

**NGA.STND.0033\_1.0**

**2012-11-27**

**NGA STANDARDIZATION DOCUMENT**

**Geopolitical Entities, Names, and Codes  
(GENC) Standard**

**(2012-11-27)**

**Edition 1.0**

**DISTRIBUTION STATEMENT A**: Approved for public release; distribution is unlimited.

**NATIONAL CENTER FOR GEOSPATIAL INTELLIGENCE STANDARDS**

Table of Contents

[**Introduction** viii](#_Toc340830783)

[1 Scope 1](#_Toc340830784)

[2 Conformance 1](#_Toc340830785)

[3 References 1](#_Toc340830786)

[3.1 Normative 1](#_Toc340830787)

[3.2 Informative 2](#_Toc340830788)

[4 Terms, Definitions and Acronyms 3](#_Toc340830789)

[4.1 Terms and Definitions 3](#_Toc340830790)

[4.2 Acronyms 7](#_Toc340830791)

[5 Information Model 7](#_Toc340830792)

[5.1 Introduction 7](#_Toc340830793)

[5.2 ISO 3166 8](#_Toc340830794)

[5.2.1 Introduction 8](#_Toc340830795)

[5.2.2 Code Elements 9](#_Toc340830796)

[5.2.3 Names 9](#_Toc340830797)

[5.2.4 Format of the ISO 3166 Standard 10](#_Toc340830798)

[5.3 ISO 3166 Profile 10](#_Toc340830799)

[5.3.1 Introduction 10](#_Toc340830800)

[5.3.2 Profiled Terminology 11](#_Toc340830801)

[5.3.3 Extended Information Model 11](#_Toc340830802)

[5.3.4 Profiled Content 12](#_Toc340830803)

[5.3.5 Extended Code Element Domains 12](#_Toc340830804)

[5.4 Codespaces 13](#_Toc340830805)

[5.4.1 Introduction 13](#_Toc340830806)

[5.4.2 Uniform Resource Identifiers 13](#_Toc340830807)

[5.4.3 URLs for Codespace-designation 14](#_Toc340830808)

[5.4.4 URNs for Codespace-designation 15](#_Toc340830809)

[5.4.5 Established Codespaces 17](#_Toc340830810)

[5.4.6 URN Resolution 20](#_Toc340830811)

[5.5 Conceptual Schema 20](#_Toc340830812)

[5.5.1 Introduction 20](#_Toc340830813)

[5.5.2 GENC Geopolitical Entity 23](#_Toc340830814)

[5.5.3 Geopolitical Entity Entry 25](#_Toc340830815)

[5.5.4 Localized Name 28](#_Toc340830816)

[5.5.5 GENC Administrative Subdivision 29](#_Toc340830817)

[5.5.6 Administrative Subdivision Entry 32](#_Toc340830818)

[5.5.7 Administrative Subdivision Name 34](#_Toc340830819)

[5.5.8 Administrative Subdivisioning Information 35](#_Toc340830820)

[5.5.9 Administrative Subdivision Category 36](#_Toc340830821)

[5.5.10 Datatypes 37](#_Toc340830822)

[5.6 XML Encoding Schema 43](#_Toc340830823)

[5.6.1 Introduction 43](#_Toc340830824)

[5.6.2 XML Namespace 44](#_Toc340830825)

[5.6.3 XML Schema Design 44](#_Toc340830826)

[5.6.4 XML Schema Enhancements 48](#_Toc340830827)

[5.7 Implementation and Use 48](#_Toc340830828)

[5.7.1 Introduction 48](#_Toc340830829)

[5.7.2 Content Presentation 48](#_Toc340830830)

[5.7.3 Content Exchange 50](#_Toc340830831)

[6 Governance 53](#_Toc340830832)

[6.1 Introduction 53](#_Toc340830833)

[6.2 Guiding Policy 53](#_Toc340830834)

[6.3 Code Assignment 54](#_Toc340830835)

[6.3.1 ISO 3166 Assignment of Code Elements 54](#_Toc340830836)

[6.3.2 GENC Standard Assignment of Codes 55](#_Toc340830837)

[6.3.3 Externally-assigned Codes 56](#_Toc340830838)

[6.4 Configuration Management Roles 56](#_Toc340830839)

[6.4.1 Owner 56](#_Toc340830840)

[6.4.2 Configuration Manager 56](#_Toc340830841)

[6.4.3 Configuration Control Body 57](#_Toc340830842)

[6.4.4 Submitting Organization 58](#_Toc340830843)

[6.4.5 Role Relationships 58](#_Toc340830844)

[6.5 Configuration Management Procedures 58](#_Toc340830845)

[6.5.1 Change Requests 58](#_Toc340830846)

[6.5.2 Submission of Change Requests 59](#_Toc340830847)

[6.5.3 Coordination of Change Requests 60](#_Toc340830848)

[6.5.4 Publication of Changes 62](#_Toc340830849)

[Annex A – Conformance (Normative) 64](#_Toc340830850)

[A.1 Introduction 64](#_Toc340830851)

[A.2 Conceptual Schema Conformance 64](#_Toc340830852)

[A.3 XML Encoding Schema Conformance 64](#_Toc340830853)

[A.3.1 Introduction 64](#_Toc340830854)

[A.3.2 Validating XML Processor 65](#_Toc340830855)

[A.3.3 Schematron Validator 65](#_Toc340830856)

[A.3.4 Testing 66](#_Toc340830857)

[A.3.4.1 Introduction 66](#_Toc340830858)

[A.3.4.2 Instance Document 67](#_Toc340830859)

[A.3.4.3 Document Generation 67](#_Toc340830860)

[A.3.4.4 Document Consumption 67](#_Toc340830861)

[A.4 Content Conformance 67](#_Toc340830862)

[A.4.1 Introduction 67](#_Toc340830863)

[A.4.2 Codespaces and Codes 68](#_Toc340830864)

[A.4.3 Names 69](#_Toc340830865)

[A.4.4 Related Information 69](#_Toc340830866)

[Annex B – Country Code Standards (Informative) 70](#_Toc340830867)

[B.1 Overview 70](#_Toc340830868)

[B.2 ISO 3166 70](#_Toc340830869)

[B.2.1 Introduction 70](#_Toc340830870)

[B.2.2 Codespaces 70](#_Toc340830871)

[B.2.2.1 URLs for Codespace-designation 70](#_Toc340830872)

[B.2.2.2 URNs for Codespace-designation 71](#_Toc340830873)

[B.2.2.3 Established Codespaces 72](#_Toc340830874)

[B.2.3 Conceptual Schema 80](#_Toc340830875)

[B.2.3.1 Introduction 80](#_Toc340830876)

[B.2.3.2 ISO Country 81](#_Toc340830877)

[B.2.3.3 ISO Country Entry 82](#_Toc340830878)

[B.2.3.4 ISO Localized Name 83](#_Toc340830879)

[B.2.3.5 ISO Country Subdivision 84](#_Toc340830880)

[B.2.3.6 ISO Country Subdivision Entry 86](#_Toc340830881)

[B.2.3.7 ISO Country Subdivision Name 87](#_Toc340830882)

[B.2.3.8 ISO Country Subdivisioning Information 88](#_Toc340830883)

[B.2.3.9 ISO Country Subdivision Category 89](#_Toc340830884)

[B.2.3.10 Datatypes 90](#_Toc340830885)

[B.2.4 XML Encoding Schema 91](#_Toc340830886)

[B.2.4.1 Core Schema 91](#_Toc340830887)

[B.2.4.2 XML Schema Enhancements 94](#_Toc340830888)

[B.3 FIPS 10 through 10-4 94](#_Toc340830889)

[B.3.1 Introduction 94](#_Toc340830890)

[B.3.2 Codespaces 95](#_Toc340830891)

[B.3.2.1 URLs for Codespace-designation 95](#_Toc340830892)

[B.3.2.2 URNs for Codespace-designation 96](#_Toc340830893)

[B.3.2.3 Established Codespaces 97](#_Toc340830894)

[B.3.3 Conceptual Schema 102](#_Toc340830895)

[B.3.3.1 Introduction 102](#_Toc340830896)

[B.3.3.2 FIPS Basic Geopolitical Entity 102](#_Toc340830897)

[B.3.3.3 FIPS Basic Geopolitical Entity Entry 103](#_Toc340830898)

[B.3.3.4 FIPS Principal Administrative Division 104](#_Toc340830899)

[B.3.3.5 FIPS Principal Administrative Division Entry 105](#_Toc340830900)

[B.3.3.6 FIPS Principal Administrative Division Name 107](#_Toc340830901)

[B.3.3.7 FIPS Principal Administrative Division Class Name 107](#_Toc340830902)

[B.3.3.8 Datatypes 108](#_Toc340830903)

[B.3.4 XML Encoding Schema 109](#_Toc340830904)

[B.3.4.1 Core Schema 109](#_Toc340830905)

[B.3.4.2 XML Schema Enhancements 111](#_Toc340830906)

[B.4 GEC 111](#_Toc340830907)

[B.4.1 Introduction 111](#_Toc340830908)

[B.4.2 Codespaces 112](#_Toc340830909)

[B.4.2.1 URLs for Codespace-designation 112](#_Toc340830910)

[B.4.2.2 URNs for Codespace-designation 113](#_Toc340830911)

[B.4.2.3 Established Codespaces 114](#_Toc340830912)

[B.4.3 Conceptual Schema 116](#_Toc340830913)

[B.4.3.1 Introduction 116](#_Toc340830914)

[B.4.3.2 GEC Basic Geopolitical Entity 116](#_Toc340830915)

[B.4.3.3 GEC Basic Geopolitical Entity Entry 118](#_Toc340830916)

[B.4.3.4 GEC Principal Administrative Division 119](#_Toc340830917)

[B.4.3.5 GEC Principal Administrative Division Entry 120](#_Toc340830918)

[B.4.3.6 GEC Principal Administrative Division Name 121](#_Toc340830919)

[B.4.3.7 GEC Principal Administrative Division Class Name 122](#_Toc340830920)

[B.4.3.8 Datatypes 123](#_Toc340830921)

[B.4.4 XML Encoding Schema 123](#_Toc340830922)

[B.4.4.1 Core Schema 123](#_Toc340830923)

[B.4.4.2 XML Schema Enhancements 125](#_Toc340830924)

[Annex C – Geopolitical Correlations and Mappings (Informative) 126](#_Toc340830925)

[C.1 Introduction 126](#_Toc340830926)

[C.2 Governance of Geopolitical Correlations 128](#_Toc340830927)

[C.2.1 Configuration Manager 128](#_Toc340830928)

[C.2.2 CCWG Secretariat 128](#_Toc340830929)

[C.3 Geopolitical Correlation Codespaces 128](#_Toc340830930)

[C.3.1 URLs for Codespace-designation 128](#_Toc340830931)

[C.3.2 URNs for Codespace-designation 129](#_Toc340830932)

[C.3.3 Established Correlation Package Codespaces 130](#_Toc340830933)

[C.4 Conceptual Schema for Geopolitical Correlations 132](#_Toc340830934)

[C.4.1 Introduction 132](#_Toc340830935)

[C.4.2 Items in "Country Code" Standards 132](#_Toc340830936)

[C.4.3 Correlation Package 134](#_Toc340830937)

[C.4.4 Correlation Set 135](#_Toc340830938)

[C.4.5 Geopolitical Correlation 136](#_Toc340830939)

[C.4.6 Datatypes 138](#_Toc340830940)

[C.4.6.1 Correlation Date Basis 138](#_Toc340830941)

[C.4.6.2 Territorial Alignment 138](#_Toc340830942)

[C.4.7 Content Presentation 139](#_Toc340830943)

[C.5 XML Schema for Geopolitical Correlations 140](#_Toc340830944)

[C.5.1 Core Schema 140](#_Toc340830945)

[C.5.2 XML Schema Enhancements 142](#_Toc340830946)

[C.6 Conceptual Schema for Code Mappings 142](#_Toc340830947)

[C.6.1 Introduction 142](#_Toc340830948)

[C.6.2 Code Mapping Set 144](#_Toc340830949)

[C.6.3 Item Mapping 144](#_Toc340830950)

[C.6.4 Target Mapping 145](#_Toc340830951)

[C.7 XML Schema for Code Mappings 146](#_Toc340830952)

[C.7.1 Introduction 146](#_Toc340830953)

[C.7.2 Sample Content 148](#_Toc340830954)

[Annex D – GENC Index Documents (Informative) 151](#_Toc340830955)

[D.1 Overview 151](#_Toc340830956)

[D.2 GENC Index Workbook 151](#_Toc340830957)

[D.2.1 Introduction 151](#_Toc340830958)

[D.2.2 Structure and Sample Content 151](#_Toc340830959)

[D.3 GENC Index XML 153](#_Toc340830960)

[D.3.1 Introduction 153](#_Toc340830961)

[D.3.2 XML Encoding Schema 153](#_Toc340830962)

[D.3.3 Sample Content 154](#_Toc340830963)

[Annex E – UML Primer (Informative) 156](#_Toc340830964)

[E.1 UML Notations 156](#_Toc340830965)

[E.2 UML Model Relationships 156](#_Toc340830966)

[E.2.1 Associations 156](#_Toc340830967)

[E.2.2 Navigation 156](#_Toc340830968)

[E.2.3 Generalization 156](#_Toc340830969)

[E.2.4 Instantiation / Dependency 157](#_Toc340830970)

[E.2.5 Roles 157](#_Toc340830971)

[E.3 UML Model Stereotypes 157](#_Toc340830972)

Table of Figures

[Figure 1 – GENC Standard UML Class Diagram 22](#_Toc340830973)

[Figure 2 – GENC Geopolitical Entity Class Diagram 24](#_Toc340830974)

[Figure 3 – GENC Administrative Subdivision Class Diagram 30](#_Toc340830975)

[Figure 4 – GENC Administrative Subdivisioning Information Class Diagram 35](#_Toc340830976)

[Figure 5 – GENC Simple Datatypes Class Diagram 37](#_Toc340830977)

[Figure 6 – GENC Complex Datatypes Class Diagram 40](#_Toc340830978)

[Figure 7 – XML Complex Type genc:CodeWithCodeSpace 45](#_Toc340830979)

[Figure 8 – XML Complex Type genc:GeopoliticalEntityEntryType 46](#_Toc340830980)

[Figure 9 – XML Complex Type genc:AdministrativeSubdivisionEntryType (Part 1) 47](#_Toc340830981)

[Figure 10 – XML Complex Type genc:AdministrativeSubdivisionEntryType (Part 2) 48](#_Toc340830982)

[Figure 11 – Example of Geopolitical Entity Browser Presentation 49](#_Toc340830983)

[Figure 12 – Example of Administrative Subdivision Browser Presentation 50](#_Toc340830984)

[Figure 13 – Sample XML Instance of Element genc:GeopoliticalEntityEntry 52](#_Toc340830985)

[Figure 14 – Sample XML Instance of Element genc:AdministrativeDivisionEntry 53](#_Toc340830986)

[Figure 15 – Governance Role Relationships 58](#_Toc340830987)

[Figure 16 – Registry-assigned URIs 68](#_Toc340830988)

[Figure 17 – ISO 3166 (Parts 1 and 2) Class Diagram 80](#_Toc340830989)

[Figure 18 – ISO Country Entry Class Diagram 81](#_Toc340830990)

[Figure 19 – ISO Country Subdivision Entry Class Diagram 85](#_Toc340830991)

[Figure 20 – XML Complex Type genc:ISOCountryEntryType 92](#_Toc340830992)

[Figure 21 – XML Complex Type genc:ISOCountrySubdivisionEntryType (Part 1) 93](#_Toc340830993)

[Figure 22 – XML Complex Type genc:ISOCountrySubdivisionEntryType (Part 2) 94](#_Toc340830994)

[Figure 23 – FIPS Class Diagram 102](#_Toc340830995)

[Figure 24 – FIPS Basic Geopolitical Entity Entry Class Diagram 103](#_Toc340830996)

[Figure 25 – FIPS Principal Administrative Division Entry Class Diagram 105](#_Toc340830997)

[Figure 26 – XML Complex Type fips:FIPSBasicGeopoliticalEntityEntryType 110](#_Toc340830998)

[Figure 27 – XML Complex Type fips:FIPSPrincipalAdministrativeDivisionType 111](#_Toc340830999)

[Figure 28 – Geopolitical Entities and Codes (GEC) Class Diagram 116](#_Toc340831000)

[Figure 29 – GEC Basic Geopolitical Entity Entry Class Diagram 117](#_Toc340831001)

[Figure 30 – GEC Principal Administrative Division Entry Class Diagram 119](#_Toc340831002)

[Figure 31 – XML Complex Type fips:GECBasicGeopoliticalEntityEntryType 124](#_Toc340831003)

[Figure 32 – XML Complex Type fips:GECPrincipalAdministrativeDivisionType 125](#_Toc340831004)

[Figure 33 – Items in "Country Code" Standards Class Diagram 132](#_Toc340831005)

[Figure 34 – Geopolitical Correlation Class Diagram 134](#_Toc340831006)

[Figure 35 – Example of Geopolitical Correlation Browser Presentation 140](#_Toc340831007)

[Figure 36 – XML Complex Type gc:GeopoliticalCorrelationType 141](#_Toc340831008)

[Figure 37 – XML Complex Type gc:CorrelationPackageType 142](#_Toc340831009)

[Figure 38 – Illustration of Code Mapping 143](#_Toc340831010)

[Figure 39 – Code Mapping Set Class Diagram 144](#_Toc340831011)

[Figure 40 – XML Complex Type gc:URISetType 146](#_Toc340831012)

[Figure 41 – XML Complex Type gc:CountryCodespaceCodesType 147](#_Toc340831013)

[Figure 42 – XML Complex Type gc:CodeMappingSetType 148](#_Toc340831014)

[Figure 43 – Sample XML Instance of Element gc:CodeMappingSet 150](#_Toc340831015)

[Figure 44 – XML Complex Type genc:GENCStandardBaselineIndex 154](#_Toc340831016)

[Figure 45 – Sample XML Instance of Element genc:StandardBaselineIndex 155](#_Toc340831017)

[Figure 46 – UML Notation 156](#_Toc340831018)

[Figure 47 – UML Roles 157](#_Toc340831019)

Table of Tables

[Table 1 – Normative References 2](#_Toc340831020)

[Table 2 – Informative References 2](#_Toc340831021)

[Table 3 – Definitions Applicable to this Standard 3](#_Toc340831022)

[Table 4 – Definitions from ISO 3166 5](#_Toc340831023)

[Table 5 – Definitions used in the GENC Information Model 6](#_Toc340831024)

[Table 6 – GENC Profiled Terminology 11](#_Toc340831025)

[Table 7 – GENC Profile Status Types 12](#_Toc340831026)

[Table 8 – GENC Geopolitical Entity Codespaces 19](#_Toc340831027)

[Table 9 – GENC Geopolitical Entity Codespaces from ISO 3166-1 (Annex B.2.2.3) 19](#_Toc340831028)

[Table 10 – GENC Administrative Subdivision Codespaces 19](#_Toc340831029)

[Table 11 – GENC Administrative Subdivision Codespaces from ISO 3166-2 (Annex B.2.2.3) 19](#_Toc340831030)

[Table 12 – «abstract» GENCGeopoliticalEntity and its Properties 25](#_Toc340831031)

[Table 13 – «type» GeopoliticalEntityEntry and its Properties 26](#_Toc340831032)

[Table 14 – «type» LocalizedName and its Properties 28](#_Toc340831033)

[Table 15 – «abstract» GENCAdministrativeSubdivision and its Properties 31](#_Toc340831034)

[Table 16 – «type» AdministrativeSubdivisionEntry and its Properties 32](#_Toc340831035)

[Table 17 – «type» AdministrativeSubdivisionName and its Properties 34](#_Toc340831036)

[Table 18 – «type» AdministrativeSubdivisioningInfo and its Properties 35](#_Toc340831037)

[Table 19 – «type» AdministrativeSubdivisionCategory and its Properties 36](#_Toc340831038)

[Table 20 – «enumeration» EntryTypeCode Domain Values 38](#_Toc340831039)

[Table 21 – «enumeration» UNLegalStatusCode Domain Values 38](#_Toc340831040)

[Table 22 – «enumeration» USRecognitionCode Domain Values 38](#_Toc340831041)

[Table 23 – «codeList» RomanizationSystemCode Domain Values 39](#_Toc340831042)

[Table 24 – «datatype, abstract» CountryCodespaceCodes, its subclasses, and its properties 41](#_Toc340831043)

[Table 25 – «datatype» URISet and its Properties 43](#_Toc340831044)

[Table 26 – Code (ISO: Code Element) Status Types 54](#_Toc340831045)

[Table 27 – ISO 3166 1st Edition Country Codespaces 73](#_Toc340831046)

[Table 28 – ISO 3166 2nd Edition Country Codespaces 73](#_Toc340831047)

[Table 29 – ISO 3166 3rd Edition Country Codespaces 73](#_Toc340831048)

[Table 30 – ISO 3166 4th Edition Country Codespaces 75](#_Toc340831049)

[Table 31 – ISO 3166-1 1st (5th) Edition Country Codespaces 76](#_Toc340831050)

[Table 32 – ISO 3166-1 2nd (6th) Edition Country Codespaces 77](#_Toc340831051)

[Table 33 – ISO 3166-2 1st Edition Country Subdivision Codespaces 79](#_Toc340831052)

[Table 34 – ISO 3166-2 2nd Edition Country Subdivision Codespaces 79](#_Toc340831053)

[Table 35 – «abstract» ISOCountry and its Properties 81](#_Toc340831054)

[Table 36 – «type» ISOCountryEntry and its Properties 82](#_Toc340831055)

[Table 37 – «type» ISOLocalizedName and its Properties 83](#_Toc340831056)

[Table 38 – «abstract» ISOCountrySubdivision and its Properties 85](#_Toc340831057)

[Table 39 – «type» ISOCountrySubdivisionEntry and its Properties 86](#_Toc340831058)

[Table 40 – «type» ISOCountrySubdivisionName and its Properties 87](#_Toc340831059)

[Table 41 – «type» ISOCountrySubdivisioningInfo and its Properties 88](#_Toc340831060)

[Table 42 – «type» ISOCountrySubdivisionCategory and its Properties 89](#_Toc340831061)

[Table 43 – «enumeration» ISOCodeElementStatusCode Domain Values 90](#_Toc340831062)

[Table 44 – FIPS 10 Basic Geopolitical Entity Codespaces 98](#_Toc340831063)

[Table 45 – FIPS 10-1 Basic Geopolitical Entity Codespaces 98](#_Toc340831064)

[Table 46 – FIPS 10-2 Basic Geopolitical Entity Codespaces 98](#_Toc340831065)

[Table 47 – FIPS 10-3 Basic Geopolitical Entity Codespaces 99](#_Toc340831066)

[Table 48 – FIPS 10-4 Basic Geopolitical Entity Codespaces 100](#_Toc340831067)

[Table 49 – FIPS 10-3 Principal Administrative Division Codespaces 100](#_Toc340831068)

[Table 50 – FIPS 10-4 Principal Administrative Division Codespaces 101](#_Toc340831069)

[Table 51 – «abstract» FIPSBasicGeopoliticalEntity and its Properties 103](#_Toc340831070)

[Table 52 – «type» FIPSBasicGeopoliticalEntityEntry and its Properties 104](#_Toc340831071)

[Table 53 – «abstract» FIPSPrincipalAdministrativeDivision and its Properties 105](#_Toc340831072)

[Table 54 – «type» FIPSPrincipalAdministrativeDivisionEntry and its Properties 106](#_Toc340831073)

[Table 55 – «type» FIPSPrincipalAdministrativeDivisionName and its Properties 107](#_Toc340831074)

[Table 56 – «type» FIPSPrincipalAdministrativeDivisionClassName and its Properties 108](#_Toc340831075)

[Table 57 – «codeList» FIPSDivisionClassCode Domain Values 108](#_Toc340831076)

[Table 58 – GEC Basic Geopolitical Entity Codespaces 115](#_Toc340831077)

[Table 59 – GEC Principal Administrative Division Codespaces 115](#_Toc340831078)

[Table 60 – «abstract» GECBasicGeopoliticalEntity and its Properties 117](#_Toc340831079)

[Table 61 – «type» GECBasicGeopoliticalEntityEntry and its Properties 118](#_Toc340831080)

[Table 62 – «abstract» GECPrincipalAdministrativeDivision and its Properties 120](#_Toc340831081)

[Table 63 – «type» GECPrincipalAdministrativeDivisionEntry and its Properties 120](#_Toc340831082)

[Table 64 – «type» GECPrincipalAdministrativeDivisionName and its Properties 121](#_Toc340831083)

[Table 65 – «type» GECPrincipalAdministrativeDivisionClassName and its Properties 122](#_Toc340831084)

[Table 66 – GENC Standard to ISO 3166 Correlation Package Codespaces 131](#_Toc340831085)

[Table 67 – ISO 3166 to GENC Standard Correlation Package Codespaces 131](#_Toc340831086)

[Table 68 – GENC Standard to Geopolitical Entities and Codes (GEC) Correlation Package Codespaces 131](#_Toc340831087)

[Table 69 – Geopolitical Entities and Codes (GEC) to GENC Standard Correlation Package Codespaces 131](#_Toc340831088)

[Table 70 – «abstract» GeopoliticalEntity and its Properties 132](#_Toc340831089)

[Table 71 – «abstract» AdministrativeSubdivision and its Properties 133](#_Toc340831090)

[Table 72 – «type» CorrelationPackage and its Properties 134](#_Toc340831091)

[Table 73 – «datatype» GeopoliticalCorrelationCodes 135](#_Toc340831092)

[Table 74 – «abstract» CorrelationSet and its Properties 136](#_Toc340831093)

[Table 75 – «type» GeopoliticalCorrelation and its Properties 136](#_Toc340831094)

[Table 76 – «enumeration» CorrelationDateBasisCode Domain Values 138](#_Toc340831095)

[Table 77 – «enumeration» TerritorialAlignmentCode Domain Values 138](#_Toc340831096)

[Table 78 – «datatype» CodeMappingSet and its Properties 144](#_Toc340831097)

[Table 79 – «datatype» ItemMapping and its Properties 145](#_Toc340831098)

[Table 80 – «datatype» TargetMapping and its Properties 145](#_Toc340831099)

[Table 81 – Sample GENC Index Workbook Geopolitical Entity Content 152](#_Toc340831100)

**Introduction**

On September 2, 2008, the U.S. Department of Commerce withdrew the Federal Information Processing Standards (FIPS) Publication 10-4, April 1995, *Standard for Countries, Dependencies, Areas of Special Sovereignty, and Their Principal Administrative Divisions* (FIPS 10-4). The specifics of this action were announced in the U.S. Federal Register / Vol. 73, No. 170.

FIPS 10-4 (plus change notices) provided a list of the basic geopolitical entities in the world, together with the principal administrative divisions that constitute each entity. Each basic geopolitical entity is represented by a two-character, alphabetic "country code". Each principal administrative division is identified by a four-character code consisting of the two-character "country code" followed by a two-character "administrative division code". Intended uses for FIPS 10-4 codes were activities associated with the mission of the U.S. Department of State and national defense programs. FIPS 10-4 has primarily been used in the U.S. Government and in U.S. Government contracts. The National Geospatial-Intelligence Agency (NGA) is currently the FIPS 10-4 maintenance authority.

The withdrawal of FIPS 10-4 was based on the Office of Management and Budget (OMB) Circular A-119 *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*. Circular A-119 directs federal agencies to use voluntary consensus standards in lieu of government-unique standards except where inconsistent with law or otherwise impractical. It also provides guidance for agencies participating in voluntary consensus standards bodies and describes procedures for satisfying the reporting requirements in the Act. The policies in Circular A-119 are intended to minimize the reliance by agencies on government-unique standards. Federal government departments and agencies are directed by the National Technology Transfer and Advancement Act (NTTA) of 1995 (Public Law 104-113) to use technical industry standards that are developed in voluntary consensus standards bodies. Public Law 104-113 was implemented for the Executive Branch by policy guidance in OMB Circular A-119.

Since the FIPS 10-4 withdrawal, U.S. Government Agencies have sought a strategy to identify a replacement standard. Based on NTTA and OMB Circular A-119, any replacement standard will be consistent with an International Organization for Standardization (ISO) or other American National Standards Institute (ANSI) Standard, with use of an existing ISO Standard being the preferred alternative. It was determined that the appropriate standard to replace FIPS 10-4 is ISO 3166, *Codes for the representation of names of countries and their subdivisions*, because ISO 3166 is already being implemented in the global finance and commerce sectors, is consistent with Internet Corporation for Assigned Names and Numbers (ICANN) for high-level internet domain naming, is being used by Department of Defense (DoD) and Intelligence Community (IC) partners in the form of a North Atlantic Treaty Organization (NATO) Standardization Agreement (STANAG) 1059 (Edition 8), and is already being used to meet certain community requirements, such as the U.S. Intelligence Community Information Security Markings (IC ISM).

In subsequent U.S. Government FIPS 10-4 Stakeholders meetings, it was determined that U.S. Government Agencies could not adopt ISO 3166 as published, due to unique U.S. Government requirements. These requirements are to address the:

* U.S. Government restrictions in recognition of the national sovereignty of a country;
* Identification and recognition of countries, dependencies, and areas of special sovereignty not included in ISO 3166; and
* U.S. Government requirement to use names of countries, dependencies, areas of special sovereignty, and administrative subdivisions of countries that have been approved by the U.S. Board on Geographic Names (BGN), the authority established under Public Law 80-242 to provide for uniformity in geographic nomenclature and orthography throughout the Federal Government.

It was determined to pursue the development of a U.S. profile of ISO 3166 that meets the general and unique U.S. Government requirements for country codes.

In response to the withdrawal of FIPS 10-4 by the Department of Commerce, the Department of Defense Information Technology Standards Council (DoD ITSC) made the decision to retire FIPS 10-4 from the Department of Defense Information Technology Standards Registry (DISR). The DISR serves as the Standards registry for DoD acquisition activities. In order to promote an orderly transition in DoD systems and processes, in DISR Baseline 08-3.0 (20 November 2008) the ITSC applied a Sunset tag to the DISR citation of FIPS 10-4, with a retirement date of 31 December 2012. The ITSC also amended the FIPS 10-4 citation to identify ISO 3166, whose Part 1 was already cited in the DISR as mandated and in use at some levels of the DoD, as the replacement standard to FIPS 10-4.

On June 6, 2011, the U.S. DoD Office of the Under Secretary of Defense for Acquisition, Technology and Logistics (USD AT&L) issued a policy memorandum specifying a full commitment to establishing and maintaining a U.S. profile of ISO 3166 as the sole country code standard for the U.S. Department of Defense.

That profile of ISO 3166 is this GENC Standard.

# Scope

The Geopolitical Entities, Names, and Codes (GENC) Standard specifies a profile of ISO 3166, *Codes for the representation of names of countries and their subdivisions*. This profile addresses unique U.S. Government requirements for: restrictions in recognition of the national sovereignty of a country; identification and recognition of countries, dependencies, and areas of special sovereignty not included in ISO 3166; and the use of names of countries, dependencies, areas of special sovereignty, and administrative subdivisions of countries that have been approved by the U.S. Board on Geographic Names.

The U.S. Board on Geographic Names (BGN) is the authority established under Public Law 80-242 to provide for uniformity in geographic nomenclature and orthography throughout the U.S. Federal Government.

A geopolitical entity is a region controlled by a political community having an organized government and possessing internal and external sovereignty, most often as a State but sometimes having a dependent relationship on another political authority, or a special sovereignty status. Geopolitical entities may be divided into administratively subordinate divisions.

A GENC code (or, synonymously, an ISO 3166 code element) for a geopolitical entity or administrative subdivision is a unique designation of that concept within a set of similar concepts established by a suitable authority.

The GENC Standard specifies an information model for representing names and codes of geopolitical entities and administrative subdivisions, with supporting information. This information model is based on that of ISO 3166 but extended to capture additional information required by U.S. Government stakeholders.

The GENC Standard specifies a governance process for determining specific geopolitical entity and administrative subdivision information. The governance process is executed by the Country Codes Working Group (CCWG), which is the community forum responsible for providing governance and configuration management for the GENC Standard and accompanying GENC Registry.

The National Geospatial-Intelligence Agency (NGA) hosts an online, dynamic information resource, the GENC Registry (<http://nsgreg.nga.mil/genc>), whose content is structured in accordance with the GENC Standard information model. The content evolves in response to CCWG content management procedures, in accordance with the GENC Standard governance process.

The GENC Registry is the single authoritative source for the geopolitical entities (and administrative subdivisions), names, and code content of the GENC Standard; it supports multiple online data access mechanisms and downloadable (offline) information products.

The NGA is the authority for promulgating the GENC Standard and its accompanying GENC Registry for use by the U.S. Department of Defense (DoD), Intelligence Community (IC), and civil federal agencies.

In order to facilitate information interoperability, the GENC Registry also specifies the content of other “country code” standards, and specific correlations between the content of those standards and the content of the GENC Standard.

In order to facilitate the use of archived data that may incorporate former names and/or codes for geopolitical entities and administrative subdivisions, the GENC Registry specifies the evolving content of other “country code” standards as well as temporally-appropriate correlations between the content of those standards and the content of the GENC Standard; those standards include ISO 3166 (Parts 1 and 2), FIPS 10 through 10-4, and Geopolitical Entities and Codes (GEC).

# Conformance

Names and codes used by the U.S. Government to denote geopolitical entities and their administrative subdivisions in information exchange shall conform to this standard. Specific elements of conformance are specified in Annex A. Changes to the GENC Standard (this document) or its content (specified at <http://nsgreg.nga.mil/genc>) shall be coordinated through the CCWG.

# References

## Normative

The documents listed in Table 1 are indispensable to understanding and using this standard.

Table 1 – Normative References

| **Standard or Specification** |
| --- |
| **GENC Registry** (dynamically maintained as-of-date):  <http://nsgreg.nga.mil/genc> |
| **GENC Standard - XML Exchange Schema, Edition 1.0.0, 1 September 2012**:  <http://nsgreg.nga.mil/doc/view?i=2325> |

## Informative

The informative (non-normative) documents listed in Table 2 are useful to understanding and using this standard. For dated references, only the cited edition or version applies.

Table 2 – Informative References

| **Standard or Specification** |
| --- |
| **GENC Standard - Index Workbook, Edition 1.0, 1 September 2012**: <http://nsgreg.nga.mil/doc/view?i=2326> |
| ISO 3166-1:2006, *Codes for the representation of names of countries and their subdivisions –*  *Part 1: Country codes*:  <http://www.iso.org/iso/catalogue_detail.htm?csnumber=39719> |
| All change notices to ISO 3166-1:2006, through:  ISO 3166-1 *Newsletter No. VI-13*, 2 August 2012:   <http://www.iso.org/iso/nl_vi-13_name_change_for_eritrea.pdf> |
| ISO 3166-2:2007, *Codes for the representation of names of countries and their subdivisions –*  *Part 2: Country subdivision code*:   <http://www.iso.org/iso/catalogue_detail.htm?csnumber=39718> |
| All change notices to ISO 3166-2:2007, through:  ISO 3166-2 *Newsletter No. II-3 (corrected)*, 15 December 2011:   <http://www.iso.org/iso/iso_3166-2_newsletter_ii-3_2011-12-13.pdf> |
| ISO 3166/MA N 664, Reservation of code elements AN and ANT and complete reservation  list for ISO 3166-1, Codes for the representation of names of countries and their   subdivisions – Part 1: Country codes (corrected), 25 May 2012:  <http://www.iso.org/mara/iso3166> |
| ISO 639-1:2002, *Codes for the representation of names of languages – Part 1: Alpha-2 code* <http://www.iso.org/iso/catalogue_detail.htm?csnumber=22109> |
| ISO 639-2:1998, *Codes for the representation of names of languages – Part 2: Alpha-3 code* <http://www.iso.org/iso/catalogue_detail.htm?csnumber=4767> |
| ISO 639-3:2007, *Codes for the representation of names of languages – Part 3: Alpha-3 code for comprehensive coverage of languages* <http://www.iso.org/iso/catalogue_detail.htm?csnumber=39534> |
| FIPS Publication 10-4 *COUNTRIES, DEPENDENCIES, AREAS OF SPECIAL SOVEREIGNTY,  AND THEIR PRINCIPAL ADMINISTRATIVE DIVISIONS*, April 1995:  <http://earth-info.nga.mil/gns/html/FIPS10-4_match.pdf> |
| All change notices to FIPS Publication 10-4:1984, through:  FIPS Publication 10-4 *Change Notice 14*, 31 July 2008:  <http://earth-info.nga.mil/gns/html/fips/Change_Notice_14.pdf> |
| *Geopolitical Entities and Codes* (formerly FIPS Publication 10-4), 15 April 2010:  <http://earth-info.nga.mil/gns/html/GEOPOLITICAL_CODES.pdf> |
| All change notices to Geopolitical Entities and Codes:2010, through:  Geopolitical Entities and Codes (formerly FIPS Publication 10-4) *Update 9*, 1 September 2012:  <http://earth-info.nga.mil/gns/html/UPDATE9.pdf> |
| IETF RFC 1738, *Uniform Resource Locators (URL)* <http://www.ietf.org/rfc/rfc1738.txt> |
| IETF RFC 2141, *URN Syntax* <http://www.ietf.org/rfc/rfc2141.txt> |
| IETF RFC 3986, *Uniform Resource Identifiers (URI): Generic Syntax* <http://www.ietf.org/rfc/rfc3986.txt> |
| ISO/TS 19103:2003, *Geographic information – Conceptual schema language* <http://www.iso.org/iso/catalogue_detail.htm?csnumber=37800> |
| ISO 19106:2004, *Geographic information – Profiles* <http://www.iso.org/iso/catalogue_detail.htm?csnumber=26011> |
| ISO 19135:2005, *Geographic information – Procedures for item registration* <http://www.iso.org/iso/catalogue_detail.htm?csnumber=32553> |
| ISO 19136:2007, *Geographic information – Geography Markup Language (GML)*  <https://nsgreg.nga.mil/doc/view?i=2016>  (same as: Geography Markup Language, Version 3.2.1 (OGC 07-036)) |
| ISO/IEC 10646:2012, *Information technology – Universal Coded Character Set (UCS)* <http://www.iso.org/iso/catalogue_detail.htm?csnumber=56921> |
| *OMG Unified Modeling Language (OMG UML), Infrastructure*, Version 2.2, September 2009: <http://www.omg.org/spec/UML/2.2/Infrastructure/PDF/> |
| *OMG Unified Modeling Language (OMG UML), Superstructure*, Version 2.2, September 2009: <http://www.omg.org/spec/UML/2.2/Superstructure/PDF/> |
| *XML Schema Part 1: Structures* (Second Edition), 28 October 2004: <http://www.w3.org/TR/2004/REC-xmlschema-1-20041028/> |
| *XML Schema Part 2: Datatypes* (Second Edition), 28 October 2004: <http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/> |

# Terms, Definitions and Acronyms

## Terms and Definitions

The terms and definitions specific to this standard are given in Table 3.

Table 3 – Definitions Applicable to this Standard

| **Term** | **Definition** |
| --- | --- |
| administrative subdivision | An administratively subordinate division of a **geopolitical entity**.  NOTE: A **geopolitical entity** (country) is typically divided into first-, second-, and lower-order administrative subdivisions. First-order administrative subdivisions are immediately subordinate to the government of the geopolitical entity, with second- and lower-order subdivisions subordinate to those above them.  EXAMPLES: (first-order) a U.S. state, a German Land, a French region; a Canadian province; (second-order) a U.S. county; (third-order) a U.S. township, a French arrondissement; (lower-levels) a French commune. |
| basic geopolitical entity [FIPS 10-4] | A geopolitical entity that is either: (a) an independent state; (b) a dependent area; (c) an area of quasi-independence, a non-contiguous territory, a possession without population, an area with special sovereignty association, or an area without sovereignty; (d) a political regime not recognized by the United States; or (e) an outlying area of the United States. [FIPS 10-4, April 1995]  NOTE: The list of basic geopolitical entities specified in FIPS 10-4 provides complete coverage of the land areas of the world without overlap or duplication. |
| baseline (of a standard) | The complete set of content of a standard which is authorized for use at a specified time.  NOTE1: A baseline may be established by publication of either a **change notice** or an **edition**.  NOTE2: In the GENC Standard, a baseline is identified by a unique **codespace**. |
| change notice (regarding a standard) | A publication in which modifications to selected items in a standard are reported in detail to the community of its users by the applicable maintenance authority.  NOTE: In the GENC Standard, a change notice establishes a new **baseline** and accompanying **codespace**.  EXAMPLES: An ISO 3166 Maintenance Agency Newsletter; an ISO Corrigendum; a FIPS 10-4 Change Notice; a Geopolitical Entities and Codes (GEC) Update. |
| code [GENC] | A unique designation of a concept from a set established by a **codespace**.  EXAMPLE: The 2-character code 'US' as a means of designating the concept named “United States of America”. |
| code mapping | A directional transformation where a **codespace**/**code** pair is substituted by zero or more **codes** in a different **codespace**.  NOTE: "Country" code mappings may be derived from **geopolitical correlations**.  EXAMPLE: In the year 2005, FIPS 10-4 represented the "United Kingdom" with the 2-letter alphabetic code 'UK', while ISO 3166-1 represented the correlated "United Kingdom" with the alpha-3 code element 'GBR', therefore code 'UK' can be mapped to code element 'GBR'. |
| codespace | A rule or authority for a **code**, name, term, or category. [ISO 19136:2007, 4.1.8]  EXAMPLE: Dictionaries, authorities, and **codelists**. |
| correlation package | A grouping of **geopolitical correlations** that share a common origin standard, a common target standard, and a common basis for establishing correlations from items in the origin standard to items in the target standard.  NOTE: A package of **geopolitical correlations** includes at least **one geopolitical correlation** for every item in the origin standard. |
| edition (of a standard) | A publication containing the entire current content of an established standard, and issued by the authorized publication authority, either as the first edition of a new standard or as a new edition (*i.e.*, revised complete version, usually numbered; for example, "2nd edition") of a previously published standard.  NOTE: In the GENC Standard, an edition of a standard establishes a new **baseline** and accompanying **codespace**.  EXAMPLES: A new ISO standard; a new edition of an existing ISO standard; a new release of FIPS Publication 10. |
| entry | An individual information record managed within a standard.  EXAMPLE: In ISO 3166-1:2006, each **entry** contains a **country name**, three **code elements**, and other descriptive information (including variations on the **country name**), as represented in a row in the table in Clause 9 of the published standard.  NOTE: An **entry** is the unit of management in ISO 3166; an **entry** may be added, replaced (*i.e*., modified), or deleted by a change notice (*i.e.,* a "Newsletter") or a new edition. |
| entry series | An ordered set of **entries** that were made over time in separate, consecutive publications of a standard, each **entry** representing the same **item**; altogether, the series of **entries** contains the traceable lifetime of an **item** which was introduced into the standard, then (possibly) modified, then (possibly) withdrawn from the standard.  EXAMPLE: For ISO 3166-1, an **entry** **series** would consist of all **entries** for an **item** in the standard (*e.g*., a specific **country name [ISO]** and its **code elements [ISO]**), through all editions and change notices of ISO 3166-1 in which that **item** appears. The entry series for the “United States” begins with an entry in the original edition of ISO 3166 (1974) and continues through all the versions including the current edition. The entry series for the “USSR” starts with an entry in the original edition of ISO 3166 (1974) and ends in 1992. The entry series for “South Sudan” begins with an entry in ISO 3166-1 Newsletter VI-10 (2011-08-09). |
| geopolitical correlation | An information structure that directionally relates the representation of a **geopolitical** **entity** (or an **administrative** **subdivision**) in one standard (origin) to its representation in a different standard (target).  NOTE1: An item in the origin standard may be correlated to one, several, or zero items in the target standard.  NOTE2: A geopolitical correlation is established with a specified temporal context, because countries and codes change over time.  NOTE3: Geopolitical correlations are the basis for establishing “country” **code mappings** from a code in one standard (such as the FIPS 10-4 2-letter code) to a code in another standard (such as the ISO 3166 alpha-3 code). |
| geopolitical entity | A region controlled by a political community having an organized government and possessing internal and external sovereignty, most often as a State but sometimes having a dependent relationship on another political authority, or a special sovereignty status.  NOTE: The degree of sovereignty may be limited in specific areas (for example: matters of economic, administrative, legislative, judicial, military, and/or foreign policy). The region controlled by a sovereign geopolitical entity is commonly referred to as a “country”. |
| item (in a standard) | A concept in the domain of discourse over which a standard asserts authority.  NOTE: The concept may be complex; for example, a term and definition within a specialized domain, or a country name together with one or more code elements.  EXAMPLE: A **country name [ISO]** with associated **code elements [ISO]** as included in ISO 3166-1:2006. |
| principal administrative division [FIPS 10-4] | An administrative area directly subordinate to the pertinent governing authority. [FIPS 10-4, April 1995]  NOTE: Even though all principal administrative divisions within a FIPS 10-4 basic geopolitical entity may not be of equal rank within the subdivision system specific to the country, FIPS 10-4 considers them all as “principal”. |
| territory | The extent of the land belonging to or under the jurisdiction of a ruler or state. [Shorter Oxford English Dictionary, Sixth Edition]  NOTE1: In the GENC Standard information model, the extent *may* include adjacent waters (not being strictly limited to dry land) and/or *may* be determined by an agreement that no jurisdictional control applies (for example: Antarctica).  NOTE2: In the content of the GENC Standard, the term may occasionally be capitalized and/or used as part of a proper name, in which case it usually denotes a formal status that has been assigned by the applicable authority. |

The terms and definitions specific to ISO 3166 that are used in this standard are given in Table 4.

Table 4 – Definitions from ISO 3166

| **Term** | **Definition** |
| --- | --- |
| administrative language [ISO] | A written language used by the administration of a country at the national level. [ISO 3166-1:2006, 6.2] |
| code [ISO] | A set of data transformed or represented in different forms according to a pre-established set of rules. [ISO 3166-1:2006, 3.1]  NOTE1: In the case of **country codes [ISO]**, the transformation “rules” are more like guidelines (*e.g.*, abbreviation for human-readability), rather than mathematical transformations.  NOTE2: A code [ISO] contains one or more set(s) of **code elements [ISO]**; for example: a set of 3-letter abbreviations for **country names [ISO]**. |
| code element [ISO] | The result of applying a **code [ISO]** to an element of a coded set. [ISO 3166-1:2006, 3.2]  EXAMPLE: The ISO 3166-1 alpha-3 **code [ISO]** applied to the United States of America yields the code element [ISO] 'USA'.  NOTE: In the U.S. Government community, code elements [ISO] are usually referred to as “codes”, and **codes [ISO]** as “codelists”. |
| country code [ISO] | Listing of **country names [ISO]** with their representation by **code elements [ISO]**. [ISO 3166-1:2006, 3.3] |
| country name [ISO] | The name of a country, dependency, or other area of particular geopolitical interest. [ISO 3166-1:2006, 3.4] |
| country subdivision name [ISO] | The name of a unit resulting from the division of a country, dependency, or other area of special geopolitical interest contained in ISO 3166-1. [ISO 3166-2:2007, 3.3] |

The terms and definitions specific to information modeling that are used in this standard are given in Table 5.

Table 5 – Definitions used in the GENC Information Model

| **Term** | **Definition** |
| --- | --- |
| <<datatype>> Boolean | A truth **enumeration** whose domain of values is {TRUE, FALSE}, representing the true and false values in a two-valued logic system. [ISO/TS 19103] |
| <<datatype>> CharacterString | A character string with optional character encoding and localization attributes. [ISO/TS 19103] |
| codelist | A value domain including a **code** for each permissible value. [ISO 19136:2007, 4.1.7] |
| <<datatype>> Date | An indication of date expressed as a year, year-month, or year-month-day. [ISO/TS 19103] |
| enumeration | An unambiguous identifier of a concept within a fixed, finite set of related concepts. [ISO/TS 19103]  EXAMPLE: The identifier "*independent*" as specified in the set of concept-identifiers that are the possible values of the concept "U.S. Recognition"; the full set of identifiers is {*independent*, *notIndependent*, *notSpecified*}. |
| <<datatype>> Integer | A whole number (a number that does not have a fractional part). [ISO/TS 19103] |
| Uniform Resource Identifier (URI) | A compact string of characters for identifying an abstract or physical resource. [IETF RFC 2396]  NOTE1: A resource can be anything that has identity, *e.g*., a “country code” and its associated information.  NOTE2: A URI identifies a resource either by location, or by name, or both. |
| Uniform Resource Locator (URL) | The syntax and semantics of formalized information for location and access of a resource via the Internet. [ITEF RFC1738]  NOTE: A URL is a type of **URI**. |
| Uniform Resource Name (URN) | A persistent, location-independent, resource identifier. [IETF RFC 2141]  NOTE: A URN is a type of **URI**. |

## Acronyms

The acronyms that are used in this standard are specified in the following list.

**BGN** (U.S.) Board on Geographic Names

**CCB** Configuration Control Body

**CCWG** Country Codes Working Group

**DIA** (U.S.) Defense Intelligence Agency

**DoD** (U.S.) Department of Defense

**DoS** (U.S.) Department of State

**ELOT** Ellinikos Organismos Typopoiisis (Hellenic Organization for Standardization)

**FIPS** (U.S.) Federal Information Processing Standards

**FOUO** For Official Use Only

**GEC** Geopolitical Entities and Codes

**GENC** Geopolitical Entities, Names, and Codes (a standard; also a registry)

**GEOINT** Geospatial Intelligence

**GOST** Gosudarstvennyy Standart (standards organization of the former Soviet Union)

**GSIP** GEOINT Structure Implementation Profile

**GWG** Geospatial Intelligence Standards Working Group

**IC** (U.S.) Intelligence Community

**IES** Information Exchange Schemas

**ISO** International Organization for Standardization

**MA** (ISO 3166) Maintenance Agency

**MDR** (U.S.)DoD Data Services Environment (DSE) Metadata Registry

**NASB** NGA Architecture and Standards Board

**NCGIS** National Center for Geospatial Intelligence Standards

**NGA** National Geospatial-Intelligence Agency

**NISO** (U.S.)National Information Standards Organization

**NRO** (U.S.) National Reconnaissance Office

**NSA** (U.S.) National Security Agency

**OMB** (U.S.) Office of Management and Budget

**PCGN** (U.K.) Permanent Committee on Geographical Names

**SDO** Standards Development Organization

**UML** Unified Modeling Language

**UN** United Nations

**URI** Uniform Resource Identifier

**URL** Uniform Resource Locator

**URN** Uniform Resource Name

**US** United States

**W3C** World Wide Web Consortium

**XML** Extensible Markup Language

**XSD** XML Schema Document

# Information Model

## Introduction

The GENC Standard specifies an information model for representing names and codes of geopolitical entities and administrative subdivisions, with supporting information. This domain-specific information model is based on that of ISO 3166 but extended to capture additional information required by U.S. Government stakeholders; in some cases, terminology of greater familiarity to U.S. Government stakeholders is adopted in order to improve interoperability with U.S. Government information systems.

The GENC Standard information model specifies a complete and self-consistent conceptual schema using the Unified Modeling Language (UML). Annex E provides a brief primer sufficient to understand UML class diagrams as used in this standard.

The GENC Standard information model establishes the terminological, semantic, and structural basis for information about geopolitical entities and administrative subdivisions, including their names and assigned codes. This information model supports the GENC Standard in four areas:

1. content specification, *i.e*., codes, names, and ancillary information;
2. content management, *e.g*., by the Country Codes Working Group (CCWG);
3. content presentation, *e.g*., in the online GENC Registry or downloadable documents; and
4. content exchange, *e.g.*, using XML instance documents, tab-delimited files, or spreadsheets.

The GENC Standard information model does not include information required to establish and maintain the GENC Registry.[[1]](#footnote-1)

Section 5.2 describes key aspects of the ISO 3166 conceptual schema. Annex B furnishes additional information regarding the semantics and structure of that schema as well as, where applicable, information regarding the content management activities of the ISO 3166/MA.

Section 5.3 specifies key aspects of both the GENC Standard information model in relationship to the ISO 3166 conceptual schema, and the content of the GENC Standard as a profile of the content of ISO 3166. These relationships include revisions to ISO code element domains and the selective adoption of variant terminology.

Section 5.4 specifies a method for generating Uniform Resource Identifiers (URI) and establishes a set of GENC Standard URI-based codespaces and the means by which those codespaces shall be used in information exchange involving the use of GENC Standard codes for geopolitical entities and administrative subdivisions; comparable codespaces are established for ISO 3166 (see Annex B.2.2). Annexes B.3.2 and B.4.2 establish codespaces for other “country code” standards in order to enable the specification of cross-standard item-level correlations.

Section 5.5 specifies the conceptual schema of the GENC Standard information model using UML augmented by a tabular specification of all included modeling elements.

Section 5.6 specifies a technology-specific encoding of the conceptual schema using XML Schema (XSD). XML instance files may thereby be used to exchange the content of the GENC Standard among information systems.

Section 5.7 illustrates use of the GENC Standard information model in two contexts: supporting the visualization of the content of the GENC Standard using a web browser; and, exchanging the content of the GENC Standard using XML instance documents.

## ISO 3166

### Introduction

ISO 3166, *Codes for the representation of names of countries and their subdivisions*, is a multi-part standard that establishes internationally recognized coded representations of names of countries, dependencies, and other areas of particular geopolitical interest and their subdivisions. ISO 3166 was first published in 1974 as a single standard to establish the country code elements. It was expanded into three parts in 1997 to additionally establish code elements for subdivisions (ISO 3166-2) and code elements for names of countries that are no longer in use (ISO 3166-3).

**Note** ISO 3166 (multi-part) does not establish the names of countries or their subdivisions; it establishes only the alpha-2 and alpha-3 code elements that represent those names. Names and numeric codes are collated and reported based on other authoritative sources.

While the naming of the standard uses the simple expression “countries”, the scope of ISO 3166 includes “countries, dependencies, and other areas of particular geopolitical interest and their subdivisions” [ISO3166-1:2006, Introduction].

ISO 3166 does not define the term “country”; however, the United Nations UNTERM (<http://unterm.un.org/>) states the following:

*[The term] “state” is used primarily in legal or political contexts, involving Governments. [The term] “country” is used primarily in an economic, social or geographical context, when the focus is not on political entities or Governments. For example, when referring to members of the UN and specific intergovernmental bodies or to parties to a treaty or legal agreement, UN style is to always use the term "States" (States Members of the United Nations, Member States, States parties to the Agreement, the signatory States). When referring to economic groupings, however, the style is to use the term "countries" (developed and developing countries, the least developed countries and so forth). There are grey areas. For instance, one can refer to "the States of the region" or "the countries of the region", depending on whether the context is more political or geographical. Note regarding capitalization: State is almost always capitalized in UN documents; it is only lower case when the reference is to the state in the abstract. Country is almost always lower case; it is only capitalized in the case of titles – e.g., the Rwanda Country Office of the World Food Programme; the Convention on the Protection of Children and Cooperation in Respect of Inter-Country Adoption.[[2]](#footnote-2)*

### Code Elements

ISO 3166-1 establishes up to three types of code elements that represent the current names of countries, dependencies, and other areas of particular geopolitical interest, on the basis of lists of country names obtained from the United Nations. New code elements are added automatically when the United Nations publishes new names in either the *Terminology Bulletin – Country Names* or in the *Country and Region Codes for Statistical Use* maintained by the United Nations Statistics Division (<http://unstats.un.org>). Code element values are assigned based on

*a visual association between the country names (in English or French, or sometimes in another language) and their corresponding code elements. In applying this principle, the code elements have generally been assigned on the basis of the short names of the countries ....* [ISO 3166-1:2006, 5.1]

The three types of code elements specified in ISO 3166-1 are as follows:

1. Alphabetic 2-character (alpha-2) code element – uses combinations, in upper case, of two letters of the 26-character Roman alphabet (ignoring diacritical signs) from the range 'AA' to 'ZZ'. The alpha-2 code is also the basis for the code elements specified in ISO 3166-2, which establishes alignment between ISO 3166 Part 1 and Part 2.
2. Alphabetic 3-character (alpha-3) code element – uses combinations, in upper case, of three letters of the 26-character Roman alphabet (ignoring diacritical signs) from the range 'AAA' to 'ZZZ'.
3. Three-digit numeric[[3]](#footnote-3) (numeric-3) code element – from the range '000' to '899'. This numeric value is determined from the United Nations Statistical Division standard country or area code for statistical use.

ISO 3166-2 establishes a single type of code element that represents the names of the subdivisions of the countries, dependencies, and other areas of particular geopolitical interest that are included in ISO 3166-1. The single type of code element specified is as follows:

1. Alphanumeric code element of 6-character maximum length – structured as follows:
2. the first two characters are the alpha-2 country code element specified in ISO 3166-1;
3. the third character is a hyphen ('-'); and
4. the remaining characters consist of one, two, or three alphabetic[[4]](#footnote-4) and/or numeric characters.

The GENC Standard specifies a profile of the combined content of ISO 3166-1 and ISO 3166-2. As the GENC Registry specifies the complete legacy content of ISO 3166 since inception, there is no need to employ or profile ISO 3166-3 in the GENC Standard.

### Names

ISO 3166-1 establishes multiple types of names for countries, dependencies, and other areas of particular geopolitical interest, on the basis of lists of country names obtained from the United Nations.

The UN Terminology Section is the authority for country names in use at the United Nations. *Terminology Bulletin No. 347/Rev.1: Country Names - State Members of the United Nations, Members of the Specialized Agencies or Parties to the Statute of the International Court of Justice[[5]](#footnote-5)* contains a comparative listing of country names in the six official languages of the United Nations, published in 1997, including English and French[[6]](#footnote-6). Currently, the names of independent countries are specified in the United Nations Multilingual Terminology Database (or UNTERM) available online (<http://unterm.un.org/>). The names of independent countries are also published in the *Standard Country or Area Codes for Statistical Use*, issued by the United Nations Statistics Division (<http://unstats.un.org/unsd/methods/m49/m49.htm>) [[7]](#footnote-7).

The types of names specified in ISO 3166-1 are as follows:

* Name – the short form name in all capital letters. For ease of use, the name in capital letters may sometimes be inverted (*e.g*., “VENEZUELA, BOLIVARIAN REPUBLIC OF”).
* Short form name – as specified in the U.N. *Terminology Bulletin-Country Names*.
* Full name – the formal title as notified by the country concerned to the U.N. Secretary-General. For brevity, if the full name does not differ from the short name then it is not reported.[[8]](#footnote-8)
* Other widely-used forms of country names may also be provided in the remarks column (*e.g*., “Often referred to as South Korea”).
* The short form name according to the administrative language(s) of the country ("local short name"), accompanied by the applicable ISO 639-1 two-letter code (if it exists, with a dash otherwise; *e.g*., 'en' or 'zh' or '-') and applicable ISO 639-2 terminological three-letter code (if it exists, with a dash otherwise; *e.g.,* 'eng' or 'zho' or '-').

ISO 3166-2 establishes the names of the subdivisions of the countries, dependencies, and other areas of particular geopolitical interest that are included in ISO 3166-1; names are drawn from relevant official national information sources.

The subdivision name(s) of the country are specified in the administrative language(s) of the country concerned as expressed in the 26-character Latin alphabet; in relevant cases, diacritical signs in accordance with ISO/IEC10646 are included. When a country subdivision name has been submitted in a non-Roman alphabet, it is specified in romanized form (to the extent possible in accordance with the relevant International Standards[[9]](#footnote-9)) with an indication of the source of the country subdivision name. The administrative language is specified using the applicable ISO 639-1 two-letter code element, if it exists (*e.g*., 'en' or 'zh' or '-').

Infrequently, variants of the subdivision name are specified, usually with an indication of their source.

### Format of the ISO 3166 Standard

The content of all parts of ISO 3166 is specified in Adobe Portable Document Format (PDF) documents. While a data base containing ISO 3166 code elements, name, and related information is available from the ISO, new editions and change notices for the standard are published as PDF documents. Change notices contain detailed markup for the sections of the ISO 3166 standards documents that should be edited to update the standard.

## ISO 3166 Profile

### Introduction

ISO 19106:2004 *Geographic information – Profiles* specifies two classes of conformance when developing a profile of a base standard. A Class 1 profile is a strict subset of the base standard; some content in the base standard is omitted. A Class 2 profile includes non-conflicting extensions of the base standard; it may also restrict the content of the base standard.

In accordance with OMB Circular A-119, federal agencies are directed to use voluntary consensus standards in lieu of government-unique standards except where inconsistent with law or otherwise impractical. ISO 3166, *Codes for the representation of names of countries and their subdivisions*, is the base standard for the profile that is the GENC Standard.

The GENC profile of ISO 3166 addresses unique U.S. Government requirements for:

* restrictions in recognition of the national sovereignty of a country;
* identification and recognition of countries, dependencies, and areas of special sovereignty not included in ISO 3166; and
* the use of names of countries, dependencies, areas of special sovereignty, and administrative subdivisions of countries that have been approved by the U.S. Board on Geographic Names, the authority established under Public Law 80-242 to provide for uniformity in geographic nomenclature and orthography throughout the Federal Government.

The GENC Standard asserts both restrictions to, and extensions of, the ISO 3166 base standard; it is a Class 2 profile in accordance with the provisions of ISO 19106.

### Profiled Terminology

The GENC Standard profiles ISO 3166 terminology, where necessary, in order to meet the following objectives:

* Clarity in expression (*e.g*., not all ISO 3166-1 items are “countries”).
* Greater familiarity to U.S. Government stakeholders, and improved interoperability with U.S. Government information systems that are based on the withdrawn FIPS 10-4 (see Annex B.2.3).
* Consistency in characterization of the structure and content of multiple “country code” standards (*e.g*., FIPS 10 through 10-4, and Geopolitical Entities and Codes (see Annex B.3.3)) in support of establishing pairwise item-level geopolitical correlations among them (see Annex C).
* Consistency with standard representation methodologies (UML and ISO/TS 19103:2003) and implementation technologies (*e.g*., Extensible Markup Language (XML)).

Table 6 lists those terms that are used in the GENC Standard and their equivalent(s) in ISO 3166 and/or FIPS 10-4; individual terms are defined in Section 4.1.

Table 6 – GENC Profiled Terminology

| **GENC** | **ISO 3166** | **FIPS 10-4** |
| --- | --- | --- |
| **administrative subdivision** | country subdivision | principal administrative division |
| **code** | code element | code |
| **codelist** | code |  |
| **geopolitical entity** | country | basic geopolitical entity |

Excepting in limited circumstances (*i.e.*, reference to the structure and/or content of ISO 3166 or FIPS 10-4), the terminology of the GENC Standard is used throughout this document.

**Note** In the GENC Standard, the term “code” is always used to indicate a unique designation of a concept from a set established by a codespace – rather than in the sense specified by ISO 3166, where it indicates a set of one or more code elements (determined based on a pre-established set of rules).

### Extended Information Model

The GENC Standard specifies an information model that is based on that of ISO 3166 but extended to capture additional information required by U.S. Government stakeholders. These extensions fall into four categories, as follows:

1. Country representations include their recognition status as determined by the U.S. Department of State; in the case of non-independence, the applicable sovereignty is also specified.
2. Both country and subdivision representations include additional information in the form of notes regarding naming, territorial extent, and/or political relationships as determined by the CCWG in coordination with BGN, NGA, and the U.S. Department of State.
3. All specifications of language use include the applicable ISO 639-3:2008 three-letter code, in order to ensure comprehensive coverage; ISO 3166 uses only ISO 639-1:1998 two-letter codes and/or ISO 639-2:1998 terminological three-letter codes.
4. Individual editions, newsletters, and entries (in the standard edition or newsletter) and their content are explicitly represented in order to exactly capture the evolving content of ISO 3166 throughout its history.

Section 5.5 specifies the resulting GENC Standard conceptual schema.

**Note** The GENC Standard information model does not include the additional information required to establish and maintain the GENC Registry.

### Profiled Content

The content of the GENC Standard is specified in an online, dynamic information resource, the GENC Registry (<http://nsgreg.nga.mil/genc>), which is structured in accordance with the GENC Standard information model. The content evolves in response to CCWG content management procedures, in accordance with the GENC Standard governance process (see Section 6). The content of the GENC Standard at any point in time may differ from (*i.e*., be profiled with respect to) the corresponding content of ISO 3166, in order to meet U.S. Government requirements. Most items in the GENC Standard are drawn directly from ISO 3166; however, some items (including both geopolitical entities and administrative subdivisions) are excluded, modified, or added.

**Note** Name and code content changes are published through the GENC Registry, accompanied by suitable change notices to CCWG members. Such content changes do not necessitate new editions of the GENC Standard. The authority for the most current content of the GENC Standard is always the GENC Registry. That content is likely to change at least quarterly based on the schedule of approval process of the BGN.

Each item in the GENC Standard is assigned one of five possible status values, as specified in Table 7.

Table 7 – GENC Profile Status Types

| **Code** | **Name** | **Definition** |
| --- | --- | --- |
| 000 | **ISO** | An ISO Officially Assigned code element that is included in the GENC Standard. |
| 001 | **Exclusion** | An ISO Officially Assigned code element that shall not be included in the GENC Standard. |
| 002 | **Exception** | An ISO Officially Assigned code element that is included in the GENC Standard, but whose associated entry content varies from the specification given by ISO 3166/MA (*e.g*., a difference in name). |
| 003 | **Extension** | A code (and associated entry content) in the GENC Standard that is recognized by ISO 3166/MA but is not an ISO Officially Assigned code element. |
| 004 | **Exigent** | A code (and associated entry content) in the GENC Standard that is not recognized by ISO 3166/MA. An Exigent entry uses a code assignment that does not conform to the ISO 3166 specification (*e.g*., consists of a mixture of alphabetic and numeric characters, when only alphabetic characters are allowed by the ISO 3166/MA). |

Items that are added into the GENC Standard with respect to ISO 3166 (termed “*Extension*”) are routinely coordinated with the ISO 3166 Maintenance Agency (ISO 3166/MA; see Section 6.5.3.3) and are thereby specified using **Reserved** or **User-assigned** (rather than **Officially Assigned**) code elements (see Section 6.3.1 and Table 26).

### Extended Code Element Domains

In exceptional circumstances (termed “*Exigent*”; see Table 7), items that are added to the GENC Standard may not be suitable for specification using ISO 3166/MA **User-assigned** code elements in accordance with ISO 3166 practices and procedures – for example, items denoting fictitious geopolitical entities or administrative subdivisions for use in training and/or analysis simulations. In such cases, code values unique to the GENC Standard are assigned without further coordination with the ISO 3166/MA.

In order to eliminate potential conflict in assignments while achieving desirable encoding characteristics for GENC Standard users, several of the types of code elements used in ISO 3166 are revised, as follows:

* The alphabetic 2-character (alpha-2) code element specified in ISO 3166-1 is revised to **Alphanumeric 2-character** – the second character may additionally be a digit (*e.g*., 'A1').
* The alphabetic 3-character (alpha-3) code element specified in ISO 3166-1 is revised to **Alphanumeric 3-character** – the second and third characters may additionally be digits (*e.g*., 'AX1' or 'R2D' or 'T83').
* The alphanumeric code element of 6-character maximum length specified in ISO 3166-2 is revised to allow the second character to additionally be a digit (*e.g*., 'A1-FHT') consistent with the revised alphanumeric 2-character code for a country name in the GENC Standard.

These revised code (ISO: code element) domains shall *only* be employed when the GENC item status is *Exigent*. In all other cases, only code values that have been coordinated with the ISO 3166/MA shall be used.

## Codespaces

### Introduction

The geopolitical state of the world is in constant change. At irregular intervals the ISO 3166/MA revises the content of ISO 3166 through the publication of either a new edition of the standard (including all current item-content) or a newsletter (reporting only changes since the preceding newsletter or edition). Similarly, at irregular intervals the CCWG revises the content of the GENC Standard through changes to the content of the GENC Registry, accompanied by suitable notification to CCWG members and other interested parties.

**Note** Name and code content changes are published through the GENC Registry, accompanied by suitable change notices to CCWG members. Such content changes do not necessitate new editions of the GENC Standard. The authority for the most current content of the GENC Standard is always the GENC Registry. That content is likely to change at least quarterly based on the schedule of approval process of the BGN.

The consequence of revising the content of ISO 3166, or of the GENC Standard, is the establishment of a new set of “country code” information. This set is unique – differing from the set that preceded it and the set that will (eventually) follow it. This set is intended to be coherent, complete, and internally consistent.

In the GENC Standard such a set of “country code” information is referred to as a "baseline" and formally identified by a **codespace**.

A codespace is universally unique. Once a codespace has been established by the cognizant authority, in accordance with the GENC Standard its content (set of codes and associated information) is invariant over time.[[10]](#footnote-10)

In some circumstances it is desirable to reference a code with respect to an implied codespace that is always “current”, *e.g*., the current specification of the item identified by a particular 2-character code in ISO 3166-1, without having to specify explicitly the most recent applicable ISO 3166/MA change update (designated "Newsletter").

### Uniform Resource Identifiers

In the GENC Standard, codespaces are denoted by Uniform Resource Identifiers (URI) in accordance with the World Wide Web Consortium (W3C) recommended practice. A URI is a compact string of characters for identifying an abstract or physical resource. A resource can be anything that has identity, *e.g*., a "country code" and its associated information. URIs may be categorized as either identifying the resource based on its location, or based on its name, as follows:

* Uniform Resource Locator (**URL**) – A specification for the location of, and access to, a resource via the Internet. A URL specifies the protocol of the resource (*e.g*., 'http' or 'ftp'), the domain name for the resource (*e.g*., 'nsgreg.nga.mil'), and the relative location of the resource within that domain. If the site host is active, then accessing the specified resource results in retrieval of a representation (the content) of the resource; however, site persistence is not guaranteed.
* Uniform Resource Name (**URN**) – A persistent, location-independent, resource identifier; a “resource name”. URNs are established through a succession of nested authorities, starting with the Internet Assigned Numbers Authority (IANA); <http://www.iana.org/assignments/urn-namespaces/urn-namespaces.xml> specifies the current top-level registered authorities. While a URN is persistent, it is not an accessible resource – although it can be used for identity-comparison, and there may be a “resolver service” established that is capable of translating a URN to an equivalent URL for the corresponding net-accessible resource.

Codespace-designation URIs in both categories are specified by the GENC Standard.

### URLs for Codespace-designation

Every item in the GENC Standard is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code**. The codespace identifies which set of GENC Standard “country code” information is intended, and the code identifies which member of that set is intended. In some cases (*i.e*., for “countries”), there are up to three codes that identify the same item of “country code” information. If each of the **codespace** and **code** components has been properly assigned by the cognizant authority, then the result of composing the codespace (value) and code (value) is a universally unique identifier.

URL-based codespace-designations in the GENC Registry for items in the GENC Standard are constructed in accordance with the following pattern:

*protocol* "://" *domain* "/" *concept -type* "/" *authority* "/" *encoding* "/" *baseline*

In this pattern each component is case-sensitive and determined as follows:

* *protocol* – always 'http'
* *domain* – always 'api.nsgreg.nga.mil'
* *concept-type* – one of { 'geo-political' | 'geo-division' }; this value never exceeds 13 characters in length.
* *authority* – one of { 'ISO3166-1' | 'ISO3166-2' | 'GENC' }; this value never exceeds 9 characters in length.
* *encoding* – one of { '2' | '3' | 'n' | '6' }; this value never exceeds 1 character in length.[[11]](#footnote-11)
* *baseline* – one of four patterns; this value never exceeds 6 characters in length.
  + The specification of an edition, as the string 'ed' followed by one or more digits (*e.g*., 'ed1').
  + The specification of an ISO 3166/MA change notice (designated "Newsletter"), using a well-known identifier composed as follows, in order:
    - the identifier of the latest edition of the applicable part of ISO 3166, expressed in uppercase Roman numerals;
    - a hyphen ('-'); and
    - one or more digits indicating the sequential number of the Newsletter since the publication of the latest edition of the applicable part of ISO 3166.

*E.g*., 'II-3' (the third newsletter since publication of the second edition) and 'VI-7' (the seventh newsletter since publication of the sixth edition[[12]](#footnote-12)).

* + The specification of a GENC Standard update (*i.e*., change notice) composed as follows, in order:
    - the identifier of the latest edition of the GENC Standard, expressed as one or more digits;
    - a hyphen ('-'); and
    - one or more digits indicating the sequential number of the GENC Standard content update since the publication of that edition of the GENC Standard.

*E.g*., '1-12' (the twelfth update since publication of the first edition) or '2-5' (the fifth update since publication of the second edition).

* + The specification of the most recent (“current”) baseline, as the string 'now'.

The individual components are then concatenated into a single string as specified by the pattern (above), to form the URL that designates that codespace. For example:

<http://api.nsgreg.nga.mil/geo-political/GENC/3/ed1> (a 3-character geopolitical entity code in the GENC, Edition 1.0)

<http://api.nsgreg.nga.mil/geo-division/GENC/6/ed1> (a 6-character administrative subdivision code in the GENC, Edition 1.0)

<http://api.nsgreg.nga.mil/geo-division/GENC/6/now> (a 6-character administrative subdivision code in the current GENC)

<http://api.nsgreg.nga.mil/geo-political/ISO3166-1/3/VI-12> (a 3-character country code in ISO 3166-1, Sixth Edition, Newsletter 12)

<http://api.nsgreg.nga.mil/geo-division/ISO3166-2/6/II-3> (a 6-character subdivision code in ISO 3166-2, Second Edition, Newsletter 3)

<http://api.nsgreg.nga.mil/geo-division/ISO3166-2/6/now> (a 6-character subdivision code in ISO 3166-2, Second Edition, most recent Newsletter)

Individual items within a codespace are identified by concatenating the codespace-URL, a forward-slash ('/'), and then the applicable code value. For example:

<http://api.nsgreg.nga.mil/geo-political/GENC/3/ed1/XQZ> (the geopolitical entity of AKROTIRI as identified in the GENC, Edition 1.0, using a 3-character code)

<http://api.nsgreg.nga.mil/geo-division/GENC/6/ed1/AF-BAL> (the province of Balkh in AFGHANISTAN as identified in the GENC, Edition 1.0, using a 6-character code)

<http://api.nsgreg.nga.mil/geo-division/GENC/6/now/AF-BAL> (the province of Balkh in AFGHANISTAN as identified in the current GENC, using a 6-character code)

<http://api.nsgreg.nga.mil/geo-political/ISO3166-1/2/VI-12/US> (the UNITED STATES as identified in ISO 3166-1, Sixth Edition, Newsletter 12, using a 2-character code)

<http://api.nsgreg.nga.mil/geo-division/ISO3166-2/6/II-3/US-VA> (the U.S. state of Virginia as identified in ISO 3166-2, Second Edition, Newsletter 3, using a 6-character code)

<http://api.nsgreg.nga.mil/geo-division/ISO3166-2/6/now/US-VA> (the U.S. state of Virginia as identified in ISO 3166-2, Second Edition, most recent Newsletter, using a 6-character code)

The resulting URL may be used to access the item-associated resource in the GENC Registry.

### URNs for Codespace-designation

#### Introduction

In some implementation environments there is no requirement for resource-access, only a requirement for identity. Furthermore, there may be constraints on the length of the character string used to store the codespace identifier; up to 70 characters to store a complete URL as specified in Section 5.4.3 may be physically impossible, or at least unaffordable given other system or data-exchange constraints. In such circumstances, a URN-based codespace-designation may be preferred.

#### Full URN

URN codespace-designations in the GENC Standard are constructed in accordance with the following pattern:

"urn:" *namespace-identifier* ":" *resource-specific-string*

In this pattern, each component is case-sensitive and determined as follows:

* *namespace-identifier* – always 'us:gov:dod:nga:def' (where the last component indicates a “definition”); this is functionally equivalent to the URL *domain* of 'api.nsgreg.nga.mil'.
* *resource-specific-string –* constructed from the URL sub-pattern of [*concept-type* "/" *authority* "/" *encoding* "/" *baseline*] by replacing all occurrences of the forward slash ('/') with the colon (':').

The individual components are then concatenated into a single string as specified by the pattern (above) to form the full URN that designates that codespace. For example:

"**urn:us:gov:dod:nga:def:geo-political:GENC:3:ed1**" (a 3-character geopolitical entity code in the GENC, Edition 1.0)

"**urn:us:gov:dod:nga:def:geo-division:GENC:6:ed1**" (a 6-character administrative subdivision code in the GENC, Edition 1.0)

"**urn:us:gov:dod:nga:def:geo-division:GENC:6:now**" (a 6-character administrative subdivision code in the current GENC)

Analogous to the URL, individual items within a URN-based codespace are identified by concatenating the codespace-URN, a colon (':'), and then the applicable code value.

#### URN-based

The full URN codespace-designations are not notably shorter than the URL-based cases; however, in many contexts the *namespace-identifier* can be treated as fixed by external specification (or context), and thus a reduced-length URN-like codespace-designation may be formed from only the *resource-specific-string*. For example:

"**geo-political:GENC:3:ed1**" (a 3-character geopolitical entity code in the GENC, Edition 1.0)

"**geo-division:GENC:6:ed1**" (a 6-character administrative subdivision code in the GENC, Edition 1.0)

"**geo-division:GENC:6:now**" (a 6-character administrative subdivision code in the current GENC)

"**geo-political:ISO3166-1:3:VI-12**" (a 3-character country code in ISO 3166-1, Sixth Edition, Newsletter 12)

"**geo-division:ISO3166-2:6:II-3**" (a 6-character subdivision code in ISO 3166-2, Second Edition, Newsletter 3)

"**geo-division:ISO3166-2:6:now**" (a 6-character subdivision code in ISO 3166-2, Second Edition, most recent Newsletter)

Examples of individual item identifiers are:

"**geo-political:GENC:3:ed1:XQZ**" (the geopolitical entity of AKROTIRI as identified in the GENC, Edition 1.0, using a 3-character code)

"**geo-division:GENC:6:ed1:AF-BAL**" (the province of Balkh in AFGHANISTAN as identified in the GENC, Edition 1.0, using a 6-character code)

"**geo-division:GENC:6:now:AF-BAL**" (the province of Balkh in AFGHANISTAN as identified in the current GENC, using a 6-character code)

"**geo-political:ISO3166-1:2:VI-12:US**" (the UNITED STATES as identified in ISO 3166-1, Sixth Edition, Newsletter 12, using a 2-character code)

"**geo-division:ISO3166-2:6:II-3:US-VA**" (the U.S. state of Virginia as identified in ISO 3166-2, Second Edition, Newsletter 3, using a 6-character code)

"**geo-division:ISO3166-2:6:now:US-VA**" (the U.S. state of Virginia as identified in ISO 3166-2, Second Edition, most recent Newsletter, using a 6-character code)

Every item in the GENC Standard is thus uniquely identified by the combination of a URN-based **codespace** (maximum 32 characters) and a **code** (maximum 7 characters) that, taken together with the colon (':') that is used as the separator, are limited to a maximum of 40 characters.

#### Short URN-based

For situations in which further compactness is required, the *resource-specific-string* pattern may be revised as follows:

* *concept-type* – one of { 'ge' | 'as' }, for geopolitical entity or administrative subdivision, respectively; this value never exceeds 2 characters in length.
* *authority* – one of { 'ISO1' | 'ISO2' | 'GENC' }; this value never exceeds 4 characters in length.

For example:

"**ge:GENC:3:ed1**" (a 3-character geopolitical entity code in the GENC, Edition 1.0)

"**as:GENC:6:ed1**" (a 6-character administrative subdivision code in the GENC, Edition 1.0)

"**as:GENC:6:now**" (a 6-character administrative subdivision code in the current GENC)

"**ge:ISO1:3:VI-12**" (a 3-character country code in ISO 3166-1, Sixth Edition, Newsletter 12)

"**as:ISO2:6:II-3**" (a 6-character subdivision code in ISO 3166-2, Second Edition, Newsletter 3)

"**as:ISO2:6:now**" (a 6-character subdivision code in ISO 3166-2, Second Edition, most recent Newsletter)

Examples of individual item identifiers are:

"**ge:GENC:3:ed1:XQZ**" (the geopolitical entity of AKROTIRI as identified in the GENC, Edition 1.0, using a 3-character code)

"**as:GENC:6:ed1:AF-BAL**" (the province of Balkh in AFGHANISTAN as identified in the GENC, Edition 1.0, using a 6-character code)

"**as:GENC:6:now:AF-BAL**" (the province of Balkh in AFGHANISTAN as identified in the current GENC, using a 6-character code)

"**ge:ISO1:2:VI-12:US**" (the UNITED STATES as identified in ISO 3166-1, Sixth Edition, Newsletter 12, using a 2-character code)

"**as:ISO2:6:II-3:US-VA**" (the U.S. state of Virginia as identified in ISO 3166-2, Second Edition, Newsletter 3, using a 6-character code)

"**as:ISO2:6:now:US-VA**" (the U.S. state of Virginia as identified in ISO 3166-2, Second Edition, most recent Newsletter, using a 6-character code)

Every item in the GENC Standard is thus uniquely identified by the combination of a short URN-based **codespace** (maximum 16 characters) and a **code** (maximum 7 characters) that together are limited to a maximum of 24 characters.

### Established Codespaces

In accordance with the patterns established in the preceding sections, URI-based codespaces are established for Edition 1.0 of the GENC Standard.

Tables whose content establishes codespaces for use with the GENC Standard contain the following column groupings:

* **Codespace Basis** – Human-intelligible description of the basis for establishing the codespace.
  + Short Name – A compact name in a format consistent with conventions established by the codespace authority.
  + Date – The date of establishment of the codespace.
* **Components** – Selected pattern components used to formulate the codespace URI.
  + Encoding – The designator of the applicable encoding (*e.g*., '2' for 2-character).
  + Baseline – An identifier of the publication that resulted in the establishment of the codespace.
* **Uniform Resource Identifier** – Established codespace URIs.
  + URL Stem – in the case of URLs, the *protocol* and *domain* components are as specified in Section 5.4.3 and only the remaining components – the “stem” – are specified.
  + URN Stem (URN-like) – In the case of URNs, only the *resource-specific-string* is specified; the *namespace-identifier* is as specified in 5.4.4.3.
  + Short URN-like – The complete value; maximum-length of 24 characters.

Each row in a table documents a distinct codespace. To enhance comprehension of the patterns, in some cases cells are merged across multiple rows to emphasize shared content.

URI-based codespaces established for Edition 1.0 of the GENC Standard are as follows:

* Codespaces used for geopolitical entities are specified in Table 8 and Table 9.
* Codespaces used for administrative subdivisions are specified in Table 10 and Table 11.

Note that Table 9 draws from the current baseline for ISO 3166-1 as documented in Table 32, and Table 11 draws from the current baseline for ISO 3166-2 as documented in Table 34.

Additional codespaces are established based on the activities of the CCWG (see Section 6).

Table 8 – GENC Geopolitical Entity Codespaces

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| GENC | 1 September 2012 | 2 | ed1 | geo-political/GENC/2/ed1 | geo-political:GENC:2:ed1 | ge:GENC:2:ed1 |
| 3 | geo-political/GENC/3/ed1 | geo-political:GENC:3:ed1 | ge:GENC:3:ed1 |
| n | geo-political/GENC/n/ed1 | geo-political:GENC:n:ed1 | ge:GENC:n:ed1 |
| *<current>* | 2 | now | geo-division/GENC/2/now | geo-division:GENC:2:now | as:GENC:2:now |
| 3 | geo-division/GENC/3/now | geo-division:GENC:3:now | as:GENC:3:now |
| n | geo-division/GENC/n/now | geo-division:GENC:n:now | as:GENC:n:now |

Table 9 – GENC Geopolitical Entity Codespaces from ISO 3166-1 (Annex B.2.2.3)

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| ISO 3166-1:2006 | 2 August 2012 | 2 | VI-13 | geo-political/ISO3166-1/2/VI-13 | geo-political:ISO3166-1:2:VI-13 | ge:ISO1:2:VI-13 |
| 3 | geo-political/ISO3166-1/3/VI-13 | geo-political:ISO3166-1:3:VI-13 | ge:ISO1:3:VI-13 |
| n | geo-political/ISO3166-1/n/VI-13 | geo-political:ISO3166-1:n:VI-13 | ge:ISO1:n:VI-13 |
| *<current>* | 2 | now | geo-political/ISO3166-1/2/now | geo-political:ISO3166-1:2:now | ge:ISO1:2:now |
| 3 | geo-political/ISO3166-1/3/now | geo-political:ISO3166-1:3:now | ge:ISO1:3:now |
| n | geo-political/ISO3166-1/n/now | geo-political:ISO3166-1:n:now | ge:ISO1:n:now |

Table 10 – GENC Administrative Subdivision Codespaces

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| GENC | 1 September 2012 | 6 | ed1 | geo-division/GENC/6/ed1 | geo-division:GENC:6:ed1 | as:GENC:6:ed1 |
| *<current>* | now | geo-division/GENC/6/now | geo-division:GENC:6:now | as:GENC:6:now |

Table 11 – GENC Administrative Subdivision Codespaces from ISO 3166-2 (Annex B.2.2.3)

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| ISO 3166-2:2007 | 15 December 2011 | 6 | II-3 | geo-division/ISO3166-2/6/II-3 | geo-division:ISO3166-2:6:II-3 | as:ISO2:6:II-3 |
| *<current>* | now | geo-division/ISO3166-2/6/now | geo-division:ISO3166-2:6:now | as:ISO2:6:now |

### URN Resolution

The GENC Registry establishes a URN Resolution Service that translates:

* URN-based codespace-designations to URL-based codespace-designations, and
* URN-based “country code” identifiers to URL-based “country code” identifiers.

This resolution service supports:

* Full URN codespace-designations and “country code” identifiers, as specified by Section 5.4.4.2;
* URN-based codespace-designations and “country code” identifiers, as specified by Section 5.4.4.3; and
* Short URN-based codespace-designations and “country code” identifiers, as specified by Section 5.4.4.4.

This resolution service also supports codespace-designations and “country code” identifiers for other “country code” standards, as specified in Annex B.

## Conceptual Schema

### Introduction

The GENC Standard information model specifies a complete and self-consistent conceptual schema using Unified Modeling Language (UML) class diagrams augmented by a tabular specification of all included modeling elements. Annex E provides a brief primer sufficient to understand UML class diagrams as used in this standard.

The conceptual schema for the GENC Standard defines an **entry** (individual information record) class, instances of which are held in the GENC Registry. An entry contains information regarding an item in a standard. For example, in ISO 3166-1:2006 each entry includes a country name, three code elements representing the country name, and other descriptive information (including variations on the country name), as recorded in a row in the table in Clause 9 of ISO 3166-1:2006.[[13]](#footnote-13)

In the GENC Registry, each entry contains information about either a *geopolitical entity* or an *administrative subdivision* item in a standard (or their equivalent concepts, depending on the nature of the standard; see Table 6).

An entry is the unit of information management for an item (*i.e.*, a concept, possibly complex) represented in a standard; for example, for a country name and its associated codes, language specifications, and remarks. An individual entry reflects the consequences of addition, replacement (*i.e*., modification), or deletion of data about an item in a standard over time.

The information content of entries is determined by either the publication of a new edition of the standard by the applicable authority, or by change notices (*e.g.,* a newsletter or update) issued by the maintainer of the standard. Change notices only report changes to *selected* items in the standard, whereas new editions reissue the entire content of the standard. For example, the ISO 3166 Maintenance Agency (MA) frequently issues change notices (designated "Newsletters") specifying changes made either to the content of ISO 3166-1:2006 or to the content of ISO 3166-2:2007; each entry in either newsletter revises information regarding a country or country subdivision, respectively. Occasionally, the ISO 3166/MA publishes the *complete* current content of the standard as a new edition.

In order to provide a uniform interface to temporally-varying information regarding geopolitical entities and administrative subdivisions, the GENC Standard conceptual schema treats editions and change notices identically. In particular, given the issuance of a change notice, items in the standard regarding which no change is reported are considered to be *re-affirmed* as to their last-reported information, and an entry of type "unchanged" (see Table 20) is recorded in the GENC Registry.

In the GENC Standard conceptual schema, an **entry series** is a set of entries published sequentially in a change notice or edition of a standard, which altogether contains the traceable lifetime of an item which was introduced into the standard, then (possibly) modified, then (possibly) withdrawn from the standard. For example, for ISO 3166-1, an entry series consists of all entries for a specific country item in the standard (*i.e*., a country name and its code elements), through all editions and newsletters of ISO 3166-1 in which that country item appears. In the GENC Standard conceptual schema, each publication of a standard (whether edition or change notice) establishes a new entry in the GENC Registry for every item in the standard, extending the entry series (and temporal history) for that item accordingly. In the GENC Registry, an entry series conceptually represents the life history of either a *geopolitical entity* or an *administrative subdivision* item in a standard.

An entry series *could* be treated as a surrogate for a real-world "country" or "country division"; however, the GENC Standard conceptual schema does not include such modeling elements, because the scopes of the GENC Standard and GENC Registry are limited to name and code assignment. Instead, abstract classes are specified that act as collectors of entries that are related to each other as members of a specific entry series; they have conceptual identity but are not themselves named or coded, nor do they otherwise carry information about real-world objects. Those abstract classes are the **GENC Geopolitical Entity** (see Table 12) and **GENC Administrative Subdivision** (see Table 15). Other classes are defined to represent entries and information specific to individual entries – including the names and codes that have been assigned to the corresponding item in a standard. Each entry is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code** (see Section 5.4.3).

Figure 1 presents the complete GENC Standard conceptual schema as a UML class diagram. Annex E provides a brief primer sufficient to understand UML class diagrams as used in this standard.

All classes in Figure 1 whose stereotype is not explicitly specified are understood to have the stereotype «type» applied. The basic datatypes Boolean, CharacterString, Date, and Integer are as specified in ISO/TS 19103:2003, *Geographic information – Conceptual schema language*.

Associations indicating navigability in only one direction (see Annex E.2.2) are intended as a minimum implementation requirement for that association in a realization. Implementers are free to enable bidirectional traversal of the association, because such is semantically meaningful and association role names and multiplicities have accordingly been specified.



Figure 1 – GENC Standard UML Class Diagram

The table format used to document individual modeling classes and properties in UML class diagrams is as follows:

* The **Reference** column consists of a sequentially-assigned, non-normative identifier of the element (class or property) that is provided for cross-referencing purposes. It may vary from version-to-version of this document.
* The **UML Designation** column specifies the class name, class attribute name, or class role name of the modeling element. For clarity, role names are prefixed by the italicized phrase “*Role name:*”.
  + The specified UML class always appears as the first row in the table and is highlighted by a gray background.
  + The properties (attributes and/or association roles) of the UML class are specified in subsequent rows of the table.
* The **Definition** column specifies the definition of the UML class or property.
* The **Obligation**column specifies if the property is **Mandatory**, Conditional, or *Optional*.
  + Properties whose obligation is *“***Mandatory**” shall be populated in accordance with the property definition and any associated guidance.
  + Properties whose obligation is“Conditional” are mandatory when the stated condition is satisfied, in which case they shall be populated in accordance with the property definition and any associated guidance.
  + Properties whose obligation is *“Optional*” are optional, but their population is considered to be good business practice when the applicable information is available. Their use is encouraged in order to enhance community awareness of information associated with geopolitical entities and/or administrative subdivisions.

When evaluating the **Obligation** of a property, the obligation of the UML class containing the property takes precedence. If, for example, some property elsewhere that uses the UML class in its domain is specified as “Conditional”, then the **Obligation** of the property – even if stated as “Mandatory” is similarly “Conditional”.   
  
For example:

* In the class “GENCGeopoliticalEntity” (the documentation for «type» GENCGeopoliticalEntity is specified in Table 12), the property *subdivision* has the **Obligation** “Conditional (if the geopolitical entity is divided into administrative subdivisions).”
* If the condition is satisfied, then the property *subdivision* has a “GENCAdministrativeSubdivision” (Table 15) value, which itself has the role *entry* with the **Obligation** "Mandatory".
* This does not mean that the GENCAdministrativeSubdivision property *entry* is always required in data regarding geopolitical entities.
* It means that if and only if the GENCGeopoliticalEntity property *subdivision* has the value “GENCAdministrativeSubdivision” (which is conditional on the specific geopolitical entity being divided into administrative subdivisions), the property *entry* is required to be populated in the geopolitical entity data.
* The **Multiplicity** column indicates the number of instances of the domain value of the property that are permitted by this conceptual schema. In the case that more than a single domain value of the property is allowed, an indication may also be included in this column if the ordering of the domain values is significant.
* The **Domain** column indicates the UML construct that is used to define the value(s) of the property.
  + If the domain is specified in greater detail elsewhere in this document, then a reference to that location is specified.
  + If the domain is “well known” and specified by an appropriate ISO standard, then that standard is simply cited.

Sections 5.5.2 through 5.5.4 specify the UML classes that are used to represent information regarding geopolitical entities.

Sections 5.5.5 through 5.5.9 specify the UML classes that are used to represent information regarding administrative subdivisions.

Section 5.5.10 specifies the UML classes that specify datatypes used in the representation of information about either geopolitical entities and/or administrative subdivisions.

### GENC Geopolitical Entity

The UML model for the *«abstract» GENCGeopoliticalEntity* class and its properties is presented in Figure 2 (and also appears in Figure 1).

This abstract class acts as a collector of entries that are related to each other as members of a specific entry series; it supplies conceptual identity but is not itself named or coded, nor does it otherwise carry information about a real-world object that is a geopolitical entity (ISO 3166 "country"). The associated **GeopolitialEntityEntry** class furnishes the means to specify individual entries and information specific to those entries – including the names and codes that have been assigned to the corresponding item in a standard.



Figure 2 – GENC Geopolitical Entity Class Diagram

The documentation for the *«abstract» GENCGeopoliticalEntity* class is specified in Table 12.

Table 12 – «abstract» GENCGeopoliticalEntity and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | *<<abstract>> GENCGeopoliticalEntity* | A region controlled by a political community having an organized government and possessing internal and external sovereignty, most often as a State but sometimes having a dependent relationship on another political authority, or a special sovereignty status.  NOTE: The degree of sovereignty may be limited in specific areas (for example: matters of economic, administrative, legislative, judicial, military, and/or foreign policy). The region controlled by a sovereign geopolitical entity is commonly referred to as a "country". |  |  | Subclass of *<<abstract>>GeopoliticalEntity*[[14]](#footnote-14)  (see Table 70) |
| 2. | *Role name:* entry | A set of dated information records for this GENC Standard geopolitical entity.  NOTE: Taken together, these information records contain the traceable lifetime of the representation of a geopolitical entity which was introduced into the GENC Standard, then (possibly) modified, then (possibly) deleted from the GENC Standard.  EXAMPLE: For ISO 3166-1, an entry series would consist of all entries for an item in the standard (*e.g*., a specific country name and its code elements), through all editions and newsletters of ISO 3166-1 in which that item appears. | **Mandatory** | One or more (ordered) | Composition of <<type>> GeopoliticalEntityEntry (see Table 13) |
| 3. | *Role name:* assertedSovereignty | An entry for a geopolitical entity over which this GENC Standard geopolitical entity asserts sovereignty as recognized by the United States Government. | Conditional  (if the geopolitical entity asserts sovereignty over another geopolitical entity) | If applicable, then one or more (unordered) | <<type>> GeopoliticalEntityEntry (see Table 13) |
| 4. | *Role name:* subdivision | A set of GENC Standard administrative subdivisions that are administratively subordinate divisions of this GENC Standard geopolitical entity. | Conditional  (if the geopolitical entity is divided into administrative subdivisions) | If applicable, then one or more (unordered) | Composition of *<<abstract>> GENCAdministrativeSubdivision* (see Table 15) |

### Geopolitical Entity Entry

The UML model for the «type» GeopoliticalEntityEntry class and its properties is presented in Figure 2 (and also appears in Figure 1); its documentation is specified in Table 13.

This class represents an individual geopolitical entity entry and information specific to it – including the names and codes that have been assigned to the corresponding item in a standard. Each entry is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code** (see Section 5.4.3).

Table 13 – «type» GeopoliticalEntityEntry and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> GeopoliticalEntityEntry | A dated, individual information record for a GENC Standard geopolitical entity. |  |  |  |
| 2. | encoding | The set of Uniform Resource Identifiers (URI) and codes that are used to designate the geopolitical entity. | **Mandatory** | Exactly one | <<dataType>> ISOCountryCodes (see Table 24) |
| 3. | char3CodeStatus | The status of the 3-character code assignment with respect to ISO 3166-1 and determinations of the ISO 3166 Maintenance Agency. | **Mandatory** | Exactly one | <<enumeration>> CodeStatusCode (see Table 26) |
| 4. | char2CodeStatus | The status of the 2-character code assignment with respect to ISO 3166-1 and determinations of the ISO 3166 Maintenance Agency. | Conditional  (if *encoding.char2Code* is specified) | If applicable, then exactly one | <<enumeration>> CodeStatusCode (see Table 26) |
| 5. | numericCodeStatus | The status of the 3-digit numeric code assignment with respect to ISO 3166-1 and determinations of the ISO 3166 Maintenance Agency. | Conditional  (if *encoding.numericCode* is specified) | If applicable, then exactly one | <<enumeration>> CodeStatusCode (see Table 26) |
| 6. | name | The short name of the geopolitical entity, in all capital letters with diacritical marks where applicable. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 7. | shortName | The short name of the geopolitical entity. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 8. | bgnShortNameVariance | In the case of an ISO 3166 country that is included as a GENC Standard geopolitical entity, an indication that the ISO 3166 short name includes contraindicated use of the definite article or another minor deviation from the recommendations of the U.S. Board on Geographic Names (BGN). | Conditional  (if *gencStatus* is "ISO") | If applicable, then exactly one | <<basicType>> Boolean (ISO/TS 19103) |
| 9. | fullName | The full name of the geopolitical entity. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 10. | bgnFullNameVariance | In the case of an ISO 3166 country that is included as a GENC Standard geopolitical entity, an indication that the ISO 3166 full name includes contraindicated use of the definite article or another minor deviation from the recommendations of the U.S. Board on Geographic Names (BGN). | Conditional  (if *gencStatus* is "ISO") | If applicable, then exactly one | <<basicType>> Boolean (ISO/TS 19103) |
| 11. | unLegalStatus | The legal status of the geopolitical entity as determined by the United Nations. | **Mandatory** | Exactly one | <<enumeration>> UNLegalStatusCode (see Table 21) |
| 12. | usRecognition | The sovereignty of the geopolitical entity, as recognized by the United States Government. | **Mandatory** | Exactly one | <<enumeration>> USRecognitionCode (see Table 22) |
| 13. | remarks | In the case of an ISO 3166-1 country that is included as a GENC Standard geopolitical entity, remarks such as other widely-used country names and names of geographically separated territories covered by the main entry in the ISO 3166 country list. | Conditional  (if *gencStatus* is "ISO") | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 14. | gencAdditionalInfo | In the case of an ISO 3166-1 country that is included as a GENC Standard geopolitical entity, additional information specific to the GENC Standard, such as recommendations against the use of the definite article in name(s). | Conditional  (if *gencStatus* is "ISO") | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 15. | gencStatus | The profile-status of this geopolitical entity with respect to any corresponding ISO 3166-1 country.  NOTE: Geopolitical entities in the GENC Standard may be either included directly from ISO 3166-1 or may be revised or extended. | **Mandatory** | Exactly one | <<enumeration>> GENCStatusCode (see Table 7) |
| 16. | entryDate | The date of the determination by the Country Codes Working Group (CCWG) that affected (*i.e.,* changed or reaffirmed) information about the GENC Standard geopolitical entity recorded in this entry. | **Mandatory** | Exactly one | <<basicType>> Date (ISO/TS 19103) |
| 17. | entryType | The type of change to the GENC Standard geopolitical entity that is recorded by this entry; one of {Unchanged, Creation, Revision, Deletion}. | **Mandatory** | Exactly one | <<enumeration>> EntryTypeCode (see Table 20) |
| 18. | entryNotesOnNaming | A detailed description of differences in naming between the GENC Standard entry and the corresponding ISO 3166 Standard entry, also including name-related update(s) made to the GENC Standard by a CCWG action. | Conditional  (if *gencStatus* is "Exception") | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 19. | entryNotesOnTerritory | A detailed description of differences in geospatial extent or sovereignty between the GENC Standard entry and the corresponding ISO 3166 Standard entry. | Conditional  (if *gencStatus* is "Exception") | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 20. | *Role name:* entrySeries | The GENC Standard geopolitical entity for which this is an entry (*i.e.*, one information record). | **Mandatory** | Exactly one | *<<abstract>> GENCGeopoliticalEntity* (see Table 12) |
| 21. | *Role name:* usRecognizedSovereignty | In the case that this geopolitical entity is not independent, the GENC Standard geopolitical entity that has sovereignty as recognized by the United States Government. | Conditional  (if *usRecognition* is "Not Independent") | If applicable, then exactly one | *<<abstract>> GENCGeopoliticalEntity* (see Table 12) |
| 22. | Role name: localShortName | A set of short forms of the geopolitical entity name in the applicable administrative language(s) of the geopolitical entity.  NOTE: An administrative language is a written language used by the administration of a country at the national level. | *Optional* | Zero or more (unordered) | Aggregation of <<type>> LocalizedName (see Table 14) |

### Localized Name

The UML model for the «type» LocalizedName class and its properties is presented in Figure 2 (and also appears in Figure 1); its documentation is specified in Table 14.

This class represents a name of a geopolitical entity or of an administrative subdivision category, the language in which it is expressed, and whether the U.S. Board on Geographic Names (BGN) may not completely agree with its use.

Table 14 – «type» LocalizedName and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> LocalizedName | A name along with a specification of the language, if available, in which it is expressed. |  |  |  |
| 2. | nameLanguage2Char | The alpha-2 ISO 639-1 code of the language of the name.  NOTE: ISO 639-1 was devised primarily for use in terminology, lexicography, and linguistics. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 3. | nameLanguage3Char | The alpha-3 ISO 639-2 terminological code of the language of the name.  NOTE: ISO 639-2 was devised primarily for use in terminology and bibliography; it represents all languages contained in ISO 639-1, and in addition other languages and language collections of interest for those primary applications. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 4. | name | A name as used in a specified language and constituting information about geopolitical entities and/or administrative subdivisions. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 5. | iso6393Char3Code | The alpha-3 ISO 639-3 code of the language of the name.  NOTE: ISO 639-3 was devised to provide a comprehensive set of identifiers for all languages for use in a wide range of applications, including linguistics, lexicography, and internationalization of information systems. It attempts to represent all known languages. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 6. | bgnNameVariance | An indication that the ISO 3166 name includes contraindicated use of the definite article or another minor deviation from the recommendations of the U.S. Board on Geographic Names (BGN). | **Mandatory** | Exactly one | <<basicType>> Boolean (ISO/TS 19103) |
| 7. | *Role name:* entry | A set of dated geopolitical entity entries (information records) for which this is a local short name. | Conditional  (required if *subdivisionCategory* is not specified) | If applicable, then one or more (unordered) | <<type>> GeopoliticalEntityEntry (see Table 13) |
| 8. | *Role name:* subdivisionCategory | A set of administrative subdivision categories for which this is a language-specific category name. | Conditional  (required if *entry* is not specified) | If applicable, then one or more (unordered) | <<type>> AdministrativeSubdivisionCategory (see Table 19) |

### GENC Administrative Subdivision

The UML model for the *«abstract» GENCAdministrativeSubdivision* class and its properties is presented in Figure 3 (and also appears in Figure 1).

This abstract class acts as a collector of entries that are related to each other as members of a specific entry series; it supplies conceptual identity but is not itself named or coded, nor does it otherwise carry information about a real-world object that is an administrative division (ISO 3166 "country division"). The associated **AdministrativeSubdivisionEntry** class furnishes the means to specify individual entries and information specific to those entries – including the names and codes that have been assigned to the corresponding item in a standard.



Figure 3 – GENC Administrative Subdivision Class Diagram

The documentation for the *«abstract» GENCAdministrativeSubdivision* class is specified in Table 15.

Table 15 – «abstract» GENCAdministrativeSubdivision and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | *<<abstract>> GENCAdministrativeSubdivision* | An administratively subordinate division of a geopolitical entity.  NOTE: A geopolitical entity (country) is typically divided into first-, second-, and lower-order administrative subdivisions. First-order administrative subdivisions are immediately subordinate to the government of the geopolitical entity, with second- and lower-order subdivisions subordinate to those above them.  EXAMPLES: (first-order) a U.S. state, a German Land, a French region; a Canadian province; (second-order) a U.S. county, a French department; (third-order) a U.S. township, a French arrondissement; (lower-levels) a French commune. |  |  | Subclass of *<<abstract>> AdministrativeDivision*[[15]](#footnote-15) (see Table 71) |
| 2. | *Role name:* entry | A set of dated information records for this GENC Standard administrative subdivision.  NOTE: Taken together, these information records contain the traceable lifetime of the administrative subdivision which was introduced into the GENC Standard, then (possibly) modified, then (possibly) deleted from the GENC Standard.  EXAMPLE: For ISO 3166-2, an entry series would consist of all entries for an item in the standard (*e.g*., a specific country subdivision name and its code element), through all editions and newsletters of ISO 3166-2 in which that item appears. | **Mandatory** | One or more (ordered) | Composition of <<type>> AdministrativeSubdivisionEntry (see Table 16) |
| 3. | *Role name:* country | The GENC Standard geopolitical entity to which this GENC Standard administrative subdivision is administratively subordinate. | **Mandatory** | Exactly one | *<<abstract>> GENCGeopoliticalEntry* (see Table 12) |
| 3. | *Role name:* childSubdivision | A set of GENC Standard administrative subdivisions that are administratively subordinate divisions of this GENC Standard administrative subdivision. | Conditional  (if the administrative subdivision is divided into subordinate administrative subdivisions) | If applicable, then one or more (unordered) | <<type>> AdministrativeSubdivisionEntry (see Table 16) |

### Administrative Subdivision Entry

The UML model for the «type» AdministrativeSubdivisionEntry class and its properties is presented in Figure 3 (and also appears in Figure 1); its documentation is specified in Table 16.

This class represents an individual administrative subdivision entry and information specific to it – including the names and code that have been assigned to the corresponding item in a standard. Each entry is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code** (see Section 5.4.3).

Table 16 – «type» AdministrativeSubdivisionEntry and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> AdministrativeSubdivisionEntry | A dated, individual information record for a GENC Standard administrative subdivision. |  |  |  |
| 2. | encoding | The set of Uniform Resource Identifiers (URI) and codes that are used to designate the administrative subdivision. | **Mandatory** | Exactly one | <<dataType>> ISOSubdivisionCodespaceCodes (see Table 24) |
| 3. | char6CodeStatus | The status of the 4-, 5-, or 6-character code assignment with respect to ISO 3166-2 and determinations of the ISO 3166 Maintenance Agency. | **Mandatory** | Exactly one | <<enumeration>> CodeStatusCode (see Table 26) |
| 4. | codeISODetermined | An indication that the code was assigned by the ISO 3166 Maintenance Agency rather than by a country-related authority. | **Mandatory** | Exactly one | <<basicType>> Boolean (ISO/TS 19103) |
| 5. | subdivisionCategory | The type of the regional administrative subdivisions of the geopolitical entity of this administrative subdivision. The subdivision category is based on similar governmental structure, administrative authority, and responsibilities in each administrative subdivision belonging to the category.  NOTE: Administrative subdivisions belonging to the same category do not overlap in territory.  EXAMPLES: U.S. state, French department, or Japanese prefecture. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 6. | gencAdditionalInfo | In the case of an ISO 3166-2 country subdivision that is included as a GENC Standard administrative subdivision, additional information specific to the GENC Standard, such as recommendations against the use of the definite article in name(s). | Conditional  (if *gencStatus* is "ISO") | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 7. | gencStatus | The profile-status of this administrative subdivision with respect to any corresponding ISO 3166-2 country subdivision.  NOTE: Administrative subdivisions in the GENC Standard may be either included directly from ISO 3166-2 or may be revised or extended. | **Mandatory** | Exactly one | <<enumeration>> GENCStatusCode (see Table 7) |
| 8. | entryDate | The date of the determination by the Country Codes Working Group (CCWG) that affected (*i.e.,* changed or reaffirmed) information about the GENC Standard administrative subdivision recorded in this entry. | **Mandatory** | Exactly one | <<basicType>> Date (ISO/TS 19103) |
| 9. | entryType | The type of change to the GENC Standard administrative subdivision that is recorded by this entry; one of {Unchanged, Creation, Revision, Deletion}. | **Mandatory** | Exactly one | <<enumeration>> EntryTypeCode (see Table 20) |
| 10. | entryNotesOnNaming | A detailed description of differences in naming between the GENC Standard entry and the corresponding ISO 3166 Standard entry, also including name-related update(s) made to the GENC Standard by a CCWG action. | Conditional  (if *gencStatus* is "Exception") | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 11. | entryNotesOnTerritory | A detailed description of differences in geospatial extent or sovereignty between the GENC Standard entry and the corresponding ISO 3166 Standard entry. | Conditional  (if *gencStatus* is "Exception") | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 12. | *Role name:* entrySeries | The GENC Standard administrative subdivision for which this is an (information record) entry. | **Mandatory** | Exactly one | <<type>> GENCAdministrativeSubdivision (see Table 15) |
| 13. | *Role name:* parentSubdivision | The GENC Standard administrative subdivision, if any, to which this GENC Standard administrative subdivision is administratively subordinate. | Conditional  (if the administrative subdivision is not directly subordinate to a geopolitical entity) | If applicable, then exactly one | <<type>> GENCAdministrativeSubdivision (see Table 15) |
| 14. | *Role name:* name | The set of language-specific names for this administrative subdivision. | **Mandatory** | One or more (unordered) | Aggregation of <<type>> AdministrativeSubdivisionName (see Table 17) |
| 15. | *Role name:* subdivisionStructure | Information regarding organizational relationships between this administrative subdivision and other administrative subdivisions of the same geopolitical entity. | **Mandatory** | Exactly one | Aggregation of <<type>> AdministrativeSubdivisioninginfo (see Table 18) |

### Administrative Subdivision Name

The UML model for the «type» AdministrativeSubdivisionName class and its properties is presented in Figure 3 (and also appears in Figure 1); its documentation is specified in Table 17.

This class represents a name of an administrative subdivision, the language in which it is expressed, related naming information, and whether the U.S. Board on Geographic Names (BGN) may not completely agree with its use.

Table 17 – «type» AdministrativeSubdivisionName and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> AdministrativeSubdivisionName | A name for an administrative subdivision, along with a specification of the language in which it is expressed and other name-related information. |  |  |  |
| 2. | nameLanguage2Char | The alpha-2 ISO 639-1 code of the language of the name.  NOTE: ISO 639-1 was devised primarily for use in terminology, lexicography, and linguistics. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 3. | nameLanguage3Char | The alpha-3 ISO 639-2 terminological code of the language of the name.  NOTE: ISO 639-2 was devised primarily for use in terminology and bibliography; it represents all languages contained in ISO 639-1, and in addition other languages and language collections of interest for those primary applications. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 4. | name | A name for the administrative subdivision as used in a specified language. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 5. | nameVariant | A variant of the administrative subdivision name. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 6. | romanizationSystem | The Romanization system used to transliterate a non-Roman name of the administrative subdivision, if applicable. | *Optional* | Zero or one | <<codeList>> RomanizationSystemCode (see Table 23) |
| 7. | remarks | Additional information regarding the administrative subdivision name; for example, its relationship to other names. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 8. | iso6393Char3Code | The alpha-3 ISO 639-3 code of the language of the name.  NOTE: ISO 639-3 was devised to provide a comprehensive set of identifiers for all languages for use in a wide range of applications, including linguistics, lexicography, and internationalization of information systems. It attempts to represent all known languages. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 9. | bgnNameVariance | An indication that the ISO 3166 name includes contraindicated use of the definite article or another minor deviation from the recommendations of the U.S. Board on Geographic Names (BGN). | **Mandatory** | Exactly one | <<basicType>> Boolean (ISO/TS 19103) |
| 10. | *Role name:* entry | The set of dated administrative subdivision entries (information records) for which this is a name. | **Mandatory** | One or more (unordered) | <<type>> AdministrativeSubdivisionEntry (see Table 16) |

### Administrative Subdivisioning Information

The UML model for the «type» AdministrativeSubdivisioningInfo class and its properties is presented in Figure 4 (and also appears in Figure 1).

This class represents an organization of the administrative subdivisions of a geopolitical entity, including their category names and related information.



Figure 4 – GENC Administrative Subdivisioning Information Class Diagram

The documentation for the «type» AdministrativeSubdivisioningInfo class is specified in Table 18.

Table 18 – «type» AdministrativeSubdivisioningInfo and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> AdministrativeSubdivisioningInfo | Information regarding organizational relationships between the administrative subdivisions of a geopolitical entity. |  |  |  |
| 2. | subdivisionSource | The source of information that was used to specify the names and other information regarding the administrative subdivisions of a geopolitical entity. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 3. | romanizationSystem | The Romanization system used to transliterate non-Roman names of the administrative subdivisions of a geopolitical entity, if applicable. | *Optional* | Zero or one | <<codeList>> RomanizationSystemCode (see Table 23) |
| 4. | codeSource | The source of information that was used to specify the 1-, 2-, or 3-character string (third component) of the administrative subdivision codes of a geopolitical entity. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 5. | remarks | Additional information regarding the set of subdivisions of a geopolitical entity; for example, the administrative subdivision sort-order used. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 6. | *Role name:* entry | The set of dated administrative subdivision entries (*i.e*., information records) for which this is subdivisioning information. | **Mandatory** | One or more (unordered) | <<type>> AdministrativeSubdivisionEntry (see Table 16) |
| 7. | *Role name:* category | The set of subdivision categories that organize the administrative subdivisions of a geopolitical entity. | **Mandatory** | One or more (unordered) | Composition of <<type>> AdministrativeSubdivisionCategory (see Table 19) |

### Administrative Subdivision Category

The UML model for the «type» AdministrativeSubdivisionCategory class and its properties is presented in Figure 4 (and also appears in Figure 1); its documentation is specified in Table 19.

This class represents a specific category of administrative subdivisions of a geopolitical entity, including the number of occurrences of the category, its name(s), and related information.

Table 19 – «type» AdministrativeSubdivisionCategory and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> AdministrativeSubdivisionCategory | A subdivision category that organizes the administrative subdivisions of a geopolitical entity.  NOTE: The subdivision category is based on similar governmental structure, administrative authority, and responsibilities in each administrative subdivision belonging to the category.  NOTE: Administrative subdivisions belonging to the same category do not overlap in territory.  EXAMPLES: U.S. state, French department, or Japanese prefecture. |  |  |  |
| 2. | count | The number of occurrences of the use of this subdivision category within the geopolitical entity. | *Optional* | Zero or one | <<basicType>> Integer (ISO/TS 19103) |
| 3. | description | A description of the subdivision category. | Conditional  (mandatory if *categoryName* is not specified) | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 4. | *Role name:* divisioningInfo | The administrative subdivision organizational relationships for which this is a subdivision category. | **Mandatory** | Exactly one | <<type>> AdministrativeSubdivisioningInfo (see Table 18) |
| 5. | *Role name:* categoryName | The set of language-specific names for this subdivision category. | Conditional  (mandatory if *description* is not specified) | If applicable, then one or more (unordered) | Aggregation of <<type>> LocalizedName (see Table 14) |

### Datatypes

#### Basic Datatypes

The basic datatypes used in the GENC Standard conceptual schema are Boolean, CharacterString, and Integer, as specified in ISO/TS 19103:2003, *Geographic information – Conceptual schema language*.

#### Simple Datatypes

#### Introduction

The simple datatypes specified by the GENC Standard conceptual schema are as presented in Figure 5. These are stereotyped as either «enumeration» or «codeList».



Figure 5 – GENC Simple Datatypes Class Diagram

#### GENC Status

The UML model for «enumeration» GENCStatusCode and its domain values is presented in Figure 5 (and also appears in Figure 1); its domain values are as specified in Table 7. The GENC Status enumeration specifies the relationship between an item in the GENC Standard and the content of ISO 3166.

#### Code Status

The UML model for «enumeration» CodeStatusCode and its domain values is presented in Figure 5 (and also appears in Figure 1); its domain values are as specified in Table 26. The Code Status enumeration specifies the category of code (ISO: code element) assignment based on procedures established by the ISO 3166 Maintenance Agency, as extended for use in the GENC Standard.

#### Entry Type

The UML model for «enumeration» EntryTypeCode and its domain values is presented in Figure 5 (and also appears in Figure 1); its domain values are as specified in Table 20. The Entry Type enumeration specifies the type of change to an item in a standard that is recorded by an entry (an individual information record managed within a standard).

Table 20 – «enumeration» EntryTypeCode Domain Values

| **Code** | **Name** | **Definition** |
| --- | --- | --- |
| 000 | **Unchanged** | The entry is unchanged from the prior entry for the same item in the standard. |
| 001 | **Creation** | The entry establishes the initial information regarding an item in a standard. |
| 002 | **Revision** | The entry revises information regarding an item in a standard. |
| 003 | **Withdrawal** | The entry regarding an item in a standard is no longer maintained as the standard has been withdrawn from use. |
| 004 | **Deletion** | The entry deletes all information regarding an item in a standard. |

#### U.N. Legal Status

The UML model for «enumeration» UNLegalStatusCode and its domain values is presented in Figure 5 (and also appears in Figure 1); its domain values are as specified in Table 21. The U.N. Legal Status enumeration specifies the legal status of the geopolitical entity as determined by the United Nations.

Table 21 – «enumeration» UNLegalStatusCode Domain Values

| **Code** | **Name** | **Definition** |
| --- | --- | --- |
| 000 | **Not Specified** | ISO 3166 does not specify a legal status. |
| 001 | **Not Independent** | The territory is not considered to be an independent State by the United Nations. |
| 002 | **Independent** | The territory is considered to be an independent State by the United Nations. |

#### U.S. Recognition

The UML model for «enumeration» USRecognitionCode and its domain values is presented in Figure 5 (and also appears in Figure 1); its domain values are as specified in Table 22. The U.S. Recognition enumeration specifies the sovereignty of a geopolitical entity, as recognized by the United States Government. As specified in Table 3, a **territory** is the extent of the land belonging to or under the jurisdiction of a ruler or state; in the GENC Standard information model, that extent *may* include adjacent waters (not being strictly limited to dry land) and/or *may* be determined by an agreement that no jurisdictional control applies (for example: Antarctica).[[16]](#footnote-16)

Table 22 – «enumeration» USRecognitionCode Domain Values

| **Code** | **Name** | **Definition** |
| --- | --- | --- |
| 000 | **Not Specified** | A territory whose recognition by the United States Government is not specified; for example, the applicable standard does not include the territory as a separately coded entity or the United States Government has not determined a sovereignty for the territory. |
| 001 | **Not Independent** | A territory that is not recognized by the United States Government as a sovereign State, because one or more facets of government policy (such as defense or international relations) for that territory are exercised by the government of an independent State distinct from the territorial government. |
| 002 | **Independent** | A territory constituting an independent State; in particular, a people politically organized into a sovereign State with a definite territory recognized as independent by the United States Government. |

#### Romanization System

The UML model for «codeList» RomanizationSystemCode is presented in Figure 5 (and also appears in Figure 1); its domain values are as specified in Table 22. The Romanization System codelist specifies the mechanism used to transliterate non-Roman names. The set of domain values may evolve in response to changes in the content of the GENC Registry.

Table 23 – «codeList» RomanizationSystemCode Domain Values

| **Code** | **Description** |
| --- | --- |
| 001 | Ministry of Home Affairs, Republic of Korea 1984 |
| 002 | Principles for Romanization from Lebanese Arabic to Latin Characters (National Ministry of Defence of the Lebanese Republic 1963) |
| 003 | BGN/PCGN 1956 System for Arabic |
| 004 | Conventional names |
| 005 | BGN/PCGN 1981 |
| 006 | Mongolian BGN/PCGN 1964 |
| 007 | IGN 1967 and conventional names |
| 008 | Maldivian BGN/PCGN 1988 |
| 009 | Nepali BGN/PCGN 1964 |
| 010 | Serbian Cyrillic (1977) |
| 011 | Russian BGN/PCGN 1947 |
| 012 | Tajik Cyrillic BGN/PCGN 1994 |
| 013 | Official Romanization system approved by Taiwan in 1972 |
| 014 | Provisional Romanization by Main Administration of Geodesy, Cartography and Cadastre attached to the Cabinet of Ministers of Ukraine, 1993 |
| 015 | BGN/PCGN 1956 |
| 016 | BGN/PCGN 1968, revised 2006 |
| 017 | ISO 9985 |
| 018 | BGN/PCGN 1979 |
| 019 | BGN/PCGN 1947 |
| 020 | GOST 1983 |
| 021 | Pinyin (without tones) |
| 022 | Official conventional names |
| 023 | Not obtained |
| 024 | BGN/PCGN 1967 |
| 025 | BGN/PCGN 1981 Romanization System for Georgian |
| 026 | BGN/PCGN 1962 |
| 027 | Persian BGN/PCGN 1958 |
| 028 | Names spelled in accordance with ISO 3602 |
| 029 | Provisional Romanization by Geographic Department of the Office of the Council of Ministers [of Cambodia] 1996; in square brackets, Khmer BGN/PCGN 1972 |
| 030 | Khmer BGN/PCGN 1972 |
| 031 | McCune-Reischauer, 1939 |
| 032 | ISO/TR 11941 |
| 033 | Conventional spelling system |
| 034 | Democratic People's Republic of Korea Standard (KPS) 11080:2002 |
| 035 | Sinhala names established at the United Nations Conference held May 1972 (pp. 151-152) |
| 036 | Tamil names established by a group of experts at the United Nations in 1972 (II/11) and amended in 1977 (III/12) |
| 037 | Azerbaijan PCGN, 2011-10 |
| 038 | Joint project of the Ministry of State Administration and Administrative Reform (MSAAR) and the Institute for Bulgarian Language at the Bulgarian Academy of Sciences, 2006; http://www.ccit.government.bg/trans.php |
| 039 | BGN/PCGN 1979 (be), 1947 (ru); GOST 1983 (be, ru) |
| 040 | ELOT 743:1982 (el) |
| 041 | BGN/PCGN 1962 (he), 1956 (ar) |
| 042 | Names spelled in accordance with ISO 3602 system, conventional spelling added in square brackets. |
| 043 | Kyrgyz Cyrillic: BGN/PCGN 1979; Russian Cyrillic: GOST 1983 and BGN/PCGN 1947 |
| 044 | For subdivision name 1 (ar): French Romanization system (romanization system recommended by the UN) / Système de romanisation française (système de romanisation recommandé par l’ONU) |
| 045 | McCune-Reischauer, 1939, and Democratic People's Republic of Korea Standard (KPS) 11080:2002 |
| 046 | ISO/TR 11941; Names in square brackets are based on the data provided by Ministry of Home Affairs, Republic of Korea 1984 |
| 047 | For Kazakh Cyrillic: BGN/PCGN 1979; for Russian Cyrillic: GOST 1983 and BGN/PCGN 1947 |
| 048 | (1) Principles for Romanization from Lebanese Arabic to Latin Characters (National Ministry of Defence of the Lebanese Republic 1963); (2) BGN/PCGN 1956 system for Arabic |
| 049 | Conventional names. The Romanization system used for Sinhala names was established at the United Nations Conference held May 1972 (pp. 151-152). The romanization system used for Tamil names was established by a group of experts at the United Nations in 1972 (II/11) and amended in 1977 (III/12). |
| 050 | (1) Russian BGN/PCGN 1947; (2) GOST 1983 |

#### Complex Datatypes

#### Introduction

The complex datatypes specified by the GENC Standard conceptual schema are as presented in Figure 6. Although two FIPS datatypes are specified here, they are only used in (informative) Annex B and (informative) Annex C.



Figure 6 – GENC Complex Datatypes Class Diagram

#### Country Codespaces and Codes

The UML model for the *«datatype, abstract» CountryCodespaceCodes* classand its subclasses is presented in Figure 6; its documentation is specified in Table 24. The subclasses of the country codespaces and codes datatype are used to specify one or more codes, along with their codespaces, that are used to designate a country (geopolitical entity) or country division (administrative subdivision) in information exchange, as specified by a "country code" standard.

Table 24 – «datatype, abstract» CountryCodespaceCodes, its subclasses, and its properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | *<<datatype,  abstract>> CountryCodespaceCodes* | The codespaces and codes that are used to designate a "country" or "country division" in a standard. |  |  |  |
| 2. | *<<dataType>>* ISOCountryCodes | The codes (ISO 3166: code elements) that are used to designate an ISO3166-1 country or GENC Standard geopolitical entity. |  |  | Subclass of *<<datatype, abstract>> CountryCodespaceCodes* |
| 3. | char3Code | The alphanumeric 3-character code that is used to designate an ISO3166-1 country or GENC Standard geopolitical entity. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 4. | char3CodeURISet | The set of URI-based codespace designations for the alphanumeric 3-character code that is used to designate an ISO3166-1 country or GENC Standard geopolitical entity. | **Mandatory** | Exactly one | <<dataType>> URISet (see Table 25) |
| 5. | char2Code | The alphanumeric 2-character code that is used to designate an ISO3166-1 country or GENC Standard geopolitical entity. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 6. | char2CodeURISet | The set of URI-based codespace designations for the alphanumeric 2-character code that is used to designate an ISO3166-1 country or GENC Standard geopolitical entity. | Conditional  (if *char2Code* is specified) | If applicable, then exactly one | <<dataType>> URISet (see Table 25) |
| 7. | numericCode | The 3-digit numeric code that is used to designate an ISO3166-1 country or GENC Standard geopolitical entity. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 8. | numericCodeURISet | The set of URI-based codespace designations for the 3-digit numeric code that is used to designate an ISO3166-1 country or GENC Standard geopolitical entity. | Conditional  (if *numericCode* is specified) | If applicable, then exactly one | <<dataType>> URISet (see Table 25) |
| 9. | *<<dataType>>* FIPSBasicGeopoliticalEntityCodes | The codes that are used to designate a basic geopolitical entity FIPS 10-4 (or its predecessors) or Geopolitical Entities and Codes (GEC). |  |  | Subclass of *<<datatype, abstract>> CountryCodespaceCodes* |
| 10. | char2Code | The alphabetic 2-character code that is used to designate a basic geopolitical entity in FIPS 10-4 (or its predecessors) or Geopolitical Entities and Codes (GEC). | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 11. | char2CodeURISet | The set of URI-based codespace designations for the alphanumeric 2-character code that is used to designate a basic geopolitical entity in FIPS 10-4 (or its predecessors) or Geopolitical Entities and Codes (GEC). | **Mandatory** | Exactly one | <<dataType>> URISet (see Table 25) |
| 12. | *<<dataType>>* ISOCountrySubdivisionCodes | The codes (ISO 3166: code elements) that are used to designate an ISO3166-2 country subdivision or GENC Standard administrative subdivision. |  |  | Subclass of *<<datatype, abstract>> CountryCodespaceCodes* |
| 13. | char6Code | The alphanumeric 4-, 5-, or 6-character code that is used to designate an ISO3166-2 country subdivision or GENC Standard administrative subdivision. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 14. | char6CodeURISet | The set of URI-based codespace designations for the alphanumeric 4-, 5-, or 6-character code that is used to designate an ISO3166-2 country subdivision or GENC Standard administrative subdivision. | **Mandatory** | Exactly one | <<dataType>> URISet (see Table 25) |
| 15. | *<<dataType>>* FIPSPrimaryAdministrativeDivisionCodes | The codes that are used to designate a primary administrative division in FIPS 10-4 (or its predecessors) or Geopolitical Entities and Codes (GEC). |  |  | Subclass of *<<datatype, abstract>> CountryCodespaceCodes* |
| 16. | char4Code | The alphanumeric 4-character code that is used to designate a primary administrative division in FIPS 10-4 (or its predecessors) or Geopolitical Entities and Codes (GEC). | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 17. | char4CodeURISet | The set of URI-based codespace designations for the alphanumeric 4-character code that is used to designate a primary administrative division in FIPS 10-4 (or its predecessors) or Geopolitical Entities and Codes (GEC). | **Mandatory** | Exactly one | <<dataType>> URISet (see Table 25) |

#### URI Set

The UML model for the «datatype» URISet class and its properties is presented in Figure 6; its domain values are as specified in Table 25. The URI Set datatype is used to specify Uniform Resource Identifiers (URI) that are used to designate a country (geopolitical entity) or country division (administrative subdivision) codespace for use in information exchange.

Table 25 – «datatype» URISet and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<datatype>> URISet | The set of Uniform Resource Identifiers (URI) that are used to designate a country (geopolitical entity) or country division (administrative subdivision) codespace for use in information exchange. |  |  |  |
| 2. | codespaceURL | The URL-based codespace designation for codes used to designate an item in a "country code" standard.  NOTE: A Uniform Resource Locator (URL) specifies the syntax and semantics of formalized information for location and access of a resource via the Internet. [ITEF RFC1738] | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 3. | codespaceURN | The URN-based codespace designation for codes used to designate an item in a "country code" standard.  NOTE: A Uniform Resource Name (URN) is a persistent, location-independent, resource identifier. [IETF RFC 2141] | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 4. | codespaceURNBased | The unique *resource-specific-string* ("stem") component of the URN-based codespace designation for codes used to designate an item in a "country code" standard.  NOTE: The scope of uniqueness is limited to the GENC Registry. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 5. | codespaceURNBasedShort | The unique compressed *resource-specific-string* ("stem") component of the URN-based codespace designation for codes used to designate an item in a "country code" standard.  NOTE: The scope of uniqueness is limited to the GENC Registry. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |

## XML Encoding Schema

### Introduction

The GENC Standard specifies a technology-specific encoding of the GENC Standard conceptual schema using XML Schema (XSD). XML instance files may thereby be used to exchange the content of the GENC Standard among information systems.

This XML encoding schema is one of a family of DoD/IC geospatial standards, specifications, schemas, and related documents that either constitute the GEOINT Structure Implementation Profile (GSIP) or are closely associated with it. The GSIP governance namespace in the DoD Data Services Environment (DSE) Metadata Registry (MDR) – see <http://metadata.ces.mil/mdr/> – provides a configuration-controlled copy of this XML encoding schema and related documents.

The GSIP namespace is governed as part of the GEOINT (Geospatial Intelligence) namespace under the DODENT (DoD Enterprise) governance namespace. Access to the content of the GSIP governance namespace through the MDR web-browser interface is through the path:

**Governance Namespaces 🡪 DODENT 🡪 GEOINT🡪 GSIP**

### XML Namespace

An XML namespace provides a simple method for qualifying element and attribute names used in XML documents by associating them with namespaces identified by URI references. They are the primary mechanism for preventing name collisions in and across schemas. The qualification mechanism is known as the namespace prefix. For the GENC XML encoding schema the following assignments shall apply:

XML Namespace Prefix: **genc-cmn**

XML Namespace: **http://api.nsgreg.nga.mil/schema/genc/1.0/genc-cmn**

Name: **Geopolitical Entities, Names, and Codes Common**

XML Namespace Prefix: **genc**

XML Namespace: **http://api.nsgreg.nga.mil/schema/genc/1.0/genc**

Name: **Geopolitical Entities, Names, and Codes**

When these XML namespaces are referenced from other XML schemas, then the single valid *schemaLocation* for the <import> is that established by **api.nsgreg.nga.mil**. For the GENC Standard, Edition 1.0, XML encoding schema, these are:

'**genc-cmn**': [http://api.nsgreg.nga.mil/schema/genc/1.0.0/genc-cmn.xsd](http://metadata.ces.mil/mdr/ns/GSIP/genc/1.0.0/genc-cmn.xsd)

'**genc**': [http://api.nsgreg.nga.mil/schema/genc/1.0.0/genc.xsd](http://metadata.ces.mil/mdr/ns/GSIP/genc/1.0.0/genc.xsd)

Schema component files (XSD, SCH, XML) may be copied to other locations for development and/or efficiency purposes; however, any alteration or substitution violates GENC Standard conformance requirements (see Annex A).

### XML Schema Design

The GENC XML encoding schema closely follows the conceptual schema specified in Section 5.5, with the following technology-specific assumptions and constraints applied:

* The basic datatypes Boolean, Date, and Integer as specified in ISO/TS 19103:2003, *Geographic information – Conceptual schema language* are encoded using their comparable XML Schema types: xs:Boolean, xs:string, xs:date, and xs:integer, respectively.
* The basic datatype CharacterString from ISO/TS 19103:2003 is implemented either as an xs:string or as globally-named restriction of xs:string in order to capture minimum/maximum length and/or pattern constraints (*e.g*., for allowed code values).
* Classes stereotyped as «enumeration» are implemented as restricted cases of xs:string.
* Classes stereotyped as «codeList» are implemented as xs:string, although this may change in a future edition of the GENC Standard.
* Classes stereotyped as «type» are implemented as globally-named XML complex types.
* Unidirectional associations between UML classes result in the encoding of the navigable end class in-line as the value of the applicable association role treated as a locally-named XML element.

Classes stereotyped as «abstract» are not implemented; their role in establishing conceptual items in a standard (and enabling references between entries based on those conceptual items) is realized using the unique identity established for entries in the GENC Registry, where each is uniquely identified by the combination of a **codespace** and a **code** (see Section 5.4.3). This unique identity is represented in XML using the *genc:CodeWithCodeSpace* complex type as specified in Figure 7.

<complexType name="CodeWithCodeSpace">

<simpleContent>

<extension base="string">

<attribute name="codeSpace" type="anyURI" use="required"/>

</extension>

</simpleContent>

</complexType>

Figure 7 – XML Complex Type genc:CodeWithCodeSpace

The five associations in the GENC Standard conceptual schema involving abstract classes are realized using this complex type; their direct or derived roles are as follows:

* GeopoliticalEntityEntry.entrySeries
* GeopoliticalEntityEntry.usRecognizedSovereignty
* GeopoliticalEntityEntry.subdivision *(realizes GeopoliticalEntityEntry.entrySeries.subdivision)*
* AdministrativeSubdivisionEntry.country *(realizes AdministrativeSubdivisionEntry.entrySeries.country)*
* AdministrativeSubdivisionEntry.entrySeries
* AdministrativeSubdivisionEntry.parentSubdivision

Figure 8 illustrates the principal structure of the resulting complex type **genc:GeopoliticalEntityEntryType**; Figure 9, together with Figure 10, illustrates the principal structure of the resulting complex type **genc:AdministrativeSubdivisionType**. Based on those two complex types, two global XML elements are then defined for general use in data exchange: **genc:GeopoliticalEntityEntry** and **genc:AdministrativeSubdivisionEntry**.



Figure 8 – XML Complex Type genc:GeopoliticalEntityEntryType



Figure 9 – XML Complex Type genc:AdministrativeSubdivisionEntryType (Part 1)



Figure 10 – XML Complex Type genc:AdministrativeSubdivisionEntryType (Part 2)

### XML Schema Enhancements

In order to support the promulgation of the complete content of a baseline of the GENC Standard (see Sections 5.4.1 and 5.4.3), the GENC XML encoding schema defines **genc:GENCStandardBaseline** as a standard container for a set of GENC Standard entries.

In order to support the promulgation of a more limited set of content of a baseline of the GENC Standard, the GENC XML encoding schema also defines **genc:GENCStandardBaselineIndex** (see Annex D) as a standard container for a set of GENC Standard entries whose information content is limited to codespace, code, and name information.

## Implementation and Use

### Introduction

Section 5.1 listed four areas in which the GENC Standard information model supports the GENC Standard. Its role in the areas of content specification and content management follow directly from the specification of its conceptual schema (Section 5.5) and its associated governance process (Section 6).

Its roles in content presentation (*e.g*., in the online GENC Registry) and content exchange (*e.g.*, using XML instance documents ) are illustrated by example.

### Content Presentation

The NGA hosts an online, dynamic GENC Registry (<http://nsgreg.nga.mil/genc>) whose content is structured in accordance with the GENC Standard information model. The content evolves in response to CCWG content management procedures, in accordance with the GENC Standard governance process.

The GENC Registry is the single authoritative source for the geopolitical entities (and administrative subdivisions), names, and codes contained in the GENC Standard; it supports multiple online data access mechanisms and downloadable (offline) information products.

Figure 11 illustrates a browser-enabled presentation of a GENC geopolitical entity named "CURAÇAO", including its names, codes, ancillary information, and its history of changes since being entered into the GENC Standard.

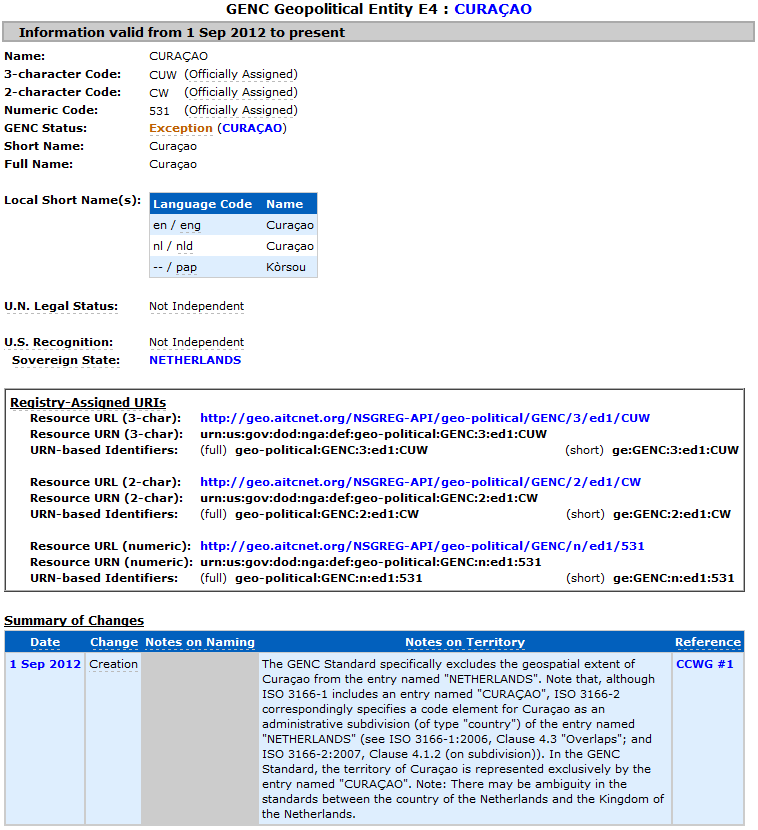


Figure 11 – Example of Geopolitical Entity Browser Presentation

Figure 12 illustrates a browser-enabled presentation of provisional GENC administrative subdivision content, an ISO country subdivision named "Balkh", including its names, code, ancillary information, and its history of changes since being entered into the GENC Registry.

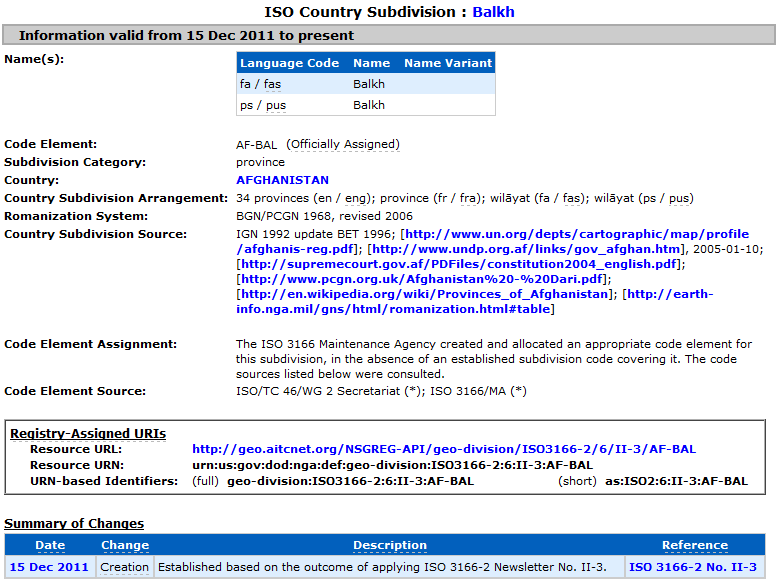


Figure 12 – Example of Administrative Subdivision Browser Presentation

### Content Exchange

The NGA hosts an online, dynamic Standards Registry (<http://nsgreg.nga.mil/>) whose content includes standards, specifications, and other technical artifacts significant to the tradecrafts of GEOINT and the exchange of geospatial data in support of a wide variety of missions. Among those technical artifacts are data dictionaries, data models, data bases, data exchange formats, and data artifacts whose content documents specific dictionaries, models, and data exchanges.

Section 5.6 specified a technology-specific encoding of the GENC Standard conceptual schema using XML Schema (XSD). XML instance files may thereby be used to capture the content of baselines of the GENC Standard for use in system acquisition and operation.

Figure 13 illustrates a simple XML document containing information about a single geopolitical entity that is (a part of) the content of the GENC Standard, Edition 1.0.

<?xml version="1.0" encoding="UTF-8"?>

<genc:GeopoliticalEntityEntry  
 xsi:schemaLocation="http://api.nsgreg.nga.mil/schema/genc/1.0   
 http://api.nsgreg.nga.mil/schema/genc/1.0.0/genc.xsd"  
 xmlns:genc="http://api.nsgreg.nga.mil/schema/genc/1.0"

xmlns:genc-cmn="http://api.nsgreg.nga.mil/schema/genc/1.0/genc-cmn"  
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

<genc:encoding>

<genc:char3Code>CUW</genc:char3Code>

<genc:char3CodeURISet>

<genc-cmn:codespaceURL>http://api.nsgreg.nga.mil/geo-political/GENC/3/ed1

</genc-cmn:codespaceURL>

<genc-cmn:codespaceURN>urn:us:gov:dod:nga:def:geo-political:GENC:3:ed1

</genc-cmn:codespaceURN>

<genc-cmn:codespaceURNBased>geo-political:GENC:3:ed1</genc-cmn:codespaceURNBased>

<genc-cmn:codespaceURNBasedShort>ge:GENC:3:ed1</genc-cmn:codespaceURNBasedShort>

</genc:char3CodeURISet>

<genc:char2Code>CW</genc:char2Code>

<genc:char2CodeURISet>

<genc-cmn:codespaceURL>http://api.nsgreg.nga.mil/geo-political/GENC/2/ed1

</genc-cmn:codespaceURL>

<genc-cmn:codespaceURN>urn:us:gov:dod:nga:def:geo-political:GENC:2:ed1

</genc-cmn:codespaceURN>

<genc-cmn:codespaceURNBased>geo-political:GENC:2:ed1</genc-cmn:codespaceURNBased>

<genc-cmn:codespaceURNBasedShort>ge:GENC:2:ed1</genc-cmn:codespaceURNBasedShort>

</genc:char2CodeURISet>

<genc:numericCode>531</genc:numericCode>

<genc:numericCodeURISet>

<genc-cmn:codespaceURL>http://api.nsgreg.nga.mil/geo-political/GENC/n/ed1

</genc-cmn:codespaceURL>

<genc-cmn:codespaceURN>urn:us:gov:dod:nga:def:geo-political:GENC:n:ed1

</genc-cmn:codespaceURN>

<genc-cmn:codespaceURNBased>geo-political:GENC:n:ed1</genc-cmn:codespaceURNBased>

<genc-cmn:codespaceURNBasedShort>ge:GENC:n:ed1</genc-cmn:codespaceURNBasedShort>

</genc:numericCodeURISet>

</genc:encoding>

<genc:char3CodeStatus>officiallyAssigned</genc:char3CodeStatus>

<genc:char2CodeStatus>officiallyAssigned</genc:char2CodeStatus>

<genc:numericCodeStatus>officiallyAssigned</genc:numericCodeStatus>

<genc:name>CURAÇAO</genc:name>

<genc:shortName>Curaçao</genc:shortName>

<genc:bgnShortNameVariance>false</genc:bgnShortNameVariance>

<genc:fullName>Curaçao</genc:fullName>

<genc:bgnFullNameVariance>false</genc:bgnFullNameVariance>

<genc:unLegalStatus>notIndependent</genc:unLegalStatus>

<genc:usRecognition>notIndependent</genc:usRecognition>

<genc:remarks/>

<genc:gencAdditionalInfo/>

<genc:gencStatus>exception</genc:gencStatus>

<genc:entryDate>2012-09-01</genc:entryDate>

<genc:entryType>creation</genc:entryType>

<genc:entryNotesOnNaming/>

<genc:entryNotesOnTerritory>The GENC Standard specifically excludes the geospatial extent of Curaçao from the entry named "NETHERLANDS". Note that, although ISO 3166-1 includes an entry named "CURAÇAO", ISO 3166-2 correspondingly specifies a code element for Curaçao as an administrative subdivision (of type "country") of the entry named "NETHERLANDS" (see ISO 3166-1:2006, Clause 4.3 "Overlaps"; and ISO 3166-2:2007, Clause 4.1.2 (on subdivision)). In the GENC Standard, the territory of Curaçao is represented exclusively by the entry named "CURAÇAO". Note: There may be ambiguity in the standards between the country of the Netherlands and the Kingdom of the Netherlands.</genc:entryNotesOnTerritory>

<genc:usRecognizedSovereignty  
codeSpace="http://api.nsgreg.nga.mil/geo-political/ISO3166-1/3/VI-13">  
NLD</genc:usRecognizedSovereignty>

<genc:localShortName>

<genc:nameLanguage2Char>en</genc:nameLanguage2Char>

<genc:nameLanguage3Char>eng</genc:nameLanguage3Char>

<genc:name>Curaçao</genc:name>

<genc:iso6393Char3Code>eng</genc:iso6393Char3Code>

<genc:bgnNameVariance>false</genc:bgnNameVariance>

</genc:localShortName>

<genc:localShortName>

<genc:nameLanguage2Char>nl</genc:nameLanguage2Char>

<genc:nameLanguage3Char>nld</genc:nameLanguage3Char>

<genc:name>Curaçao</genc:name>

<genc:iso6393Char3Code>nld</genc:iso6393Char3Code>

<genc:bgnNameVariance>false</genc:bgnNameVariance>

</genc:localShortName>

<genc:localShortName>

<genc:nameLanguage2Char>--</genc:nameLanguage2Char>

<genc:nameLanguage3Char>pap</genc:nameLanguage3Char>

<genc:name>Kòrsou</genc:name>

<genc:iso6393Char3Code>pap</genc:iso6393Char3Code>

<genc:bgnNameVariance>false</genc:bgnNameVariance>

</genc:localShortName>

</genc:GeopoliticalEntityEntry>

Figure 13 – Sample XML Instance of Element genc:GeopoliticalEntityEntry

Figure 14 illustrates a simple XML document containing information about a single administrative division that is (a part of) the provisional content of the GENC Registry.

<?xml version="1.0" encoding="UTF-8"?>

<genc:AdministrativeSubdivisionEntry

xsi:schemaLocation="http://api.nsgreg.nga.mil/schema/genc/1.0  
 http://api.nsgreg.nga.mil/schema/genc/1.0.0/genc.xsd"

xmlns:genc="http://api.nsgreg.nga.mil/schema/genc/1.0"

xmlns:genc-cmn="http://api.nsgreg.nga.mil/schema/genc/1.0/genc-cmn"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

<genc:encoding>

<genc:char6Code>AF-BAL</genc:char6Code>

<genc:char6CodeURISet>

<genc-cmn:codespaceURL>http://api.nsgreg.nga.mil/geo-division/ISO3166-2/6/II-3

</genc-cmn:codespaceURL>

<genc-cmn:codespaceURN>urn:us:gov:dod:nga:def:geo-division:ISO3166-2:6:II-3

</genc-cmn:codespaceURN>

<genc-cmn:codespaceURNBased>geo-division:ISO3166-2:6:II-3

</genc-cmn:codespaceURNBased>

<genc-cmn:codespaceURNBasedShort>as:ISO2:6:II-3</genc-cmn:codespaceURNBasedShort>

</genc:char6CodeURISet>

</genc:encoding>

<genc:char6CodeStatus>officiallyAssigned</genc:char6CodeStatus>

<genc:codeISODetermined>true</genc:codeISODetermined>

<genc:subdivisionCategory>province</genc:subdivisionCategory>

<genc:gencAdditionalInfo/>

<genc:gencStatus>iso</genc:gencStatus>

<genc:entryDate>2011-12-15</genc:entryDate>

<genc:entryType>creation</genc:entryType>

<genc:entryNotesOnNaming/>

<genc:entryNotesOnTerritory/>

<genc:country

codeSpace="http://api.nsgreg.nga.mil/geo-political/ISO3166-1/3/VI-13">AFG</genc:country>

<genc:name>

<genc:nameLanguage2Char>fa</genc:nameLanguage2Char>

<genc:nameLanguage3Char>fas</genc:nameLanguage3Char>

<genc:name>Balkh</genc:name>

<genc:nameVariant/>

<genc:romanizationSystem>BGN/PCGN 1968, revised 2006</genc:romanizationSystem>

<genc:remarks/>

<genc:iso6393Char3Code>fas</genc:iso6393Char3Code>

<genc:bgnNameVariance>false</genc:bgnNameVariance>

</genc:name>

<genc:name>

<genc:nameLanguage2Char>ps</genc:nameLanguage2Char>

<genc:nameLanguage3Char>pus</genc:nameLanguage3Char>

<genc:name>Balkh</genc:name>

<genc:nameVariant/>

<genc:romanizationSystem>BGN/PCGN 1968, revised 2006</genc:romanizationSystem>

<genc:remarks/>

<genc:iso6393Char3Code>pus</genc:iso6393Char3Code>

<genc:bgnNameVariance>false</genc:bgnNameVariance>

</genc:name>

<genc:subdivisionStructure>

<genc:subdivisionSource>IGN 1992 update BET 1996; [http://www.un.org/depts/cartographic/map/profile/afghanis-reg.pdf]; [http://www.undp.org.af/links/gov\_afghan.htm], 2005-01-10; [http://supremecourt.gov.af/PDFiles/constitution2004\_english.pdf]; [http://www.pcgn.org.uk/Afghanistan%20-%20Dari.pdf]; [http://en.wikipedia.org/wiki/Provinces\_of\_Afghanistan]; [http://earth-info.nga.mil/gns/html/romanization.html#table]</genc:subdivisionSource>

<genc:romanizationSystem>BGN/PCGN 1968, revised 2006</genc:romanizationSystem>

<genc:codeSource>ISO/TC 46/WG 2 Secretariat (\*); ISO 3166/MA (\*)</genc:codeSource>

<genc:remarks/>

<genc:category>

<genc:count>34</genc:count>

<genc:description/>

<genc:categoryName>

<genc:nameLanguage2Char>en</genc:nameLanguage2Char>

<genc:nameLanguage3Char>eng</genc:nameLanguage3Char>

<genc:name>provinces</genc:name>

<genc:iso6393Char3Code>eng</genc:iso6393Char3Code>

<genc:bgnNameVariance>false</genc:bgnNameVariance>

</genc:categoryName>

<genc:categoryName>

<genc:nameLanguage2Char>fr</genc:nameLanguage2Char>

<genc:nameLanguage3Char>fra</genc:nameLanguage3Char>

<genc:name>province</genc:name>

<genc:iso6393Char3Code>fra</genc:iso6393Char3Code>

<genc:bgnNameVariance>false</genc:bgnNameVariance>

</genc:categoryName>

<genc:categoryName>

<genc:nameLanguage2Char>fa</genc:nameLanguage2Char>

<genc:nameLanguage3Char>fas</genc:nameLanguage3Char>

<genc:name>wilāyat</genc:name>

<genc:iso6393Char3Code>fas</genc:iso6393Char3Code>

<genc:bgnNameVariance>false</genc:bgnNameVariance>

</genc:categoryName>

<genc:categoryName>

<genc:nameLanguage2Char>ps</genc:nameLanguage2Char>

<genc:nameLanguage3Char>pus</genc:nameLanguage3Char>

<genc:name>wilāyat</genc:name>

<genc:iso6393Char3Code>pus</genc:iso6393Char3Code>

<genc:bgnNameVariance>false</genc:bgnNameVariance>

</genc:categoryName>

</genc:category>

</genc:subdivisionStructure>

</genc:AdministrativeSubdivisionEntry>

Figure 14 – Sample XML Instance of Element genc:AdministrativeDivisionEntry

# Governance

## Introduction

The GENC Standard specifies a governance process for establishing and maintaining authoritative information about names and codes for geopolitical entities and administrative subdivisions. The Country Codes Working Group (CCWG) is the community forum responsible for providing governance and configuration management for the GENC Standard and accompanying content maintained in the GENC Registry.

The CCWG is a working group of the Metadata Focus Group component of the Geospatial Intelligence (GEOINT) Standards Working Group (GWG). The GWG is a National System for Geospatial-Intelligence (NSG) forum that serves the Director of NGA and the NGA Chief Information Officer (who is the delegated functional manager for GEOINT architecture and standards) in executing the functional management responsibilities authorized in NSG Directive FM 1100 (Appendix K), 6 May 2011. The GWG is the forum for the coordination of GEOINT standard activities. The GWG is led and chaired by the NGA National Center for Geospatial Intelligence Standards (NCGIS).

## Guiding Policy

The primary source for geopolitical entity and administrative subdivision items in the GENC Standard is ISO 3166, *Codes for the representation of countries and their subdivisions*. The U.S. Federal Government shall utilize country and country subdivision code elements and names that have been established in ISO 3166 to the greatest extent possible, deviating only when U.S. Government policy or operational requirements necessitate otherwise. These deviations include:

* U.S. Government restrictions in recognition of the national sovereignty of a country;
* Identification and recognition of countries, dependencies, areas of special sovereignty, and/or the administrative subdivisions of countries not included in ISO 3166; and
* U.S. Government requirement to use names of countries, dependencies, areas of special sovereignty, and administrative subdivisions of countries that have been approved by the U.S. Board on Geographic Names (BGN), the authority established under Public Law 80-242 to provide for uniformity in geographic nomenclature and orthography throughout the Federal Government.

Due to these deviations, the GENC Standard asserts both restrictions to, and extensions of, ISO 3166.

## Code Assignment

### ISO 3166 Assignment of Code Elements

As a consequence of the continuous updating of ISO 3166, some code elements may become obsolete and some code elements that do not qualify for inclusion in ISO 3166 may be required by the GENC Standard in order to enable a particular user application of the standard.

To avoid transitional application problems and to aid users who require specific additional code elements for the functioning of their applications, the ISO 3166/MA may set aside code elements which it intends not to use for other than specified purposes during a limited or indeterminate period of time. These are called **Reserved** code elements. Code elements that are not included in the current version of ISO 3166, may be reserved by the ISO 3166/MA in accordance with the following three categories as specified in ISO 3166-1:2006, Clause 7.5:

* **Exceptional reservations** – requested by national member bodies, governments and international organizations. This applies to certain code elements required in order to support a particular application, as specified by the requesting body and limited to such use; any further use of such code elements is subject to approval by the ISO 3166/MA. Exceptional reservations may also be made on the initiative of the ISO 3166/MA itself when particular circumstances motivate a reservation.
* **Transitional reservations** – in consequence of changes in the content of ISO 3166. Code elements of this category may be used only during a transitional period of at least 50 years while new code elements that may have replaced them are brought into use.
* **Indeterminate reservations** – justified by their presence in other coding systems associated with ISO 3166 and where their reservation may facilitate the use of the system concerned. Any use outside such systems is prohibited and such code elements are expected eventually to be either eliminated, or replaced by code elements in ISO 3166.

ISO 3166-1:2006, Clause 8, specifies two additional categories of code elements, as follows:

* **User-assigned –** If users need code elements to represent country names not included in ISO 3166-1, the series of letters 'AA', 'QM' to 'QZ', 'XA' to 'XZ', and 'ZZ', and the series 'AAA' to 'AAZ', 'QMA' to 'QZZ', 'XAA' to 'XZZ', and 'ZZA' to 'ZZZ' respectively, and the series of numbers 900 to 999 are available. These users should inform the ISO 3166/MA of such use.
* **Extended facility of user-assigned (escape) –** If the number of user-assigned code elements is not sufficient to cover a particular user requirement, the alphabetic code elements 'OO' or 'OOO' or the numeric code element 000 shall be utilized to indicate that code elements other than those defined in ISO 3166-1 are used.

These categories of code elements are organized and extended for use in the GENC Registry and GENC Standard, as specified in Table 26. The GENC Standard adds the additional category of “Externally-assigned”.

Table 26 – Code (ISO: Code Element) Status Types

| **Code** | **Name** | **Definition** | **Description** |
| --- | --- | --- | --- |
| 000 | **Unassigned** | A code element that the ISO 3166 Maintenance Agency has not officially assigned in the current ISO 3166 and which is neither reserved nor user-assigned. | An unassigned code element is available for assignment by ISO 3166/MA only. |
| 001 | **Officially Assigned** | A code element that the ISO 3166 Maintenance Agency has authoritatively allocated to represent the name of a geopolitical entity or administrative subdivision and included in the current ISO 3166. | An officially assigned code element may be used without restriction in the context of ISO 3166. |
| 002 | **Reserved - Exceptional** | A code element that the ISO 3166 Maintenance Agency has decided (at the request of an ISO national member body, government, or international organization) to refrain from including in ISO 3166, instead allowing it to be used to meet a recognized interchange requirement in support of a particular application, as specified by the requesting body. The exceptionally reserved code element is limited to that use; any further use is subject to approval by the ISO 3166 Maintenance Agency. Exceptional reservations may also be made on the initiative of the ISO 3166 Maintenance Agency itself when particular circumstances motivate a reservation. (ISO 3166-1:2006, 7.5.4) | Reserved code elements are set aside by the ISO 3166 Maintenance Agency to be used only for specified purposes during a limited or indeterminate period of time, including to avoid transitional application problems and to aid users who require additional code elements for the functioning of their coding systems. |
| 003 | **Reserved - Transitional** | A formerly officially assigned code element that the ISO 3166 Maintenance Agency has deleted from the current ISO 3166 as a consequence of changes in the standard. The code may be used only during a transitional period of 50 years (at least) while the new code element(s) that may have replaced it are taken into use. (ISO 3166-1:2006, 7.5.1) | Reserved code elements are set aside by the ISO 3166 Maintenance Agency to be used only for specified purposes during a limited or indeterminate period of time, including to avoid transitional application problems and to aid users who require additional code elements for the functioning of their coding systems. |
| 004 | **Reserved - Indeterminate** | A code element that the ISO 3166 Maintenance Agency has decided to refrain from including in the standard for an indefinite period, because the code element is used in another coding system associated with ISO 3166. Any use outside of the coding system for which the reservation was made is prohibited, and such a code element is expected eventually to be either eliminated or replaced by a code element in ISO 3166. (ISO 3166-1:2006, 7.5.1) | Reserved code elements are set aside by the ISO 3166 Maintenance Agency to be used only for specified purposes during a limited or indeterminate period of time, including to avoid transitional application problems and to aid users who require additional code elements for the functioning of their coding systems. |
| 005 | **User-assigned** | A code element that is one of the set designated by the ISO 3166 Maintenance Agency for allocation only by users who need a code element to represent a geopolitical entity or administrative subdivision not included in ISO 3166. For ISO 3166-1, user-assignable code elements include (alpha-2) 'AA', the series of letters 'QM' to 'QZ' and 'XA' to 'XZ', and 'ZZ'; (alpha-3) the series of letters 'AAA' to 'AAZ', 'QMA' to 'QZZ', 'XAA' to 'XZZ', and 'ZZA' to 'ZZZ', and (numeric) the series of numbers 900 to 999. (ISO 3166-1:2006, 8.1.3) |  |
| 006 | **User-assigned extended facility** | A code element that the ISO 3166 Maintenance Agency has decided never to assign in ISO 3166. For ISO 3166-1, the alphabetic code elements 'OO' or 'OOO', or the numeric code element 000, shall be utilized to indicate that code elements other than those defined in ISO 3166-1 are used. (ISO 3166-1:2006, 8.1.4) |  |
| 007 | **Externally-assigned** | A code element that is not recognized by the ISO 3166 Maintenance Agency, because it uses an assignment that does not conform to the ISO specification (for example, it consists of a mixture of alphabetic and numeric characters, when only alphabetic characters are allowed by ISO 3166/MA). |  |

### GENC Standard Assignment of Codes

In the case that ISO 3166 **Officially Assigned** code elements (see Table 26) and their associated names cannot be used to meet U.S. Government requirements, then either existing ISO 3166/MA **Reserved** code elements or new **User-assigned** code elements shall be used to the greatest extent possible in the GENC Standard, and coordinated appropriately with the ISO 3166/MA.

In exceptional circumstances (termed “*Exigent*”; see Table 7), items that are added to the GENC Standard (and accompanying Registry) may not be suitable for specification using ISO 3166/MA **User-assigned** code elements in accordance with ISO 3166 practices and procedures – for example, items denoting fictitious geopolitical entities or administrative subdivisions for use in training and/or analysis simulations. In such cases codes unique to the GENC Standard are assigned without further coordination with the ISO 3166/MA. Codes (ISO: code elements) assigned to these items are identified as **Externally-assigned**.

### Externally-assigned Codes

Section 5.3.5 specifies the manners in which the GENC Standard extends the ISO 3166 code element domains by adding selective provisions for the use of digits in addition to ISO-specified characters. The following rules shall be followed by the GENC Configuration Manager (see Section 6.4.2) when determining **Externally-assigned** codes.

1. The digit zero ('0') shall not be used in either alphanumeric-2 or alphanumeric-3 codes, because it may be inadvertently confused with the letter 'O'.
2. The letter 'I' shall not be used in either alphanumeric-2 or alphanumeric-3 codes, because it may inadvertently be confused with the digit '1'.
3. The alphanumeric 3-character code, where the second and third characters may additionally be a digit (*e.g*., 'AT1' or 'R2D' or 'T83'), shall:
   1. restrict the second character to the letter 'X'; and
   2. in the case that a corresponding alphanumeric 2-character code is assigned, then the third character (a digit) of the alphanumeric 3-character code shall be constrained to match that of the second character (a digit) of the alphanumeric 2-character code (*e.g*., 'AX1' and 'A1', or 'FX9' and 'F9').
4. Thirty-six (36) alphanumeric 2-character codes in four ranges are reserved for internal use by applications, shall not be used by the GENC Configuration Manager when determining **Externally-assigned** codes, and shall be disallowed in data exchanges conforming to the GENC Standard. These four code-ranges are:

'Q1' - 'Q9' // 'R1' - 'R9' // 'S1' - 'S9' // 'T1' - 'T9'

1. Thirty-six (36) alphanumeric 3-character codes in four ranges are reserved for internal use by applications, shall not be used by the GENC Configuration Manager when determining Externally-assigned codes, and shall be disallowed in data exchanges conforming to the GENC Standard. These four code-ranges are:

'QX1' - 'QX9' // 'RX1' - 'RX9' // 'SX1' - 'SX9' // 'TX1' - 'TX9'

## Configuration Management Roles

### Owner

The GENC Owner shall be the NGA, whose Director is the functional manager for Geospatial Intelligence (GEOINT). The GENC Owner shall be responsible for approving, publishing, and promulgating the GENC Standard and its accompanying GENC Registry for use by the Department of Defense (DoD), Intelligence Community (IC), and U.S. civil federal agencies.

The approval authority for NGA standards, including the GENC Standard, is the NGA Architecture and Standards Board (NASB). The approval authority for the content of the accompanying GENC Registry is the CCWG.

### Configuration Manager

The GENC Configuration Manager shall be the National Center for Geospatial Intelligence Standards (NCGIS).

The GENC Configuration Manager shall maintain the GENC Standard and its accompanying content in the GENC Registry.

The GENC Configuration Manager shall provide technical support to the CCWG Secretariat (see Section 6.4.3 (b)), upon request.

The GENC Configuration Manager shall monitor ISO 3166/MA activities, review all newsletters in a timely manner, and submit applicable Change Requests (in regards to either the GENC Standard or its accompanying content in the GENC Registry) to the CCWG Secretariat (see Section 6.4.3 (b)).

The GENC Configuration Manager shall determine suitable Externally-assigned code(s) in response to requests from the CCWG Secretariat.

The GENC Configuration Manager shall update the content of the GENC Registry according to approved Change Requests received from the CCWG Secretariat.

In the case of a new edition of the GENC Standard, the GENC Configuration Manager shall publish the new edition as directed by the GENC (Standard and Registry) Owner (see Section 6.4.1).

The GENC Configuration Manager shall ensure that citations of the GENC Standard in the DoD IT Standards Registry (DISR) and the IC Enterprise Standards Baseline (IC ESB) are complete, correct, and current.

### Configuration Control Body

The "Voting Members" of the Country Codes Working Group (CCWG) shall fulfill the role of the Configuration Control Body (CCB) for the GENC Standard and its accompanying content in the GENC Registry.

The CCWG shall act as the sole organization (on behalf of the U.S. Government) for coordinating and submitting change proposals to the ISO 3166/MA and its U.S. member body, the National Information Standards Organization (NISO).

The CCWG organization shall consist of a chairperson, secretariat, voting members, and general members, with respective rights and responsibilities as follows:

1. **Chair** – The NGA Geographer shall serve as the CCWG Chair. The Chair, or the Chair's designated representative, directs all CCWG meetings. The Chair, or the Chair's designated representative, coordinates Change Requests with the U.S. Board on Geographic Names and the U.S. Department of State.
2. **Secretariat** – The NCGIS shall serve as the CCWG Secretariat. The Secretariat shall provide, or otherwise arrange for an alternate organization to provide, organizational, logistic, and administrative support for the CCWG. The Secretariat shall be responsible for the receipt, review, and management of Change Requests to the GENC Standard and its accompanying content in the GENC Registry. The Secretariat may seek technical assistance from the GENC Configuration Manager (see Section 6.4.2) in the review of Change Requests.
3. **Voting Members** – Voting membership shall consist of designated representatives from the DoD (including individual military services and commands), IC (individual agencies to include DIA, NGA, NRO, and NSA), and U.S. civil federal agencies, with each designated organization having one vote. The voting options for voting members are: *Approve*, *Not Approve*, and *No Business Interest*. Actions of the voting members shall be determined by a 60 percent majority vote, where 60 percent of the voting members have chosen to cast a vote of either *Approve* or *No Business Interest*. A vote of *No Business Interest* is considered a neutral vote and shall not negatively impact the voting majority percentage. A non-response by a voting member shall be considered and registered as *No Business Interest*.

**Note** Upon occasion it may become necessary to process a Change Request involving classified or For Official Use Only (FOUO) content. Only voting members holding the requisite security clearances may participate in the coordination of classified Change Requests, and the thresholds for establishing a quorum and establishing approval shall be based on the number of designated voting members holding the requisite security clearance. In the case of For Official Use Only (FOUO) requests, the Change Request will be coordinated only with those authorized to receive FOUO information, and voting and quorum thresholds are adjusted accordingly.

The list of voting members and their point-of-contact information shall be published by the CCWG Secretariat to the CCWG general membership in order to facilitate the process of preparing and submitting Change Requests (see Section 6.5.2). The CCWG Secretariat shall also maintain distribution lists for classified and FOUO audiences.

1. **General Members** – General membership shall include all interested U.S. federal agencies, international partners, commercial industry, not-for-profit organizations, and academia. The CCWG Secretariat shall maintain an electronic mail distribution list whose members receive all CCWG communications and may participate in CCWG meetings. Members of the CCWG electronic mail distribution list do not necessarily represent official DoD, IC, or U.S. civil federal agency positions – which are reserved to the CCWG voting membership.

The CCWG shall physically meet only when necessary, instead fulfilling its CCB role using electronic communications (*e.g*., electronic mail and teleconferencing).

The CCWG Chair or any CCWG member (either voting or general) may request a physical or electronic meeting of the CCWG; however, the CCWG meets only at the discretion of the CCWG Chair. There is no minimum quorum participation requirement in order to hold a CCWG meeting.

CCWG meetings, whether conducted physically or electronically, shall follow a published agenda prepared and distributed by either the CCWG Chair or the CCWG Secretariat.

### Submitting Organization

Organizations that are authorized to request changes to the GENC Standard shall be those that, for the purposes of the CCWG, represent the highest level overseeing a common mission. A submitting organization may be below a department or agency level if the organization has a unique mission. In general, all CCWG voting members represent authorized submitting organizations, but the CCWG may authorize additional Submitting Organizations as needed. The GENC Configuration Manager (see Section 6.4.2) shall also be an authorized submitting organization.

An organization that is not an authorized submitting organization may submit its Change Request directly to the CCWG Secretariat.

The list of authorized Submitting Organizations and their point-of-contact information shall be published by the CCWG Secretariat (see Section 6.4.3 (b)) to the CCWG general membership in order to facilitate the process of preparing and submitting Change Requests (see Section 6.5.2).

### Role Relationships

Figure 15 illustrates the roles and relationships in the GENC Standard governance process.

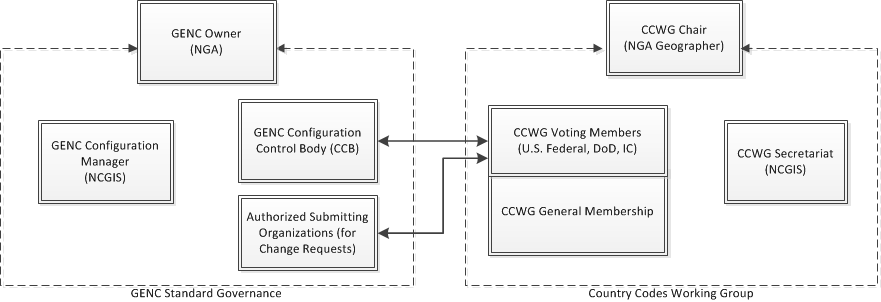


Figure 15 – Governance Role Relationships

## Configuration Management Procedures

### Change Requests

Changes to the GENC Standard and/or its accompanying content in the GENC Registry are accomplished through the process of creating, coordinating, and adjudicating Change Requests. Change Requests may be initiated by ISO 3166/MA activity or, in exceptional cases, by U.S. organizational requirements, as follows :

1. **ISO 3166/MA Activity**  
   The ISO 3166/MA is the primary source of information resulting in changes to the GENC Standard and/or its accompanying content in the GENC Registry. The ISO 3166/MA promulgates changes to ISO 3166 through its activities (*e.g*., Newsletters).
   1. The GENC Configuration Manager (see Section 6.4.2) shall monitor ISO 3166/MA activities, review all newsletters in a timely manner, and submit applicable Change Requests (in regards to either the GENC Standard or its accompanying content in the GENC Registry) to the CCWG Secretariat (see Section 6.4.3 (b)).
2. **Organizational Requests**  
   Exceptionally, an organization may have an operational requirement for a geopolitical entity or administrative subdivision item that is needed for data exchange purposes and which would require a change to the GENC Standard and/or its accompanying content in the GENC Registry. The general and special cases (*i.e.*, those requiring special access, of unusual urgency, or falling outside the scope of ISO 3166/MA coordination) are detailed below.
3. The appropriate authorized submitting organization (see Section 6.4.4) shall submit a Change Request (in regards to either the GENC Standard or its accompanying content in the GENC Registry) to the CCWG Secretariat. In general, organizational requests are coordinated with the ISO 3166/MA.
4. In the case of a request for a U.S. Government Classified or FOUO entry in the GENC Registry, then an appropriately classified or FOUO configuration management process will be administered, to include all and only voting members of the CCWG holding the requisite security clearance or authorization to receive that information (see Section 6.4.3). FOUO and classified Change Requests are restricted to U.S. Federal Government activities. The authorized submitting organization shall submit requests for FOUO or classified changes to content in the GENC Registry to the CCWG Secretariat through appropriate secure communication channels.
5. In the case of an urgent operational need for a code that cannot be processed in accordance with the normal timeline that includes coordination with the ISO 3166/MA:
   1. A Change Request may be made for an Externally-assigned (see Section 6.3.3) code to be assigned by the GENC Configuration Manager; and
   2. Concurrent with the issuance of an Externally-assigned code by the GENC Configuration Manager, the CCWG Secretariat (see Section 6.4.3 (b)) shall initiate coordination with applicable Civil and International Standards Development Organization (SDO)organizations, unless the code request does not fall within the scope of ISO 3166 (*e.g.,* training exercise or special needs).

**Note** The Externally-assigned code shall be replaced in the GENC Standard and/or associated GENC Registry by the approved ISO 3166/MA code element no later than one year after the ISO 3166/MA issues the newsletter promulgating the new ISO 3166/MA assigned code element.

1. In the case that the response from the ISO 3166/MA to a non-urgent Change Request is delayed beyond expected timelines, then an Externally-assigned code may become necessary to meet the operational requirement. In such circumstances the CCWG Secretariat shall first coordinate the Externally-assigned code with the submitting organization and the GENC Configuration Manager, and then the configuration management procedures for an urgent operational need shall be followed.
2. In the case of an operational requirement for a geopolitical entity or administrative subdivision item for use in training and/or analysis simulation, or any need to represent a geopolitical entity or administrative subdivision that is fictitious, temporary, or otherwise not an acceptable candidate for nomination for inclusion in ISO 3166, an authorized submitting organization may request an Externally-assigned (see Section 6.3.3) code. Such a code request is not coordinated with the ISO 3166/MA.

### Submission of Change Requests

Authorized Submitting Organizations (see Section 6.4.4) shall submit Change Requests for the GENC Standard content in the GENC Registry to the CCWG Secretariat (see Section 6.4.3 (b)).

1. Change Requests shall include a justification for why introduction or modification of a geopolitical entity or administrative subdivision item is needed, as well as a statement of the urgency of the need.
2. Change Requests for new geopolitical entities or administrative subdivisions may optionally recommend code assignment(s); however, final assignment(s) shall be determined by the CCWG Secretariat in coordination with the GENC Configuration Manager (see Section 6.4.2) and the ISO 3166/MA.
3. The CCWG Secretariat shall review Change Requests for clarity and completeness of information. If the Change Request is missing information or justification, the CCWG Secretariat shall contact the authorized submitting organization for clarification or additional information.
4. The CCWG Secretariat shall determine whether any requested addition of a geopolitical entity or administrative subdivision has already been assigned a Reserved or User-assigned code element by the ISO 3166/MA. If a Reserved or User-assigned code element already exists, then in coordination with the submitting organization, the Change Request shall be revised to indicate the applicable code assignment(s).
5. If a Change Request specifies the creation of a geopolitical entity for an item that the GENC Standard (through its accompanying GENC Registry) already includes but specifies as an administrative subdivision, then the submitting organization must justify the creation of an additional item for the same real-world object, because such duplication introduces undesirable complications in data exchange and system-to-system interoperability.

### Coordination of Change Requests

#### Introduction

The CCWG Secretariat (see Section 6.4.3 (b)) shall disseminate valid Change Requests to the membership of the GENC CCB (see Section 6.4.3). Different coordination procedures are required depending on whether the Change Request has been prepared in response to an ISO 3166/MA activity, or prepared by an authorized submitting organization (see Section 6.4.4) to meet its operational requirements.

#### ISO 3166/MA Activity

Change Requests proposed to the GENC Standard and/or its accompanying content in the GENC Registry in response to activities of the ISO 3166/MA (*e.g.,* newsletters) shall be prepared by the GENC Configuration Manager (see Section 6.4.2) and submitted to the CCWG Secretariat, which shall coordinate all change requests through the GENC CCB.

1. **Review Change Request**
2. The GENC CCB shall:
   1. determine whether the proposed change will be broadly applicable in the U.S. Government;
   2. identify any potential issues in implementation of the proposed change; and
   3. establish a U.S. Government consensus on the Change Request.
3. **U.S. Board on Geographic Names (BGN) coordination**
4. The CCWG Chair (see Section 6.4.3 (a)) shall consult with the BGN to ensure that the name of the country or country subdivision item being promulgated by the ISO 3166/MA is in accordance with U.S. Government policy.
5. Objection by the BGN to a name in an ISO 3166/MA Newsletter shall result in a BGN-approved name being assigned in the content of the GENC Standard.

**Note** This will result in an “*Exception*” entry in the content of the GENC Standard.

1. **U.S. Department of State (DoS) coordination**
2. The CCWG Chair shall consult with the DoS to ensure that the name or political status of the country or country subdivision item being promulgated by ISO 3166 does not conflict with U.S. Government policy.
3. Objection by the DoS to the name or political status of an entity in an ISO 3166/MA Newsletter shall result in either a DoS-approved (and BGN-approved) name and DoS-approved political status being assigned in the content of the GENC Standard, or the exclusion of the ISO 3166/MA-approved entity from the GENC Standard.

**Note** This will result in an “*Exception*” or *"Exclusion"* entry in the content of the GENC Standard.

1. **Change Request Disposition**
2. The CCWG Secretariat (see Section 6.4.3 (b)) shall ballot the CCWG Voting Members (see Section 6.4.3 (c)) for approval of the Change Request.
3. If the Change Request is approved, then the CCWG Secretariat shall notify the CCWG and the GENC Configuration Manager shall revise (add, modify, delete) the content of the GENC Registry accordingly.

#### Operational Requirements of Submitting Organizations

Changes to the GENC Standard and/or its accompanying content in the GENC Registry that are proposed in order to meet operational requirements of authorized Submitting Organizations (see Section 6.4.4) shall be validated by the CCWG Secretariat prior to coordination. The GENC Configuration Manager (see Section 6.4.2) shall support the CCWG Secretariat in the handling of expedited requests that require Externally-assigned (see Section 3.3.3) codes.

1. **Review Change Request**
2. The CCWG Secretariat shall:
   1. validate the rationale for the Change Request;
   2. validate the urgency of the need in the case of an expedited request; and
   3. submit the Change Request to the GENC CCB for coordination.
3. The GENC CCB shall:
   1. determine whether the proposed change will be broadly applicable in the U.S. Government;
4. identify any potential issues in implementation of the proposed change;
5. determine the type of code element to coordinate with the ISO 3166/MA (*i.e*., Officially Assigned, Reserved, or User-assigned); and
6. establish a U.S. Government consensus on the Change Request.
7. In the case of an expedited request:
   1. The GENC Configuration Manager (see Section 6.4.2) shall determine suitable Externally-assigned code(s) – see Section 6.3.3.
   2. The CCWG Secretariat (see Section 6.4.3 (b)) shall revise the Change Request accordingly.
   3. If the nature of the expedited Change Request requires that code(s) be issued in advance of GENC CCB coordination, the GENC Configuration Manager shall issue the code(s) immediately, and the CCWG Secretariat shall subsequently notify the GENC CCB of the action taken.

**Note** It is a recommended best practice to instead coordinate with the ISO 3166/MA for an Officially Assigned, Reserved, or User-assigned code element.

1. **U.S. Board on Geographic Names (BGN) coordination**
2. The CCWG Chair (see Section 6.4.3 (a)) shall consult with the BGN to ensure that the name of the geopolitical entity or administrative subdivision item being created or modified in the GENC Registry is in accordance with U.S. Government policy.
3. **U.S. Department of State (DoS) coordination**
4. The CCWG Chair shall consult with DoS to ensure that the name or political status of the geopolitical entity or administrative subdivision item being created or modified in the GENC Registry does not conflict with U.S. Government policy.
5. **Change Request Disposition**
6. The CCWG Secretariat (see Section 6.4.3 (b)) shall ballot the CCWG Voting Members (see Section 6.4.3 (c)) for approval of the Change Request.
7. If the Change Request is approved, then the CCWG Secretariat shall coordinate with applicable Civil and International Standards Development Organization (SDO)organizations, excepting in the case of Externally-assigned (see Section 6.3.3) codes.

**Note** Change requests for Externally-assigned (U.S. Government-unique) codes do not require external coordination with either the National Information Standards Organization (NISO) or the ISO 3166/MA. The GENC Registry shall be updated as soon as CCWG Voting Members (see Section 6.4.3 (c)) approve.

1. If the Change Request requires Civil and International SDO coordination then, after CCWG approval:
2. The CCWG Secretariat shall submit any requests for new ISO 3166/MA Officially Assigned, Reserved, and User-assigned code elements to the NISO which, after approval, shall forward the request to the ISO 3166/MA.
3. **NISO or ISO 3166/MA response**  
   Upon receipt of any response(s) from NISO or the ISO 3166/MA to the request for a new code element:
4. The CCWG Secretariat will accordingly update the Change Request and notify the CCWG.
5. **ISO 3166/MA approval**  
   Upon receipt of confirmation from ISO 3166/MA of approval for an Officially Assigned, Reserved, or User-assigned code element:
6. The CCWG Secretariat shall report the result to the CCWG.
7. The GENC Configuration Manager shall update the content of the GENC Registry accordingly.
8. **NISO or ISO/3166/MA counterproposal**  
   In the event that NISO or ISO 3166/MA either provides a counterproposal or recommends use of an alternative code element, then:
9. The CCWG Secretariat shall revise the Change Request accordingly and notify the CCWG.
10. The CCWG Secretariat shall ballot the CCWG Voting Members for approval of the revised Change Request.
11. **NISO or ISO/3166/MA rejection**  
    In the event that NISO declines to submit a change request to the ISO 3166/MA, or ISO 3166/MA declines to issue an Officially Assigned or Reserved code element, or suggest a User-assigned code element, then:
12. The GENC Configuration Manager shall determine suitable User-assigned or Externally-assigned code(s) – see Section 6.3.3.
13. The CCWG Secretariat shall notify the CCWG and revise the Change Request to incorporate the selected User-assigned or Externally-assigned code(s).
14. The CCWG Secretariat shall ballot the CCWG Voting Members for approval of the revised Change Request.

#### Appeal Process

Substantive objections from CCWG voting members shall be submitted to the CCWG Chair (see Section 6.4.3 (a)) for resolution. If further resolution is required, the substantive objection shall be submitted to the GWG Chair for final resolution.

### Publication of Changes

#### GENC Content Update and Change Notification

In the case of revisions exclusively to the content of the GENC Standard, in accordance with approved Change Request(s) the GENC Configuration Manager (see Section 6.4.2) shall:

1. Establish a new GENC content baseline and associated codespace (see Section 5.4);
2. Update the content of the new baseline in the GENC Registry;
3. Prepare a summary of the differences between the previous content baseline and the new content baseline;
4. Prepare a GENC Standard Index Workbook, a GENC Standard Index XML document, and a GENC Standard (complete) XML document for the new content baseline, and then:
5. Publish all three technical artifacts in the NSG Standards Registry (<http://nsgreg.nga.mil>), and
6. Publish all three technical artifacts in the DoD Data Services Environment (DSE) Metadata Registry (MDR) – <http://metadata.ces.mil/mdr/>; and then
7. Notify the CCWG Secretariat (see Section 6.4.3 (b)) of the establishment of the new content baseline and the availability of the three baseline-associated documents.

Upon notification by the GENC Configuration Manager the CCWG Secretariat shall prepare and issue a change notice to the CCWG membership.

#### GENC Standard Publication

In the case of requirements necessitating the preparation of a new edition of the GENC Standard, the GENC Configuration Manager shall:

1. Prepare the new edition in accordance with procedures established by the GENC Standard Owner (see Section 6.4.1);
2. Obtain approval for publication in accordance with procedures established by the GENC Standard Owner;
3. If approved, then publish the new edition in the NSG Standards Registry (<http://nsgreg.nga.mil>); and then
4. Establish a new GENC content baseline and associated codespace (see Section 5.4);
5. Update the content of the new baseline in the GENC Registry in accordance with provisions established by the new edition (which may cover multiple approved Change Requests);
6. Prepare a summary of the differences between the previous content baseline and the new content baseline;
7. Prepare a GENC Standard Index Workbook, a GENC Standard Index XML document, and a GENC Standard (complete) XML document for the new content baseline, and then:
8. Publish all three technical artifacts in the NSG Standards Registry (<http://nsgreg.nga.mil>), and
9. Publish all three technical artifacts in the DoD Data Services Environment (DSE) Metadata Registry (MDR) – <http://metadata.ces.mil/mdr/>; and then
10. Notify the CCWG Secretariat (see Section 6.4.3 (b)) of the establishment of the new content baseline, the availability of the three baseline-associated documents, and the publication of the new edition of the GENC Standard.

Upon notification by the GENC Configuration Manager the CCWG Secretariat shall prepare and issue a publication announcement to the CCWG membership.

1. – Conformance  
   (Normative)
   1. Introduction

Conformance with the Geopolitical Entities, Names, and Codes (GENC) Standard shall be determined based on the tests specified in this Annex.

Conformance to the *conceptual schema* component of the GENC Standard information model (see Section 5.5) is determined in accordance with the procedures specified in Annex A.2. The GENC Standard conceptual schema enables users to implement data storage and/or transfer mechanisms for the content of the GENC Standard using system-appropriate technologies. For example, the National Geospatial-Intelligence Agency (NGA) hosts an online, dynamic information resource, the GENC Registry (<http://nsgreg.nga.mil/genc>), whose information structure conforms to the GENC Standard conceptual schema.

Conformance to the *XML encoding schema* component of the GENC Standard information model is determined in accordance with the procedures specified in Annex A.3. Using XML Schema (XSD) technology, the GENC Standard XML encoding schema (see Section 5.6) enables users to exchange the content of the GENC Standard among information systems using XML instance files. Section 5.7.3 illustrates several conformant XML instance files.

Conformance to the content of the GENC Standard in data storage and/or transfer mechanisms is determined in accordance with the procedures specified in Annex A.4. These procedures are technology-neutral and therefore may be applied to a wide variety of system-appropriate technologies. Achieving content conformance requires conformant use of the *codespaces* component of the GENC Standard information model (see Section 5.4).

A future edition of the GENC Standard may specify recommended best practices for the employment of GENC Standard content in community Information Exchange Schemas (IES), particularly those based on XML Schema (XSD) technology.

* 1. Conceptual Schema Conformance

The GENC Standard information model specifies a conceptual schema for entries related to:

* **geopolitical entities** (see Section 5.5.3)  
  Each geopolitical entity entry models dated information about a real-world object that is a geopolitical entity (ISO 3166 "country"), including names, codes, and related information (*e.g*., U.N. Legal Status, U.S. Recognition, Sovereignty) for that geopolitical entity.
* **administrative subdivisions** (see Section 5.5.6)  
  Each administrative division entry models dated information about a real-world object that is an administrative subdivision (ISO 3166 "country division"), including names, codes, and related information (*e.g*., subdivision category, parent administrative subdivision, or geopolitical entity), for that administrative subdivision.

Each of these two conceptual schemas is specified using the Unified Modeling Language (see Annex E) augmented by a tabular specification (see Section 5.5.1) of all included modeling elements.

An information system or data set claiming conformance to the conceptual schema of the GENC Standard shall properly use all information specified for each modeling element that is relevant to the modeling requirements of that information system or data set – including the UML Designation, Definition, Obligation, Multiplicity, and Domain (see Table 12 through Table 25) – when describing items representing information about geopolitical entities and/or administrative subdivisions.

* 1. XML Encoding Schema Conformance
     1. Introduction

Conformance testing for the GENC XML encoding schema is accomplished through the use of a validating XML processor and a Schematron validator. In general, these tests are used to determine whether an XML instance document is both well-formed (meets syntactic requirements) and valid (meets logical requirements) with respect to the requirements of the GENC XML encoding schema, and in the case of a GENC XML encoding schema-conformant application, whether it correctly writes and/or reads GENC XML encoding schema-conformant instance documents.

* + 1. Validating XML Processor

XML Schema 1.0 (Second Edition) describes a class of data objects called “XML documents” and partially describes the behavior of computer programs that process them.

XML documents are made up of storage units called “entities”, which contain either parsed or unparsed data. Parsed data is made up of characters, some of which form character data, and some of which form markup. Markup encodes a description of the document's storage layout and logical structure. XML provides a mechanism to impose constraints on the storage layout and logical structure.

An XML schema is used to describe the structure of an XML document by specifying the valid elements that can occur in a document, the order in which they can occur, and expressing constraints on certain aspects of these elements. These constraints may be as simple as “The Name in an element's end-tag MUST match the element type in the start-tag” and “An element type MUST NOT be declared more than once”; however, many are more complex.

An XML schema is intended as a machine-readable mechanism to describe what constitutes a valid XML document according to a particular XML vocabulary. A schema defines what constraints an XML document producer commits to meeting and what expectations an XML document consumer must meet in order to ensure that the transmission of that document from producer to consumer results in a complete and faithful data exchange. Typically, the consumer ensures that the XML document being received from the producer conforms to that producer commitment by validating the received document against its specified XML Schema document (XSD).

Usually a general-purpose XML processor is used to read XML documents, providing access to their content and structure; this is typically accomplished on behalf of a specialized application. XML Schema 1.0 (Second Edition) describes the required behavior of that XML processor in terms of how it must read XML data and the information that it must provide to that specialized application. Usually a “validating” XML processor is employed – which is required to examine every component of the XML document and report all violations of well-formedness or validity.

* + 1. Schematron Validator

ISO/IEC 19757-3:2006 defines the Schematron Document Schema Definition Language (DSDL) that may be used to specify one or more validation processes to be performed against XML instance documents. Schematron is a rule-based validation language for making assertions about the presence or absence of patterns in XML trees. It is a simple and powerful structural schema language expressed in XML using a small number of elements and XPath (a query language for selecting nodes from an XML document). It may be employed as an adjunct to the structural validation capabilities of XSD – testing for co-occurrence constraints, non-regular constraints, and inter-document constraints.

Schematron is a language system for specifying and declaring assertions about arbitrary patterns in XML documents, based on the presence or absence, or the names and values, of elements and attributes along paths. It uses the languages of *XML Path Language (XPath) Version 1.0* and *XSL Transformations (XSLT) Version 1.0.*

Considered as a document type, a Schematron schema (.*sch* file) contains natural-language assertions about a set of XML documents, marked up with various elements and attributes for testing those natural-language assertions, and for simplifying and grouping assertions.

Considered theoretically, a Schematron schema reduces to a non-chaining rule system whose terms are Boolean functions invoking an external query language on the instance and other visible XML documents, with syntactic features to reduce specification size and to allow efficient implementation.

Considered analytically, Schematron has two characteristic high-level abstractions: the pattern and the phase. These allow the representation of non-regular, non-sequential constraints that ISO/IEC 19757-2:2003 (*Document Schema Definition Languages (DSDL) – Part 2: Regular grammar-based validation – RELAX NG*) cannot specify, and various dynamic or contingent constraints.

A general Schematron validator is a function returning an indication that an XML document is "valid", "invalid" or "error". The function notionally performs two steps: transforming the specified Schematron schema into a minimal syntax[[17]](#footnote-17), and then testing the XML document against the minimal syntax. It is common to implement Schematron validators directly using XSLT.

ISO/IEC 19757-3:2006, Annex C – Default Query Language Binding specifies that:

A Schematron schema with no language binding or a queryBinding attribute with the value xslt, in any mix of upper and lower case letters, shall use the following binding:

* The query language used is the extended version of XPath specified in XSLT. Consequently, the data model used is the data model of those specifications.
* The rule context is interpreted according to the Production 1 of XSLT. The rule context may be the root node, elements, attributes, comments and processing instructions.
* The assertion test is interpreted according to Production 14 of XPath, as returning a Boolean value.
* The name query is interpreted according to Production 14 of XPath, as returning a string value. Typically, the select attribute contains an expression returning an element node: the name query takes the local or prefixed name of the node, not its value.
* The value-of query is interpreted according to Production 14 of XPath, as returning a string value.
* The let value is interpreted according to Production 14 of XPath, as returning a string value.
* The notation for signifying the use of parameter of an abstract pattern is to prefix the name token with the ‘$’character. This is a character not found as a delimiter in URLs or XPaths. The ‘$’character not followed by the name of an in-scope parameter shall not be treated as a parameter name delimiter. Such a character may subsequently be used as a delimiter for a variable name or as a literal character.
* A Schematron let expression is treated as an XSLT variable. The XSLT ‘$’ delimiter signifies the use of a variable in a context expression, assertion test, name query, value-of query, or let expression. The ‘$’character not followed by the name of an in-scope variable shall be treated as a literal character.

The XSLT key element may be used, in the XSLT namespace, before the pattern elements.

The attributes id, name, and prefix should follow the rules for non-colonized names for the version of XML used by the document.

While the ISO/IEC 19757-3:2006 Default Query Language Binding uses XSLT 1.0, other Query Language Bindings may be employed.

Schematron validators used in testing GENC XML encoding schema conformance shall use the default Query Language Binding of XSLT 1.0.

In the future it may be the case that *XSL Transformations (XSLT) Version 2.0* (<http://www.w3.org/TR/xslt20/>) may be allowed for use in testing GENC XML encoding schema conformance, based on the publication of ISO/IEC 19757-3 Second Edition.

* + 1. Testing
       1. Introduction

This GENC Standard specifies two XML namespaces, as follows:

* '**genc**': Specifies XML type components that shall always be used as specified without further restriction unless documented by, and accomplished using, Schematron assertions.
* '**genc-cmn**': Specifies simple XML type components that enable reuse of specialized strings in representing codes in various standards (*e.g*., ISO 639).

When these XML namespaces are referenced from other schemas then the single valid *schemaLocation* for the <import> is that established by **api.nsgreg.nga.mil**. For the GENC Standard, Edition 1.0, these are:

* '**genc**': [http://api.nsgreg.nga.mil/schema/genc/1.0.0/genc.xsd](http://metadata.ces.mil/mdr/ns/GSIP/genc/1.0.0/genc.xsd)
* '**genc-cmn**': [http://api.nsgreg.nga.mil/schema/genc/1.0.0/genc-cmn.xsd](http://metadata.ces.mil/mdr/ns/GSIP/genc/1.0.0/genc-cmn.xsd)

Schema component files (XSD, SCH, XML) may be copied to other locations for development and/or efficiency purposes, however any alteration or substitution violates GENC conformance requirements.

This namespace is implemented in terms of a set of data-file components that are of one of the following three types:

* XML Schema documents (XSD): These specify authoritative XML Schema components that are either:
  + imported from other XML namespaces, or
  + define the GENC XML namespaces ('**genc**' and '**genc-cmn**').
  + ISO/IEC 19757:2006 Schematron (SCH) documents: These specify authoritative constraints applied to XML Schema components that are either:
    - imported from other XML namespaces, or
    - define the GENC XML namespaces ('**genc**' and '**genc-cmn**').
* XML instance documents: These specify:
  + informative examples of the use of GENC Schema components in XML-based information exchange.

Schema component files (XSD, SCH, XML) may be copied from **api.nsgreg.nga.mil** to other locations for development and/or efficiency purposes, however any alteration or substitution violates GENC conformance requirements.

In order to support such “expedient alternatives” the GENC Schema is distributed with an accompanying XML Catalog (OASIS *XML Catalogs, Committee Specification* 06 Aug 2001) that is configured to redirect references to **api.nsgreg.nga.mil** resources to local folders. In a typical environment, those redirects would appear as follows:

<rewriteSystem  
 systemIdStartString="http://api.nsgreg.nga.mil/schema/**genc**/"  
 rewritePrefix="./**genc**/"/>

* + - 1. Instance Document

GENC XML encoding schema conformance of an XML instance document requires that the following set of conditions be met; in general, these tests will be applied in the sequence specified.

1. The XML instance document, when evaluated against ***genc.xsd*** and the imported schema resources specified by **api.nsgreg.nga.mil** using a validating XML processor, shall be determined to be **well-formed** in accordance with the XML Schema 1.0 (Second Edition) standard.
2. The XML instance document, when evaluated against ***genc.xsd*** and the imported schema resources specified by **api.nsgreg.nga.mil** using a validating XML processor, shall be determined to be **valid** in accordance with the XML Schema 1.0 (Second Edition) standard.
   * + 1. Document Generation

All XML instance documents generated by the system under test that are intended to be GENC XML encoding schema-conformant shall satisfy the set of conditions specified in Annex A.3.4.2.

* + - 1. Document Consumption

The system under test shall demonstrate that it successfully and “meaningfully” extracts all component values of any XML instance document that has been demonstrated to be GENC XML encoding schema-conformant, as determined by the set of conditions specified in Annex A.3.4.2.

* 1. Content Conformance
     1. Introduction

The GENC Registry is the single authoritative source for the geopolitical entities (and administrative subdivisions), names, and code content of the GENC Standard. The GENC Registry supports multiple online data access mechanisms and downloadable (offline) information products; for example, <http://nsgreg.nga.mil/genc/discovery> enables browser-based access to the content of the GENC Standard.

Conformance to the names and codes content of the GENC Standard requires that when an item specified in the GENC Registry is employed within an information system or data set that the meaning of the item be preserved and that information regarding the item shall be exactly as specified in the GENC Registry.

The GENC Standard information model specifies:

* a set of URI-based **codespaces** (see Section 5.4.5) – for each content baseline associated with the GENC Standard there is a formally established codespace. Codespaces associated with Edition 1.0 of the GENC Standard are specified in this document. Additional codespaces are established by the Country Codes Working Group (see Section 6) as necessitated by changes to the content of the GENC Standard and the specification of new content baselines.
* a conceptual schema for entries about **geopolitical entities** (see Section 5.5.3) – for each content baseline there is a set of geopolitical entity entries that formally establish the names, codes, and related information for that item.
* a conceptual schema for entries about **administrative subdivisions** (see Section 5.5.6) – for each content baseline there is a set of administrative division entries that formally establish the names, codes, and related information for that item.

Content conformance requires the proper use of: codespaces and codes; names; and other registry-specified information about geopolitical entities and administrative subdivisions.

* + 1. Codespaces and Codes

Every item in the GENC Standard is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code**. The codespace identifies which set (*i.e*., baseline) of GENC Standard “country code” information is intended, and the code identifies which member of that set is intended. In some cases (*i.e*., for “countries”), there are up to three codes that identify the same item of “country code” information. The result of composing the codespace (value) and code (value) is a universally unique identifier. Sections 5.4.3 and 5.4.4 specify the method for composition in the case of URLs and URNs, respectively.

Figure 16 illustrates the URIs that are assigned to the item "AFGHANISTAN" in the GENC Standard, Edition 1.0.

|  |  |  |
| --- | --- | --- |
| **Registry-Assigned URIs** | | |
| **Resource URL (3-char):** |  | [**http://api.nsgreg.nga.mil/geo-political/GENC/3/ed1/AFG**](http://api.nsgreg.nga.mil/geo-political/GENC/3/ed1/AFG) |
| **Resource URN (3-char):** |  | **urn:us:gov:dod:nga:def:geo-political:GENC:3:ed1:AFG** |
| **URN-based Identifiers:** |  | (full)  **geo-political:GENC:3:ed1:AFG**    (short)  **ge:GENC:3:ed1:AFG** |
|  | | |
| **Resource URL (2-char):** |  | [**http://api.nsgreg.nga.mil/geo-political/GENC/2/ed1/AF**](http://api.nsgreg.nga.mil/geo-political/GENC/2/ed1/AF) |
| **Resource URN (2-char):** |  | **urn:us:gov:dod:nga:def:geo-political:GENC:2:ed1:AF** |
| **URN-based Identifiers:** |  | (full)  **geo-political:GENC:2:ed1:AF**     (short)  **ge:GENC:2:ed1:AF** |
|  | | |
| **Resource URL (numeric):** |  | [**http://api.nsgreg.nga.mil/geo-political/GENC/n/ed1/004**](http://api.nsgreg.nga.mil/geo-political/GENC/n/ed1/004) |
| **Resource URN (numeric):** |  | **urn:us:gov:dod:nga:def:geo-political:GENC:n:ed1:004** |
| **URN-based Identifiers:** |  | (full)  **geo-political:GENC:n:ed1:004**     (short)  **ge:GENC:n:ed1:004** |

Figure 16 – Registry-assigned URIs

For each content baseline, these values may be inspected online at <http://nsgreg.nga.mil/genc/discovery> or extracted from the corresponding XML instance document (see Section 5.6).

An information system or data set claiming content-conformance to the GENC Standard that uses codes specified by the GENC Registry to designate geopolitical entity and administrative subdivision items in the GENC Standard:

1. Shall use only URIs specified by the GENC Registry to designate geopolitical entity and administrative subdivision items in the GENC Standard, and
2. Shall not use codes specified by the GENC Registry for the designation of geopolitical entity and administrative subdivision items in the GENC Standard without accompanying the code with the applicable codespace. This requirement may be fulfilled by either:
   1. a direct pairing, or
   2. by establishing a documented scope for a specified codespace and then ensuring that all codes employed within that scope are in accordance with that codespace.

In most cases of information exchange, the approach of a direct codespace/code pairing (case 2.a) will be employed in order to ensure full data integrity. In information exchanges in which encoding efficiency is highly valued, the approach of scope-establishment may be employed (case 2.b) with concomitant risk of potential loss in data integrity.

* + 1. Names

Every item in the GENC Standard has one or more assigned names. In the case that more than a single name is assigned, additional information is supplied that specifies the contexts in which different names may be suitable for use. Among those contexts is one that ensures that each item of a given type (geopolitical entity or administrative subdivision) is uniquely named within a content baseline. For example, in the case of geopolitical entities, the value of the Name (*e.g*., "AFGHANISTAN") is uniquely assigned.[[18]](#footnote-18)

For each content baseline, these values may be inspected online at <http://nsgreg.nga.mil/genc/discovery> or extracted from the corresponding XML instance document (see Section 5.6).

An information system or data set claiming content-conformance to the GENC Standard shall only use names specified by the GENC Registry to designate geopolitical entity and administrative subdivision items in the GENC Standard. To avoid ambiguity, it is recommended that only names that are uniquely-assigned be used.

An information system or data set claiming content-conformance to the GENC Standard that uses names specified by the GENC Registry to designate geopolitical entity and administrative subdivision items in the GENC Standard:

1. Shall use only URIs specified by the GENC Registry to designate geopolitical entity and administrative subdivision items in the GENC Standard, and
2. Shall always identify the applicable baseline by specifying the corresponding codespace. This requirement may be fulfilled by either:
   1. a direct pairing, or
   2. by establishing a documented scope for a specified codespace and then ensuring that all names employed within that scope are in accordance with that codespace.

In most cases of information exchange, the approach of a direct codespace/name pairing (case 2.a) will be employed in order to ensure full data integrity. In information exchanges in which encoding efficiency is highly valued, the approach of scope-establishment may be employed (case 2.b) with concomitant risk of potential loss in data integrity.

* + 1. Related Information

The GENC Standard conceptual schema (see Section5.5) models information other than codes and names for the content of the GENC Registry; for example, in the case of geopolitical entities, the U.N. Legal Status and U.S. Recognition are represented. For each item in the GENC Registry, a value is specified for all such item-related information.

For each content baseline, these values may be inspected online at <http://nsgreg.nga.mil/genc/discovery> or extracted from the corresponding XML instance document (see Section 5.6).

An information system or data set claiming content-conformance to the GENC Standard shall only use item-related information specified by the GENC Registry when describing geopolitical entity and administrative subdivision items in the GENC Standard.

1. – Country Code Standards  
   (Informative)
   1. Overview

In order to facilitate information interoperability, the GENC Registry specifies codespaces for, and the content of, “country code” standards other than the GENC Standard. These standards include:

* ISO 3166 (Parts 1 and 2);
* FIPS 10 through 10-4; and
* Geopolitical Entities and Codes (GEC).

For each of these standards this Annex furnishes information regarding the semantics and structure of its conceptual schema as employed in the GENC Registry, and its codespaces and identifiers as assigned in the GENC Registry.

* 1. ISO 3166
     1. Introduction

ISO 3166, *Codes for the representation of names of countries and their subdivisions*, is a multi-part standard that establishes internationally recognized coded representations of names of countries, dependencies, and other areas of particular geopolitical interest and their subdivisions. ISO 3166 was first published in 1974 as a single standard to establish the country code elements. It was expanded into three parts in 1997 to additionally establish code elements for subdivisions (ISO 3166-2) and code elements for names of countries that are no longer in use (ISO 3166-3).

Section 5.2 specifies aspects of ISO 3166 critical to establishing the GENC Standard as a profile of ISO 3166. This Annex component furnishes additional information regarding the semantics and structure of the ISO 3166 conceptual schema (Annex B.2.3), the codespaces and identifiers assigned in the GENC Registry (Annex B.2.2), and (where applicable) information regarding the content management activities of the ISO 3166/MA.

* + 1. Codespaces
       1. URLs for Codespace-designation

Every item in ISO 3166 (Parts 1 and 2) is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code**. The codespace identifies which set of ISO 3166 “country code” information is intended, and the code identifies which member of that set is intended.

URL-based codespace-designations in the GENC Registry for items in ISO 3166 are constructed in accordance with the pattern specified for the GENC Standard in Section 5.4.3, with the following revisions to component patterns:

* *authority* – one of { 'ISO3166' | 'ISO3166-1' | 'ISO3166-2' }
* *baseline* – one of three patterns:[[19]](#footnote-19)
  + The specification of an edition, as the string 'ed' followed by one or more digits (*e.g*., 'ed1').
  + The specification of an ISO 3166/MA change notice (designated "Newsletter") using a well-known identifier composed as follows, in order:
    - the identifier of the latest edition of the applicable part of ISO 3166, expressed in uppercase Roman numerals;
    - a hyphen ('-'); and
    - one or more digits indicating the sequential number of the Newsletter since the publication of that edition of the applicable part of ISO 3166.

*E.g*., 'II-3' (the third Newsletter since publication of the second edition) and 'VI-7' (the seventh Newsletter since publication of the sixth edition[[20]](#footnote-20)).

* + The specification of the most recent (“current”) baseline, as the string 'now'.

The complete set of components are then concatenated into a single string as specified by the pattern (above), to form the URL that designates that codespace. For example:

<http://api.nsgreg.nga.mil/geo-political/ISO3166-1/3/VI-12> (a 3-character country code in ISO 3166-1, Sixth Edition, Newsletter 12)

<http://api.nsgreg.nga.mil/geo-division/ISO3166-2/6/II-3> (a 6-character subdivision code in ISO 3166-2, Second Edition, Newsletter 3)

<http://api.nsgreg.nga.mil/geo-division/ISO3166-2/6/now> (a 6-character subdivision code in ISO 3166-2, Second Edition, most recent Newsletter)

Individual items within a codespace are identified by concatenating the codespace-URL, a forward-slash ('/'), and then the applicable code. For example:

<http://api.nsgreg.nga.mil/geo-political/ISO3166-1/2/VI-12/US> (the UNITED STATES as identified in ISO 3166-1, Sixth Edition, Newsletter 12, using a 2-character code)

<http://api.nsgreg.nga.mil/geo-division/ISO3166-2/6/II-3/US-VA> (the U.S. state of Virginia as identified in ISO 3166-2, Second Edition, Newsletter 3, using a 6-character code)

<http://api.nsgreg.nga.mil/geo-division/ISO3166-2/6/now/US-VA> (the U.S. state of Virginia as identified in ISO 3166-2, Second Edition, most recent Newsletter, using a 6-character code)

The resulting URL may be used to access the item-associated resource in the GENC Registry.

* + - 1. URNs for Codespace-designation

URN codespace-designations in the GENC Registry for ISO 3166 (Parts 1 and 2) are constructed in accordance with the rules specified in Section 5.4.4.2, as modified by the revised component patterns of Annex B.2.2.1. For example:

"**urn:us:gov:dod:nga:def:geo-political:ISO3166-1:3:VI-12**" (a 3-character country code in ISO 3166-1, Sixth Edition, Newsletter 12)

"**urn:us:gov:dod:nga:def:geo-division:ISO3166-2:6:II-3**" (a 6-character subdivision code in ISO 3166-2, Second Edition, Newsletter 3)

"**urn:us:gov:dod:nga:def:geo-division:ISO3166-2:6:now**" (a 6-character subdivision code in ISO 3166-2, Second Edition, most recent Newsletter)

Analogous to the URL, individual items within a URN-based codespace are identified by concatenating the codespace-URN, a colon (':'), and then the applicable code value.

URN-like codespace-designations in the GENC Registry for ISO 3166 (Parts 1 and 2) are constructed in accordance with the rules specified in Section 5.4.4.3, as modified by the revised component patterns of Annex B.2.2.1. For example:

"**geo-political:ISO3166-1:3:VI-12**" (a 3-character country code in ISO 3166-1, Sixth Edition, Newsletter 12)

"**geo-division:ISO3166-2:6:II-3**" (a 6-character subdivision code in ISO 3166-2, Second Edition, Newsletter 3)

"**geo-division:ISO3166-2:6:now**" (a 6-character subdivision code in ISO 3166-2, Second Edition, most recent Newsletter)

Examples of individual item identifiers are:

"**geo-political:ISO3166-1:2:VI-12:US**" (the UNITED STATES as identified in ISO 3166-1, Sixth Edition, Newsletter 12, using a 2-character code)

"**geo-division:ISO3166-2:6:II-3:US-VA**" (the U.S. state of Virginia as identified in ISO 3166-2, Second Edition, Newsletter 3, using a 6-character code)

"**geo-division:ISO3166-2:6:now:US-VA**" (the U.S. state of Virginia as identified in ISO 3166-2, Second Edition, most recent Newsletter, using a 6-character code)

Every item in ISO 3166 is thus uniquely identified by the combination of a URN-based **codespace** (maximum 32 characters) and a **code** (maximum 7 characters) that, taken together with the colon (':') that is used as the separator, are limited to a maximum of 40 characters.

Short URN-like codespace-designations in the GENC Registry for ISO 3166 (Parts 1 and 2) are constructed in accordance with the rules specified in Section 5.4.4.4, as modified by the revised component patterns of Annex B.2.2.1 and the following:

* *authority* – one of { 'ISO' | 'ISO1' | 'ISO2' }

For example:

"**ge:ISO1:3:VI-12**" (a 3-character country code in ISO 3166-1, Sixth Edition, Newsletter 12)

"**as:ISO2:6:II-3**" (a 6-character subdivision code in ISO 3166-2, Second Edition, Newsletter 3)

"**as:ISO2:6:now**" (a 6-character subdivision code in ISO 3166-2, Second Edition, most recent Newsletter )

Examples of individual item identifiers are:

"**ge:ISO1:2:VI-12:US**" (the UNITED STATES as identified in ISO 3166-1, Sixth Edition, Newsletter 12, using a 2-character code)

"**as:ISO2:6:II-3:US-VA**" (the U.S. state of Virginia as identified in ISO 3166-2, Second Edition, Newsletter 3, using a 6-character code)

"**as:ISO2:6:now:US-VA**" (the U.S. state of Virginia as identified in ISO 3166-2, Second Edition, most recent Newsletter, using a 6-character code)

Every item in ISO 3166 is thus uniquely identified by the combination of a short URN-based **codespace** (maximum 16 characters) and a **code** (maximum 7 characters) that, taken together with the colon (':') that is used as the separator, are limited to a maximum of 24 characters.

The URN Resolution Service established by the GENC Registry may be used with all three of these URN forms.

* + - 1. Established Codespaces

In accordance with the patterns established in the preceding sections, URI-based codespaces are established for ISO 3166.

Tables whose content establishes codespaces for use with the GENC Standard contain columns specified in accordance with Section 5.4.5. Each row in a table documents a distinct codespace. To enhance comprehension of the patterns followed, in some cases cells are merged across multiple rows to emphasize shared content.

URI-based codespaces established for ISO 3166 are as follows:

* Codespaces used for country codes are specified in Table 27, Table 28, Table 29, and Table 30.

URI-based codespaces established for ISO 3166-1 are as follows:

* Codespaces used for country codes are specified in Table 31 and Table 32.

URI-based codespaces established for ISO 3166-2 are as follows:

* Codespaces used for country subdivisions are specified in Table 33 and Table 34.

Additional codespaces will established based on the activities of the ISO 3166/MA.

Table 27 – ISO 3166 1st Edition Country Codespaces

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| ISO 3166:1974 | 15 December 1974 | 2 | ed1 | geo-political/ISO3166/2/ed1 | geo-political:ISO3166:2:ed1 | ge:ISO:2:ed1 |
| 3 | geo-political/ISO3166/3/ed1 | geo-political:ISO3166:3:ed1 | ge:ISO:3:ed1 |
| 1 August 1975 | 2 | ER1[[21]](#footnote-21) | geo-political/ISO3166/2/ER1 | geo-political:ISO3166:2:ER1 | ge:ISO:2:ER1 |
| 3 | geo-political/ISO3166/3/ER1 | geo-political:ISO3166:3:ER1 | ge:ISO:3:ER1 |
| 1 August 1977 | 2 | AMD1[[22]](#footnote-22) | geo-political/ISO3166/2/AMD1 | geo-political:ISO3166:2:AMD1 | ge:ISO:2:AMD1 |
| 3 | geo-political/ISO3166/3/AMD1 | geo-political:ISO3166:3:AMD1 | ge:ISO:3:AMD1 |
| 15 July 1978 | 2 | AMD2 | geo-political/ISO3166/2/AMD2 | geo-political:ISO3166:2:AMD2 | ge:ISO:2:AMD2 |
| 3 | geo-political/ISO3166/3/AMD2 | geo-political:ISO3166:3:AMD2 | ge:ISO:3:AMD2 |
| 12 July 1979 | 2 | AMD3 | geo-political/ISO3166/2/AMD3 | geo-political:ISO3166:2:AMD3 | ge:ISO:2:AMD3 |
| 3 | geo-political/ISO3166/3/AMD3 | geo-political:ISO3166:3:AMD3 | ge:ISO:3:AMD3 |
| 30 July 1980 | 2 | AMD4 | geo-political/ISO3166/2/AMD4 | geo-political:ISO3166:2:AMD4 | ge:ISO:2:AMD4 |
| 3 | geo-political/ISO3166/3/AMD4 | geo-political:ISO3166:3:AMD4 | ge:ISO:3:AMD4 |

Table 28 – ISO 3166 2nd Edition Country Codespaces

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| ISO 3166:1981 | 15 May 1981 | 2 | ed2 | geo-political/ISO3166/2/ed2 | geo-political:ISO3166:2:ed2 | ge:ISO:2:ed2 |
| 3 | geo-political/ISO3166/3/ed2 | geo-political:ISO3166:3:ed2 | ge:ISO:3:ed2 |
| *<to be determined>* | 2 | *<tbd>* | *<to be determined>* | *<to be determined>* | *<tbd>* |
| 3 | *<to be determined>* | *<to be determined>* | *<tbd>* |

Table 29 – ISO 3166 3rd Edition Country Codespaces

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| ISO 3166:1988 | 15 August 1988 | 2 | ed3 | geo-political/ISO3166/2/ed3 | geo-political:ISO3166:2:ed3 | ge:ISO:2:ed3 |
| 3 | geo-political/ISO3166/3/ed3 | geo-political:ISO3166:3:ed3 | ge:ISO:3:ed3 |
| 5 December 1989 | 2 | III-1 | geo-political/ISO3166/2/III-1 | geo-political:ISO3166:2:III-1 | ge:ISO:2:III-1 |
| 3 | geo-political/ISO3166/3/III-1 | geo-political:ISO3166:3:III-1 | ge:ISO:3:III-1 |
| 16 July 1990 | 2 | III-2 | geo-political/ISO3166/2/III-2 | geo-political:ISO3166:2:III-2 | ge:ISO:2:III-2 |
| 3 | geo-political/ISO3166/3/III-2 | geo-political:ISO3166:3:III-2 | ge:ISO:3:III-2 |
| 14 August 1990 | 2 | III-11[[23]](#footnote-23) | geo-political/ISO3166/2/III-11 | geo-political:ISO3166:2:III-11 | ge:ISO:2:III-11 |
| 3 | geo-political/ISO3166/3/III-11 | geo-political:ISO3166:3:III-11 | ge:ISO:3:III-11 |
| 30 October 1990 | 2 | III-13 | geo-political/ISO3166/2/III-13 | geo-political:ISO3166:2:III-13 | ge:ISO:2:III-13 |
| 3 | geo-political/ISO3166/3/III-13 | geo-political:ISO3166:3:III-13 | ge:ISO:3:III-13 |
| 4 December 1990 | 2 | III-12 | geo-political/ISO3166/2/III-12 | geo-political:ISO3166:2:III-12 | ge:ISO:2:III-12 |
| 3 | geo-political/ISO3166/3/III-12 | geo-political:ISO3166:3:III-12 | ge:ISO:3:III-12 |
| 10 February 1991 | 2 | III-15 | geo-political/ISO3166/2/III-15 | geo-political:ISO3166:2:III-15 | ge:ISO:2:III-15 |
| 3 | geo-political/ISO3166/3/III-15 | geo-political:ISO3166:3:III-15 | ge:ISO:3:III-15 |
| 18 December 1991 | 2 | III-25 | geo-political/ISO3166/2/III-25 | geo-political:ISO3166:2:III-25 | ge:ISO:2:III-25 |
| 3 | geo-political/ISO3166/3/III-25 | geo-political:ISO3166:3:III-25 | ge:ISO:3:III-25 |
| 6 April 1992 | 2 | III-21 | geo-political/ISO3166/2/III-21 | geo-political:ISO3166:2:III-21 | ge:ISO:2:III-21 |
| 3 | geo-political/ISO3166/3/III-21 | geo-political:ISO3166:3:III-21 | ge:ISO:3:III-21 |
| 19 April 1992 | 2 | III-23 | geo-political/ISO3166/2/III-23 | geo-political:ISO3166:2:III-23 | ge:ISO:2:III-23 |
| 3 | geo-political/ISO3166/3/III-23 | geo-political:ISO3166:3:III-23 | ge:ISO:3:III-23 |
| 15 June 1992 | 2 | III-36 | geo-political/ISO3166/2/III-36 | geo-political:ISO3166:2:III-36 | ge:ISO:2:III-36 |
| 3 | geo-political/ISO3166/3/III-36 | geo-political:ISO3166:3:III-36 | ge:ISO:3:III-36 |
| 28 August 1992 | 2 | III-28 | geo-political/ISO3166/2/III-28 | geo-political:ISO3166:2:III-28 | ge:ISO:2:III-28 |
| 3 | geo-political/ISO3166/3/III-28 | geo-political:ISO3166:3:III-28 | ge:ISO:3:III-28 |
| 30 August 1992 | 2 | III-37 | geo-political/ISO3166/2/III-37 | geo-political:ISO3166:2:III-37 | ge:ISO:2:III-37 |
| 3 | geo-political/ISO3166/3/III-37 | geo-political:ISO3166:3:III-37 | ge:ISO:3:III-37 |
| 15 June 1993 | 2 | III-51 | geo-political/ISO3166/2/III-51 | geo-political:ISO3166:2:III-51 | ge:ISO:2:III-51 |
| 3 | geo-political/ISO3166/3/III-51 | geo-political:ISO3166:3:III-51 | ge:ISO:3:III-51 |
| 30 September 1992 | 2 | III-39 | geo-political/ISO3166/2/III-39 | geo-political:ISO3166:2:III-39 | ge:ISO:2:III-39 |
| 3 | geo-political/ISO3166/3/III-39 | geo-political:ISO3166:3:III-39 | ge:ISO:3:III-39 |
| 18 June 1993 | 2 | III-24 | geo-political/ISO3166/2/III-24 | geo-political:ISO3166:2:III-24 | ge:ISO:2:III-24 |
| 3 | geo-political/ISO3166/3/III-24 | geo-political:ISO3166:3:III-24 | ge:ISO:3:III-24 |
| 2 July 1993 | 2 | III-52 | geo-political/ISO3166/2/III-52 | geo-political:ISO3166:2:III-52 | ge:ISO:2:III-52 |
| 3 | geo-political/ISO3166/3/III-52 | geo-political:ISO3166:3:III-52 | ge:ISO:3:III-52 |
| 12 July 1993 | 2 | III-53 | geo-political/ISO3166/2/III-53 | geo-political:ISO3166:2:III-53 | ge:ISO:2:III-53 |
| 3 | geo-political/ISO3166/3/III-53 | geo-political:ISO3166:3:III-53 | ge:ISO:3:III-53 |
| 16 July 1993 | 2 | III-58 | geo-political/ISO3166/2/III-58 | geo-political:ISO3166:2:III-58 | ge:ISO:2:III-58 |
| 3 | geo-political/ISO3166/3/III-58 | geo-political:ISO3166:3:III-58 | ge:ISO:3:III-58 |
| 22 July 1993 | 2 | III-44 | geo-political/ISO3166/2/III-44 | geo-political:ISO3166:2:III-44 | ge:ISO:2:III-44 |
| 3 | geo-political/ISO3166/3/III-44 | geo-political:ISO3166:3:III-44 | ge:ISO:3:III-44 |
| 23 July 1993 | 2 | III-54 | geo-political/ISO3166/2/III-54 | geo-political:ISO3166:2:III-54 | ge:ISO:2:III-54 |
| 3 | geo-political/ISO3166/3/III-54 | geo-political:ISO3166:3:III-54 | ge:ISO:3:III-54 |
| 25 July 1993 | 2 | III-32a | geo-political/ISO3166/2/III-32a | geo-political:ISO3166:2:III-32a | ge:ISO:2:III-32a |
| 3 | geo-political/ISO3166/3/III-32a | geo-political:ISO3166:3:III-32a | ge:ISO:3:III-32a |
| 28 July 1993 | 2 | III-45 | geo-political/ISO3166/2/III-45 | geo-political:ISO3166:2:III-45 | ge:ISO:2:III-45 |
| 3 | geo-political/ISO3166/3/III-45 | geo-political:ISO3166:3:III-45 | ge:ISO:3:III-45 |
| 26 January 1994 | 2 | III-60 | geo-political/ISO3166/2/III-60 | geo-political:ISO3166:2:III-60 | ge:ISO:2:III-60 |
| 3 | geo-political/ISO3166/3/III-60 | geo-political:ISO3166:3:III-60 | ge:ISO:3:III-60 |

Table 30 – ISO 3166 4th Edition Country Codespaces

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| ISO 3166:1993 | 15 December 1993 | 2 | ed4 | geo-political/ISO3166/2/ed4 | geo-political:ISO3166:2:ed4 | ge:ISO:2:ed4 |
| 3 | geo-political/ISO3166/3/ed4 | geo-political:ISO3166:3:ed4 | ge:ISO:3:ed4 |
| 3 April 1996 | 2 | IV-1 | geo-political/ISO3166/2/IV-1 | geo-political:ISO3166:2:IV-1 | ge:ISO:2:IV-1 |
| 3 | geo-political/ISO3166/3/IV-1 | geo-political:ISO3166:3:IV-1 | ge:ISO:3:IV-1 |
| 14 July 1997 | 2 | IV-2 | geo-political/ISO3166/2/IV-2 | geo-political:ISO3166:2:IV-2 | ge:ISO:2:IV-2 |
| 3 | geo-political/ISO3166/3/IV-2 | geo-political:ISO3166:3:IV-2 | ge:ISO:3:IV-2 |

Table 31 – ISO 3166-1 1st (5th) Edition Country Codespaces

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| ISO 3166-1:1997 | 1 October 1997 | 2 | ed5 | geo-political/ISO3166-1/2/ed5 | geo-political:ISO3166-1:2:ed5 | ge:ISO1:2:ed5 |
| 3 | geo-political/ISO3166-1/3/ed5 | geo-political:ISO3166-1:3:ed5 | ge:ISO1:3:ed5 |
| n | geo-political/ISO3166-1/n/ed5 | geo-political:ISO3166-1:n:ed5 | ge:ISO1:n:ed5 |
| 5 February 1998 | 2 | V-1 | geo-political/ISO3166-1/2/V-1 | geo-political:ISO3166-1:2:V-1 | ge:ISO1:2:V-1 |
| 3 | geo-political/ISO3166-1/3/V-1 | geo-political:ISO3166-1:3:V-1 | ge:ISO1:3:V-1 |
| n | geo-political/ISO3166-1/n/V-1 | geo-political:ISO3166-1:n:V-1 | ge:ISO1:n:V-1 |
| 1 October 1999 | 2 | V-2 | geo-political/ISO3166-1/2/V-2 | geo-political:ISO3166-1:2:V-2 | ge:ISO1:2:V-2 |
| 3 | geo-political/ISO3166-1/3/V-2 | geo-political:ISO3166-1:3:V-2 | ge:ISO1:3:V-2 |
| n | geo-political/ISO3166-1/n/V-2 | geo-political:ISO3166-1:n:V-2 | ge:ISO1:n:V-2 |
| 1 February 2002 | 2 | V-3 | geo-political/ISO3166-1/2/V-3 | geo-political:ISO3166-1:2:V-3 | ge:ISO1:2:V-3 |
| 3 | geo-political/ISO3166-1/3/V-3 | geo-political:ISO3166-1:3:V-3 | ge:ISO1:3:V-3 |
| n | geo-political/ISO3166-1/n/V-3 | geo-political:ISO3166-1:n:V-3 | ge:ISO1:n:V-3 |
| 20 May 2002 | 2 | V-5 | geo-political/ISO3166-1/2/V-5 | geo-political:ISO3166-1:2:V-5 | ge:ISO1:2:V-5 |
| 3 | geo-political/ISO3166-1/3/V-5 | geo-political:ISO3166-1:3:V-5 | ge:ISO1:3:V-5 |
| n | geo-political/ISO3166-1/n/V-5 | geo-political:ISO3166-1:n:V-5 | ge:ISO1:n:V-5 |
| 15 November 2002 | 2 | V-6 | geo-political/ISO3166-1/2/V-6 | geo-political:ISO3166-1:2:V-6 | ge:ISO1:2:V-6 |
| 3 | geo-political/ISO3166-1/3/V-6 | geo-political:ISO3166-1:3:V-6 | ge:ISO1:3:V-6 |
| n | geo-political/ISO3166-1/n/V-6 | geo-political:ISO3166-1:n:V-6 | ge:ISO1:n:V-6 |
| 14 January 2003 | 2 | V-7 | geo-political/ISO3166-1/2/V-7 | geo-political:ISO3166-1:2:V-7 | ge:ISO1:2:V-7 |
| 3 | geo-political/ISO3166-1/3/V-7 | geo-political:ISO3166-1:3:V-7 | ge:ISO1:3:V-7 |
| n | geo-political/ISO3166-1/n/V-7 | geo-political:ISO3166-1:n:V-7 | ge:ISO1:n:V-7 |
| 23 July 2003 | 2 | V-8 | geo-political/ISO3166-1/2/V-8 | geo-political:ISO3166-1:2:V-8 | ge:ISO1:2:V-8 |
| 3 | geo-political/ISO3166-1/3/V-8 | geo-political:ISO3166-1:3:V-8 | ge:ISO1:3:V-8 |
| n | geo-political/ISO3166-1/n/V-8 | geo-political:ISO3166-1:n:V-8 | ge:ISO1:n:V-8 |
| 13 February 2004 | 2 | V-9 | geo-political/ISO3166-1/2/V-9 | geo-political:ISO3166-1:2:V-9 | ge:ISO1:2:V-9 |
| 3 | geo-political/ISO3166-1/3/V-9 | geo-political:ISO3166-1:3:V-9 | ge:ISO1:3:V-9 |
| n | geo-political/ISO3166-1/n/V-9 | geo-political:ISO3166-1:n:V-9 | ge:ISO1:n:V-9 |
| 26 April 2004 | 2 | V-10 | geo-political/ISO3166-1/2/V-10 | geo-political:ISO3166-1:2:V-10 | ge:ISO1:2:V-10 |
| 3 | geo-political/ISO3166-1/3/V-10 | geo-political:ISO3166-1:3:V-10 | ge:ISO1:3:V-10 |
| n | geo-political/ISO3166-1/n/V-10 | geo-political:ISO3166-1:n:V-10 | ge:ISO1:n:V-10 |
| 29 March 2006 | 2 | V-11 | geo-political/ISO3166-1/2/V-11 | geo-political:ISO3166-1:2:V-11 | ge:ISO1:2:V-11 |
| 3 | geo-political/ISO3166-1/3/V-11 | geo-political:ISO3166-1:3:V-11 | ge:ISO1:3:V-11 |
| n | geo-political/ISO3166-1/n/V-11 | geo-political:ISO3166-1:n:V-11 | ge:ISO1:n:V-11 |
| 26 September 2006 | 2 | V-12 | geo-political/ISO3166-1/2/V-12 | geo-political:ISO3166-1:2:V-12 | ge:ISO1:2:V-12 |
| 3 | geo-political/ISO3166-1/3/V-12 | geo-political:ISO3166-1:3:V-12 | ge:ISO1:3:V-12 |
| n | geo-political/ISO3166-1/n/V-12 | geo-political:ISO3166-1:n:V-12 | ge:ISO1:n:V-12 |

Table 32 – ISO 3166-1 2nd (6th) Edition Country Codespaces

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| ISO 3166-1:2006 | 15 November 2006 | 2 | ed6 | geo-political/ISO3166-1/2/ed6 | geo-political:ISO3166-1:2:ed6 | ge:ISO1:2:ed6 |
| 3 | geo-political/ISO3166-1/3/ed6 | geo-political:ISO3166-1:3:ed6 | ge:ISO1:3:ed6 |
| n | geo-political/ISO3166-1/n/ed6 | geo-political:ISO3166-1:n:ed6 | ge:ISO1:n:ed6 |
| 15 July 2007 | 2 | ed6c1 | geo-political/ISO3166-1/2/ed6c1 | geo-political:ISO3166-1:2:ed6c1 | ge:ISO1:2:ed6c1 |
| 3 | geo-political/ISO3166-1/3/ed6c1 | geo-political:ISO3166-1:3:ed6c1 | ge:ISO1:3:ed6c1 |
| n | geo-political/ISO3166-1/n/ed6c1 | geo-political:ISO3166-1:n:ed6c1 | ge:ISO1:n:ed6c1 |
| 21 September 2007 | 2 | VI-1 | geo-political/ISO3166-1/2/VI-1 | geo-political:ISO3166-1:2:VI-1 | ge:ISO1:2:VI-1 |
| 3 | geo-political/ISO3166-1/3/VI-1 | geo-political:ISO3166-1:3:VI-1 | ge:ISO1:3:VI-1 |
| n | geo-political/ISO3166-1/n/VI-1 | geo-political:ISO3166-1:n:VI-1 | ge:ISO1:n:VI-1 |
| 31 March 2008 | 2 | VI-2 | geo-political/ISO3166-1/2/VI-2 | geo-political:ISO3166-1:2:VI-2 | ge:ISO1:2:VI-2 |
| 3 | geo-political/ISO3166-1/3/VI-2 | geo-political:ISO3166-1:3:VI-2 | ge:ISO1:3:VI-2 |
| n | geo-political/ISO3166-1/n/VI-2 | geo-political:ISO3166-1:n:VI-2 | ge:ISO1:n:VI-2 |
| 9 September 2008 | 2 | VI-3 | geo-political/ISO3166-1/2/VI-3 | geo-political:ISO3166-1:2:VI-3 | ge:ISO1:2:VI-3 |
| 3 | geo-political/ISO3166-1/3/VI-3 | geo-political:ISO3166-1:3:VI-3 | ge:ISO1:3:VI-3 |
| n | geo-political/ISO3166-1/n/VI-3 | geo-political:ISO3166-1:n:VI-3 | ge:ISO1:n:VI-3 |
| 7 January 2009 | 2 | VI-4 | geo-political/ISO3166-1/2/VI-4 | geo-political:ISO3166-1:2:VI-4 | ge:ISO1:2:VI-4 |
| 3 | geo-political/ISO3166-1/3/VI-4 | geo-political:ISO3166-1:3:VI-4 | ge:ISO1:3:VI-4 |
| n | geo-political/ISO3166-1/n/VI-4 | geo-political:ISO3166-1:n:VI-4 | ge:ISO1:n:VI-4 |
| 3 March 2009 | 2 | VI-5 | geo-political/ISO3166-1/2/VI-5 | geo-political:ISO3166-1:2:VI-5 | ge:ISO1:2:VI-5 |
| 3 | geo-political/ISO3166-1/3/VI-5 | geo-political:ISO3166-1:3:VI-5 | ge:ISO1:3:VI-5 |
| n | geo-political/ISO3166-1/n/VI-5 | geo-political:ISO3166-1:n:VI-5 | ge:ISO1:n:VI-5 |
| 8 April 2009 | 2 | VI-6 | geo-political/ISO3166-1/2/VI-6 | geo-political:ISO3166-1:2:VI-6 | ge:ISO1:2:VI-6 |
| 3 | geo-political/ISO3166-1/3/VI-6 | geo-political:ISO3166-1:3:VI-6 | ge:ISO1:3:VI-6 |
| n | geo-political/ISO3166-1/n/VI-6 | geo-political:ISO3166-1:n:VI-6 | ge:ISO1:n:VI-6 |
| 22 February 2010 | 2 | VI-7 | geo-political/ISO3166-1/2/VI-7 | geo-political:ISO3166-1:2:VI-7 | ge:ISO1:2:VI-7 |
| 3 | geo-political/ISO3166-1/3/VI-7 | geo-political:ISO3166-1:3:VI-7 | ge:ISO1:3:VI-7 |
| n | geo-political/ISO3166-1/n/VI-7 | geo-political:ISO3166-1:n:VI-7 | ge:ISO1:n:VI-7 |
| 15 December 2010 | 2 | VI-8 | geo-political/ISO3166-1/2/VI-8 | geo-political:ISO3166-1:2:VI-8 | ge:ISO1:2:VI-8 |
| 3 | geo-political/ISO3166-1/3/VI-8 | geo-political:ISO3166-1:3:VI-8 | ge:ISO1:3:VI-8 |
| n | geo-political/ISO3166-1/n/VI-8 | geo-political:ISO3166-1:n:VI-8 | ge:ISO1:n:VI-8 |
| 14 July 2011 | 2 | VI-9 | geo-political/ISO3166-1/2/VI-9 | geo-political:ISO3166-1:2:VI-9 | ge:ISO1:2:VI-9 |
| 3 | geo-political/ISO3166-1/3/VI-9 | geo-political:ISO3166-1:3:VI-9 | ge:ISO1:3:VI-9 |
| n | geo-political/ISO3166-1/n/VI-9 | geo-political:ISO3166-1:n:VI-9 | ge:ISO1:n:VI-9 |
| 9 August 2011 | 2 | VI-10 | geo-political/ISO3166-1/2/VI-10 | geo-political:ISO3166-1:2:VI-10 | ge:ISO1:2:VI-10 |
| 3 | geo-political/ISO3166-1/3/VI-10 | geo-political:ISO3166-1:3:VI-10 | ge:ISO1:3:VI-10 |
| n | geo-political/ISO3166-1/n/VI-10 | geo-political:ISO3166-1:n:VI-10 | ge:ISO1:n:VI-10 |
| 8 November 2011 | 2 | VI-11 | geo-political/ISO3166-1/2/VI-11 | geo-political:ISO3166-1:2:VI-11 | ge:ISO1:2:VI-11 |
| 3 | geo-political/ISO3166-1/3/VI-11 | geo-political:ISO3166-1:3:VI-11 | ge:ISO1:3:VI-11 |
| n | geo-political/ISO3166-1/n/VI-11 | geo-political:ISO3166-1:n:VI-11 | ge:ISO1:n:VI-11 |
| 15 February 2012 | 2 | VI-12 | geo-political/ISO3166-1/2/VI-12 | geo-political:ISO3166-1:2:VI-12 | ge:ISO1:2:VI-12 |
| 3 | geo-political/ISO3166-1/3/VI-12 | geo-political:ISO3166-1:3:VI-12 | ge:ISO1:3:VI-12 |
| n | geo-political/ISO3166-1/n/VI-12 | geo-political:ISO3166-1:n:VI-12 | ge:ISO1:n:VI-12 |
| 2 August 2012 | 2 | VI-13 | geo-political/ISO3166-1/2/VI-13 | geo-political:ISO3166-1:2:VI-13 | ge:ISO1:2:VI-13 |
| 3 | geo-political/ISO3166-1/3/VI-13 | geo-political:ISO3166-1:3:VI-13 | ge:ISO1:3:VI-13 |
| n | geo-political/ISO3166-1/n/VI-13 | geo-political:ISO3166-1:n:VI-13 | ge:ISO1:n:VI-13 |
| *<current>* | 2 | now | geo-political/ISO3166-1/2/now | geo-political:ISO3166-1:2:now | ge:ISO1:2:now |
| 3 | geo-political/ISO3166-1/3/now | geo-political:ISO3166-1:3:now | ge:ISO1:3:now |
| n | geo-political/ISO3166-1/n/now | geo-political:ISO3166-1:n:now | ge:ISO1:n:now |

Table 33 – ISO 3166-2 1st Edition Country Subdivision Codespaces

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| ISO 3166-2:1998 | 15 December 1998 | 6 | ed1 | geo-division/ISO3166-2/6/ed1 | geo-division:ISO3166-2:6:ed1 | as:ISO2:6:ed1 |
| 21 June 2000 | I-1 | geo-division/ISO3166-2/6/I-1 | geo-division:ISO3166-2:6:I-1 | as:ISO2:6:I-1 |
| 21 May 2002 | I-2 | geo-division/ISO3166-2/6/I-2 | geo-division:ISO3166-2:6:I-2 | as:ISO2:6:I-2 |
| 20 August 2002 | I-3 | geo-division/ISO3166-2/6/I-3 | geo-division:ISO3166-2:6:I-3 | as:ISO2:6:I-3 |
| 10 December 2002 | I-4 | geo-division/ISO3166-2/6/I-4 | geo-division:ISO3166-2:6:I-4 | as:ISO2:6:I-4 |
| 5 September 2003 | I-5 | geo-division/ISO3166-2/6/I-5 | geo-division:ISO3166-2:6:I-5 | as:ISO2:6:I-5 |
| 8 March 2004 | I-6 | geo-division/ISO3166-2/6/I-6 | geo-division:ISO3166-2:6:I-6 | as:ISO2:6:I-6 |
| 13 September 2005 | I-7 | geo-division/ISO3166-2/6/I-7 | geo-division:ISO3166-2:6:I-7 | as:ISO2:6:I-7 |
| 17 April 2007 | I-8 | geo-division/ISO3166-2/6/I-8 | geo-division:ISO3166-2:6:I-8 | as:ISO2:6:I-8 |
| 28 November 2007 | I-9 | geo-division/ISO3166-2/6/I-9 | geo-division:ISO3166-2:6:I-9 | as:ISO2:6:I-9 |

Table 34 – ISO 3166-2 2nd Edition Country Subdivision Codespaces

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| ISO 3166-2:2007 | 12 December 2007 | 6 | ed2 | geo-division/ISO3166-2/6/ed2 | geo-division:ISO3166-2:6:ed2 | as:ISO2:6:ed2 |
| 19 February 2010 | II-1 | geo-division/ISO3166-2/6/II-1 | geo-division:ISO3166-2:6:II-1 | as:ISO2:6:II-1 |
| 30 June 2010 | II-2 | geo-division/ISO3166-2/6/II-2 | geo-division:ISO3166-2:6:II-2 | as:ISO2:6:II-2 |
| 15 December 2011 | II-3 | geo-division/ISO3166-2/6/II-3 | geo-division:ISO3166-2:6:II-3 | as:ISO2:6:II-3 |
| *<current>* | now | geo-division/ISO3166-2/6/now | geo-division:ISO3166-2:6:now | as:ISO2:6:now |

* + 1. Conceptual Schema
       1. Introduction

Figure 17 presents the complete ISO 3166 (Parts 1 and 2) conceptual schema as a UML class diagram. Annex E provides a brief primer sufficient to understand UML class diagrams as used in this standard.

In Figure 17, all classes whose stereotype is not explicitly specified are understood to have the stereotype «type» applied. The basic datatypes Boolean, CharacterString, Date, and Integer are as specified in ISO/TS 19103:2003, *Geographic information – Conceptual schema language*.

Associations indicating navigability in only one direction (see Annex E.2.2) are intended as a minimum implementation requirement for that association in a realization. Implementers are free to enable bidirectional traversal of the association, because such is semantically meaningful and association role names and multiplicities have accordingly been specified.



Figure 17 – ISO 3166 (Parts 1 and 2) Class Diagram

Annexes B.2.3.2 through B.2.3.4 specify the UML classes that are used to represent information regarding countries.

Annexes B.2.3.5 through B.2.3.9 specify the UML classes that are used to represent information regarding country subdivisions.

Annex B.2.3.10 specifies the UML classes that specify datatypes used in the representation of information about either countries and/or country subdivisions.

* + - 1. ISO Country

The UML model for the *«abstract» ISOCountry* class and its properties is presented in Figure 18 (and also appears in Figure 17).

This abstract class acts as a collector of entries that are related to each other as members of a specific entry series; it supplies conceptual identity but is not itself named or coded, nor does it otherwise carry information about a real-world object that is an ISO 3166-1 "country". The associated **ISOCountryEntry** class furnishes the means to specify individual entries and information specific to those entries – including the names and codes that have been assigned to the corresponding item in the standard.



Figure 18 – ISO Country Entry Class Diagram

The documentation for the *«abstract» ISOCountry* class is specified in Table 35.

Table 35 – «abstract» ISOCountry and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | *<<abstract>> ISOCountry* | A country, dependency, or other area of special geopolitical interest contained in ISO 3166-1. |  |  | Subclass of *<<abstract>> GeopoliticalEntity*  (see Table 70) |
| 2. | *Role name:* entry | A set of dated information records for this ISO 3166-1 country. | **Mandatory** | One or more (ordered) | Composition of <<type>> ISOCountryEntry (see Table 36) |
| 3. | *Role name:* subdivision | A set of ISO 3166-2 country subdivisions that are administratively subordinate divisions of this ISO 3166-1 country. | Conditional  (if the ISO 3166-1 country is divided into ISO 3166-2 country subdivisions) | If applicable, then one or more (unordered) | Composition of *<<abstract>> ISOCountrySubdivision* (see Table 38) |

* + - 1. ISO Country Entry

The UML model for the «type» ISOCountryEntry class and its properties is presented in Figure 18 (and also appears in Figure 17); its documentation is specified in Table 36.

This class represents an individual ISO 3166-1 country entry and information specific to it – including the names and codes that have been assigned to the corresponding item in the standard. Each entry is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code** (see Annex B.2.2.1).

Table 36 – «type» ISOCountryEntry and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> ISOCountryEntry | A dated, individual information record for an ISO 3166-1 country. |  |  |  |
| 2. | encoding | The set of Uniform Resource Identifiers (URI) and code elements that are used to designate the ISO 3166-1 country. | **Mandatory** | Exactly one | <<dataType>> ISOCountryCodes (see Table 24) |
| 3. | char3CodeElementStatus | The status of the 3-character code element assignment with respect to ISO 3166-1 and determinations of the ISO 3166 Maintenance Agency. | **Mandatory** | Exactly one | <<enumeration>> ISOCodeElementStatusCode (see Table 43) |
| 4. | char2CodeElementStatus | The status of the 2-character code element assignment with respect to ISO 3166-1 and determinations of the ISO 3166 Maintenance Agency. | Conditional  (if *encoding.char2Code* is specified) | If applicable, then exactly one | <<enumeration>> ISOCodeElementStatusCode (see Table 43) |
| 5. | numericCodeElementStatus | The status of the 3-digit numeric code element assignment with respect to ISO 3166-1 and determinations of the ISO 3166 Maintenance Agency. | Conditional  (if *encoding.numericCode* is specified) | If applicable, then exactly one | <<enumeration>> ISOCodeElementStatusCode (see Table 43) |
| 6. | name | The short name of the ISO 3166-1 country, in all capital letters with diacritical marks where applicable. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 7. | shortName | The short name of the ISO 3166-1 country. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 8. | fullName | The full name of the ISO 3166-1 country. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 9. | unLegalStatus | The legal status of the ISO 3166-1 country as determined by the United Nations. | **Mandatory** | Exactly one | <<enumeration>> UNLegalStatusCode (see Table 21) |
| 10. | remarks | Remarks such as other widely-used country names and names of geographically separated territories covered by the main entry in the ISO 3166-1 country list. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 11. | entryDate | The date of the determination by the ISO 3166/MA that affected (*i.e.,* changed or reaffirmed) information about the ISO 3166-1 country recorded in this entry. | **Mandatory** | Exactly one | <<basicType>> Date (ISO/TS 19103) |
| 12. | entryType | The type of change to the ISO 3166-1 country item that is recorded by this entry; one of {Unchanged, Creation, Revision, Deletion}. | **Mandatory** | Exactly one | <<enumeration>> EntryTypeCode (see Table 20) |
| 13. | entryNotes | A note providing details about the modification(s) made to the corresponding ISO 3166-1 country by the published entry in the ISO 3166/MA Newsletter, such as which values were modified. | Conditional  (if *entryType* is not "Unchanged") | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 14. | *Role name:* entrySeries | The ISO 3166-1 country for which this is an entry (*i.e.*, one information record). | **Mandatory** | Exactly one | *<<abstract>> ISOCountry* (see Table 35) |
| 15. | Role name: localShortName | A set of short forms of the ISO 3166-1 country name in the applicable administrative language(s) of the country.  NOTE: An administrative language is a written language used by the administration of a country at the national level. | *Optional* | Zero or more (unordered) | Aggregation of <<type>> ISOLocalizedName (see Table 37) |

* + - 1. ISO Localized Name

The UML model for the «type» ISOLocalizedName class and its properties is presented in Figure 18 (and also appears in Figure 17); its documentation is specified in Table 37. This class represents a name of a country or of a country subdivision category, and the language in which it is expressed.

Table 37 – «type» ISOLocalizedName and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> ISOLocalizedName | A name along with a specification of the language, if available, in which it is expressed. |  |  |  |
| 2. | nameLanguage2Char | The alpha-2 ISO 639-1 code of the language of the name.  NOTE: ISO 639-1 was devised primarily for use in terminology, lexicography, and linguistics. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 3. | nameLanguage3Char | The alpha-3 ISO 639-2 terminological code of the language of the name.  NOTE: ISO 639-2 was devised primarily for use in terminology and bibliography; it represents all languages contained in ISO 639-1, and in addition other languages and language collections of interest for those primary applications. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 4. | name | A name as used in a specified language and constituting information about countries and/or country subdivisions. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 5. | iso6393Char3Code | The alpha-3 ISO 639-3 code of the language of the name.  NOTE: ISO 639-3 was devised to provide a comprehensive set of identifiers for all languages for use in a wide range of applications, including linguistics, lexicography, and internationalization of information systems. It attempts to represent all known languages. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 6. | *Role name:* entry | A set of dated ISO 3166-1 country entries (information records) for which this is a local short name. | Conditional  (required if *subdivisionCategory* is not specified) | If applicable, then one or more (unordered) | <<type>> ISOCountryEntry (see Table 36) |
| 7. | *Role name:* subdivisionCategory | A set of ISO 3166-2 country subdivision categories for which this is a language-specific category name. | Conditional  (required if *entry* is not specified) | If applicable, then one or more (unordered) | <<type>> ISOCountrySubdivisionCategory (see Table 42) |

* + - 1. ISO Country Subdivision

The UML model for the *«abstract» ISOCountrySubdivision* class and its properties is presented in Figure 19 (and also appears in Figure 17).

This abstract class acts as a collector of entries that are related to each other as members of a specific entry series; it supplies conceptual identity but is not itself named or coded, nor does it otherwise carry information about a real-world object that is an ISO 3166 "country division". The associated **ISOCountrySubdivisionEntry** class furnishes the means to specify individual entries and information specific to those entries – including the names and codes that have been assigned to the corresponding item in the standard.



Figure 19 – ISO Country Subdivision Entry Class Diagram

The documentation for the *«abstract» ISOCountrySubdivision* class is specified in Table 38.

Table 38 – «abstract» ISOCountrySubdivision and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | *<<abstract>> ISOCountrySubdivision* | A division of a country, dependency, or other area of special geopolitical interest contained in ISO 3166-1, as specified in ISO 3166-2. |  |  | Subclass of *<<abstract>> AdministrativeDivision*[[24]](#footnote-24) (see Table 71) |
| 2. | *Role name:* entry | A set of dated information records for this ISO 3166-2 country subdivision. | **Mandatory** | One or more (ordered) | Composition of <<type>> ISOCountrySubdivisionEntry (see Table 39) |
| 3. | *Role name:* country | The ISO 3166-1 country to which this ISO 3166-2 country subdivision is administratively subordinate. | **Mandatory** | Exactly one | *<<abstract>> ISOCountry* (see Table 35) |
| 4. | *Role name:* childSubdivision | An ISO 3166-2 country subdivision that is an administratively subordinate division of this ISO 3166-2 country subdivision. | Conditional  (if the ISO 3166-2 country division is subdivided into additional ISO 3166-2 country subdivisions) | If applicable, then one or more (unordered) | <<type>> ISOCountrySubdivisionEntry (see Table 39) |

* + - 1. ISO Country Subdivision Entry

The UML model for the «type» ISOCountrySubdivisionEntry class and its properties is presented in Figure 19 (and also appears in Figure 17); its documentation is specified in Table 39.

This class represents an individual ISO 3166-2 country subdivision entry and information specific to it – including the names and code that have been assigned to the corresponding item in the standard. Each entry is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code** (see Annex B.2.2.1).

Table 39 – «type» ISOCountrySubdivisionEntry and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> ISOCountrySubdivisionEntry | A dated, individual information record for an ISO 3166-2 country subdivision. |  |  |  |
| 2. | encoding | The set of Uniform Resource Identifiers (URI) and code elements that are used to designate the ISO 3166-2 country subdivision. | **Mandatory** | Exactly one | <<dataType>> ISOCountrySubdivisionCodes (see Table 24) |
| 3. | char6CodeElementStatus | The status of the 4-, 5-, or 6-character code element assignment with respect to ISO 3166-2 and determinations of the ISO 3166 Maintenance Agency. | **Mandatory** | Exactly one | <<enumeration>> ISOCodeElementStatusCode (see Table 43) |
| 4. | codeElementISODetermined | An indication that the code element was assigned by the ISO 3166 Maintenance Agency rather than by a country-related authority. | **Mandatory** | Exactly one | <<basicType>> Boolean (ISO/TS 19103) |
| 5. | subdivisionCategory | The type of the regional country subdivisions of the ISO 3166-1 country of this ISO 3166-2 country subdivision. The subdivision category is based on similar governmental structure, administrative authority, and responsibilities in each ISO 3166-2 country subdivision belonging to the category.  NOTE: Country subdivisions belonging to the same category do not overlap in territory.  EXAMPLES: U.S. state, French department, or Japanese prefecture. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 6. | entryDate | The date of the determination by the ISO 3166/MA that affected (*i.e.,* changed or reaffirmed) information about the ISO 3166-2 country subdivision recorded in this entry. | **Mandatory** | Exactly one | <<basicType>> Date (ISO/TS 19103) |
| 7. | entryType | The type of change to the ISO 3166-2 country subdivision that is recorded by this entry; one of {Unchanged, Creation, Revision, Deletion}. | **Mandatory** | Exactly one | <<enumeration>> EntryTypeCode (see Table 20) |
| 8. | entryNotes | A note providing details about the modification(s) made to the corresponding ISO 3166-2 country subdivision by the published entry in the ISO 3166/MA Newsletter, such as which values were modified. | Conditional  (if *entryType* is not "Unchanged") | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 9. | *Role name:* entrySeries | The ISO 3166-2 country subdivision for which this is an (information record) entry. | **Mandatory** | Exactly one | *<<abstract>> ISOCountrySubdivision* (see Table 38) |
| 10. | *Role name:* parentSubdivision | The ISO 3166-2 country subdivision, if any, to which this ISO 3166-2 country subdivision is administratively subordinate. | Conditional  (if the ISO 3166-2 country subdivision is not directly subordinate to an ISO 3166-1 country) | If applicable, then exactly one | *<<abstract>> ISOCountrySubdivision* (see Table 38) |
| 11. | *Role name:* name | The set of language-specific names for this ISO 3166-2 country subdivision. | **Mandatory** | One or more (unordered) | Aggregation of <<type>> ISOCountrySubdivisionName (see Table 40) |
| 12. | *Role name:* subdivisionStructure | Information regarding organizational relationships between this ISO 3166-2 country subdivision and other ISO 3166-2 country subdivisions of the same country. | **Mandatory** | Exactly one | Aggregation of <<type>> ISOCountrySubdivisioninginfo (see Table 41) |

* + - 1. ISO Country Subdivision Name

The UML model for the «type» ISOCountrySubdivisionName class and its properties is presented in Figure 19 (and also appears in Figure 17); its documentation is specified in Table 40. This class represents a name of an ISO 3166-2 country subdivision, the language in which it is expressed, and related naming information.

Table 40 – «type» ISOCountrySubdivisionName and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> ISOCountrySubdivisionName | A name for an ISO 3166-2 country subdivision, along with a specification of the language in which it is expressed, and other name-related information. |  |  |  |
| 2. | nameLanguage2Char | The alpha-2 ISO 639-1 code of the language of the name.  NOTE: ISO 639-1 was devised primarily for use in terminology, lexicography, and linguistics. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 3. | nameLanguage3Char | The alpha-3 ISO 639-2 terminological code of the language of the name.  NOTE: ISO 639-2 was devised primarily for use in terminology and bibliography; it represents all languages contained in ISO 639-1, and in addition other languages and language collections of interest for those primary applications. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 4. | name | A name for the country subdivision as used in a specified language. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 5. | nameVariant | A variant of the country subdivision name. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 6. | romanizationSystem | The Romanization system used to transliterate a non-Roman name of the country subdivision, if applicable. | *Optional* | Zero or one | <<codeList>> RomanizationSystemCode (see Table 23) |
| 7. | remarks | Additional information regarding the country subdivision name; for example, its relationship to other names. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 8. | iso6393Char3Code | The alpha-3 ISO 639-3 code of the language of the name.  NOTE: ISO 639-3 was devised to provide a comprehensive set of identifiers for all languages for use in a wide range of applications, including linguistics, lexicography, and internationalization of information systems. It attempts to represent all known languages. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 9. | *Role name:* entry | The set of dated ISO 3166-2 country subdivision entries (information records) for which this is a name. | **Mandatory** | One or more (unordered) | <<type>> ISOCountrySubdivisionEntry (see Table 39) |

* + - 1. ISO Country Subdivisioning Information

The UML model for the «type» ISOCountrySubdivisioningInfo class and its properties is presented in Figure 19 (and also appears in Figure 17); documentation is specified in Table 41. This class represents an organization of the ISO 3166-2 country subdivisions of an ISO 3166-1 country, including their category names and related information.

Table 41 – «type» ISOCountrySubdivisioningInfo and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> ISOCountrySubdivisioningInfo | Information regarding organizational relationships between the ISO 3166-2 country subdivisions of an ISO 3166-1 country. |  |  |  |
| 2. | subdivisionSource | The source of information that was used to specify the names and other information regarding the ISO 3166-2 country subdivisions of a country. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 3. | romanizationSystem | The Romanization system used to transliterate non-Roman names of the ISO 3166-2 country subdivisions of a country, if applicable. | *Optional* | Zero or one | <<codeList>> RomanizationSystemCode (see Table 23) |
| 4. | codeSource | The source of information that was used to specify the 1-, 2-, or 3-character string (third component) of the ISO 3166-2 country subdivision codes of a country. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 5. | remarks | Additional information regarding the set of ISO 3166-2 country subdivisions of a country; for example, the country subdivision sort-order used. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 6. | *Role name:* entry | The set of dated ISO 3166-2 country subdivision entries (*i.e*., information records) for which this is subdivisioning information. | **Mandatory** | One or more (unordered) | <<type>> ISOCountrySubdivisionEntry (see Table 39) |
| 7. | *Role name:* category | The set of ISO 3166-2 country subdivision categories that organize the country subdivisions of a country. | **Mandatory** | One or more (unordered) | Composition of <<type>> ISOCountrySubdivisionCategory (see Table 40) |

* + - 1. ISO Country Subdivision Category

The UML model for the «type» ISOCountrySubdivisionCategory class and its properties is presented in Figure 19 (and also appears in Figure 17); its documentation is specified in Table 42. This class represents a specific category of ISO 3166-2 country subdivisions of an ISO 3166-1 country, including the number of occurrences of the category, its name(s), and related information.

Table 42 – «type» ISOCountrySubdivisionCategory and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> ISOCountrySubdivisionCategory | A subdivision category that organizes the ISO 3166-2 country subdivisions of an ISO 3166-1 country.  NOTE1: The subdivision category is based on similar governmental structure, administrative authority, and responsibilities in each country subdivision belonging to the category.  NOTE2: Country subdivisions belonging to the same category do not overlap in territory.  EXAMPLES: U.S. state, French department, or Japanese prefecture. |  |  |  |
| 2. | count | The number of occurrences of the use of this subdivision category within the ISO 3166-1 country. | *Optional* | Zero or one | <<basicType>> Integer (ISO/TS 19103) |
| 3. | description | A description of the subdivision category. | Conditional  (mandatory if *categoryName* is not specified) | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 4. | *Role name:* divisioningInfo | The ISO 3166-2 country subdivision organizational relationships for which this is a subdivision category. | **Mandatory** | Exactly one | <<type>> ISOCountrySubdivisioningInfo (see Table 41) |
| 5. | *Role name:* categoryName | The set of language-specific names for this subdivision category. | Conditional  (mandatory if *description* is not specified) | If applicable, then one or more (unordered) | Aggregation of <<type>> ISOLocalizedName (see Table 37) |

* + - 1. Datatypes

The basic datatypes used in the ISO 3166 (Parts 1 and 2) conceptual schema are Boolean, CharacterString, and Integer, as specified in ISO/TS 19103:2003, *Geographic information – Conceptual schema language*.

The ISO 3166 (Parts 1 and 2) conceptual schema reuses simple datatypes specified by the GENC Standard conceptual schema; see Section 5.5.10.2 for their specification.

The ISO 3166 (Parts 1 and 2) conceptual schema specifies one additional simple datatype representing the ISO Code Element Status. The UML model for «enumeration» ISOCodeElementStatusCode and its domain values is presented in Figure 17; its domain values are as specified in Table 43. The ISO Code Element Status enumeration specifies the category of code element assignment based on procedures established by the ISO 3166 Maintenance Agency.

Table 43 – «enumeration» ISOCodeElementStatusCode Domain Values

| **Code** | **Name** | **Definition** | **Description** |
| --- | --- | --- | --- |
| 000 | **Unassigned** | A code element that the ISO 3166 Maintenance Agency has not officially assigned in the current ISO 3166 and which is neither reserved nor user-assigned. | An unassigned code element is available for assignment by ISO 3166/MA only. |
| 001 | **Officially Assigned** | A code element that the ISO 3166 Maintenance Agency has authoritatively allocated to represent the name of a country or country subdivision and included in the current ISO 3166. | An officially assigned code element may be used without restriction in the context of ISO 3166. |
| 002 | **Reserved - Exceptional** | A code element that the ISO 3166 Maintenance Agency has decided (at the request of an ISO national member body, government, or international organization) to refrain from including in ISO 3166, instead allowing it to be used to meet a recognized interchange requirement in support of a particular application, as specified by the requesting body. The exceptionally reserved code element is limited to that use; any further use is subject to approval by the ISO 3166 Maintenance Agency. Exceptional reservations may also be made on the initiative of the ISO 3166 Maintenance Agency itself when particular circumstances motivate a reservation. (ISO 3166-1:2006, 7.5.4) | Reserved code elements are set aside by the ISO 3166 Maintenance Agency to be used only for specified purposes during a limited or indeterminate period of time, including to avoid transitional application problems and to aid users who require additional code elements for the functioning of their coding systems. |
| 003 | **Reserved - Transitional** | A formerly officially assigned code element that the ISO 3166 Maintenance Agency has deleted from the current ISO 3166 as a consequence of changes in the standard. The code may be used only during a transitional period of 50 years (at least) while the new code element(s) that may have replaced it are taken into use. (ISO 3166-1:2006, 7.5.1) | Reserved code elements are set aside by the ISO 3166 Maintenance Agency to be used only for specified purposes during a limited or indeterminate period of time, including to avoid transitional application problems and to aid users who require additional code elements for the functioning of their coding systems. |
| 004 | **Reserved - Indeterminate** | A code element that the ISO 3166 Maintenance Agency has decided to refrain from including in the standard for an indefinite period, because the code element is used in another coding system associated with ISO 3166. Any use outside of the coding system for which the reservation was made is prohibited, and such a code element is expected eventually to be either eliminated or replaced by a code element in ISO 3166. (ISO 3166-1:2006, 7.5.1) | Reserved code elements are set aside by the ISO 3166 Maintenance Agency to be used only for specified purposes during a limited or indeterminate period of time, including to avoid transitional application problems and to aid users who require additional code elements for the functioning of their coding systems. |
| 005 | **User-assigned** | A code element that is one of the set designated by the ISO 3166 Maintenance Agency for allocation only by users who need a code element to represent a country or country subdivision not included in ISO 3166. For ISO 3166-1, user-assignable code elements include (alpha-2) 'AA', the series of letters 'QM' to 'QZ' and 'XA' to 'XZ', and 'ZZ'; (alpha-3) the series of letters 'AAA' to 'AAZ', 'QMA' to 'QZZ', 'XAA' to 'XZZ', and 'ZZA' to 'ZZZ', and (numeric) the series of numbers 900 to 999. (ISO 3166-1:2006, 8.1.3) |  |
| 006 | **User-assigned extended facility** | A code element that the ISO 3166 Maintenance Agency has decided never to assign in ISO 3166. For ISO 3166-1, the alphabetic code elements 'OO' or 'OOO', or the numeric code element 000, shall be utilized to indicate that code elements other than those defined in ISO 3166-1 are used. (ISO 3166-1:2006, 8.1.4) |  |

The ISO 3166 (Parts 1 and 2) conceptual schema reuses complex datatypes specified by the GENC Standard conceptual schema; see Section 5.5.10.3 for their specification.

* + 1. XML Encoding Schema
       1. Core Schema

The XML encoding schema for ISO 3166 closely follows the conceptual schema specified in Annex B.2.3 based on the XML schema design specified in Section 5.6.3 and the associated governance and namespace structure specified in Sections 5.6.1 and 5.6.2.

The XML encoding schema for ISO 3166 uses the same XML Namespace Prefix ('**genc**') and XML Namespace as the GENC XML encoding schema (see Section 5.6.2).

Figure 20 illustrates the principal structure of the resulting complex type **genc:ISOCountryEntryType**; Figure 21, together with Figure 22, illustrates the principal structure of the resulting complex type **genc:ISOCountrySubdivisionEntryType**. Based on those two complex types, two global XML elements are then defined for general use in data exchange: **genc:ISOCountryEntry** and **genc:ISOCountrySubdivisionEntry**.



Figure 20 – XML Complex Type genc:ISOCountryEntryType



Figure 21 – XML Complex Type genc:ISOCountrySubdivisionEntryType (Part 1)



Figure 22 – XML Complex Type genc:ISOCountrySubdivisionEntryType (Part 2)

* + - 1. XML Schema Enhancements

In order to support the promulgation of the complete content of a baseline of ISO 3166 (Part 1 or Part 2), the XML encoding schema for ISO 3166 defines **genc:ISOStandardBaseline** as a standard container for a set of ISO 3166 entries.

In order to support the promulgation of a more limited set of content of a baseline of ISO 3166 (Part 1 or Part 2), the XML encoding schema for ISO 3166 also defines **genc:ISOStandardBaselineIndex** (equivalent to that established for the GENC Standard; see Annex D) as a standard container for a set of ISO 3166 entries whose information content is limited to codespace, code, and name information.

* 1. FIPS 10 through 10-4
     1. Introduction

U.S. Federal Information Processing Standard (FIPS) 10-4 *Countries, Dependencies, Areas of Special Sovereignty, and their Principal Administrative Divisions* specifies a list of the basic geopolitical entities in the world, together with the principal administrative divisions that constitute each entity.

Basic geopolitical entities include the following categories: (a) independent states; (b) dependent areas; (c) areas of quasi-independence, non-contiguous territories, possessions without populations, areas with special sovereignty associations, areas without sovereignty; (d) political regimes not recognized by the United States; and (e) outlying areas of the United States. The list of basic entities provides complete coverage of the land areas of the world without overlap or duplication.

Principal administrative divisions are administrative areas that are directly subordinate to the pertinent governing authority. Even though all principal administrative divisions within a basic geopolitical entity may not be of equal rank, FIPS 10-4 considers them as “principal”.

Each basic geopolitical entity is represented by a two-character, alphabetic "country code". Each principal administrative division is identified by a four-character code consisting of the two-character "country code" followed by a two-character "administrative division code".

Geographic names that are listed in FIPS 10-4 are approved by the U.S. Board on Geographic Names (BGN), the authority established under Public Law 80-242 to provide for uniformity in geographic nomenclature and orthography throughout the Federal Government. Names in FIPS 10-4 that are approved by the Board include current names of countries, dependencies, areas of special sovereignty, and their principal administrative divisions.

FIPS 10-4 is the 4th successor to FIPS 10, published 15 June 1970.

Change Notices were published on an irregular basis by the National Geospatial-Intelligence Agency (NGA), the maintenance authority for FIPS PUB 10-4. The most recent Change Notice is #14, dated 31 July 2008.

On September 2, 2008, the U.S. Department of Commerce withdrew the FIPS 10-4 standard.

This Annex component furnishes information regarding the semantics and structure of the FIPS 10-4 conceptual schema as employed in the GENC Registry (Annex B.3.3), and its codespaces and identifiers as assigned in the GENC Registry (Annex B.3.2).

* + 1. Codespaces
       1. URLs for Codespace-designation

Every item in FIPS 10-4 (and its predecessors) is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code**. The codespace identifies which set of FIPS 10-4 “country code” information is intended, and the code identifies which member of that set is intended.

URL-based codespace-designations in the GENC Registry for items in FIPS 10-4 are constructed in accordance with the pattern specified for the GENC Standard in Section 5.4.3, with the following revisions to component patterns:

* *authority* – one of { 'FIPS10' | 'FIPS10-1' | 'FIPS10-2' | 'FIPS10-3' | 'FIPS10-4' }
* *encoding* – one of { '2' | '4' }
* *baseline* – one of three patterns:
  + The specification of a calendar year, as 4 digits in the form CCYY (*e.g*., '1969'); one of:
    - the year of release (*e.g*., '1995' in the case of FIPS 10-4);
    - the year of the withdrawal of FIPS 10-4 (*i.e.,* '2008'); or
    - the year when FIPS 10-4 was replaced by the GEC (*i.e.,* '2010'; see Annex B.4.1).
  + The specification of a FIPS Change Notice composed as follows, in order:
    - the letters 'CN' ; and
    - one or more digits indicating the sequential number of the FIPS Change Notice since the publication of the FIPS standard.

*E.g*., 'CN14' (the fourteenth Change Notice since publication).

* + The specification of the most recent (“current”) baseline, as the string 'now'.

The individual components are then concatenated into a single string as specified by the pattern (above), to form the URL that designates that codespace. For example:

<http://api.nsgreg.nga.mil/geo-political/FIPS10-4/2/CN14> (a 2-character basic geopolitical entity code in FIPS 10-4, Change Notice 14)

<http://api.nsgreg.nga.mil/geo-division/FIPS10-4/4/CN14> (a 4-character administrative subdivision code in FIPS 10-4, Change Notice 14)

<http://api.nsgreg.nga.mil/geo-division/FIPS10-4/4/now> (a 4-character administrative subdivision code in FIPS 10-4, most recent Change Notice)

Individual items within a codespace are identified by concatenating the codespace-URL, a forward-slash ('/'), and then the applicable code value. For example:

<http://api.nsgreg.nga.mil/geo-political/FIPS10-4/2/CN14/AX> (the basic geopolitical entity of AKROTIRI as identified in FIPS 10-4, Change Notice 14, using a 2-character code)

[http://api.nsgreg.nga.mil/geo-division/ FIPS10-4/4/CN14/AF30](http://api.nsgreg.nga.mil/geo-division/%20FIPS10-4/4/CN14/AF30) (the principal administrative division of Balkh in AFGHANISTAN as identified in FIPS 10-4, Change Notice 14, using a 4-character code)

[http://api.nsgreg.nga.mil/geo-division/ FIPS10-4/4/now/AF30](http://api.nsgreg.nga.mil/geo-division/%20FIPS10-4/4/now/AF30) (the principal administrative division of Balkh in AFGHANISTAN as identified in FIPS 10-4, most recent Change Notice, using a 4-character code)

The resulting URL may be used to access the item-associated resource in the GENC Registry.

* + - 1. URNs for Codespace-designation

URN codespace-designations in the GENC Registry for FIPS 10-4 (and its predecessors) are constructed in accordance with the rules specified in Section 5.4.4.2, as modified by the revised component patterns of Annex B.3.2.1. For example:

"**urn:us:gov:dod:nga:def:geo-political:FIPS10-4:2:CN14**" (a 2-character basic geopolitical entity code in FIPS 10-4, Change Notice 14)

"**urn:us:gov:dod:nga:def:geo-division:FIPS10-4:4:CN14**" (a 4-character administrative subdivision code in FIPS 10-4, Change Notice 14)

"**urn:us:gov:dod:nga:def:geo-division:FIPS10-4:4:now**" (a 4-character administrative subdivision code in FIPS 10-4, most recent Change Notice)

Analogous to the URL, individual items within a URN-based codespace are identified by concatenating the codespace-URN, a colon (':'), and then the applicable code value.

URN-like codespace-designations in the GENC Registry for FIPS 10-4 (and its predecessors) are constructed in accordance with the rules specified in Section 5.4.4.3, as modified by the revised component patterns of Annex B.3.2.1 and the following:

* *authority* – one of { 'F10' | 'F101' | 'F102' | 'F103' | 'FIPS104' }

For example:

"**geo-political:FIPS10-4:2:CN14**" (a 2-character basic geopolitical entity code in FIPS 10-4, Change Notice 14)

"**geo-division:FIPS10-4:4:CN14**" (a 4-character administrative subdivision code in FIPS 10-4, Change Notice 14)

"**geo-division:FIPS10-4:4:now**" (a 4-character administrative subdivision code in FIPS 10-4, most recent Change Notice)

Examples of individual item identifiers are:

"**geo-political:FIPS10-4:2:CN14:AX**" (the basic geopolitical entity of AKROTIRI as identified in FIPS 10-4, Change Notice 14, using a 2-character code)

"**geo-division:FIPS10-4:4:CN14:AF30**" (the principal administrative division of Balkh in AFGHANISTAN as identified in FIPS 10-4, Change Notice 14, using a 4-character code)

"**geo-division:FIPS10-4:4:now:AF30**" (the principal administrative division of Balkh in AFGHANISTAN as identified in FIPS 10-4, most recent Change Notice, using a 4-character code)

Every item in FIPS 10-4 (and its predecessors) is thus uniquely identified by the combination of a URN-based **codespace** (maximum 32 characters) and a **code** (maximum 7 characters) that, taken together with the colon (':') that is used as the separator, are limited to a maximum of 40 characters.

Short URN-like codespace-designations in the GENC Registry for FIPS 10-4 (and its predecessors) are constructed in accordance with the rules specified in Section 5.4.4.4, as modified by the revised component patterns of Annex B.3.2.1. For example:

"**ge:F104:2:CN14**" (a 2-character basic geopolitical entity code in FIPS 10-4, Change Notice 14)

"**as:F104:4:CN14**" (a 4-character administrative subdivision code in FIPS 10-4, Change Notice 14)

"**as:F104:4:now**" (a 4-character administrative subdivision code in FIPS 10-4, most recent Change Notice)

Examples of individual item identifiers are:

"**ge:F104:2:CN14:AX** " (the basic geopolitical entity of AKROTIRI as identified in FIPS 10-4, Change Notice 14, using a 2-character code)

"**as:F104:4:CN14:AF30**" (the principal administrative division of Balkh in AFGHANISTAN as identified in FIPS 10-4, Change Notice 14, using a 4-character code)

"**as:F104:4:now:AF30**" (the principal administrative division of Balkh in AFGHANISTAN as identified in FIPS 10-4, most recent Change Notice, using a 4-character code)

Every item in FIPS 10-4 (and its predecessors) is thus uniquely identified by the combination of a short URN-based **codespace** (maximum 16 characters) and a **code** (maximum 7 characters) that, taken together with the colon (':') that is used as the separator, are limited to a maximum of 24 characters.

The URN Resolution Service established by the GENC Registry may be used with all three of these URN forms.

* + - 1. Established Codespaces

In accordance with the patterns established in the preceding sections, URI-based codespaces are established for FIPS 10-4 and its predecessors.

Tables whose content establishes codespaces for use in FIPS 10-4 (and its predecessors) contain columns specified in accordance with Section 5.4.5. Each row in a table documents a distinct codespace. To enhance comprehension of the patterns followed, in some cases cells are merged across multiple rows to emphasize shared content.

URI-based codespaces established for in FIPS 10-4 (and its predecessors) are as follows:

* Codespaces used for basic geopolitical entity codes are specified in Table 44, Table 45, Table 46, Table 47, and Table 48.
* Codespaces used for principal administrative subdivisions are specified in Table 49 and Table 50.

Given that FIPS 10-4 has been withdrawn, it is the case that:

* 'now' is not a valid *baseline*, and
* there will be no future codespaces established for FIPS 10-4 (or its successors).

Table 44 – FIPS 10 Basic Geopolitical Entity Codespaces

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| FIPS 10 | 15 June 1970 | 2 | 1970 | geo-political/FIPS10/2/1970 | geo-political:FIPS10:2:1970 | ge:F10:2:1970 |

Table 45 – FIPS 10-1 Basic Geopolitical Entity Codespaces

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| FIPS 10-1 | 15 June 1974 | 2 | 1974 | geo-political/FIPS10-1/2/1974 | geo-political:FIPS10-1:2:1974 | ge:F101:2:1974 |
| 10 September 1974 | CN1 | geo-political/FIPS10-1/2/CN1 | geo-political:FIPS10-1:2:CN1 | ge:F101:2:CN1 |
| 1 January 1975 | CN2 | geo-political/FIPS10-1/2/CN2 | geo-political:FIPS10-1:2:CN2 | ge:F101:2:CN2 |
| 26 March 1975 | CN3 | geo-political/FIPS10-1/2/CN3 | geo-political:FIPS10-1:2:CN3 | ge:F101:2:CN3 |
| 2 June 1975 | CN5 | geo-political/FIPS10-1/2/CN5 | geo-political:FIPS10-1:2:CN5 | ge:F101:2:CN5 |
| 9 June 1975 | CN4 | geo-political/FIPS10-1/2/CN4 | geo-political:FIPS10-1:2:CN4 | ge:F101:2:CN4 |
| 25 June 1975 | CN6 | geo-political/FIPS10-1/2/CN6 | geo-political:FIPS10-1:2:CN6 | ge:F101:2:CN6 |
| 29 July 1975 | CN7 | geo-political/FIPS10-1/2/CN7 | geo-political:FIPS10-1:2:CN7 | ge:F101:2:CN7 |
| 30 July 1975 | CN8 | geo-political/FIPS10-1/2/CN8 | geo-political:FIPS10-1:2:CN8 | ge:F101:2:CN8 |
| 31 July 1975 | CN9 | geo-political/FIPS10-1/2/CN9 | geo-political:FIPS10-1:2:CN9 | ge:F101:2:CN9 |
| 16 September 1975 | CN10 | geo-political/FIPS10-1/2/CN10 | geo-political:FIPS10-1:2:CN10 | ge:F101:2:CN10 |
| 29 April 1976 | CN11 | geo-political/FIPS10-1/2/CN11 | geo-political:FIPS10-1:2:CN11 | ge:F101:2:CN11 |
| 30 April 1976 | CN12 | geo-political/FIPS10-1/2/CN12 | geo-political:FIPS10-1:2:CN12 | ge:F101:2:CN12 |
| 20 July 1976 | CN13 | geo-political/FIPS10-1/2/CN13 | geo-political:FIPS10-1:2:CN13 | ge:F101:2:CN13 |
| 16 August 1976 | CN14 | geo-political/FIPS10-1/2/CN14 | geo-political:FIPS10-1:2:CN14 | ge:F101:2:CN14 |
| 7 September 1976 | CN15 | geo-political/FIPS10-1/2/CN15 | geo-political:FIPS10-1:2:CN15 | ge:F101:2:CN15 |

Table 46 – FIPS 10-2 Basic Geopolitical Entity Codespaces

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| FIPS 10-2 | 15 November 1976 | 2 | 1976 | geo-political/FIPS10-2/2/1976 | geo-political:FIPS10-2:2:1976 | ge:F102:2:1976 |
| 6 July 1997 | CN1 | geo-political/FIPS10-2/2/CN1 | geo-political:FIPS10-2:2:CN1 | ge:F102:2:CN1 |
| 1 November 1997 | CN2 | geo-political/FIPS10-2/2/CN2 | geo-political:FIPS10-2:2:CN2 | ge:F102:2:CN2 |
| 6 April 1978 | CN3 | geo-political/FIPS10-2/2/CN3 | geo-political:FIPS10-2:2:CN3 | ge:F102:2:CN3 |
| 20 June 1978 | CN4 | geo-political/FIPS10-2/2/CN4 | geo-political:FIPS10-2:2:CN4 | ge:F102:2:CN4 |
| 18 August 1978 | CN5 | geo-political/FIPS10-2/2/CN5 | geo-political:FIPS10-2:2:CN5 | ge:F102:2:CN5 |
| 19 April 1979 | CN6 | geo-political/FIPS10-2/2/CN6 | geo-political:FIPS10-2:2:CN6 | ge:F102:2:CN6 |
| 27 November 1979 | CN7 | geo-political/FIPS10-2/2/CN7 | geo-political:FIPS10-2:2:CN7 | ge:F102:2:CN7 |
| 12 May 1980 | CN8 | geo-political/FIPS10-2/2/CN8 | geo-political:FIPS10-2:2:CN8 | ge:F102:2:CN8 |
| 5 June 1980 | CN9 | geo-political/FIPS10-2/2/CN9 | geo-political:FIPS10-2:2:CN9 | ge:F102:2:CN9 |
| 30 July 1980 | CN10 | geo-political/FIPS10-2/2/CN10 | geo-political:FIPS10-2:2:CN10 | ge:F102:2:CN10 |
| 4 June 1981 | CN11 | geo-political/FIPS10-2/2/CN11 | geo-political:FIPS10-2:2:CN11 | ge:F102:2:CN11 |
| 19 May 1983 | CN12 | geo-political/FIPS10-2/2/CN12 | geo-political:FIPS10-2:2:CN12 | ge:F102:2:CN12 |
| 20 May 1983 | CN13 | geo-political/FIPS10-2/2/CN13 | geo-political:FIPS10-2:2:CN13 | ge:F102:2:CN13 |
| 19 September 1983 | CN14 | geo-political/FIPS10-2/2/CN14 | geo-political:FIPS10-2:2:CN14 | ge:F102:2:CN14 |
| 1 June 1984 | CN15 | geo-political/FIPS10-2/2/CN15 | geo-political:FIPS10-2:2:CN15 | ge:F102:2:CN15 |
| 26 August 1984 | CN16 | geo-political/FIPS10-2/2/CN16 | geo-political:FIPS10-2:2:CN16 | ge:F102:2:CN16 |

Table 47 – FIPS 10-3 Basic Geopolitical Entity Codespaces

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| FIPS 10-3 | 9 February 1984 | 2 | 1984 | geo-political/FIPS10-3/2/1984 | geo-political:FIPS10-3:2:1984 | ge:F103:2:1984 |
| 8 November 1984 | CN1 | geo-political/FIPS10-3/2/CN1 | geo-political:FIPS10-3:2:CN1 | ge:F103:2:CN1 |
| 2 January 1985 | CN2 | geo-political/FIPS10-3/2/CN2 | geo-political:FIPS10-3:2:CN2 | ge:F103:2:CN2 |
| 5 August 1985 | CN3 | geo-political/FIPS10-3/2/CN3 | geo-political:FIPS10-3:2:CN3 | ge:F103:2:CN3 |
| 4 September 1985 | CN4 | geo-political/FIPS10-3/2/CN4 | geo-political:FIPS10-3:2:CN4 | ge:F103:2:CN4 |
| 24 April 1986 | CN5 | geo-political/FIPS10-3/2/CN5 | geo-political:FIPS10-3:2:CN5 | ge:F103:2:CN5 |
| 10 February 1987 | CN6 | geo-political/FIPS10-3/2/CN6 | geo-political:FIPS10-3:2:CN6 | ge:F103:2:CN6 |
| 7 July 1989 | CN7 | geo-political/FIPS10-3/2/CN7 | geo-political:FIPS10-3:2:CN7 | ge:F103:2:CN7 |
| 3 October 1990 | CN8 | geo-political/FIPS10-3/2/CN8 | geo-political:FIPS10-3:2:CN8 | ge:F103:2:CN8 |
| 17 January 1991 | CN9 | geo-political/FIPS10-3/2/CN9 | geo-political:FIPS10-3:2:CN9 | ge:F103:2:CN9 |
| 3 September 1991 | CN10 | geo-political/FIPS10-3/2/CN10 | geo-political:FIPS10-3:2:CN10 | ge:F103:2:CN10 |
| 3 January 1992 | CN11 | geo-political/FIPS10-3/2/CN11 | geo-political:FIPS10-3:2:CN11 | ge:F103:2:CN11 |
| 19 August 1992 | CN12 | geo-political/FIPS10-3/2/CN12 | geo-political:FIPS10-3:2:CN12 | ge:F103:2:CN12 |
| 8 September 1992 | CN13 | geo-political/FIPS10-3/2/CN13 | geo-political:FIPS10-3:2:CN13 | ge:F103:2:CN13 |
| 8 February 1993 | CN14 | geo-political/FIPS10-3/2/CN14 | geo-political:FIPS10-3:2:CN14 | ge:F103:2:CN14 |
| 6 May 1993 | CN15 | geo-political/FIPS10-3/2/CN15 | geo-political:FIPS10-3:2:CN15 | ge:F103:2:CN15 |

Table 48 – FIPS 10-4 Basic Geopolitical Entity Codespaces

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| FIPS 10-4 | 15 April 1995 | 2 | 1995 | geo-political/FIPS10-4/2/1995 | geo-political:FIPS10-4:2:1995 | ge:F104:2:1995 |
| 1 December 1998 | CN1 | geo-political/FIPS10-4/2/CN1 | geo-political:FIPS10-4:2:CN1 | ge:F104:2:CN1 |
| 1 March 1999 | CN2 | geo-political/FIPS10-4/2/CN2 | geo-political:FIPS10-4:2:CN2 | ge:F104:2:CN2 |
| 17 May 1999 | CN3 | geo-political/FIPS10-4/2/CN3 | geo-political:FIPS10-4:2:CN3 | ge:F104:2:CN3 |
| 25 February 2000 | CN4 | geo-political/FIPS10-4/2/CN4 | geo-political:FIPS10-4:2:CN4 | ge:F104:2:CN4 |
| 10 August 2000 | CN5 | geo-political/FIPS10-4/2/CN5 | geo-political:FIPS10-4:2:CN5 | ge:F104:2:CN5 |
| 28 January 2001 | CN6 | geo-political/FIPS10-4/2/CN6 | geo-political:FIPS10-4:2:CN6 | ge:F104:2:CN6 |
| 10 January 2002 | CN7 | geo-political/FIPS10-4/2/CN7 | geo-political:FIPS10-4:2:CN7 | ge:F104:2:CN7 |
| 28 June 2002 | CN8 | geo-political/FIPS10-4/2/CN8 | geo-political:FIPS10-4:2:CN8 | ge:F104:2:CN8 |
| 1 October 2004 | CN9 | geo-political/FIPS10-4/2/CN9 | geo-political:FIPS10-4:2:CN9 | ge:F104:2:CN9 |
| 23 March 2006 | CN10 | geo-political/FIPS10-4/2/CN10 | geo-political:FIPS10-4:2:CN10 | ge:F104:2:CN10 |
| 11 July 2006 | CN11 | geo-political/FIPS10-4/2/CN11 | geo-political:FIPS10-4:2:CN11 | ge:F104:2:CN11 |
| 11 June 2007 | CN12 | geo-political/FIPS10-4/2/CN12 | geo-political:FIPS10-4:2:CN12 | ge:F104:2:CN12 |
| 4 February 2008 | CN13 | geo-political/FIPS10-4/2/CN13 | geo-political:FIPS10-4:2:CN13 | ge:F104:2:CN13 |
| 31 July 2008 | CN14 | geo-political/FIPS10-4/2/CN14 | geo-political:FIPS10-4:2:CN14 | ge:F104:2:CN14 |
| 2 September 2008 | 2008 | geo-political/FIPS10-4/2/2008 | geo-political:FIPS10-4:2:2008 | ge:F104:2:2008 |
| 15 April 2010 | 2010 | geo-political/FIPS10-4/2/2010 | geo-political:FIPS10-4:2:2010 | ge:F104:2:2010 |

Table 49 – FIPS 10-3 Principal Administrative Division Codespaces

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| FIPS 10-3 | 9 February 1984 | 4 | 1984 | geo-division/FIPS10-3/4/1984 | geo-division:FIPS10-3:4:1984 | as:F103:4:1984 |
| 8 November 1984 | CN1 | geo-division/FIPS10-3/4/CN1 | geo-division:FIPS10-3:4:CN1 | as:F103:4:CN1 |
| 2 January 1985 | CN2 | geo-division/FIPS10-3/4/CN2 | geo-division:FIPS10-3:4:CN2 | as:F103:4:CN2 |
| 5 August 1985 | CN3 | geo-division/FIPS10-3/4/CN3 | geo-division:FIPS10-3:4:CN3 | as:F103:4:CN3 |
| 4 September 1985 | CN4 | geo-division/FIPS10-3/4/CN4 | geo-division:FIPS10-3:4:CN4 | as:F103:4:CN4 |
| 24 April 1986 | CN5 | geo-division/FIPS10-3/4/CN5 | geo-division:FIPS10-3:4:CN5 | as:F103:4:CN5 |
| 10 February 1987 | CN6 | geo-division/FIPS10-3/4/CN6 | geo-division:FIPS10-3:4:CN6 | as:F103:4:CN6 |
| 7 July 1989 | CN7 | geo-division/FIPS10-3/4/CN7 | geo-division:FIPS10-3:4:CN7 | as:F103:4:CN7 |
| 3 October 1990 | CN8 | geo-division/FIPS10-3/4/CN8 | geo-division:FIPS10-3:4:CN8 | as:F103:4:CN8 |
| 17 January 1991 | CN9 | geo-division/FIPS10-3/4/CN9 | geo-division:FIPS10-3:4:CN9 | as:F103:4:CN9 |
| 3 September 1991 | CN10 | geo-division/FIPS10-3/4/CN10 | geo-division:FIPS10-3:4:CN10 | as:F103:4:CN10 |
| 3 January 1992 | CN11 | geo-division/FIPS10-3/4/CN11 | geo-division:FIPS10-3:4:CN11 | as:F103:4:CN11 |
| 19 August 1992 | CN12 | geo-division/FIPS10-3/4/CN12 | geo-division:FIPS10-3:4:CN12 | as:F103:4:CN12 |
| 8 September 1992 | CN13 | geo-division/FIPS10-3/4/CN13 | geo-division:FIPS10-3:4:CN13 | as:F103:4:CN13 |
| 8 February 1993 | CN14 | geo-division/FIPS10-3/4/CN14 | geo-division:FIPS10-3:4:CN14 | as:F103:4:CN14 |
| 6 May 1993 | CN15 | geo-division/FIPS10-3/4/CN15 | geo-division:FIPS10-3:4:CN15 | as:F103:4:CN15 |

Table 50 – FIPS 10-4 Principal Administrative Division Codespaces

| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| FIPS 10-4 | 15 April 1995 | 4 | 1995 | geo-division/FIPS10-4/4/1995 | geo-division:FIPS10-4:4:1995 | as:F104:4:1995 |
| 1 December 1998 | CN1 | geo-division/FIPS10-4/4/CN1 | geo-division:FIPS10-4:4:CN1 | as:F104:4:CN1 |
| 1 March 1999 | CN2 | geo-division/FIPS10-4/4/CN2 | geo-division:FIPS10-4:4:CN2 | as:F104:4:CN2 |
| 17 May 1999 | CN3 | geo-division/FIPS10-4/4/CN3 | geo-division:FIPS10-4:4:CN3 | as:F104:4:CN3 |
| 25 February 2000 | CN4 | geo-division/FIPS10-4/4/CN4 | geo-division:FIPS10-4:4:CN4 | as:F104:4:CN4 |
| 10 August 2000 | CN5 | geo-division/FIPS10-4/4/CN5 | geo-division:FIPS10-4:4:CN5 | as:F104:4:CN5 |
| 28 January 2001 | CN6 | geo-division/FIPS10-4/4/CN6 | geo-division:FIPS10-4:4:CN6 | as:F104:4:CN6 |
| 10 January 2002 | CN7 | geo-division/FIPS10-4/4/CN7 | geo-division:FIPS10-4:4:CN7 | as:F104:4:CN7 |
| 28 June 2002 | CN8 | geo-division/FIPS10-4/4/CN8 | geo-division:FIPS10-4:4:CN8 | as:F104:4:CN8 |
| 1 October 2004 | CN9 | geo-division/FIPS10-4/4/CN9 | geo-division:FIPS10-4:4:CN9 | as:F104:4:CN9 |
| 23 March 2006 | CN10 | geo-division/FIPS10-4/4/CN10 | geo-division:FIPS10-4:4:CN10 | as:F104:4:CN10 |
| 11 July 2006 | CN11 | geo-division/FIPS10-4/4/CN11 | geo-division:FIPS10-4:4:CN11 | as:F104:4:CN11 |
| 11 June 2007 | CN12 | geo-division/FIPS10-4/4/CN12 | geo-division:FIPS10-4:4:CN12 | as:F104:4:CN12 |
| 4 February 2008 | CN13 | geo-division/FIPS10-4/4/CN13 | geo-division:FIPS10-4:4:CN13 | as:F104:4:CN13 |
| 31 July 2008 | CN14 | geo-division/FIPS10-4/4/CN14 | geo-division:FIPS10-4:4:CN14 | as:F104:4:CN14 |

* + 1. Conceptual Schema
       1. Introduction

Figure 23 presents the complete FIPS 10-4 conceptual schema as a UML class diagram. Annex E provides a brief primer sufficient to understand UML class diagrams as used in this standard.

In Figure 23, all classes whose stereotype is not explicitly specified are understood to have the stereotype «type» applied. The basic datatypes Boolean, CharacterString, Date, and Integer are as specified in ISO/TS 19103:2003, *Geographic information – Conceptual schema language*.

Associations indicating navigability in only one direction (see Annex E.2.2) are intended as a minimum implementation requirement for that association in a realization. Implementers are free to enable bidirectional traversal of the association, because such is semantically meaningful and association role names and multiplicities have accordingly been specified.



Figure 23 – FIPS Class Diagram

Annexes B.3.3.2 through B.3.3.3 specify the UML classes that are used to represent information regarding basic geopolitical entities.

Annexes B.3.3.4 through B.3.3.7 specify the UML classes that are used to represent information regarding principal administrative divisions.

Annex B.3.3.8 specifies the UML classes that specify datatypes used in the representation of information about either basic geopolitical entities and/or principal administrative divisions.

* + - 1. FIPS Basic Geopolitical Entity

The UML model for the *«abstract» FIPSBasicGeopoliticalEntity* class and its properties is presented in Figure 24 (and also appears in Figure 23).

This abstract class acts as a collector of entries that are related to each other as members of a specific entry series; it supplies conceptual identity but is not itself named or coded, nor does it otherwise carry information about a real-world object that is a "country". The associated **FIPSBasicGeopoliticalEntityEntry** class furnishes the means to specify individual entries and information specific to those entries – including the names and codes that have been assigned to the corresponding item in the standard.



Figure 24 – FIPS Basic Geopolitical Entity Entry Class Diagram

The documentation for the *«abstract» FIPSBasicGeopoliticalEntity* class is specified in Table 51.

Table 51 – «abstract» FIPSBasicGeopoliticalEntity and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | *<<abstract>> FIPSBasicGeopoliticalEntity* | A geopolitical entity that is either: (a) an independent state; (b) a dependent area; (c) an area of quasi-independence, a non-contiguous territory, a possession without population, an area with special sovereignty association, or an area without sovereignty; (d) a political regime not recognized by the United States; or (e) an outlying area of the United States as specified in FIPS 10-4 (or its predecessors). |  |  | Subclass of *<<abstract>>GeopoliticalEntity*  (see Table 70) |
| 2. | *Role name:* entry | A set of dated information records for this FIPS basic geopolitical entity. | **Mandatory** | One or more (ordered) | Composition of <<type>> FIPSBasicGeopoliticalEntityEntry (see Table 52) |
| 3. | *Role name:* subdivision | A set of FIPS principal administrative divisions that are administratively subordinate divisions of this FIPS basic geopolitical entity. | Conditional  (if the basic geopolitical entity is divided into principal administrative divisions) | If applicable, then one or more (unordered) | Composition of *<<abstract>> FIPSPrincipalAdministrativeDivision* (see Table 53) |

* + - 1. FIPS Basic Geopolitical Entity Entry

The UML model for the «type» FIPSBasicGeopoliticalEntityEntry class and its properties is presented in Figure 24 (and also appears in Figure 23); its documentation is specified in Table 52.

This class represents an individual FIPS 10-4 (or predecessor) Basic Geopolitical Entity entry and information specific to it – including the names and codes that have been assigned to the corresponding item in the standard. Each entry is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code** (see Annex B.3.2.1).

Table 52 – «type» FIPSBasicGeopoliticalEntityEntry and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> FIPSBasicGeopoliticalEntityEntry | A dated, individual information record for a FIPS 10-4 (or predecessor) basic geopolitical entity. |  |  |  |
| 2. | encoding | The set of Uniform Resource Identifiers (URI) and code elements that are used to designate the FIPS basic geopolitical entity. | **Mandatory** | Exactly one | <<dataType>> FIPSBasicGeopoliticalEntityCodes (see Table 24) |
| 3. | name | The short name of the FIPS basic geopolitical entity, in all capital letters with diacritical marks where applicable. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 4. | shortName | The short name of the FIPS basic geopolitical entity. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 5. | longName | The long name of the FIPS basic geopolitical entity. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 6. | entryDate | The date of the determination by the FIPS 10-4 (or predecessor) Maintenance Authority that affected (*i.e.,* changed or reaffirmed) information about the FIPS basic geopolitical entity recorded in this entry. | **Mandatory** | Exactly one | <<basicType>> Date (ISO/TS 19103) |
| 7. | entryType | The type of change to the FIPS basic geopolitical entity item that is recorded by this entry; one of {Unchanged, Creation, Revision, Deletion}. | **Mandatory** | Exactly one | <<enumeration>> EntryTypeCode (see Table 20) |
| 8. | entryNotes | A note providing details about the modification(s) made to the corresponding FIPS basic geopolitical entity by the published entry in the FIPS 10-4 (or predecessor) Change Notice, such as which values were modified. | Conditional  (if *entryType* is not "Unchanged") | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 9. | *Role name:* entrySeries | The FIPS 10-4 (or predecessor) basic geopolitical entity for which this is an entry (*i.e.*, one information record). | **Mandatory** | Exactly one | *<<abstract>> FIPSBasicGeopoliticalEntity* (see Table 51) |

* + - 1. FIPS Principal Administrative Division

The UML model for the *«abstract» FIPSPrincipalAdministrativeDivision* class and its properties is presented in Figure 25 (and also appears in Figure 23).

This abstract class acts as a collector of entries that are related to each other as members of a specific entry series; it supplies conceptual identity but is not itself named or coded, nor does it otherwise carry information about a real-world object that is a "country division". The associated **FIPSPrincipalAdministrativeDivisionEntry** class furnishes the means to specify individual entries and information specific to those entries – including the names and codes that have been assigned to the corresponding item in the standard.



Figure 25 – FIPS Principal Administrative Division Entry Class Diagram

The documentation for the *«abstract» FIPSPrincipalAdministrativeDivision* class is specified in Table 53.

Table 53 – «abstract» FIPSPrincipalAdministrativeDivision and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | *<<abstract>> FIPSPrincipalAdministrativeDivision* | An administrative area directly subordinate to the pertinent governing authority, as specified in FIPS 10-4 (or its predecessors). |  |  | Subclass of *<<abstract>> AdministrativeDivision* (see Table 71) |
| 2. | *Role name:* entry | A set of dated information records for this FIPS principal administrative division. | **Mandatory** | One or more (ordered) | Composition of <<type>> FIPSPrincipalAdministrativeDivisionEntry (see Table 54) |
| 3. | *Role name:* country | The FIPS basic geopolitical entity to which this FIPS principal administrative division is administratively subordinate. | **Mandatory** | Exactly one | *<<abstract>> FIPSBasicGeopoliticalEntity* (see Table 51) |

* + - 1. FIPS Principal Administrative Division Entry

The UML model for the «type» FIPSPrincipalAdministrativeDivisionEntry class and its properties is presented in Figure 25 (and also appears in Figure 23); its documentation is specified in Table 54.

This class represents an individual FIPS 10-4 (or predecessor) principal administrative entry and information specific to it – including the names and code that have been assigned to the corresponding item in the standard. Each entry is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code** (see Annex B.3.2.1).

Table 54 – «type» FIPSPrincipalAdministrativeDivisionEntry and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> FIPSPrincipalAdministrativeDivisionEntry | A dated, individual information record for a FIPS 10-4 (or predecessor) principal administrative division. |  |  |  |
| 2. | encoding | The set of Uniform Resource Identifiers (URI) and code elements that are used to designate the FIPS principal administrative division. | **Mandatory** | Exactly one | <<dataType>> FIPSPrimaryAdministrativeDivisionCodes (see Table 24) |
| 3. | divisionClass | The class of the regional principal administrative divisions of the FIPS basic geopolitical entity of this FIPS principal administrative division.  NOTE: The division class is based on similar governmental structure, administrative authority, and responsibilities in each FIPS principal administrative division belonging to the class. | **Mandatory** | Exactly one | <<codeList>> FIPSDivisionClassCode (see Table 57) |
| 4. | remarks | Remarks such as other widely-used country names and names of geographically separated territories covered by the main entry in the FIPS list of principal administrative divisions. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 5. | entryDate | The date of the determination by the FIPS 10-4 (or predecessor) Maintenance Authority that affected (*i.e.,* changed or reaffirmed) information about the FIPS principal administrative division recorded in this entry. | **Mandatory** | Exactly one | <<basicType>> Date (ISO/TS 19103) |
| 6. | entryType | The type of change to the FIPS principal administrative division item that is recorded by this entry; one of {Unchanged, Creation, Revision, Deletion}. | **Mandatory** | Exactly one | <<enumeration>> EntryTypeCode (see Table 20) |
| 7. | entryNotes | A note providing details about the modification(s) made to the corresponding FIPS principal administrative division by the published entry in the FIPS 10-4 (or predecessor) Change Notice, such as which values were modified. | Conditional  (if *entryType* is not "Unchanged") | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 8. | *Role name:* entrySeries | The FIPS 10-4 (or predecessor) principal administrative division for which this is an (information record) entry. | **Mandatory** | Exactly one | *<<abstract>> FIPSPrincipalAdministrativeDivision* (see Table 53) |
| 9. | *Role name:* name | The set of language-specific names for this FIPS principal administrative division . | **Mandatory** | One or more (unordered) | Aggregation of <<type>> FIPSPrincipalAdministrativeDivisioName (see Table 55) |
| 10. | *Role name:* className | A set of names for the division class of this FIPS principal administrative division, along with a specification of the language in which each is expressed. | *Optional* | Zero or more (unordered) | Aggregation of <<type>> FIPSPrincipalAdministrativeDivisionClassName (see Table 56) |

* + - 1. FIPS Principal Administrative Division Name

The UML model for the «type» FIPSPrincipalAdministrativeDivisionName class and its properties is presented in Figure 25 (and also appears in Figure 23); its documentation is specified in Table 55. This class represents a name of a FIPS 10-4 (or predecessor) principal administrative division, the language in which it is expressed, and related naming information.

Table 55 – «type» FIPSPrincipalAdministrativeDivisionName and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> FIPSPrincipalAdministrativeDivisionName | A name for a FIPS 10-4 (or predecessor) principal administrative division, along with a specification of the language in which it is expressed, and other name-related information. |  |  |  |
| 2. | name | A name for the FIPS principal administrative division as used in a specified language. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 3. | bgnConventional | An indication that the name has been determined by the U.S. Board on Geographic Names (BGN) to be a conventional name.  NOTE: A conventional name is a commonly used English-language name approved by the BGN for use in addition to, or in lieu of, a BGN-approved local official name or names in an area where English is not the official language. | **Mandatory** | Exactly one | <<basicType>> Boolean (ISO/TS 19103) |
| 4. | iso6393Char3Code | The alpha-3 ISO 639-3 code of the language of the name.  NOTE: ISO 639-3 was devised to provide a comprehensive set of identifiers for all languages for use in a wide range of applications, including linguistics, lexicography, and internationalization of information systems. It attempts to represent all known languages. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 5. | *Role name:* entry | The set of dated FIPS 10-4 (or predecessor) principal administrative division entries (information records) for which this is a name. | **Mandatory** | One or more (unordered) | <<type>> FIPSPrincipalAdministrativeDivisionEntry (see Table 54) |

* + - 1. FIPS Principal Administrative Division Class Name

The UML model for the «type» FIPSPrincipalAdministrativeDivisionClassName class and its properties is presented in Figure 25 (and also appears in Figure 23); its documentation is specified in Table 56. This class represents a name of a specific category of FIPS 10-4 (or predecessor) principal administrative divisions of a 10-4 (or predecessor) basic geopolitical entity, along with the language in which it is expressed.

Table 56 – «type» FIPSPrincipalAdministrativeDivisionClassName and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> FIPSPrincipalAdministrativeDivisionClassName | A name for a specific category of FIPS 10-4 (or predecessor) principal administrative divisions of a FIPS 10-4 (or predecessor) basic geopolitical entity, along with a specification of the language in which it is expressed.  NOTE1: The division class is based on similar governmental structure, administrative authority, and responsibilities in each administrative division belonging to the class.  NOTE2: Administrative subdivisions belonging to the same category do not overlap in territory.  EXAMPLES: U.S. state, French department, or Japanese prefecture. |  |  |  |
| 2. | name | A name for the FIPS primary administrative division class as used in a specified language. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 3. | iso6393Char3Code | The alpha-3 ISO 639-3 code of the language of the name.  NOTE: ISO 639-3 was devised to provide a comprehensive set of identifiers for all languages for use in a wide range of applications, including linguistics, lexicography, and internationalization of information systems. It attempts to represent all known languages. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 4. | *Role name:* entry | The set of dated FIPS 10-4 (or predecessor) principal administrative division entries (information records) for which this is a division class name. | **Mandatory** | One or more (unordered) | <<type>> FIPSPrincipalAdministrativeDivisionEntry (see Table 54) |

* + - 1. Datatypes

The basic datatypes used in the FIPS 10-4 conceptual schema are Boolean, CharacterString, and Integer, as specified in ISO/TS 19103:2003, *Geographic information – Conceptual schema language*.

The FIPS 10-4 conceptual schema reuses simple datatypes specified by the GENC Standard conceptual schema; see Section 5.5.10.2 for their specification.

The FIPS 10-4 conceptual schema specifies one additional simple datatype representing the FIPS Division Class. The UML model for «codeList» FIPSDivisionClassCode is presented in Figure 30 (and also appears in Figure 28); its domain values are as specified in Table 57. The FIPS Division Class codelist specifies the class of the regional principal administrative divisions of FIPS 10-4 (or predecessor) basic geopolitical entities. The division class is based on similar governmental structure, administrative authority, and responsibilities in each principal administrative division that belongs to that class for the applicable FIPS 10-4 (or predecessor) basic geopolitical entity. The set of domain values may evolve in response to changes in the content of the GENC Registry.

Table 57 – «codeList» FIPSDivisionClassCode Domain Values

| **Code** | **Description** |  | **Code** | **Description** |
| --- | --- | --- | --- | --- |
| 001 | administration |  | 036 | island group |
| 002 | administrative area |  | 037 | islands |
| 003 | area |  | 038 | London borough |
| 004 | autonomous city |  | 039 | metropolitan city |
| 005 | autonomous community |  | 040 | metropolitan district |
| 006 | autonomous monastic state |  | 041 | municipality |
| 007 | autonomous province |  | 042 | national capital territory |
| 008 | autonomous region |  | 043 | national capital-special zone |
| 009 | autonomous republic |  | 044 | oblast |
| 010 | borough |  | 045 | Pakistan-administered area |
| 011 | canton |  | 046 | parish |
| 012 | capital city |  | 047 | popularate |
| 013 | capital district |  | 048 | prefecture |
| 014 | capital territory |  | 049 | province |
| 015 | charter city |  | 050 | quarter |
| 016 | city |  | 051 | region |
| 017 | city and county |  | 052 | republic |
| 018 | city corporation |  | 053 | republican city |
| 019 | commune |  | 054 | special district |
| 020 | community |  | 055 | special municipality |
| 021 | county |  | 056 | special region |
| 022 | county borough |  | 057 | state |
| 023 | department |  | 058 | statutory community |
| 024 | dependency |  | 059 | territorial collectivity |
| 025 | district |  | 060 | territorial unit |
| 026 | division |  | 061 | territory |
| 027 | economic prefecture |  | 062 | town |
| 028 | emirate |  | 063 | union territory |
| 029 | federal dependencies |  | 064 | unitary authority |
| 030 | federal district |  | 065 | urban commune |
| 031 | federal territory |  | 066 | urban county |
| 032 | federation |  | 067 | urban prefecture |
| 033 | free state |  | 068 | ward |
| 034 | governorate |  | 069 | zone |
| 035 | island |  | 070 | special self-governing city |

The FIPS 10-4 conceptual schema reuses complex datatypes specified by the GENC Standard conceptual schema; see Section 5.5.10.3 for their specification.

* + 1. XML Encoding Schema
       1. Core Schema

The XML encoding schema for FIPS 10 through 10-4 closely follows the conceptual schema specified in Annex B.3.3 based on the XML schema design specified in Section 5.6.3 and the associated governance and namespace structure specified in Sections 5.6.1 and 5.6.2.

For the XML encoding schema for FIPS 10 through 10-4 the following assignments apply:

XML Namespace Prefix: **fips**

XML Namespace: **http://api.nsgreg.nga.mil/schema/genc/1.0/fips**

Name: **FIPS 10 through 10-4**

When this XML namespace is referenced from other XML schemas then the single valid *schemaLocation* for the <import> is that established by **api.nsgreg.nga.mil**. For the GENC Standard, Edition 1.0, XML encoding schema for FIPS 10 through 10-4, this is:

'**fips**': [http://api.nsgreg.nga.mil/schema/genc/1.0.0/fips.xsd](http://metadata.ces.mil/mdr/ns/GSIP/genc/1.0.0/fips.xsd)

Schema component files (XSD, SCH, XML) may be copied to other locations for development and/or efficiency purposes, however any alteration or substitution violates GENC Standard conformance requirements (see Annex A).

Figure 26 illustrates the principal structure of the resulting complex type **fips:FIPSBasicGeopoliticalEntityEntryType**; Figure 27 illustrates the principal structure of the resulting complex type **fips:FIPSPrincipalAdministrativeDivisionType**. Based on those two complex types, two global XML elements are then defined for general use in data exchange: **fips:FIPSBasicGeopoliticalEntityEntry** and **fips:FIPSPrincipalAdministrativeDivision**.



Figure 26 – XML Complex Type fips:FIPSBasicGeopoliticalEntityEntryType



Figure 27 – XML Complex Type fips:FIPSPrincipalAdministrativeDivisionType

* + - 1. XML Schema Enhancements

In order to support the promulgation of the complete content of a baseline of FIPS 10-4 (or its predecessors), the XML encoding schema for FIPS 10 through 10-4 defines **fips:FIPSStandardBaseline** as a standard container for a set of FIPS 10-4 (or its predecessors) entries.

In order to support the promulgation of a more limited set of content of a baseline of FIPS 10-4 (or its predecessors), the XML encoding schema for FIPS 10 through 10-4 also defines **fips:FIPSStandardBaselineIndex** (equivalent to that established for the GENC Standard; see Annex D) as a standard container for a set of FIPS 10-4 (or its predecessors) entries whose information content is limited to codespace, code, and name information.

* 1. GEC
     1. Introduction

On September 2, 2008, the U.S. Department of Commerce withdrew the FIPS 10-4 standard. As a result, the National Geospatial-Intelligence Agency (NGA), as the maintenance authority for FIPS PUB 10-4, re-compiled and enhanced the FIPS 10-4 content as the Geopolitical Entities and Codes (GEC). NGA continues to maintain and provide updates to that content as necessary.

GEC, published 15 April 2010, specifies a list of the basic geopolitical entities in the world, together with the principal administrative divisions that constitute each entity.

Basic geopolitical entities include the following categories: (a) independent states; (b) dependent areas; (c) areas of quasi-independence, non-contiguous territories, possessions without populations, areas with special sovereignty associations, areas without sovereignty; (d) political regimes not recognized by the United States; and (e) outlying areas of the United States. The list of basic entities provides complete coverage of the land areas of the world without overlap or duplication.

Principal administrative divisions are administrative areas that are directly subordinate to the pertinent governing authority. Even though all principal administrative divisions within a basic geopolitical entity may not be of equal rank, the GEC considers them as “principal”.

Each basic geopolitical entity is represented by a two-character, alphabetic "country code". Each principal administrative division is identified by a four-character code consisting of the two-character "country code" followed by a two-character "administrative division code".

Geographic names that are listed in the GEC are approved by the U.S. Board on Geographic Names (BGN), the authority established under Public Law 80-242 to provide for uniformity in geographic nomenclature and orthography throughout the Federal Government. Names in the GEC that are approved by the Board include current names of countries, dependencies, areas of special sovereignty, and their principal administrative divisions.

Updates are published on an irregular basis by the National Geospatial-Intelligence Agency (NGA), the maintenance authority for the GEC. The most recent Update is #9, dated 1 September 2012.

This Annex component furnishes information regarding the semantics and structure of the GEC conceptual schema as employed in the GENC Registry (Annex B.4.2), and its codespaces and identifiers as assigned in the GENC Registry (Annex B.4.3).

* + 1. Codespaces
       1. URLs for Codespace-designation

Every item in the GEC is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code**. The codespace identifies which set of GEC “country code” information is intended, and the code identifies which member of that set is intended.

URL-based codespace-designations in the GENC Registry for items in the GEC are constructed in accordance with the pattern specified for the GENC Standard in Section 5.4.3, with the following revisions to component patterns:

* *authority* – always 'GEC'
* *encoding* – one of { '2' | '4' }
* *baseline* – one of three patterns:
  + The specification of the release year, as 4 digits in the form CCYY (always '2010').
  + The specification of a GEC Update composed as follows, in order:
    - the letter 'U' ; and
    - one or more digits indicating the sequential number of the GEC Update since the publication of the GEC.

*E.g*., 'U9' (the ninth update since publication).

* + The specification of the most recent (“current”) baseline, as the string 'now'.

The individual components are then concatenated into a single string as specified by the pattern (above), to form the URL that designates that codespace. For example:

<http://api.nsgreg.nga.mil/geo-political/GEC/2/U9> (a 2-character basic geopolitical entity code in the GEC, Update 9)

<http://api.nsgreg.nga.mil/geo-division/GEC/4/U9> (a 4-character administrative subdivision code in the GEC, Update 9)

<http://api.nsgreg.nga.mil/geo-division/GEC/4/now> (a 4-character administrative subdivision code in the GEC, most recent Update)

Individual items within a codespace are identified by concatenating the codespace-URL, a forward-slash ('/'), and then the applicable code value. For example:

<http://api.nsgreg.nga.mil/geo-political/GEC/2/U9/AX> (the geopolitical entity of AKROTIRI as identified in the GEC, Update 9, using a 2-character code)

[http://api.nsgreg.nga.mil/geo-division/ GEC/4/U9/AF30](http://api.nsgreg.nga.mil/geo-division/%20GEC/4/U9/AF30) (the principal administrative division of Balkh in AFGHANISTAN as identified in the GEC, Update 9, using a 4-character code)

[http://api.nsgreg.nga.mil/geo-division/ GEC/4/now/AF30](http://api.nsgreg.nga.mil/geo-division/%20GEC/4/now/AF30) (the principal administrative division of Balkh in AFGHANISTAN as identified in the GEC, most recent Update, using a 4-character code)

The resulting URL may be used to access the item-associated resource in the GENC Registry.

* + - 1. URNs for Codespace-designation

URN codespace-designations in the GENC Registry for the GEC are constructed in accordance with the rules specified in Section 5.4.4.2, as modified by the revised component patterns of Annex B.4.2.1. For example:

"**urn:us:gov:dod:nga:def:geo-political:GEC:2:U9**" (a 2-character basic geopolitical entity code in the GEC, Update 9)

"**urn:us:gov:dod:nga:def:geo-division:GEC:4:U9**" (a 4-character administrative subdivision code in the GEC, Update 9)

"**urn:us:gov:dod:nga:def:geo-division:GEC:4:now**" (a 4-character administrative subdivision code in the GEC, most recent Update)

Analogous to the URL, individual items within a URN-based codespace are identified by concatenating the codespace-URN, a colon (':'), and then the applicable code value.

URN-like codespace-designations in the GENC Registry for the GEC are constructed in accordance with the rules specified in Section 5.4.4.3, as modified by the revised component patterns of Annex B.4.2.1. For example:

"**geo-political:GEC:2:U9**" (a 2-character basic geopolitical entity code in the GEC, Update 9)

"**geo-division:GEC:4:U9**" (a 4-character administrative subdivision code in the GEC, Update 9)

"**geo-division:GEC:4:now**" (a 4-character administrative subdivision code in the GEC, most recent Update)

Examples of individual item identifiers are:

"**geo-political:GEC:2:U9:AX**" (the basic geopolitical entity of AKROTIRI as identified in the GEC, Update 9, using a 2-character code)

"**geo-division:GEC:4:U9:AF30**" (the principal administrative division of Balkh in AFGHANISTAN as identified in the GEC, Update 9, using a 4-character code)

"**geo-division:GEC:4:now:AF30**" (the principal administrative division of Balkh in AFGHANISTAN as identified in the GEC, most recent Update, using a 4-character code)

Every item in the GEC is thus uniquely identified by the combination of a URN-based **codespace** (maximum 32 characters) and a **code** (maximum 7 characters) that, taken together with the colon (':') that is used as the separator, are limited to a maximum of 40 characters.

Short URN-like codespace-designations in the GENC Registry for the GEC are constructed in accordance with the rules specified in Section 5.4.4.4, as modified by the revised component patterns of Annex B.4.2.1. For example:

"**ge:GEC:2:U9**" (a 2-character basic geopolitical entity code in the GEC, Update 9)

"**as:GEC:4:U9**" (a 4-character administrative subdivision code in the GEC, Update 9)

"**as:GEC:4:now**" (a 4-character administrative subdivision code in the GEC, most recent Update)

Examples of individual item identifiers are:

"**ge:GEC:2:U9:AX** " (the basic geopolitical entity of AKROTIRI as identified in the GEC, Update 9, using a 2-character code)

"**as:GEC:4:U9:AF30**" (the principal administrative division of Balkh in AFGHANISTAN as in the GEC, Update 9, using a 4-character code)

"**as:GEC:4:now:AF30**" (the principal administrative division of Balkh in AFGHANISTAN as in the GEC, most recent Update, using a 4-character code)

Every item in the GEC is thus uniquely identified by the combination of a short URN-based **codespace** (maximum 16 characters) and a **code** (maximum 7 characters) that, taken together with the colon (':') that is used as the separator, are limited to a maximum of 24 characters.

The URN Resolution Service established by the GENC Registry may be used with all three of these URN forms.

* + - 1. Established Codespaces

In accordance with the patterns established in the preceding sections, URI-based codespaces are established for the GEC.

Tables whose content establishes codespaces for use with the GENC Standard contain columns specified in accordance with Section 5.4.5. Each row in a table documents a distinct codespace. To enhance comprehension of the patterns followed, in some cases cells are merged across multiple rows to emphasize shared content.

URI-based codespaces established for the GEC are as follows:

* Codespaces used for basic geopolitical entity codes are specified in Table 58.
* Codespaces used for principal administrative subdivisions are specified in Table 59.

Additional codespaces will be established for future GEC Updates.

Table 58 – GEC Basic Geopolitical Entity Codespaces

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| GEC | 15 April 2010 | 2 | 2010 | geo-political/GEC/2/2010 | geo-political:GEC:2:2010 | ge:GEC:2:2010 |
| 30 August 2010 | U1 | geo-political/GEC/2/U1 | geo-political:GEC:2:U1 | ge:GEC:2:U1 |
| 30 November 2010 | U2 | geo-political/GEC/2/U2 | geo-political:GEC:2:U2 | ge:GEC:2:U2 |
| 28 February 2011 | U3 | geo-political/GEC/2/U3 | geo-political:GEC:2:U3 | ge:GEC:2:U3 |
| 30 April 2011 | U4 | geo-political/GEC/2/U4 | geo-political:GEC:2:U4 | ge:GEC:2:U4 |
| 31 August 2011 | U5 | geo-political/GEC/2/U5 | geo-political:GEC:2:U5 | ge:GEC:2:U5 |
| 30 November 2011 | U6 | geo-political/GEC/2/U6 | geo-political:GEC:2:U6 | ge:GEC:2:U6 |
| 1 February 2012 | U7 | geo-political/GEC/2/U7 | geo-political:GEC:2:U7 | ge:GEC:2:U7 |
| 1 May 2012 | U8 | geo-political/GEC/2/U8 | geo-political:GEC:2:U8 | ge:GEC:2:U8 |
| 1 September 2012 | U9 | geo-political/GEC/2/U9 | geo-political:GEC:2:U9 | ge:GEC:2:U9 |
| *<current>* | now | geo-political/GEC/2/now | geo-political:GEC:2:now | ge:GEC:2:now |

Table 59 – GEC Principal Administrative Division Codespaces

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| GEC | 15 April 2010 | 4 | 2010 | geo-division/GEC/4/2010 | geo-division:GEC:4:2010 | as:GEC:4:2010 |
| 30 August 2010 | U1 | geo-division/GEC/4/U1 | geo-division:GEC:4:U1 | as:GEC:4:U1 |
| 30 November 2010 | U2 | geo-division/GEC/4/U2 | geo-division:GEC:4:U2 | as:GEC:4:U2 |
| 28 February 2011 | U3 | geo-division/GEC/4/U3 | geo-division:GEC:4:U3 | as:GEC:4:U3 |
| 30 April 2011 | U4 | geo-division/GEC/4/U4 | geo-division:GEC:4:U4 | as:GEC:4:U4 |
| 31 August 2011 | U5 | geo-division/GEC/4/U5 | geo-division:GEC:4:U5 | as:GEC:4:U5 |
| 30 November 2011 | U6 | geo-division/GEC/4/U6 | geo-division:GEC:4:U6 | as:GEC:4:U6 |
| 1 February 2012 | U7 | geo-division/GEC/4/U7 | geo-division:GEC:4:U7 | as:GEC:4:U7 |
| 1 May 2012 | U8 | geo-division/GEC/4/U8 | geo-division:GEC:4:U8 | as:GEC:4:U8 |
| 1 September 2012 | U9 | geo-division/GEC/4/U9 | geo-division:GEC:4:U9 | as:GEC:4:U9 |
| *<current>* | now | geo-division/GEC/4/now | geo-division:GEC:4:now | as:GEC:4:now |

* + 1. Conceptual Schema
       1. Introduction

Figure 28 presents the complete Geopolitical Entities and Codes (GEC) conceptual schema as a UML class diagram. Annex E provides a brief primer sufficient to understand UML class diagrams as used in this standard.

In Figure 28, all classes whose stereotype is not explicitly specified are understood to have the stereotype «type» applied. The basic datatypes Boolean, CharacterString, Date, and Integer are as specified in ISO/TS 19103:2003, *Geographic information – Conceptual schema language*.

Associations indicating navigability in only one direction (see Annex E.2.2) are intended as a minimum implementation requirement for that association in a realization. Implementers are free to enable bidirectional traversal of the association, because such is semantically meaningful and association role names and multiplicities have accordingly been specified.



Figure 28 – Geopolitical Entities and Codes (GEC) Class Diagram

Annexes B.4.3.2 through B.4.3.3 specify the UML classes that are used to represent information regarding basic geopolitical entities.

Annexes B.4.3.4 through B.4.3.7 specify the UML classes that are used to represent information regarding principal administrative divisions.

Annex B.4.3.8 specifies the UML classes that specify datatypes used in the representation of information about either basic geopolitical entities and/or principal administrative divisions.

* + - 1. GEC Basic Geopolitical Entity

The UML model for the *«abstract» GECBasicGeopoliticalEntity* class and its properties is presented in Figure 29 (and also appears in Figure 28).

This abstract class acts as a collector of entries that are related to each other as members of a specific entry series; it supplies conceptual identity but is not itself named or coded, nor does it otherwise carry information about a real-world object that is a "country". The associated **GECBasicGeopoliticalEntityEntry** class furnishes the means to specify individual entries and information specific to those entries – including the names and codes that have been assigned to the corresponding item in the standard.



Figure 29 – GEC Basic Geopolitical Entity Entry Class Diagram

The documentation for the *«abstract» GECBasicGeopoliticalEntity* class is specified in Table 60.

Table 60 – «abstract» GECBasicGeopoliticalEntity and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | *<<abstract>> GECBasicGeopoliticalEntity* | A geopolitical entity that is either: (a) an independent state; (b) a dependent area; (c) an area of quasi-independence, a non-contiguous territory, a possession without population, an area with special sovereignty association, or an area without sovereignty; (d) a political regime not recognized by the United States; or (e) an outlying area of the United States.  NOTE: The list of basic geopolitical entities specified in the GEC provides complete coverage of the land areas of the world without overlap or duplication. |  |  | Subclass of *<<abstract>>GeopoliticalEntity*  (see Table 70) |
| 2. | *Role name:* entry | A set of dated information records for this GEC basic geopolitical entity. | **Mandatory** | One or more (ordered) | Composition of <<type>> GECBasicGeopoliticalEntityEntry (see Table 61) |
| 3. | *Role name:* assertedSovereignty | An entry for a GEC basic geopolitical entity over which this GEC basic geopolitical entity asserts sovereignty as recognized by the United States Government. | Conditional  (if the basic geopolitical entity asserts sovereignty over another basic geopolitical entity) | If applicable, then one or more (unordered) | <<type>> GECBasicGeopoliticalEntityEntry (see Table 61) |
| 4. | *Role name:* subdivision | A set of GEC principal administrative divisions that are administratively subordinate divisions of this GEC basic geopolitical entity. | Conditional  (if the basic geopolitical entity is divided into principal administrative divisions) | If applicable, then one or more (unordered) | Composition of *<<abstract>> GECPrincipalAdministrativeDivision* (see Table 62) |

* + - 1. GEC Basic Geopolitical Entity Entry

The UML model for the «type» GECBasicGeopoliticalEntityEntry class and its properties is presented in Figure 29 (and also appears in Figure 28); its documentation is specified in Table 61.

This class represents an individual GEC Basic Geopolitical Entity entry and information specific to it – including the names and codes that have been assigned to the corresponding item in the standard. Each entry is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code** (see Annex B.4.2.1).

Table 61 – «type» GECBasicGeopoliticalEntityEntry and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> GECBasicGeopoliticalEntityEntry | A dated, individual information record for a GEC basic geopolitical entity. |  |  |  |
| 2. | encoding | The set of Uniform Resource Identifiers (URI) and code elements that are used to designate the GEC basic geopolitical entity. | **Mandatory** | Exactly one | <<dataType>> FIPSBasicGeopoliticalEntityCodes (see Table 24) |
| 3. | name | The short name of the GEC basic geopolitical entity, in all capital letters with diacritical marks where applicable. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 4. | shortName | The short name of the GEC basic geopolitical entity. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 5. | longName | The long name of the GEC basic geopolitical entity. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 6. | usRecognition | The sovereignty of the basic geopolitical entity, as recognized by the United States Government. | **Mandatory** | Exactly one | <<enumeration>> USRecognitionCode (see Table 22) |
| 7. | remarks | Remarks such as other widely-used country names and names of geographically separated territories covered by the main entry in the GEC list of basic geopolitical entities. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 8. | entryDate | The date of the determination by the GEC Maintenance Authority that affected (*i.e.,* changed or reaffirmed) information about the GEC basic geopolitical entity recorded in this entry. | **Mandatory** | Exactly one | <<basicType>> Date (ISO/TS 19103) |
| 9. | entryType | The type of change to the GEC basic geopolitical entity item that is recorded by this entry; one of {Unchanged, Creation, Revision, Deletion}. | **Mandatory** | Exactly one | <<enumeration>> EntryTypeCode (see Table 20) |
| 10. | entryNotes | A note providing details about the modification(s) made to the corresponding GEC basic geopolitical entity by the published entry in the GEC Update, such as which values were modified. | Conditional  (if *entryType* is not "Unchanged") | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 11. | *Role name:* entrySeries | The GEC basic geopolitical entity for which this is an entry (*i.e.*, one information record). | **Mandatory** | Exactly one | *<<abstract>> GECBasicGeopoliticalEntity* (see Table 60) |
| 12. | *Role name:* usRecognizedSovereignty | In the case that this basic geopolitical entity is not independent, the GEC basic geopolitical entity that has sovereignty as recognized by the United States Government. | Conditional  (if *usRecognition* is "Not Independent") | If applicable, then exactly one | *<<abstract>> GECBasicGeopoliticalEntity* (see Table 60) |

* + - 1. GEC Principal Administrative Division

The UML model for the *«abstract» GECPrincipalAdministrativeDivision* class and its properties is presented in Figure 30 (and also appears in Figure 28).

This abstract class acts as a collector of entries that are related to each other as members of a specific entry series; it supplies conceptual identity but is not itself named or coded, nor does it otherwise carry information about a real-world object that is a "country division". The associated **GECPrincipalAdministrativeDivisionEntry** class furnishes the means to specify individual entries and information specific to those entries – including the names and codes that have been assigned to the corresponding item in the standard.



Figure 30 – GEC Principal Administrative Division Entry Class Diagram

The documentation for the *«abstract» GECPrincipalAdministrativeDivision* class is specified in Table 62.

Table 62 – «abstract» GECPrincipalAdministrativeDivision and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | *<<abstract>> GECPrincipalAdministrativeDivision* | An administrative area directly subordinate to the pertinent governing authority.  NOTE: Even though all principal administrative divisions within a GEC basic geopolitical entity may not be of equal rank within the subdivision system specific to the country, the GEC considers them all as “principal”. |  |  | Subclass of *<<abstract>> AdministrativeDivision* (see Table 71) |
| 2. | *Role name:* entry | A set of dated information records for this GEC principal administrative division. | **Mandatory** | One or more (ordered) | Composition of <<type>> GECPrincipalAdministrativeDivisionEntry (see Table 63) |
| 3. | *Role name:* country | The GEC basic geopolitical entity to which this GEC principal administrative division is administratively subordinate. | **Mandatory** | Exactly one | *<<abstract>> GECBasicGeopoliticalEntity* (see Table 60) |

* + - 1. GEC Principal Administrative Division Entry

The UML model for the «type» GECPrincipalAdministrativeDivisionEntry class and its properties is presented in Figure 30 (and also appears in Figure 28); its documentation is specified in Table 63.

This class represents an individual GEC principal administrative entry and information specific to it – including the names and code that have been assigned to the corresponding item in the standard. Each entry is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code** (see Annex B.4.2.1).

Table 63 – «type» GECPrincipalAdministrativeDivisionEntry and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> GECPrincipalAdministrativeDivisionEntry | A dated, individual information record for a GEC principal administrative division. |  |  |  |
| 2. | encoding | The set of Uniform Resource Identifiers (URI) and code elements that are used to designate the GEC principal administrative division. | **Mandatory** | Exactly one | <<dataType>> FIPSPrimaryAdministrativeDivisionCodes (see Table 24) |
| 3. | divisionClass | The class of the regional principal administrative divisions of the GEC basic geopolitical entity of this GEC principal administrative division.  NOTE: The division class is based on similar governmental structure, administrative authority, and responsibilities in each GEC principal administrative division belonging to the class. | **Mandatory** | Exactly one | <<codeList>> FIPSDivisionClassCode (see Table 57) |
| 4. | remarks | Remarks such as other widely-used country names and names of geographically separated territories covered by the main entry in the GEC list of principal administrative divisions. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 5. | entryDate | The date of the determination by the GEC Maintenance Authority that affected (*i.e.,* changed or reaffirmed) information about the GEC principal administrative division recorded in this entry. | **Mandatory** | Exactly one | <<basicType>> Date (ISO/TS 19103) |
| 6. | entryType | The type of change to the GEC principal administrative division item that is recorded by this entry; one of {Unchanged, Creation, Revision, Deletion}. | **Mandatory** | Exactly one | <<enumeration>> EntryTypeCode (see Table 20) |
| 7. | entryNotes | A note providing details about the modification(s) made to the corresponding GEC principal administrative division by the published entry in the GEC Update, such as which values were modified. | Conditional  (if *entryType* is not "Unchanged") | If applicable, then exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 8. | *Role name:* entrySeries | The GEC principal administrative division for which this is an (information record) entry. | **Mandatory** | Exactly one | *<<abstract>> GECPrincipalAdministrativeDivision* (see Table 62) |
| 9. | *Role name:* name | The set of language-specific names for this GEC principal administrative division. | **Mandatory** | One or more (unordered) | Aggregation of <<type>> GECPrincipalAdministrativeDivisioName (see Table 64) |
| 10. | *Role name:* className | A set of names for the division class of this GEC principal administrative division, along with a specification of the language in which each is expressed. | *Optional* | Zero or more (unordered) | Aggregation of <<type>> GECPrincipalAdministrativeDivisionClassName (see Table 65) |

* + - 1. GEC Principal Administrative Division Name

The UML model for the «type» GECPrincipalAdministrativeDivisionName class and its properties is presented in Figure 30 (and also appears in Figure 28); its documentation is specified in Table 64. This class represents a name of a GEC principal administrative division, the language in which it is expressed, and related naming information.

Table 64 – «type» GECPrincipalAdministrativeDivisionName and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> GECPrincipalAdministrativeDivisionName | A name for a GEC principal administrative division, along with a specification of the language in which it is expressed, and other name-related information. |  |  |  |
| 2. | name | A name for the GEC principal administrative division as used in a specified language. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 3. | bgnConventional | An indication that the name has been determined by the U.S. Board on Geographic Names (BGN) to be a conventional name.  NOTE: A conventional name is a commonly used English-language name approved by the BGN for use in addition to, or in lieu of, a BGN-approved local official name or names in an area where English is not the official language. | **Mandatory** | Exactly one | <<basicType>> Boolean (ISO/TS 19103) |
| 4. | iso6393Char3Code | The alpha-3 ISO 639-3 code of the language of the name.  NOTE: ISO 639-3 was devised to provide a comprehensive set of identifiers for all languages for use in a wide range of applications, including linguistics, lexicography, and internationalization of information systems. It attempts to represent all known languages. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 5. | *Role name:* entry | The set of dated GEC principal administrative division entries (information records) for which this is a name. | **Mandatory** | One or more (unordered) | <<type>> GECPrincipalAdministrativeDivisionEntry (see Table 63) |

* + - 1. GEC Principal Administrative Division Class Name

The UML model for the «type» GECPrincipalAdministrativeDivisionClassName class and its properties is presented in Figure 30 (and also appears in Figure 28); its documentation is specified in Table 65. This class represents a name of a specific category of GEC principal administrative divisions of a GEC basic geopolitical entity, along with the language in which it is expressed.

Table 65 – «type» GECPrincipalAdministrativeDivisionClassName and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> GECPrincipalAdministrativeDivisionClassName | A name for a specific category of GEC principal administrative divisions of a GEC basic geopolitical entity, along with a specification of the language in which it is expressed.  NOTE1: The division class is based on similar governmental structure, administrative authority, and responsibilities in each administrative division belonging to the class.  NOTE2: Administrative subdivisions belonging to the same category do not overlap in territory.  EXAMPLES: U.S. state, French department, or Japanese prefecture. |  |  |  |
| 2. | name | A name for the GEC primary administrative division class as used in a specified language. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 3. | iso6393Char3Code | The alpha-3 ISO 639-3 code of the language of the name.  NOTE: ISO 639-3 was devised to provide a comprehensive set of identifiers for all languages for use in a wide range of applications, including linguistics, lexicography, and internationalization of information systems. It attempts to represent all known languages. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 4. | *Role name:* entry | The set of dated GEC principal administrative division entries (information records) for which this is a division class name. | **Mandatory** | One or more (unordered) | <<type>> GECPrincipalAdministrativeDivisionEntry (see Table 63) |

* + - 1. Datatypes

The basic datatypes used in the GEC conceptual schema are Boolean, CharacterString, and Integer, as specified in ISO/TS 19103:2003, *Geographic information – Conceptual schema language*.

The GEC conceptual schema reuses simple datatypes specified by the GENC Standard conceptual schema; see Section 5.5.10.2 for their specification. It also reuses simple datatypes specified by the FIPS 10-4 conceptual schema; see Annex B.3.3.8 for their specification.

The GEC conceptual schema reuses complex datatypes specified by the GENC Standard conceptual schema; see Section 5.5.10.3 for their specification.

* + 1. XML Encoding Schema
       1. Core Schema

The XML encoding schema for the GEC closely follows the conceptual schema specified in Annex B.4.3 based on the XML schema design specified in Section 5.6.3 and the associated governance and namespace structure specified in Sections 5.6.1 and 5.6.2.

The XML encoding schema for the GEC uses the same XML Namespace Prefix ('**fips**') and XML Namespace as the XML encoding schema for FIPS 10 through 10-4 (see Annex B.3.4.1).

Figure 31 illustrates the principal structure of the resulting complex type **fips:GECBasicGeopoliticalEntityEntryType**; Figure 32 illustrates the principal structure of the resulting complex type **fips:GECPrincipalAdministrativeDivisionType**. Based on those two complex types, two global XML elements are then defined for general use in data exchange: **fips:GECBasicGeopoliticalEntityEntry** and **fips:GECPrincipalAdministrativeDivision**.



Figure 31 – XML Complex Type fips:GECBasicGeopoliticalEntityEntryType



Figure 32 – XML Complex Type fips:GECPrincipalAdministrativeDivisionType

* + - 1. XML Schema Enhancements

In order to support the promulgation of the complete content of a baseline of the GEC, the XML encoding schema for the GEC defines **fips:GECStandardBaseline** as a standard container for a set of GEC entries.

In order to support the promulgation of a more limited set of content of a baseline of the GEC, the XML encoding schema for the GEC also defines **fips:GECStandardBaselineIndex** (equivalent to that established for the GENC Standard; see Annex D) as a standard container for a set of GEC entries whose information content is limited to codespace, code, and name information.

1. – Geopolitical Correlations and Mappings  
   (Informative)
   1. Introduction

In order to facilitate information interoperability, the GENC Registry specifies codespaces for, and the content of, “country code” standards other than the GENC Standard. These standards include:

* ISO 3166 (Parts 1 and 2; see Annex B.2);
* FIPS 10 through 10-4 (see Annex B.2.3); and
* Geopolitical Entities and Codes (see Annex B.3.3).

Due to varying business requirements (including historical requirements), data regarding geopolitical entities and/or administrative subdivisions may be coded in accordance with one or another of those standards, rather than the GENC Standard. When it becomes necessary to exchange “country” information that has been coded in accordance with different standards it is desirable to establish well-known item-level correlations that may be used to recode “country” information from being in accordance with one standard to being in accordance with another standard.

**Note** Recoding “country” information is typically not an information-preserving operation due to differences between the content of the standards. A given item in one standard may be correlated to one, several, or no items in another standard.

Given a specific information exchange requirement a context-specific code-to-code(s) mapping may be established for use in data mediation. A code mapping is a directional transformation in which a codespace/code pair is substituted by zero or more codes in a different codespace.

The GENC Standard does not specify either geopolitical correlations or code mappings, however the GENC Registry does hold specific correlations between the content of different “country code” standards and the content of the GENC Standard. Note that a geopolitical correlation is directional from one standard to another; the reverse direction is covered by a separate geopolitical correlation. These geopolitical correlations are organized into four correlation packages, based on the origin and target standards involved, and on the direction:

* **GENC Standard to ISO 3166**  
  This correlation package relates geopolitical entities represented in the GENC Standard (including countries, dependencies, and areas of special sovereignty) to countries represented in ISO 3166-1 (including countries, dependencies, and other areas of particular geopolitical interest).

In a few cases, correlation targets are also taken from ISO 3166-2 (country subdivisions), which may contain an entry for a geospatially coextensive territory that is not available in ISO 3166-1; for example, the GENC Standard contains an entry named "BAKER ISLAND", while ISO 3166-1 includes that territory under the general entry for "UNITED STATES MINOR OUTLYING ISLANDS", with a specific entry for Baker Island only in ISO 3166-2.

Note that in assessing the Geospatial Alignment of correlations, some assumptions have been made, as follows, regarding geospatial overlap or exclusion:

* 1. The GENC Standard assumes that the geopolitical entities referenced by GENC entries at the same level are geospatially mutually exclusive, with one exception (which is: at the top level, "PALESTINIAN TERRITORY" covers the areas denoted individually by both "GAZA STRIP" and "WEST BANK"). Except for that one case, different GENC top-level entries represent entities with non-overlapping geospatial extents.
  2. The ISO 3166 Maintenance Agency (ISO 3166/MA) states in ISO 3166-1:2006, Clause 4.3, that some country names in ISO 3166-1 may cover areas that are also coded separately, and "the entries are therefore not mutually exclusive". The example given is that of France ('FR') and Martinique ('MQ'), both of which have ISO 3166-1 code elements, even though France includes Martinique (as indicated in ISO 3166-2 with the code element 'FR-MQ'); therefore, in ISO 3166-1, entries may represent geospatially overlapping entities. We note that at least some overlaps can be identified by looking at the lists of administrative subdivisions in ISO 3166-2.
  3. ISO 3166-2:2007, Clause 4.1.2, states that the lists of country subdivisions are complete (as far as known) and "without overlaps"; therefore, for entries in ISO 3166-2, entries at the same level of administrative subdivisions are assumed to be geospatially mutually exclusive. Note that for some countries there are two levels of administrative subdivisions (*e.g*.,: Belgium).
* **ISO 3166 to GENC Standard**  
  This correlation package relates countries represented in ISO 3166 Codes for the representation of names of countries and their subdivisions, Part 1: Country codes (ISO 3166-1), to geopolitical entities represented in the Geopolitical Entities, Names, and Codes GENC Standard (including countries, dependencies, and areas of special sovereignty).

Note that in assessing the Geospatial Alignment of correlations, some assumptions have been made, as follows, regarding geospatial overlap or exclusion:

* 1. The GENC Standard assumes that the geopolitical entities referenced by GENC entries at the same level are geospatially mutually exclusive, with one exception (which is: at the top level, "PALESTINIAN TERRITORY" covers the areas denoted individually by both "GAZA STRIP" and "WEST BANK"). Except for that one case, different GENC top-level entries represent entities with non-overlapping geospatial extents.
  2. The ISO 3166 Maintenance Agency (MA) states in ISO 3166-1:2006, Clause 4.3, that some country names in ISO 3166-1 may cover areas that are also coded separately, and "the entries are therefore not mutually exclusive". The example given is that of France (FR) and Martinique, both of which have ISO 3166-1 code elements, even though France includes Martinique (as indicated in ISO 3166-2); therefore, in ISO 3166-1, entries may represent geospatially overlapping entities. We note that at least some overlaps can be identified by looking at the lists of administrative subdivisions in ISO 3166-2.
  3. ISO 3166-2:2007, Clause 4.1.2, states that the lists of country subdivisions are complete (as far as known) and "without overlaps"; therefore, for entries in ISO 3166-2, entries at the same level of administrative subdivisions are assumed to be geospatially mutually exclusive. Note that for some countries there are two levels of administrative subdivisions (*e.g*.: Belgium).
* **GENC Standard to Geopolitical Entities and Codes (GEC)**  
  This correlation package relates geopolitical entities represented in the Geopolitical Entities, Names, and Codes (GENC) Standard (including countries, dependencies, and areas of special sovereignty) to basic geopolitical entities represented in the Geopolitical Entities and Codes (GEC) list that contains content and updates for the withdrawn FIPS 10-4 standard during the transition to the GENC Standard.

Correlations in this package involve GENC geopolitical entities only and do not include administrative subdivisions.

* **Geopolitical Entities and Codes (GEC) to GENC Standard**  
  This correlation package relates basic geopolitical entities represented in the Geopolitical Entities and Codes GEC list (including countries, dependencies, and areas of special sovereignty) to geopolitical entities represented in the Geopolitical Entities, Names, and Codes (GENC) Standard.

Correlations in this package involve GEC basic geopolitical entities only and do not include principal administrative divisions.

Correlation packages necessarily establish a new baseline for geopolitical correlations each time that the item content of either of the two associated standards is revised.

The Geopolitical Correlations content of the GENC Registry is managed by the GENC Configuration Manager (see Section 6.4.2); Annex C.2 specifies applicable practices.

Annex C.3 specifies a conceptual schema for geopolitical correlations using UML augmented by a tabular specification of all included modeling elements. This conceptual schema is used by the Geopolitical Correlations register of the GENC Registry.

Annex C.3 specifies codespaces for use with geopolitical correlations.

Annex C.4.7 specifies a technology-specific encoding of the geopolitical correlations conceptual schema using XML Schema (XSD). XML instance files may thereby be used to exchange geopolitical correlation content among information systems.

Given a specific information exchange requirement a context-specific code-to-code(s) mapping may be derived from the geopolitical correlations that have been established by a correlation package, for use in data mediation.

Annex C.6 specifies a conceptual schema for code mappings using UML augmented by a tabular specification of all included modeling elements.

Annex C.7 specifies a technology-specific encoding for code mappings using XML Schema (XSD). XML instance files may thereby be used to exchange code mapping content among information systems.

* 1. Governance of Geopolitical Correlations
     1. Configuration Manager

In addition to the duties specified in Section 6.4.2 and Section 6.4.5, the GENC Configuration Manager shall maintain the Geopolitical Correlations specified in the GENC Registry.

In coordination with suitable standards-domain experts and the CCWG Secretariat (see 6.4.3 (b)), the GENC Configuration Manager shall establish new baselines for correlation packages by updating the applicable geopolitical correlation content of the GENC Registry whenever:

1. A new edition or update to the content of the GENC Standard is published, or
2. A new ISO 3166-1 Edition, ISO 3166-2 Edition, or ISO 3166/MA Newsletter for either ISO 3166-1 or ISO 3166-2 is published.

The GENC Configuration Manager shall notify the CCWG Secretariat of the establishment of the new correlation package baseline(s) and the availability of any baseline-associated documents.

* + 1. CCWG Secretariat

In addition to the duties specified in Section 6.4.3 (b)) and Section 6.4.5, the GENC Configuration Manager shall prepare and issue update announcements to the CCWG membership regarding the Geopolitical Correlation content of the GENC Registry.

* 1. Geopolitical Correlation Codespaces
     1. URLs for Codespace-designation

Every geopolitical correlation is uniquely identified in the GENC Registry by the combination of a **codespace** and a **code**. The codespace identifies which package of Geopolitical Correlation information is intended, and the code identifies which member of that package is intended.

URL-based codespace-designations in the GENC Registry for Geopolitical Correlations are constructed in accordance with the pattern specified for the GENC Standard in Section 5.4.3, with the following revisions to component patterns:

* *authority* – one of four values, which is up to 10-digits in length, designating a specific correlation package:
  + 'GENC-ISO' – designates "GENC Standard to ISO 3166"
  + 'ISO-GENC' – designates "ISO 3166 to GENC Standard"
  + 'GENC-GEC' – designates "GENC Standard to Geopolitical Entities and Codes (GEC)"
  + 'GEC-GENC' – designates "Geopolitical Entities and Codes (GEC) to GENC Standard"
* *concept-type* – always 'geo-correlate'
* *encoding* – always 'n' (indicates "numeric", which is 6-digits in length)
* *baseline* – one of five patterns; this value never exceeds 6 characters in length.
  + The specification of a correlation package update corresponding to a GENC Standard edition, as the string 'ed' followed by one or more digits (*e.g*., 'ed1').
  + The specification of a correlation package update subsequent to a GENC Standard edition and prior to the next edition or update to the GENC Standard, composed as follows, in order:
    - the identifier of a GENC Standard edition, as the string 'ed' followed by one or more digits (*e.g*., 'ed1'); and
    - a single letter indicating the sequential correlation package update since the publication of that edition of the GENC Standard.

*E.g.,* 'ed1c" (the third correlation package update since publication of the first edition of the GENC Standard).

* + The specification of a correlation package update corresponding to a GENC Standard update, composed as follows, in order:
    - the identifier of the latest edition of the GENC Standard, expressed as one or more digits;
    - a hyphen ('-'); and
    - one or more digits indicating the sequential number of the GENC Standard update since the publication of that edition of the GENC Standard.

*E.g*., '2-1' (the first GENC Standard update since publication of the second edition of the GENC Standard).

* + The specification of a correlation package update subsequent to a GENC Standard update and prior to the next edition or update to the GENC Standard, composed as follows, in order:
    - the identifier of the latest edition of the GENC Standard, expressed as one or more digits;
    - a hyphen ('-');
    - one or more digits indicating the sequential number of the GENC Standard update since the publication of that edition of the GENC Standard; and
    - a single letter indicating the sequential correlation package update since the publication of that update of the GENC Standard.

*E.g*., '1-2a' (the first correlation package update since publication of the second update to the first edition of the GENC Standard).

* + The specification of the most recent (“current”) baseline, as the string 'now'.

The individual components are then concatenated into a single string as specified by the pattern (above) to form the URL that designates that codespace. For example:

<http://api.nsgreg.nga.mil/geo-correlate/GENC-ISO/n/ed1>  
(a numeric code for a geopolitical correlation in the "GENC Standard to ISO 3166" correlation package, as of GENC Edition 1.0)

<http://api.nsgreg.nga.mil/geo-correlate/ISO-GENC/n/1-2>  
(a numeric code for a geopolitical correlation in the "ISO 3166 to GENC Standard" correlation package, as of GENC Edition 1.0, Change Notice 2)

<http://api.nsgreg.nga.mil/geo-correlate/ISO-GENC/n/2-1a>  
(a numeric code for a geopolitical correlation in the "ISO 3166 to GENC Standard" correlation package, as of GENC Edition 2.0, Change Notice 1, correlation package update 'a')

Individual items within a codespace are identified by concatenating the codespace-URL, a forward-slash ('/'), and then the applicable code value. For example:

<http://api.nsgreg.nga.mil/geo-correlate/GENC-ISO/n/ed1/500834>   
(the geopolitical correlation "SAINT LUCIA (GENC) to SAINT LUCIA (ISO)" for the "GENC Standard to ISO 3166" correlation package, as of GENC Edition 1.0)

<http://api.nsgreg.nga.mil/geo-correlate/ISO-GENC/n/1-2/500981>  
(the geopolitical correlation "FRANCE (ISO) to CLIPPERTON ISLAND (GENC)" for the "ISO 3166 to GENC Standard" correlation package, as of GENC Edition 1.0, Change Notice 2)

The resulting URL may be used to access the item-associated resource in the GENC Registry.

* + 1. URNs for Codespace-designation

URN codespace-designations in the GENC Registry for Geopolitical Correlations are constructed in accordance with the rules specified in Section 5.4.4.2, as modified by the revised component patterns of Annex C.3.1. For example:

"**urn:us:gov:dod:nga:def:geo-correlate:GENC-ISO:n:ed1**"  
(a numeric code for a geopolitical correlation in the "GENC Standard to ISO 3166" correlation package, as of GENC Edition 1.0)

Analogous to the URL, individual items within a URN-based codespace are identified by concatenating the codespace-URN, a colon (':'), and then the applicable code value.

URN-like codespace-designations in the GENC Registry for Geopolitical Correlations are constructed in accordance with the rules specified in Section 5.4.4.3, as modified by the revised component patterns of Annex C.3.1. For example:

"**geo-correlate:GENC-ISO:n:ed1**"  
(a numeric code for a geopolitical correlation in the "GENC Standard to ISO 3166" correlation package, as of GENC Edition 1.0)

Examples of individual item identifiers are:

"**geo-correlate:GENC-ISO:n:ed1:500834**"  
(the geopolitical correlation "SAINT LUCIA (GENC) to SAINT LUCIA (ISO)" for the "GENC Standard to ISO 3166" correlation package, as of GENC Edition 1.0)

Every Geopolitical Correlation item is thus uniquely identified by the combination of a URN-based **codespace** (maximum 33 characters) and a **code** (maximum 6 characters) that, taken together with the colon (':') that is used as the separator, are limited to a maximum of 40 characters.

Short URN-like codespace-designations in the GENC Registry for Geopolitical Correlations are constructed in accordance with the rules specified in Section 5.4.4.4, as modified by the revised component patterns of Annex C.3.1.

For situations in which further compactness is required, the *resource-specific-string* pattern specified in Section 5.4.4.4, as modified by the revised component patterns of Annex C.3.1, may be revised as follows:

* *concept-type* – 'ge' (for geopolitical correlation); this value never exceeds 2 characters in length.
* *authority* – one of { 'GNIS' | 'ISGN' | 'GNGC' | 'GCGN' }; this value never exceeds 4 characters in length. These correspond, respectively, to: 'GENC-ISO', 'ISO-GENC', 'GENC-GEC', and 'GEC-GENC'.

For example:

"**gc:GNIS:n:ed1**"  
(a numeric code for a geopolitical correlation in the "GENC Standard to ISO 3166" correlation package, as of GENC Edition 1.0)

Examples of individual item identifiers are:

"**gc:GNIS:n:ed1:500834**"  
(the geopolitical correlation "SAINT LUCIA (GENC) to SAINT LUCIA (ISO)" for the "GENC Standard to ISO 3166" correlation package, as of GENC Edition 1.0)

Every Geopolitical Correlation item is thus uniquely identified by the combination of a short URN-based **codespace** (maximum 17 characters) and a **code** (maximum 6 characters) that, taken together with the colon (':') that is used as the separator, are limited to a maximum of 24 characters.

The URN Resolution Service established by the GENC Registry may be used with all three of these URN forms.

* + 1. Established Correlation Package Codespaces

In accordance with the patterns established in the preceding sections, URI-based codespaces are established for the geopolitical correlation packages.

Tables whose content establishes codespaces for use with the GENC Standard contain columns specified in accordance with Section 5.4.5. Each row in a table documents a distinct codespace. To enhance comprehension of the patterns followed, in some cases cells are merged across multiple rows to emphasize shared content.

URI-based codespaces established for correlation packages are specified in Table 66, Table 67, Table 68, and Table 69.

Additional codespaces will be established for future correlation packages and future revisions of the standards referenced by each package.

Table 66 – GENC Standard to ISO 3166 Correlation Package Codespaces

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| GENC-ISO | 1 September 2012 | n | ed1 | geo-correlate/GENC-ISO/n/ed1 | geo-correlate:GENC-ISO:n:ed1 | gc:GNIS:n:ed1 |
| *<current>* | now | geo-correlate/GENC-ISO/n/now | geo-correlate:GENC-ISO:n:now | gc:GNIS:n:now |

Table 67 – ISO 3166 to GENC Standard Correlation Package Codespaces

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| ISO-GENC | 1 September 2012 | n | ed1 | geo-correlate/ISO-GENC /n/ed1 | geo-correlate:ISO-GENC:n:ed1 | gc:ISGN:n:ed1 |
| *<current>* | now | geo-correlate/ISO-GENC /n/now | geo-correlate:ISO-GENC:n:now | gc:ISGN:n:now |

Table 68 – GENC Standard to Geopolitical Entities and Codes (GEC) Correlation Package Codespaces

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| GENC-GEC | 1 September 2012 | n | ed1 | geo-correlate/GENC-GEC/n/ed1 | geo-correlate:GENC-GEC:n:ed1 | gc:GNGC:n:ed1 |
| *<current>* | now | geo-correlate/GENC-GEC/n/now | geo-correlate:GENC-GEC:n:now | gc:GNGC:n:now |

Table 69 – Geopolitical Entities and Codes (GEC) to GENC Standard Correlation Package Codespaces

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Codespace Basis** | | **Components** | | **Uniform Resource Identifier** | | |
| **Short Name** | **Date** | ***encoding*** | ***baseline*** | **URL Stem** | **URN Stem (URN-like)** | **Short URN-like** |
| GEC-GENC | 1 September 2012 | n | ed1 | geo-correlate/GEC-GENC/n/ed1 | geo-correlate:GEC-GENC:n:ed1 | gc:GCGN:n:ed1 |
| *<current>* | now | geo-correlate/GEC-GENC/n/now | geo-correlate:GEC-GENC:n:now | gc:GCGN:n:now |

* 1. Conceptual Schema for Geopolitical Correlations
     1. Introduction

This Annex specifies a complete and self-consistent geopolitical correlations conceptual schema using Unified Modeling Language (UML) class diagrams augmented by a tabular specification of all included modeling elements. Annex E provides a brief primer sufficient to understand UML class diagrams as used in this standard. The table format used to document individual modeling classes and properties in UML class diagrams is specified in Section 5.5.1.

* + 1. Items in "Country Code" Standards

The UML models for the *«abstract» GeopoliticalEntity* and *«abstract» Administrative Subdivision* classes and their properties are presented in Figure 33. Figure 34 presents the UML model for its use in establishing geopolitical correlations.

These abstract classes unify the differing representations of "countries" and "country divisions" that are used in standards whose item content may be correlated to items in the GENC Standard.



Figure 33 – Items in "Country Code" Standards Class Diagram

The documentation for the *«abstract» GeopoliticalEntity* class is specified in Table 70.

Table 70 – «abstract» GeopoliticalEntity and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | *<<abstract>> GeopoliticalEntity* | A region controlled by a political community having an organized government and possessing internal and external sovereignty, most often as a State but sometimes having a dependent relationship on another political authority, or a special sovereignty status. |  |  |  |
| 2. | *Role name:* subdivision | An administrative subdivision that is an administratively subordinate division of this geopolitical entity. | Conditional  (if the geopolitical entity is divided into administrative subdivisions) | If applicable, then one or more (unordered) | Composition of *<<abstract>> AdministrativeSubdivision* (see Table 15) |
| 3. | *Role name:* usedAsOrigin | A set of geopolitical correlations that reference this geopolitical entity as an item in their origin standard. | Conditional  (if the geopolitical entity is referenced by a correlation as its origin) | If applicable, then one or more (unordered) | <<type>> GeopoliticalCorrelation (see Table 75) |
| 4. | *Role name:* usedAsTarget | A set of geopolitical correlations that reference this geopolitical entity as an item in their target standard. | Conditional  (if the geopolitical entity is referenced by a correlation as its target) | If applicable, then one or more (unordered) | <<type>> GeopoliticalCorrelation (see Table 75) |

The documentation for the *«abstract» AdministrativeSubdivision* class is specified Table 71.

Table 71 – «abstract» AdministrativeSubdivision and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | *<<abstract>> AdministrativeSubdivision* | An administratively subordinate division of a geopolitical entity.  NOTE: A geopolitical entity (country) is typically divided into first-, second-, and lower-order administrative subdivisions. First-order administrative subdivisions are immediately subordinate to the government of the geopolitical entity, with second- and lower-order subdivisions subordinate to those above them. |  |  |  |
| 2. | *Role name:* country | The geopolitical entity to which this administrative subdivision is administratively subordinate. | **Mandatory** | Exactly one | *<<abstract>> GeopoliticalEntry* (see Table 12) |
| 3. | *Role name:* usedAsOrigin | A set of geopolitical correlations that reference this administrative subdivision as an item in their origin standard. | Conditional  (if the administrative subdivision is referenced by a correlation as its origin) | If applicable, then one or more (unordered) | <<type>> GeopoliticalCorrelation (see Table 75) |
| 4. | *Role name:* usedAsTarget | A set of geopolitical correlations that reference this administrative subdivision as an item in their target standard. | Conditional  (if the administrative subdivision is referenced by a correlation as its target) | If applicable, then one or more (unordered) | <<type>> GeopoliticalCorrelation (see Table 75) |

The UML model for the *«abstract» GENCGeopoliticalEntity* class and its properties is presented in Figure 2; its documentation is specified in Table 12. The UML model for the *«abstract» GENCAdministrativeSubdivision* class and its properties is presented in Figure 3; its documentation is specified in Table 15.

The UML model for the *«abstract» ISOCountry* class and its properties is presented in Figure 18; its documentation is specified in Table 35. The UML model for the *«abstract» ISOCountrySubdivision* class and its properties is presented in Figure 19; its documentation is specified in Table 38.

The UML model for the *«abstract» FIPSBasicGeopoliticalEntity* class and its properties is presented in Figure 24; its documentation is specified in Table 51. The UML model for the *«abstract» FIPSPrincipalAdministrativeDivision* class and its properties is presented in Figure 25; its documentation is specified in Table 53.

The UML model for the *«abstract» GECBasicGeopoliticalEntity* class and its properties is presented in Figure 29; its documentation is specified in Table 60. The UML model for the *«abstract» GECPrincipalAdministrativeDivision* class and its properties is presented in Figure 30; its documentation is specified in Table 62.

* + 1. Correlation Package

The UML model for the «type» CorrelationPackage class and its properties is presented in Figure 34. A correlation package specifies the conditions under which a set of geopolitical correlations was prepared and any constraints that may apply to their use.



Figure 34 – Geopolitical Correlation Class Diagram

The documentation for the «type» CorrelationPackage class is specified in Table 72.

Table 72 – «type» CorrelationPackage and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> CorrelationPackage | A grouping of geopolitical correlations that share a common origin standard, a common target standard, and a common basis for establishing correlations from items in the origin standard to items in the target standard.  NOTE: A package of geopolitical correlations includes at least one geopolitical correlation for every item in the origin standard. |  |  |  |
| 2. | encoding | The set of Uniform Resource Identifiers (URI) and code elements that are used to designate this geopolitical correlation. | **Mandatory** | Exactly one | <<dataType>> GeopoliticalCorrelationCodes (see Table 73) |
| 3. | name | The name of this correlation package. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 4. | description | A description of this correlation package including, for example, its scope and intended purpose. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 5. | originName | The name of the geopolitical entity and/or administrative subdivision standard that is the origin of this correlation package. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 6. | originDescription | A description of the geopolitical entity and/or administrative subdivision standard that is the origin of this correlation package. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 7. | targetName | The name of the geopolitical entity and/or administrative subdivision standard that is the target of this correlation package. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 8. | targetDescription | A description of the geopolitical entity and/or administrative subdivision standard that is the target of this correlation package. | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 9. | Role name: member | The set of geopolitical correlations that are members of this package, organized into sets of correlations each of which contains geopolitical correlations for a single item in the origin standard. | Conditional  (if the package includes correlations) | If applicable, then one or more (unordered) | composition of *<<abstract>> CorrelationSet* (see Table 74) |

The UML model for the «type» GeopoliticalCorrelationCodes class is presented in Figure 6; its documentation is specified in Table 73. The Geopolitical Correlation Codes class is used to specify one or more codes, along with their codespaces, that are used to designate a geopolitical correlation in information exchange.

Table 73 – «datatype» GeopoliticalCorrelationCodes

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | *<<dataType>>* GeopoliticalCorrelationCodes | The codes that are used to designate a geopolitical correlation. |  |  |  |
| 2. | numericCode | The numeric code that is used to designate a geopolitical correlation. | **Mandatory** | Exactly one | <<basicType>> Integer (ISO/TS 19103) |
| 3. | numericCodeURISet | The set of URI-based codespace designations for the numeric code that is used to designate a geopolitical correlation. | **Mandatory** | Exactly one | <<dataType>> URISet (see Table 25) |

* + 1. Correlation Set

The UML model for the *«abstract» CorrelationSet* class and its properties is presented in Figure 34; its documentation is specified in Table 74. A correlation set specifies the set of one or more geopolitical correlations that reference the same item in the origin standard of a correlation package.

Table 74 – «abstract» CorrelationSet and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | *<<abstract>> CorrelationSet* | A set of geopolitical correlations for a single item in the origin standard of a correlation package. |  |  |  |
| 2. | *Role name:* package | The correlation package of which this correlation set is a member. | **Mandatory** | Exactly one | <<type>> CorrelationPackage (see Table 72) |
| 3. | *Role name:* member | The set of geopolitical correlations that are members of this correlation set. | **Mandatory** | One or more (unordered) | Composition of <<type>> GeopoliticalCorrelation (see Table 75) |

* + 1. Geopolitical Correlation

The UML model for the «type» GeopoliticalCorrelation class and its properties is presented in Figure 34; its documentation is specified in Table 75. A geopolitical correlation specifies the relationship from an item in an origin standard to a corresponding item in the target standard. This relationship may be limited in temporal duration, because countries and their subdivisions may change over time.

Table 75 – «type» GeopoliticalCorrelation and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> GeopoliticalCorrelation | An information structure that directionally relates the representation of a geopolitical entity (or an administrative subdivision) in one standard (origin) to its representation in a different standard (target).  NOTE1: An item in the origin standard may be correlated to one, several, or zero items in the target standard.  NOTE2: A geopolitical correlation is established with a specified temporal context, because countries and codes change over time. |  |  |  |
| 2. | name | The structured text label for this geopolitical correlation, containing the names of the geopolitical entities and/or administrative subdivisions that are correlated, with an indication of the standard that specifies each, plus the direction of the correlation.  EXAMPLE: “ÅLAND ISLANDS (ISO) to FINLAND (GENC)” | **Mandatory** | Exactly one | <<basicType>> CharacterString (ISO/TS 19103) |
| 3. | startDate | The starting date of the time interval during which this geopolitical correlation is valid. | **Mandatory** | Exactly one | <<basicType>> Date (ISO/TS 19103) |
| 4. | startDateBasis | The standard that includes the publication on which the start date of this geopolitical correlation is based. | **Mandatory** | Exactly one | <<enumeration>> CorrelationDateBasisCode (see Table 76) |
| 5. | endDate | The (optional) ending date of the time interval during which this geopolitical correlation is valid.  NOTE: If the ending date is absent, then the correlation remains active. | Conditional  (if the correlation is no longer active) | If applicable, then exactly one | <<basicType>> Date (ISO/TS 19103) |
| 6. | endDateBasis | The standard that includes the publication on which the end date of this geopolitical correlation is based (if there is an end date). | Conditional  (if *endDate* is specified) | If applicable, then exactly one | <<enumeration>> CorrelationDateBasisCode (see Table 76) |
| 7. | territorialAlignment | A specification of whether the geopolitical entity (or administrative subdivision) item in the origin standard is geospatially equivalent to the correlated item in the target standard, or whether they are different; and if they are different, then in what manner. | **Mandatory** | Exactly one | <<enumeration>> TerritorialAlignmentCode |
| 8. | primaryCorrelation | An indication that this geopolitical correlation is the principal way of relating a geopolitical entity (or administrative subdivision) item in the origin standard to an item in the target standard within the set of geopolitical correlations of which it is a member.  NOTE1: A general principle that determines primary correlation is the correlation to the largest territorial part represented in the target standard; for example, "SVALBARD AND JAN MAYEN (ISO) to SVALBARD (GENC)" is the primary correlation in a set that also includes the correlation "SVALBARD AND JAN MAYEN (ISO) to JAN MAYEN (GENC)".  NOTE2: It is sometimes the case that no member of the correlation set is considered to be "primary". | **Mandatory** | Exactly one | <<basicType>> Boolean (ISO/TS 19103) |
| 9. | correlationNote | Remarks on the nature of the geopolitical correlation that may address territorial alignment, administrative-level differences, and/or other special considerations. | *Optional* | Zero or one | <<basicType>> CharacterString (ISO/TS 19103) |
| 10. | *Role name:* set | The set of geopolitical correlations for a single item in the origin standard of a correlation package of which this geopolitical correlation is a member. | **Mandatory** | Exactly one | *<<abstract>> CorrelationSet* (see Table 74) |
| 11. | *Role name:* originEntity | The geopolitical entity item in the origin standard, if any, to which this geopolitical correlation applies. | Conditional  (if the *originSubdivision* is not specified) | If applicable, then exactly one | <<type>> GENCGeopoliticalEntry (see Table 12) |
| 12. | *Role name:* originSubdivision | The administrative subdivision item, if any, in the origin standard to which this geopolitical correlation applies. | Conditional  (if the *originEntity* is not specified) | If applicable, then exactly one | <<type>> GENCAdministrativeSubdivision (see Table 15) |
| 13. | *Role name:* targetEntity | The geopolitical entity item in the target standard, if any, to which this geopolitical correlation applies. | Conditional  (if the *targetSubdivision* is not specified and the *territorialAlignment* is not "null") | If applicable, then exactly one | <<type>> GENCGeopoliticalEntry (see Table 12) |
| 14. | *Role name:* targetSubdivision | The administrative subdivision item, if any, in the target standard to which this geopolitical correlation applies. | Conditional  (if the *targetEntity* is not specified and the *territorialAlignment* is not "null") | If applicable, then exactly one | <<type>> GENCAdministrativeSubdivision (see Table 15) |

* + 1. Datatypes
       1. Correlation Date Basis

The UML model for the «enumeration» CorrelationDateBasisCode class and its domain values is presented in Figure 34; its domain values are as specified in Table 76. The Correlation Date Basis enumeration specifies which of the two standards that are involved in a correlation was the basis for establishing a correlation-associated date.

Table 76 – «enumeration» CorrelationDateBasisCode Domain Values

| **Code** | **Name** | **Definition** |
| --- | --- | --- |
| 001 | **origin** | The first of the two items being related in the correlation, representing a geopolitical entity (or administrative subdivision) in the origin standard. |
| 002 | **target** | The second of the two items being related in the correlation, representing a geopolitical entity (or administrative subdivision) in the target standard. |

* + - 1. Territorial Alignment

The UML model for the «enumeration» TerritorialAlignmentCode class and its domain values is presented in Figure 34; its domain values are as specified in Table 77. The Territorial Alignment enumeration specifies whether the item in the origin standard is geospatially equivalent to the correlated item in the target standard, or whether they are different and if they are different then in what manner.

Table 77 – «enumeration» TerritorialAlignmentCode Domain Values

| **Code** | **Name** | **Definition** | **Description** |
| --- | --- | --- | --- |
| 000 | **null** | The geopolitical entity (or administrative subdivision) represented in the origin standard does not correlate to any entry in the target standard, because it does not have a geospatial alignment with any geopolitical entity (or administrative division) in the target standard at the same administrative level, and although it may share geospatial extent with a geopolitical entity in the target standard, that target entity has a different geopolitical recognition status (for example: it is a dependency rather than a sovereign State). The lack of a correlate may therefore be due to a mismatch of sovereignty, as well as to unmatched geospatial extent. | For example, the GENC Standard includes an entry for Kosovo as a top-level, independent geopolitical entity (a country), but ISO 3166-1 does not. Instead, ISO 3166-2 specifies code elements for Kosovo-Metohija as an administrative division of Serbia. Based on policy, the primary correlation of "KOSOVO (GENC)" to ISO 3166-1 has a Territorial Alignment value of "Null". |
| 001 | **coextensive** | The geopolitical entity (or administrative subdivision) represented in the origin standard has the same geospatial extent as the entity to which it is correlated in the target standard. | In the case of a correlation with a Coextensive alignment, both the origin and target standards have only one entry representing an entity with that exact extent. For example, both the GENC Standard and ISO 3166-1 represent Guatemala as a country having the same geospatial extent. |
| 002 | **partToWhole** | The geopolitical entity (or administrative subdivision) represented in the origin standard covers only a part of the spatial extent belonging to the geopolitical entity (or administrative subdivision) represented in the target standard. | For example, FIPS 10-4 included a specific entry for the West Bank, which covers only a portion of the area included in the entity represented by the ISO 3166-1 entry named "PALESTINIAN TERRITORY, OCCUPIED"; therefore, the correlation from FIPS 10-4 to ISO 3166-1 for this pair has a Territorial Alignment value of "Part-to-whole". |
| 003 | **wholeToPart** | The geopolitical entity (or administrative subdivision) represented in the origin standard geospatially subsumes the extent of the geopolitical entity (or administrative subdivision) represented in the target standard, and the former also covers additional area. | For example, ISO 3166-1 contains an entry for the Occupied Palestinian Territory, an entity that completely includes the geospatial extent of both the Gaza Strip and the West Bank. Each of the latter had a specific entry in FIPS 10-4. The correlation "PALESTINIAN TERRITORY, OCCUPIED (ISO) to GAZA STRIP (FIPS)" has a Territorial Alignment value of "Whole-to-part". The counterpart correlation "PALESTINIAN TERRITORY, OCCUPIED (ISO) to WEST BANK (FIPS)" also has the alignment value "Whole-to-part". |
| 004 | **overlap** | The geopolitical entity (or administrative subdivision) represented in the origin standard geospatially overlaps the extent of the geopolitical entity (or administrative subdivision) represented in the target standard; that is, some part of the entity represented in the origin standard lies outside of the boundary of the correlated entity in the target standard, and also some part of the entity represented in the target standard lies outside of the boundary of the entity in the origin standard. |  |

* + 1. Content Presentation

The NGA hosts an online, dynamic GENC Registry (<http://nsgreg.nga.mil/genc>) whose content is structured in accordance with the GENC Standard information model, including the Conceptual Schema for Geopolitical Correlations specified in Annex C.4.

The GENC Registry is the single authoritative source for the geopolitical entities (and administrative subdivisions), names, and codes contained in the GENC Standard; it supports multiple online data access mechanisms and downloadable (offline) information products.

In addition to hosting the content of the GENC Standard, the GENC Registry also hosts the four Correlation Projects specified in Annex C.1 along with their individual Geopolitical Correlations. Comparable to the content of the GENC Standard itself, multiple online data access mechanisms and downloadable (offline) information products are supported for Correlation projects.

For example, Figure 35 illustrates a browser-enabled presentation of one of two geopolitical correlations from the item "AMERICAN SAMOA" in the GENC Standard to a correlated item in ISO 3166.

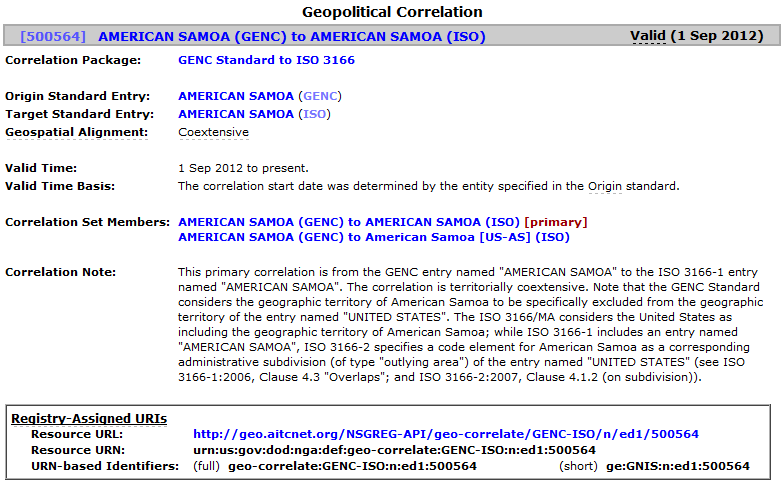


Figure 35 – Example of Geopolitical Correlation Browser Presentation

* 1. XML Schema for Geopolitical Correlations
     1. Core Schema

The XML encoding schema for geopolitical correlations closely follows the conceptual schema specified in Annex C.3 based on the XML schema design specified in Section 5.6.3 and the associated governance and namespace structure specified in Sections 5.6.1 and 5.6.2.

For the XML encoding schema for geopolitical correlations the following assignments apply:

XML Namespace Prefix: **gc**

XML Namespace: **http://api.nsgreg.nga.mil/schema/genc/1.0/gc**

Name: **Geopolitical Correlations**

When this XML namespace is referenced from other XML schemas then the single valid *schemaLocation* for the <import> is that established by **api.nsgreg.nga.mil**. For the GENC Standard, Edition 1.0, XML encoding schema for geopolitical correlations, this is:

'**gc**': [http://api.nsgreg.nga.mil/schema/genc/1.0.0/gc.xsd](http://metadata.ces.mil/mdr/ns/GSIP/genc/1.0.0/gc.xsd)

Schema component files (XSD, SCH, XML) may be copied to other locations for development and/or efficiency purposes, however any alteration or substitution violates GENC Standard conformance requirements (see Annex A).

Figure 36 illustrates the principal structure of the resulting complex type **gc:GeopoliticalCorrelationType**. Based on this complex type, a global XML element is then defined for general use in data exchange: **gc:GeopoliticalCorrelation**.



Figure 36 – XML Complex Type gc:GeopoliticalCorrelationType

* + 1. XML Schema Enhancements

In order to support the promulgation of the complete content of a correlation package (see Annex C.1) the XML encoding schema for geopolitical correlations defines **gc:CorrelationPackage** as a standard container for a set of geopolitical correlations constituting a baseline of a correlation package. Figure 37 illustrates the principal structure of the corresponding global XML type.



Figure 37 – XML Complex Type gc:CorrelationPackageType

* 1. Conceptual Schema for Code Mappings
     1. Introduction

A code mapping is a directional transformation in which a codespace/code pair are substituted by zero or more codes in a different codespace. It is derived from a geopolitical correlation by the process of substituting the code(s) for an item in a standard for references to that item in either the origin standard item (such as use of 2-letter codes in the GENC Standard) or target standard item (such as use of alpha-3 code elements in ISO 3166-1) of a geopolitical correlation.

For example, on 1 September 2012, the GENC Standard represented the United Kingdom with the 2-character alphabetic code “GB”, while ISO 3166-1 represented the United Kingdom with the alpha-3 code element “GBR”. The corresponding code mapping specifies the necessary information to replace an "origin" data instance of 'GB' with a "target" data instance of 'GBR'.

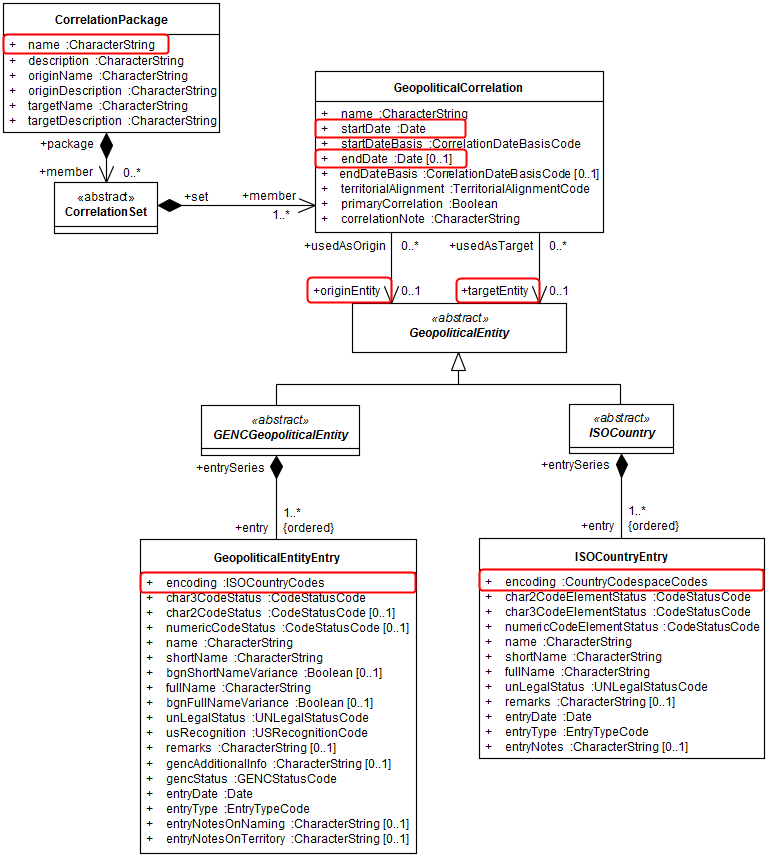


Figure 38 – Illustration of Code Mapping

Figure 38 illustrates the components of the applicable conceptual schemas that enable the generation of this code mapping.

* The appropriate correlation package is "GENC Standard to ISO 3166".
* The given date (2012-09-01) and origin item (*char2Code* = 'GB') enable the determination of the applicable geopolitical correlation(s). In this example there is only one matching geopolitical correlation, but there are cases in which there are multiple geopolitical correlations (which will be members of the same correlation set) and therefore there are multiple potential mappings.
* Given the date-specific geopolitical correlation(s) the applicable ISO 3166 target item (*char3CodeElement*) value(s) are then determined.

The results of this process can be computed for all geopolitical correlations in a correlation package baseline for all allowed codes (or code elements) in the applicable source and target standard baselines.

* + 1. Code Mapping Set

The UML model for the «type» CodeMappingSet class and its properties is presented in Figure 39. This class represents the result of generating a code mapping for a baseline of a correlation package, consisting of a set of Item Mappings – one for each item in the origin standard.



Figure 39 – Code Mapping Set Class Diagram

The documentation for the «type» CodeMappingSet class is specified in Table 78.

Table 78 – «datatype» CodeMappingSet and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> CodeMappingSet | A set of code mappings that have been defined for a given correlation package and baseline. |  |  |  |
| 2. | name | The name of the correlation package. | **Mandatory** | Exactly one | <<datatype>> CharacterString (ISO/TS 19103) |
| 3. | baseline | The baseline of the correlation package. | **Mandatory** | Exactly one | <<datatype>> CharacterString (ISO/TS 19103) |
| 4. | date | The date of the baseline of the correlation package. | **Mandatory** | Exactly one | <<datatype>> Date (ISO/TS 19103) |
| 5. | *Role name:* item | The set of items in the origin "country codes" standard for which code mappings have been defined. | **Mandatory** | One or more (unordered) | <<type>> ItemMapping (see Table 79) |

* + 1. Item Mapping

The UML model for the «type» ItemMapping class and its properties is presented in Figure 39; its domain values are as specified in Table 79. This class represents the codes and name for an item in the origin standard along with one or more correlated items in the target standard.

Table 79 – «datatype» ItemMapping and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> ItemMapping | Information regarding an item in a "country codes" standard that is the origin of a geopolitical correlation, and its related target items in another standard. |  |  |  |
| 2. | encoding | The set of "country codes" that are used to designate the item in the origin standard. | **Mandatory** | Exactly one | *<<datatype, abstract>> CountryCodespaceCodes* (see Table 24) |
| 3. | name | The name of the item in the origin standard. | **Mandatory** | Exactly one | <<datatype>> CharacterString (ISO/TS 19103) |
| 4. | *Role name:* baseline | The correlation package baseline from which this item mapping has been derived. | **Mandatory** | Exactly one | <<type>> CodeMappingSet (see Table 78) |
| 5. | *Role name:* mapping | The set of related target items in another "country codes" standard. | **Mandatory** | One or more (unordered) | <<type>> TargetMapping (see Table 80) |

* + 1. Target Mapping

The UML model for the «type» TargetMapping class and its properties is presented in Figure 39; its domain values are as specified in Table 80. This class represents the codes and name for an item in the target standard.

Table 80 – «datatype» TargetMapping and its Properties

| **Reference** | **UML Designation** | **Definition** | **Obligation** | **Multiplicity** | **Domain** |
| --- | --- | --- | --- | --- | --- |
| 1. | <<type>> TargetMapping | Information regarding an item in a "country codes" standard that is the target of a geopolitical correlation. |  |  |  |
| 2. | encoding | The set of "country codes" that are used to designate the item in the target standard. | **Mandatory** | Exactly one | *<<datatype, abstract>> CountryCodespaceCodes* (see Table 24) |
| 3. | name | The name of the item in the target standard. | **Mandatory** | Exactly one | <<datatype>> CharacterString (ISO/TS 19103) |
| 4. | primaryMapping | An indication, in the case of more than a single target mapping item for the same origin item that this target mapping is recommended.  NOTE1: The recommendation is not absolute and may be ignored if context-specific data exchange business practices contraindicate.  NOTE2: There is never more than one target mapping within a set of target mappings for the same origin item that is marked as "primary; however, it may be that case that no target mapping is so marked. | **Mandatory** | Exactly one | <<datatype>> Boolean (ISO/TS 19103) |
| 5. | *Role name:* correlation | The geopolitical correlation that specifies information regarding this target mapping and was used in its derivation. | **Mandatory** | Exactly one | <<type>> GeopoliticalCorrelation (see Table 75) |
| 6. | *Role name:* origin | The item in a "country codes" standard that is the origin of a geopolitical correlation for which this is a target item. | **Mandatory** | Exactly one | <<type>> ItemMapping (see Table 79) |

* 1. XML Schema for Code Mappings
     1. Introduction

The XML encoding schema for code mappings closely follows the conceptual schema specified in Annex C.6, based on the XML schema design specified in Section 5.6.3 and the associated governance and namespace structure specified in Sections 5.6.1 and 5.6.2. All of the requirements of Annex C.5.1 apply.

Figure 40 illustrates the complex type **gc:URISetType** that specifies the Uniform Resource Identifiers (URI) that are used to designate a country (geopolitical entity) or country division (administrative subdivision) codespace for use in information exchange; it is derived from «datatype» URISet (see Figure 6 and Table 25).



Figure 40 – XML Complex Type gc:URISetType

Figure 41 illustrates the complex type **gc:CountryCodespaceCodesType** that unifies the representations of codespaces and codes that are used to designate a "country" or "country division" in a standard; it is derived from *«datatype, abstract» CountryCodespaceCodes* (see Figure 6 and Table 24).



Figure 41 – XML Complex Type gc:CountryCodespaceCodesType

Figure 42 illustrates the principal structure of the complex type **gc:CodeMappingSetType**. Based on this complex type, a global XML element is defined for general use in data exchange: **gc:CodeMappingSet**.



Figure 42 – XML Complex Type gc:CodeMappingSetType

* + 1. Sample Content

Figure 43 illustrates a simple Code Mapping Set XML instance document containing information about a single code mapping that is based on (a part of) the content of the GENC Standard, Edition 1.0 (1 September 2012). The mapping is from "AMERICAN SAMOA" as specified in the GENC Standard, Edition 1.0, to "AMERICAN SAMOA" as specified in ISO 3166-1:2006, Newsletter VI-13 (2 August 2012).

<?xml version="1.0" encoding="UTF-8"?>

<gc:CodeMappingSet  
 xsi:schemaLocation="http://api.nsgreg.nga.mil/schema/genc/1.0/gc  
 http://api.nsgreg.nga.mil/schema/genc/1.0.0/gc.xsd"   
 xmlns:gc="http://api.nsgreg.nga.mil/schema/genc/1.0/gc"   
 xmlns:genc="http://api.nsgreg.nga.mil/schema/genc/1.0"

xmlns:genc-cmn="http://api.nsgreg.nga.mil/schema/genc/1.0/genc-cmn"  
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

<gc:name>GENC-ISO</gc:name>

<gc:baseline>ed1</gc:baseline>

<gc:date>2012-09-01</gc:date>

<gc:item>

<gc:encoding>

<gc:ISOCountryCodes>

<genc:char3Code>ASM</genc:char3Code>

<genc:char3CodeURISet>

<genc-cmn:codespaceURL>http://api.nsgreg.nga.mil/geo-political/GENC/3/ed1

</genc-cmn:codespaceURL>

<genc-cmn:codespaceURN>urn:us:gov:dod:nga:def:geo-political:GENC:3:ed1

</genc-cmn:codespaceURN>

<genc-cmn:codespaceURNBased>geo-political:GENC:3:ed1

</genc-cmn:codespaceURNBased>

<genc-cmn:codespaceURNBasedShort>ge:GENC:3:ed1

</genc-cmn:codespaceURNBasedShort>

</genc:char3CodeURISet>

<genc:char2Code>AS</genc:char2Code>

<genc:char2CodeURISet>

<genc-cmn:codespaceURL>http://api.nsgreg.nga.mil/geo-political/GENC/2/ed1

</genc-cmn:codespaceURL>

<genc-cmn:codespaceURN>urn:us:gov:dod:nga:def:geo-political:GENC:2:ed1

</genc-cmn:codespaceURN>

<genc-cmn:codespaceURNBased>geo-political:GENC:2:ed1

</genc-cmn:codespaceURNBased>

<genc-cmn:codespaceURNBasedShort>ge:GENC:2:ed1

</genc-cmn:codespaceURNBasedShort>

</genc:char2CodeURISet>

<genc:numericCode>016</genc:numericCode>

<genc:numericCodeURISet>

<genc-cmn:codespaceURL>http://api.nsgreg.nga.mil/geo-political/GENC/n/ed1

</genc-cmn:codespaceURL>

<genc-cmn:codespaceURN>urn:us:gov:dod:nga:def:geo-political:GENC:n:ed1

</genc-cmn:codespaceURN>

<genc-cmn:codespaceURNBased>geo-political:GENC:n:ed1

</genc-cmn:codespaceURNBased>

<genc-cmn:codespaceURNBasedShort>ge:GENC:n:ed1

</genc-cmn:codespaceURNBasedShort>

</genc:numericCodeURISet>

</gc:ISOCountryCodes>

</gc:encoding>

<gc:name>AMERICAN SAMOA</gc:name>

<gc:mapping>

<gc:encoding>

<gc:ISOCountryCodes>

<genc:char3Code>ASM</genc:char3Code>

<genc:char3CodeURISet>

<genc-cmn:codespaceURL>

http://api.nsgreg.nga.mil/geo-political/ISO3166-1/3/VI-13

</genc-cmn:codespaceURL>

<genc-cmn:codespaceURN>

urn:us:gov:dod:nga:def:geo-political:ISO3166-1:3:VI-13

</genc-cmn:codespaceURN>

<genc-cmn:codespaceURNBased>geo-political:ISO3166-1:3:VI-13

</genc-cmn:codespaceURNBased>

<genc-cmn:codespaceURNBasedShort>ge:ISO1:3:VI-13

</genc-cmn:codespaceURNBasedShort>

</genc:char3CodeURISet>

<genc:char2Code>AS</genc:char2Code>

<genc:char2CodeURISet>

<genc-cmn:codespaceURL>

http://api.nsgreg.nga.mil/geo-political/ISO3166-1/2/VI-13

</genc-cmn:codespaceURL>

<genc-cmn:codespaceURN>

urn:us:gov:dod:nga:def:geo-political:ISO3166-1:2:VI-13

</genc-cmn:codespaceURN>

<genc-cmn:codespaceURNBased>geo-political:ISO3166-1:2:VI-13

</genc-cmn:codespaceURNBased>

<genc-cmn:codespaceURNBasedShort>ge:ISO1:2:VI-13

</genc-cmn:codespaceURNBasedShort>

</genc:char2CodeURISet>

<genc:numericCode>016</genc:numericCode>

<genc:numericCodeURISet>

<genc-cmn:codespaceURL>

http://api.nsgreg.nga.mil/geo-political/ISO3166-1/n/VI-13

</genc-cmn:codespaceURL>

<genc-cmn:codespaceURN>

urn:us:gov:dod:nga:def:geo-political:ISO3166-1:n:VI-13

</genc-cmn:codespaceURN>

<genc-cmn:codespaceURNBased>geo-political:ISO3166-1:n:VI-13

</genc-cmn:codespaceURNBased>

<genc-cmn:codespaceURNBasedShort>ge:ISO1:n:VI-13

</genc-cmn:codespaceURNBasedShort>

</genc:numericCodeURISet>

</gc:ISOCountryCodes>

</gc:encoding>

<gc:name>AMERICAN SAMOA</gc:name>

<gc:primaryMapping>true</gc:primaryMapping>

<gc:correlation   
codeSpace="http://api.nsgreg.nga.mil/geo-correlate/GENC-ISO/n/ed1">500564</gc:correlation>

</gc:mapping>

</gc:item>

</gc:CodeMappingSet>

Figure 43 – Sample XML Instance of Element gc:CodeMappingSet

1. – GENC Index Documents  
   (Informative)
   1. Overview

The online, dynamic information resource that is the GENC Registry (<http://nsgreg.nga.mil/genc>) is the single authoritative source for the geopolitical entities (and administrative subdivisions), names, and code content of the GENC Standard; it supports multiple online data access mechanisms and downloadable (offline) information products. Those downloadable products include:

1. A Microsoft Excel® workbook that lists each geopolitical entity and administrative subdivision specified in the content of the GENC Standard for a specified baseline, along with its code(s) and a limited amount of name information. In addition, it specifies its short URN-based identifier and the resource-URL for that item where its complete specification may be examined.
2. An XML instance document that contains similar information to the GENC Index Workbook, as directly extracted from the GENC Registry and designed to be suitable for direct use in information processing systems.

Both products are available for download through the NSG Standards Registry, as cited in Section 3.2. Their structure is specified in the following sections of this Annex.

* 1. GENC Index Workbook
     1. Introduction

The GENC Index Workbook uses the 'XLSX' format; this is the XML-based format for the Microsoft Excel Spreadsheet ('XLS') standardized as ISO/IEC 29500 *Information technology – Document description and processing languages – Office Open XML File Formats* (multi-part). Any application that can import files in accordance with ISO/IEC 29500 is capable of employing the content of the GENC Index Workbook.

The GENC Index Workbook consists of a 'Cover' worksheet plus additional worksheets documenting selected content of the GENC Registry in a manner conducive to easy exploration, search, and review by subject matter experts and domain users.

Each GENC Index Workbook is specific to a dated baseline of the content of the GENC Registry.

* + 1. Structure and Sample Content

The 'Cover' worksheet provides extensive metaschema information about the presentation of GENC Standard content in subsequent worksheets.

In accordance with Edition 1.0 of the GENC Standard, there is only a single additional worksheet – that for geopolitical entities. Each row in the worksheet (except the header row) specifies a single geopolitical entity entry in the baseline whose content is reported on in the workbook.

The information specified in the header is as follows:

* **Baseline Date** and **Title**  
  The date and title of the baseline whose geopolitical entity content is summarized in this worksheet.  
  For example: "(1 September 2012) GENC Standard Geopolitical Entities, Edition 1.0"
* **GENC Codespace URL (3-char)**  
  The GENC codespace URL for the 3-character encoding of geopolitical entities whose content is summarized in this worksheet.  
  For example: "http://api.nsgreg.nga.mil/geo-political/GENC/3/ed1"
* **GENC Codespace URN (3-char)**  
  The GENC codespace URN for the 3-character encoding of geopolitical entities whose content is summarized in this worksheet.  
  For example: "urn:us:gov:dod:nga:def:geo-political:GENC:3:ed1"

The information specified for each geopolitical entity is as follows:

* **3-character Code**  
  The alphanumeric 3-character code that is used to designate the geopolitical entity.  
  For example: "GBR".
* **2-character Code**  
  The alphanumeric 2-character code that is used to designate the geopolitical entity.  
  For example: "GB". In the case that no 2-character code is specified, then this cell states [None].
* **Numeric Code**  
  The 3-digit numeric code that is used to designate the geopolitical entity.  
  For example: "826". In the case that no 3-digit code is specified, then this cell states [None].
* **Name**  
  The short name of the geopolitical entity, in all capital letters with diacritical marks where applicable.  
  For example: "UNITED KINGDOM".
* **Short Name**  
  The short name of the geopolitical entity.  
  This is a mixed-case character string, for example: "United Kingdom".
* **Full Name**  
  The full name of the geopolitical entity.  
  This is a mixed-case character string, for example: "United Kingdom of Great Britain and Northern Ireland".
* **Short URN-based Identifier**  
  The codespace-code combination unique identifier for the geopolitical entity that is based on its 3-character code, in combination with the compressed URN-based codespace designation for the current content baseline. NOTE: The scope of uniqueness is limited to the GENC Registry.  
  Uses the unique compressed resource-specific-string ("stem") component of the URN-based codespace designation for this baseline (see Section 5.4.4.4). For example: "ge:GENC:3:ed1:AFG". When the identifier uses an ISO-associated codespace (*e.g*., "ge:ISO1:3:VI-13:DZA"), the text font is purple and cell is light-purple filled.
* **GENC Registry Page** *(link)*  
  A web hyperlink to the corresponding complete browser-based presentation of the GENC Standard information content for the geopolitical entity.   
  For example: <http://nsgreg.nga.mil/genc/view?i=200004>
* **GENC XML Resource** *(link)*  
  A web hyperlink to the corresponding complete XML-based encoding of the GENC Standard information content for the geopolitical entity.  
  For example: <http://api.nsgreg.nga.mil/geo-political/GENC/3/ed1/AFG>

Table 81 illustrates a few rows of sample geopolitical entity content.

Table 81 – Sample GENC Index Workbook Geopolitical Entity Content

| **3-character Code** | **2-character Code** | **Numeric Code** | **Name** | **Short Name** | **Full Name** | **Short URN-based Identifier** (3-character  code-based) | **GENC Registry Page** *(link)* | **GENC XML Resource** *(link)* |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| AFG | AF | 004 | AFGHANISTAN | Afghanistan | Islamic Republic of Afghanistan | ge:GENC:3:ed1:AFG | AFGHANISTAN | AFG |
| XQZ | QZ | *[None]* | AKROTIRI | Akrotiri | Akrotiri | ge:GENC:3:ed1:XQZ | AKROTIRI | XQZ |
| ALB | AL | 008 | ALBANIA | Albania | Republic of Albania | ge:GENC:3:ed1:ALB | ALBANIA | ALB |
| DZA | DZ | 012 | ALGERIA | Algeria | the People's Democratic Republic of Algeria | ge:ISO1:3:VI-13:DZA | ALGERIA | DZA |
| ASM | AS | 016 | AMERICAN SAMOA | American Samoa | Territory of American Samoa | ge:GENC:3:ed1:ASM | AMERICAN SAMOA | ASM |
| AND | AD | 020 | ANDORRA | Andorra | the Principality of Andorra | ge:ISO1:3:VI-13:AND | ANDORRA | AND |
| AGO | AO | 024 | ANGOLA | Angola | the Republic of Angola | ge:ISO1:3:VI-13:AGO | ANGOLA | AGO |
| AIA | AI | 660 | ANGUILLA | Anguilla | Anguilla | ge:ISO1:3:VI-13:AIA | ANGUILLA | AIA |
| ATA | AQ | 010 | ANTARCTICA | Antarctica | Antarctica | ge:ISO1:3:VI-13:ATA | ANTARCTICA | ATA |
| ATG | AG | 028 | ANTIGUA AND BARBUDA | Antigua and Barbuda | Antigua and Barbuda | ge:GENC:3:ed1:ATG | ANTIGUA AND BARBUDA | ATG |

In accordance with a future Edition of the GENC Standard, an additional worksheet will be added to the GENC Index Workbook for administrative subdivision content.

* 1. GENC Index XML
     1. Introduction

The GENC Index XML document uses the 'XML' (Extensible Markup Language) format; this format is defined by the W3C Recommendations *XML Schema Part 1: Structures (Second Edition),* 28 October 2004 and *XML Schema Part 2: Datatypes (Second Edition)*, 28 October 2004. Any application that can import files in accordance with XML Schema (Second Edition) is capable of employing the content of the GENC Index XML.

The GENC Index XML document consists of a simple set of metadata (*i.e*., authority, baseline, date) plus elements documenting selected content of the GENC Registry in a manner conducive to use in information systems.

Each GENC Index XML document is specific to a dated baseline of the content of the GENC Registry.

* + 1. XML Encoding Schema

The XML encoding schema for index XML closely follows the structure of the Index Workbook.

Figure 44 illustrates the element **genc:GENCStandardBaselineIndex** that specifies the structure of the encoding schema.



Figure 44 – XML Complex Type genc:GENCStandardBaselineIndex

* + 1. Sample Content

Figure 45 illustrates a simple GENC Index XML document containing information about a single geopolitical entity that is (a part of) the content of the GENC Standard, Edition 1.0.

<?xml version="1.0" encoding="UTF-8"?>

<genc:GENCStandardBaselineIndex   
 xsi:schemaLocation="http://api.nsgreg.nga.mil/schema/genc/1.0  
 http://api.nsgreg.nga.mil/schema/genc/1.0.0/genc.xsd"   
 xmlns:genc="http://api.nsgreg.nga.mil/schema/genc/1.0"

xmlns:genc-cmn="http://api.nsgreg.nga.mil/schema/genc/1.0/genc-cmn"  
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

<genc:authority>GENC</genc:authority>

<genc:baseline>ed1</genc:baseline>

<genc:promulgationDate>2012-09-01</genc:promulgationDate>

<genc:GeopoliticalEntity>

<genc:encoding>

<genc:char3Code>AFG</genc:char3Code>

<genc:char3CodeURISet>

<genc-cmn:codespaceURL>http://api.nsgreg.nga.mil/geo-political/GENC/3/ed1

</genc-cmn:codespaceURL>

<genc-cmn:codespaceURN>urn:us:gov:dod:nga:def:geo-political:GENC:2:ed1

</genc-cmn:codespaceURN>

<genc-cmn:codespaceURNBased>geo-political:GENC:2:ed1</genc-cmn:codespaceURNBased>

<genc-cmn:codespaceURNBasedShort>ge:GENC:3:ed1</genc-cmn:codespaceURNBasedShort>

</genc:char3CodeURISet>

<genc:char2Code>AF</genc:char2Code>

<genc:char2CodeURISet>

<genc-cmn:codespaceURL>http://api.nsgreg.nga.mil/geo-political/GENC/2/ed1

</genc-cmn:codespaceURL>

<genc-cmn:codespaceURN>urn:us:gov:dod:nga:def:geo-political:GENC:2:ed1

</genc-cmn:codespaceURN>

<genc-cmn:codespaceURNBased>geo-political:GENC:2:ed1</genc-cmn:codespaceURNBased>

<genc-cmn:codespaceURNBasedShort>ge:GENC:2:ed1</genc-cmn:codespaceURNBasedShort>

</genc:char2CodeURISet>

<genc:numericCode>004</genc:numericCode>

<genc:numericCodeURISet>

<genc-cmn:codespaceURL>http://api.nsgreg.nga.mil/geo-political/GENC/n/ed1

</genc-cmn:codespaceURL>

<genc-cmn:codespaceURN>urn:us:gov:dod:nga:def:geo-political:GENC:n:ed1

</genc-cmn:codespaceURN>

<genc-cmn:codespaceURNBased>geo-political:GENC:n:ed1</genc-cmn:codespaceURNBased>

<genc-cmn:codespaceURNBasedShort>ge:GENC:n:ed1</genc-cmn:codespaceURNBasedShort>

</genc:numericCodeURISet>

</genc:encoding>

<genc:name>AFGHANISTAN</genc:name>

<genc:shortName>Afghanistan</genc:shortName>

<genc:fullName>Islamic Republic of Afghanistan</genc:fullName>

</genc:GeopoliticalEntity>

</genc:GENCStandardBaselineIndex>

Figure 45 – Sample XML Instance of Element genc:StandardBaselineIndex

1. – UML Primer  
   (Informative)
   1. UML Notations

The diagrams that appear in this document are presented using the Unified Modeling Language (UML) static structure diagram with the ISO Interface Definition Language basic type definitions and the UML Object Constraint Language (OCL) as the conceptual schema language. The UML notations used in this Standard are described in Figure 46.



Figure 46 – UML Notation

* 1. UML Model Relationships
     1. Associations

An association is used to describe a relationship between two or more classes. UML defines three different types of relationships, called association, aggregation and composition. The three types have different semantics. An ordinary association shall be used to represent a general relationship between two classes. The aggregation and composition associations shall be used to create part-whole relationships between two classes.

An aggregation association is a relationship between two classes in which one of the classes plays the role of container and the other plays the role of a containee.

A composition association is a strong aggregation. In a composition association, if a container object is deleted, then all of its containee objects are deleted as well. The composition association shall be used when the objects representing the parts of a container object cannot exist without the container object.

* + 1. Navigation

Associations may be navigable in only one direction. If the direction is not specified, it is assumed to be a two-way association. If one-way associations are intended, the direction of the association can be marked by an arrow at the end of the line. Navigability means that instances participating in links at runtime (instances of an association) can be accessed efficiently from instances participating in links at the other end of the association. The precise mechanism by which such access is achieved is implementation specific. If an end is not navigable, access from the other ends may or may not be possible, and if it is, it might not be efficient.

* + 1. Generalization

A generalization is a relationship between a superclass and the subclasses that may be substituted for it. The superclass is the generalized class, while the subclasses are specified classes.

* + 1. Instantiation / Dependency

A dependency relationship shows that the client class depends on the supplier class/interface to provide certain services, such as:

* Client class accesses a value (constant or variable) defined in the supplier class/interface;
* Operations of the client class invoke operations of the supplier class/interface;
* Operations of the client class have signatures whose return class or arguments are instances of the supplier class/interface.

An instantiated relationship represents the act of substituting actual values for the parameters of a parameterized class or parameterized class utility to create a specialized version of the more general item.

* + 1. Roles

If an association is navigable in a particular direction, the model shall supply a “role name” that is appropriate for the role of the target object in relation to the source object. Thus in a two-way association, two role names will be supplied. Figure 47 represents how role names and cardinalities are expressed in UML diagrams.

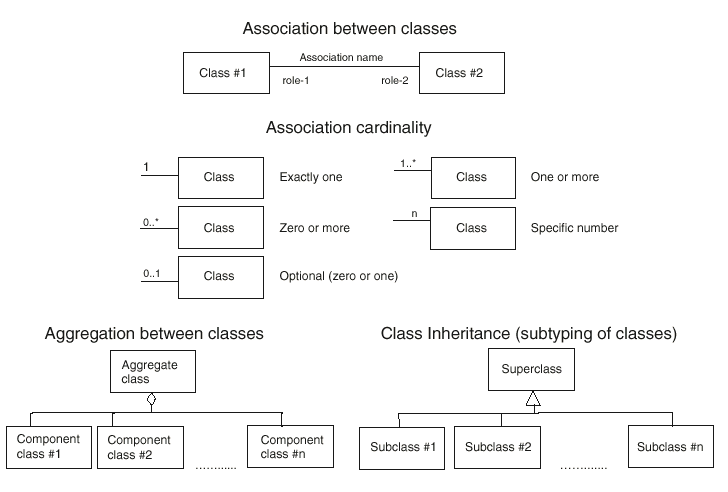


Figure 47 – UML Roles

* 1. UML Model Stereotypes

A UML stereotype is an extension mechanism for existing UML concepts. It is a model element that is used to classify (or mark) other UML elements so that they in some respect behave as if they were instances of new virtual or pseudo metamodel classes whose form is based on existing base metamodel classes. Stereotypes augment the classification mechanisms on the basis of the built-in UML metamodel class hierarchy. Below are brief descriptions of the stereotypes used in this document.

In this document the following stereotypes are used:

1. <<type>> class used for specification of a domain of instances (objects), together with the operations applicable to the objects. A type may have attributes and associations.
2. <<enumeration>> data type whose instances form a list of named literal values. Both the enumeration name and its literal values are declared. Enumeration means a short list of well-understood potential values within a class.
3. <<dataType>> a descriptor of a set of values that lack identity and whose operations do not have side effects. Datatypes include primitive pre-defined types and user-definable types. Pre-defined types include numbers, string, and time. User-definable types include enumerations.
4. <<codeList>> used to describe a more open enumeration. <<codeList>> is a flexible enumeration. Code lists are useful for expressing a long list of potential values. If the elements of the list are completely known, an enumeration should be used; if the only likely values of the elements are known, a code list should be used.
5. <<union>> describes a selection of one of the specified types. This is useful to specify a set of alternative classes/types that can be used, without the need to create a common super-type/class.
6. <<abstract>> class (or other classifier) that cannot be directly instantiated. The UML notation for this is to show the name in italics.
7. <<leaf>> package that contains definitions, without any sub-packages.

1. The GENC Registry follows the information model and management procedures established by ISO 19135, *Geographic information – Procedures for item registration*, which (1) specifies procedures to be followed in establishing, maintaining and publishing registers of unique, unambiguous, and permanent identifiers and meanings that are assigned to items of geographic information, and (2) specifies elements of information that are necessary to provide identification and meaning to the registered items and to manage the registration of those items. [↑](#footnote-ref-1)
2. UNTERM "state": <http://unterm.un.org/dgaacs/unterm.nsf/WebView/FA4EB11432587D1785256D57004F3D6E?OpenDocument> [↑](#footnote-ref-2)
3. A numeric code is useful by allowing for relative independence from character set (and language) encoding. [↑](#footnote-ref-3)
4. An upper case letter of the 26-character Roman alphabet (ignoring diacritical signs) from the range 'A' to 'Z'. [↑](#footnote-ref-4)
5. Prepared by the Department of General Assembly Affairs and Conference Services of the United Nations Secretariat; United Nations publication, Sales No. A/C/E/F/R/S.97.I.19 (ISBN 13: 9789210020688): <https://unp.un.org/details.aspx?pid=2941>. [↑](#footnote-ref-5)
6. The full set of French country names is not included in the GENC Standard. French country names used in English for francophone countries are included. [↑](#footnote-ref-6)
7. Note that in 1992 the UN Group of Experts on Geographical Names (UNGEGN) established a working group to identify the official forms of country names. The “List of Country Names” curated by this group was initially presented in 2002 and subsequently updated in April 2007 (E/CONF.98/89/Add.1); available at <http://unstats.un.org/unsd/geoinfo/ungegn/docs/9th-uncsgn-docs/econf/9th_UNCSGN_e-conf-98-89-add1.pdf>. The Working Group on Country Names has coordinated with the UN Terminology Section, but there may be minor differences between the “List of Country Names” and UNTERM. [↑](#footnote-ref-7)
8. In the GENC Standard, the full name is always explicitly specified. [↑](#footnote-ref-8)
9. Especially those which are recommended by the United Nations Group of Experts on Geographical Names (UNGEGN) (<http://unstats.un.org/unsd/geoinfo/UNGEGN/>). [↑](#footnote-ref-9)
10. Codespaces may be established for other purposes, and in such cases their content may evolve over time as required by the business practices of the applicable authority and the purpose(s) for which the codespace was established. [↑](#footnote-ref-10)
11. Note that 'n' indicates "numeric", which is exactly 3-digit in this case potentially including leading zeros. [↑](#footnote-ref-11)
12. Note that the Newsletters updating ISO 3166, Part 1 (ISO 3166-1), Second edition (2006), are referenced using the Roman edition-identifier “VI”, because the second publication of ISO 3166 in Part 1 format (country codes only) is the sixth edition of the ISO 3166 country codes. [↑](#footnote-ref-12)
13. As noted in Section 5.2.4, ISO 3166 is a document-based standard (whose entry content is also available in data base form). The GENC Standard is a registry-based standard whose entry content is managed in the GENC Registry. [↑](#footnote-ref-13)
14. The UML model for the *«abstract» GeopoliticalEntity* class and its properties is presented in Figure 26. This abstract class unifies the differing representations of "countries" that are used in standards whose item content may be correlated to items in the GENC Standard. [↑](#footnote-ref-14)
15. The UML model for the *«abstract» AdministrativeSubdivision* class and its properties is presented in Figure 26. This abstract class unifies the differing representations of "country subdivisions" that are used in standards whose item content may be correlated to items in the GENC Standard. [↑](#footnote-ref-15)
16. Note that in the content of the GENC Standard (which is published in the GENC Registry) the term 'territory' may occasionally be capitalized and/or used as part of a proper name, in which case it usually denotes a formal status that has been assigned by the applicable authority. [↑](#footnote-ref-16)
17. This process: (a) resolves all inclusions by replacing the include element by the resource to which it links; (b) resolves all abstract patterns by replacing parameter references with actual parameter values in all enclosed attributes that contain queries; (c) resolves all abstract rules in the schema by replacing the extends elements with the contents of the abstract rule identified; (d) negates all report elements into assert elements; and (e) removes elements used for diagnostics and documentation. [↑](#footnote-ref-17)
18. The values of the Short Name and the Full Name are also uniquely-assigned in the case of geopolitical entities. [↑](#footnote-ref-18)
19. Note that the ISO 3166/MA used several informal notations in notifying users of changes to the content of the standard; those notations do not follow the current pattern as are instead completely specified in Table 26 and Table 27. [↑](#footnote-ref-19)
20. Note that the Newsletters updating ISO 3166, Part 1 (ISO 3166-1), Second edition (2006), are referenced using the Roman edition-identifier “VI”, because the second publication of ISO 3166 in Part 1 format (Country codes only) is the sixth edition of the ISO 3166 country codes. [↑](#footnote-ref-20)
21. Errata. [↑](#footnote-ref-21)
22. Amendment. [↑](#footnote-ref-22)
23. Note that it is the case that only a single baseline is established for a given date, although there may be multiple ISO Newsletters issued on that (same) date. In such cases the highest number of the set of Newsletters issued on that date is used as the value of the *baseline* component. In consequence the set of baselines may appear to be incomplete and/or incorrectly ordered. [↑](#footnote-ref-23)
24. The UML model for the *«abstract» AdministrativeSubdivision* class and its properties is presented in Figure 26. This abstract class unifies the differing representations of "country subdivisions" that are used in standards whose item content may be correlated to items in the GENC Standard. [↑](#footnote-ref-24)