Intelligence Community Technical Specification

CVE Encoding Specification for ISM Country Codes and Tetragraphs

Version 2022-NOV

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Chapter 1 - Introduction

1.1 - Purpose

This *CVE Encoding Specification for ISM Country Codes and Tetragraphs* (ISMCAT.CES) defines detailed implementation guidance using several encoding formats including Extensible Markup Language (XML), and JavaScript Object Notation (JSON) to encode ISM Country Codes and Tetragraphs controlled vocabulary. This Controlled Vocabulary Enumeration Encoding Specification (CES) defines the elements and attributes, associated structures and relationships, mandatory and cardinality requirements, and permissible values for representing data concepts using a variety of formats.

1.2 - Scope

The *Intelligence Community Technical Specification Framework* (IC-SF.XML[6]) 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 is applicable to the IC and information produced by, stored, or shared within the IC. This CES may have relevance outside the scope of intelligence; however, prior to applying outside of this defined scope, the CES 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. Over time, several encoding specifications became dependent on the same list of values, and dual (or more) maintenance was required to keep the lists aligned. Additionally, any changes to a specification's CVEs caused an entire new version of that specification to be created. In order to remove the need for dual maintenance and to remove the need to revision a specification when a CVE was updated, a new type of encoding specification, the CVE Encoding Specification, was created to decouple the vocabulary from the specifications. Each CES contains one or more CVEs and optionally a master schema defining elements and attributes limited to the allowable values and/or any Schematron rules that enforce the vocabulary in specifications that define their own elements or attributes.

This CES defines the Information Security Markings Country Codes and Tetragraphs Controlled Vocabulary Enumerations. It contains CVEs generated from the Geopolitical Entities, Names, and Codes (GENC) registry country codes and name combined with tetragraphs from Partner Engagement where appropriate. Alignment with the codes and names from the GENC registry is for compliance with US Federal Policy and Law aligning with the names and descriptions set by the Board of Geographic Names.

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

- 200 Series:
  - Intelligence Community Directive (ICD) 208, *Write for Maximum Utility* [8]
  - ICD 209, *Tearline Production and Dissemination* [9]

    - Intelligence Community Policy Memorandum (ICPM) 2007-200-2, *Preparing Intelligence to Meet the Intelligence Community's Responsibility to Provide* [16]
- 500 Series:
    - ICD 500, *Director Of National Intelligence Chief Information Officer* [10]
    - ICD 501, *Discovery and Dissemination or Retrieval of Information within the IC* [11]
    - Intelligence Community Program Guidance (ICPG) 500.2, *Attribute-based Authorization and Access Management* [13]
    - Intelligence Community Standard (ICS) 500-20, *IC Enterprise Standards Compliance* [17]
    - ICS 500-21, *Tagging of Intelligence and Intelligence-Related Information* [18]
- 700 Series:
    - ICD 710, *Classification and Control Markings System* [12]
    - ICPG 710.1, *Application of Dissemination Controls: Originator Control* [14]
    - ICPG 710.2, *Application of Dissemination Controls: Foreign Disclosure and Release Markings* [15]
- Memorandums:
    - IC CIO Memo - *Improving Intelligence Community (IC) Identity, Credential, and Access Management (ICAM) to Achieve Greater Mission Effectiveness* [2]

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[6].

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 Namepaces

Prefix	URI
ism	urn:us:gov:ic:ism
ismcat	urn:us:gov:ic:cvenum:ismcat
tetra	urn:us:gov:ic:taxonomy:catt:tetragraph
xsd	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[6].

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
XML Data Encoding Specification for Information Security Marking Metadata (ISM.XML.V2021-NOVr2022-NOV+[19])	This specification depends on the LATEST technically sound, approved version of ISM.XML[19]. The minimum version was based on compliance with the authoritative source, which is ICD-710[12]. 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.
Intelligence Community Specification Framework (IC-SF.XML.V2021-NOV+[6])	This specification does not depend on a specific version of IC-SF.XML[6]; 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.

Name	Dependency Description
Schematron[21]	Schematron — International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) 19757-3:2006 — is a rule-based document schema definition language. In this specification Schematron is a formal language used to express normative business rules, so this reference is normative. The Schematron rules are normative in the sense that they convey criteria that a document MUST adhere to, exactly as English may be used to convey normative criteria. It is not necessary for implementers to use the specific Schematron encoding in this specification. Implementers MAY use any encodings, tools, or languages desired to implement validation schemes for conformance to this specification. Note: The Schematron rules in this specification use Transformations (XSLT) 2.0[22] query binding.
XSLT 2.0[22] implementation of Schematron[21] by Rick Jelliffe (2010-04-14) Note: The only available identifying descriptors for this implementation are the implementer's name and date of release. This implementation may be found at the following Uniform Resource Locator (URL): http://code.google.com/p/schematron/.	The International Organization for Standardization does not create nor endorse reference implementations of its standards. For the purposes of this specification the *behavior* of the implementation created by Mr. Jelliffe is normative. Implementers MAY use any encodings, tools, or languages desired to implement validation schemes for conformance to this specification. To conform to this specification, a validator MUST find a document valid *if and only if* the Schematron implementation by Mr. Jelliffe would find the document valid according to the Schematron rules in this specification.
Office of the Director of National Intelligence (ODNI) Partner Engagement Website[20]	Contains the IC list of tetragraphs.

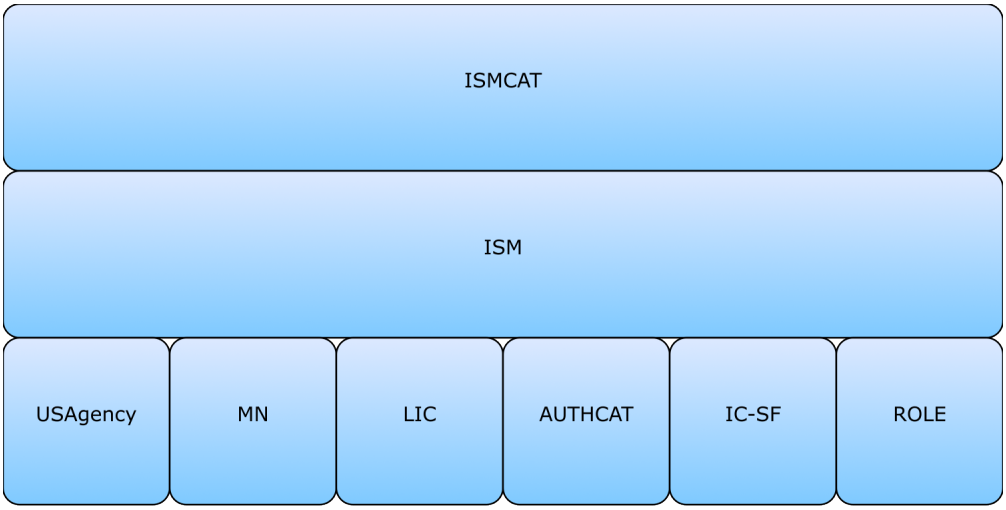

Figure 1 : Related Specifications

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).

Since this specification is one such specification that is used by other specifications released by the IC CIO, the Figure 2 has been included to assist readers in understanding all of the inverse dependency relationships and how changes in this given specification may impact others specifications. This diagram is representative of direct and transitive inverse dependencies at the time of the release of this specification, but are subject to change over time and is presented in a list format that is different than Figure 1.

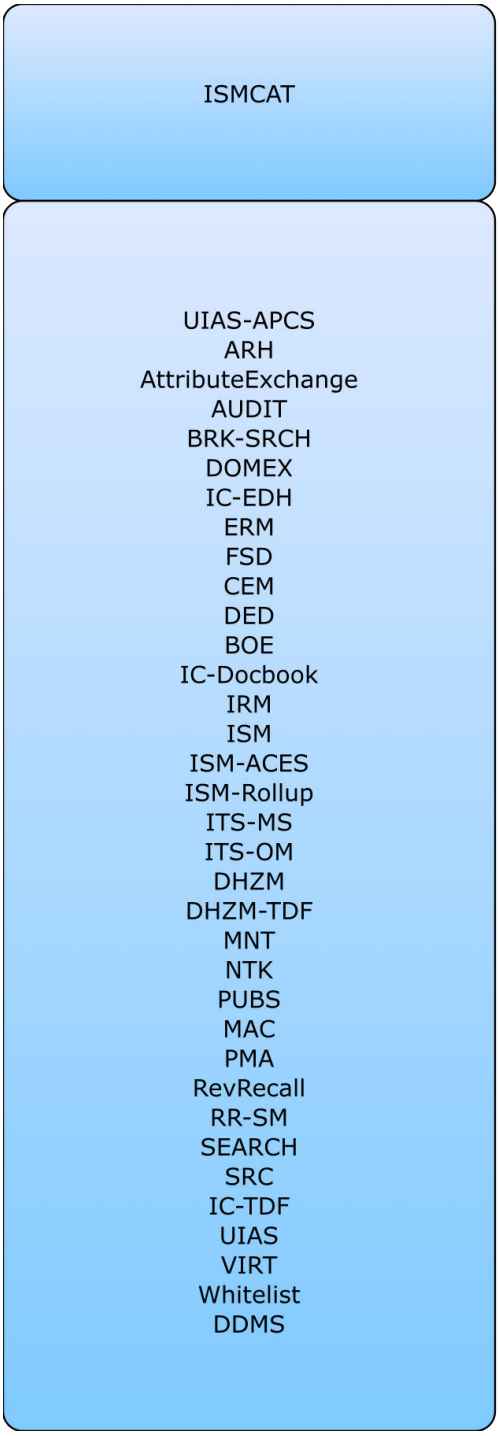

Figure 2 : Inverse Dependency Specifications

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[6] 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 - Relationship to Abstract Data Definition and other encodings

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

The mappings in the ADD provide a starting point for the development of automated transformations between formats defined by the encoding specifications. 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 - Understanding Access Control

This specification participates in the Data Attributes and User/Entity Attributes legs of the access control framework either as a primary specification or as a dependency of a primary specification. For more information, please see the “Components of Access Control Decisions” chapter in the IC-SF.XML[6]framework document.

2.3 - Additional Guidance

This section provides additional guidance for encoding data in specific situations. The content of this section will evolve over time as additional situations are identified. Implementers of this CES are encouraged to contact the maintainers of this CES for further guidance when necessary.

2.3.1 - Understanding Membership Nuances

The IC Markings, *IC Marking System Register and Manual* [3] Coalition tetragraph memberships for BWCS and CWCS and are populated based on member states. Member states are defined as those who have either ratified or acceded/succeeded to a treaty.

Ratification — “Defines the international act whereby a state indicates its consent to be bound to a treaty if the parties intended to show their consent by such an act. In the case of bilateral treaties, ratification is usually accomplished by exchanging the requisite instruments, while in the case of multilateral treaties the usual procedure is for the depositary to collect the ratifications of all states, keeping all parties informed of the situation. The institution of ratification grants states the

	necessary time-frame to seek the required approval for the treaty on the domestic level and to enact the necessary legislation to give domestic effect to that treaty."
Accession/Succession	"The act whereby a state accepts the offer or the opportunity to become a party to a treaty already negotiated and signed by other states. It has the same legal effect as ratification. Accession usually occurs after the treaty has entered into force. The Secretary-General of the United Nations, in his function as depositary, has also accepted accessions to some conventions before their entry into force. The conditions under which accession may occur and the procedure involved depend on the provisions of the treaty. A treaty might provide for the accession of all other states or for a limited and defined number of states. In the absence of such a provision, accession can only occur where the negotiating states were agreed or subsequently agree on it in the case of the state in question."

The definitions for Ratification and Accession were taken from the United Nation's website at the following URL: https://treaties.un.org/Pages/Overview.aspx?path=overview/glossary/page1_en.xml. For purposes of the tetragraph memberships, Accession and Succession are the same.

2.3.2 - Usage of the ISMCAT Schemas

The ISMCAT.CES schemas define elements and attributes that enforce the allowable values as defined in the dependent CVEs (see Section 3.2.1 - Value Enumeration Constraints for more details). Consumers of the ISMCAT.CES specification should import the ISMCAT.CES schema and reference elements or attributes, depending on what is needed.

2.3.3 - NATO NAC Markings

Some ISMCAT.CES CVEs include an entry for North Atlantic Treaty Organization (NATO) Special Words called North Atlantic Council (NAC) Activities. This section explains how to format a NATO NAC Activity value for Information Security Markings (ISM) attributes that follows the NAC regular expression in ISMCAT.CES CVEs.

The CVEs that include a regular expression for NATO NAC Activities are:

- CVEnumISMCATFGIOpen
- CVEnumISMCATFGIProtected
- CVEnumISMCATOwnerProducer
- CVEnumISMCATRelTo
- CVEnumISMCATTetragraph.

NATO NAC Activity values can appear in the following ISM attributes:

- **`@ism:FGIsourceOpen`**
- **`@ism:FGIsourceProtected`**
- **`@ism:ownerProducer`**
- **`@ism:releasableTo`**
- **`@ism:displayOnlyTo`**.

NAC Activities are represented in ISM attributes as an NMTOKEN created from the activity name. To create an NMTOKEN from an activity name:

1. Replace the slash following ‘NATO’ with a colon
2. Replace spaces with underscores.

The following Augmented Backus-Naur Form (ABNF) rules explicitly define the content of NAC and are used to provide a formal description independent of any particular technology. It is important to note that ABNF strings are case-insensitive, therefore all components of the NAC attribute are case-insensitive. ALPHA is defined to be A-Z / a-z. The ABNF rules used to specify the format of NAC Activities are normative:

NAC encoding Format

[1] NATO/NAC : : = "NATO:" NAC
[2] NAC : : = 1*256(ALPHA / DIGIT / "_")

Example conversions:

Table 3 - NAC Conversions

NAC	Converted for use in ISMCAT.CES
NATO/Partnership for Peace	**`"NATO:Partnership_for_Peace"`**
NATO/KFOR	**`"NATO:KFOR"`**
NATO/PFP	**`"NATO:PFP"`**

Chapter 3 - Constraints

3.1 - “Living” Constraint Rules

These constraint rules are a “living” rule set. The constraint rules provided are a starter set and do not attempt to address the full scope tradecraft and business rules addressed by multiple policy drivers including Sourcing Requirements for Disseminated Intelligence Products as defined by ICD 206, *Sourcing Requirements for Disseminated Analytic Products* [7]. These rules will be expanded and modified as the model matures, and as applicable documentation and tradecraft 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.

3.2 - Data Validation Constraint Rules

The ISMCAT.CES specification does not contain a master schema, but does contain several schemas generated from the CVEs. These schemas define the data elements, attributes, cardinalities and parent-child relationships for which ISMCAT.CES 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[6] framework document.

3.2.1 - Value Enumeration Constraints

The purpose of the ISMCAT.CES specification is to define the Controlled Vocabulary Enumeration list for allowable ISM Country Codes and Tetragraphs.

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.

3.2.2 - Additional Constraints

3.2.2.1 - CES Constraints

The CES version for this specification is defined in the ISM.XML[19] specification. The **`@CESVersion`** 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.

3.2.3 - Constraint Rules

The detailed constraint rules for the ISMCAT.CES schema can be found in a separate document inside the Documents/ISMCAT directory, in the “ISMCAT_Rules.pdf” file. This document is generated 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 “ISMCAT_Rules.pdf” file.

3.3 - Data Rendering Constraint Rules

3.3.1 - Purpose

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

3.3.2 - Rendering Constraint Rules

The following table contains the information for the ISMCAT.CES data rendering constraint rules.

Table 4 - 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 tables summarize major features by version for ISMCAT.CES. The “Required date” is the date when systems SHOULD support a feature based on the specified driver. Executive Orders, Information Security Oversight Office (ISOO) notices, ICDs and other policy documents have a variety of effective dates. The “Required date” may be later than the date of applicable policy based on the effective date defined in the policy (e.g., The IC Markings, *IC Marking System Register and Manual* [3] has an implementation date of one year after issuance).

Table 5 - 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. ISMCAT Feature Comparison

A.1.1. Features from V2020-OCT to V2022-NOV

Table 6 - ISMCAT Feature comparison V2020-OCT to V2022-NOV

Required date	Feature	V2020-OCT	V2021-NOV	V2022-MAY	V2022-NOV
	Aligns with tetragraphs and organizational codes from Partner Engagement as of March 26, 2021	P	F	F	F
	Aligns with tetragraphs and organizational codes from Partner Engagement as of March 30, 2022	P	P	F	F
	Aligns with tetragraphs and organizational codes from Partner Engagement as of October 27, 2022	P	P	P	F

A.1.1.1. Features Partial and N/A from V2020-OCT to V2022-NOV

Table 7 - ISMCAT Feature comparison V2020-OCT to V2022-NOV

Required date	Feature	V2020-OCT	V2021-NOV	V2022-MAY	V2022-NOV
	Codes and Names compliant with the GENC [1] registry update promulgated 2013-06-30	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update promulgated 2014-06-30	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update promulgated 2014-12-31	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update promulgated 2015-07-02	N/A	N/A	N/A	N/A

Required date	Feature	V2020-OCT	V2021-NOV	V2022-MAY	V2022-NOV
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 4)	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 5 and 6)	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 7)	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Updates 8 & 9)	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 10)	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 11)	N/A	N/A	N/A	N/A

A.1.2. Features from V2019-MAR to V2020-OCT

Table 8 - ISMCAT Feature comparison V2019-MAR to V2020-OCT

Required date	Feature	V2019-MAR	V2019-JUN	V2019-SEP	V2020-OCT
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Updates 8 & 9)	F	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 10)	N	F	N/A	N/A
	Aligns with tetragraphs and organizational codes from Partner Engagement as of 2019-07-09	P	P	F	F
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 11)	N	N	F	N/A
	Aligns with tetragraphs and organizational codes from Partner Engagement as of April 6, 2020	P	P	P	F

A.1.2.1. Features Partial and N/A from V2019-MAR to V2020-OCT

Table 9 - ISMCAT Feature comparison V2019-MAR to V2020-OCT

Required date	Feature	V2019-MAR	V2019-JUN	V2019-SEP	V2020-OCT
	Codes and Names compliant with the GENC [1] registry update promulgated 2013-06-30	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update promulgated 2014-06-30	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update promulgated 2014-12-31	N/A	N/A	N/A	N/A

Required date	Feature	V2019-MAR	V2019-JUN	V2019-SEP	V2020-OCT
	Codes and Names compliant with the GENC [1] registry update promulgated 2015-07-02	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 4)	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 5 and 6)	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 7)	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Updates 8 & 9)	F	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 10)	N	F	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 11)	N	N	F	N/A
	Aligns with tetragraphs and organizational codes from Partner Engagement as of March 26, 2021	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of March 30, 2022	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of October 27, 2022	P	P	P	P

A.1.3. Features from V2017-SEP to V2019-MAR

Table 10 - ISMCAT Feature comparison V2017-SEP to V2019-MAR

Required date	Feature	V2017-SEP	V2018-APR	V2018-JUL	V2019-MAR
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 7)	F	N/A	N/A	N/A
	Support FRME	N	N	F	F
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Updates 8 & 9)	N	N	N	F

A.1.3.1. Features Partial and N/A from V2017-SEP to V2019-MAR

Table 11 - ISMCAT Feature comparison V2017-SEP to V2019-MAR

Required date	Feature	V2017-SEP	V2018-APR	V2018-JUL	V2019-MAR
	Codes and Names compliant with the GENC [1] registry update promulgated 2013-06-30	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update promulgated 2014-06-30	N/A	N/A	N/A	N/A

Required date	Feature	V2017-SEP	V2018-APR	V2018-JUL	V2019-MAR
	Codes and Names compliant with the GENC [1] registry update promulgated 2014-12-31	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update promulgated 2015-07-02	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 4)	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 5 and 6)	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 7)	F	N/A	N/A	N/A
	Aligns with tetragraphs and organizational codes from Partner Engagement as of 2019-07-09	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of April 6, 2020	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of March 26, 2021	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of March 30, 2022	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of October 27, 2022	P	P	P	P

A.1.4. Features from V2015-NOV to V2017-SEP

Table 12 - ISMCAT Feature comparison V2015-NOV to V2017-SEP

Required date	Feature	V2015-NOV	V2016-SEP	V2017-JUL	V2017-SEP
	Codes and Names compliant with the GENC [1] registry update promulgated 2015-07-02	F	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 4)	N	F	N/A	N/A
	Includes the Tetragraph taxonomy	N	F	F	F
	Aligns with tetragraphs and organizational codes from Partner Engagement as of 2017-04-05	P	P	F	F
	Denormalization of ISMCAT.CES Tetragraph Taxonomy	N	N	F	F
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 5 and 6)	N	N	F	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 7)	N	N	N	F

A.1.4.1. Features Partial and N/A from V2015-NOV to V2017-SEP

Table 13 - ISMCAT Feature comparison V2015-NOV to V2017-SEP

Required date	Feature	V2015-NOV	V2016-SEP	V2017-JUL	V2017-SEP
	Codes and Names compliant with the GENC [1] registry update promulgated 2013-06-30	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update promulgated 2014-06-30	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update promulgated 2014-12-31	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update promulgated 2015-07-02	F	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 4)	N	F	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update (Edition 3 Update 5 and 6)	N	N	F	N/A
	Aligns with tetragraphs and organizational codes from Partner Engagement as of 2019-07-09	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of April 6, 2020	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of March 26, 2021	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of March 30, 2022	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of October 27, 2022	P	P	P	P

A.1.5. Features from V2014-SEP to V2015-NOV

Table 14 - ISMCAT Feature comparison V2014-SEP to V2015-NOV

Required date	Feature	V2014-SEP	V2015-FEB	V2015-MAY	V2015-NOV
	Codes and Names compliant with the GENC [1] registry update promulgated 2014-06-30	F	F	N/A	N/A
	Support for IC Marking System Register and Manual 30 December 2014[4]	N	F	F	F
	Codes and Names compliant with the GENC [1] registry update promulgated 2014-12-31	N	N	F	N/A
	Codes and Names compliant with the GENC [1] registry update promulgated 2015-07-02	N	N	N	F
	Aligns with tetragraphs and organizational codes from Partner Engagement as of 2015-10-30	P	P	P	F
	CVE containing only Tetragraph values	N	N	N	F

A.1.5.1. Features Partial and N/A from V2014-SEP to V2015-NOV

Table 15 - ISMCAT Feature comparison V2014-SEP to V2015-NOV

Required date	Feature	V2014-SEP	V2015-FEB	V2015-MAY	V2015-NOV
	Codes and Names compliant with the GENC [1] registry update promulgated 2013-06-30	N/A	N/A	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update promulgated 2014-06-30	F	F	N/A	N/A
	Codes and Names compliant with the GENC [1] registry update promulgated 2014-12-31	N	N	F	N/A
	Aligns with tetragraphs and organizational codes from Partner Engagement as of 2017-04-05	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of 2019-07-09	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of April 6, 2020	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of March 26, 2021	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of March 30, 2022	P	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of October 27, 2022	P	P	P	P

A.1.6. Features from V1 to V2014-SEP

Table 16 - ISMCAT Feature comparison V1 to V2014-SEP

Required date	Feature	V1	V2	V2014-SEP
	Codes and Names compliant with the GENC [1] registry update promulgated 2013-06-30	N	F	N/A
	Codes and Names compliant with the GENC [1] registry update promulgated 2014-06-30	N	N	F

A.1.6.1. Features Partial and N/A from V1 to V2014-SEP

Table 17 - ISMCAT Feature comparison V1 to V2014-SEP

Required date	Feature	V1	V2	V2014-SEP
	Codes and Names compliant with the GENC [1] registry update promulgated 2013-06-30	N	F	N/A
	Aligns with tetragraphs and organizational codes from Partner Engagement as of 2015-10-30	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of 2017-04-05	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of 2019-07-09	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of April 6, 2020	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of March 26, 2021	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of March 30, 2022	P	P	P
	Aligns with tetragraphs and organizational codes from Partner Engagement as of October 27, 2022	P	P	P

Appendix B Change History

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

Table 18 - CES Version Identifier History

Version	Date	Purpose
1	August 16, 2013	Initial Release
2	March 14, 2014	Routine revision to technical specification. For details of changes, see Section B.18 - V2 Change Summary
2014-SEP	September 16, 2014	Routine revision to technical specification. For details of changes, see Section B.17 - 2014-SEP Change Summary
2015-FEB	February 2, 2015	Routine revision to technical specification. For details of changes, see Section B.16 - 2015-FEB Change Summary
2015-MAY	May 15, 2015	Routine revision to technical specification. For details of changes, see Section B.15 - 2015-MAY Change Summary
2015-NOV	November 16, 2015	Routine revision to technical specification. For details of changes, see Section B.14 - 2015-NOV Change Summary
2016-SEP	September 9, 2016	Routine revision to technical specification. For details of changes, see Section B.13 - 2016-SEP Change Summary
2017-JUL	July 21, 2017	Routine revision to technical specification. For details of changes, see Section B.12 - 2017-JUL Change Summary
2017-SEP	September 29, 2017	Routine revision to technical specification. For details of changes, see Section B.11 - 2017-SEP Change Summary
2018-APR	June 13, 2018	Routine revision to technical specification. For details of changes, see Section B.10 - 2018-APR Change Summary
2018-JUL	July 31, 2018	Routine revision to technical specification. For details of changes, see Section B.9 - 2018-JUL Change Summary
2018-NOV	November 26, 2018	Routine revision to technical specification. For details of changes, see Section B.8 - 2018-NOV Change Summary
2019-MAR	March 8, 2019	Routine revision to technical specification. For details of changes, see Section B.7 - 2019-MAR Change Summary

Version	Date	Purpose
2019-JUN	June 19, 2019	Routine revision to technical specification. For details of changes, see Section B.6 - 2019-JUN Change Summary
2019-SEP	September 6, 2019	Routine revision to technical specification. For details of changes, see Section B.5 - 2019-SEP Change Summary
2020-OCT	October 1, 2020	Routine revision to technical specification. For details of changes, see Section B.4 - 2020-OCT Change Summary
2021-NOV	December 3, 2021	Routine revision to technical specification. For details of changes, see Section B.3 - 2021-NOV Change Summary
2022-MAY	May 13, 2022	Routine revision to technical specification. For details of changes, see Section B.2 - 2022-MAY Change Summary
2022-NOV	November 29, 2022	Routine revision to technical specification. For details of changes, see Section B.1 - 2022-NOV Change Summary

B.1 - 2022-NOV Change Summary

Significant drivers for version 2022-NOV include:

- Partner Engagement updates.

Table 19 summarizes the changes made to this technical specification from version 2022-MAY to version 2022-NOV.

Table 19 - Data Encoding Specification 2022-NOV Change Summary

#	Change	Artifacts changed	Compatibility Notes
1	Updated memberships based on updated values from Partner Engagement. (CR-2022-033) 1. Added India (IND) to CMFC. 2. Added Estonia (EST) to AMSP.	Taxonomy CVEnum-ISMCATTetragraph	Systems using the taxonomy and CVE file need to be updated to handle the membership change.

B.2 - 2022-MAY Change Summary

Significant drivers for version 2022-MAY include:

- Partner Engagement updates.

Table 20 summarizes the changes made to this technical specification from version 2021-NOV to version 2022-MAY.

Table 20 - Data Encoding Specification 2022-MAY Change Summary

#	Change	Artifacts changed	Compatibility Notes
1	Updated memberships based on updated values from Partner Engagement. (CR-2021-038) 1. CLFC - Updated Membership 2. CTOC - Updated Membership 3. IMSP - Added new tetragraph 4. MESF - Updated Membership 5. RISC - Added new tetragraph 6. GCCH - Membership updated and suppressed.	Taxonomy CVEnum-ISMCATTetragraph	Systems using the taxonomy and CVE file need to be updated to handle the membership change.

B.3 - 2021-NOV Change Summary

Significant drivers for version 2021-NOV include:

- Partner Engagement updates.

Table 21 summarizes the changes made to this technical specification from version 2020-OCT to version 2021-NOV.

Table 21 - Data Encoding Specification 2021-NOV Change Summary

#	Change	Artifacts changed	Compatibility Notes
1	Added a description for how countries are selected for membership in a tetragraph. (CR-2020-044)	Documentation	No impact to systems.

#	Change	Artifacts changed	Compatibility Notes
2	Update memberships based on updated values from Partner Engagement. (CR-2020-052) 1. IPMC - Added new tetragraph	Taxonomy	Systems using the taxonomy file need to be updated to handle the membership change.
3	Update memberships based on updated values from Partner Engagement. (CR-2021-002) 1. MESF - Added new member	Taxonomy	Systems using the taxonomy file need to be updated to handle the membership change.
4	Update memberships based on updated values from Partner Engagement. (CR-2021-010) 1. ISSG - Updated membership	Taxonomy	Systems using the taxonomy file need to be updated to handle the membership change.
5	Update memberships based on updated values from Partner Engagement.(CR-2021-011) 1. PSMX - Added Germany 2. IRKS - Updated membership 3. PAWA - Added new tetragraph 4. NATO - Added North Macedonia 5. AMSP - Added Finland 6. SPAA retired and deprecated 7. RSMA retired and deprecated	Taxonomy	Systems using the taxonomy file need to be updated to handle the membership change.

B.4 - 2020-OCT Change Summary

Significant drivers for version 2020-OCT include:

- Partner Engagement updates.

Table 22 summarizes the changes made to this technical specification from version 2019-SEP to version 2020-OCT.

Table 22 - Data Encoding Specification 2020-OCT Change Summary

#	Change	Artifacts changed	Compatibility Notes
1	Update memberships based on updated values from Partner Engagement. (CR-2019-056) 1. AMSP - added new tetragraph 2. BWCS - Added Principality of Andorra (AND), Republic of Angola (AGO), Central African Republic (CAF), Republic of Côte d'Ivoire (CIV), Republic of Guinea (GIN), Republic of Liberia (LBR), Union of Burma (MMR), Islamic Republic of Mauritania (MRT), Niue (NIU), Federal Democratic Republic of Nepal (NPL), United Republic of Tanzania (TZA), and Independent State of Samoa (WSM). 3. CFCK - Update description to "Combined Forces Command Korea" 4. CWCS - Add Republic of Angola (AGO), Union of Burma (MMR), Syrian Arab Republic (SYR), and State of the Vatican City (VAT)	Taxonomy	Systems using the taxonomy file need to be updated to handle the membership changes.
2	Rule numbers missing from CVE and Schema checks. (CR-2019-086)	Schematron	No impact to systems.
3	Portion marks on Taxonomy chapter titles changed to U to align with public release. (CR-2019-176)	Taxonomy	No impact to systems.

B.5 - 2019-SEP Change Summary

Significant drivers for version 2019-SEP include:

- Partner Engagement updates.
- GENC Update 11

Table 23 summarizes the changes made to this technical specification from version 2019-JUN to version 2019-SEP.

Table 23 - Data Encoding Specification 2019-SEP Change Summary

#	Change	Artifacts changed	Compatibility Notes
1	Updated memberships based on updated values from Partner Engagement.(CR-2019-088) 1. MESF Membership updates 2. SOFP Membership updates 3. GFNX Membership updates	Taxonomy	Systems using the taxonomy file need to be updated to handle the membership change.
2	Updated ISMCAT with Update 11 of the GENC Ed3.0. (CR-2019-133)	CVEs	Data generation and ingestion systems need to be updated to handle the updates.
3	Updated CVEnum-ISMCATResponsibleEntity to be single-valued. (CR-2019-132)	CVEs	Data generation and ingestion systems need to be updated to handle the updates.

B.6 - 2019-JUN Change Summary

Significant drivers for Version 2019-JUN include:

- Partner Engagement updates.
- GENC Update 10

Table 24 summarizes the changes made to this technical specification from version 2019-MAR to version 2019-JUN.

Table 24 - Data Encoding Specification 2019-JUN Change Summary

#	Change	Artifacts changed	Compatibility Notes
1	Update ISMCAT with Update 10 of the GENC Ed3.0. (CR-2019-069)	CVEs	Data generation and ingestion systems need to be updated to handle the updates.
2	Update MGEU membership based on updated values from Partner Engagement. (CR-2019-068)	Taxonomy	Systems using the taxonomy file need to be updated to handle the membership changes.

B.7 - 2019-MAR Change Summary

Significant drivers for Version 2019-MAR include:

- Partner Engagement updates.
- GENC Updates 8 and 9

The following table summarizes the changes made to v2018-NOV in developing 2019-MAR.

Table 25 - Data Encoding Specification 2019-MAR Change Summary

#	Change	Artifacts changed	Compatibility Notes
1	Updated documentation to use the specification framework. (CR-2018-126)	Documentation	No impact to systems.
2	Update min version rules to check infrastructure instead of instance documents (CR-2018-133)	Schematron ValidateValidationEnvCVE added ValidateValidationEnvSchema added ISMCAT-ID-00002 updated	Validation systems need to ensure they are compliant with min versions.
3	Update ISMCAT with Updates 8 and 9 of the GENC Ed3.0(CR-2019-002, CR-2018-127)	CVEs	Data generation and ingestion systems need to be updated to handle the added GENC updates.
4	Update memberships based on updated values from Partner Engagement.(CR-2019-010)	Taxonomy	Systems using the taxonomy file need to be updated to handle the membership changes.

B.8 - 2018-NOV Change Summary

Significant drivers for Version 2018-NOV include:

- Partner Engagement updates.

The following table summarizes the changes made to v2018-JUL in developing 2018-NOV.

Table 26 - Data Encoding Specification 2018-NOV Change Summary

#	Change	Artifacts changed	Compatibility Notes
1	Update memberships based on updated values from Partner Engagement. (CR-2018-139) 1. GFNX - Membership updates	Taxonomy	Systems using the taxonomy file need to be updated to handle the membership changes.
2	Fix validity of JSON-LD CVEs. (CR-2018-143)	CVE	Data generation and ingestion systems using JSON need to be updated to accommodate the changes.

B.9 - 2018-JUL Change Summary

Significant drivers for Version 2018-JUL include:

- Partner Engagement updates.

The following table summarizes the changes made to v2018-APR in developing 2018-JUL.

Table 27 - Data Encoding Specification 2018-JUL Change Summary

#	Change	Artifacts changed	Compatibility Notes
1	Update memberships based on updated values from Partner Engagement. (CR-2018-110) 1. GFNX - Membership updates 2. FRME - Add new tetragraph	Taxonomy	Systems using the taxonomy file need to be updated to handle the membership changes.

B.10 - 2018-APR Change Summary

Significant drivers for Version 2018-APR include:

- Community Change Requests.

The following table summarizes the changes made to v2017-SEP in developing 2018-APR.

Table 28 - Data Encoding Specification 2018-APR Change Summary

#	Change	Artifacts changed	Compatibility Notes
1	Added schema PDF. (CR-2018-032)	Documentation	No impact to systems.
2	Update memberships based on updated values from Partner Engagement. (CR-2018-036) 1. CFCK - Replace FVEY organization with component countries. 2. CMFC - Add Brazil (BRA) 3. GFNX - Membership updates (CR-2017-290) 4. MESF - Membership updates 5. NKIC - Add new tetragraph 6. RSMA - Membership updates 7. SOFP - Membership updates 8. TFTC - Add new tetragraph 9. IRKS - Updates per Partner Engagement 10. KFOR - Updates per Partner Engagement 11. NACT - Updates per Partner Engagement 12. PSMX - Add new tetragraph	Taxonomy	Systems using the taxonomy file need to be updated to handle the membership changes.
3	Added ISM.XML[19] attributes to Schematron files to mark up the documentation. (CR-2017-305)	Schematron	No impact to systems.

#	Change	Artifacts changed	Compatibility Notes
4	Rename short name to ISMCAT.CES from ISMCAT.XML since there are multiple non XML formats included. Updated Purpose section to be less XML centric. (CR-2018-040)	Documentation	No impact to systems.
5	Updated section on Understanding Access Control to more accurately represent all of the specifications that participate in access control decisions. (CR-2018-071)	Documentation	No impact to systems.
6	Updated CSV generation to include a column for deprecation date information. (CR-2018-091)	CSV	Systems using CSVs no longer have to look to the XML or JSON for the deprecation date information.
7	Cleanup obsolete rules after ARH and NTK consolidation into ISM (CR-2018-096).	Schematron ISMCAT_ID_00002 modified.	Systems need to be updated to accommodate this change.

B.11 - 2017-SEP Change Summary

Significant drivers for Version 2017-SEP include:

- Community Change Requests.

The following table summarizes the changes made to v2017-JUL in developing 2017-SEP.

Table 29 - Data Encoding Specification 2017-SEP Change Summary

#	Change	Artifacts changed	Compatibility Notes
1	Update memberships based on updated values from Partner Engagement. 1. SOFP - updates per Partner Engagement (CR-2017-195)	Taxonomy	Systems using the taxonomy file need to be updated to handle the membership change.
2	Fixed typo in Implementation Notes(CR-2017-197)	Schema	No impact to systems.
3	Create RelaxNG CVE Fragments for ISMCAT. (CR-2017-176)	CVEs	No impact to systems.

#	Change	Artifacts changed	Compatibility Notes
4	Update ISMCAT with Update 7 of the GENC Ed3.0(CR-2017-193)	CVEs	Data generation and ingestion systems need to be updated to handle the added GENC updates.

B.12 - 2017-JUL Change Summary

Significant drivers for Version 2017-JUL include:

- Partner Engagement Updates

The following table summarizes the changes made to v2016-SEP in developing 2017-JUL.

Table 30 - Data Encoding Specification 2017-JUL Change Summary

#	Change	Artifacts Changed	Compatibility Notes
1	Create JSON version of CVEs in ISMCAT (CR-2017-057)	CVEs	No impact to systems.
2	Create CSV version of CVEs in ISMCAT (CR-2017-035)	CVEs	No impact to systems.

#	Change	Artifacts Changed	Compatibility Notes
3	Update memberships based on updated values from Partner Engagement. 1. CMFC – membership updated to add 3 countries (EGY/Egypt, JOR/Jordan, QAT/Qatar) (CR-2017-020, CR-2017-153) 2. CWCS – membership updated to remove 4 countries (AGO/Angola, VAT/Vatican City, MMR/ Burma, and SYR/Syria) (CR-2017-020) 3. NATO – membership updated to add new country (MNE/ Montenegro) (CR-2017-154) 4. SOFP - updates per Partner Engagement (CR-2016-074) 5. GFNX - membership updated (CR-2016-074), (CR-2017-002), (CR-2017-010), (CR-2017-020), (CR-2017-101) 6. CFCK - membership change individual 5 EYES countries to the token FVEY. (CR-2017-020)	Taxonomy	Systems may need to be updated to handle the new memberships

#	Change	Artifacts Changed	Compatibility Notes
4	New Tetragraphs based on updated values from Partner Engagement. 1. Australia_Group - add new tetragraph (CR-2017-020) 2. EU - add new tetragraph (CR-2017-020) 3. IRKS - add new tetragraph (CR-2017-020, CR-2017-071, CR-2017-160) 4. MESF - add new tetragraph (CR-2017-020, CR-2017-072) 5. MGEU - add new tetragraph (CR-2017-102) 6. NRDC - add new tetragraph (CR-2017-020) 7. NSG - add new tetragraph (CR-2017-020)	Taxonomy	Systems may need to be updated to handle the new values.
5	Updated ISMCATCESVersion enforcement rule to be warning (CR-2017-084)	Schematron ISMCAT-ID-00001 modified	Data generation and ingestion systems need to be updated to accommodate the changes to the rules.
6	Updated to use labels consistent with the GENC registry as of (Edition 3 Updates 5 and 6). (CR-2017-021)	CVEs	Systems may need to be updated to handle new/updated values.
7	Added inverse dependency section and definitions for Dependencies and Inverse Dependencies. (CR-2017-115)	Documentation	No impact to systems.
8	Added @id and @role to all sch:rule elements, in support of commercial tools warnings and errors and to support open source unit testing frameworks. (CR-2017-216)	All non-abstract Schematron rules modified	No impact to existing systems. Additional capabilities.

#	Change	Artifacts Changed	Compatibility Notes
9	Modified cardinality rendering. (CR-2017-022)	CVEs	No impact to existing systems, documentation rendering change only.
10	Update the version numbering EBNF to reflect the existence of Revisions. (CR-2017-237)	Documentation	No impact to systems.
11	Add a denormalized version of the tetragraph membership taxonomy to ISMCAT (CR-2017-011)	Taxonomy	Data generation and ingestion systems need to be updated to accommodate the new tetragraph.
12	Update ISMCAT Taxonomy to have information require to generate ISMCAT CVE files. (CR-2017-074)	Taxonomy	Data generation and ingestion systems need to be updated to accommodate the new tetragraph.
13	Added ISM.XML[19] attributes to Schematron files to mark up the documentation. (CR-2017-305)	Schematron	No impact to systems.

B.13 - 2016-SEP Change Summary

Significant drivers for Version 2016-SEP include:

- Changes in country names/description by the Board of Geographic Names.
- Changes in the tetragraph list.
- Merge of CATT into ISMCAT.

The following table summarizes the changes made to v2015-NOV in developing 2016-SEP.

Table 31 - Data Encoding Specification 2016-SEP Change Summary

#	Change	Artifacts Changed	Compatibility Notes
1	Updated to use labels consistent with the GENC registry as of (Edition 3 Update 4). (CR-2016-041)	CVE	Systems may need to be updated to handle new/updated values.
2	Added legacy tetragraphs and deprecated dates where missing and updated deprecation information for ISAF and GCTF.	CVE	Systems may need to be updated to handle removal of the tetragraph.
3	Added ISSG.	CVE	Systems may need to be updated to handle the new value.

#	Change	Artifacts Changed	Compatibility Notes
4	Updated schematron rules to enforce minimum versions defined in specification dependency table 1.7.	Schematron ISMCAT-ID-00002 added.	Systems may need to be updated to handle the new rule.
5	Added new tetragraph (GCCH) from Partner Engagement. (CR-2016-031)	CVE	Systems may need to be updated to handle the new value.
6	Added new tetragraph (ASEA) from Partner Engagement. (CR-2016-038)	CVE	Systems may need to be updated to handle the new value.
7	Added AUS and NZL to MLEC. (CR-2016-057)	Taxonomy	Systems may need to be updated to handle the new value.
8	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.
9	Added new tetragraph (GFNX) from Partner engagement (CR-2016-058)	CVE	Systems may need to be updated to handle the new value.

B.14 - 2015-NOV Change Summary

Significant drivers for Version 2015-NOV include:

- Changes in country names/description by the Board of Geographic Names.

The following table summarizes the changes made to v2015-MAY in developing 2015-NOV.

Table 32 - Data Encoding Specification 2015-NOV Change Summary

#	Change	Artifacts Changed	Compatibility Notes
1	Updated to use labels consistent with the GENC registry as of 2015-07-02.	CVE	Systems may need to be updated to handle new/updated values.
2	Updated to align existing and include new tetragraphs (CLFC and MNTF) from Partner Engagement.	CVE	Systems may need to be updated to handle new/updated values.
3	Added new CVE (CVEnum-ISMCATTetragraph.xml) as a standalone vocabulary for tetragraphs.	CVE	Systems may need to be updated to handle new CVE file.

B.14.1 - V5 Change Errata

The following table summarizes the changes that were discovered to have been omitted from the original publication of 2015-NOV.

Table 33 - Data Encoding Specification V5 Change Errata

#	Change	Artifacts changed	Compatibility Notes
1	Added NATO to CVE “CVEnum-ISMCATResponsibleEntity.xml”	CVE	Data generation and ingestion systems need to be updated to properly handle data marked as NATO.

B.15 - 2015-MAY Change Summary

Significant drivers for Version 2015-MAY include:

- Changes in country names/description by the Board of Geographic Names.
- Identification, Authentication and Authorization (IA&A) change request for Taxonomy of tetragraph member countries.

The following table summarizes the changes made to v2015-FEB in developing 2015-MAY.

Table 34 - Data Encoding Specification 2015-MAY Change Summary

#	Change	Artifacts Changed	Compatibility Notes
1	Updated to use labels consistent with the GENC registry as of 2014-12-31.	CVE	Systems may need to be updated to handle new/updated values.
2	Added new CVEnum-ISMCATResponsibleEntity.xml CVE file.	CVE	Systems may need to be updated to handle the new CVE.
3	Added new file type Taxonomy for capturing the memberships of Tetragraphs. Currently this is not a fully populated set; we anticipate adding more values over time.	Taxonomy	Systems requiring the Memberships of Tetragraphs now have a starting place.

B.16 - 2015-FEB Change Summary

Significant drivers for Version 2015-FEB include:

- IC Marking System Register and Manual 30 December 2014[4]

The following table summarizes the changes made to v2014-SEP in developing 2015-FEB.

Table 35 - Data Encoding Specification 2015-FEB Change Summary

#	Change	Artifacts Changed	Compatibility Notes
1	Added SOFP (Special Operations Forces Partners)	CVE	Systems may need to be updated to handle the new value.
2	Added RSMA (Resolute Support Mission Afghanistan)	CVE	Systems may need to be updated to handle the new value.

B.17 - 2014-SEP Change Summary

Significant drivers for Version 2014-SEP include:

- IC Marking System Register and Manual 31 December 2013[5]
- GENC Edition 2.0, Update 1[1]

The following table summarizes the changes made to V2 in developing 2014-SEP.

Table 36 - Data Encoding Specification 2014-SEP Change Summary

#	Change	Artifacts Changed	Compatibility Notes
1	Updated NCFE tetragraph to include description.	CVE	Systems may need to be updated to handle the new/ updated values.
2	Updated NATO NAC expression.	CVE	Systems may need to be updated to handle the new/ updated values.
3	Update Country Codes to the latest version of GENC Edition 2.0, Update 1.	CVE	Systems may need to be updated to handle the new/ updated values.

B.18 - V2 Change Summary

Significant drivers for Version 2 include:

- GENC Edition 1.0, Update 2

The following table summarizes the changes made to V1 in developing V2.

Table 37 - Data Encoding Specification V2 Change Summary

#	Change	Artifacts changed	Compatibility Notes
1	Updated Country Codes to the latest version of GENC Edition 1.0, Update 2.	CVE	Systems may need to be updated to handle the new/ updated values.

#	Change	Artifacts changed	Compatibility Notes
2	Updated NATO NAC regular expression to use ‘:’ instead of ‘/’ since ‘/’ is not a valid NMToken, also changed to be up to 256 characters.	CVE	Systems may need to be updated to handle the updated values.

Appendix C Glossary

This appendix lists terms, definitions and sources of the definitions for terms used in this document.

NMTOKEN	A built-in XML datatype based on the token datatype. The datatype NMTOKEN represents a single string token. NMTOKEN values may consist of letters, digits, periods (.), hyphens (-), underscores (_) and colons (:). No whitespace may appear within an NMTOKEN. Source:https://www.w3.org/TR/2004/REC-xmlschema-2-20041028/
token	A token datatype is an XML schema language built-in datatype. A token datatype is a string datatype that contains one or more strings separated by a single space, e.g., ism:releasableTo='USA AFG FVEY' is an example of an ISM attribute that has token datatype. A token datatype contains no leading or trailing spaces, no carriage returns, no line feeds and no tab characters. The individual strings in an element or attribute that is a token datatype are referred to as tokens. In the ism:releasableTo='USA AFG FVEY' example, the tokens are 'USA', 'AFG' and 'FVEY'. In contrast, the value of ism:releasableTo is the entire string 'USA AFG FVEY'. Source:https://www.w3.org/TR/2004/REC-xmlschema-2-20041028/#token

Appendix D List of Abbreviations

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

ABNF	Augmented Backus-Naur Form
ADD	Abstract Data Definition
CES	Controlled Vocabulary Enumeration Encoding Specification
CVE	Controlled Vocabulary Enumeration
DNI	Director of National Intelligence
GENC	Geopolitical Entities, Names, and Codes
IAA	Identification, Authentication and Authorization
IC	Intelligence Community
IC CIO	Intelligence Community Chief Information Officer
ICD	Intelligence Community Directive
IC ESB	Intelligence Community Enterprise Standards Baseline
ICPG	Intelligence Community Program Guidance
ICPM	Intelligence Community Policy Memorandum
ICS	Intelligence Community Standard
IEC	International Electrotechnical Commission
ISM	Information Security Markings
ISO	International Organization for Standardization
ISOO	Information Security Oversight Office
JSON	JavaScript Object Notation
NAC	North Atlantic Council
NATO	North Atlantic Treaty Organization
ODNI	Office of the Director of National Intelligence
URL	Uniform Resource Locator
XML	Extensible Markup Language
XSL	Extensible Stylesheet Language

XSLT	XSL Transformations

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Appendix F 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 G 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[17].