DEPARTMENT OF THE NAVY
CHIEF INFORMATION OFFICER
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WASHINGTON, DC 20350-1000

13 December 2002

MEMORANDUM FOR DISTRIBUTION

Subj: DON POLICY ON THE USE OF EXTENSIBLE MARKUP LANGUAGE (XML) OF DECEMBER 2002

Encl: (1) DON Policy on the Use of XML of December 2002

In a dynamic global environment, organizational relationships often influence business, government, and military activities and outcomes. The Department of the Navy (DON) is no exception. Interdependencies among DON programs and commands, as well as with partners such as other Department of Defense (DoD) entities, civilian agencies, U.S. allies, and non-governmental organizations, play a major role in shaping DON operations.

Interoperability is a cornerstone of DON efforts to strengthen its interdependent operations and, subsequently, improve the war fighter's ability to find, retrieve, process, and exchange information. The Department, like many government and private sector organizations, has increasingly looked to Extensible Markup Language (XML) technology to meet its data sharing needs. Today, the DON takes another important step to harness XML's capacity for improving interoperability with the *DON Policy on the Use of Extensible Markup Language of December 2002* (enclosure (1)).

Since the interim DON XML policy was issued last fall, the Department has created a comprehensive governance structure for its XML efforts and set a strong example for DON partners that are implementing the technology. The DONXML Work Group, formed in August 2001, has been working through its five focused action teams to provide leadership and guidance to the Department's XML efforts. *The DON Vision for XML*, released in March 2002, outlined the Department's vision for successful XML implementation across the DON and the May 2002 *XML Developer's Guide, Version 1.1* provided developers with important information about XML specifications, component selection/creation, schema design, and component naming conventions.

Enclosure (1), developed by the DONXML Work Group, reflects the progress made in the past year and refocuses our governance efforts to ensure the Department continues to implement XML in a manner consistent with the DON XML vision of "fully exploiting XML as an enabling technology to achieve interoperability in support of maritime information superiority." Specifically, the policy provides direction for governance issues that include the use of technical specifications and XML standard components as well as participation on XML and XML-related technical and business standards bodies. The policy also ensures the integration of DON XML implementation with that of other ongoing enterprise architecture initiatives.

The policy also outlines responsibilities of the many individuals and groups critical to the success of DON XML implementation efforts, including Functional Area Managers (FAMs), XML Functional Namespace Coordinators (FNCs), and the relationship to Functional Data Managers (FDMs). Finally, the document describes key action steps, including DONXML Work Group and FAM tasking to formally establish XML FNCs for functional responsibility areas.

Successful XML implementation requires a firm commitment to coordination. I strongly encourage you to review and adhere to this policy, which is a crucial part of our work to foster XML coordination among DON programs and commands. With your support, we can ensure that DON XML efforts remain aligned with the Department's vision for the technology and meet user requirements. This office will continue to provide the necessary processes, guidance, and governance structures to support XML implementation efforts across the DON.

If you have questions about the XML Policy, or would like additional information about DON XML efforts, please contact the DONXML Work Group Chairperson, Mr. Michael Jacobs 703-601-3594, jacobs.michael@hq.navy.mil.

D. M. Wennergren

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13 December 2002

MEMORANDUM FOR DISTRIBUTION

Subj: DON POLICY ON THE USE OF EXTENSIBLE MARKUP LANGUAGE (XML)

Ref: (a) DON CIO Memo, *Interim Policy on the Use of Extensible Markup Language (XML) For Data Exchange*, 6 Sep 01
(b) World Wide Web Consortium (W3C) Recommendation, *Extensible Markup Language XML 1.0 (Second Edition)*, 6 Oct 2000
(c) W3C Recommendation, *Extensible Stylesheet Language (XSL) 1.0*, 15 Oct 01
(d) W3C Recommendation, *XML Schema Part 1: Structures*, 2 May 01
(e) W3C Recommendation, *XML Schema Part 2: Datatypes*, 2 May 01
(f) DON CIO Memo, *Department of the Navy Vision For Extensible Markup Language (XML)*, 15 Mar 02
(g) *Department of The Navy XML Developers Guide*, Version 1.1, 1 May 02
(h) SECNAVINST 5000.36, *Data Management and Interoperability*, 1 Nov 01
(i) Under Secretary of the Navy Memo, *Designation of Department of the Navy (DON) Functional Area Managers*, 14 May 02
(j) Title 10 United States Code, Chapter 131, Section 2223 (codifies Public Law 105-261, "National Defense Authorization Act for FY 1999," Section 331)
(k) DoD CIO Memo, *Policy for Registration of Extensible Markup Language (XML)*, 22 Apr 02

Encl: (1) Extensible Markup Language Functional Namespace Coordinator Roles and Responsibilities
(2) Definitions

Purpose. This memorandum establishes the Department of the Navy policy on the use of Extensible Markup Language.

Scope and Applicability. This policy addresses XML implementation as it applies to automated systems, applications, data exchanges, databases, document markup, and information presentations within and across warfighting and business systems. This policy applies to all Navy and Marine Corps organizations, including the operating forces and supporting establishments that are engaged in developing, acquiring, or maintaining Information Technology and National Security Systems (IT/NSS).

Cancellation. Reference (a) is hereby cancelled and superseded.

Background

a. The Extensible Markup Language originated within the World Wide Web Consortium (W3C) as a semi-structured data exchange format that included both data and a description of the data's structure in a single package. A number of W3C technical specifications have been developed that define XML. Reference (b) is the core specification that provides syntax rules for using XML for a variety of data exchange, presentation, storage, protocol development, and other purposes. Reference (c) provides the mechanism for presentation and transformations of XML, and references (d) and (e) provide XML-based mechanisms for defining specified formats for XML data exchanges. A listing of all W3C Technical Specifications can be found at http://www.w3.org.

b. Reference (f) details the DON vision for XML. This vision document establishes a path forward for XML insertion across the DON, and articulates the DON high-level XML goal of "... fully exploiting Extensible Markup Language as an enabling technology to achieve interoperability in support of maritime information superiority."

c. Reference (g) provides specific design rules and approaches for DON XML development. This document provides conventions and guidelines for using XML within the DON. It provides recommendations and best practices for the creation of XML schema and components for "XML-enabled" applications.[1]

d. Reference (h) establishes policy and defines the infrastructure and processes necessary to unify DON Data Management and Interoperability (DMI) and achieve data interoperability within the DON, with other Military Departments and DoD agencies, and with allied forces. It defines the need for identification and designation of authoritative data sources. It outlines specific roles and responsibilities of Navy and Marine Corps Data Administrators, Resource Sponsors, and Functional Data Managers (FDMs).

e. Reference (i) provides guidance on reducing the number of DON IT applications and databases and provides a framework for coordination and management of these processes across

[1] XML Components are defined as:

- Standard Markup—XML element and attribute names and tags,
- Schema Components—developer-defined entities and datatypes,
- Schemas—mappings of logical models of business processes and the parcels of information exchanged in these processes to physical XML schemas or Document Type Definitions (DTDs),
- Stylesheets, and
- Namespace Associations.

the DON. It defines the roles and responsibilities of the Functional Area Managers (FAMs) and identifies the organizations responsible for designating the FAMs.

f. Reference (j) requires the Chief Information Officer (CIO) to ensure that Departmental IT/NSS systems are in compliance with standards of the federal government and the Department of Defense (DoD) and interoperable with other relevant IT and NSS of the federal government and DoD. Reference (k) provides current DoD policy for the registration of XML components in the DoD XML Registry.

Discussion. XML in its purest form is a technical specification providing a standard for creating custom markup languages to describe any type of information structure. Since approval of the initial technical specification by the W3C in 1998, numerous other XML-based specifications have also been developed by the W3C. These specifications now constitute a family of standards for the representation, processing, and exchange of information. Furthermore, the term "XML" has evolved to include more than just the technical specifications. In addition to the core XML technical specifications, the term XML now includes the business standards that define specific XML vocabularies for information representation within a domain and the XML-enabled applications that are based on the technical specifications and use the business standards. Together, these three aspects of XML—technical specifications, business standards, and XML-enabled applications—are expected to improve interoperability between systems, facilitate efficient data exchanges and economical *e*business practices, reduce duplication of effort and ambiguity of information, and reduce data exchange life-cycle costs.

Although XML has the potential to provide significant cost savings to the DoD and the DON, there are a number of risks associated with its implementation that need to be recognized and mitigated. Specifically, implementations that do not adhere to an enterprise strategy will degrade, rather than enhance, interoperability. For XML to facilitate data exchange and improve interoperability, an enterprise-wide approach to standard XML development, implementation, namespace management, and governance must be employed. This approach must be integrated with existing and planned DON Enterprise Architecture strategies. Insertion of XML throughout the DON will be closely linked to the DMI initiative defined by reference (h). In addition, the XML governance structure will be integrated into the existing FAM organization, which is defined in reference (i). In accordance with reference (j), the DON CIO has responsibility to put in place policy and procedures to ensure such an enterprise-wide approach becomes a reality. Accordingly, the DON CIO has established the DONXML Work Group (DONXML WG) and tasked that group with developing the Department's Vision, Implementation Strategy, Strategic Implementation Plan, Policies, Procedures, Guidance, and Governance Structure for XML.

To meet this tasking, the DONXML WG has established Action Teams in the areas of Vision, Standard Implementation, Enterprise Implementation, Outreach, and Integration with Existing DON Processes. The DONXML WG maintains a website for collaborative development (https://quickplace.hq.navy.mil/navyxml), and a number of automated electronic mailing lists. The DONXML WG is working closely with Task Force Web, DMI, and other enterprise-level initiatives to ensure a consistent, enterprise-wide approach to XML.

Representation of the full spectrum of DON IT developers, implementers, and users is essential to ensure the efforts of the DONXML WG fully address all aspects of XML. All activities are encouraged to ensure representation and participation in this DONXML WG as it continues forward with its efforts.

As development and stand up of the formal DON XML governance structure is completed, responsibility for managing DON XML implementation will shift from the DONXML WG to this newly formed structure.

Goals. The overall goals of DON XML policy are to:

a. Encourage and promote the use of XML as an enabling technology to help achieve enterprise interoperability throughout the Department of the Navy;

b. Establish processes, procedures, guidelines, tools, training, and other assets that will assist the DON in adopting and implementing XML where appropriate;

c. Support interoperability between the DON and other DoD components, Joint Activities, civil agencies, and industry; and

d. Actively influence appropriate XML and XML-related technical and business standards bodies to facilitate the creation and adoption of XML technical specifications, business standards, and products that support DON requirements.

Policy

a. Technical Specifications. It is DON policy to make use of W3C Technical Specifications holding *Recommended* status [e.g., references (b) through (e)]. [2] To ensure maximum interoperability, production applications should use only software that implements W3C Technical Specifications holding *Recommended* status.

It is DON policy that XML-related standards promulgated by other nationally or internationally accredited standards bodies— such as International Organization for Standardization (ISO), Institute for Electrical and Electronic Engineers (IEEE), American National Standards Institute (ANSI), Organization for the Advancement of Structured Information Standards (OASIS), United Nations/Centre for Trade Facilitation and Electronic Business (UN/CEFACT), Internet Engineering Task Force (IETF)—should also be adhered to when developing applications within the domain that the standard addresses. When a standard produced by one of these bodies competes with a similar product of the W3C, the W3C standard shall take precedence.

[2] "A W3C Recommendation is a technical report that is the result of extensive consensus-building inside and outside of W3C about a particular technology or policy. W3C considers that the ideas or technology specified by a Recommendation are appropriate for widespread deployment and promote W3C's mission." See www.w3.org for further definition.

b. Proprietary Extensions. It is DON policy that production XML implementations shall not use proprietary extensions to XML-based specifications.

c. Standards Participation. It is DON policy to actively participate in the work of appropriate XML and XML-related technical and business standards bodies.

d. XML Standard Components. It is DON policy to use existing XML components when practical, as opposed to developing new XML components. When selecting existing components, DON activities should adhere to the following order of precedence (highest to lowest):

(1) Appropriate Business Voluntary Consensus Standards

(2) Federal-level standards

(3) DoD standards

(4) DON enterprise standards.

All DON XML business standards will be at the enterprise level.[3]

e. XML Development. It is DON policy for all XML development to adhere to the material contained in reference (g). All new development, and all modifications to legacy XML implementations, shall adhere to the rules and guidelines contained therein.

f. XML Enterprise Management. It is DON policy to advocate, support, and ensure the discovery, development, registration, maintenance, and reuse of standard XML within functional areas and at the enterprise level.

g. DoD Registration Policy. It is DON policy to adhere to the registration requirements contained in reference (k).

Responsibilities

a. The DON CIO shall:

(1) Issue DON XML policy, procedures, and guidance;

(2) Develop an XML governance structure to oversee XML implementation; and

(3) Work to establish DON XML Functional Namespace Coordinators.

(4) Ensure alignment of XML implementation with other enterprise integration initiatives.

[3] Enterprise-level standards are standards that apply to the entire Department of the Navy.

b. The Functional Area Managers shall:

(1) Work with the appropriate Resource Sponsors to identify funding requirements in support of the XML Functional Namespace Coordinator (FNC), for their functional area.

(2) Provide oversight and management of the XML FNC's efforts, for the appropriate functional area.

c. The DONXML WG shall:

(1) Report to the DON CIO;

(2) Develop an XML Implementation Strategy and Strategic Implementation Plan;

(3) Identify systems, processes, and methodologies where XML will enhance interoperability;

(4) Act as the interim XML governance structure until a formal structure is in place;

(5) Determine which external XML-related standards bodies are appropriate for DON participation;

(6) Develop procedures for designation of, and participation by, DON representatives in XML-related standards bodies;

(7) Act as the DON focal point for XML activities to include coordination with DoD, federal, and external XML organizations, standards efforts, and initiatives;

(8) Develop formal XML policy, procedures, and guidance;

(9) Develop a waiver policy to this policy; and

(10) Develop a comprehensive outreach program.

d. DON XML Functional Namespace Coordinators shall:

(1) Report to the appropriate FAM and work in conjunction with the FDMs to ensure the development of an integrated data architecture;

(2) Be responsible for advocating, supporting, and ensuring the discovery, development, registration, maintenance and reuse of standard XML within their functional area;

(3) Actively participate in the XML governance structure;

(4) Actively participate in developing and managing the DON Enterprise XML Namespace;

(5) Be responsible for managing their functional area's portion of this Namespace;

(6) Adhere to the requirements contained in references (h) and (i), and enclosure (1); and

(7) Support the registration of XML components within their respective functional area.

e. Navy and Marine Corps organizations including operating forces and supporting establishments that develop IT/NSS systems shall:

(1) Work with Functional Namespace Coordinators (FNCs) to develop standard enterprise XML components;

(2) Participate in the DONXML WG and review the WG products; and

(3) Implement the requirements of this policy.

Action.

a. The DONXML WG shall take necessary action to implement this policy.

b. FAMs shall designate an appropriate organization to act as the DON XML FNC, for their functional area of responsibility. This designation shall take place within 60 days from the date of this memorandum.

c. The DONXML WG shall work with the FAMs to establish the FNCs.

Point of Contact. The DON CIO point of contact for this policy and participation in the DONXML WG is Mr. Michael Jacobs, jacobs.michael@hq.navy.mil, 703 601 3594.

D. M. Wennergren

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Extensible Markup Language
Functional Namespace Coordinator
Roles and Responsibilities[4]

XML Functional Namespace Coordinators (FNCs) are responsible for advocating, supporting, and ensuring the development, maintenance, registration, discovery, and reuse of standard XML within their functional area. There are currently 23 functional areas identified within the Department of the Navy. The 23 functional areas were established by SECNAVINST 5000.36 and the Functional Area Manager (FAM) Designation memo.[5] FNCs actively participate in developing and managing the Department of the Navy (DON) Enterprise XML Namespace and are responsible for managing their functional area's portion of this Namespace.

FNCs shall do the following:

- Report to the appropriate FAM.
- Implement the DON XML strategy and processes to monitor and manage the use of XML within their functional area.
- Assist program managers and other systems developers with production of standard markup[6], schema components,[7] schemas,[8] style sheets, namespace associations, core components and business information entities, and required metadata.[9]
- Ensure that program managers and developers do not unilaterally define XML components for information they do not produce and for which they are not designated as authoritative sources. FNCs will promote authoritative sources collaborating with known information exchange/trading partners on the creation of XML components.
- Ensure, facilitate, monitor, and validate registration of DON XML components.
- Develop and maintain functional area portion of the DON XML Enterprise Namespace.
- In conjunction with the Data Management and Interoperability (DMI) Functional Data Manager (FDM), map DON XML Namespace tags and core components to DON Systems/Applications data structure and Department of Defense (DoD) data standards

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[4] This document defines the roles and responsibilities of the XML Functional Namespace Coordinator (FNC). At the discretion of the Functional Area Manager (FAM), these roles and responsibilities may be fulfilled by either the Functional Data Manager (FDM) or by another organization.
[5] Under Secretary of the Navy Memorandum, *Designation of Department of the Navy (DON) Functional Area Managers*, 14 May 2002.
[6] XML element and attribute names and tags.
[7] Developer-defined entities and datatypes.
[8] This includes both DTDs and XML Schemas.
[9] Core Components and Business Information Entities are defined in UN/CEFACT Core Components Technical Specification, Version 1.8 of 8 February 2002.
http://www.ebtwg.org/projects/documentation/core/CoreComponentsTS1.80.pdf

such as Defense Data Dictionary System (DDDS), Message Text Formatting (MTF), and Tactical Digital Information Links (TADIL).

- Ensure adherence to appropriate Federal, DoD, and DON XML regulations, policies, and standards.

- Ensure the selection of, use of, and adherence to Voluntary Consensus Standards (VCSs), consistent with Public Law 104-113 and the Office of Management and Budget Circular A-119, in lieu of developing new DON XML components.[10,11] FNCs will facilitate and promote the integration of DON standards with existing VCSs where appropriate. When no comparable VCSs exist, FNCs will facilitate and promote the migration of DON standards to VCS status. FNCs will ensure that new DON XML components are developed only when

    1. suitable VCSs do not exist,
    2. existing VCSs do not suffice or are not appropriate for the intended application,
    3. new VCS components cannot be readily developed through a standards development organization,
    4. suitable DoD components do not exist,
    5. existing DoD components do not suffice or are not appropriate for the intended application, or
    6. sufficient or appropriate DoD components cannot be developed through the DoD standards process.

- Serve as members of the DON XML Enterprise governance organization.

- Reconcile functional area and cross-functional XML tags, element and attribute names, and required metadata with core components.

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[10] The National Technology Transfer and Advancement Act of 1995, Public Law 104-113.

[11] Office of Management and Budget, Circular A-119 (Revised), *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*, February 10, 1998.

DEFINITIONS

**Attribute.** A source of additional information about an element. Attribute values may be fixed in the DTD or Schema, or listed as name-value pairs (name='value') in the start-tag of an element.

**Authoritative Data Source**. Data products including databases that have been identified, described, and designated by appropriate Department of Navy (DON) Functional Data Managers, U.S. Military Services and Department of Defense (DoD) Components as the authorized producer of data for a given requirement. (SECNAVINST 5000.36)

**Business Information Entity.** A piece of business data or a group of pieces of business data with a unique business semantic definition derived from a core component through the application of context. (UN/CEFACT CCTS V1.85)

**Context.** The formal description of a specific business circumstance as identified by the values of a set of context categories, allowing different business circumstances to be uniquely distinguished. (UN/CEFACT CCTS V1.85)

**Core Component.** A building block for the creation of a semantically correct and meaningful information exchange package. It contains only the information pieces necessary to describe a specific concept. (UN/CEFACT CCTS V1.85)

**Data.** A representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automatic means. (Federal Information Processing Standards (FIPS) Pub 11-3) Data are distinct pieces of information, usually formatted in a special way. All software is divided into two general categories: data and programs. Programs are collections of instructions for manipulating data.

**Datatype.** The format used for the collection of letters, digits, and/or symbols, to depict values of a data element, determined by the operations that may be performed on the data element. (ISO 11179-1)

**Document Type Definition.** A definition of the structure of an XML document expressed in Standard Generalized Markup Language (SGML) syntax.

**Element.** Each XML document contains one or more elements, the boundaries of which are either delimited by start-tags and end-tags, or, for empty elements, by an empty-element tag. Each element has a type, identified by name, sometimes called its "generic identifier" (GI), and may have a set of attribute specifications. (W3C REC-XML-20001006)

**Enterprise.** The highest level of an organization.

**Enterprise Interoperability.** Enterprise Interoperability, when used in terms of Information Technology, refers to the ability of all systems within a given enterprise (e.g., DON) to access, exchange, understand, and use shared data and processes.

**Enterprise Standards.** Standards selected or developed by an enterprise to promote interoperability across all functional areas. Enterprise standards are usually formally promulgated (e.g., DoD Joint Technical Architecture).

**Enterprise Strategy.** For information technology — a tactical strategy and an implementing process for using information as a strategic asset to manage IT far more effectively and efficiently. An enterprise strategy develops and manages an organization's IT architecture from an enterprise vice organizational or functional area perspective to promote communication, increase flexibility, and avoid waste and duplication.

**Enterprise XML Namespace.** A collection of namespaces of an enterprise is structured around an organizational, functional, or hierarchical structure. This namespace collection is collated as sections of a single enterprise namespace. The XML enterprise namespace is the root construct of the collection of XML functional area namespaces and will also contain XML components that have been designated as enterprise standards.

**Entity.** A unit of storage within an XML construct. Entities all have content and are all (except for the document entity and external subsets) identified by an entity name. Each XML document has one entity called the document entity, which serves as the starting point for the XML processor and may contain the whole document.

**Functional Area.** A Functional Area encompasses the scope (the boundaries) of a set of related functions and data as defined by SECNAVINST 5000.36 and the Functional Area Manager (FAM) Designation Memo. There are currently 23 functional areas defined for the DON.

**Functional Area Manager.** An individual designated by the Under Secretary of the Navy to manage a functional area.

**Functional Data Manager.** Organizations designated by the respective Resource and Program Sponsors to produce and control structuring of data within functional activities, information systems, and computing and communications infrastructures. Examples include: Naval Meteorology and Oceanography Command for meteorological and oceanographic data, Office of Naval Intelligence for characteristics and performance data of non-U.S. equipment and merchant ships, Naval Security Group for cryptologic information and data, DC/S Installations & Logistics (I&L) for Marine Corps logistics.

**Governance Structure.** The organizational structure necessary to make and administer policy so as to ensure a given mission is fulfilled or vision achieved. Governance structures can be formal (e.g., an organization) or matrix (e.g., participants from different organizations) in nature. The DON XML governance structure will be concerned with the enterprise-wide implementation of XML standards throughout the Department of the Navy to achieve the DON XML Vision. All XML development and use within the

DON, whether proof-of-concept or full "programmatic," will fall within the scope of DON XML governance structure.

**Information Technology.** Any equipment, or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. The term "equipment" in this definition means equipment used by a component directly, or used by a contractor under a contract with the Component, which requires the use of such equipment, or requires the use, to a significant extent, of such equipment in the performance of a service or the furnishing of a product. The term "IT" includes computers, ancillary equipment, software, firmware and similar procedures, services (including support services), and related resources. The term "IT" includes National Security System (40 U.S.C. 1401 and Sec 5002 Title 40, United States Code, Chapter 25, as amended).

**Interoperability.** The ability of systems, units, or forces to provide services to, and accept services from, other systems, units, or forces, and to use the services so exchanged to enable them to operate effectively together. (CJCS Pub 1-02)

**Markup.** A method whereby metadata (e.g., semantic meaning, structural information) about data is encoded with the data. XML markup is separated from the data or content through the use of angle brackets (e.g., <name>). "The function of the markup in an XML document is to describe its storage and logical structure and to associate attribute-value pairs with its logical structures." (W3C REC-xml-20001006)

**Markup Language.** A vocabulary created to provide a formal set of markup for a specific purpose.

**Metadata.** Information describing the characteristics of data; data or information about data; descriptive information about an organization's data, data activities, systems, and holdings. (DoD 8320.1M-1)

**Namespace.** An XML namespace is a collection of names, identified by a Uniform Resource Identifier reference, which are used in XML documents as element types and attribute names. XML namespaces differ from the "namespaces" conventionally used in computing disciplines in that the XML version has internal structure and is not, mathematically speaking, a set. (W3C REC-xml-names-19990114)

**Namespace Association.** That part of an XML construct that identifies the namespace where the authoritative source information for that markup is maintained.

**National Security System.** The term "national security system" means any telecommunications or information system operated by the United States Government, the function, operation, or use of which: (1) involves intelligence activities; (2) involves cryptologic activities related to national security; (3) involves command and control of military forces; (4) involves equipment that is an integral part of a weapon or weapons system; or (5) subject to subsection (b), is critical to the direct fulfillment of military or intelligence missions. LIMITATION — Subsection (a)(5) does not include a system that

is to be used for routine administrative and business applications (including payroll, finance, logistics, and personnel management applications). (Information Technology Management Reform Act of 1996)

**Proprietary Extensions.** Vendor or implementation specific additions to an XML technical specification, business standard, markup language application, or product. Proprietary extensions can be created to satisfy developer preferences, bypass software limitations, or avoid altering existing standards. Proprietary extensions typically increase functionality at the expense of interoperability.

**Registry.** A mechanism where relevant repository items and metadata about them can be stored such that a pointer to their location, and all their metadata, can be retrieved as a result of a query.

**Schema.** A formal definition of the structure, content, and semantics of XML documents. Schemas contain the logical models of business processes and the parcels of information exchanged in these processes. The use of schema with a lower-case 's' is a generic reference to a class of schema languages expressed in XML such as Regular Language description for XML Next Generation (RELAX-NG), Schematron, and W3C Schema; whereas the use of Schema with a capital 'S', or the more formal XML Schema Definition (XSD) Schema, refers exclusively to the W3C Schema language.

**Schema Components.** The W3C XML Schema Definition defines thirteen building blocks in three categories (primary, secondary, helper) that together comprise the XSD abstract model. Each of these thirteen building blocks (Simple Type Definitions, Complex Type Definitions, Attribute Declarations, Element Declarations, Attribute group definitions, Identity-constraint definitions, Model group definitions [named model groups], Notation declarations, Annotations, Model groups [created by compositors but not in a group element], Particles, Wildcards, and Attribute uses) constitutes a schema component.

**Standard.** A document that establishes uniform engineering or technical criteria, methods, processes, and practices. (DoD 4120.24-M)

**Standard Markup.** XML element and attribute names and tags that are fully conformant to an identified standard.

**Standard XML.** XML that is fully conformant to an identified set of technical specifications, standards, policy, and associated guidance. For the DON, standard XML implementation will require uniform, standard XML implementation by using a common set of implementation characteristics, techniques, and XML components, conforming to appropriate XML technical specifications, frameworks, and business standards identified by the DONXML WG and the DON XML Governance Structure as critical to interoperability.

**Stylesheet.** A formal description of how the source content of an XML document or data file should be styled, laid out, and paginated onto some presentation medium, such as a window in a Web browser or a hand-held device, or a set of physical pages in a catalog,

report, pamphlet, or book. Stylesheets can also be used to transform one XML document created in a given XML markup language to another XML document created in a different XML markup language. (W3C-xsl-20011015)

**Syntax.** The rules governing the construction of a computer language. May also refer to a specific language (e.g., XML, Hypertext Markup Language, Standard Generalized Markup Language, Java).

**Tag.** The generic name for markup. XML documents will have start tags and end tags. All XML tags can be identified by the appearance of angle brackets at its beginning and end (e.g., <this is a tag>).

**W3C Technical Specifications.** Formal products of the World Wide Web Consortium. W3C technical specifications can have many levels of maturity. The highest level is recommended status. A technical specification holding recommended status is work that represents consensus within W3C and has the Director's approval. Technical specifications holding recommended status are appropriate for widespread deployment and are considered as equivalent to a standard.

**XML.** An open standard for describing data from the W3C. It is used for defining data elements on a Web page and business-to-business documents. It uses a similar tag structure as SGML and HTML; however, whereas HTML defines how elements are displayed, XML defines what those elements contain. HTML uses predefined tags, but XML allows tags to be defined by the developer of the page. Thus, virtually any data items, such as product, sales rep, and amount due, can be identified, allowing Web pages to function like database records. By providing a common method for identifying data, XML supports business-to-business transactions and is expected to become the dominant format for electronic data interchange.

**XML-Based Specification.** An information technology related specification that uses the concept of XML to achieve its stated functionality (e.g., XML Encryption).

**XML Components**

- Standard Markup—XML element and attribute names and tags,
- Schema Components—developer-defined entities and datatypes,
- Schemas—mappings of logical models of business processes and the parcels of information exchanged in these processes to physical XML schemas or DTDs,
- Stylesheets, and
- Namespace Associations.

**XML-Enabled.** An application, database, or process that has been developed to leverage XML technology for generation, storage, retrieval, processing, and exchange.

**XML Schema.** See Schema.

**XML Standard Components.** Standard markup, schema components, schemas, stylesheets, and namespace associations that have been standardized through a formal process so as to achieve enterprise interoperability. XML standard components will be available for reuse through an XML registry.