

Data Element Naming Conventions

The Bureau of Land Management (BLM) requires data standards for program activities to ensure data can be shared among offices and with partners for more efficient, comprehensive, and up-to-date assessments of public land resources and land status.

Uniformly named data elements will ensure data accessibility and reusability across systems and users. The use of standard naming conventions will ensure that names for all BLM data elements are clear, brief, unique, context-free, and conform to the rules of syntax. Structured format and content for data element documentation:

- Minimize costs associated with the maintenance of identical information in different formats;
- Reduce needless duplication of data collection and storage;
- Reduce redundant data through consolidation of synonymous and overlapping data elements;
- Increase opportunities for sharing data among BLM users and exchanging data with partners;
- Enhance consistent interdisciplinary use of information.

Naming Convention – A naming convention is a collection of rules, which, when applied to data, result in a set of data elements named in a logical and standardized way. These data element names inform the user about the contents of the data value domain (the set of possible values for a data element), and the usage of the data element in a concise manner. The naming convention assists users to achieve efficient use and reuse of data while maximizing understanding of information both within and outside the organization.

Types of Name – Data elements are the product of business needs analyses. Business process modeling is used to perform business needs analysis and identify data elements at the conceptual, logical, and physical levels.

Conceptual – Name development begins at the conceptual data model level. At this stage, information needs are grouped as high level entities or object classes. For example, if “Tree” is an object class and “Height” is a property of “Tree,” then the conceptual data element name would be “Tree Height.” At this level there is nothing in the name that tells you what kind of tree this is or whether the height is a code, a number, a measure, etc.

Logical – At the more detailed logical data model level, a term is added to describe the form that the domain values (set of possible valid values) can take. This is called the Representation Term and tells you whether the data element is a number, a date, a percent, an identifier, etc. If the Representation Term of “Measurement” is added to

“Tree Height,” then the resulting logical data element name is “Tree Height Measurement.”

Standard Names – Logical data element names are often standard data elements (also called enterprise data elements). A standard data element is a context free, shareable, atomic level information item that references a business fact. Standard data elements are reusable data elements that do not belong to any particular business application. They are defined by providing a base name (e.g., Person Last Name) a basic definition, a standard size and format and a standard set of domain values. A standard element may have several physical elements related to it.

Physical – Names at the physical level are the names that are utilized in the software. The names should only be abbreviated to accommodate the particular software system being used (e.g.; TREE_HT_MEAS). When abbreviations are necessary, the abbreviation standards will be applied. All physical data elements must be linked (or related) to the logical data element they represent.

Naming Convention Rules – The data element name is composed of an Object Class Term (entity/object), a Property Term, a Representation Term, and one or more Qualifier Terms. The Object Class Term names the object or entity, the Property Term describes a specific attribute of the object or entity, and the Representation Term indicates the type or category of information the element reflects. Qualifier terms describe the data element and make it unique within a context. An example list of Object Classes is in Attachment 4. A complete list of Representation Terms is in Attachment 5. If new Representation Terms or modifications to Representation Terms definitions are needed, the National Data Standards Change Request Procedures must be followed.

The specific rules listed below apply to logical and physical data element names.

Semantic Rules These rules govern what components are parts of the name and any specific rules related to those component parts.

1. The Object Class term (also known as entities/objects/prime word) is based on the names of entities found in data models or objects found in object models. Only one Object Class term is allowed.
2. The Property Term is added to describe an attribute of an entity or object.
3. The representation of the data value domain of the data element is described by the Representation Term.
4. Only one Representation Term shall be used in a data element. In cases where the Property Term and the Representation Term are repetitive, the Representation Term will be removed (Customer Name Name becomes Customer Name).

5. Qualifier Terms are added as needed to describe the data element and make it unique within a specified context (Customer First Name).
6. The number of Qualifier Terms shall be kept to the absolute minimum required to make the element unique in a specific context.

Syntax Rules – These rules specify the arrangement of the name components.

1. The Object Class term occupies the leftmost position in the data element name unless preceded by a Qualifier Term.
2. The Representation Term occupies the rightmost position in the data element name.
3. The Property Term is located between Object Class Term and the Representation Term.
4. Qualifier Terms may be positioned anywhere in the name to the left of the Representation Term.

Lexical Rules – These rules determine the standard “look” of names.

1. Nouns are used in singular forms; verbs, if any, are in the present tense.
2. No special characters (e.g., hyphen, slashes, etc.) are allowed, unless they are part of an approved acronym.
3. All words are separated by a space. Physical names may be constrained by software systems to use other separators (such as an underscore).
4. The first letter of each word will be capitalized and the remainder of the word will be in lower case.
5. Physical data element name length is dependent on the software limitations of the database management system.
6. Logical names are not limited in length.
7. Names should not be abbreviated. Use acronyms, if possible.
8. Abbreviations that are needed will be done in right to left fashion, utilizing the standard abbreviations found in the Corporate Metadata Repository. When new abbreviations are necessary, they shall be constructed using an abbreviation algorithm supplied by the BLM Data Administrator.
9. Prepositions (e.g., at, by, for, from, in, of, to) are not allowed except in cases where they are required for clarity (e.g.; Applicant Power of Attorney Code).

10. Articles (e.g., a, an, the) are not allowed.

11. Conjunctions (e.g., and, or, but, etc.) are not allowed, except in cases where they enhance clarity (e.g., Animal Wild Horse or Burro Code).

If new Representation Terms or modifications to Representation Term definitions are needed, the National Data Standards Change Request Procedures must be followed.

Examples of how to name data elements are shown in attachment 6.