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Doing Business with DoD Using Electronic Data Interchange

An Information Package for Freight Carriers

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INTRODUCTION

As a representative of a Department of Defense (DoD) freight carrier, you are most likely meeting the administrative requirements of DoD's freight transportation program, particularly with respect to the submission of paper documents. However, DoD is now replacing those paper documents through the application of electronic data interchange (EDI) techniques. In keeping with that emphasis, the Military Traffic Management Command's (MTMC's) Inland Traffic Directorate (MTMC-IN), and DoD finance centers are anxious to establish an EDI relationship with you.

PURPOSE

The transition from a traditional paper environment to one that is virtually paperless is a quantum leap. Although the objective of this transition is simple and clear, the route leading to it may not be, particularly for carriers with little or no EDI background. This information package is designed to assist you in making that transition. It provides guidance on how to initiate and conduct EDI freight business with DoD.

ORGANIZATION

This document is organized for easy use and comprises three sections. Section 1 addresses the nature of EDI, how it applies to DoD's freight transportation program, and why you should use EDI to conduct freight shipment business with DoD. Section 2 introduces and explains American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12 EDI standards, associated transaction sets, and DoD's conventions for implementing them. It also describes how you formalize an EDI relationship with your DoD trading partners and identifies the detailed functional and technical operating instructions that define such a relationship. Section 3 provides guidance on implementing EDI, particularly the hardware, software, and communications requirements.

Supporting the three sections are addenda that provide related functional and technical information. They include a glossary of terms and abbreviations,

references on EDI, and an appendix listing points of contact for resolving functional and technical issues.

WHAT HAS ALREADY BEEN ACCOMPLISHED?

It is important to bear in mind that DoD and the freight carrier industry have already laid the foundation for a successful EDI relationship. Jointly, they have coordinated data and regulatory changes. DoD also has formulated an EDI operating concept that is based upon principles already in widespread private-sector use.

SECTION 1

AN EDI OVERVIEW

This section defines and describes EDI, discusses the DoD's operating concept for the electronic exchange of freight information, and identifies the operating improvements and benefits that you may derive from implementing EDI in your business relationships with DoD.

WHAT IS EDI?

Electronic data interchange is the computer-to-computer exchange of routine business information in a standard format. When applied to DoD's freight transportation program, EDI electronically links carriers, MTMC, Defense shipping activities, and DoD finance centers to permit the exchange of business data such as tender submissions, shipment information, and invoices.

Interest in the electronic transmission of business information gained momentum as the use of computers in commercial business applications became more prevalent and techniques for computer-to-computer communications became widely available. That interest was triggered by the enormous amount of paper required to conduct business and the numerous disparate formats in use. In many of the early applications of electronic exchanges of business information, however, each pair of trading partners (i.e., the parties exchanging information) used unique (i.e., proprietary) electronic formats and procedures.

Although the computer-to-computer exchange of information is not new, the concept of standard data formats is a relatively recent one. An effort to develop industry-wide standards for various business functions began in earnest in the 1960s. Most of those early standards pertained to individual industries. However, some, such as bills of lading and freight invoices, had application in many industries. Therefore, the concept of national standards applying across a number of industries became increasingly popular.

Development of the first public standards for EDI began in the late 1970s. In 1979, ANSI, which was founded in 1918 to coordinate U.S. national standards,

chartered a new committee known today as ASC X12, Electronic Data Interchange. That committee's goal was, and still is, to develop uniform standards for the electronic interchange of business transactions.

The ASC X12 published its first five national EDI standards in 1983.[1] By 1989, it had published 32 standards, and by 1990, the ASC X12 had approved development projects for nearly 100 additional standards, including most of the transportation industry's standards. Section 2, "Learning to Speak EDI," identifies and describes the ASC X12 EDI standards that apply to your electronic relationship with DoD; it also presents conventions for implementing those standards.

HOW EDI APPLIES TO DoD's FREIGHT PROGRAM

In order to explain how you can exchange freight information electronically with DoD, you need to understand two automated systems that DoD has developed for processing transportation documents. One is the CONUS Freight Management (CFM) system, which serves as DoD's rating and ranking, shipment in process, and transportation management system. The other is the Defense Finance and Accounting Service – Indianapolis Center's (DFAS-IN's) Defense Transportation Payment System (DTRS), which automates DoD's prepayment audit and payment functions.[2]

How the CFM System and DTRS Support EDI Operations

Together, the CFM system and DTRS comprise the information baseline for DoD to establish EDI relationships with freight carriers. Those systems capture the information required to initiate, monitor, and manage DoD's CONUS freight shipments. The information maintained in the CFM system data base comes from the *U.S. Government Bill of Lading* (GBL), Standard Form 1103, and the *Department of Defense (DoD) Standard Tender of Freight Services* (MT Form 364-R).

Carriers can use selected data provided by a Defense shipping activity to develop invoices and then transmit them electronically to a DoD finance center. The DoD finance center will process the invoice and prepare it for payment. In addition, if

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[1]The ASC X12 EDI standards comprise data organized as transaction sets (the equivalent of paper business documents), data segments, and data elements. In addition, if more than one of a particular transaction set is transmitted, they comprise a component referred to as a functional group.

[2]The U.S. Marine Corps also has an automated payment system, the Transportation Management System (TMS). Carriers may transmit their invoices electronically to the Marine Corps payment center until that center's operations are consolidated under DFAS-IN.

you establish an EDI relationship with MTMC, you will be able to submit tenders and receive tender acceptance/rejection information electronically.

Defense Freight Transportation EDI Operating Concept

The DoD's EDI operating concept for linking freight carriers, MTMC, Defense shipping activities, DFAS-IN, and General Services Administration (GSA) is depicted in Figure 1. That concept involves four application processes: tender submission and acceptance or rejection, GBL generation and distribution, prepayment auditing and payment processing, and postpayment auditing.

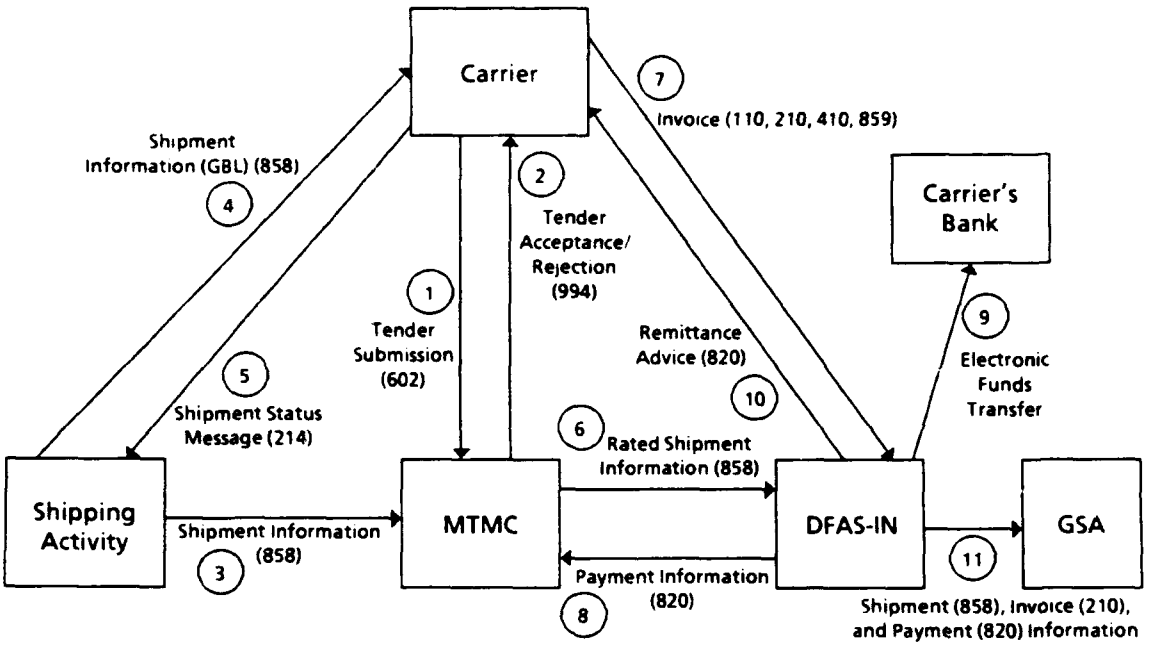

FIG. 1. FREIGHT EDI OPERATING CONCEPT

The concept enables carriers to submit electronic tenders, or proposed rates, for transportation services to MTMC, as shown in data flow 1.[3] (The document, *How to Submit EDI Tenders to the DoD for Transportation of Freight in the Continental United States*, provides additional guidance and details for submitting tenders to

[3]The numbers associated with the data flows in Figure 1 refer to the EDI transaction sets that are used to exchange the data. Section 2 describes these transaction sets in some detail.

MTMC electronically.)[4] MTMC is also developing an operating concept and system for receiving, processing, and awarding guaranteed traffic solicitations and bids. In data flow 2, MTMC electronically transmits tender acceptance or rejection data to the carriers.

The DoD shipping activities, which create the GBL, retain a signed paper copy of the GBL on file to serve as contractual evidence. (The original paper GBL will continue to be given to the carrier's driver to serve as an intransit manifest and as proof of service for payment.) The activities also transmit shipment information contained on the GBL to MTMC and, if desired, to the carriers, as shown in data flows 3 and 4. DoD shipping activities may also receive shipment status messages from carriers, as shown in data flow 5.

The MTMC, DoD's traffic manager, retains an electronic record of the shipment and provides rated shipment information to DFAS-IN as depicted in data flow 6.

Following delivery of the freight, the carrier submits an invoice, either electronically or by mail, to DFAS-IN for payment (data flow 7). The procedures for submitting invoices to DFAS-IN are detailed in the document *Freight Carrier Billing Instructions for the Defense Finance and Accounting Service – Indianapolis Center*.[5]

The DFAS-IN matches pre-positioned shipment information with the appropriate invoice and then reconciles any differences between DoD authorized charges and carrier billings prior to payment. After paying the carrier, DFAS-IN provides MTMC with the cost information, which completes the shipment record, as depicted in data flow 8.

The DoD plans to pay carriers using either paper checks or, in the future, electronic funds transfer (EFT) to their financial institutions, as data flow 9 shows. Data flow 10 depicts a future enhancement that enables DFAS-IN to send the carrier

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[4]LMI Report MT901TR2, *How to Submit Tenders to the DoD for Transportation of Freight in the Continental United States*, July 1991, Thomas W. Heard and M. Augustine Creedon. To obtain this document contact the Military Traffic Management Command; Commander, MTMC; Attn: MTIM-CF (Dwight Ford or Tom Hicks); 5611 Columbia Pike; Falls Church, VA 22041-5050; telephone: 1-703-756-7597; FAX: 1-703-756-1002.

[5]To obtain *Freight Carrier Billing Instructions for the Defense Finance and Accounting Service – Indianapolis Center*, contact the Defense Finance and Accounting Service – Indianapolis Center; Commander, DFAS-IN; ATTN: Transportation Operations Directorate; Systems Management Office (DFAS-IN-TA); Indianapolis, IN 46249-0606; telephone: 1-317-542-2471; FAX: 1-317-543-7829.

an electronic remittance advice, after either the manual payment or [illegible] has occurred.

The DFAS-IN will also send payment information to GSA for postpayment audit, providing matching shipment, invoice, and payment information, as shown in data flow 11.

WHY SHOULD I DO BUSINESS ELECTRONICALLY WITH DoD?

The telephone, personal computer, and facsimile machine have all become indispensable tools for conducting business in today's global environment. EDI is another one of those tools. Numerous companies have made a commitment to exchange routine business information related to rate solicitations, purchase orders, invoices, customs declarations, quality control, shipment status, and various other functions using EDI. Their commitment is based on documented improvements in customer service and operating efficiency.

The DoD Commitment to EDI

Like many major corporations, DoD is committed to an increasing use of EDI in its business operations. The use of EDI received a major boost as a result of the Deputy Secretary of Defense's May 1988 policy memorandum, which directed DoD Components to make "... maximum use of electronic data interchange for the paperless processing of all business-related transactions...." The Assistant Secretary of Defense (Production and Logistics) was charged with responsibility for establishing guidelines for "... acceptance of EDI as the normal way of doing business with DoD by the early 1990's."

In addition, Title 41 of the Code of Federal Regulations (CFR) was changed in April 1989 to permit the use of EDI to document and pay transportation bills. Following that change, Defense Management Report Decision 941, *Implementation of Electronic Data Interchange in DoD*, published in November 1990, prescribes that EDI transmissions are to constitute 92 percent of all DoD business transactions by the fourth quarter of Fiscal Year 1996 (FY96). These actions – issuing a policy memorandum, changing the CFR, and establishing an implementation target – clearly demonstrate DoD's commitment to doing business electronically.

Operating Improvements and Benefits from Using EDI

Business relationships that rely less on paper and more on the electronic transmission of business information offer DoD and carriers a variety of operating improvements and benefits. They include

- *Reduced paper and associated handling and storage costs.* Reducing the number of paper-based transactions enables all EDI trading partners to also lower their costs of supporting and handling paper-based transactions. Supporting (material) costs include those incurred for paper, envelopes, and mailing; courier and telephone services; and storage space. Handling costs are those associated with data entry as well as the manual sorting, filing, and mailing of paper documents.

- *Reduced administrative costs.* Electronic records can provide effective audit trails and enhance records retention, primarily because a computer image is easily transferable to microfilm, tape, or disk. The need for paper documents to mirror the electronic data is eliminated in most applications. In addition, electronic records require much less storage space than their paper counterparts and are more easily retrieved.

- *Increased accuracy and timeliness of data flow.* EDI significantly enhances information accuracy and timeliness. Both the reduced data entry requirements and the direct exchange of information between computer systems limit the opportunities for human errors.

In value-added terms, companies using EDI routinely report between $2 and $10 in direct cost savings for every document transmitted electronically. Indirect cost savings, attributable to EDI simplifying and improving business procedures, are reported ranging from $3 to $5 for every $1 in direct cost savings.

These inducements apply to every organization conducting business using EDI. There are, however, some particularly noteworthy operating improvements and benefits that apply specifically to carriers conducting freight business with DoD using EDI. We list those improvements and associated benefits in Table 1.

TABLE 1

FREIGHT EDI OPERATING IMPROVEMENTS AND RELATED BENEFITS

Process	Operating improvement	Related benefit
Tender filing	More immediate feedback on errors	Reduced chance of final tender rejection
	Shortened tender-filing cycle time	Increased carrier ability to respond to market conditions, resulting in more accurate tenders
Shipment information	More timely shipment information	Improved use of manpower and equipment
	Less data entry	Reduced labor costs
	More accurate invoices	Fewer invoice rejections
Invoicing	Less paper	Improved document control and reduced labor costs for paper and mail handling
	More timely payment to carriers	Improved cash flow

SECTION 2

LEARNING TO SPEAK EDI

As inhabitants of a complex world, we have become adept at developing words, terms, and phrases unique to particular specialties. EDI is one such specialty and, not surprisingly, an EDI lexicon has evolved. This section explains the most significant words, terms, and phrases with which you must be familiar in order to conduct business electronically with DoD. It also defines many of the same words, terms, and phrases in the Glossary, along with additional words and terms that apply to EDI.

BACKGROUND

Despite their speed, efficiency, and accuracy, computers cannot recognize similar information in varying formats; information must be formatted so that it corresponds to what the computer has been told in advance to expect. EDI is designed to permit the computer receiving information to accept and interpret it automatically. In order to accommodate that acceptance and interpretation, the information is formatted in a standard way for transmission. The key considerations in this process are "standards" and "implementation conventions."

In addition, the term "trading partners" refers to the parties engaged in exchanging business information electronically. In the DoD's EDI freight transportation program, the trading partners are commercial carriers, MTMC, Defense shipping activities, and DoD finance centers.

Finally, the "operating instructions" provide detailed functional and technical guidance for satisfying the unique requirements of individual DoD trading partners.

In the balance of this section, we discuss each of these terms in more detail.

UNDERSTANDING STANDARDS, TRANSACTION SETS, AND IMPLEMENTATION CONVENTIONS

We begin our discussion of EDI terminology by explaining the ASC X12 EDI standards, transaction sets, and implementation conventions that apply to DoD's freight transportation program.

ASC X12 EDI Standards and Related Transaction Sets

The DoD uses nine ASC X12 standards and one Transportation Data Coordinating Committee (TDCC) standard in its freight transportation program, primarily because of their wide acceptance throughout the public and private sectors.

Transaction sets, one or more of which are a component of each standard, permit freight-related information traditionally found in paper documents to be translated into a computer-readable format for transmission to a trading partner's computer for processing. These transaction sets form the basis for your EDI relationship with DoD. They are

- Transaction Set 110, *Air Freight Details and Invoice*
- Transaction Set 210, *Motor Carrier Freight Details and Invoice*
- Transaction Set 214, *Motor Carrier Shipment Status Message*
- Transaction Set 410, *Rail Carrier Freight Details and Invoice*
- Transaction Set 602, *Transportation Services Tender*
- Transaction Set 820, *Payment Order/Remittance Advice*
- Transaction Set 858, *Shipment Information*
- Transaction Set 859, *Freight Invoice*
- Transaction Set 994, *Administrative Message*[6]
- Transaction Set 997, *Functional Acknowledgment.*

The Data Interchange Standards Association (DISA) maintains and updates these and other transaction sets. (Copies of ASC X12 EDI standards may be obtained by contacting the DISA point of contact listed in the appendix.) In addition, the

[6]TDCC Transaction Set 994 is used for tender acceptance/rejection.

operating instructions published by MTMC and DoD finance centers identify the version/release of a particular standard DoD is using.

To aid you in developing an EDI capability, we now describe each of the transaction sets applicable to the DoD's freight transportation program and the manner in which DoD uses them to exchange freight information electronically. (Each of these transaction sets were referenced previously in Figure 1, which showed DoD's EDI operating concept.)

Transaction Set 602, Transportation Services Tender

Carriers use Transaction Set 602 to submit rates and tender information for voluntary and guaranteed traffic, including the transmission of new tenders or amendments to existing tenders to MTMC.

Transaction Set 994, Administrative Message

The DoD uses Transaction Set 994 to provide carriers with acceptance or rejection information on the tenders that they submitted. The information in this transaction set is in a human-readable format.

Transaction Set 858, Shipment Information

The DoD uses Transaction Set 858 to transmit shipment information to carriers. It enables DoD shippers to send detailed shipment information, such as accessorial services and weight information, on a particular shipment to a carrier. The data transmitted using this transaction set are found on the *U.S. Government Bill of Lading*, Standard Form 1103. Carriers use this information for workload planning, scheduling pickups and deliveries, invoicing, or eliminating manual input.

Transaction Set 214, Motor Carrier Shipment Status Message

Carriers use Transaction Set 214 to transmit shipment status information to DoD shipping activities. Each activity specifies its requirement for shipment status messages from carriers.

Transaction Set 110, Air Freight Details and Invoice; Transaction Set 210, Motor Carrier Freight Details and Invoice; Transaction Set 410, Rail Carrier Freight Details and Invoice; and Transaction Set 859, Freight Invoice

Carriers use Transaction Sets 110, 210, and 410 to transmit air, motor, and rail freight invoices, respectively, to a DoD finance center. Transaction Set 859 is a generic freight invoice for air, motor, and rail shipments. All four transaction sets include charges, discounts, and other details on the transportation services that the carrier provided. Although carriers may choose to use any of the specific mode invoices, DoD encourages use of the generic freight invoice (Transaction Set 859).

Transaction Set 820, Payment Order/Remittance Advice

Defense finance centers will use Transaction Set 820 to transmit payment information, which is commonly referred to as remittance advice, to carriers when EFT becomes available. The information may be transmitted directly to a carrier's financial institution or third-party agent. It will indicate that payment for an invoice has been made, the amount of the payment, the purpose of the payment, and any particulars that pertain to an adjustment of the invoiced amount. Carriers or their agents may choose not to receive remittance advice.

Transaction Set 997, Functional Acknowledgment

Transaction Set 997 is used to indicate whether an EDI transmission is a valid ASC X12 transaction. In this application, validity refers only to the transaction set's compliance with standard syntax requirements, not to the semantic meaning or accuracy of the transmitted information. The EDI translation software automatically generates a functional acknowledgment and also controls the level of syntax compliance.

The DoD uses this transaction set in two ways. It acknowledges that the transmission of an EDI transaction set is valid and conforms to syntax requirements. It also indicates to the sender of an EDI transmission the number of transaction sets that the addressee (i.e., the provider of Transaction Set 997) received during a

particular transmission.[7] However, the trading partner receiving a functional acknowledgment needs to program its application system to acknowledge and process the information.

Transaction Set 997 offers the user a choice regarding the level (that is, data segment or data element) to which syntax compliance is detected and reported in transmissions. The syntax compliance confirmation must be indicated at least to the data-segment level in acknowledgments transmitted by carriers to DoD and to the data-element level in acknowledgments transmitted by DoD activities to carriers. Upon notification of any syntax errors, the trading partner that transmitted the invalid transaction set is responsible for correcting the errors and retransmitting the information.

It is important to note that receipt of a functional acknowledgment in response to freight tender information or invoices indicate syntax compliance only; it neither infers acceptance of tenders by MTMC nor correctness or validity of invoices by DoD finance centers.

The DoD requires carriers to send functional acknowledgments upon receipt of freight information employing Transaction Sets 820, 858, and 994. DoD activities will return a functional acknowledgment to carriers upon receipt of Transaction Sets 110, 210, 214, 410, 602, and 859.

DoD EDI Conventions

The preceding section emphasizes that standards are the ASC-approved technical documentation for the electronic transmission of business transactions. Standards are, by nature, generic and usable by numerous organizations and suitable for a wide variety of applications. Although that flexibility makes them difficult to apply to specific or unique circumstances, it enables each user to tailor the standards to meet unique data transmission requirements.

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[7]To clarify the audit capability of this transaction set, consider the following example. Following the provision of transportation services to DoD, ABC motor carrier transmits five invoices to DFAS-IN. The finance center, employing Transaction Set 997, acknowledges receipt of three invoices to ABC motor carrier and indicates that each conformed with standard syntax requirements. Upon receipt of the functional acknowledgment, ABC motor carrier knows that DFAS-IN did not receive two of its five invoices.

Such tailoring of EDI standards is accomplished through the use of "conventions," which detail the specific or unique practices and/or interpretations of ASC X12 standards as agreed to by two or more trading partners. Conventions prescribe the location and values of information within a transaction set, thereby enabling trading partners to successfully exchange and interpret the information. Conventions must at all times be in conformance with the standards, although they prescribe a unique application. DoD already has published its conventions for using Transaction Sets 110, 210, 214, 410, 602, 820, 858, 859, and 994. (DoD did not need to develop a convention for Transaction Set 997 because that industry-wide standard meets its usage requirements.) You may obtain copies of DoD's EDI Conventions from the MTMC point of contact identified in the appendix.

TRADING PARTNERS

The participants in an electronic relationship are called trading partners. In the DoD's freight transportation business, the trading partners are the carriers, MTMC, Defense shippers and consignors, and DoD finance centers.

It is essential to formalize any EDI relationship between trading partners. The terms, conditions, arrangements, and business details pertaining to the electronic exchange of data must be documented and agreed upon by all trading partners for a variety of reasons, to include:

- Trading partners need to concur that EDI-based obligations are legally binding.
- Trading partners need to formally assert that they will not challenge the admissibility of information that is stored in electronic format; they may, however, challenge the content or accuracy of data contained in a transmission, just as they may challenge information in paper formats.
- Trading partners need to recognize that electronic records are admissible as evidence in court proceedings because they satisfy the legal requirements of paper documents.

The DoD formalizes a freight transportation EDI relationship with a carrier by executing an *EDI Trading Partner Agreement for Defense Transportation: Freight.*[8] A trading partner agreement, or TPA, constitutes an agreement by the carrier to abide by and comply with the terms, conditions, and standards of DoD's freight transportation program.

Each carrier that wants to establish an EDI relationship with DoD must complete a TPA. It must also complete a TPA addendum that provides administrative information for its DoD trading partner. Completing a TPA and addendum does not automatically establish an EDI relationship with a DoD activity. A carrier must first make its intentions known to that DoD activity and confirm that the activity is EDI capable.

Carriers can obtain TPAs from MTMC. See Appendix for point of contact. Instructions on the execution of TPAs are included in the Annex of the TPA.

OPERATING INSTRUCTIONS

Although the DoD conventions and this information package provide a considerable amount of detail on how to conduct freight transportation business in an EDI environment, each DoD trading partner has a variety of unique requirements that must be satisfied. Those requirements and procedures are addressed in detailed functional and technical operating instructions.

Each DoD finance center is responsible for publishing and distributing instructions pertaining to its electronic billing procedures. Similarly, MTMC has published an EDI guide for carriers on how to file tenders and obtain shipment information entitled, *How to Submit EDI Tenders to the DoD for Transportation of Freight in the Continental United States.*

If you have any questions related to these operating instructions, please direct them to the appropriate point of contact identified in the appendix. That is, contact a DoD finance center point of contact for billing instructions and the MTMC point of contact regarding tender filing and shipment information instructions. Any EDI

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[8]LMI Report PL205LN4, *EDI Trading Partner Agreement for Defense Transportation: Freight*, September 1993 (Revised), W. Michael Bridges, Harold L. Frohman, William R. Ledder, and Theresa Yee.

technical questions, to include those related to invoicing, also should be addressed to the MTMC point of contact.

SECTION 3

CONDUCTING BUSINESS ELECTRONICALLY

Now that you are familiar with DoD's electronic operating concept and the terms common to freight EDI operations, we address the components necessary to initiate EDI.

HOW DO I GET STARTED?

Many companies have discovered that their financial and technical concerns about entering into an EDI relationship were unfounded. In fact, they found EDI relatively inexpensive and easy to initiate and operate.

The start-up and operation of a basic EDI relationship can be accomplished with a minimum of resources. The core ingredients for any EDI capability are hardware, software, and communications links.

- *Hardware.* A powerful hardware platform is not required to exchange EDI information. A microcomputer with an IBM-compatible 386 microprocessor is fully capable of meeting most carriers' needs, particularly when it is used as a "front-end" to your host computer.

- *EDI translation software.* The primary purpose of EDI translation software is to convert data extracted from your application data base to a standard EDI format in order to permit its exchange with your DoD trading partners. Conversely, translation software also converts EDI-formatted data received from your DoD trading partners to a file format recognized by your application system. Ultimately, the data are processed and written to your data base. Most translation software also includes a transaction set mapping utility that gives users the flexibility to design their own flat-file format.[9]

- *Application system interface software.* Application system interface software has a vital role in both outgoing (data extracted from your application system for transmission via EDI) and incoming (EDI-formatted data entering your application program) data flows. During the outgoing flow, the software extracts data from your application system (in-house

[9]A number of commercial vendors have developed EDI translation software packages. See LMI Report PL205RD1, *A Guide to EDI Translation Software, 1992 Edition*, Harold L. Frohman.

automated data processing system) and places it into a "flat file" for subsequent translation into EDI-formatted data. When the data flow is reversed (to incoming), the application system interface software extracts the data from a flat file and prepares it for acceptance by your application program. In short, application system interface software is used to read or write flat files of information that are used to pass information between a trading partner's application system and the EDI translation software.

- *Communications software.* Communications software connects you with a third-party EDI value-added network (VAN), which is needed to exchange EDI data with MTMC, Defense shippers and consignors, and DoD finance centers. Communications software typically operates the modem, dials the EDI VAN, and connects your computer to the EDI VAN's host computer. The software, which is generic, is frequently provided by the EDI translation software vendor; it can also be purchased from other software vendors. Many minicomputers and mainframe computers come equipped with communications software.

- *Applications software.* You may need to modify your corporate application system in order to exchange freight information with DoD electronically. That need is principally driven by whether your current system can satisfy the data requirements described in the DoD's EDI Conventions and in the *Freight Carrier Billing Instructions for the Defense Finance and Accounting Service – Indianapolis Center.*

- *Communications links.* In order to exchange EDI information with DoD, you will need to use an EDI VAN. An EDI VAN provides many services to its subscribers, including the following:

  - *EDI mailbox.* This service allows your computer to dial in at your convenience, drop off data destined for your trading partners, and retrieve EDI documents that have been delivered to your EDI mailbox.

  - *Protocol and speed conversion.* This service enables your computer to exchange information with your trading partner's computer, allowing for dissimilar computer hardware and line speeds.

  - *Audit trail.* VANs provide reports of all EDI transaction sets that you sent or received, including the name of the trading partner and the date, time, document type, and size of transmission.

  - *Interconnections.* This service enables trading partners on different EDI VANs to exchange electronic documents with one another. It is important that your EDI VAN have an interconnection with DoD's EDI VAN.

- *Software.* Not all EDI translation software can access all EDI VANs. In addition, some EDI VANs sell EDI translation software for a variety of computers.

A SUMMARY OF ACTIONS YOU NEED TO TAKE TO GET STARTED

At this point, you most likely have computed your EDI investment and operating costs, determined your net benefits, and developed an implementation plan. Those tasks hopefully have enabled you to decide that you will conduct EDI freight operations with DoD. Table 2 identifies some of the actions that you need to undertake to move forward with that decision. Although not inclusive, it identifies many of the major tasks in the sequence in which you should accomplish them.

TABLE 2

CHECKLIST FOR INITIATING EDI OPERATIONS WITH DoD

Action	Status	
	Initiated	Completed
Read the DoD EDI publications identified in the appendix		
Train personnel in use of EDI		
Identify or acquire hardware for EDI		
Contract for EDI VAN services		
Ensure your EDI VAN can exchange information with the Defense transportation's EDI VAN		
Acquire EDI translation software of choice		
Ensure that your application program meets DoD's EDI data requirements		
Complete and submit *EDI Trading Partner Agreement for Defense Transportation: Freight*		

GLOSSARY

LIST OF ACRONYMS

ANSI	=	American National Standards Institute
ASC	=	Accredited Standards Committee
ASCII	=	American Standard Code for Information Interchange
CFM	=	CONUS Freight Management
CFR	=	Code of Federal Regulations
DFAS-IN	=	Defense Finance and Accounting Service – Indianapolis Center
DISA	=	Data Interchange Standards Association
DoD	=	Department of Defense
DTRS	=	Defense Transportation Payment System
EDI	=	electronic data interchange
EDIA	=	EDI Association
EFT	=	electronic funds transfer
GBL	=	Government bill of lading
LMI	=	Logistics Management Institute
MTIM-CF	=	Deputy Chief of Staff for Information Management – CONUS Freight
MTMC	=	Military Traffic Management Command
MTMC-IN	=	MTMC Inland Traffic Directorate
TMS	=	Transportation Management System
VAN	=	value-added network

LIST OF TERMS

Accredited Standards Committee (ASC) X12. An American National Standards Institute (ANSI) committee formed in 1979 to develop uniform standards for electronically exchanging business transactions between and among industries. The committee's work is accomplished by a series of subcommittees and task groups that develop new standards and maintain those already in existence.

American National Standards Institute (ANSI). A private, nonprofit coordinator of, and clearinghouse for, national and international standards.

ANSI X12 Standard. A standard for cross-industry electronic interchange of business transactions.

Applications Systems Interface Software. Software that processes flat files of information between an EDI user's applications system and the EDI translation software.

Communications Software. Software that connects a computer to an EDI value-added network.

Convention. The unique practice, interpretation, or application of an ASC X12 standard/transaction set as agreed to by two or more trading partners.

Data Element. The smallest unit of information in an X12 standard and thereby the smallest unit of information in a business transaction. Each data element is identified by a reference number. Data elements are defined in the ANSI X12.3 Data Element Dictionary. The dictionary specifies the name, description, type, and minimum and maximum lengths of each data element.

Data Segment. An unit of information in a transaction set. A segment consists of a predetermined segment identifier, one or more logically related data elements in a defined sequence, and a segment terminator. Segments are defined in the ANSI X12.22 Segment Dictionary, which lists each segment's title and provides the purpose, identifier, and the data elements contained in the segment (in their specified order).

Data Interchange Standards Association (DISA). A nonprofit organization that functions as the secretariat for the ASC X12 to ANSI. Its principal activities include communicating with ANSI and the public on behalf of the Committee; managing the

standards data base; publishing, planning, and managing ASC X12 meetings and the annual EDI Conference and Exhibit; preparing, distributing, receiving, and tabulating ballots; and handling membership and administrative matters.

Electronic Data Interchange (EDI). The computer-to-computer exchange of data from common business documents using standard data formats.

Electronic Signature. A code or symbol that is the electronic equivalent of a written signature.

Flat File. A specially formatted American Standard Code for Information Interchange (ASCII) file containing data that allows information to be exchanged between a trading partner's data base and EDI translation software. To generate an EDI transaction set, information is extracted from a trading partner's data base, formatted into a flat file, and subsequently translated into an EDI transaction set. Conversely, when receiving an EDI transaction set, the EDI translation software reformats the data into a flat file that can be processed by a trading partner's application interface program for incorporation into the trading partner's data base.

Functional Acknowledgment. A message from the receiver of an EDI transmission to the sender indicating that a transmitted document was received and interpreted.

Implementation Convention. See Convention.

Instructions. Detailed procedures and guidelines with which freight carriers must comply when electronically exchanging rate, shipment, and invoice information with their DoD EDI trading partners. The Military Traffic Management Command (MTMC) is responsible for the publication and distribution of instructions on filing rates and exchanging shipment information electronically. The DoD finance centers are responsible for providing instructions on their billing procedures.

Mailbox. An EDI value-added network service that holds a customer's messages until they are retrieved.

Mapping. A process of diagraming what EDI data are to be exchanged, how the data are to be used, and what internal application systems require the data.

Operating Concept. A diagram that details, at a high level, EDI information flows and a system architecture.

Release. A title given to annual updates of ASC X12 standards by DISA.

Standard (ASC X12 Standard). Any of the ASC X12 approved standards that permit the cross-industry electronic exchange of business transactions.

Standard (Message Standard). The rules by which business data, traditionally found in paper documents, are translated into a computer-readable format for electronic transmission to a trading partner's computer for processing.

Syntax. The rules that describe how transactions are built out of groups of data elements and segments.

Trading Partners. The participants in an EDI relationship. Freight trading partners include MTMC, Defense shipping activities, DoD finance centers, and participating freight carriers.

Transaction Set. The EDI equivalent of a paper business document. A transaction set consists of a specific group of segments that represent a business transaction (e.g., a purchase order or an invoice). Each transaction set comprises a transaction set header, one or more data segments in a specified order, and a transaction set trailer segment. One or more transaction sets apply to each ASC X12 EDI standard.

Transaction Set Mapping Utility. Software that permits a receiving EDI trading partner to design a unique flat-file format. That utility software is generally integrated with translation software.

Translation Software. Software that translates data extracted from a trading partner's data base to a standard EDI format that is interchangeable with other trading partners. Conversely, the software translates EDI-formatted data to a flat-file format that is recognized by the receiving trading partner's application system.

Value-Added Network (VAN). A service that transmits, receives, and stores EDI messages for electronic trading partners and provides a wide variety of other EDI-related functions.

Version. A title given to approved ASC X12 standards updates every 3 years.

BIBLIOGRAPHY

A Guide to EDI Translation Software, 1992 Edition. Frohman, Harold L. LMI Report PL205RD1.

DoD 994 Convention: Receiving Acceptance/Rejection Notice of a Freight Services Tender Using the TDCC/EDIA Transaction Set 994 Administrative Message. 14 June 1991.

DoD Electronic Data Interchange (EDI) Convention: ASC X12 Transaction Set 858 Freight Government Bill of Lading Shipment Information (Version 003010). Defense Logistics Agency. PL205LN1. February 1993.

DoD Electronic Data Interchange (EDI) Convention: ASC X12 Transaction Set 859 Generic Freight Invoice (Version 003020). Defense Logistics Agency. DF101LN2. July 1992.

DoD Electronic Data Interchange (EDI) Convention: ASC X12 Transaction Set 602 Guaranteed Traffic Tender (Version 0030XX). Defense Logistics Agency. MT901LN1. September 1992.

DoD Electronic Data Interchange (EDI) Convention: ASC X12 Transaction Set 820 Payment Order/Remittance Advice (Version 003020). Defense Logistics Agency. DF101LN3. February 1992.

DoD Electronic Data Interchange (EDI) Convention: ASC X12 Transaction Set 214 Shipment Status Message (Version 003020). Defense Logistics Agency. DF101LN5. May 1992.

EDI Trading Partner Agreement for Defense Transportation: Freight. Bridges, W. Michael, Harold L. Frohman, William R. Ledder, and Theresa Yee. LMI Report PL205LN4. March 1993.

Freight Carrier Billing Instructions for the Defense Finance and Accounting Service – Indianapolis Center. Defense Finance and Accounting Service – Indianapolis Center (DFAS-IN).

How to Submit EDI Tenders to the DoD for Transportation of Freight in the Continental United States. Thomas W. Heard and M. Augustine Creedon. LMI Report MT901TR2. July 1991.

The Federal Property Management Regulations. Title 41 Code of Federal Regulations (CFR). Part 101-41. "Transportation Documentation and Audit."

APPENDIX

POINTS OF CONTACT

TABLE A-1

POINTS OF CONTACT

Purpose for contact: to request	Point of contact[a]			
	A	B	C	D
Copies of DoD EDI Conventions (110, 210, 214, 410, 602, 820, 858, 859, 994, 997)	X			
Copies of ASC X12 standards documentation				X
Copies of *EDI Trading Partner Agreement for Defense Transportation: Freight* on establishing an EDI relationship with a DoD activity	X			
Copies of *A Guide to EDI Translation Software, 1992 Edition*, on commercially available EDI translation software package	X			
Copies of *How to Submit EDI Tenders to the DoD for Transportation of Freight in the Continental United States*, on tender filing or assistance with implementing EDI tender filing	X			
Copies of *Freight Carrier Billing Instructions for the Defense Finance and Accounting Service – Indianapolis Center*, on billing procedures or assistance for implementing billing with DFAS-IN or the Marine Corps finance center		X	X	
Answers to freight transportation questions	X			
Answers to freight EDI technical questions	X			

Note: DoD = Department of Defense; EDI = electronic data interchange; ASC = Accredited Standards Committee; DFAS-IN = Defense Finance and Accounting Service – Indianapolis Center.

[a] For points of contact see legend on pages A-2.

LEGEND

A: *Military Traffic Management Command (MTMC)*

Office of the Deputy Chief of Staff for Information Management
HQ, MTMC
Attn: MTIM-CF (James Wooten or Tom Hicks)
Suite 502, Room 513
4040 N. Fairfax Drive
Arlington, VA 22003-1689
Telephone: 703-696-8766 or 703-696-8762
FAX: 703-696-8772

B: *Defense Finance and Accounting Service – Indianapolis Center*

Commander, DFAS-IN
Attn: Transportation Operations Directorate, Systems Management Office
(DFAS-IN-TA)
Indianapolis, IN 46249-0606
Telephone: 317-542-2471
FAX: 317-543-7829

C: *U.S. Marine Corps Transportation Voucher and Certification Branch*

Commander, U.S. Marine Corps Transportation Voucher
and Certification Branch (470)
Marine Corps Logistics Bases
Albany, GA 31704-5000
Telephone: 912-439-5676 (functional point of contact)
912-439-5725 (technical/systems point of contact)
FAX: 912-439-5749 (functional and technical)

D: *Data Interchange Standards Association (DISA)*

For General or Technical Questions/Information:

ASC X12 Secretariat
Data Interchange Standards Association, Inc.
1800 Diagonal Road, Suite 355
Alexandria, VA 22314-2852
Telephone: 703-548-7005
FAX: 703-548-5738

For Placing Orders for EDI Standards and Customer Service:

EDI Support Services, Inc.
P.O. Box 203
Chardon, OH 44024-0203
Telephone: 800-334-4X12
FAX: 216-286-6817 (Credit Card/COD only)

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13. ABSTRACT *(Maximum 200 words)*

The Department of Defense (DoD) is encouraging the application of electronic data interchange (EDI) techniques to replace paper documents in its transportation processes. In keeping with that emphasis, the Military Traffic Management Command and DoD finance centers are anxious to establish an EDI relationship with freight carriers. This information package is designed to assist freight carriers in transitioning from the traditional paper operating environment to an EDI environment.

This report defines EDI in Defense transportation and describes the freight EDI operating concept along with the EDI standards and DoD conventions intended for use by freight carriers and DoD. The necessary components to implement an EDI program, such as computer hardware, EDI software, and the EDI value-added network, are also described providing freight carriers general guidance on how to initiate and conduct EDI freight business with Defense transportation.

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