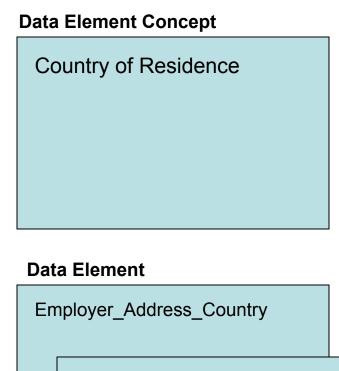
Data Element Example Employee_Address_Country = 716



Employee_Address_Country

Conceptual Domain

World Countries (Afghanistan, Albania, .., Zimbabwe, etc.)

Value Domain

Full Names ("AFGHANISTAN", "ALBANIA", .., "ZIMBABWE")

> ISO 2-Character Country Codes ("AF", "AI " "7W") ISO 3-Digit Country Codes: ("004", "008", .., "716")

Data Element Model - Definitions

Data Element Concept

A data element concept is "the concept of which data elements form its extension, without reference to a specific value domain."

Data Element

A data element is a "fundamental unit of data (that an) organization creates, manages, and disseminates."

Conceptual Domain

A conceptual domain is "the concept of which value domains form its extensions, without reference to a specific value domain."

Value Domain

A value domain is the "set of permissible (valid) values (for a data element)."

Data Type Model

Data Type Concept

Concept Domain

Data Type

Value Domain

Data Type <Integer> Example ELEMENT_TYPE = MSB_INTEGER_2_BYTE

Data Engineering View

Data Type Concept

Integer is the mathematical datatype comprising the exact integral values.

Data Type

Decimal_Integer MSB_INTEGER_4_BYTE

> Decimal_Integer MSB_INTEGER_2_BYTE

Conceptual Domain

Values: Mathematically, the infinite ring produced from the additive identity (0) and the multiplicative identity (1) by requiring 0 = 1 and Add(x,1) ? y for any y = x . That is: ..., -2, -1, 0, 1, 2, ... (a denumerably infinite list). - ISO/IEC 11404

Value Domain

See ISO/IEC 11404 Value Syntax. ---e.g. integer-literal = signed-number ; signed-number = ["-"], number ; number = digit-string ;

Data Type Model - Definitions

Data Type Concept

Data Type Concept - A concept that can be represented in the form of a Data Type, described independently of any particular representation.

Data Type

Data Type – A Basic unit of data of interest to an organization. It is a unit of data for which the definition, identification, representation, and permissible values are specified by means of a set of attributes.

Conceptual Domain

A Conceptual Domain is a set of Value Meanings, which may either be enumerated or expressed via a description.

Value Domain

A value domain is the "set of permissible (valid) values (for a data type) or a description."

Data Type Model

- 1. Class Hierarchy
 - Data_Type
 - Binary_Data_Type
 - Decimal_Integer
 - MSB_INTEGER_2_BYTE
- 2. Provider's and Data Engineering View
 - Element_Type = {MSB_INTEGER_2_BYTE, ...}
- 3. Programmer's View TBD
 - MSB_INTEGER_2_BYTE = {data representation at byte/bit level}
- Data Type Constraints distributed between Data Type and Element Type levels.
 - 1. Allowed Character Sets
 - 2. pattern
 - 3. enumeration
 - 4. whiteSpace
 - 5. totalDigits
 - 6. fractionDigits
 - 7. maxInclusive
 - 8. maxExclusive
 - 9. minInclusive
 - 10. minExclusive
 - 11. voids