

**Preliminary  
UN/EDIFACT ORDERS Message  
Prototype Strategy and Test Plan**

**for the**

**DOD CALS IDE Project**

**An MVP Joint Venture**

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## **1.0 INTRODUCTION**

This report represents the second deliverable for Task 3 (*Purchasing EDI Support*) for the Department of Defense (DoD) Integrated Data Environment (IDE) Program, which is entitled *Preliminary UN/EDIFACT ORDERS Message Prototype Strategy and Test Plan Document*. The overall goal of this task is to coordinate with the Continuous Acquisition and Life-cycle Support (CALs) Industry Steering Group (ISG) to develop a trial test of the United Nations rules for Electronic Data Interchange For Administration, Commerce and Transport (UN/EDIFACT) ORDERS message within the context of Basic Ordering Agreements (BOA) and simple delivery orders. The initial deliverable for this task (*Preliminary UN/EDIFACT ORDERS Message Assessment*) provided a general assessment of the ORDERS message's structure, syntax, and semantics, and defined both the architectural framework for testing the ORDERS message as well as the risk assessment and requirement analysis to support this testing.

The strategy for trial testing the United Nations rules for Electronic Data Interchange For Administration, Commerce and Transport (UN/EDIFACT) ORDERS message in actual "live" business environments with coordination from the CALS ISG, government, and industry will be developed into a test plan, which is the basis for this report. This testing process will involve two phases. A small test group of trading partners (2-3) will be utilized for the initial test, which will subsequently be expanded upon completing the initial phase of testing. A larger test group (15-20) representing a broader cross-section of industry, will be utilized for the concluding test phase. Upon finishing the testing process, a test analysis report will be prepared, which will document findings, conclusions, and recommendations resulting from the overall testing process and will be entitled the *ORDERS Message Prototype Test Report*. This analysis report will be disseminated to both participants in the Federal X12 Electronic Commerce/Electronic Data Interchange (EC/EDI) Program and trading partners. The two additional reports following the test report include a strategy document for reaching out to industry and informing companies of migration plans for EDIFACT and an information package supporting the outreach strategy. Because it is important to understand what necessitated the development UN/EDIFACT ORDERS message prototype and testing of this prototype in the DoD, the following section is provided.

### **1.1 Overview and Background**

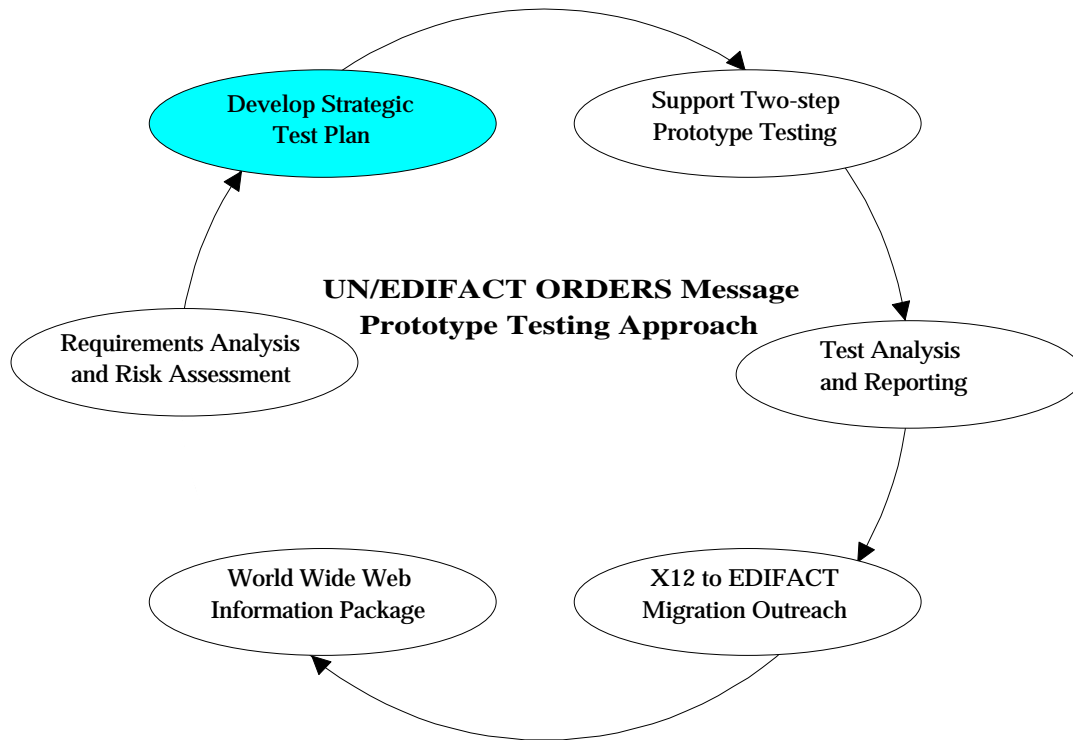
The President via Executive Order has initiated a major program to improve federal purchasing through the use of EDI technology. In response to this initiative, federal agencies have begun to build upon industry successes with United States X12 EDI standards and to use electronic techniques to accomplish smaller government procurements (e.g., purchase orders, request for quotes, quotes, etc.). Concurrent with these activities, several larger U.S. firms are expressing interest in accelerating migration to United Nations EDIFACT standards for international data interchange. The United States has committed to a process alignment between the domestic American National Standards Institute (ANSI) X12 EDI standard, and the international UN/EDIFACT standard. The EDIFACT standards are primarily used in Europe and Asia. However, in order for everyone to benefit from a single global EDI standard, ANSI X12 has agreed to begin a gradual alignment with EDIFACT in 1997. The ANSI X12 alignment plan includes for administrative alignment and technical migration to UN/EDIFACT. As a result of

this migration and the growing acceptance of UN/EDIFACT standards within Europe, Japan, South Korea, the North Atlantic Treaty Organization (NATO), Australia and other countries, representatives of the DoD and federal procurement organizations have intensified efforts to migrate business functionality pertaining to purchase orders to EDIFACT. There is now a need to trial test the EDIFACT ORDERS message with a few U.S. firms to validate the adequacy of the message against actual requirements.

In light of this move, the business functionality of both the DoD and federal procurement organization's *purchase orders* process will be trial tested using a prototype implementation of the UN/EDIFACT ORDERS message. The operational testing of the new EDI components and procedures in 'live' user environments will provide proof of purported benefits prior to widespread deployment. This will be accomplished by selecting certain U.S. firms to validate the adequacy of the message against actual applied requirements. The specific objective of this task is to test the ORDERS message in coordination with the DoD Federal Acquisition Network (FACNET) architecture within the context of basic ordering agreements and simple delivery orders. This report provides the test plan for government and industry participation, and administering and reporting of all testing. The following section explains how we plan to approach this task.

## **1.2 Approach**

A prevailing concern in approaching this task is the uncertain final form of the UN/EDIFACT ORDERS message. The U.S. Department of Defense (DoD) is currently working through the Pan American EDIFACT Board to augment the ORDERS message in order to satisfy DoD requirements. Because coming changes to the ORDERS message will have an impact on this task, we must continue to be sensitive to this issue. Future versions of this report will reflect these changes triggered by the next release/version of the ORDERS message. We must therefore be sensitive to this issue, and future versions of this report will reflect these changes triggered by the next release/version of the ORDERS Message. In any event, the general approach for accomplishing the overall task is presented below in Figure 1.2-1.



**Figure 1.2-1: UN/EDIFACT ORDERS Message Prototype Testing Approach**

Because testing of the ORDERS message involves many areas of complexity, a well defined and organized understanding of the ORDERS message and EC/EDI systems area must be embodied in our test plan. Our approach for developing a plan for testing the prototype ORDERS message, in coordination with the CALS ISG, government, and industry, will follow the steps outlined below.

- Describe test plan and objective.
- Coordinate with the CALS ISG, government, and industry.
- Plan, schedule, and allocate resources for testing.
- Develop EC/EDI system qualification questionnaire.
- Identify, define, agree on test requirements.
- Define verdict criteria.
- Formulate test strategy.
- Identify and define test process and procedures.
- Define consistent technique for reporting the test results.

### **1.3 Common Testing Terminology**

Several terms unique to the testing domain are used throughout this report. Because the reader may not be aware of these terms, they are defined below.

**Testing:** The process of exercising or evaluating a system or system component, by manual or automated methods, in order to verify that it satisfies specified requirements or identifies differences between expected and actual results.

**Testing Agent:** The person or entity actually performing and/or administering the testing process. Human testing agents may be classified as 1st (industry), 2nd (government), and 3rd party (independent) testers.

**Test Case:** A group of related tests applicable to a particular requirement area from the specification.

**Test Data:** Data developed or used to test a system or system component to verify compliance with a particular requirement.

**Test Report:** A document describing the conduction and results of the testing carried out for a system or system component.

**Test Script (Procedure):** Detailed instructions for the setup, operation, and evaluation of results for a given test.

**Test Sets:** A collection of Tests Cases that relate to a particular class of requirements.

**Test Suite:** A comprehensive group of tests covering all of the defined requirements. This can include boundary conditions, illogical test cases, and illegal test cases.

**Verdict Criteria:** Standard method for rating the results of a test.

**Black Box Testing:** A test strategy that focuses on testing “what” the system is required to do from a functional point of view.

**Glass (White) Box Testing:** A test strategy that focuses on testing “how” the system accomplishes certain tasks at a very low level.

**Negative Testing:** A test strategy that attempts to prove that a requirement condition has not been satisfied (e.g., bounds testing).

**Positive Testing:** A test strategy that attempts to prove that a requirement condition has been satisfied (e.g., validation).

**Dynamic Testing:** Requires execution of application to accomplish testing.

**Static Testing:** Does not require execution of application to accomplish testing.

**Requirements:** The necessary conditions that apply to an object, event, or abstract assertion. Object requirements state particular properties that the object must possess. Event requirements

state particular performance capabilities, or other criteria that must be satisfied. Abstract requirements pertain to conceptual notions and are not nearly as common and often subjective in nature.

***Situational Requirements:*** Latent requirements that are invoked only whenever specific situations arise.

## **2.0 TEST COORDINATION STRATEGY**

Because of the various organizations involved in the ORDERS message prototype testing, a team effort is required. This effort will involve cooperation and coordination with the following entities:

1. CALS Industry Steering Group
2. Government Activities
  - a. Defense Information Systems Agency (DISA)
  - b. FACNET Administrators
  - c. Government Trading Partners
3. Industry Trading Partners

The involvement of each of the above team members is discussed in the following sections (2.1-2.3).

### **2.1 CALS Industry Steering Group**

The CALS Industry Steering Group (ISG) has identified the initial set of trading partners needed for the trial testing process. This initial set includes:

1. Newport News Shipbuilding,
2. Boeing Corporation, and
3. Lockheed-Martin.

All three corporations are active members of the National Security Industrial Association (NSIA) and have full representation with the CALS ISG. It is our intent to share the findings of our analysis and test results with all trading partners (government and industry) and the CALS ISG at the policy board level.

### **2.2 Government Activities**

Involvement with the government includes coordination with the Defense Information Systems Agency (DISA) Center for Standards to assist in the development of the final test plan, and cooperation with the EDI operations team within DISA to accommodate particular FACNET related testing requirements. Additionally, government trading partner test participants will be involved in the development of the test plan to the highest extent possible.

### **2.3 Industry Trading Partners**

It is very important that each industry trading partner involved in testing participate in the development of the test plan. Particular details regarding which Value Added Network (VAN) will be utilized, whether or not the VAN is certified by the DoD, what (if any) value added services are provided by the VAN must be obtained from the individual trading partners.

Additionally, all relevant details pertaining to the local EC/EDI processing and communications configuration must be considered in developing the testing procedures.

#### **2.4 Test Planning, Scheduling, and Resources**

It is important for successful testing programs to be well planned before they are applied. Effective testing requires planning, strategy, and discipline. The test process for this task will proceed in two successive iterations beginning with an initial trial test using only two to three industry trading partners. After testing is completed for the beginning phase, this initial group of trading partners will be to include about 15-20 trading partners that represent a broader cross-section of industry. The trading partners will participate in the development of the test plan for each of the two iterations. In addition, ManTech will coordinate with the Defense Information Systems Agency (DISA) Center for Standards in the development of this test plan. A preliminary plan of actions and milestones for testing the ORDERS prototype using the above two-step approach is outlined below.

1. Meet with government representative for this task.
2. Coordinate with DISA regarding test plan and use of FACNET.
3. Identify government trading partners.
4. Meet with initial set of three industry trading partners.
5. Use requirements from government and industry to formulate formal test procedures.
6. Reach general agreement with test team on test plan and procedures.
7. Implement prototype system and support testing process.
8. Perform preliminary test results analysis and reporting.
9. Revise test plan from lessons learned (if needed).
10. Coordinate with CALS ISG to identify 15-20 additional test participants.
11. Reach general agreement with expanded test team on test plan.
12. Administer testing process.
13. Perform preliminary test results analysis and reporting.

Because this report represents a work that it is in progress, specific details and dates will be determined in the future.

### **3.0 TEST METHODOLOGY**

This section provides an overview of the testing methodology proposed for testing the prototype implementation of the ORDERS message. This section addresses the development of system qualification procedures to eliminate non-applicable requirement sets, a consistent scheme for defining requirements, a standard “verdict” criteria for rating the results of individual tests, a hybrid testing strategy that incorporates multiple testing approaches, as well as a standard methodology for reporting the results of conformance testing.

#### **3.1 EC/EDI System Qualification**

Qualification questionnaires will be developed to assist in the test plan implementation, and to obtain additional information pertaining to trading partner EC/EDI processing and communications configurations. Specific examples of qualification questions pertaining to requirement sets will be included as they become available, however some high level qualification questions might include:

- Does your EDI translation support the UN/EDIFACT format?
- Specify which VANs (i.e., vaname), and Gateways (i.e., gatename) will be used?
- Is the VAN(s) certified by the DoD?
- Will this VAN reach specified trading partners for this trial test?
- Are you recognized as a valid trading partner by the FACNET electronic commerce gateway and the VAN?

Results from the qualification questionnaire will be used to streamline the testing process by eliminating irrelevant requirement areas. The testing agent will therefore be presented with only those requirements that are applicable to their particular implementation.

#### **3.2 Test Requirements**

The incorporation of specific test requirements into this test plan is pending the next release of the UN/EDIFACT ORDERS message. However, a consistent taxonomy for cataloging the requirements will be used and is defined as follows:

1. Requirement origin,
2. Sequence number,
3. Criticality ranking, if deemed appropriate,
4. Requirement target and type (specific object, event, abstract framework element),
5. Terms or conditions of the requirement, including preconditions if applicable,
6. Test type (static, dynamic, etc.), and
7. Test method, if applicable.

The requirement origin will reference the source of the requirement, the sequence number will be assigned arbitrarily as the succession of requirements are identified and inserted for each test set, and a criticality ranking will be included only if deemed applicable. As mentioned previously,

requirement types may be either object, event, or abstract oriented. Terms and conditions of requirements will be expressed in complete, consistent, unambiguous, and testable terms. For the case of situational requirements (i.e., latent requirements that need to be satisfied for certain situations) all relevant preconditions will be identified and defined. To help automate the execution of the test plan, the following two fields have been added to the requirement definition: test type and test method. The test type field denotes whether or not testing the requirement requires the execution of the software application, in which case it is referred to as a dynamic requirement. (Static requirements do not require the execution of software applications.) The last field, test method, will allow for an optional description of how and what is needed to prove (or disprove if applicable) that the conditions of the requirement have been satisfied. It should be noted that particular requirements and details of the test environment have not yet been defined, but will be incorporated in this test plan as they become available. Specific risks control objectives are also pending the next release of the UN/EDIFACT ORDERS message.

### **3.3 Verdict Criteria**

The evaluation of the test results are used to measure how well the prototype system performed in the test environment. In determining an optimal technique for measuring and reporting the results of the testing process, various verdict criterion must be considered. When attempting to measure the results of individual tests, simply arriving at an absolute “PASS” or “FAIL” is not sufficient because of the potential for variance among various EC/EDI system implementations. The list of five verdict criterion presented below will be used to more accurately measure the degree to which the system complies with the specified requirements.

1. Pass,
2. Fail,
3. Partial,
4. DNC (did not consider), and
5. CND (could not determine).

“Pass” is to be used when the conditions of the requirement are clearly satisfied by the test. “Fail” is to be used when the conditions of the requirement are clearly not satisfied by the test. For test results that only partially satisfy the conditions of the requirement, the “Partial” verdict shall be used. For requirements not contractually binding, use the “DNC” verdict. For test results that are unattainable, the “CND” verdict shall be used.

### **3.4 Testing Strategy**

The testing scenario will involve introducing the new prototype approach (UN/EDIFACT ORDERS message) to the electronic procurement process within selected existing DoD business environments, and measuring the successfulness (validation) of this pilot approach. In order to accurately measure the degree of success, it important to utilize an effective strategy for the testing process. The testing methodology employed for this task will be based largely on the requirements (black box testing) for the prototype test environment. This testing approach is often referred to as “dynamic testing” because it requires execution of the application program. Many of the business processes and basic functions will be tested utilizing this black box

technique. Some additional syntactical testing (glass box or white box testing) will also be required for example when testing EDI formatted data files for compliance with the UN/EDIFACT standard. This testing approach is often referred to as “static testing” because it does not require execution of the application program. An additional test strategy, negative testing, involves attempting to prove that a requirement condition has not been satisfied or has been violated. This approach will be utilized in certain cases, for example, to ensure that only the valid range of data values are accepted as input. Negative testing could also be utilized for security tests if testing for security is required. Utilizing this combination of strategies as a hybrid approach to testing will cover not only *what* the prototype system does from a functional standpoint but also *how* the system performs.

### **3.5 Reporting the Test Results**

In order to successfully convey the outcome of the testing effort, it is important to establish a standard and a consistent procedure for analyzing, interpreting, and reporting all results and findings from the testing process. A standard format will be utilized for reporting the testing results, which will identify the testing agent, functional component area under test (as derived from the architectural framework model), test set for which the test originated criticality rating (if applicable), and the resulting test verdict. Information pertaining to each test requirement should be summarized, and included as well in this report. In addition to listing test results for each requirement within each test set, a composite test score will be provided for each completed test set. This composite test score will summarize the results for each test verdict category for the entire test set.

## 4.0 TEST PROCESS AND PROCEDURES

This section discusses the organization of the test process and procedures for the UN/EDIFACT ORDERS message prototype test plan. Because structure and clarity are essential to achieving an effective test plan, a matrix comparison of the functional layers of the architectural framework model<sup>1</sup> and the EC/EDI product areas were used to identify independent self-contained areas of functionality (which is the basis for identifying test sets as illustrated in Figure 4.0-1 below).

	Application Interface	Data	Network / Communication	Off-The-Shelf Software
Layer 1	AIO-AI Test Set(s)	AIO Data Test Set(s)		AIO Software Test Set(s)
Layer 2		TG Data Test Set(s)		TG Software Test Set(s)
Layer 3		N/C Data Test Set(s)	N/C N/C Test Set(s)	N/C Software Test Set(s)
Layer 4		TI Data Test Set(s)		TI Software Test Set(s)
Layer 5	AII-AI Test Set(s)	AII Data Test Set(s)		AII Software Test Set(s)

**Figure 4.0-1: UN/EDIFACT ORDERS Message Prototype Test Suite Matrix**

All test sets and specific test cases will be subsequently designed and implemented atop this foundation. Figure 4.0-1 reveals 13 test sets for the UN/EDIFACT ORDERS Message Prototype Test Suite. Details pertaining to each test are presented in sections 4.1-4.5.

Future versions of this report will provide concise test scripts that may be used to guide the overall testing process for each layer within this testing framework. Specific requirements and procedures will be incorporated in the test plan as they become available from industry and government.

### **4.1 Layer 1: Application Interface: Outbound**

Preliminary analysis of the test suite matrix reveals the following three test sets for Layer 1 of the testing model:

1. Application Interface: Outbound - Application Interface Test Set
2. Application Interface: Outbound - Data Test Set
3. Application Interface: Outbound - Software Test Set

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<sup>1</sup> For details regarding the architectural framework model and model layers 1-5 refer to section 3 of the *Preliminary UN/EDIFACT ORDERS Message Assessment Document*.

Specific requirements and test procedures will be incorporated in the test plan as they become available from industry and government.

#### **4.2 Layer 2: Transaction Generation: Outbound**

Preliminary analysis of the test suite matrix reveals the following two test sets for Layer 2 of the testing model:

1. Transaction Generation: Outbound - Data Test Set
2. Transaction Generation: Outbound - Software Test Set

Specific requirements and test procedures will be incorporated in the test plan as they become available from industry and government.

#### **4.3 Layer 3: Network Communications: Outbound/Inbound**

Preliminary analysis of the test suite matrix reveals the following three test sets for Layer 3 of the testing model:

1. Network Communications - Data Test Set
2. Network Communications - Network Communications Test Set
3. Network Communications - Software Test Set

Because Layer 3 involves data both being transmitted outbound and data being received inbound, consideration to the direction of data flow will be reflected in the development of Layer 3 test sets. Specific requirements and test procedures will be incorporated in the test plan as they become available from industry and government.

#### **4.4 Layer 4: Transaction Interpretation: Inbound**

Preliminary analysis of the test suite matrix reveals the following two test sets for Layer 4 of the testing model:

1. Transaction Interpretation - Data Test Set
2. Transaction Interpretation - Software Test Set

Specific requirements and test procedures will be incorporated in the test plan as they become available from industry and government.

#### **4.5 Layer 5: Application Interface: Inbound**

Preliminary analysis of the test suite matrix reveals the following three test sets for Layer 5 of the testing model:

1. Application Interface: Inbound - Application Interface Test Set

2. Application Interface: Inbound - Data Test Set
3. Application Interface: Inbound - Software Test Set

Specific requirements and test procedures will be incorporated in the test plan as they become available from industry and government.

## **5.0 SUMMARY AND CONCLUSIONS**

This report is a preliminary draft document and will be updated in the future. The U.S. Department of Defense is currently working through the Pan American EDIFACT Board to augment the ORDERS message in order to satisfy DoD requirements. Because coming changes to the ORDERS message will have an impact on this task, we must continue to be sensitive to this issue. Future versions of this report will reflect these changes triggered by the next release/version of the ORDERS message. Also because this paper is a work in progress, specific details pertaining to test requirements and test procedures will be included as they become available from industry and government.

In any event, the results from these tests will be compiled into a collection of test analysis reports, which will document findings, conclusions, and recommendations resulting from the overall testing process. At the micro level, the test analysis will help reveal deficient product and/or functional areas relating to the prototype test. At the macro level, this analysis will consider the operational, organizational, and technical perspectives relating to the degree of success achieved by this prototype, and in turn the following questions should be answered:

1. How well does the UN/EDIFACT ORDERS message support the requisite objectives of the organization?
2. How capable is the UN/EDIFACT ORDERS message in achieving the functionality required?
3. Is the UN/EDIFACT ORDERS message acceptable to the government, industry, and end users?

## REFERENCES

*CALS Integrated Data Environment Program Telecommunications Considerations Report*, October 23, 1996, prepared by Don Reynolds.

*Electronic Data Interchange Implementation and Transition Road Map*, prepared for the OSD CALS IWSDB Project, March 1995.

*Standards Governing EC/EDI*, Chapter 7, EC/EDI Handbook, <http://www.acq.osd.mil/ec/hdbk/chap08.html>.

*EDI Compliance Certification Facility Test Concepts and Procedures*, DISA, September 1996.

*Defense Information Infrastructure Master Plan*, April 1996.

*Executive Summary of the DoD Electronic Commerce in Contracting Process Action Team*, December 20, 1993.

*EDI-Charting: A Course to the Future* by R. T. Crowley, Research Triangle Consultants, Inc., 1993.

*The EDI Implementation Handbook* by Gordon Jenkins and Ray Lancashire, EDI Council of Canada, 1992.

*The Electronic Commerce Handbook* by Gordon Jenkins and Ray Lancashire, EDI Council of Canada, 1994.

**APPENDIX A: GLOSSARY**

## APPENDIX A: GLOSSARY

Acceptable Level of Risk - A judicious and carefully considered assessment by the appropriate accrediting authority that the value of the Automated Information System (AIS) or network unambiguously outweighs the likelihood of potential damage to the security interests of the United States in the event information from the system is compromised, damaged, or destroyed. The severity of the potential damage must be taken into account. The assessment should take into account the value of AIS or network assets, threats, and vulnerabilities, as well as countermeasures and their ability to compensate for vulnerabilities and operational requirements.

American National Standards Institute (ANSI) - The principal standards coordination body in the United States. ANSI is a member of the International Organization for Standardization (ISO).

Archive - To store data for a given period of time for security, backup or auditing.

Automated Information System (AIS) - Computer hardware, computer software, telecommunications, information technology, personnel, and other resources that collect, record, process, store, communicate, retrieve, and display information. An AIS can include computer software only, computer hardware only, or a combination of the above.

Basic Ordering Agreement - A basic ordering agreement is a written instrument of understanding, negotiated between an agency, contracting activity, or contracting office and a contractor, that contains terms and clauses applying to future contracts (orders) between the parties during its term, a description, as specific as practicable, of supplies or services to be provided, and methods for pricing, issuing, and delivering future orders under the basic ordering agreement. A basic ordering agreement is not a contract.

Business Application - A computer-based system that process business information in support of a specific business function such as purchasing, accounting or logistics management, etc. Business application data is produced by such applications and transmitted to a translation program for conversion into an EDI format, and vice versa.

Communications Handler - A software program that controls computer hardware and modems and arranges for the transmission or reception of electronic data.

Compliance Checking - A checking process that is used to ensure that a transmission complies with syntax rules.

Control Characters - In communications, any transmitted characters used to control or facilitate data transmission between two or more computers. Also, characters associated with addressing, polling, message delimiting and blocking, framing, synchronization, error checking, and other control functions.

Control Structure - The beginning and end (header and trailer) segments for entities in Electronic Data Interchange.

Data Element - The smallest, meaningful piece of information in a business transaction. A data element may condense lengthy descriptive information into a short code. Equivalent to a data field in a paper document; a series of data elements are used to build a data segment. A data element dictionary that defines the data element and, where appropriate, the code is part of ASC X12 or UN/EDIFACT standards.

Data Element Delimiter - A separating character, such as an asterisk (\*), that precedes each data element within a segment.

Data Element Dictionary - The publication that lists all of the data elements used within EDI standards.

Data Segment - A data segment is a group of related data elements in a transaction set. Each segment has a unique segment identifier, a combination of two or three uppercase letters and/or digits that serves as a name for the segment and occupies the first character positions of the segment. A segment is equivalent to a data record in a database.

DoD EC and EDI Infrastructure - A subset of the Defense Information Infrastructure (DII) that is designed to support EC and EDI. It is composed of hardware, software, and people. It provides services such as translation, archiving, distribution, and result notification. It supports all DoD EC and EDI functional activities as well as other civilian agencies that may need to use it.

DoD Gateway - DoD Gateways control the timing and flow of EDI transactions on the government side of FACNET.

Dynamic Requirement - Testing of dynamic requirement types requires the execution of the software application.

Electronic Commerce (EC) - The paperless exchange of business information (goods and services) or ideas using Electronic Data Interchange (EDI), Electronic Mail (E-Mail), electronic bulletin boards, Electronic Funds Transfer (EFT), facsimile, video conference, and other similar technologies.

Electronic Commerce Processing Node (ECPN) - A collection of hardware and software systems which provides communications connectivity between Value Added Networks (VANs) and the Government Gateways to support the exchange of EDI transactions between Government procurement agencies and private sector Trading Partners. There are currently two ECPNs, located in Columbus, Ohio and Ogden, Utah.

Electronic Data Interchange (EDI) - The computer-to-computer exchange of business transaction information in a public standard format.

Electronic Mailbox - A holding location for EDI transactions generally provided by a Value Added Network (VAN) to its customers. The customers would normally dial-up and connect to their EDI mailboxes and download and upload transactions.

FACNET - Federal Acquisition Network was created by Section 9001, Federal acquisition Streamlining Act of 1994, Pub. L. 103-355, October 13, 1994, 41 USC 426. FACNET is defined as: the Government wide Electronic Commerce/Electronic Data Interchange (EC/EDI) systems architecture for the acquisition of supplies and services that provides for electronic data interchange of acquisition information between the Government and the private sector, employs nationally and internationally recognized data formats, and provides universal user access. Federal Acquisition Regulations (FAR) 4.501

FACNET is not a specific system but rather a series of capabilities. For procurements at or below the Simplified Acquisition Threshold, a contracting activity using an Interim FACNET certified system is exempted from the requirement of posting or synopsis in the Commerce Business Daily (CBD) as indicated in FAR 5.202 (a) (13) and the waiting periods required before award or issuance of the solicitation.

FTP - A file transfer protocol typically used with Transmission Control Protocol/Internet Protocol (TCP/IP).

Functional Acknowledgment - An ANSI ASC X12 Transaction Set (997) which is produced by translation software upon receiving and validating an EDI transaction set, and sent to the sender.

Implementation Convention - A subset of the X12 standard that represents the common practices and/or interpretations of the use of X12 standards. Conventions define how trading partners will use the standards to accommodate their mutual needs. An Implementation Convention should exist for each EDI transaction set that is to be used. Implementation Conventions deal with transaction sets at the data element level. For the government, or any industry sector, Implementation Conventions (for doing EDI within that industry) can be highly detailed subsets of the Implementation Guidelines (for doing EDI within that industry).

Implementation Guideline - The Guideline contains instructions on the use of EDI. It provides additional information to assist in conducting EDI. The Guideline is intended to provide assistance and should not be your sole source of information.

Inbound Transaction - A transaction coming to the receiver from the sender.

Interchange Control Number - A control number assigned to an EDI interchange that is unique to both the interchange and the trading partner for which the particular interchange.

Interim FACNET - Means a contracting office has been certified as having implemented a

capability to provide widespread public notice of, issue solicitations, and receive responses to solicitations and associated requests for information through FACNET. Such capability must allow the private sector to access notices of solicitations, access and review solicitations, and respond to solicitations.

Mapping - The process of manually mapping data elements from User Defined File formats to and from corresponding standard EDI transaction sets.

NIPRNET - N-level Internet Protocol Router Network (NIPRnet) is often referred to as the non-classified DoD intranet.

Nonrepudiation - The quality of a secure EDI system that prevents a party from falsely denying that the sent or received a specific transaction/message.

ORDERS Message - Specifies details for goods or services ordered using Electronic Data Interchange (EDI) between trading partners involved in administration, commerce and transport under conditions agreed between the seller and the buyer.

Outbound Transaction - A transaction leaving from the sender and going to the receiver.

Public Transaction - A transaction that, rather than being sent to one trading partner, is broadcasted to a predefined group of trading partners. Alternatively, a transaction that is made available to any trading partner by being placed in a publicly accessible media, such as an electronic bulletin board, for downloading.

Security - A generic term describing the methods adopted to protect data from loss, corruption, and/or unauthorized access and retrieval. Methods include passwords, digital signatures, identification keys, verification, encryption/decryption, and nonrepudiation of sender and receiver.

Simple Mail Transfer Protocol (SMTP) - The TCP/IP protocol for transferring electronic mail messages from one machine to another. SMTP specifies how two mail systems interact and the format of control messages they exchange to transfer mail.

SMTP - Simple mail transfer protocol.

Store-and-Forward - The process of storing EDI transmissions in an electronic mailbox before delivering them to recipients.

Static Requirement - Testing of static requirement types does not require the execution of the software application.

TCP/IP - Transmission communications protocol / internet protocol.

Trading Partner (External) - A non-federal government entity with whom the Federal Government exchanges business transactions.

Trading Partner (Internal) - A Federal Government entity who exchanges business transactions with another Federal Government entity.

Trading Partner Agreement (TPA) - A written instrument of understanding negotiated agreement between EDI Trading Partners that specifies contractual matters and protocols of governing EDI transactions. These are generally used in the private sector among EDI Trading Partners. Within the Federal EDI acquisition context, Trading Partner Instructions (TPI) are issued by the Government to the vendor community and are used instead of a TPA.

Trading Partners - Entities who exchange business transactions.

Transaction - All of the business information contained in a transaction set.

Transaction Set - A semantically meaningful unit of transaction information exchanged between EDI trading partners. It can be thought of as the electronic counterpart of a paper document that represents a transaction, e.g., an invoice, a bill of lading, or a medical insurance statement.

Translation - A utility that uses the results of the mapping process to automatically convert the data in User Defined File formats to and from corresponding standard EDI transaction sets.

Value-Added Network (VAN) - Generally commercial entities that transmit, receive, and store EDI transactions on behalf of their customers. VANs may also provide additional services known as Value Added Services. Also known as third party networks.

Value-Added Service (VAS) - A Value Added Service (VAS) may be a separate commercial organization (also known as an EDI service bureau) that provides EDI-related services, or a VAN that provides extra fee-based services beyond standard VAN services to its customers. Such services may range from translation to "EDI-to-FAX" services to complete EDI-integrated business systems.

X.400 - The international standard developed by CCITT for a store-and-forward message handling system in a multivendor environment.

**APPENDIX B: ABBREVIATIONS AND ACRONYMS**

## APPENDIX B: ABBREVIATIONS AND ACRONYMS

<b>AIS</b>	Automated Information System
<b>ANSI</b>	American National Standards Institute
<b>BOA</b>	Basic Ordering Agreement
<b>CALS</b>	Continuous Acquisition and Life-cycle Support
<b>DII</b>	Defense Information Infrastructure
<b>DISA</b>	Defense Information Systems Agency
<b>DoD</b>	Department of Defense
<b>EC</b>	Electronic Commerce
<b>ECPN</b>	Electronic Commerce Processing Node
<b>EDI</b>	Electronic Data Interchange
<b>FACNET</b>	Federal Acquisition Network
<b>FAR</b>	Federal Acquisition Regulations
<b>FTP</b>	File Transfer Protocol
<b>IDE</b>	Integrated Data Environment
<b>ISG</b>	Industry Steering Group
<b>ISO</b>	International Organization for Standardization
<b>NATO</b>	North Atlantic Treaty Organization
<b>NIPRnet</b>	N-level Internet Protocol Router Network
<b>NSIA</b>	National Security Industrial Association
<b>SMTP</b>	Simple Mail Transfer Protocol
<b>TCP/IP</b>	Transmission Control Protocol / Internet Protocol
<b>UN/EDIFA</b>	United Nations rules for Electronic Data Interchange For Administration, Commerce and Transport
<b>CT</b>	Commerce and Transport
<b>VAN</b>	Value Added Network
<b>VAS</b>	Value Added Service