



Intelligence Community Technical Specification

XML Data Encoding Specification for Access Rights and Handling

Version 1

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Chapter 1 - Introduction

1.1 - Purpose

This *XML Data Encoding Specification for Access Rights and Handling* (ARH.XML) defines detailed implementation guidance for using Extensible Markup Language (XML) to encode ARH data. This Data Encoding Specification (DES) defines the XML elements and attributes, associated structures and relationships, mandatory and cardinality requirements, and permissible values for representing ARH data concepts using XML.

1.2 - Scope

This specification is applicable to the Intelligence Community (IC) and information produced by, stored, or shared within the IC. This DES may have relevance outside the scope of intelligence; however, prior to applying outside of this defined scope, the DES should be closely scrutinized and differences separately documented and assessed for applicability.

1.3 - Background

The IC Chief Information Officer (IC CIO) is leading the IC's enterprise transformation to an "interoperable federated architecture." Intelligence Community Directive (ICD) 500, *Director of National Intelligence Chief Information Officer* [\[7\]](#) grants the IC CIO the authority and responsibility to:

- Develop an IC Enterprise Architecture (IC EA).
- Lead the IC's identification, development, and management of IC enterprise standards.
- Incorporate technically sound, deconflicted, interoperable enterprise standards into the IC EA.
- Certify that IC elements adhere to the architecture and standards.

In the area of enterprise standardization, the IC CIO is called upon to establish common IT standards, protocols, and interfaces; to establish uniform information security standards; and to ensure information technology infrastructure, enterprise architecture, systems, standards, protocols, and interfaces, support the overall information sharing strategies and policies of the IC as established in relevant law, policy, and directives.

Enterprise standards facilitate the information exchanges, service protocols, network configurations, computing environments, and business processes necessary for a service-enabled federated enterprise. As the enterprise develops and deploys shared services employing approved standards, not only will information and services be interoperable, but significant efficiencies and savings will be achieved by promoting capability reuse. As detailed in ICS 500-21, [\[10\]](#) the extensive and consistent use of Extensible Markup Language (XML) within data encoding specifications allows for improved data exchanges and processing of information, thereby achieving the IC's data discovery, data sharing, and interoperability goals.

A DES specifies how to implement the abstract data elements in the IC.ADD in a particular physical encoding (e.g., data or file format). For example:

- DESs for textual markup formats, such as Extensible Markup Language (XML) and HyperText Markup Language (HTML), define markup elements and attributes, their relationships, cardinalities, processing requirements, and use.
- DESs for display formats, such as text and Adobe Portable Document Format (PDF), define text and typographic conventions, cardinalities, processing requirements, and use.
- DESs for application-specific formats, for e.g. Microsoft Word, define document properties; styles; fields; cardinalities; processing requirements; and use.

1.4 - Enterprise Need

Information sharing within the national intelligence enterprise will increasingly rely on information assurance metadata (including enterprise data headers) to allow interagency access control, automated exchanges, and appropriate protection of shared intelligence. A structured, verifiable representation of security metadata bound to the intelligence data is required in order for the enterprise to become inherently "smarter" about the information flowing in and around it. Such a representation, when implemented with other data formats, improved user interfaces, and data processing utilities, can provide part of a larger, robust information assurance infrastructure capable of automating some of the management and exchange decisions today being performed by human beings.

The Intelligence Community (IC) has standardized the various classification and control markings established for information sharing within the Information Security Markings (ISM) and Need-To-Know (NTK) XML specifications of the Intelligence Community Enterprise Architecture (ICEA) Data Standards. The IC Access Requirements and Handling XML specification combines elements of the ISM and NTK specifications and extends them to access rights management and handling needs.

1.5 - Audience and Applicability

DESs are primarily intended to be used by those developing tools and services to create, modify, store, exchange, search, display, or further process the type of data being described.

The conditions of use and applicability of this technical specification are defined outside of this technical specification. IC Standard (ICS) 500-20, *Intelligence Community Enterprise Standards Compliance*,^[9] defines the IC Enterprise Standards Baseline (IC ESB) and the applicability of such to an IC element.

The IC ESB defines the compliance requirements associated with each version of a technical specification. Each version will be individually registered in the IC ESB. The IC ESB will define, among other things, the location(s) of the relevant artifacts, prescriptive status, and validity period, all of which characterize the version and its utility.

Additional applicability and guidance may be defined in separate IC policy guidance.

1.6 - Conventions

Certain technical and presentation conventions were used in the creation of this document to ensure readability and understanding.

The keywords "MUST," "MUST NOT," "REQUIRED," "SHALL," "SHALL NOT," "SHOULD," "SHOULD NOT," "RECOMMENDED," "MAY," and "OPTIONAL" in this technical specification are to be interpreted as described in the IETF RFC 2119.^[11] These implementation indicator keywords are thus capitalized when used to unambiguously specify requirements over protocol and application features and behavior that affect the interoperability and security of implementations. When these words are not capitalized, they are meant in their natural-language sense.

Certain typography is used throughout the body of this document to convey certain meanings, in particular:

- *Italics* – A title of a referenced work or a specialized or emphasized term
- Underscore – An abstract data element
- **Bold** – An XML element or attribute

1.7 - Conformance

For an implementation to conform to this specification, it **MUST** adhere to all normative aspects of the specification. For the purposes of this document, normative and informative are defined as:

Normative: considered to be prescriptive and necessary to conform to the standard.

Informative: serving to instruct or enlighten or inform.

The XML schemas, CVE values from the XML CVE files, and the Schematron^[20] code version of the constraint rules are normative for this DES. The rest of this document and the rest of this package, including the descriptive content referenced within the XML Schema Guide, the XSL transformations, the SchematronGuide, and HTML CVE value files, are informative. Additionally, the use of keywords defined in IETF RFC 2119^[11] is considered normative within the scope of the sentence. All other parts of this document are informative.

Additional guidance that is either classified or has handling controls can be found in separate annexes, which are distributed to the appropriate networks and environments, as necessary. Systems and services operating in those environments must consult the appropriate annexes.

1.8 - Dependencies

This technical specification depends on the additional technical specifications or additional documentation listed in the following table. The documents listed below may or may not be referenced in this Data Encoding Specification, and may or may not be considered normative or informative.

Table 1 - Dependencies

Name
<i>XML Data Encoding Specification for Information Security Marking (ISM.XML.V9)</i> ^[12]

Name
<i>XML Data Encoding Specification for Need-To-Know Metadata</i> (NTK.XML.V7) [17]
ISO Schematron [20] implementation by Rick Jelliffe (2010-04-14)
Value enumerations used for several XML structures are defined in the various Controlled Vocabulary Enumerations included in this DES.

Chapter 2 - Development Guidance

2.1 - Relationship to Abstract Data Definition and other encodings

The relationship of the XML structures defined in this DES to the abstract terms defined in the IC.ADD are described using a mapping table in the IC.ADD. The mapping tables generally show the mapping to the DES where a structure is defined, not where it is used. These mappings are provided for reference only. The complete set of DES artifacts, both normative and informative, should be consulted in order to gain a complete understanding of this DES.

The mappings in the IC.ADD provide a starting point for the development of automated transformations between formats defined by the DESs. However, it should be noted that when these transformations are used between formats with different levels of detail, there might be some data loss.

2.2 - Additional Guidance

2.2.1 - Security and ExternalSecurity

The ARH specification defines two root elements, **Security** and **ExternalSecurity**, for expressing the access rights and handling information for a data object.

- The **Security** element reflects ARH for a data object that is either present in the same instance document as **Security** or is the instance document containing the **Security** element.
- The **ExternalSecurity** element reflects ARH for a data object external to the instance document containing the **ExternalSecurity** element. Compared to **Security**, **ExternalSecurity** includes two additional ISM elements to describe its external status, **ism:externalNotice** and **ism:excludeFromRollup**

2.2.2 - Usage of ISM and NTK

ISM elements and attributes used in ARH reflect the security markings and notices required for access rights management and handling. The NTK specification is leveraged by ARH to provide a formalized Need To Know of internal and external documents through the utilization of the **ntk:Access** and **ntk:ExternalAccess** elements, respectively.

2.2.3 - MIME type

The Multipurpose Internet Mail Extensions (MIME) type for a ARH.XML document is application/dni-arh+xml. This is a convention for our community. This type has NOT been registered with the Internet Assigned Numbers Authority (IANA). Should there be a conflict in the future it will be addressed at that time. Systems can use this MIME type to facilitate communications and address business needs within the community.

Chapter 3 - Data Validation Constraint Rules

Constraint Rules explicitly define the validation constraints for ARH.XML. They provide additional restrictions (i.e., constraints) on how the data should be structured and encoded, especially for criteria that exceed the constraints implemented in the XML schema. These rules are written in plain English phrases; however, knowledge of the ARH.XML schemas is required to understand the rules. Complex constraint rules may be followed by text labeled *Human Readable*. This text is intended to inform the intent of the more formal language above it. Implementers are intended to implement the formal language, and should there be a perception of conflict, bring it to the attention of the appropriate configuration control body to be resolved.

3.1 - Basics

The ARH.XML schema defines the data elements, attributes, cardinalities and parent-child relationships for which XML instances must comply. Validation of these syntax aspects is an important first step in the validation process. An additional level of validation is needed to ensure that the content complies with the constraints as specified in applicable IC policy guidance and codified in these constraint rules. Traditional schema languages are generally unable to effectively represent these additional constraints.

3.1.1 - Schematron

Schematron^[20] was selected as the language in which to encode these additional rules. The provided Schematron^[20] is used to define the constraint rules; it is NOT a required implementation. Implementers can use any tools at their disposal as long as the data complies with the rules expressed. To facilitate testing and understanding of the rules they are executable in either oXygen®^[19] or the XSLT 2.0^[23] implementation of ISO Schematron^[20] provided by Rick Jelliffe at <http://schematron.com/> [http://schematron.com/]. Constraint rules are dependent on XPath 2.0^[22] and XSLT 2.0^[23] features. According to Mr. Jelliffe, the editor of Schematron^[20] for ISO:

"By default, Schematron uses the XPath language as used in XSLT 1.0, and is typically implemented by converting the schema into an XSLT 1.0 script which is run against the document being validated. However, ISO Schematron also allows XSLT 2.0 to be used, and this is becoming an increasingly popular choice because of the extra expressive convenience of XPath 2.0: a different skeleton is available for this."

Included in the package are the ISO Schematron^[20] implementation and XSLT 2.0^[23] files provided as a convenience along with a compiled version of the rules.

3.1.2 - "Living" Constraint Rules

These constraint rules are a "living" rule set. The constraint rules provided are a valid starter set and do not attempt to address the full scope of security marking business rules addressed by authoritative security marking guidance, specifically Classification and Control Markings as defined by ICD 710^[8] implemented in the Register and Implementation Manual,^[1] ISOO 32 CFR Parts 2001 and 2004 (as of September 22, 2003),^[14] Executive Order (E.O.) 13526, as amended,^[6] and E.O. 12829, as amended.^[5] These rules will be expanded and modified as the

model matures, the CAPCO Register is modified to reflect IC security marking implementation changes, and as applicable security marking policies change.

Since these constraint rules are only a subset of the entire rule base, an XML document that is compliant with these rules may still not be fully compliant with all of the business rules defined in the authoritative guidance. An XML document that is not compliant with these rules is not compliant with the authoritative guidance.

3.1.3 - Classified or Controlled Constraint Rules

Additional rules that are either classified or have handling controls can be found in separate annexes closely associated with the DES artifacts wherever they are located.

3.1.4 - Terminology

For the purposes of this document, the following statements apply:

- The term “is specified” indicates that an attribute is applied to an element and the attribute has a non-null value.
- The term “must be specified” indicates that an attribute must be applied to an element and the attribute must have a non-null value.
- The term “is not specified” indicates that an attribute is not applied to an element, or an attribute is applied to an element and the attribute has a null value.
- The term “must not be specified” indicates that an attribute must not be applied to an element.

3.1.5 - Rule Identifiers

Each constraint rule has an assigned rule ID, indicated in brackets preceding the constraint rule description. The rule IDs from 00001 to 10000 are unclassified and 10001 to 20000 are “for official use only” (FOUO). IDs from 20001 to 30000 are reserved for “Secret” rules and 30001 and above for more classified rules. ARH.XML data validation constraint rule IDs are prefixed with “ARH-ID-”.

As the constraint rules are managed over time, IDs from deleted rules will not be reused.

3.1.6 - Errors and Warnings

The severity of a constraint rule violation is categorized as either an “Error” or a “Warning.” An “Error” is more severe and is indicative of a clear violation of a constraint rule, which would be likely to have a significant impact on the quality of a document. A “Warning” is less severe although noteworthy, and may not necessarily have any impact on the quality of a document. The severity of a constraint rule violation is indicated in brackets preceding each constraint rule description.

Each system responsible for processing a document (e.g., create, modify, transform, or exchange) must make a mission-appropriate decision about using a document with errors or warnings based on mission needs.

3.2 - Non-null Constraints

XML syntax allows all elements with content declared to be of data type "string" to have zero or more characters of content — which allows for empty (or null) content. According to this specification, all required elements (and certain conditional elements) must have content, other than white space.¹ Elements, which are allowed to only have text content, must have text content specified.

3.3 - Inherited Constraints

In an instance of ARH.XML, the use of attributes and elements from supplementary data encoding specifications must be fully conformant with the constraint rules defined in those specifications. For a full list of supplementary specifications, see [Section 1.8 - Dependencies](#).

3.4 - Value Enumeration Constraints

Several elements and attributes of the ARH.XML model use Controlled Vocabulary Enumerations (CVEs) to define the data allowed in the element or attribute. In some cases the specific CVE is specified via an attribute, which may include a default CVE. Further, in some of the cases where the CVE can be specified, the attribute may restrict the list of CVEs allowed and some may allow for the author to specify their own CVE. For each of these, the value must be in the specified external CVE or the default CVE.

Some CVEs are not available on all networks. A subset CVE will be provided for use on networks not approved for the entire list. If the processing will occur on a network where the entire CVE is not available, the subset CVE may be substituted in the constraint rules since the excluded values would be excluded from use on the lower network.

As noted in the specific rules, a failure of validation against a CVE will generate an Error.

3.5 - Additional Constraints

3.5.1 - DES Constraints

The DES version is specified through attributes on the root element. The schema constrains the values of these attributes. The **DESVersion** attribute enables systems processing an instance document to be certain which set of constraint rules, schema, CVEs and business rules are intended by the author to be used.

3.6 - Constraint Rules

The detailed constraint rules for the ARH.XML schema can be found in a separate document inside the SchematronGuide directory, in the ARH_Rules.pdf file. This document is generated

¹"white space" is defined in XML 1.0^[21] as "(white space) consists of one or more space (#x20) characters, carriage returns, line feeds, or tabs."

from the individual Schematron files to provide a single searchable document for all of the constraint rules encoded in Schematron. Obsolete rule numbers are listed in the SchematronGuide.

Chapter 4 - Data Rendering Constraint Rules

The constraint rules in this chapter define constraints on the rendering of ARH.XML documents. The intent is to inform the development of systems capable of rendering or displaying ARH.XML data for use by individuals not familiar with the details of the ARH.XML markup. While expressed in a similar manner to the data validation constraint rules above, there is no expectation that evaluation of these rules can be automated; rather these rules should inform the evaluation of a system's capabilities and functionality.

4.1 - Basics

4.1.1 - "Living" Constraint Rules

These constraint rules are a "living" rule set. The constraint rules provided are a valid starter set and do not attempt to address the full scope of security marking business rules addressed by authoritative security marking guidance, specifically Classification and Control Markings as defined by ICD 710^[8] implemented in the Register and Implementation Manual,^[1] ISOO 32 CFR Parts 2001 and 2004 (as of September 22, 2003),^[14] E.O. 13526, as amended,^[6] and E.O. 12829, as amended.^[5] These rules will be expanded and modified as the model matures, the CAPCO Register is modified to reflect IC security marking implementation changes, and as applicable security marking policies change.

Since these constraint rules are only a subset of the entire rule base, an XML document that is compliant with these rules may still not be fully compliant with all of the business rules defined in the authoritative guidance. An XML document that is not compliant with these rules is not compliant with the authoritative guidance.

4.1.2 - Classified or Controlled Constraint Rules

Additional rules that are either classified or have handling controls can be found in separate annexes closely associated with the DES artifacts wherever they are located.

4.1.3 - Rule Identifiers

Each constraint rule has an assigned rule ID, indicated in brackets preceding the constraint rule description. The rule IDs from 00001 to 10000 are unclassified and 10001 to 20000 are "for official use only" (FOUO). IDs from 20001 to 30000 are reserved for Secret rules and 30001 and above for more classified rules. ARH.XML data rendering constraint rule IDs are prefixed with "ARH-RENDER-".

As the constraint rules are managed over time, IDs from deleted rules will not be reused.

4.1.4 - Errors and Warnings

The severity of a constraint rule violation is categorized as either an "Error" or a "Warning" and is indicated in brackets preceding each constraint rule description. An "Error" is more severe and is indicative of a clear violation of a constraint rule, which would be likely to have a significant impact on the quality of a system. A "Warning" is less severe although noteworthy, and may not necessarily have any impact on the quality of a system.

Each system responsible for rendering documents must be evaluated based on its use. Those evaluating the system must make a mission-appropriate decision about the system's suitability for use.

4.2 - Constraint Rules

The following table contains the information for the ARH.XML data rendering constraint rules.

Table 2 - Constraint Rules

Rule Number	Severity	Description	Human Readable Description
There are no Data Rendering Constraint rules at this time.			

Chapter 5 - Generated Guides

5.1 - Schema Guide

The detailed description and reference documentation for the ARH.XML schema can be found as a collection of HTML files inside the SchemaGuide directory. These files comprise a guide that serves as an interactive presentation of the ARH.XML schema as well as an implementation-specific data element dictionary.

The guide was generated with a commercially available product named *oXygen®*, produced by SyncRO Soft.

The guide provides an interactive index to:

- Global Elements and Attributes
- Local Elements and Attributes
- Simple and Complex Types
- Groups and Attribute Groups
- Referenced Schemas

Where applicable, the guide provides:

- Diagram
- Namespace
- Type
- Children
- Used by
- Properties
- Patterns
- Enumerations
- Attributes
- Annotations
- Source Code

The guide is published in a folder consisting of the master HTML file *SchemaGuide.html* with supporting graphics.

5.2 - Schematron Guide

The detailed description and reference documentation for the ARH.XML Schematron rules can be found in a separate document named *ARH_Rules.pdf*, which is located inside the SchematronGuide directory. This document is generated from the individual Schematron files to provide a single searchable document for all of the constraint rules encoded in Schematron.

Appendix A Feature Summary

The following table shows the version dependencies for ARH on other DES.

Table 3 - ARH Dependency over time

Dependent DES	V1
ISM	V9
NTK	V6

The following table summarizes major features by version for this ARH and all dependent specs.

Table 4 - Feature Summary Legend

Key	Description
F	Full (able to comply and verified by spec to some degree)
P	Partial (Able to comply but not verifiable)
N	Non-compliance (Can't comply)
Cell Colors represent the same information as the Key value	

A.1. ARH Feature Summary

Table 5 - ARH Feature comparison

ARH Feature Comparison		
Required date	Feature	V1

A.2. ISM Feature Summary

Table 6 - ISM Feature comparison

ISM Feature Comparison										
Driver	Feature	V1	V2	V3	V4	V5	V6	V7	V8	V9
Required date										
CAPCO Register and Manual 2.1	Declass Removed from Banner	N	F	F	F	F	F	F	F	F
January 22, 2009 (1 year after 2008 memo)										
E.O. 13526 ^[6]	Compilation Reason	N	F	F	F	F	F	F	F	F
December 29, 2009										

ISM Feature Comparison										
Driver	Feature	V1	V2	V3	V4	V5	V6	V7	V8	V9
Required date										
CAPCO Register and Manual 3.1	LES	P	N	F	F	F	F	F	F	F
May 7, 2010										
CAPCO Register and Manual 3.1	LES-NF	P	N	F	F	F	F	F	F	F
May 7, 2010										
CAPCO Register and Manual All versions	Require Notices	N	N	F	F	F	F	F	F	F
Pre 2008										
CAPCO Register and Manual 4.1	KDK	N	N	F	F	F	F	F	F	F
December 10, 2010										
ICD 710 ^[8]	710 Foreign Release	P	P	F	F	F	F	F	F	F
September 11, 2009										
E.O. 13526 ^[6]	DeclassReasons/Dates	P	P	F	F	F	F	F	F	F
December 29, 2009										
IC-CIO enhance data quality	schema validation of CVE values	N	N	N	F	F	F	F	F	F
See IC ESB										
DoD Directive 5230.24 ^[3]	DoD Distro Statements	N	N	N	F	F	F	F	F	F
March 18, 1987										
DoD Directive 5240.01 ^[4]	US Person Notice	P	P	P	P	F	F	F	F	F
August 27, 2007										
CAPCO Register and Manual 2.2	Remove SAMI	P	P	P	P	F	F	F	F	F
September 25, 2010 (1 Year after 2.2)										
ISOO Marking Booklet 2010 ^[15] / ISOO Notice 2009-13 ^[16]	Remove exempted source	P	P	P	P	F	F	F	F	F
December 2010										
E.O. 13526 ^[6]	derivativelyClassifiedBy	P	P	P	P	F	F	F	F	F
December 29, 2009										

ISM Feature Comparison										
Driver	Feature	V1	V2	V3	V4	V5	V6	V7	V8	V9
Required date										
CAPCO Register and Manual 4.1	Atomic Energy New banner location	N	N	N	N	F	F	F	F	F
December 10, 2011 (1 Year after 4.1)										
CAPCO Register and Manual 4.1	Display Only	N	N	N	N	F	F	F	F	F
December 10, 2011 (1 Year after 4.1)										
IC-CIO enhance data quality	Schematron ^[20] Implementation of rules	N	N	N	N	F	F	F	F	F
See IC ESB										
E.O. 13526 ^[6]	50X1-Hum 50X2-WMD	N	N	N	N	F	F	F	F	F
December 29, 2009										
DoD Directive 5200.1-R ^[2]	DoD ACCM Markings	N	N	N	N	N	F	F	F	F
January 1997										
CAPCO Register and Manual 4.2	SSI	N	N	N	N	N	F	F	F	F
May 31, 2011										
ISOO 32 CFR Parts 2001 and 2003 (as of June 28, 2010) ^[13]	TFNI	N	N	N	N	N	F	F	F	F
June 28, 2010										
CAPCO Register and Manual 4.1	HCS SubCompartments	N	N	N	N	N	F	F	F	N
December 10, 2010										
CAPCO Register and Manual 4.1	MCFI Remove	P	P	P	P	P	F	F	F	F
November 16, 2010 (date disestablished)										
CAPCO Register and Manual 4.2	MIFH, EUDA and EFOR removed	P	P	P	P	P	P	F	F	F
May 31, 2011										
ISOO 32 CFR Parts 2001 and 2003 (as of June 28, 2010) ^[13]	Multivalue declassException	F	N	N	N	N	N	F	F	F
June 28, 2010										

ISM Feature Comparison										
Driver	Feature	V1	V2	V3	V4	V5	V6	V7	V8	V9
Required date										
IC-CIO enhance data quality See IC ESB	SouthSudan	N	N	N	N	N	N	F	F	F
ICD 710 ^[8] September 11, 2009	710 POC	N	N	N	N	N	N	F	F	F
DNI ORCON Memo ^[18] March 11, 2011	ORCON POC	N	N	N	N	N	N	F	F	F
ISOO Marking Booklet ^[15] December 2010	Allow 50X1-HUM and 50X2-WMD to not have a date/event	N	N	N	N	N	N	F	F	F
IC-CIO enhance data quality See IC ESB	RD, FRD, and Sigma rolldown enforced	N	N	N	N	N	N	N	F	F
December 30, 2012	Unclassified REL, RELIDO, NF, and DISPLAYONLY	N	N	N	N	N	N	N	F	F
IC-CIO enhance data quality See IC ESB	@ism:excludeFromRollup=true() allowed to not have an ICD-710 foreign release indicator	N	N	N	N	N	N	N	F	F
CAPCO Register and Manual 4.1 December 10, 2011 (1 Year after 4.1)	SINFO Remove	P	P	P	P	P	P	P	F	F
CAPCO Register and Manual 4.1 December 10, 2011 (1 Year after 4.1)	SC Remove	P	P	P	P	P	P	P	F	F
CAPCO Register and Manual 5.1 December 30, 2011	RSV	N	N	N	N	N	N	N	F	F
CAPCO Register and Manual 5.1 December 30, 2011	Require using 50X1-HUM instead of 25X1-human	N	N	N	N	P	P	P	F	F
CAPCO Register and Manual 5.1 December 30, 2011	Allow use of KDK SubCompartments and Sub-SubCompartments	N	N	N	N	N	N	N	N	F

ISM Feature Comparison										
Driver	Feature	V1	V2	V3	V4	V5	V6	V7	V8	V9
Required date										
CAPCO Register and Manual 5.1	Allow use of SI SubCompartments and Sub-SubCompartments	N	N	N	N	N	N	N	N	F
December 30, 2011										
CAPCO Register and Manual 5.1 Annex A	Allow use of OSTY Open Skies	N	N	N	N	N	N	N	N	F
IC-CIO enhance data quality	External Notice	N	N	N	N	N	N	N	N	F
DoD Directive 5200.1-R ^[2]	COMSEC Notice	N	N	N	N	N	N	N	N	F
February 2012										
DoD Directive 5200.1-R ^[2]	Support for NNPI	N	N	N	N	N	N	N	N	F
February 2012										

A.3. NTK Feature Summary

Table 7 - NTK Feature comparison

NTK Feature Comparison								
Required date	Feature	V1	V2	V3	V4	V5	V6	V7
	Schematron ^[20] Implementation of rules	N	N	F	F	F	F	F
	Portion Level NTK	N	N	N	N	N	N	F

Appendix B Change History

The following table summarizes the version identifier history for this DES.

Table 8 - DES Version Identifier History

Version	Date	Purpose
1	17 July 2012	Initial Release

Appendix C Acronyms

This appendix lists all the acronyms referenced in this DES and lists other acronyms that may have been used in other DES. This appendix is a shared resource across multiple documents so in any given DES there are likely acronyms that are not referenced in that particular DES.

Table 9 - Acronyms

Name	Definition
ATO	Authority To Operate
BNF	Backus-Naur Form
CAPCO	Controlled Access Program Coordination Office
CVE	Controlled Vocabulary Enumeration
DAA	Designated Approval Agent
DCMI	Dublin Core Metadata Initiative
DC MES	Dublin Core Metadata Element Set
DES	Data Encoding Specification
DOI	Digital Object Identifier
DN	Distinguished Name
DNI	Director of National Intelligence
E.O.	Executive Order
ES&IS	Enterprise Search & Integration Services
GNS	Geographic Names Server
HTML	HyperText Markup Language
HTTP	Hypertext Transfer Protocol
I2	Information Integration
IC	Intelligence Community
IC.ADD	Intelligence Community Abstract Data Definition
IC CIO	Intelligence Community Chief Information Officer
IC ESB	Intelligence Community Enterprise Standards Baseline
ICD	Intelligence Community Directive
ICEA	Intelligence Community Enterprise Architecture
ICPG	Intelligence Community Program Guidance
ICS	Intelligence Community Standard
IETF	Internet Engineering Task Force
ISBN	International Standard Book Number
ISM	Information Security Marking
ISO	International Organization for Standardization

Name	Definition
ISOO	Information Security Oversight Office
KA	Knowledge Assertion
KOS	Knowledge Organization System
MIME	Multipurpose Internet Mail Extensions
NARA	National Archives and Records Administration
NGA	National Geospatial Intelligence Agency
NGT	Next Generation Trident
NSI	National Security Information
OCIO	Office of the Intelligence Community Chief Information Officer
ODNI	Office of the Director of National Intelligence
PK	Private Key
RDBMS	Relational Database Management System
REST	REpresentational State Transfer
RFC	Request for Comments
SSD	Special Security Directorate
SSL	Secure Socket Layer
SOAP	Simple Object Access Protocol
TGN	Thesaurus of Geographic Names
TLS	Transport Layer Security
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
W3CDTF	World Wide Web Consortium Date Time Format
XML	Extensible Markup Language

Appendix D Bibliography

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Appendix E Points of Contact

The Intelligence Community Chief Information Officer (IC CIO) facilitates one or more collaboration and coordination forums charged with the adoption, modification, development, and governance of IC technical specifications of common concern. This technical specification was produced by the IC CIO and coordinated with these forums, approved by the IC CIO or a designated representative, and made available at DNI-sponsored web sites. Direct all inquiries about this IC technical specification to the IC CIO, an IC technical specification collaboration and coordination forum, or IC element representatives involved in those forums.

Appendix F IC CIO Approval Memo

An Office of the Intelligence Community Chief Information Officer (OCIO) Approval Memo should accompany this enterprise technical data specification bearing the signature of the Intelligence Community Chief Information Officer (IC CIO) or an IC CIO-designated official(s). If an OCIO Approval Memo is not accompanying this specification's version release package, then refer back to the authoritative web location(s) for this specification to see if a more complete package or a specification update is available.

Specification artifacts display a date representing the last time a version's artifacts as a whole were modified. This date most often represents the conclusion of the IC Element collaboration and coordination process. Once the IC Element coordination process is complete, the specification goes through an internal OCIO staffing and coordination process leading to signature of the OCIO Approval Memo. The signature date of the OCIO Approval Memo will be later than the last modified date shown on the specification artifacts by an indeterminable time period.

Upon signature of the OCIO Approval Memo, IC Elements may begin to use this specification version in order to address mission and business objectives. However, it is critical for IC Elements, prior to disseminating information encoded with this new specification version, to ensure that key enterprise services and consumers are prepared to accept this information. IC Elements should work with enterprise service providers and consumers to orchestrate an orderly implementation transition to this specification version in concert with mandatory and retirement usage decisions captured in the IC Enterprise Standards Baseline as defined in Intelligence Community Standard (ICS) 500-20.^[9]