



**BLM Administrative Units
(Boundaries)
DATA STANDARD REPORT**

June 6, 2011

Version 1.2

**United States Department of the Interior
Bureau of Land Management
National Operations Center
Division of Resource Services
Denver Federal Center
Denver, Colorado 80225**

Purpose of Data Standard Report

The Data Standard Report is the necessary document for a new or revised National Data Standard. DOI Data standards process requires certain pieces of information to be documented for a data standard to be valid. The Data Standard Report is the tool BLM uses to accomplish this documentation. The completed Report is distributed for review and comment on the content of the standard. The comments are gathered and resolutions are developed through working with the appropriate data stewards, commenters and other Subject Matter Experts. More iterations can occur depending on comments and complexity of the data standard. Once all comments are resolved, the data standard report is then finalized.

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INTRODUCTION

Description of Standard

A Bureau of Land Management (BLM) Administrative Unit is a geographic area in which an organizational unit of the BLM has distinct jurisdictional responsibility for land and resource management activities occurring on the public lands, the maintained rights of the United States (i.e. mineral estate) and actions relating to the Trust responsibilities of the U.S. Government as stipulated in Law or Treaty.

Affected Groups

BLM State, District and Field Office Personnel, most programs and national applications within the BLM; other agencies and the public.

Sponsor

Janine Velasco, Assistant Director, Business and Fiscal Resources, WO800

DATA STEWARD / CONTACT INFORMATION

Office	Role	Name	Contact Information
WO-830	BLM Business Data Steward	Rebecca Mack, Lead Management and Program Analyst Alexandra Ritchie, Management and Program Analyst	rmack@blm.gov 202-912-7082 aritchie@blm.gov 202-912-7081
WO-210	BLM Business Data Steward, geospatial	Vacant, Geospatial Program Manager Interim contact: Miyoshi Stith, Decision Support Branch Chief	mstith@blm.gov 202-912-7211

DATA SET CHARACTERISTICS

Overall Security

a.	Identify Security Level
	Public
b.	Privacy Information
	Not applicable

Data Privileges

Who has create, read, update, and/or delete privileges?

Each state will be responsible for the changes to the boundaries, the state data steward or the designated person for the state will be responsible for the creation and update of the boundaries, WO800 will approve the changes.

The state data steward will be responsible for determining who has Create, Read, Update and/or Delete (CRUD) access to this data set for their state.

Data Collection & Maintenance Protocols

a.	Location Accuracy Requirements
	<p>The goal for horizontal accuracy for each feature location will be + or - 40 feet at 1:24,000 scale. The accuracy and its confidence level (precision) will be documented in the feature level metadata for each feature. The confidence level should be recorded, in feet, as the CEP95.</p> <p>See Business Rule 12 for information on accuracy and error probability.</p> <p>Spatial Accuracy: ACCURACY MEASUREMENT IN FEET</p>
b.	Data Content Accuracy Requirements
	The expected accuracy (quality) of the data values will be at least 97%. Organization codes and names must correspond to the values in Federal Personnel Payroll System (FPPS).
c.	Collection & Input Protocols:
	There is currently no single method for data collection and input for this data set. It is preferred for administrative units to be input by Coordinate Geometry or GPS from a legal description. Where a legal description exists, especially if published in the Federal Register, an effort should be made to reference this legal description. It is also appropriate to digitize the boundary from a paper map at the largest available scale (1:24k preferred.)
d.	Update Procedures:

<p>Any planned boundary changes should be coordinated with adjacent field offices, to ensure there are no gaps or overlaps. Once changes to organization codes and titles have been approved (signed memo from the Director), the administrative state must reflect these changes in the data within 2 weeks of the effective date of the change.</p> <p>Once changes to the boundary have been approved (signed memo from the Assistant Secretary, Land and Minerals Management), the administrative state must reflect these changes in the data within 2 weeks of the effective date of the change.</p> <p>Maintenance changes (minor corrections to existing boundaries) will be approved by the state data steward.</p>
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Data Quality

a.	Transaction level data quality:
	<p>Implementation will include domain value edits during data entry.</p> <p>The State Office (SO) Business Data Steward will review and approve the quality of the data when approved changes are entered by the designated person per the state office review procedures.</p>
b.	Monitoring level data quality:
	<p>The data will be reviewed on an annual basis by state data stewards. At fiscal year end, the WO800 office will review the data set to validate against approved modifications that all changes have been documented and discrepancies corrected.</p>

Relationship to Other Standards

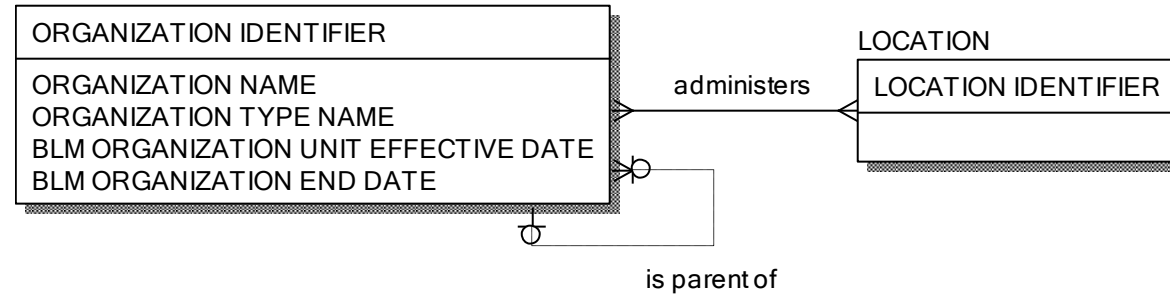
<p>Most BLM data standards will have some relationship to BLM Administrative Unit Areas which can be used by other BLM data sets so that the same arc is used between features in the other data standards.</p>

DATA CHARACTERISTICS

Each data standard is to be supported by a data model which includes entities and relationships between entities. The logical data model with its associated data dictionary is included in Appendix B.

BLM Administrative Unit Conceptual Data Model

BLM ORGANIZATION UNIT



Legend: See Appendix C

BLM Administrative Unit Data Elements

The following is a list of the data elements and associated metadata relevant to this data standard. Any design considerations for these data elements are included in the implementation guidelines. Naming Conventions can be found in the "Data Administration and Management Handbook" BLM Manual H 1283-1.

Data Elements for the BLM Administrative Units

Data Element Name	Type	Size	Required?	Attribute Definition	Comments
LOCATION IDENTIFIER	integer		Yes	The designed primary key that will uniquely identify a single occurrence of the entity.	
BLM ORGANIZATION CODE	character	8	Yes	The code that indicates the formal grouping of positions into designated units and the assignment of functions and responsibilities to those units based on the DOI structure.	Will include the last 8 digits only (admin unit code) of the 11 digit FPPS code.
ORGANIZATION NAME	character	40	Yes	The official name by which the organization is known. An organization may include businesses, agencies, or corporations, but not individual persons.	The name associated with the BLM organization code.

Data Element Name	Type	Size	Required?	Attribute Definition	Comments
ADMINISTERED BLM LAND LOCATION EFFECTIVE DATE	date		Yes	The date on which an area of BLM Land becomes the responsibility of a BLM administrative unit.	If the date is unknown, 09/09/9999 is used at conversion to the new standard. Changes to boundaries post implementation of the standard must use the actual effective date.
BLM ORGANIZATION UNIT APPROVAL DATE	Date		Yes	The date on which the BLM Washington Office or Assistant Secretary, Land and Minerals Management approved or concurred with the change to the organization unit number, name and/or administrative unit boundaries.	If the date is unknown, 09/09/9999 is used at conversion to the new standard. Changes to boundaries post implementation of the standard must use the actual approval date.
BLM ORGANIZATION UNIT PARENT IDENTIFIER	character	10	Opt	The identifier for the administrative unit that has responsibility for other units.	The parent of this unit. An administrative state may be the parent of a District Office (DO) or Field Office (FO). The DO is parent of the FO.
ORGANIZATION TYPE NAME	character	20	Yes	A name that indicates the type of organization that is being described.	See domain document
ADMINISTERED BLM LAND LOCATION END DATE	date		Opt	The date on which an area of BLM Land is no longer the responsibility of a BLM administrative unit.	For historical administrative boundaries only, as approved changes are made to the boundaries, this date indicates when the change was made.

Data Elements for the Office that administers BLM land.

Data Element Name	Type	Size	Required?	Key*	Attribute Definition	Comments
LOCATION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.	A unique identifier will be determined for each office in the design.
BLM ORGANIZATION CODE	character		Yes	PK	The code that indicates the formal grouping of positions into designated units and the assignment of functions and responsibilities to those units based on the DOI structure.	The physical unit that is being administered by this office. One Office may administer more than 1 field office boundary. The last 8 digits of the FPPS code will be used.
BLM ORGANIZATION EFFECTIVE DATE	date		Yes		The date on which a BLM organization code is used to describe a unit.	When the physical location of the office changes. If the effective date is unknown, 09/09/999 is used. Any office changes post implementation of the standard must use the actual effective date.

Data Element Name	Type	Size	Required?	Key*	Attribute Definition	Comments
BLM ORGANIZATION UNIT APPROVAL DATE	date		Yes		The date on which the BLM Washington Office or Assistant Secretary, Land and Minerals Management approved or concurred with the change to the organization unit number, name and/or administrative unit boundaries.	If the approval date is unknown at conversion to the new standard, 09/09/9999 is used. Office changes post implementation of the standard must use the actual approval date.
(URL to State office website)					(Link to the website of the State office)	
BLM ORGANIZATION END DATE			Opt		The date on which a BLM organization code is no longer used to describe a unit.	For historical administrative office locations only, as changes are made to the location of the office, this date indicates when the change was made.

BUSINESS RULES

Rules under which data is used and modified (See H 1283-1, Data Administration and Management Handbook, Chapter 8 – Documenting Business Rules)

1. Responsibility for Areas that cross Administrative Unit Boundaries

This data standard documents the physical boundaries of an administrative unit. In some cases, the administrative unit may manage areas (surface/subsurface) outside of their physical boundaries for other programs' purposes; this responsibility is documented in other data standards relative to those purposes.

“BLM programs are an integrated whole with a common purpose that often cross administrative and agency boundaries.

Organizational structures should be designed to emphasize coordination among program interests and, at times, external agency Partners. Organizational structures which emphasize the separation of different programs and create actual or artificial barriers to communication among programs are discouraged. In carrying out this principle, the Field area is the BLM's primary interdisciplinary, multiple-use management unit.

Business Rule Source and Description

Manual 1201-Organization Management (There are plans to update and re-publish this Manual in 2011.)

Type of Business Rule

Current Implementation

Guideline

Not Applicable

2. Approval for Organization Code and Title Changes

All Assistant Directors, State Directors (SDs), the National Operations Center (NOC) Director, District Managers, and Field Managers need to submit all proposed organizational title changes through the Assistant Director, Business and Fiscal Resources (AD-800) to the Bureau of Land Management (BLM) Director for approval. All proposed organizational code changes should be submitted through the Division Chief, Evaluations and Management Services (WO-830) and the Division Chief, Budget (WO-880) to the Assistant Director, Business and Fiscal Resources (AD-800). The steps for approval are documented in IM 2009-181.

Business Rule Source and Description

Instruction Memorandum 2009-181 Organizational Code and Organizational Title Changes. There are plans to update this policy which will be incorporated into the revised BLM Manual Section 1202—Organizational Control.

Type of Business Rule

Current Implementation

Standard

Manual Process

3. Approval for Organizational Structure/Boundary Changes

All proposed boundary or organizational changes that require Washington Office (WO) or Department level concurrence must initially be sent to the Bureau of Land Management (BLM) Director for approval. Instruction Memorandum (IM) 2011-005 Approvals for Organizational Structure/Boundary Changes explains the procedural steps for obtaining this approval in more detail as well as the process for getting the approved change into the national administrative jurisdiction database.

Business Rule Source and Description

Instruction Memorandum 2011-005 replaced IM No. 2009-126 Organizational/Boundary Changes. The 2011 IM will be incorporated into the revised BLM Manual Section 1202—Organizational Control.

Type of Business Rule	Current Implementation
Standard	Manual Process

4. Map Display

State Offices must ensure that maps (hardcopy or PDF format) showing changes to administrative boundaries are furnished to the Division Chief, Evaluations and Management Services (WO830). Maps used to display these planned changes to administrative unit boundaries should include, at a minimum, county boundaries, BLM surface lands, and major features. Maps should be made at sufficient resolution to see the defining features used in determining the proposed boundaries

Business Rule Source and Description

Manual 1202.25 Maps, and Instruction Memorandum No. 2011-005 Organizational/Boundary Changes

Type of Business Rule	Current Implementation
Standard	Manual Process

5. Organizational Unit Naming Convention

1. State Offices should be named after the State(s) they serve (e.g. Arizona State Office.)
2. Field Offices should be named after the city, town, or general area in which they are located, e.g. Northern Field Office. In the case of a National Conservation Area (NCA) or a National Monument, the field office (organizational unit) will be named after the specially designated conservation unit (McInnis Canyons NCA). Interagency offices may group their BLM name with their interagency partners field units name or adopt an interagency identifier (e.g., Lakeview Interagency Office, San Juan Public Land Center, etc.).

Business Rule Source and Description

Manual 1201 .23.B Titles; There are plans to update Manual 1201 which will include naming conventions for district offices.

Type of Business Rule	Current Implementation
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Standard	Manual Process
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6. *Conforming Boundaries*

Field Office (FO) boundaries should conform, as much as possible, with authorized State and local Government boundaries and the FO boundaries of other Federal agencies. However, geography, transportation, use patterns, and other similar factors must also be assessed to ensure that the boundaries chosen best serve the needs of the public and the BLM. State Office boundaries should conform to State political boundaries whenever possible. Field boundaries should conform whenever possible to county boundaries. The FO should also conform to State Planning Districts or groupings of State Planning Districts unless specific geographical or other constraints preclude such alignment.

Business Rule Source and Description

Manual 1202.26 Boundaries

Type of Business Rule

Current Implementation

Guidelines

Manual Process

7. *Coincident Boundaries*

The boundary of the administrative state office and its district offices (where applicable) are coincident with the outer boundaries of the field offices that fall within the administrative state (and applicable district offices).

Business Rule Source and Description

Manual 1202.26 Boundaries

Type of Business Rule

Current Implementation

Guidelines

Manual Process

8. *Other Specially Managed Units*

Sometimes a specially managed unit (such as a National Monument) is also an administrative unit. When the boundary of the specially-managed unit are coincident with a district or field office then it will be included in the implementation of this data standard.

Business Rule Source and Description

Data Steward

Type of Business Rule

Current Implementation

Guidelines

Manual Process

9. Geospatial Established Content Standard

The implementation of this data standard will be the BLM's established geospatial content standard for display of the BLM Administrative Boundaries; the feature level metadata will document the source of the arcs.

Business Rule Source and Description

Data Steward

Type of Business Rule

Current Implementation

Guidelines

Manual Process

10. Guidance for Shorelines

For those states with an administrative unit boundary that is an ocean shoreline, the state will follow its current state guidelines for defining shorelines for its administrative units. When BLM develops a national standard method for determining the BLM's extent, the data standard will be adapted to this national standard.

Business Rule Source and Description

Geospatial Data Architect

Type of Business Rule

Current Implementation

Guidelines

Manual Process

11. Level of Detail for Administrative Offices

The implementation of this data standard will provide information no lower than the field office level.

Business Rule Source and Description

Data Steward

Type of Business Rule

Current Implementation

Guidelines

Manual Process

12. Definitions for Accuracy, Precision and Error Probability

The following are definitions related to features.

Accuracy: (*technical*) the degree to which the result of a measurement, calculation, or specification conforms to the correct value or a standard: the accuracy of radiocarbon dating; accuracies of 50-70% (Oxford English Dictionary).

Precision: The degree of refinement with which an operation is performed or a measurement stated [Merriam-Webster]; the “closeness of agreement between indications or measured quantity values obtained by replicate measurements on the same or similar objects under specified conditions.”

CEP: Circular Error Probable refers to the 50% probability that a specified location falls within the radius of a circle or ellipse. For example, if a CEP of 5 meters is quoted then 50% of horizontal (GPS) point positions should be within 5 meters of the true position [NovAtel, Trimble].

CEP₉₅: is an ellipse within which there is a 95% probability that the desired coordinate exists. This is sometimes referred to as a 95% confidence factor

Business Rule Source and Description	
Type of Business Rule	Current Implementation
Definitions	Manual Process

OTHER MATERIAL

Other supporting material that aids in the understanding or use of the data standard
BLM Field Office Boundaries Data Standard Proposal

DOMAINS SPECIFIC TO THIS DATA STANDARD

For domains specific to Administrative Units see the document: admu_domains_100811.docx .

APPENDIX A: DOI DATA CATEGORIES

Data Subject Areas and Information classes are categories of information that support a DOI line of business. According to the DOI Data Standardization Handbook, one or more categories must be identified for a data standard. Any changes to these categories and their definitions would be made through the DOI Data Advisory Committee (DAC).

Subject Area: A collection of data classifications representing broad categories of information that support a line of business.

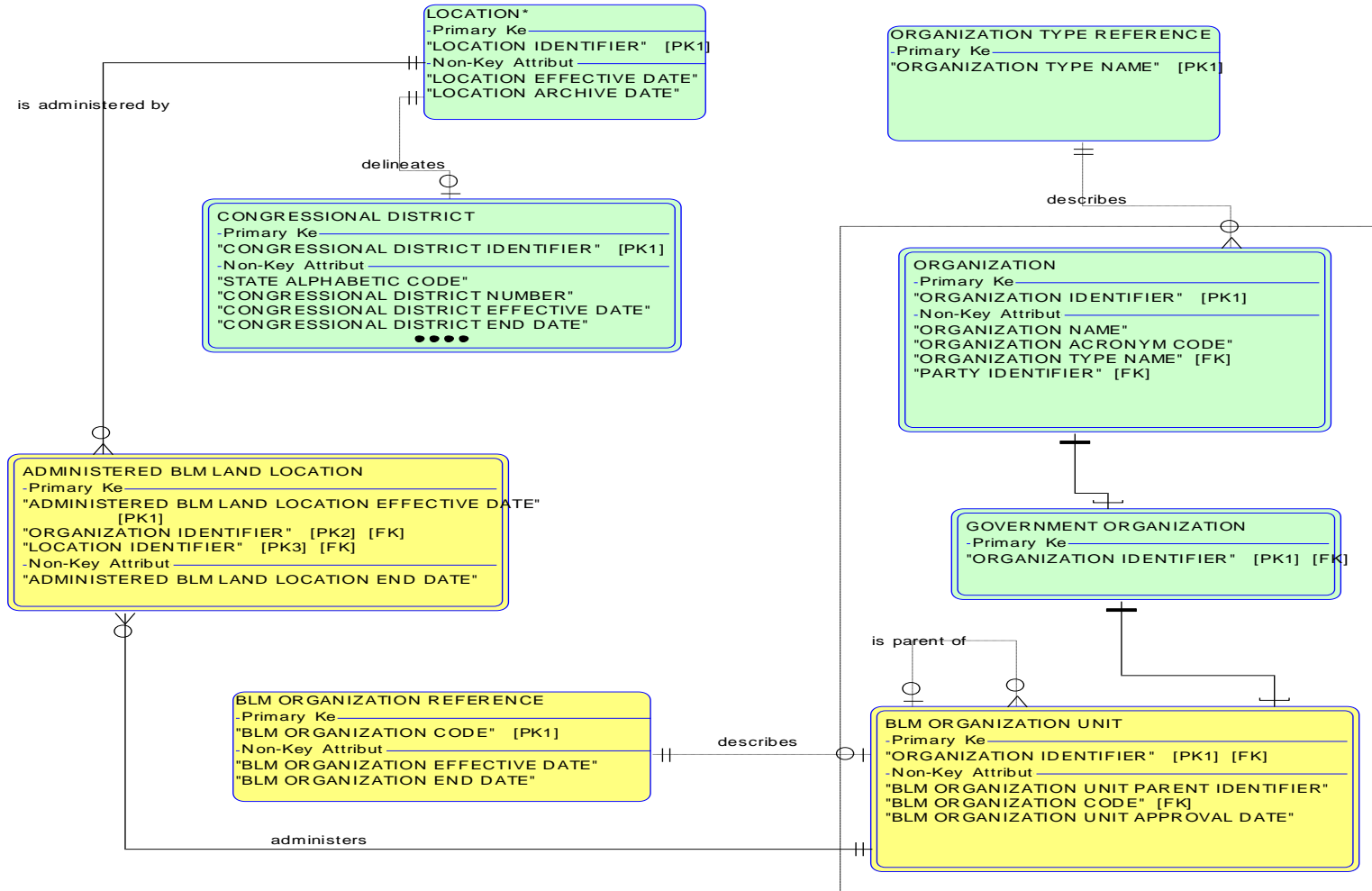
Information Class: A logical grouping of entities that are subcategories of the subject areas.

Only the Subject Areas and Information Classes that are appropriate to this data standard are included in this listing. For the full list of Subject Areas and their Information Classes please see http://web.blm.gov/data_mgt/guidelines/DOI_SubjectArea_InfoClass.doc

This standard proposal covers the following DOI Subject Areas and Information Classes:	
Geospatial and Geography (Subject Area)	<i>Information about data that includes a terrestrial coordinate system or geographic reference. This includes geospatial data sets, mapping, imagery, coverage's, elevations, and features</i>
<ul style="list-style-type: none"> • Location (Information Class) 	<i>Information about an identifiable place of existence. A geographic or spatial identification assigned to a region or feature based on a specific coordinate system, or by other precise information such as a street address, a postal address, a descriptive location, a legal land definition, etc. Location data types primarily consist of Vector data.</i>
Organization (Subject Area)	<i>Information about administrative structures with a mission, including the duties, structure, operations, locations, and associations of organizations with other information, such as employees and property, etc.</i>
<ul style="list-style-type: none"> • Organization (Information Class) 	<i>Information about administrative structures with a mission, including the duties, structure, operations, locations, and associations of organizations with other information, such as employees and property, etc.</i>

APPENDIX B: LOGICAL DATA MODEL

The entities in green are not part of this standard and do not need to be reviewed. They are provided to show context and provide relationships to other data only. To improve viewing, zoom to 200%; to print a larger version, use the 11"x17" model on the same webpage as this document.



Legend: See Appendix C

Data Dictionary

This lists entities and attributes (in alphabetical order, not hierarchical or chronological order) in the logical data model shown above.

Entity Name	Entity Description	Logical Data Element Name	Type	Size	Required?	Key	Definition
ADMINISTERED BLM LAND LOCATION		DRAFT ENTITY					
The area of land that is administered by BLM administrative unit. Not all administrative units have jurisdiction over land.							
		ADMINISTERED BLM LAND LOCATION END DATE	date		Opt		The date on which an area of BLM Land is no longer the responsibility of a BLM administrative unit.
		ADMINISTERED BLM LAND LOCATION EFFECTIVE DATE	date		Yes	PK	The date on which an area of BLM Land becomes the responsibility of a BLM administrative unit.
		ORGANIZATION IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		LOCATION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
BLM ORGANIZATION REFERENCE		DRAFT ENTITY					
The domain of values for organization codes based on the DOI codes.							
		BLM ORGANIZATION CODE	character	11	Yes	PK	The code that indicates the formal grouping of positions into designated units and the assignment of functions and responsibilities to those units based on the DOI structure.
		BLM ORGANIZATION END DATE	date		Yes		The date on which a BLM organization code is no longer used to describe a unit.
		BLM ORGANIZATION EFFECTIVE DATE	date		Yes		The date on which a BLM organization code is used to describe a unit.
BLM ORGANIZATION UNIT		DRAFT ENTITY					
An organizational unit within BLM, where some units have distinct jurisdictional responsibility for all activities in a geographic area. The formal grouping of positions into designated units and the assignment of functions and responsibilities to those units.							
		ORGANIZATION IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		BLM ORGANIZATION UNIT APPROVAL DATE	Date		Yes		The date on which the BLM Washington Office or Assistant Secretary, Land and Minerals Management approved or concurred with the change to the organization unit number, name and/or administrative unit boundaries.

Entity Name	Entity Description	Logical Data Element Name	Type	Size	Required?	Key	Definition
		BLM ORGANIZATION UNIT PARENT IDENTIFIER	character	10	Opt		The identifier for the administrative unit that has responsibility for other units
		BLM ORGANIZATION CODE	character	11	Yes	FK	The code that indicates the formal grouping of positions into designated units and the assignment of functions and responsibilities to those units based on the DOI FBMS structure.

Key (PK: Primary Key) (FK: Foreign Key which is PK of related entity) (PK, FK: Foreign Key part of PK)

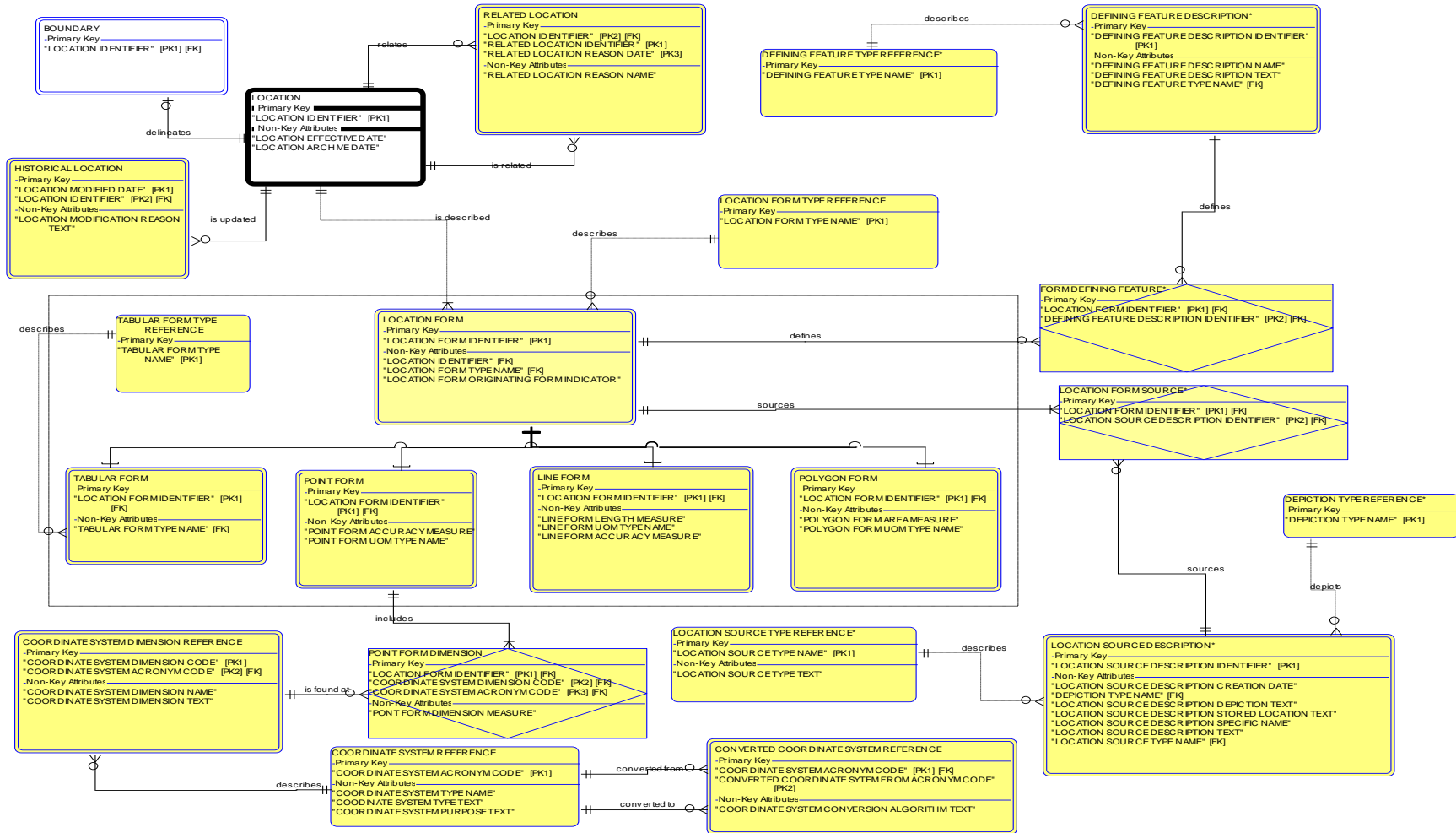
The following entities shown on the logical data model are not part of this standard but are here for informational purposes.

Entity Name	Entity Description	Logical Data Element Name	Type	Size	Required?	Key*	Definition
CONGRESSIONAL DISTRICT							CONCEPTUAL ENTITY
A political subdivision in which the nation is divided for the purposes of elected US Representatives, one per district.							
		CONGRESSIONAL DISTRICT IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
		CONGRESSIONAL DISTRICT END DATE	character	10	Yes		
		CONGRESSIONAL DISTRICT EFFECTIVE DATE	character	10	Yes		
		STATE ALPHABETIC CODE	character	2	Yes		An alphabetic abbreviation that represents each of the 50 states of the United States, the District of Columbia, the outlying areas of the United States, and associated areas. FIPS PUB 5-2
		CONGRESSIONAL DISTRICT NUMBER	number	3	Yes		
		LOCATION IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
GOVERNMENT ORGANIZATION							DRAFT ENTITY
A type of organization that is a governmental unit.							
		ORGANIZATION IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
LOCATION							DRAFT ENTITY
A defined place that requires a way to locate it by some means. Note: Entities linked to Location have the potential for a geospatial aspect.							

Entity Name	Entity Description	Logical Data Element Name	Type	Size	Required?	Key*	Definition
		LOCATION ARCHIVE DATE	date		Opt		The date which is the calendar year, month, and day when the position of the Location is considered no longer valid but has historical value.
		LOCATION EFFECTIVE DATE	date		Yes		The date which is the calendar year, month, and day when the position of the Location was produced.
		LOCATION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
ORGANIZATION							DRAFT ENTITY
A formal group of people organized for a purpose.							
		ORGANIZATION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
		ORGANIZATION NAME	character	100	Yes		The official name by which the organization is known. An organization may include businesses, agencies, or corporations, but not individual persons.
		ORGANIZATION TYPE NAME	character	20	Yes	FK	A name that indicates the type of organizational unit being described.
		ORGANIZATION ACRONYM CODE	character	10	Opt		The code that indicates the preferred acronym for an organization.
		PARTY IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
ORGANIZATION TYPE REFERENCE							DRAFT ENTITY
The domain of values for the type of organizational unit being described.							
		ORGANIZATION TYPE NAME	character	20	Yes	PK	A name that describes the type of organizational unit being described.

Location Logical Data Model

Data Model that provides information on standard attributes for feature level metadata. It is **not part of this data standard** and does not need to be reviewed for the data standard, merely provides more information and relationships.



Legend: See Appendix C

Entity Name	Entity Description	Logical Data Element Name	Type	Size	Required?	Key *	Definition
BOUNDARY							DRAFT ENTITY
The edge of a location that demarks the change from one location to another location.							
		LOCATION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
CONVERTED COORDINATE SYSTEM REFERENCE							DRAFT ENTITY
The domain of values for the algorithm used to convert from one coordinate system to another.							
		COORDINATE SYSTEM CONVERSION ALGORITHM TEXT	character	60	Yes		The text that contains the algorithm used to convert from one coordinate system to another.
		COORDINATE SYSTEM ACRONYM CODE	character	10	Yes	PK, FK	The code that is considered the acronym for the coordinate system type.
		CONVERTED COORDINATE SYSTEM FROM ACRONYM CODE	character	10	Yes	PK	The code for the coordinate system that is being converted from (to another coordinate system).
COORDINATE SYSTEM DIMENSION REFERENCE							DRAFT ENTITY
The dimensions that are part of given coordinate system type.							
		COORDINATE SYSTEM DIMENSION TEXT	character	100	Yes		The text that further describes the dimension for a given coordinate system type.
		COORDINATE SYSTEM DIMENSION CODE	character	10	Yes	PK	The code that is used to designate a dimension for a coordinate system type.
		COORDINATE SYSTEM DIMENSION NAME	character	10	Yes		The name associated with a code that is used to designate a dimension for a coordinate system type.
		COORDINATE SYSTEM ACRONYM CODE	character	10	Yes	PK, FK	The code that is considered the acronym for the coordinate system type.
COORDINATE SYSTEM REFERENCE							DRAFT ENTITY
A reference framework consisting of a set of points, lines and/or surfaces; including a set of rules used to define the positions of points in space in either two or three dimensions.							
		COORDINATE SYSTEM TYPE TEXT	character	100	Yes		The text that describes the particular coordinate system type.
		COORDINATE SYSTEM TYPE NAME	character	40	Yes		The name given to a particular coordinate system type.
		COORDINATE SYSTEM ACRONYM CODE	character	10	Yes	PK	The code that is considered the acronym for the coordinate system type.
		COORDINATE SYSTEM PURPOSE TEXT	character	100	Yes		The text that describes the purpose or purposes of a given coordinate system type.
DEFINING FEATURE DESCRIPTION							APPROVED ENTITY: BLM
The values associated with second level of detail that can be used to define / create the location, based on the Defining Feature Type Name. There is not a finite set of values for this.							

Entity Name	Entity Description	Logical Data Element Name	Type	Size	Required?	Key *	Definition
		DEFINING FEATURE DESCRIPTION NAME	character	40	Opt		The name that identifies a more specific description of the feature from which the arcs are derived to create polygon boundaries. This information further describes the physical or mapping feature that makes up the polygon boundary.
		DEFINING FEATURE DESCRIPTION TEXT	character	200	Yes		The text that provides further details on the Defining Feature Description.
		DEFINING FEATURE DESCRIPTION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
		DEFINING FEATURE TYPE NAME	character	30	Yes		The name that identifies the high-level category for the actual physical or mapping characteristics (features) from which the arcs are derived.
DEFINING FEATURE TYPE REFERENCE							APPROVED ENTITY: BLM
A domain for the description of the characteristic (feature) constructed from a geographic feature that was used to create the location boundary.							
		DEFINING FEATURE TYPE NAME	character	30	Yes	PK	The name that identifies the high-level category for the actual physical or mapping characteristics (features) from which the arcs are derived.
DEPICTION TYPE REFERENCE							APPROVED ENTITY: BLM
The domain of values for the way a location is depicted either in scale or resolution.							
		DEPICTION TYPE NAME	character	10	Yes	PK	The name that designates the detail with which the location is depicted, either in resolution or scale.
FORM DEFINING FEATURE							APPROVED ENTITY: BLM
The defining features associated with a specific location form.							
		LOCATION FORM IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		DEFINING FEATURE DESCRIPTION IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
HISTORICAL LOCATION							DRAFT ENTITY
The date and reason why a location's information has changed. Business Rule: this is for administrative changes, not necessarily for corrections to data.							
		LOCATION MODIFICATION REASON TEXT	character	200	Yes		The text which is the explanation for why data about a location has changed for administrative reasons.
		LOCATION MODIFIED DATE	date		Yes	PK	The date which is the calendar year, month, and day when the position of the Location was last modified.
		LOCATION IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
LINE FORM							DRAFT ENTITY
A series of connected, co-ordinate points forming a simple linear feature. It is used to represent rivers, and roads, or to form the boundary of polygons. (GIS dictionary) Note: In our current physical environment this includes all types of straight and curved lines including ones that intersect.							
		LOCATION FORM IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		LINE FORM LENGTH MEASURE	decimal		Yes		The measure of the length of the line described in Line Form UOM Type Name units.
		LINE FORM UOM TYPE NAME	character	20	Yes		The domain value associated with the Unit of Measure used for the Line Form Length Measure.

Entity Name	Entity Description	Logical Data Element Name	Type	Size	Required?	Key *	Definition
		LINE FORM ACCURACY MEASURE	decimal		Yes		The measure that describes how close, in Line Form UOM Type Name the actual location is to the spatial depiction.
LOCATION		DRAFT ENTITY					
A defined place that requires a way to locate it by some means. Note: Entities linked to Location have the potential for a geospatial aspect.							
		LOCATION ARCHIVE DATE	date		Opt		The date which is the calendar year, month, and day when the position of the Location is considered no longer valid but has historical value.
		LOCATION EFFECTIVE DATE	date		Yes		The date which is the calendar year, month, and day when the position of the Location was produced.
		LOCATION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
LOCATION FORM		DRAFT ENTITY					
The form in which the location is described such as the description, shape, or appearance of the location.							
		LOCATION FORM IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
		LOCATION IDENTIFIER	integer		Yes	FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		LOCATION FORM TYPE NAME	character	10	Yes	FK	The type of form in which the location is described or appears. point, line, polygon, tabular
		LOCATION FORM ORIGINATING FORM INDICATOR	character	3	Yes		The value that indicates if this is the way in which the location was first drawn/described. (yes, no)
LOCATION FORM SOURCE		APPROVED ENTITY: BLM					
The actual origin of the location sources that were used to create a specific location form.							
		LOCATION FORM IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		LOCATION SOURCE DESCRIPTION IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
LOCATION FORM TYPE REFERENCE		DRAFT ENTITY					
The domain for the type of form in which the location is described or appears whether in words, numbers of features (point line, polygon). This has been called feature in geospatial communities.							
		LOCATION FORM TYPE NAME	character	10	Yes	PK	The type of form in which the location is described or appears. point, line, polygon, tabular
LOCATION SOURCE DESCRIPTION		APPROVED ENTITY: BLM					
The values that provide a second level of detail about the location (coordinate) source origin. Note: there is not a finite set of these values.							
		LOCATION SOURCE DESCRIPTION CREATION DATE	date		Yes		The date on which the location source was originally created. This could just be a year (ccyy).
		LOCATION SOURCE DESCRIPTION STORED LOCATION TEXT	character	100	Yes		The text that provides the additional description of where the coordinate source can be found

Entity Name	Entity Description	Logical Data Element Name	Type	Size	Required?	Key *	Definition
		LOCATION SOURCE DESCRIPTION DEPICTION TEXT	character	20	Yes		The text that describes the actual resolution or scale in which the location is depicted. Examples for Resolution: 1 meter, 10 feet. Examples for Scale: 1 in 10,000, 1 in 100. This does not have a domain or list of valid values.
		DEPICTION TYPE NAME	character	10	Yes	FK	The name that designates the detail with which the location is depicted, either in resolution or scale.
		LOCATION SOURCE DESCRIPTION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
		LOCATION SOURCE DESCRIPTION TEXT	character	200	Yes		The text that provides further details on the Location (coordinate) Source Description.
		LOCATION SOURCE DESCRIPTION SPECIFIC NAME	character	40	Opt		The name that identifies a more specific description of the location (coordinate source).
		LOCATION SOURCE TYPE NAME	character	40	Yes	FK	The name that identifies the general category for the origin of the location coordinate, representing a compilation of the state adopted source codes. The domain contains those values that would most likely be used in the determination of source codes for the data set.
LOCATION SOURCE TYPE REFERENCE							APPROVED ENTITY: BLM
The domain for the types of sources for the original location description / form.							
		LOCATION SOURCE TYPE NAME	character	40	Yes	PK	The name that identifies the general category for the origin of the location coordinate, representing a compilation of the state adopted source codes. The domain contains those values that would most likely be used in the determination of source codes for the data set.
		LOCATION SOURCE TYPE TEXT	character	100	Yes		The text that describes the Location Source Type.
POINT FORM							DRAFT ENTITY
A zero-dimensional abstraction of an object, with its location specified by a set of coordinates. (GIS dictionary)							
		LOCATION FORM IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		POINT FORM ACCURACY MEASURE	decimal		Yes		The measure that describes how close the spatial depiction of the point is to the actual location.
		POINT FORM UOM TYPE NAME	character	20	Yes		The name of the domain value associated with the Unit of Measure used for the Point Form Accuracy Measure.
POINT FORM DIMENSION							DRAFT ENTITY
The measure associated with each dimension of a Coordinate System.							
		PONT FORM DIMENSION MEASURE	decimal		Yes		The measure that is associated with a specific coordinate system dimension.
		LOCATION FORM IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		COORDINATE SYSTEM DIMENSION CODE	character	10	Yes	PK, FK	The code that is used to designate a dimension for a coordinate system type.
		COORDINATE SYSTEM ACRONYM CODE	character	10	Yes	PK, FK	The code that is considered the acronym for the coordinate system type.

Entity Name	Entity Description	Logical Data Element Name	Type	Size	Required?	Key *	Definition
POLYGON FORM		DRAFT ENTITY					
An area bounded by a closed line. It is used to describe spatial elements, such as administrative and political boundaries and areas of homogeneous land use and soil types. (GIS dictionary). Note: In our physical environment, this includes all types of polygons, including ones that overlap.							
		LOCATION FORM IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity.
		POLYGON FORM UOM TYPE NAME	character	20	Yes		The name of the domain value associated with the Unit of Measure used for the Polygon Form Length Measure.
		POLYGON FORM AREA MEASURE			Yes		The area of the polygon described in Polygon Form UOM Type Name units.
RELATED LOCATION		DRAFT ENTITY					
A valid relationship between two LOCATIONS for a specific reason.							
		RELATED LOCATION IDENTIFIER	integer		Yes	PK	The designed primary key that will uniquely identify a single occurrence of the entity. The first location that has a relationship with another location.
		RELATED LOCATION REASON NAME	character	40	Yes		The name that indicates the reason why two locations are related. Possible values: multi-part polygon, polygon lines, overlapping polygons.
		RELATED LOCATION REASON DATE	date		Yes	PK	The date when two locations became related for the reason stated.
		LOCATION IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
TABULAR FORM		DRAFT ENTITY					
Descriptive information about a location, usually alphanumeric. This can be a single name or a combination of attributes that make up an address.							
		LOCATION FORM IDENTIFIER	integer		Yes	PK, FK	The designed primary key that will uniquely identify a single occurrence of the entity.
		TABULAR FORM TYPE NAME	character	20	Yes	FK	The name of the sub-category of the location form type which is true for tabular or alphanumeric descriptions of a location.
TABULAR FORM TYPE REFERENCE		DRAFT ENTITY					
The domain for the type of tabular form that is being used to describe the location.							
		TABULAR FORM TYPE NAME	character	20	Yes	PK	The name of the sub-category of the location form type which is true for tabular or alphanumeric descriptions of a location.
							Key (PK: Primary Key) (FK: Foreign Key which is PK of related entity) (PK, FK: Foreign Key part of PK)

APPENDIX C: READING A LOGICAL DATA MODEL

<div style="border: 1px solid black; padding: 5px; background-color: #ffffcc;"> <p>CUSTOMER -Primary Ke "CUSTOMER IDENTIFIER" [PK1] -Non-Key Attribut "CUSTOMER NAME"</p> </div>	<p>ENTITY</p> <ul style="list-style-type: none"> • The noun or object on something of relevance to the business. • Shown as a box, with the name (singular in capital letters at the top, example below: ORDER). <p>ATTRIBUTES</p> <ul style="list-style-type: none"> • The adjective which is the data or information about an entity; describes an entity (ORDER NUMBER, ORDER DATE). • Has only one valid value for an occurrence of an entity at any given time; the same value of an attribute may describe more than one entity occurrence. • PK = Primary Key – uniquely identifies an occurrence of an entity (one customer may have same name as another customer, so CUSTOMER IDENTIFIER is unique for a customer.) • FK = Foreign Key – the primary key of the parent entity is a Foreign key in the child entity. • The Word Identifier indicates that this will be a designed key, its format is not known, but the modeling tool required a format and size. The actual content and size of the identifier will be determined during design.
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<div style="display: flex; align-items: center; gap: 20px;"> <div style="border: 1px solid black; padding: 5px; background-color: #ffffcc;"> <p>CUSTOMER -Primary Ke "CUSTOMER IDENTIFIER" [PK1] -Non-Key Attribut "CUSTOMER NAME"</p> </div> <div style="font-size: 24px;"> </div> <div style="font-size: 24px;">places</div> <div style="font-size: 24px;">○</div> <div style="border: 1px solid black; padding: 5px; background-color: #ffffcc;"> <p>ORDER -Primary Ke "ORDER IDENTIFIER" [PK1] -Non-Key Attribut "ORDER DATE" "CUSTOMER IDENTIFIER" [FK]</p> </div> </div>	<p>RELATIONSHIP</p> <ul style="list-style-type: none"> • The verb which shows an association between entities and represents business rules. • Represented by a line between two entities with active verb or verb phase (all small letters.) • Reading: Left to right (A CUSTOMER places zero to many ORDERS) and right to left (An ORDER is placed by one and only one CUSTOMER.) • Because a Customer can have many Orders, the Customer is considered the Parent Entity and the Order is considered the Child Entity). So the way you read it is normally from the Parent Entity to the Child Entity.
<p>The line includes optionality (minimum occurrences, inner symbol) and cardinality (maximum occurrences, symbol next to entity) = one 0 = zero < or > = many</p>	

<div style="display: flex; align-items: center; gap: 20px;"> <div style="border: 1px solid black; padding: 5px; background-color: #ffffcc;"> <p>ORDER -Primary Ke "ORDER IDENTIFIER" [PK1] -Non-Key Attribut "ORDER DATE"</p> </div> <div style="font-size: 24px;">○</div> <div style="font-size: 24px;">includes</div> <div style="font-size: 24px;">◁</div> <div style="border: 1px solid black; padding: 5px; background-color: #ffffcc;"> <p>PRODUCT -Primary Ke "PRODUCT IDENTIFIER" [PK1] -Non-Key Attribut "PRODUCT NAME" "PRODUCT MODEL NAME"</p> </div> </div>	<p>Many to Many:</p> <ul style="list-style-type: none"> • In a logical data model, many to many relationships are resolved. In the example to the left an ORDER includes one to many PRODUCTS and a PRODUCT can be in zero or many ORDERS.
<div style="display: flex; align-items: center; gap: 20px;"> <div style="border: 1px solid black; padding: 5px; background-color: #ffffcc;"> <p>ORDER -PrimaryKey "ORDER IDENTIFIER" [PK1] -Non-Key Attributes "ORDER DATE" "CUSTOMER IDENTIFIER" [FK]</p> </div> <div style="font-size: 24px;"> </div> <div style="font-size: 24px;">includes</div> <div style="font-size: 24px;">◁</div> <div style="border: 1px solid black; padding: 5px; background-color: #add8e6;"> <p>ORDER PRODUCT -PrimaryKey "ORDER IDENTIFIER" [PK1] [FK] "PRODUCT IDENTIFIER" [PK2] [FK] -Non-Key Attributes "ORDER PRODUCT QUANTITY"</p> </div> <div style="font-size: 24px;">○</div> <div style="font-size: 24px;">is included</div> <div style="font-size: 24px;"> </div> <div style="border: 1px solid black; padding: 5px; background-color: #ffffcc;"> <p>PRODUCT -PrimaryKey "PRODUCT IDENTIFIER" [PK1] -Non-Key Attributes "PRODUCT NAME" "PRODUCT MODEL NAME"</p> </div> </div>	<p>Associative Entity:</p> <ul style="list-style-type: none"> • Resolves the many to many. • With the diamond symbol.