



Intelligence Community Technical Specification

Taxonomy Encoding Specification for Mission Need Taxonomy

Version 2022-NOV

December 1, 2022

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Chapter 1 - Introduction

1.1 - Purpose

This *Taxonomy Encoding Specification for Mission Need Taxonomy* (MNT.XML) defines the following mappings:

1. Countries defined in the Controlled Vocabulary Enumeration Encoding Specification (CES) for *CVE Encoding Specification for ISM Country Codes and Tetragraphs* (ISM.CES^[7]) to geographic regions defined in the *XML CVE Encoding Specification for Mission-Need* (MN.CES^[8])
2. Issues defined in *CVE Encoding Specification for Production Metrics* (PM.CES^[10]) to issue categories defined in MN.CES^[8]

This Taxonomy Encoding Specification (TES) provides Extensible Markup Language (XML) taxonomy files for machine processing and human-readable documentation about the mappings. Taxonomy files are intended to facilitate decomposition and roll-up functions. Specifically, the mappings in this TES may be used by systems that roll up country codes to regions and/or issues to categories before marking data or applying access control logic.

1.2 - Scope

The *Intelligence Community Technical Specification Framework* (IC-SF.XML^[1]) defines the basic conceptual structure and outlines the core philosophy of Intelligence Community (IC) technical specifications. For convenience, a copy of this framework is included in every package.

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

1.3 - Enterprise Need

Many IC encoding specifications use Controlled Vocabulary Enumeration (CVE)s to define allowable values for various elements and attributes. Sometimes there is a need to express the relationship, or membership, of the values contained within one CVE to those contained within another. Taxonomies may change with greater velocity than either the source list from which the main categories or those from which the membership of the categories derives. In order to avoid the need for dual maintenance of multiple CESs and to remove the need to revision one or more specifications when a taxonomy is updated, the TES was created as a companion specification for various CESs. Each TES contains one or more taxonomies and accompanying schemas defining elements and attributes that define the construction of each taxonomy file.

This TES defines the mission need taxonomies that map countries from ISM.CES^[7] to the Regions in MN.CES^[8] and subjects from PM.CES^[10] to the Issues in MN.CES^[8].

Both enterprise needs and requirements for this specification can be found in the following policies and implementation guidance:

- 500 Series:
 - Intelligence Community Directive (ICD) 500, *Director Of National Intelligence Chief Information Officer* [\[2\]](#)
 - ICD 501, *Discovery and Dissemination or Retrieval of Information within the IC* [\[3\]](#)
 - Intelligence Community Standard (ICS) 500-20, *IC Enterprise Standards Compliance* [\[5\]](#)

1.4 - Conventions

Certain technical and presentation conventions are used in the creation of the IC technical specifications to ensure readability and understanding. For details, please see the “Specification Conventions” chapter in the IC-SF.XML [\[1\]](#).

1.4.1 - XML Namespaces

Namespaces referenced in this document and the prefixes used to represent them are listed in the following table. The namespace prefix of any XML Qualified Name used in any example in this document should be interpreted using the information below.

Table 1 - XML Namespaces

Prefix	URI
1	urn:us:gov:ic:ism
2	http://www.w3.org/2001/XMLSchema

1.5 - Dependencies

Specifications often rely on other specifications, components or artifacts, either directly or indirectly. For specific definitions of dependency terminology used throughout this section, please see the “Dependency Definitions” chapter in the IC-SF.XML [\[1\]](#).

1.5.1 - Specification Dependencies

This technical specification directly depends on the technical specifications, documentation, and implementations listed in [Table 2](#). The dependencies listed below are directly referenced in this specification (e.g., Schema, Schematron), and are normative or informative as indicated.

The subsequent figure, [Figure 1](#), is an informative graphical representation of all of the Intelligence Community Chief Information Officer (IC CIO) specifications related to this specification. The graphic depicts dependencies. However, the representations may not match an exact schema import tree or dependency diagram that an analysis of the Schema, Schematron or other documents would yield. For example, the graphic only shows a given specification once even though it may actually be imported by many specifications or be a direct dependency. All IC CIO specifications listed in [Table 2](#) will be shown in [Figure 1](#); however not all IC CIO specifications listed in [Figure 1](#) may appear in [Table 2](#). [Figure 1](#) is to aid users in gaining a general understanding of all dependencies whether direct or transitive.

Table 2 - Dependencies

Name	Dependency Description
<i>CVE Encoding Specification for ISM Country Codes and Tetragraphs</i> (ISM.CES.V2022-NOV+ ^[7])	This specification depends on the LATEST technically sound, approved version of ISMCAT.CES ^[7] . At the time of this release, the latest version of ISMCAT.CES is 2022-NOV and MUST be used unless a later, technically sound, approved version of ISMCAT.CES has been released. The requirement to use the latest technically sound, approved version is based on authoritative source compliance ^[9] .
<i>CVE Encoding Specification for Mission Need</i> (MN.CES.V2021-NOV+ ^[8])	This specification depends on the Issues and Region CVEs from the MN.CES ^[8] specification. Versions earlier than MN.CES version 2021-NOV MUST NOT be used.
<i>CVE Encoding Specification for Production Metrics</i> (PM.CES.V2022-NOV+ ^[10])	This specification depends on the Subjects CVE from the PM.CES ^[10] specification. Versions earlier than PM.CES version 2022-NOV MUST NOT be used.
<i>XML Data Encoding Specification for Information Security Marking Metadata</i> (ISM.XML.V2021-NOVr2022-NOV+ ^[6])	This specification depends on the LATEST technically sound, approved version of ISM.XML ^[6] . The minimum version was based on compliance with the authoritative source, which is ICD-710 ^[4] . Per ICD-710, all security markings MUST be updated within 365 days of a release of the Register and Manual. As of this release, the latest version of ISM.XML is 2021-NOVr2022-NOV which is based on the Register and Manual released in August, 2019.
<i>Intelligence Community Specification Framework</i> (IC-SF.XML.V2021-NOV+ ^[1])	This specification does not depend on a specific version of IC-SF.XML ^[1] ; versions later than version 2021-NOV MAY be used, however, the newest version of IC-SF.XML SHOULD be used as IC-SF.XML is expected to always replace its preceding version. The minimum version was based on technical dependencies on IC-SF.XML; IC-SF.XML is the basic structure of and philosophy behind intelligence community technical specifications.

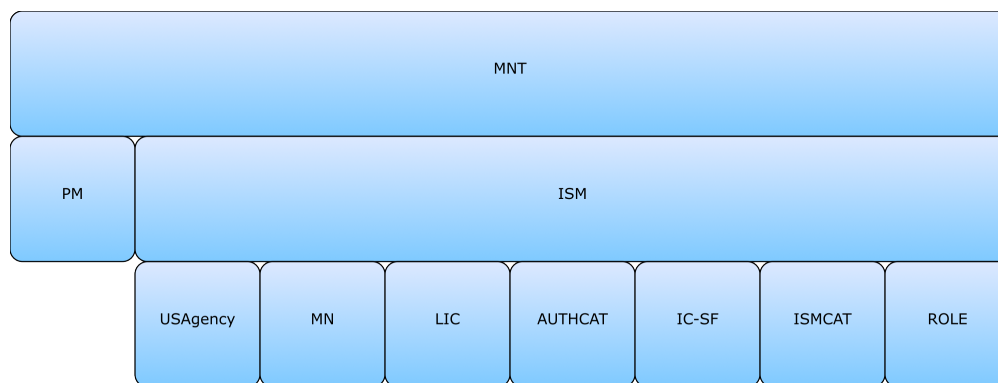


Figure 1 : Related Specifications

1.5.2 - Inverse Dependencies

Generally, it is only necessary to think of the *dependencies* in the dependency tree. However, with the specification versions being decoupled, it is also important to consider the *inverse dependencies*, for compatibility with newer versions of a given specification. The changes introduced to a given specification can sometimes make it incompatible with current versions of its inverse dependencies (specifications that uses the given specification).

This specification is not used by other specifications released by the IC CIO, and therefore does not contain an Inverse Dependency Diagram.

Chapter 2 - Development Guidance

For information on the structure and content of the specifications, please see the “Specification Overview” chapter in the IC-SF.XML^[1] framework document. This chapter is intended to expand upon the common information that the framework specifies providing specific development guidance that is specific to the implementation of this specification.

2.1 - Additional Guidance

This section provides additional guidance for encoding data in specific situations. In particular, situations for which there is not clearly a single method of encoding the data are documented here. The content of this section will evolve over time as additional situations are identified. Implementers of this TES are encouraged to contact the maintainers of this TES for further guidance when necessary.

There are two ways in which a consumer requiring a MNT can use the MNT.XML specification: through referencing objects defined in the schema or enforcing the format via running Schematron.

2.1.1 - Usage of the MNT Schemas

The MNT.XML schemas define elements and attributes that enforce the allowable values as defined in the dependent CES's CVEs (see Value Enumeration Constraints in the IC-SF.XML^[1] for more details). Consumers of the MNT.XML specification should import the MNT schema and reference elements or attributes, depending on what is needed.

Chapter 3 - Constraints

3.1 - Data Validation Constraint Rules

3.1.1 - Purpose

The MNT.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. For more information, please see the “Data Validation Constraint Rules” chapter in the IC-SF.XML^[1] framework document.

3.1.2 - Additional Constraints

3.1.2.1 - TES Constraints

The TES version is specified through attributes on the root element. The schema constrains the values of these attributes. The `@TESversion` 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.

3.1.3 - Constraint Rules

This specification currently does not define any additional Schematron Constraint rules beyond those defined in dependent specifications.

3.2 - Data Rendering Constraint Rules

3.2.1 - Purpose

Rendering rules define constraints on the rendering and display of MNT.XML documents. The intent is to inform the development of systems capable of rendering or displaying MNT.XML data for use by individuals not familiar with the details of the MNT.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.

3.2.2 - Rendering Constraint Rules

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

Table 3 - Constraint Rules

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

Appendix A Feature Summary

The following table summarizes major features by version for this specification.

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)
N/A	Not Applicable. Feature is no longer required.
Cell Colors represent the same information as the Key value	

A.1. MNT Feature Comparison

A.1.1. Features from V2017-MAY to V2022-NOV

Table 5 - MNT Feature Comparison V2017-MAY to V2022-NOV

Required date	Feature	V2017-MAY	V2019-MAR	V2020-OCT	V2022-NOV
	Aligns with Issues and Subjects mappings from DDII as of 2015-05-22	F	N/A	N/A	N/A
	Aligns with Regions and Countries mapping from DDII as of 2015-09-14	F	N/A	N/A	N/A
	Aligns with Issues and Subjects mapping from DDII as of 2018-08-07	N	F	F	F
	Aligns with Issues and Subjects mapping from DDII as of 2019-11-01	N	N	F	F
	Aligns with Issues and Subjects mapping from DDII as of 2022-10-27	N	N	N	F

A.1.1.1. Features Partial and N/A from V2017-MAY to V2022-NOV

Table 6 - MNT Feature Comparison V2017-MAY to V2022-NOV

Required date	Feature	V2017-MAY	V2019-MAR	V2020-OCT	V2022-NOV
	Aligns with Issues and Subjects mappings from DDII as of 2015-05-22	F	N/A	N/A	N/A
	Aligns with Regions and Countries mapping from DDII as of 2015-09-14	F	N/A	N/A	N/A

A.1.2. Features from V2015-AUG to V2017-MAY

Table 7 - MNT Feature Comparison V2015-AUG to V2017-MAY

Required date	Feature	V2015-AUG	V2016-SEP	V2017-MAY
	Aligns with Regions and Countries mapping from DDII as of 2015-09-14	N	N	F

Appendix B Change History

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

Table 8 - CES Version Identifier History

Version	Date	Purpose
2015-AUG	August 13, 2015	Initial Release
2016-SEP	September 9, 2016	Routine revision to technical specification. For details of changes, see Section B.5 - V2016-SEP Change Summary
2017-MAY	May 22, 2017	Routine revision to technical specification. For details of changes, see Section B.4 - 2017-MAY Change Summary
2019-MAR	March 8, 2019	Routine revision to technical specification. For details of changes, see Section B.3 - V2019-MAR Change Summary
2020-OCT	October 1, 2020	Routine revision to technical specification. For details of changes, see Section B.2 - V2020-OCT Change Summary
2022-NOV	November 29, 2022	Routine revision to technical specification. For details of changes, see Section B.1 - V2022-NOV Change Summary

B.1 - V2022-NOV Change Summary

Significant drivers for Version 2022-NOV include:

- DDII updates to values as of 2022-10-27.

The following table summarizes the changes made to 2020-OCT in developing 2022-NOV.

Table 9 - V2022-NOV Change History

#	Change	Artifacts Changed	Compatibility Notes
1	<p>Updated values based on DDII information. (CR-2022-039)</p> <ul style="list-style-type: none"> IssueTaxonomy <p>Added PM Subjects CHTC, CNRE, POWS, STCM and WDPR and linked each PM Subject to its Issue.</p> <p>Deprecated PM Subjects ACTM, ENRF, ESEC, HAPR, HREL, HRWC, SRCC.</p>	IssueTaxonomy.xml modified	Systems may need to be updated to handle new/updated values.

B.2 - V2020-OCT Change Summary

Significant drivers for Version 2020-OCT include:

- DDII updates to values as of 2019-11-01.

The following table summarizes the changes made to 2019-MAR in developing 2020-OCT.

Table 10 - V2020-OCT Change History

#	Change	Artifacts Changed	Compatibility Notes
1	Updated values based on DDII information. Added FINT, CBWD, WPNS. Deprecated ACWP, WMDB, WMDC, WMDM (CR-2019-169)	Issue Taxonomy updated	Systems may need to be updated to handle new/updated values.
2	Updated rows in the Dependency Table to point to the appropriate Authoritative Source. (CR-2019-155)	Documentation	No impact to systems.

B.3 - V2019-MAR Change Summary

Significant drivers for Version 2019-MAR include:

- DDII updates to values as of 2018-08-07.

The following table summarizes the changes made to 2017-MAY in developing 2019-MAR.

Table 11 - V2019-MAR Change History

#	Change	Artifacts Changed	Compatibility Notes
1	Updated values based on DDII information. (CR-2017-267)	Issue Taxonomy updated PM Schema updated	Systems may need to be updated to handle new/updated values.
2	Updated documentation to use the specification framework. (CR-2018-126)	Documentation	No impact to systems.

B.4 - 2017-MAY Change Summary

Significant drivers for Version 2017-MAY include:

- DDII updates to values as of 2017-05-18.

The following table summarizes the changes made to 2015-AUG in developing 2017-MAY.

Table 12 - Data Encoding Specification 2017-MAY Change Summary

#	Change	Artifacts Changed	Compatibility Notes
1	Updated values based on DDII information. (CR-2017-019)	IssueTaxonomy.xml	Systems may need to be updated to handle new/updated values.

B.5 - V2016-SEP Change Summary

Significant drivers for version 2016-SEP include:

- DDII updates to values.

The following table summarizes the changes made to 2015-AUG in developing 2016-SEP.

Table 13 - Taxonomy Encoding Specification 2016-SEP Change Summary

#	Change	Artifacts changed	Compatibility Notes
1	Updated 'Prisoners of War and Missing in Action (POWS)' to 'Hostages and Personnel Recovery and Support (HAPR)'. (CR-2015-108)	IssueTaxonomy.xml	Systems may need to be updated to handle new/updated values.
2	Update applicability section to reflect a requirement to comply with Law/Policy (CR-2016-063)	Documentation	Implementers must verify that they are complying with applicable laws and policies.

Appendix C List of Abbreviations

This appendix lists all the acronyms and abbreviations referenced in this encoding specification.

CES	Controlled Vocabulary Enumeration Encoding Specification
CVE	Controlled Vocabulary Enumeration
DNI	Director of National Intelligence
IC	Intelligence Community
IC CIO	Intelligence Community Chief Information Officer
ICD	Intelligence Community Directive
IC ESB	Intelligence Community Enterprise Standards Baseline
ICS	Intelligence Community Standard
TES	Taxonomy Encoding Specification
XML	Extensible Markup Language

Appendix D Bibliography

[1] IC-SF.XML

Office of the Director of National Intelligence. *Intelligence Community Specification Framework (IC-SF.XML)*.

Available online Intelink-TS at: <https://go.ic.gov/pNFyuVg> (case sensitive – papa November Foxtrot yankee uniform Victor golf)

Available online Intelink-U at: <https://w3id.org/ic/standards/IC-SF>

Available online at: <https://w3id.org/ic/standards/public>

[2] ICD 500

Office of the Director of National Intelligence. *Director of National Intelligence Chief Information Officer*. Intelligence Community Directive 500. 7 August 2008.

Available online Intelink-TS at: <https://go.ic.gov/U7v6ZRL> (case sensitive – Uniform 7 victor 6 Zulu Romeo Lima)

Available online at: http://www.dni.gov/files/documents/ICD/ICD_500.pdf

[3] ICD 501

Office of the Director of National Intelligence. *Discovery and Dissemination or Retrieval of Information within the Intelligence Community*. Intelligence Community Directive 501. 21 January 2009.

Available online Intelink-TS at: <https://go.ic.gov/fTBM8OS> (case sensitive – foxtrot Tango Bravo Mike 8 Oscar Sierra)

Available online at: http://www.dni.gov/files/documents/ICD/ICD_501.pdf

[4] ICD 710

Office of the Director of National Intelligence. *Classification Management and Control Markings System*. Intelligence Community Directive 710. 21 June 2013.

Available online Intelink-TS at: <https://go.ic.gov/oSj9K7O> (case sensitive – oscar Sierra juliet 9 Kilo 7 Oscar)

Available online at: http://www.dni.gov/files/documents/ICD/ICD_710.pdf

[5] ICS 500-20

Director of National Intelligence Chief Information Officer. *Intelligence Community Enterprise Standards Compliance*. Intelligence Community Standard 500-20. 16 December 2010.

Available online Intelink-TS at: <https://go.ic.gov/kh8NMVJ> (case sensitive – kilo hotel 8 November Mike Victor Juliet)

Available online Intelink-U at: <https://w3id.org/ic/standards/policy/ICS500-20>

[6] ISM.XML

Office of the Director of National Intelligence. *XML Data Encoding Specification for Information Security Markings (ISM.XML)*.

Available online Intelink-TS at: <https://go.ic.gov/qoNICy7> (case sensitive – quebec oscar November India Charlie yankee 7)

Available online Intelink-U at: <https://w3id.org/ic/standards/ISM>

Available online at: <https://w3id.org/ic/standards/public>

[7] ISMCAT.CES

Office of the Director of National Intelligence. *CVE Encoding Specification for ISM Country Codes and Tetragraphs (ISMCAT.CES)*.

Available online Intelink-TS at: <https://go.ic.gov/mL5WA9> (case sensitive – mike Lima Foxtrot 5 Whiskey Alpha 9)

Available online Intelink-U at: <https://w3id.org/ic/standards/ISMCAT>

Available online at: <https://w3id.org/ic/standards/public>

[8] MN.CES

Office of the Director of National Intelligence. *CVE Encoding Specification for Mission Need (MN.CES)*.

Available online Intelink-TS at: <https://go.ic.gov/ndd7V1R> (case sensitive – november delta delta 7 Victor 1 Romeo)

Available online Intelink-U at: <https://w3id.org/ic/standards/MN>

Available online at: <https://w3id.org/ic/standards/public>

[9] PE-Portal

ODNI/Partner Engagement Tetragraph Portal. Office of the Director of National Intelligence

Available online Intelink-TS at: <https://intellipedia.intelink.ic.gov/wiki/Portal:Tetragraphs>

Available online Intelink-S at: <https://intellipedia.intelink.sgov.gov/wiki/Portal:Tetragraphs>

[10] PM.CES

Office of the Director of National Intelligence. *CVE Encoding Specification for Production Metrics (PM.CES)*.

Available online Intelink-TS at: <https://go.ic.gov/7djZXmA> (case sensitive – 7 delta juliet Zulu Xray mike Alpha)

Available online Intelink-U at: <https://w3id.org/ic/standards/PM>

Available online at: <https://w3id.org/ic/standards/public>

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 the following Director of National Intelligence (DNI)-sponsored web sites.

Public Website: <https://w3id.org/ic/standards/public>

Intelshare: <https://w3id.org/ic/standards/data-specs>

Direct all inquiries about this IC technical specification, IC technical specification collaboration and coordination forums, or IC element representatives involved in those forums, to the IC CIO.

E-mail: ic-standards-support@odni.gov.

Appendix F IC CIO Approval Memo

An IC CIO Approval Memo should accompany this enterprise technical data specification bearing the signature of the IC CIO or an IC CIO-designated official(s). If an IC CIO 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 IC CIO staffing and coordination process leading to signature of the IC CIO Approval Memo. The signature date of the IC CIO Approval Memo will be later than the last modified date shown on the specification artifacts by an indeterminable time period.

Upon signature of the IC CIO 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 Intelligence Community Enterprise Standards Baseline (IC ESB) as defined in ICS 500-20^[5].