

CMS Standard Geographic Model Template – Read-me

Purpose of the Standard Geographic Model Template

1. Provide a template of mailing and residential address entities and attributes for CMS application models.
2. Standardize attribute names, definitions and data types.
3. Provide capability to parse address data into the smallest part that is meaningful to CMS.
4. Support requirements for geospatial data.
5. Identify source of valid values for reference data attributes.
6. Reuse geographic entities in the Enterprise Logical Data Model (ELDM).

Assumptions

1. CMS does not need address data to be fully decomposed into simple data elements (e.g., no need to separate street number (5) from street name (Main) from street suffix (Street))
2. CMS will support a master address repository.

Implementation of the Standard Geographic Model Template

1. The use of the standard geographic entities, attributes, etc. are described in the Data Management Operating Procedures and Guidelines (DM OP&G) document.
2. Specifically see DM OP-006 Operating Procedure for Reuse of Enterprise Entities, Relationships and Attributes for guidance on how to make use of standard geographic entities, etc.
3. Also see DM OP-007 Operating Procedure for Reuse of Enterprise Data Resources for further guidance on re-use of CMS data resource assets.
4. The sources of valid values and descriptions for reference data code attributes are identified in the attribute UDP "attribute data source name". CMS Central Data Administration (CDA) does not maintain any geographic code valid values.
5. Geographic related entities and attributes, not included in the model template, can be added to the application data model upon approval from CDA.
6. Template entities (e.g., Geographic ISO Country Reference) and attributes that are not needed by the application model should be omitted.

Description of Country Codes and Principal Subdivisions.

There are two sets of country codes: United States Postal Service (USPS) and International Standard Organization (ISO) and. ISO supports both country and principal subdivision codes. The term Principal Subdivision applies to land areas throughout the world (e.g. U.S. State of Maryland, Province of Quebec, etc.).

United States Postal Service (USPS)

USPS publishes country codes and names on their website: <http://pe.usps.com/text/Imm/immctry.htm>

International Organization for Standardization (ISO)

ISO 3166 is the International Standard for country codes and codes for their principal subdivisions. The purpose of ISO 3166 is to establish internationally recognized codes for the representation of names of countries, territories or areas of geographical interest, and their subdivisions. However, ISO 3166 does not establish the names of countries, only the codes that represent them.

The country names in ISO 3166 come from United Nations sources. New names and codes 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 Divisions. Names for subdivisions are taken from relevant official national information sources.

ISO 3166-1:2006, Codes for the representation of names of countries and their subdivisions – Part 1: Country codes

ISO 3166-2:2007 establishes codes for the names of the principal subdivisions (e.g. provinces or states) of all countries coded in ISO 3166-1.

Description of State and County Codes

Three classification systems (ANSI, SSA, and USPS) are used by CMS to identify land areas under the sovereignty of the United States. ANSI replaced FIPS September 2, 2008 as the federal government standard. The geographic model template is designed to be in compliance with the federal government standard. It does not support the address data anomalies that exist within CMS databases. The Standard Geographic Model Template supports the three systems described below that are used at CMS. Following these descriptions is a comparison of the systems.

American National Standards Institute (ANSI)

American National Standards Institute codes (ANSI codes) are a standardized set of numeric codes issued by the American National Standards Institute (ANSI) to ensure uniform identification of geographic entities through all federal government agencies. These standards replace the Federal Information Processing Standards (FIPS) codes previously issued by the National Institute of Standards and Technology (NIST). The entities covered include: states and statistically equivalent entities, counties and statistically equivalent entities, named populated and related location entities (such as, places and county subdivisions), and American Indian and Alaska Native areas.

The standard geographic model template supports the following standards which are maintained and published by the U.S. Census Bureau. They are available at an ANSI page on their website: <http://www.census.gov/geo/www/ansi/statetables.html>.

INCITS 38:200X Codes for the Identification of the States, the District of Columbia, Puerto Rico, and the Insular Areas of the United States

INCITS 31:200X Codes for the Identification of Counties and Equivalent Entities of the United States, its Possessions, and Insular Areas

Social Security Administration Coding System

- CMS last received a published update of Standard SSA state and county codes from SSA in 1988 (one year after the Computer Security Act of 1987).
- The Enrollment Database (EDB) is the CMS source of Social Security Administration (SSA) Standard State and County Code values and descriptions.
- CMS systems have modified the SSA classification system to accommodate CMS application design.
 - EDB maintains a set of “SSA” State Codes that include more states than those identified by SSA. EDB uses the same field for country codes and army post offices.
 - NCH GEO_SSA_STATE_TB table contains more than one code value for certain states (e.g., Maryland is represented as both ‘21’ and ‘80’.) Extra code values were created to uniquely identify providers whose ‘state code’ is imbedded in the provider identifier. This anomaly is not supported by the Standard Geographic Model Template.
- CMS legacy systems do not have an attribute named “SSA Country Code”. They use the attribute SSA State Code to represent countries. The geographic model template depicts both a SSA state code and SSA country code both sourced from the single EDB code set.

United States Postal Service (USPS) Coding System

- The state alpha code is represented in the geographic model template as Geographic USPS State Code. Refer to <http://pe.usps.gov/cpim/ftp/pubs/Pub28/pub28.pdf> for USPS State Codes.

- The U.S. Postal Service does not employ the term U.S. Minor Outlying Islands, as mail for any of these islands is routed indirectly.
- The U.S. Postal Service employs the use of three “Military State” abbreviations for six military states that are not part of the ANSI coding system.

Former Federal Information Processing Standards (FIPS)

The Computer Security Act of 1987 required all Federal agencies to use the standardized system of codes called FIPS. On September 2, 2008 the Department of Commerce/National Institute of Standards and Technology withdrew the Federal Information Processing Standards Publication 10-4 Specification for Countries, Dependencies, Areas of Special Sovereignty, and their Principal Administrative Divisions (FIPS 10-4), Codes for the Identification of the States, District of Columbia, and the Outlying Areas of the U.S. and Associated Areas (FIPS 5-2), and Counties and Equivalent Entities of the U.S., its Possessions and Associated Areas (FIPS 6-4). The decision was based on the National Technology Transfer and Advancement Act of 1995 (Pub. L. 104-113) which directed Federal agencies and departments to use technical standards that are developed in voluntary consensus standards bodies.

The following is a cross reference of retired FIPS standards to current ISO and ANSI Federal standards.

FIPS 10-4	ISO 3166-1 Codes for the representation of names of countries and their subdivisions – Part 1: Country codes
FIPS 10-4	ISO 3166-2 Codes for the names of the principal subdivisions

The following FIPS were a straight conversion; the codes remained the same.

FIPS 5-2	INCITS 38:200X Codes for the Identification of the States, the District of Columbia, Puerto Rico, and the Insular Areas of the United States
FIPS 6-4	INCITS 31:200X Codes for the Identification of Counties and Equivalent Entities of the United States, its Possessions, and Insular Areas

Comparison of ANSI, SSA, and USPS codes

State Code

- Three classification systems (ANSI, SSA, and USPS) are used by CMS to identify land areas under the sovereignty of the United States. ANSI replaced FIPS September 2, 2008 as the federal government standard.
- The geographic model template is designed to be in compliance with the federal government standard. It does not support the address data anomalies that exist within CMS databases.
- ANSI INCITS 38:200X publication provides a set of two-digit numeric codes and a set of two-letter alphabetic codes for representing the 50 states, the District of Columbia and the outlying areas of the United States, and associated areas. The numeric codes are the ANSI state codes; the alphabetic codes are the official USPS state codes. The standard covers all land areas under the sovereignty of the United States, the freely associated states of Federated States of Micronesia and Marshall Islands, and the trust territory of Palau.
- ANSI and SSA states code values only have a one-to-one correspondence when the state is one of the land areas under the sovereignty of the United States. ANSI and SSA state code values assigned to U.S. territories do not have a direct one-to-one correlation.

County Code

- County codes are only unique within a U.S. state and U.S. possession
- There are differences between ANSI and SSA County codes. Some are due to updates by ANSI and SSA that are not in-sync.
- The standard geographic model template depicts both ANSI and SSA County Code attributes.
- SSA does not publish a set of country subdivision codes (other than US States). However, CMS augments the SSA Standard State and County Codes to represent subdivisions of countries and continents.

CMS Standard Geographic Template Entity Relationship Diagram

