DEFENSE LOGISTICS AGENCY

Established 1961

Extensible Markup Language (XML) 101

Defense Enterprise Data Standards Office

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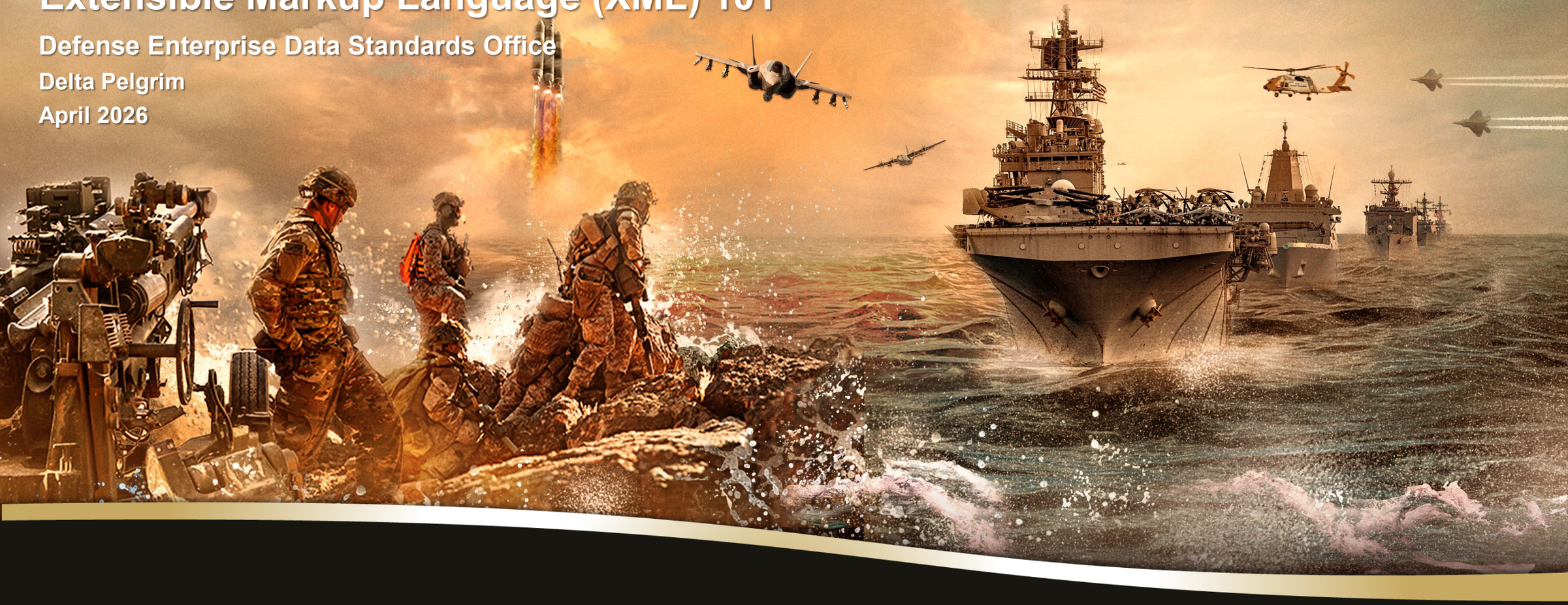

THE NATION'S LOGISTICS COMBAT SUPPORT AGENCY

DEDSO Overview

MISSION

The Defense Enterprise Data Standards Office (DEDSO) develops, publishes, and maintains interoperable data standards for logistics business systems to facilitate auditability and support the reform initiatives of the DoW and Trading Partners.

VISION

To deliver processes and quality data standards that exemplify accuracy, conformity, consistency, and integrity to our logistics community.

DEDSO Core Functions

- Executes the Defense Logistics Agency's (DLA's) mission as the **DoW Executive Agent** for the Defense Logistics Management Standards (DLMS) as chartered in DoDD 8190.01E.
- Provides **technical expertise and change control** for the translation of DoW and participating trading partner's logistics requirements into the DLMS.
- Develops DLMS business rules, policy, procedures, forms, time standards, **electronic data interchange (EDI) transactions** (X12/XML), and master data elements to meet those requirements.
- DLMS serve as **the standard for EDI** among the business systems of the DoW supply chain.

DLMS support the ever-growing DoW business information needs.

Agenda

- What is XML?
- What are tags?
- Other XML Terms (e.g., schema and instance)
- X12 vs. XML
- How is DLMS XML Unique?
- Examples

What is XML?

- XML stands for Extensible Markup Language.
- XML is a markup language much like Hypertext Markup Language.
- XML is NOT a programming language.
- XML was designed to describe data.
- XML tags are not predefined in XML – tags must be defined by the user.
- A flexible and extensible method for marking and exchanging data in a web environment.
- Defines the data structures and provides a standardized format for data exchange.

Key Features of XML

- **Extensible:** Users can define their own tags to represent specific data elements.
- **Self Descriptive:** XML documents contain information about their structure and data using tags.
- **Platform Independent:** XML files can be processed on any platform that has an XML parser.
- **Human Readable:** XML is designed to be readable by both humans and machines.

Mark Up or "Tag" an Address

<Tag>DATA</Tag>

```
<Address>
      <Name>Jane Doe</Name>
      <Street>123 Main Street</Street>
      <City>Kalamazoo</City>
      <State>MI</State>
      <Zip>12345</Zip>
</Address>
```

Tag Rules

- **Case-Sensitive**: <Name> is different from <name>
- **Nested:** Tags must be properly nested (e.g., <parent><child></child></parent>)
- **Properly Closed:** All tags must have a corresponding closing tag (e.g., <name>John Doe</name>)

Note: DLMS XML schemas ensure that all the XML tag rules are followed.

XML Terms

- **Schema:** Way to create a richer template for document content, similar to an Implementation Convention (IC) in X12.
- **XML Instance:** A document marked up to conform to an XML schema, similar to a data set for X12.
- **Namespace:** Method for qualifying element and attribute names within XML documents by associating them with namespaces identified by URI references.
- **Parse/Parsing:** Converting XML data into a format that programs can understand, similar to X12 translators.

Technical XML Terms

- **Complex Type:** Allows for children or groupings of data elements (i.e., X12 loops).
- **Sequence:** Specifies order in which child elements must occur (i.e., X12 segment order).
- **Global Elements:** Data elements are defined as immediate children of the schema element.
- **Document Declaration:** Specifies the version of XML being used (e.g., <?xml version="1.0"?>).

Note: DLMS XML schemas use complex types, global elements, and XML version 1.0.

Example of Data in Various Formats

MILS, X12, and XML

Flat File (space delimited):

Jessica Glace 6654292 231

EDI:

IN2*02*Jessica~

IN2*05*Glace~

LIN*1*PN*6654292~

QTY*63*231~

XML:

<Order>

<FirstName>Jessica</FirstName>

<LastName>Glace</LastName>

<PartNumber>6654292</PartNumber>

<OrderQuantity>231</OrderQuantity>

</Order>

DMLS XML

DEDSO has DLMS XML schemas based upon DLMS X12.

The DLMS X12 transactions must be understood first!

<E_Reference_Identification_Qualifier>TN</E_Reference_Identification_Qualifier>
<E_Reference_Identification>954229308895O7</E_Reference_Identification>

<E_Date_Qualifier>68</E_Date_Qualifier>
<E_Date>20230406</E_Date>

<E_Agency_Qualifier_Code>DF</E_Agency_Qualifier_Code>>
<E_Code_List_Qualifier_Code>0</E_Code_List_Qualifier_Code>
<E_Industry_Code>AM1</E_Industry_Code>

<E_Code_List_Qualifier_Code>AL</E_Code_List_Qualifier_Code>
<E_Industry_Code>777</E_Industry_Code>

Schema Example 1

```
<?xml version="1.0"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
                    targetNamespace="http://www.books.org"
                   xmlns="http://www.books.org"
                   elementFormDefault="unqualified">
   <xsd:element name="BookStore">
      <xsd:complexType>
         <xsd:sequence>
            <xsd:element name="Book" maxOccurs="unbounded">
               <xsd:complexType>
                  <xsd:sequence>
                     <xsd:element name="Title" type="xsd:string"/>
                     <xsd:element name="Author" type="xsd:string"/>
                     <xsd:element name="Date" type="xsd:string"/>
                     <xsd:element name="ISBN" type="xsd:string"/>
                     <xsd:element name="Publisher" type="xsd:string"/>
                  </xsd:sequence>
               </xsd:complexType>
            </xsd:element>
         </xsd:sequence>
      </xsd:complexType>
   </xsd:element>
</xsd:schema>
```

Instance from Schema 1

```
<?xml version="1.0"?>
<bk:BookStore xmlns:bk="http://www.books.org"
              xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
              xsi:schemaLocation=
                    "http://www.books.org
                     BookStore.xsd">
    <Book>
        <Title>My Life and Times</Title>
        <Author>Paul McCartney</Author>
        <Date>1998</Date>
        <ISBN>94303-12021-43892</ISBN>
        <Publisher>McMillin Publishing</Publisher>
    </Book>
    <Book>
        <Title>Illusions The Adventures of a Reluctant Messiah</Title>
        <Author>Richard Bach</Author>
        <Date>1977</Date>
        <ISBN>0-440-34319-4</ISBN>
        <Publisher>Dell Publishing Co.</Publisher>
    </Book>
    <Book>
        <Title>The First and Last Freedom</Title>
        <Author>J. Krishnamurti</Author>
        <Date>1954</Date>
        <ISBN>0-06-064831-7</ISBN>
        <Publisher>Harper &amp;amp; Row</Publisher>
    </Book>
</bk:BookStore>
```

Schema Example 2

```
<?xml version="1.0"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.javatpoint.com"
xmlns="http://www.javatpoint.com"
elementFormDefault="qualified">

<xs:element name="employee">
 <xs:complexType>
  <xs:sequence>
   <xs:element name="firstname" type="xs:string"/>
   <xs:element name="lastname" type="xs:string"/>
   <xs:element name="email" type="xs:string"/>
  </xs:sequence>
 </xs:complexType>
</xs:element>

</xs:schema>
```

Instance from Schema 2

```
<?xml version="1.0"?>
<xmlns="http://www.javatpoint.com"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.javatpoint.com employee.xsd">
 <employee>
  <firstname>vimal</firstname>
  <lastname>jaiswal</lastname>
  <email>vimal@javatpoint.com</email>
</employee>
```

DLMS 511R Schema Example 1

511R XML Instance:

```
<E_Transaction_Set_Identifier_Code>511</E_Transaction_Set_Identifier_Code>
```

XML Schema Example:

```
<xsd:element name="E_Transaction_Set_Identifier_Code" type="E_143"/>
```

X12 Implementation Convention (IC) Example:

Ref	Id	Element Name	Req	Type	Min/Max	Usage	Rep
ST01	143	**Transaction Set Identifier Code** **Description:** Code uniquely identifying a Transaction Set **Code** **Name** 511 Requisition	M	ID	3/3	Must use	1

DLMS 511R Schema Example 2

511R XML Instance:

<E_Entity_Identifier_Code>BS</E_Entity_Identifier_Code>

XML Schema Example:

```
<xsd:element name="E_Entity_Identifier_Code" type="E_98"/>
```

X12 Implementation Convention (IC) Example:

Ref	Id	Element Name	Req	Type	Min/Max	Usage	Rep
N101	98	**Entity Identifier Code**	M	ID	2/3	Must use	1

Description: Code identifying an organizational entity, a physical location, property or an individual

DLMS Note: *The following codes are authorized.*

Code	Name	
BG	Buying Group	**DLMS Note:** *1. Use to identify the G-Invoicing Group Name Description. Refer ADC 1465.* *2. DLMS enhancement; see introductory DLMS note 3a.*
BS	Bill and Ship To	**DLMS Note:** *Use either this code, or both codes BT and ST, for reimbursable materiel. Use to identify the organization which receives both the materiel and the billing for the materiel.*

Helpful Links

- DEDSO Webpage
- Implementation Conventions
- Unit of Measure Conversion
- MILS Document Identifier Code Cross-Reference
- Additional Training (ServiceNow Tile)

DEDSO XML Schemas are CUI.

Please treat the rest of the training as CUI (if using the actual schemas).
Be aware of your surroundings – no screen shots – and we will switch the presenter to the DoW side.