

erwin[®] Data Modeler

erwin Metamodel Overview

Release 9.8



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erwin Product References

This document references the following erwin Inc. products:

- erwin® Data Modeler (erwin DM)

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Chapter 1: The erwin Data Modeler Metamodel

This section contains the following topics

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[Uses](#) (see page 7)

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Introduction

Metadata is data about data. Data Architects use model metadata to describe the business information and database structures depicted by the diagrams developed and maintained using erwin® Data Modeler. Model metadata typically includes objects such as ENTITY, TABLE, ATTRIBUTE, COLUMN, KEY GROUP, and INDEX. Model metadata also includes properties such as Entity Name, Attribute Definition, Column Data Type, Key Group Type, and Index Owner.

Metadata information has been available in erwin® Data Modeler for years using XML export/import and the SCAPI API. An additional mechanism was added to facilitate access to underlying model metadata further, and to assist Data Architects to use this information effectively.

Uses

An ODBC connectivity interface is provided that permits SQL-based queries to retrieve model metadata from any open model. Using any ODBC-compliant reporting product, you can retrieve:

- Information related to model objects and properties
- The metadata defining those objects and properties
- The action log that records the changes that were made to the model during the current modeling session

You can also edit the SQL templates used by the Forward Engineering and Alter Script processes to produce SQL customized exactly to your specifications.

The HTML document describes all of the accessible metadata associated with erwin® Data Modeler, and the relationships that exist between the individual metadata components.

Related Documentation

The ODBC connectivity layer and reporting interface is documented in the *Creating a Report on the Model Metadata* guide. The *Creating a Report on the Model Metadata* guide is installed to the \erwin Bookshelf\Bookshelf_Files\HTML\ODBC Reporting directory.

Chapter 2: Diagrams

This section includes diagrams that illustrate some of the key portions of the metamodel. These diagrams are provided as a visual counterpart to the textual descriptions of the metadata.

The diagrams are presented in pairs, one using UML notation and the other using IDEF1X notation. The UML notation presents a raw view of the metamodel; the IDEF1X notation presents the view exposed using the ODBC interface.

Note: Some of the diagrams include abstract object types. Abstract object types are colored light blue in the diagrams. Although the definitions of these object types exist in the metamodel (termed 'M1'), no instances of them exist within any data model (termed 'M0'). Because no instances exist in any data model, abstract object types are unavailable for M0 queries using the ODBC interface.

Some of the IDEF1X diagrams show vector properties (properties with more than one value). Vector properties are shown as tables colored orange. For more information about the transformations between the raw metamodel view and the ODBC metamodel view, see the *erwin® Data Modeler ODBC Reporting Guide*.

This section contains the following topics

[Entity and View Diagram](#) (see page 9)

[Model and Subject Area Diagram](#) (see page 12)

[Entity, Attribute, and Key Group Diagram](#) (see page 15)

[Entity, Attribute, Key Group, and Relationship Diagram](#) (see page 17)

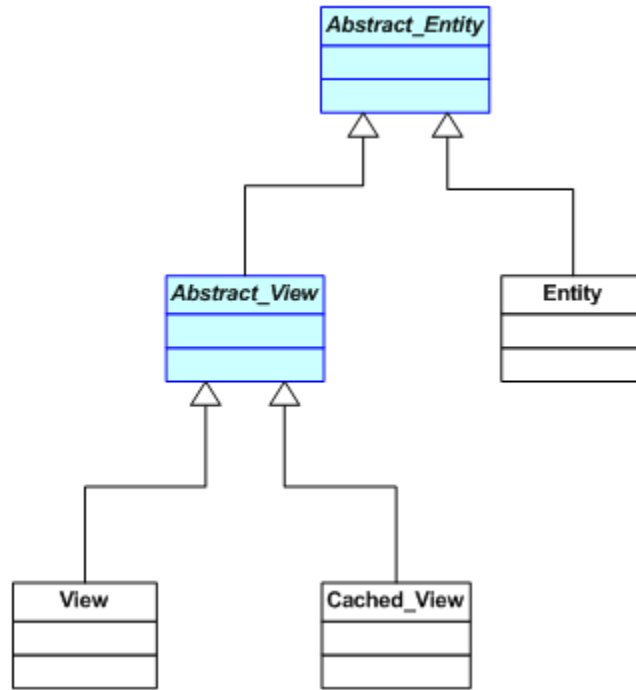
[Attribute, Domain, Default, and Validation Rule Diagram](#) (see page 20)

Entity and View Diagram

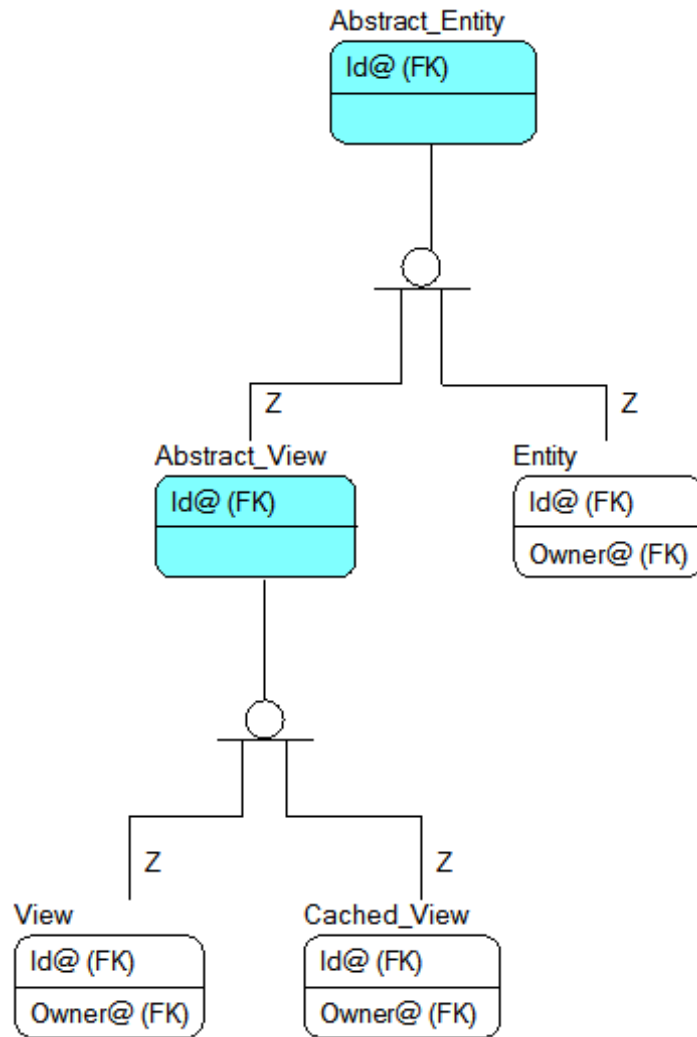
This diagram shows the object type structure for Entities, Views, and Cached Views. This diagram makes the following assertions:

- *Entity* is a type of *Abstract_Entity*
- *Abstract_View* is a type of *Abstract_Entity*
- *Cached_View* is a type of *Abstract_Entity*
- *View* is a type of *Abstract_Entity*

Entity and View Diagram--UML Notation:



Entity and View Diagram--IDEF1X Notation:



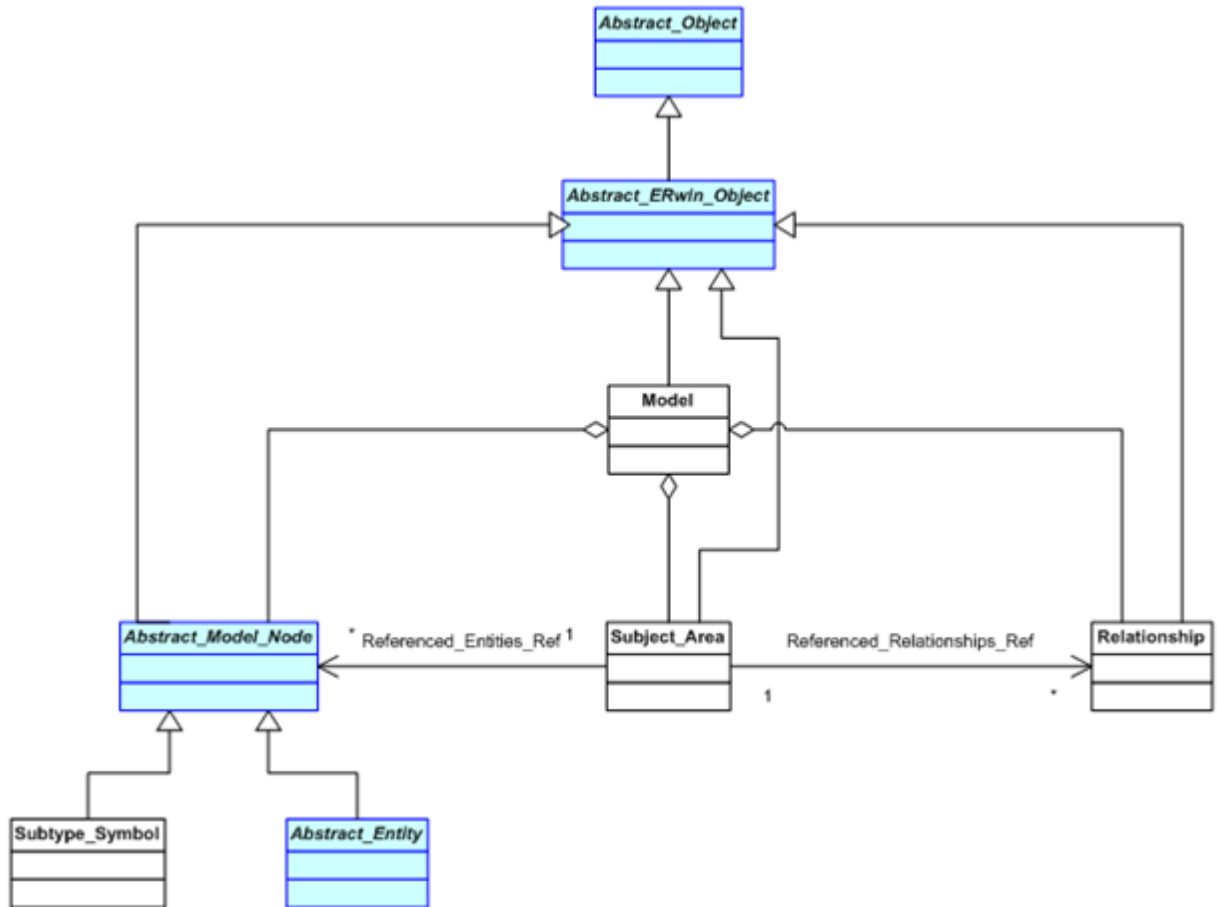
Model and Subject Area Diagram

This diagram shows the storage of Subject Area membership information and makes the following assertions:

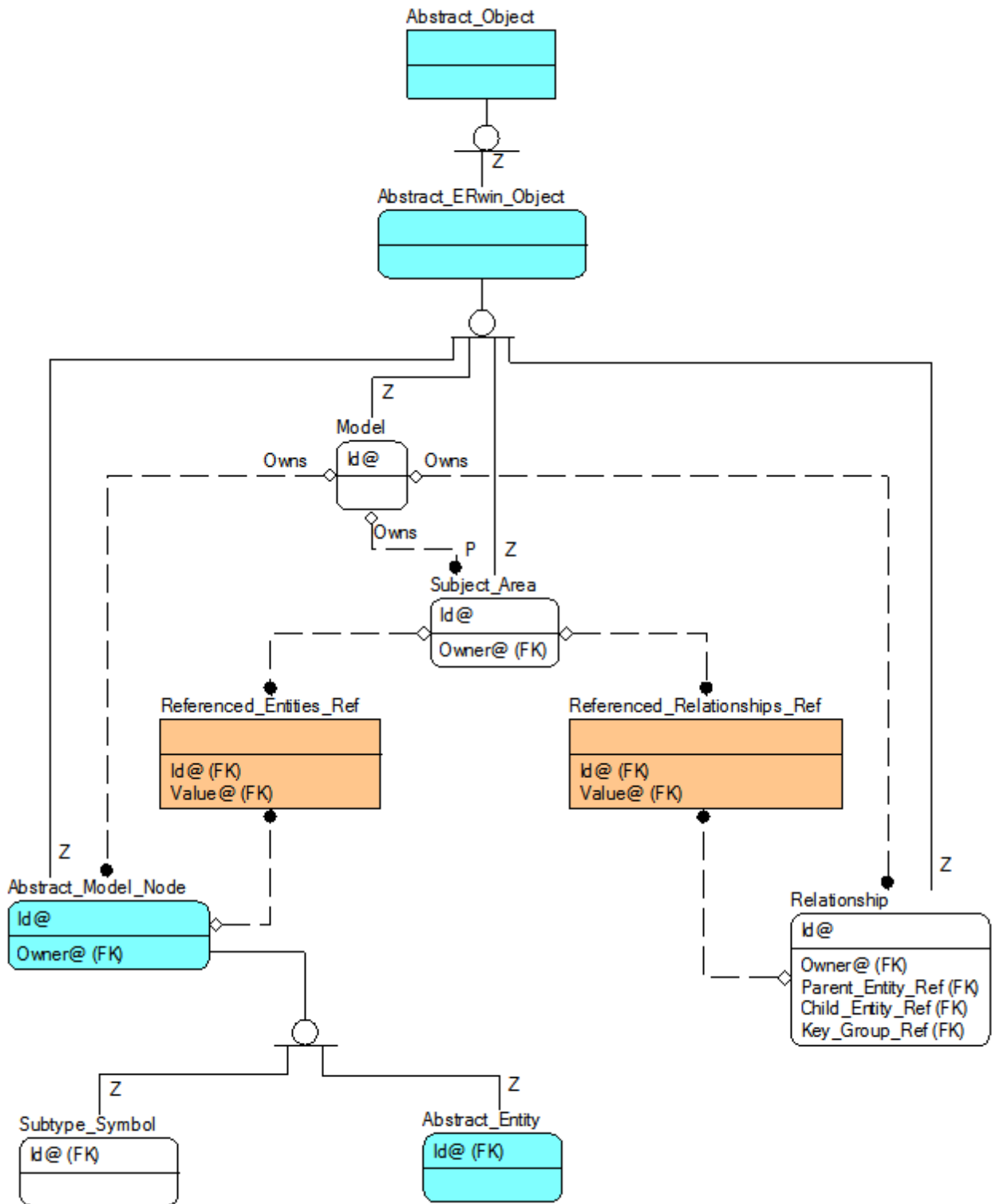
- *Abstract_ERwin_Object* is a type of *Abstract_Object*
- The object types *Abstract_Model_Node*, *Model*, *Subject_Area*, and *Relationship* are all types of *Abstract_Objects*
- The object types *Subtype_Symbol* and *Abstract_Entity* are both types of *Abstract_Model_Nodes*
- *Abstract_Model_Nodes* are owned by *Model*
- *Relationships* are owned by *Model*
- *Subject_Areas* are owned by *Model*
- *Subject_Areas* hold their collection of member *Abstract_Model_Nodes* in *Referenced_Entities_Ref*. When viewed using SCAPI, this is held as a vector reference property on the *Subject_Area*. When viewed using ODBC, the associative table *Referenced_Entities_Ref* stores this membership information.
- *Subject_Areas* hold their collection of member *Relationships* in *Referenced_Relationships_Ref*. When viewed using SCAPI this is held as a vector reference property on the *Subject_Area*. When viewed using ODBC, the associative table *Referenced_Relationships_Ref* stores the membership information.

Note: This data is maintained by erwin® Data Modeler based on the data in *Referenced_Entities_Ref*. Do not attempt to directly change this data.

Model and Subject Area Diagram--UML Notation:



Model and Subject Area Diagram--IDEF1X Notation:

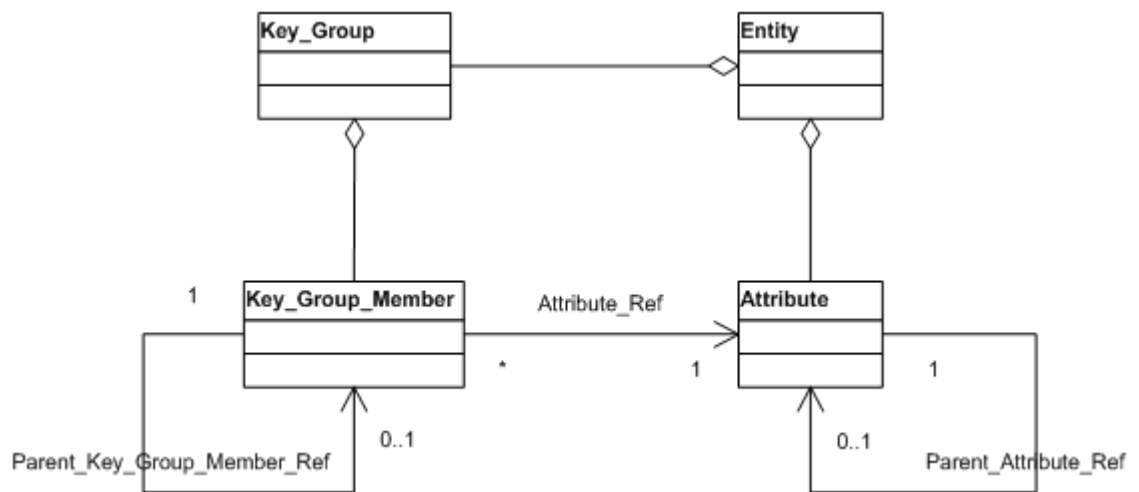


Entity, Attribute, and Key_Group Diagram

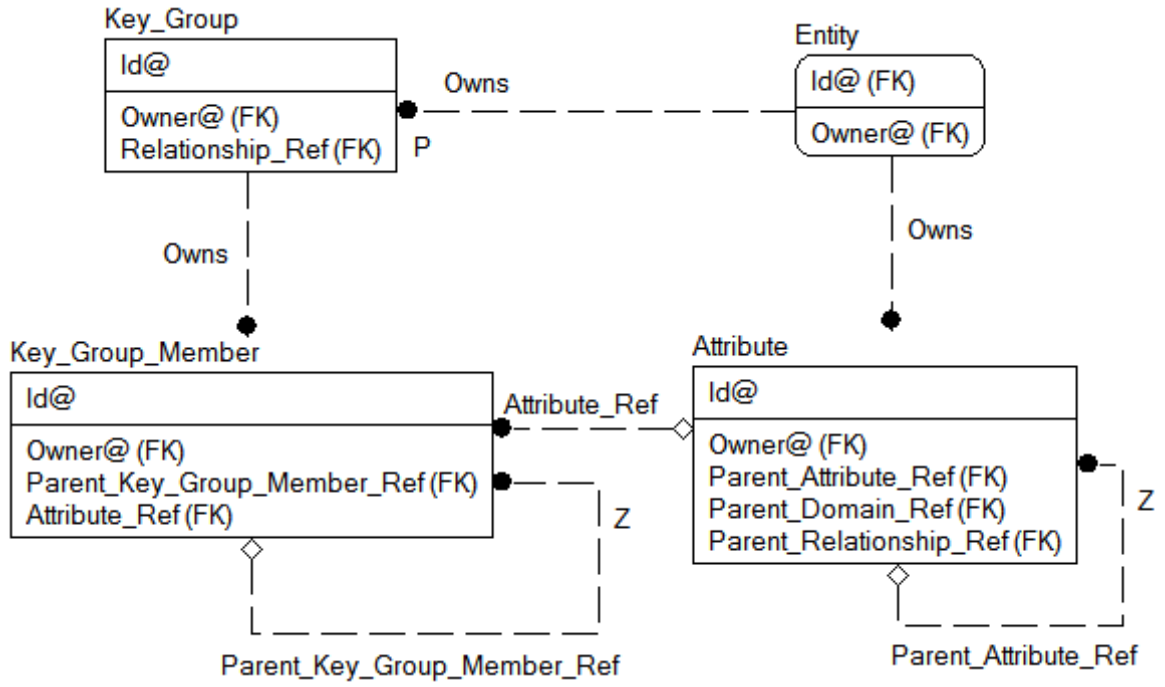
This diagram shows the structure of Entities and Attributes and their associated Key_Groups and Key_Group_Members. This diagram makes the following assertions:

- *Attributes* are owned by *Entities*
- *Key_Groups* are owned by *Entities*
- *Key_Group_Members* are owned by *Key_Groups*
- *Key_Group_Members* are linked to their associated *Attribute* using the *Attribute_Ref* property
- *Key_Group_Members* are linked to their parent *Key_Group_Member* using the *Parent_Key_Group_Member_Ref* property
- *Attributes* are linked to their parent *Attribute* using the *Parent_Attribute_Ref* property

Entity, Attribute, and Key_Group Diagram--UML Notation:



Entity, Attribute, and Key_Group Diagram--IDEF1X Notation:

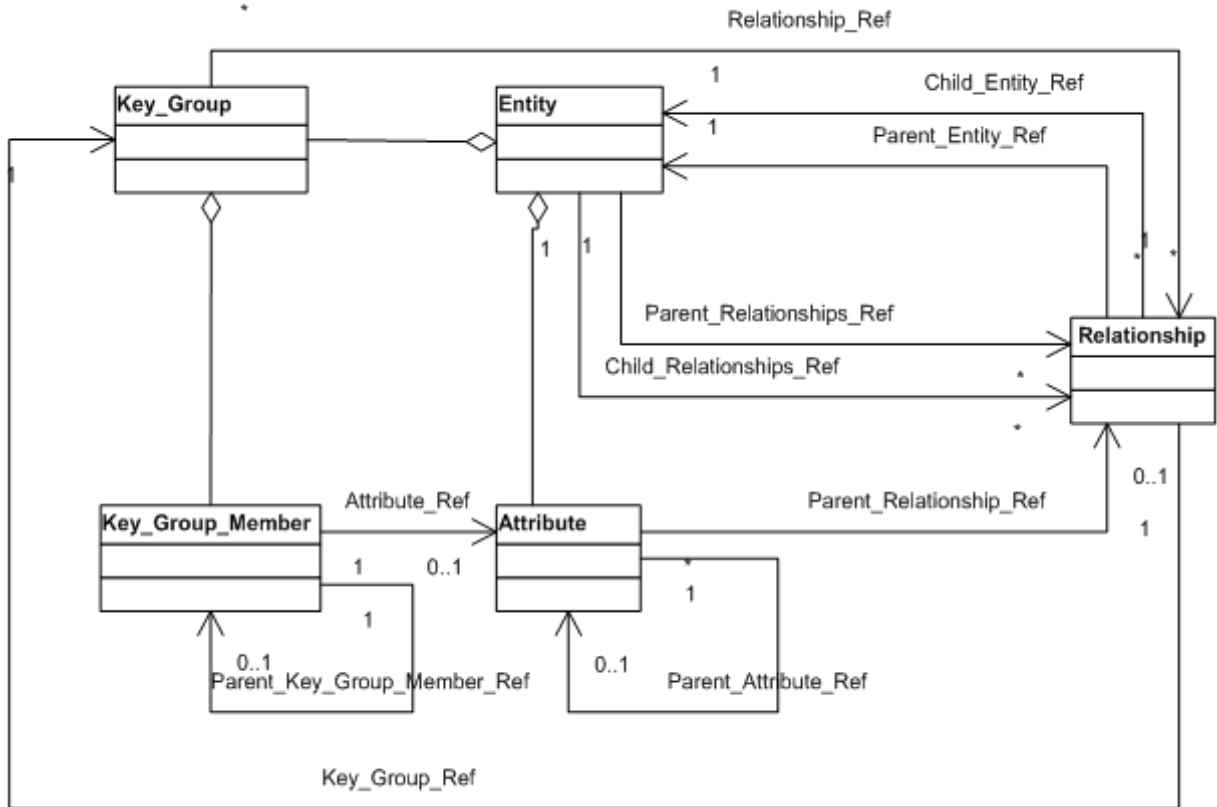


Entity, Attribute, Key_Group, and Relationship Diagram

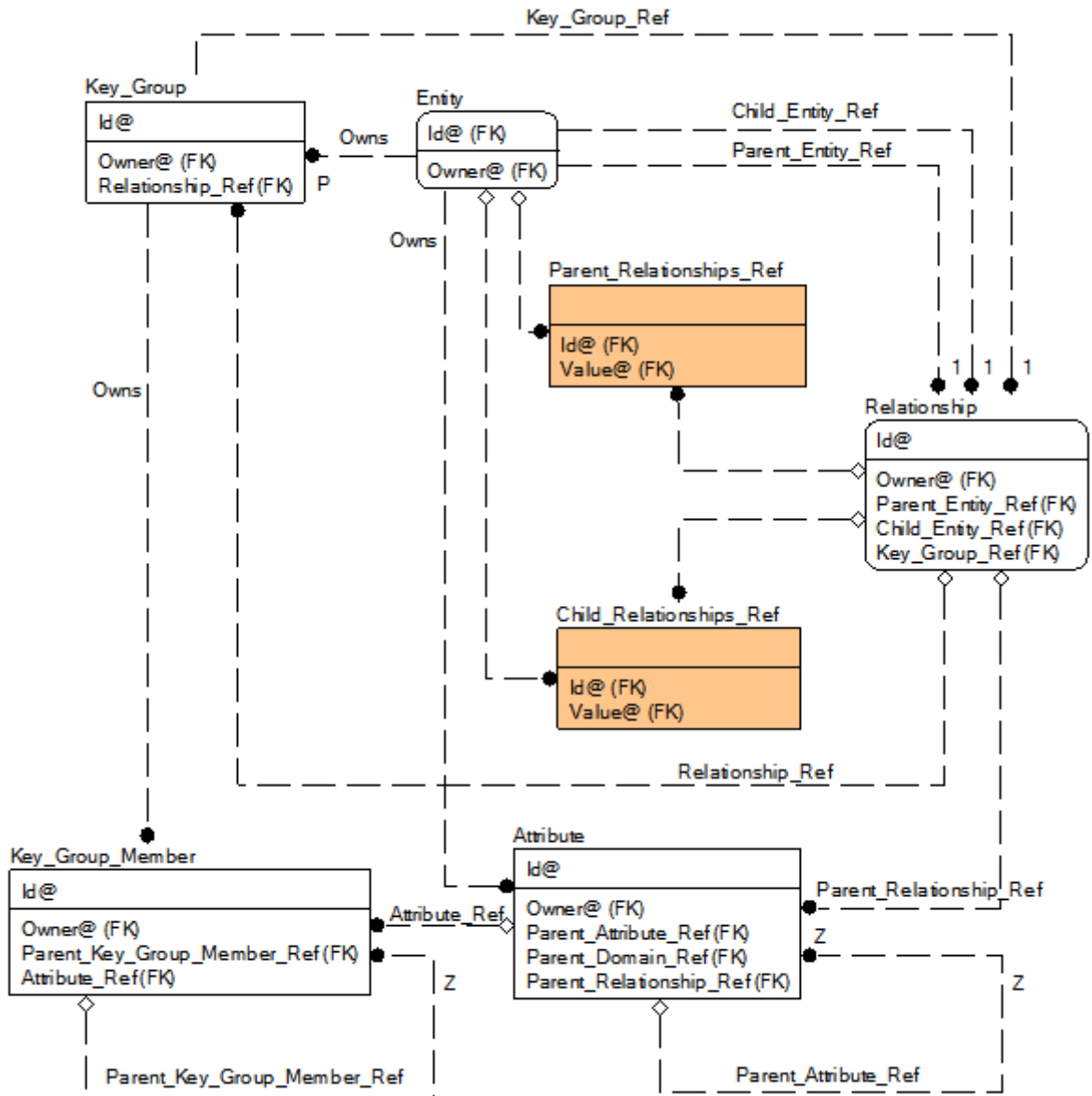
This diagram extends the prior diagram by adding Relationships. The following assertions are added:

- *Key_Groups* reference their associated *Relationships* using the *Key_Group_Ref* property
- *Relationships* reference their associated *Key_Group* using the *Key_Group_Ref* property
- *Relationships* reference their parent *Entity* using the *Parent_Entity_Ref* property
- *Relationships* reference their child *Entity* using the *Child_Entity_Ref* property
- The collection of *Relationships* in which an *Entity* participates as the parent is stored in the *Parent_Relationships_Ref* property. When viewed using SCAPI, this is held as a vector reference property on *Entity*. When viewed using ODBC, the associative table *Parent_Relationships_Ref* stores this information.
- The collection of *Relationships* in which an *Entity* participates as the child is stored in the *Child_Relationships_Ref* property. When viewed using SCAPI, this is held as a vector reference property on *Entity*. When viewed using ODBC, the associative table *Child_Relationships_Ref* stores this information.
- *Attributes* reference their parent *Attribute* using the *Parent_Relationship_Ref* property.

Entity, Attribute, Key_Group, and Relationship Diagram--UML Notation:



Entity, Attribute, Key_Group, and Relationship Diagram--IDEF1X Notation:

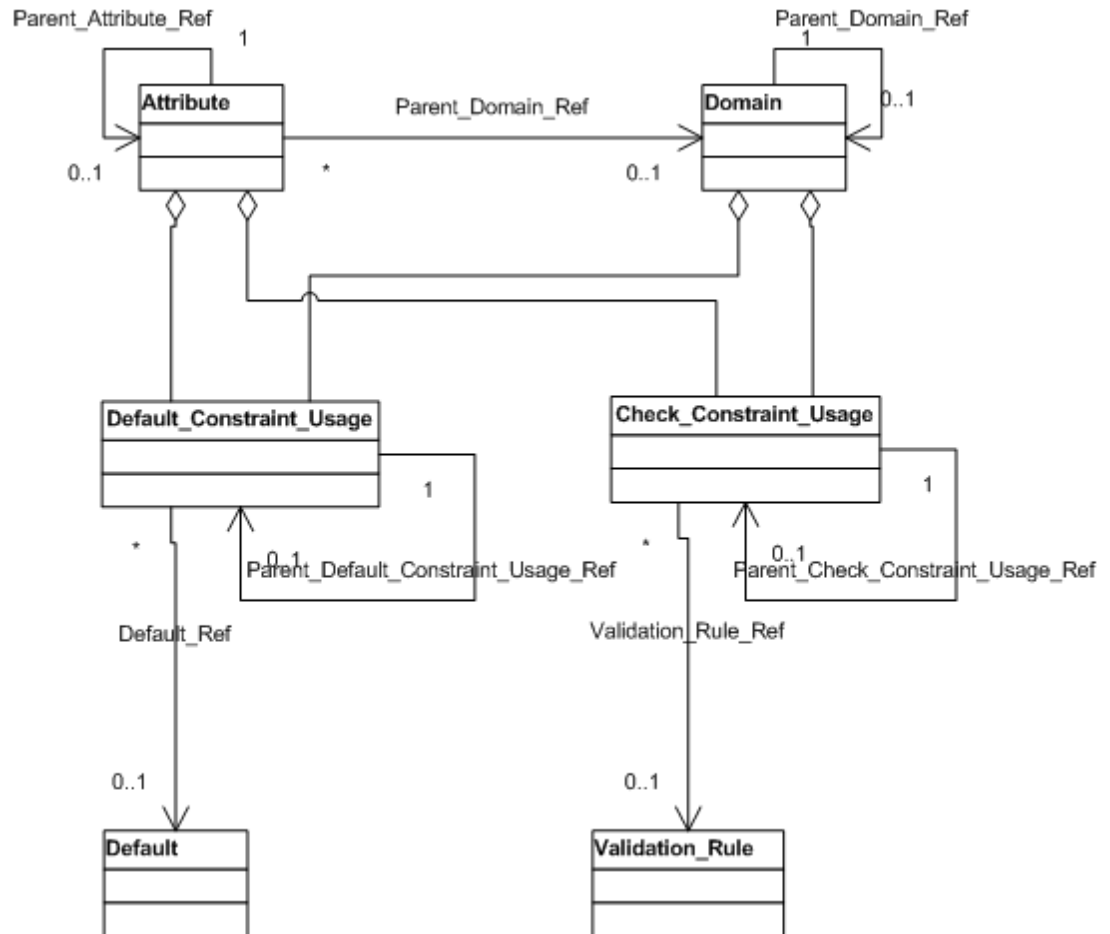


Attribute, Domain, Default, and Validation Rule Diagram

This diagram shows the links between Attributes, Domains, Defaults, and Validation_Rules. This diagram makes the following assertions:

- *Attributes* reference their parent *Attribute* using the *Parent_Attribute_Ref* property
- *Attributes* reference their parent *Domain* using the *Parent_Domain_Ref* property
- *Domains* reference their parent *Domain* using the *Parent_Domain_Ref* property
- *Default_Constraint_Usage* objects can be owned by *Attributes* or *Domains*
- *Default_Constraint_Usage* objects reference their parent using the *Parent_Default_Constraint_Usage_Ref* property
- *Default_Constraint_Usage* objects reference their associated *Default* object using the *Default_Ref* property
- *Check_Constraint_Usage* objects can be owned by *Attributes* or *Domains*
- *Check_Constraint_Usage* objects reference their parent using the *Parent_Check_Constraint_Usage_Ref* property
- *Check_Constraint_Usage* objects reference their associated *Validation_Rule* object using the *Validation_Rule_Ref* property

Attribute, Domain, Default, and Validation Rule Diagram--UML Notation:



Attribute, Domain, Default, and Validation Rule Diagram--IDEF1X Notation:

