	13	Y	?
NEW_POD	CHAR	3	Y	?
NEW_POE	CHAR	3	Y	?
OCEAN_CARR	CHAR	4	Y	?
OPCODE	CHAR	2	Y	?
PCS	NUMBER	22	Y	?
PKG	CHAR	2	Y	?
POD	CHAR	3	N	?
POE	CHAR	3	N	?
PORTCALL_NUMBER	CHAR	5	Y	?
POSTNO	NUMBER	22	N	?
POVCOLOR	CHAR	3	Y	?
POVLICENSE	CHAR	5	Y	?
POVMAKE	CHAR	4	Y	?
POVSTATE	CHAR	2	Y	?

POVYR	NUMBER	22	Y	?
PREVIOUS_LOCATION	CHAR	5	Y	?
PREVIOUS_POD	CHAR	3	Y	?
PREVIOUS_POE	CHAR	3	Y	?
PROC_DATE	NUMBER	22	Y	?
PROC_TIME	CHAR	6	Y	?
PROJECT_CODE	CHAR	3	Y	?
RDD	NUMBER	22	Y	?
REASON	CHAR	1	Y	?
RECEIPT_ACTV_CD	CHAR	4	Y	?
RECEIPT_CUBE	NUMBER	22	Y	?
RECEIPT_DATE	NUMBER	22	Y	?
RECEIPT_LOCATION	CHAR	5	Y	?
RECEIPT_PIECES	NUMBER	22	Y	?
RECEIPT_POE	CHAR	3	Y	?
RECEIPT_PROC_DATE	NUMBER	22	Y	?
RECEIPT_USER_ID	CHAR	3	Y	?
RECEIPT_WEIGHT	NUMBER	22	Y	?
RECNO	NUMBER	22	N	?
REGRESS_USER_ID	CHAR	3	Y	?
REMARKS	CHAR	17	Y	?
ROOTNO	NUMBER	22	N	?
ROOT_TCN	CHAR	17	N	?
ROUND_CNT	NUMBER	22	Y	?
RSTAT	CHAR	1	Y	?
SAIL_DATE	NUMBER	22	Y	?
SCAC	CHAR	4	Y	?
SEALNO	CHAR	8	Y	?
SHIFT	CHAR	1	Y	?
SHIP_CODE	NUMBER	22	Y	?
SPLIT_DISP_IND	CHAR	1	Y	?
SPLIT_STOW_USER_ID	CHAR	3	Y	?
SPLIT_USER_ID	CHAR	3	Y	?
STOPOFF_IND_CNT	CHAR	1	Y	?
STOW	CHAR	4	Y	?
STUFFING_ACTV_CD	CHAR	4	Y	?
STUFFING_DATE	NUMBER	22	Y	?
STUFFING_PROC_DATE	NUMBER	22	Y	?
STUFFING_USER_ID	CHAR	3	Y	?
SUPNO	CHAR	2	Y	?
SUS	CHAR	1	Y	?

SUSV	CHAR	2	Y	?
TAC	CHAR	4	Y	?
TCMD_IND	CHAR	1	Y	?
TCN	CHAR	17	N	?
TCNSTOW_USER_ID	CHAR	3	Y	?
TCON	CHAR	5	Y	?
TEMP_RANGE	CHAR	4	Y	?
TERMAC	CHAR	1	Y	?
TPRI	CHAR	1	Y	?
TRANF_ACTV_CD	CHAR	4	Y	?
TRANF_DATE	NUMBER	22	Y	?
TRANF_PROC_DATE	NUMBER	22	Y	?
TRANF_USER_ID	CHAR	3	Y	?
TRANSPORT_ID_NBR	CHAR	8	Y	?
TRAN_MVT_REL_NBR	CHAR	12	Y	?
TYPE	CHAR	1	Y	?
UCNSE	CHAR	6	Y	?
ULN	CHAR	7	Y	?
UNSTUFF_ACTV_CD	CHAR	4	Y	?
UNSTUFF_CUBE	NUMBER	22	Y	?
UNSTUFF_DATE	NUMBER	22	Y	?
UNSTUFF_PIECES	NUMBER	22	Y	?
UNSTUFF_PROC_DATE	NUMBER	22	Y	?
UNSTUFF_USER_ID	CHAR	3	Y	?
UNSTUFF_WEIGHT	NUMBER	22	Y	?
UN_CLASS	CHAR	1	Y	?
UN_DIV	CHAR	1	Y	?
UN_NA	CHAR	2	Y	?
UN_NA_ID	NUMBER	22	Y	?
VANZIP	CHAR	5	Y	?
VAN_NO	CHAR	8	Y	?
VAN_OWNER	CHAR	4	Y	?
VAN_PKG	CHAR	2	Y	?
VAN_SIZE	NUMBER	22	Y	?
VAN_SIZE_ORDER	NUMBER	22	Y	?
VOYDOC	CHAR	5	N	?
VSLDSHIND	CHAR	1	Y	?
VSNR	NUMBER	22	N	?
VSTAT	CHAR	2	Y	?
WT	NUMBER	22	Y	?

TABLE: SUPPLEMENT
DEFINITION: Active import vessel supplement.

field_name	datatype	size	nullable	definition
EXPORT_IMPORT_IND	CHAR	1	Y	?
GLOC	CHAR	1	Y	?
POD	CHAR	3	N	?
POE	CHAR	3	N	?
SUPNO	NUMBER	22	N	?
SUP_DATE	DATE	7	N	?
TERMAC	CHAR	1	Y	?
VOYDOC	CHAR	5	N	?
VSNR	NUMBER	22	N	?
VSTAT	CHAR	2	Y	?

TABLE: VOYDOC
DEFINITION: Active import voyage document.

field_name	datatype	size	nullable	definition
CTM_CONTAINERS	NUMBER	22	Y	?
CTM_DATE	DATE	7	Y	?
CTM_MTON	NUMBER	22	Y	?
DATE_302_PREP	DATE	7	Y	?
DELIVERED_CONTAINERS	NUMBER	22	Y	?
DELIVERED_CUBE	NUMBER	22	Y	?
DISCHARGED_CONTAINERS	NUMBER	22	Y	?
DISCHARGED_CUBE	NUMBER	22	Y	?
DISCH_COMP_DATE	DATE	7	Y	?
DISCH_START_DATE	DATE	7	Y	?
DISPOSITION_CONTAINERS	NUMBER	22	Y	?
DISPOSITION_CUBE	NUMBER	22	Y	?
DIVERTED_CONTAINERS	NUMBER	22	Y	?
DIVERTED_CUBE	NUMBER	22	Y	?
EXPORT_IMPORT_IND	CHAR	1	Y	?
GLOC	CHAR	1	Y	?
MNFST_LOADED_CONTAINERS	NUMBER	22	Y	?
MNFST_LOADED_CUBE	NUMBER	22	Y	?
MNFST_LOADED_DATE	DATE	7	Y	?
MNFST_PREP_DATE	DATE	7	Y	?
POD	CHAR	3	N	?

POE	CHAR	3	N	?
SAIL_DATE	DATE	7	Y	?
TALLY_PREP_DATE	DATE	7	Y	?
TCMD_PREP_DATE	DATE	7	Y	?
TERMAC	CHAR	1	Y	?
VOYDOC	CHAR	5	N	?
VSNR	NUMBER	22	N	?
VSTAT	CHAR	2	Y	?

TABLE: VSNR
DEFINITION: Active import vessel.

field_name	datatype	size	nullable	definition
ACTL_DATE_ARV	DATE	7	Y	?
DATE_INACT	DATE	7	Y	?
DISCOR_MSG_DATE	DATE	7	Y	?
EST_COMP_DATE	DATE	7	Y	?
ETA	DATE	7	Y	?
EXPORT_IMPORT_IND	CHAR	1	Y	?
GLOC	CHAR	1	Y	?
IRCS	CHAR	8	Y	?
LAST_ACCESS_DATE	DATE	7	Y	?
OVRSHT_REPLY_DATE	DATE	7	Y	?
OVRSHT_RPT_DATE	DATE	7	Y	?
OVRSHT_RPT_DATE2	DATE	7	Y	?
OVRSHT_RPT_DATE3	DATE	7	Y	?
POSTNO	NUMBER	22	N	?
REASON_INACT	CHAR	20	Y	?
SHIP_AGENT	CHAR	2	Y	?
TERMAC	CHAR	1	Y	?
VNAME	CHAR	17	Y	?
VSNR	NUMBER	22	N	?

TABLE: XEXPLOSIVE
DEFINITION: Active export explosive. Same as EXPLOSIVE.

TABLE: XHISTORY
DEFINITION: History export shipment unit. Same as SHIPMENT.

TABLE: XHSEXPLO
DEFINITION: History export explosive. Same as EXPLOSIVE.

TABLE: XHSOUTSZ
DEFINITION: History export outsize. Same as OUTSIZE.

TABLE: XHSREMRK
DEFINITION: History export remarks. Same as REMARKS.

TABLE: XHSVOYDOC
DEFINITION: History export voyage document. Same as XVOYDOC.

TABLE: XHSVSNR
DEFINITION: History export vessel. Same as XVSNR.

TABLE: XOUTSIZE
DEFINITION: Active export outsize. Same as OUTSIZE.

TABLE: XREMARKS
DEFINITION: Active export remarks. Same as REMARKS.

TABLE: XSHIPMENT
DEFINITION: Active export shipment unit. Same as SHIPMENT.

TABLE: XVOYDOC
DEFINITION: Active export voyage document.

field_name	datatype	size	nullable	definition
CTM_CONTAINERS	NUMBER	22	Y	?
CTM_DATE	DATE	7	Y	?
CTM_MTON	NUMBER	22	Y	?
EXPORT_IMPORT_IND	CHAR	1	Y	?
GLOC	CHAR	1	Y	?
LOAD_COMP_DATE	DATE	7	Y	?
MNFST_INDICATOR	CHAR	1	Y	?
MNFST_LOADED_CONTAINERS	NUMBER	22	Y	?
MNFST_LOADED_CUBE	NUMBER	22	Y	?
MNFST_LOADED_DATE	DATE	7	Y	?
MNFST_LOADED_PCS	NUMBER	22	Y	?
MNFST_LOADED_SU	NUMBER	22	Y	?
MNFST_LOADED_WT	NUMBER	22	Y	?
POD	CHAR	3	N	?
POE	CHAR	3	N	?
SAIL_DATE	DATE	7	Y	?

SUPNO	NUMBER	22	Y	?
SUP_DATE	DATE	7	Y	?
TERMAC	CHAR	1	Y	?
VOYDOC	CHAR	5	N	?
VSTAT	CHAR	2	Y	?

TABLE: XVSNR
DEFINITION: Active export vessel.

field_name	datatype	size	nullable	definition
ACTL_DATE_ARV	DATE	7	Y	?
DATE_INACT	DATE	7	Y	?
EST_COMP_DATE	DATE	7	Y	?
ETA	DATE	7	Y	?
EXPORT_IMPORT_IND	CHAR	1	Y	?
GLOC	CHAR	1	Y	?
IRCS	CHAR	8	Y	?
LAST_ACCESS_DATE	DATE	7	Y	?
LOAD_COMP_DATE	DATE	7	Y	?
REASON_INACT	CHAR	20	Y	?
SHIP_AGENT	CHAR	2	Y	?
TERMAC	CHAR	1	Y	?
VNAME	CHAR	17	Y	?
VOYDOC	CHAR	5	N	?

Appendix H. TDR FIELDS

The following fields in the PDD were taken from a hard copy report of the structure of the TDR. [Note: all fields from the TDR have been arbitrarily assigned to the table 'TDR' for convenience.]

TABLE: TDR
DEFINITION: ?

field_name	datatype	size	nullable	definition
AREA OF OPERATION	N	1	?	Reporting activity area of operation code
CAUSE OF DISCREPANCY	AN	2	?	Type and cause code
CLASS/PROT CODES	A	1	?	Code indicating classified or protected cargo
CONVEYANCE NO.	?	?	?	?
CONVEYANCE TYPE	AN	4	?	?
COUNTRY/STATE CODE	A	2	?	Country or state code
DATE	N	5	?	Julian date
DISCREP. PIECES	?	5	?	Number of pieces in discrepancy report
DISCREP. WEIGHT	?	6	?	Weight (stons) of cargo in discrepancy report
DODAAC	AN	6	?	DOD reporting activity code
METHOD SHIPMENT	AN	1	?	Method used for initial shipment from origin
NO. TCN/ADN ERRORS	N	2	?	Number of Type 3 records to be entered
NSM	?	13	?	?
RECORD TYPE	N	1	?	Type of header record
REPAIR COST	N	7	?	Total repair or replacement cost
RESPONSIBILITY CODE	A	1	?	Organization type responsible for discrepancy
SCAC(S)	AN	20	?	Routing; carrier name/number/codes
SERIAL NO.	N	4	?	Serial number
SHIPPING DOC. NO.	AN	10	?	Shipping document number
STATUS CODE	AN	2	?	TDR-specific status code
TCMD NO.	AN	17	?	Transportation Control Movement Document number
TCN/ADN CODE	AN	17	?	?
TYPE CODE	A	2	?	Type shipping document
TYPE PACK	AN	2	?	Use code

Appendix I. UDM FIELDS

The following fields in the PDD were taken from a hard copy report of the structure of the UDM Ship Tracking System.

TABLE: ST
DEFINITION: ?

field_name	datatype	size	nullable	definition
ST.ARIV.POE.DATE.TIME	datetime	17	?	estimated or actual date/time ship arrives
ST.ARIV.POE.EST.OR.ACT	char	1	?	indicator of estimated or actual date/time
ST.AVAIL.LOAD.DATE.TIME	datetime	17	?	date/time ship is available to load
ST.AVAIL.LOAD.EST.OR.ACT	char	1	?	indicator of estimated or actual date/time
ST.BERTHED.DATE.TIME	datetime	17	?	Estimated or actual date/time ship is berthed
ST.BERTHED.EST.OR.ACT	?	1	?	Flag indicating berthed time is estimated/actual
ST.CHARTER.ORIGIN	char	10	?	Nationality (name of country) that owns vessel
ST.DAYS.MNFST.OVERDUE	?	7	?	?
ST.DEP.REPT.COMMENTS	char	25	?	comments that will be printed on deployment report
ST.DEPT.POE.DATE.TIME	datetime	17	?	date/time of departure from u.s. port
ST.DEPT.POE.EST.OR.ACT	char	1	?	indicator of estimated or actual date/time
ST.EST.REPAIR.DATE	date	11	?	estimate of day repaired
ST.HIST.FLAG	char	4	?	?
ST.HOURS.WORKED	?	7	?	Time it took to load ship in hours and minutes
ST.KEY	?	4	?	Unique record key
ST.LIFT.CAP.MTONS	?	6	?	Lift capacity of ship in mtons
ST.LIFT.CAP.SQ.FT	integer	7	?	Lift capability of vessel in sq. ft.
ST.LOAD.COMPLETION.DATE.TIME	datetime	17	?	date/time loading is completed
ST.LOAD.COMPLETION.EST.OR.ACT	char	1	?	indicator of estimated or actual date/time
ST.LOAD.STANDARD.DAYS	integer	4	?	Number of days it should take to load ship
ST.LOAD.START.DATE.TIME	datetime	17	?	date/time loading begins
ST.LOAD.START.EST.OR.ACT	char	1	?	indicator of estimated or actual date/time
ST.MAJORITY.UNIT.LOADED	char	15	?	in-the-clear name of "biggest" unit loaded
ST.MNFST.ARIV.SPOD.DATE	date	11	?	actual date manifest arrived at spod
ST.MNFST.CARRIER	char	20	?	how manifest is getting to spoe
ST.MNFST.JOPES.FLAG	char	5	?	?
ST.MNFST.RDBC.FLAG	char	4	?	?
ST.MNFST.REMARKS	char	25	?	remarks about manifest

ST.MNFST.SENT.DATE.TIME	datetime	17	?	date/time manifest sent to spoe
ST.MNFST.SHIPMENT.ID	char	17	?	shipment id no. for manifest
ST.MNFST.TYPE.CARGO	char	5	?	type cargo manifested
ST.MTONS.LIFTED	integer	6	?	measurement tons lifted
ST.MULTI.POE.IND	char	5	?	?
ST.OCONV.ORIG.POE	?	15	?	In-the-clear name of the port
ST.OCONV.VESSEL.NAME	?	20	?	?
ST.ORIG.POE	char	15	?	In-the-clear name of the U.S. POE
ST.PERCENT.LOADED	?	3	?	Percentage of the ship loaded with cargo
ST.PHASE	?	2	?	Code indicating the phase of voyage's operation
ST.PIECES.LIFTED	integer	6	?	actual number of pieces lifted
ST.PORT.BARGES.LOADED	char	6	?	no. of barges loaded on the ship at this port
ST.PORT.BARGES.STUFFED	char	6	?	no. bargest that have been stuffed at this port
ST.PORT.CMDRS.NAME	?	20	?	Port Commander's name
ST.PORT.COMMAND	?	2	?	Code indicating generic location of port
ST.PORT.SEQ	?	4	?	Port sequence number
ST.PORT.TOTAL.BARGES	char	6	?	no. barges at this port
ST.PORT.TTU	?	4	?	Code for reserve unit(s) that man the port
ST.REPAIR.PORT	char	15	?	in-the-clear name of the port where the ship will
ST.REPAIR.PORT.ETA	datetime	17	?	estimated date/time arrival at port of repair
ST.SHIP.STATUS	char	3	?	set of codes describing condition of ship
ST.SHIP.STATUS.COMMENTS	char	25	?	ship status info
ST.SHIP.TOTAL.BARGES.LOADED	?	6	?	Total number barges loaded on ship from all ports
ST.SHIPS.BARGE.CAP	char	5	?	ship's barge capacity
ST.SITREP.FLAG	?	1	?	Flag indicating ship's final listing on sitrep
ST.SPOD	char	15	?	in-the-clear name of destination foreign port
ST.SPOD.ARIV.DATE.TIME	datetime	17	?	date/time of arrival at the foreign port
ST.SPOD.ARIV.EST.OR.ACT	char	1	?	indicator of estimated or actual
ST.SQ.FT.LIFTED	integer	7	?	sq ft of cargo lifted
ST.SUPER.CARGO	integer	3	?	no. of persons shipped with cargo
ST.TYPE.VESSEL	?	15	?	In-the-clear description of the type of vessel
ST.VESSEL.NAME	char	20	?	In-the-clear name of the vessel
ST.VESSEL.NAME.XREF	char	20	?	In-the-clear name of the vessel
ST.VESSEL.ORIGIN	char	6	?	?
ST.VOYAGE.DOC.NUM	char	8	?	voyage doc. no. -- unique id. this voyage

Appendix J. PROTOTYPE DATA DICTIONARY SCHEMA

Name: fld_def
Owner: ace
Created: 29-jul-1991 17:19:00
Type: user table
Version: ING6.0

Column Information:

Column Name	Type	Length	Nulls	Defaults	Key Seq
system_acronym	char	3	yes	no	
table_name	char	10	yes	no	
field_name	char	30	yes	no	
datatype	char	10	yes	no	
size	char	3	yes	no	
precision	char	2	yes	no	
nullable	char	1	yes	no	
definition	vchar	50	yes	no	

Name: fld_xref
Owner: ace
Created: 17-sep-1991 15:52:00
Type: user table
Version: ING6.0

Column Information:

Column Name	Type	Length	Nulls	Defaults	Key Seq
sde_field_name	char	30	yes	no	
system_acronym	char	3	yes	no	
table_name	char	10	yes	no	
field_name	char	30	yes	no	

Name: sde_fld_def
Owner: ace
Created: 17-sep-1991 16:07:00
Type: user table
Version: ING6.0

Column Information:

Column Name	Type	Length	Nulls	Defaults	Key Seq
field_name	char	30	yes	no	
datatype	char	10	yes	no	
size	char	3	yes	no	
precision	char	2	yes	no	
units	char	20	yes	no	
domain	vchar	50	yes	no	
definition	vchar	255	yes	no	

```
Name:                system
Owner:               ace
Created:             27-sep-1991 14:59:00
Type:                user table
Version:             ING6.0

Column Information:

                                                                    Key
Column Name                    Type       Length Nulls Defaults Seq
system_acronym                 char            8 yes   no
system_name                    char           40 yes   no
point_of_contact               char           20 yes   no
point_of_contact_phone         char           12 yes   no


Name:                tab_def
Owner:               ace
Created:             23-jul-1991 16:43:00
Type:                user table
Version:             ING6.0

Column Information:

                                                                    Key
Column Name                    Type       Length Nulls Defaults Seq
system_acronym                 char            3 yes   no
table_name                     char           30 yes   no
definition                     vchar          50 yes   no
```

Appendix K. PROTOTYPE DATA DICTIONARY SCRIPTS

The following PDD scripts are available by executing a form of the command line as it appears after the word "usage:". For parameter choices enclosed by braces and separated by a bar (e.g., {sde_field_name|all}), the user must choose one of the options presented (i.e., either 'sde_field_name' or 'all' in the previous example).

sdeflddef
usage: sdeflddef {sde_field_name|all}

Displays full field definition for sde_field_name.
If 'all' is specified, all SDE field names and full
definitions are displayed in alphabetical order.

sdefldxref
usage: sdefldxref {sde_field_name|all}

Displays full field definitions for all system fields that
are cross referenced to sde_field_name. Results are sorted
by system_acronym, table_name, field_name.
If 'all' is specified, all cross references to all SDE fields
are displayed sorted by sde_field_name, system_acronym,
table_name, field_name.

sdehelp
usage: sdehelp

Displays help for routines executable at the Unix prompt.

sdeinsertxref
usage: sdeinsertxref sde_field_name system_acronym table_name field_name

For an existing sde_field_name, adds a cross reference to the
field_name contained in the specified system and table.
Enclose any parameters with embedded blanks (e.g., field_name)
in double quotes.

sdesysfldall
usage: sdesysfldall {system_acronym|all} string

Displays all fields with field_name equal to string.
Also displays containing system_acronym and table_name.
Wildcards (% and _) may be used as part of string.
Run 'sdesystem list' for list of valid system_acronym values.
If 'all' is specified, fields from all systems are displayed, and
results are sorted by field_name, system_acronym, table_name.

sdesysflddef
usage: sdesysflddef {system_acronym|all} field_name

Displays full field definitions for field_name.
Run 'sdesystem list' for list of valid system_acronym values.
If 'all' is specified, all occurences of field_name in all
systems are displayed with results sorted by system_acronym,
table_name.

sdesysfldxref
usage: sdesysfldxref system_acronym {field_name|all}

Displays full field definitions for the sde_field that
is cross referenced to field_name.
Run 'sdesystem list' for list of valid system_acronym values.

sdesystabdef
usage: sdesystabdef {system_acronym|all} {table_name|all}

Displays table definitions for participating systems in SDE.
Run 'sdesystem list' for list of valid system_acronym values.
If 'all' is specified for both parameters, all table definitions
for all systems are displayed, sorted by system_acronym.

sdesystabfld
usage: sdesystabfld system_acronym {table_name|all}

Displays table/field definitions for participating systems in SDE.
Run 'sdesystem list' for list of valid system_acronym values.
If 'all' is specified, table/field definitions for all tables
are displayed, sorted by table_name.

sdesystem
usage: sdesystem {list|full}

Displays information on participating systems in the SDE.
If 'list' is specified, a list of system_acronym's is displayed.
If 'full' is specified, additional information (e.g., phone
number of the point of contact) is displayed.

sdetabfld
usage: sdetabfld {table_name|all}

Displays structure of table(s) that comprise the SDE Prototype
Data Dictionary (PDD). Results are sorted by column sequence
(as defined in create table statement).

sdeupdatename
usage: sdeupdatename old_name new_name

Updates old_name to new_name in both sde_fld_def and fld_xref.

Appendix L. EXAMPLES OF SCRIPT USAGE AND OUTPUT

The following examples illustrate the usage of several PDD scripts. The full current set of PDD information retrieval and maintenance scripts is described in Sect. 4.4, and the script documentation is listed in Appendix K. [Note: PDD scripts were used to produce the listings in Appendixes C-K.]

All examples of user input below are preceded by the number of the Unix job and the $ prompt. The user types the input after the $ prompt to produce the output that follows.

```
(1) In job #325, the user types a script name without any parameters. The result is documentation on
the usage of the script. [Note: for a complete list of the available scripts, type sdehelp.]

325 $ sdesysfldall

usage:  sdesysfldall <system_acronym|all> string

Displays all fields with field_name equal to string.
Also displays containing system_acronym and table_name.
Wildcards (% and _) may be used as part of string.
Run 'sdesystem list' for list of valid system_acronym values.
If 'all' is specified, fields from all systems are displayed, and
results are sorted by field_name, system_acronym, table_name.

(2) In job #326, the user takes the recommendation above and finds out which systems are currently
participating in the SDE.

326 $ sdesystem list
acronym
--------
IBS
TDR
UDM
WPS
--------
(4 rows)

(3) In job #327, the user is interested in finding all fields in WPS that contain the string 'POD'
anywhere in the string.

327 $ sdesysfldall WPS %POD%
system  table_name      field_name
------  ----------      ------------------------------
WPS     SHIPMENT        DISCHARGE_POD
WPS     SHIPMENT        DIVERTED_POD
WPS     SHIPMENT        NEW_POD
WPS     SHIPMENT        POD
WPS     SUPPLEMENT      POD
WPS     VOYDOC          POD
WPS     XVOYDOC         POD
WPS     SHIPMENT        PREVIOUS_POD
------  ----------      ------------------------------
(8 rows)
```

(4) In job #328, a similar query returns all fields in all systems that contain the string 'UN'.

```
328 $ sdesysfldall all %UN%
system  table_name      field_name
------  ----------      ----------------------------
WPS     SHIPMENT        CONTAINER_RELEASE_UNITS
TDR     TDR             COUNTRY/STATE CODE
IBS     CMR_RU          FUND_AG
IBS     CMR_SU          FUND_AG
IBS     GEOFILE         GSACOUNTY
IBS     DETAIL          ROUNDS
IBS     MSTRDET         ROUNDS
WPS     SHIPMENT        ROUND_CNT
UDM     ST              ST.MAJORITY.UNIT.LOADED
IBS     VOYAGE          UNITMOVE
IBS     HEADER          UNITNAME
IBS     MSTRHDR         UNITNAME
IBS     LOADTIME        UNLOAD
IBS     DETAIL          UNNA_IND
IBS     MSTRDET         UNNA_IND
IBS     DETAIL          UNNA_NO
IBS     MSTRDET         UNNA_NO
WPS     SHIPMENT        UNSTUFF_ACTV_CD
WPS     SHIPMENT        UNSTUFF_CUBE
WPS     SHIPMENT        UNSTUFF_DATE
WPS     SHIPMENT        UNSTUFF_PIECES
WPS     SHIPMENT        UNSTUFF_PROC_DATE
WPS     SHIPMENT        UNSTUFF_USER_ID
WPS     SHIPMENT        UNSTUFF_WEIGHT
IBS     DETAIL          UN_CLASS
IBS     MSTRDET         UN_CLASS
WPS     SHIPMENT        UN_CLASS
WPS     SHIPMENT        UN_DIV
WPS     SHIPMENT        UN_NA
WPS     SHIPMENT        UN_NA_ID
------  ----------      ----------------------------
(30 rows)
```

Notice in this output that two systems (IBS and WPS) have a field named 'UN_CLASS'.

(5) In job #329, the user wants to know more about how IBS and WPS each define the field 'UN_CLASS'.

```
329 $ sdesysflddef all UN_CLASS
system  table_name      field_name                  datatype        size    precis  nullab
definition
------  ----------      ----------------------------  ----------      ------ ------   ------
-------------------------------------------------
IBS     DETAIL          UN_CLASS                    Character       2       NA      Y
UN class number
IBS     MSTRDET         UN_CLASS                    Character       2       NA      Y
UN class number
WPS     SHIPMENT        UN_CLASS                    CHAR            1       NA      Y
?
------  ----------      ----------------------------  ----------      ------ ------   ------
-------------------------------------------------
(3 rows)
```

(6) In job #330, the definition of the proposed SDE field that relates to these system fields is displayed.

```
330 $ sdefldef un_class_division_code

SDE FIELD NAME: un_class_division_code
DATA TYPE: char LENGTH: 2
PRECISION: NA
UNITS: NA
DOMAIN: alphanumeric
DEFINITION: United Nations class and division numbers from the International Maritime Dangerous
Goods Code (IMDGC) 49 CFR 172.102. This code is part of the Unit Movement Data (UMD) detail from TC
AIMS.
```

(7) In job #331, the user displays the definitions of all system fields that are cross referenced to 'un_class_division_code'.

```
331 $ sdefldxref un_class_division_code

SDE FIELD NAME: un_class_division_code
MAPS TO:

system  table_name      field_name                    datatype        size   precis   nullab
definition
------  ----------      ----------------------------  ----------      ------ ------   ------
-------------------------------------------------
IBS     DETAIL          UN_CLASS                      Character       2      NA       Y
UN class number
IBS     MSTRDET         UN_CLASS                      Character       2      NA       Y
UN class number
WPS     SHIPMENT        UN_CLASS                      CHAR            1      NA       Y
?
WPS     SHIPMENT        UN_DIV                        CHAR            1      NA       Y
?
------  ----------      ----------------------------  ----------      ------ ------   ------
-------------------------------------------------
(4 rows)
```

NOTE: In the mappings for the SDE field in the example above, IBS concatenates the codes for class and division into a single data element, whereas WPS splits these into two fields. Which design is "better" is debatable; since they enter the system (from the UMD) as one, and because there may be interrelated data quality issues (e.g., if CLASS=x, DIVISION can be a, b, or c, but not d), the SDE uses the composite form. Designers of the distributed database schema and/or interface messages will have to address this and similar discrepancies.

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