

CA ERwin[®] Data Modeler

Metamodel Overview

r8



This documentation, which includes embedded help systems and electronically distributed materials, (hereinafter referred to as the "Documentation") is for your informational purposes only and is subject to change or withdrawal by CA at any time.

This Documentation may not be copied, transferred, reproduced, disclosed, modified or duplicated, in whole or in part, without the prior written consent of CA. This Documentation is confidential and proprietary information of CA and may not be disclosed by you or used for any purpose other than as may be permitted in (i) a separate agreement between you and CA governing your use of the CA software to which the Documentation relates; or (ii) a separate confidentiality agreement between you and CA.

Notwithstanding the foregoing, if you are a licensed user of the software product(s) addressed in the Documentation, you may print or otherwise make available a reasonable number of copies of the Documentation for internal use by you and your employees in connection with that software, provided that all CA copyright notices and legends are affixed to each reproduced copy.

The right to print or otherwise make available copies of the Documentation is limited to the period during which the applicable license for such software remains in full force and effect. Should the license terminate for any reason, it is your responsibility to certify in writing to CA that all copies and partial copies of the Documentation have been returned to CA or destroyed.

TO THE EXTENT PERMITTED BY APPLICABLE LAW, CA PROVIDES THIS DOCUMENTATION "AS IS" WITHOUT WARRANTY OF ANY KIND, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT. IN NO EVENT WILL CA BE LIABLE TO YOU OR ANY THIRD PARTY FOR ANY LOSS OR DAMAGE, DIRECT OR INDIRECT, FROM THE USE OF THIS DOCUMENTATION, INCLUDING WITHOUT LIMITATION, LOST PROFITS, LOST INVESTMENT, BUSINESS INTERRUPTION, GOODWILL, OR LOST DATA, EVEN IF CA IS EXPRESSLY ADVISED IN ADVANCE OF THE POSSIBILITY OF SUCH LOSS OR DAMAGE.

The use of any software product referenced in the Documentation is governed by the applicable license agreement and such license agreement is not modified in any way by the terms of this notice.

The manufacturer of this Documentation is CA.

Provided with "Restricted Rights." Use, duplication or disclosure by the United States Government is subject to the restrictions set forth in FAR Sections 12.212, 52.227-14, and 52.227-19(c)(1) - (2) and DFARS Section 252.227-7014(b)(3), as applicable, or their successors.

Copyright © 2011 CA. All rights reserved. All trademarks, trade names, service marks, and logos referenced herein belong to their respective companies.

CA Technologies Product References

This document references the following CA Technologies products:

- CA ERwin® Data Modeler (CA ERwin DM)

Contact CA Technologies

Understanding your Support

Review [support maintenance programs and offerings](#).

Registering for Support

Access the CA Support [online registration site](#) to register for product support.

Accessing Technical Support

For your convenience, CA Technologies provides easy access to "One Stop" support for all editions of [CA ERwin Data Modeler](#), and includes the following:

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

For information about other Home Office, Small Business, and Enterprise CA Technologies products, visit <http://ca.com/support>.

Provide Feedback

If you have comments or questions about CA Technologies product documentation, you can send a message to techpubs@ca.com.

If you would like to provide feedback about CA Technologies product documentation, complete our short [customer survey](#), which is also available on the CA Support website, found at <http://ca.com/docs>.

CA ERwin Data Modeler News and Events

Visit www.erwin.com to get up-to-date news, announcements, and events. View video demos and read up on customer success stories and articles by industry experts.

Contents

Chapter 1: The CA ERwin Data Modeler Metamodel	7
Introduction	7
Uses	7
Related Documentation	8
Chapter 2: Diagrams	9
Entity and View Diagram	9
Model and Subject Area Diagram	12
Entity, Attribute, and Key_Group Diagram	15
Entity, Attribute, Key_Group, and Relationship Diagram	17
Attribute, Domain, Default, and Validation Rule Diagram	20

Chapter 1: The CA ERwin Data Modeler Metamodel

This section contains the following topics:

[Introduction](#) (see page 7)

[Uses](#) (see page 7)

[Related Documentation](#) (see page 8)

Introduction

Metadata is data about data. Model metadata is the data that modelers use to describe the business information and database structures depicted by the diagrams developed and maintained using CA ERwin DM. Typically these are objects such as ENTITY, TABLE, ATTRIBUTE, COLUMN, KEY GROUP, and INDEX, and their properties such as Entity Name, Attribute Definition, Column Data Type, Key Group Type, and Index Owner.

Metadata information has been available in CA ERwin DM for years using XML export/import and the SCAPI API (Advanced Programmer's Interface). Now, an additional mechanism has been added to CA ERwin DM to further facilitate access to underlying model metadata and, more importantly, to assist data modelers to effectively use this information.

Uses

Beginning with CA ERwin DM r7.3, 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, modelers can retrieve information related to model objects and properties, the metadata defining those objects and properties, and the action log that records what changes were made to the model during the current modeling session.

You also have the ability to edit the SQL templates used by the Forward Engineering and Alter Script processes. This lets you produce SQL customized exactly to your specifications.

The HTML document details all of the accessible metadata associated with CA ERwin DM as well as the relationships that exist between the individual metadata components.

Related Documentation

The ODBC connectivity layer and reporting interface is documented in the *CA ERwin Data Modeler ODBC Reporting Guide*, which is located at \ERwin Bookshelf\Bookshelf_Files\PDF after you have installed CA ERwin Data Modeler.

Chapter 2: Diagrams

The following series of diagrams illustrate some of the key portions of CA ERwin DM's 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 these diagrams include abstract object types. Although the definitions of these object types exist in CA ERwin DM's metamodel (termed 'M1'), no instances of them exist within any data model (termed 'M0'). Because of this, these object types are unavailable for M0 queries using the ODBC interface. These object types are colored light blue in the following diagrams.

Some of the IDEF1X diagrams show vector properties (properties with more than one value). These are shown as tables colored orange. Consult the *CA ERwin Data Modeler ODBC Reporting Guide* for more information on the transformations between the raw metamodel view and the ODBC metamodel view.

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)

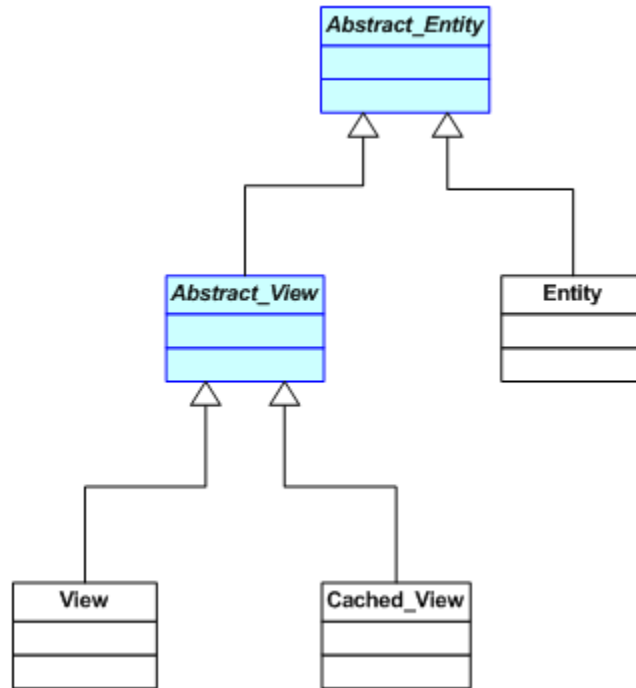
[Attribute, Domain, Default, and Validation Rule Diagram](#) (see page 20)

Entity and View Diagram

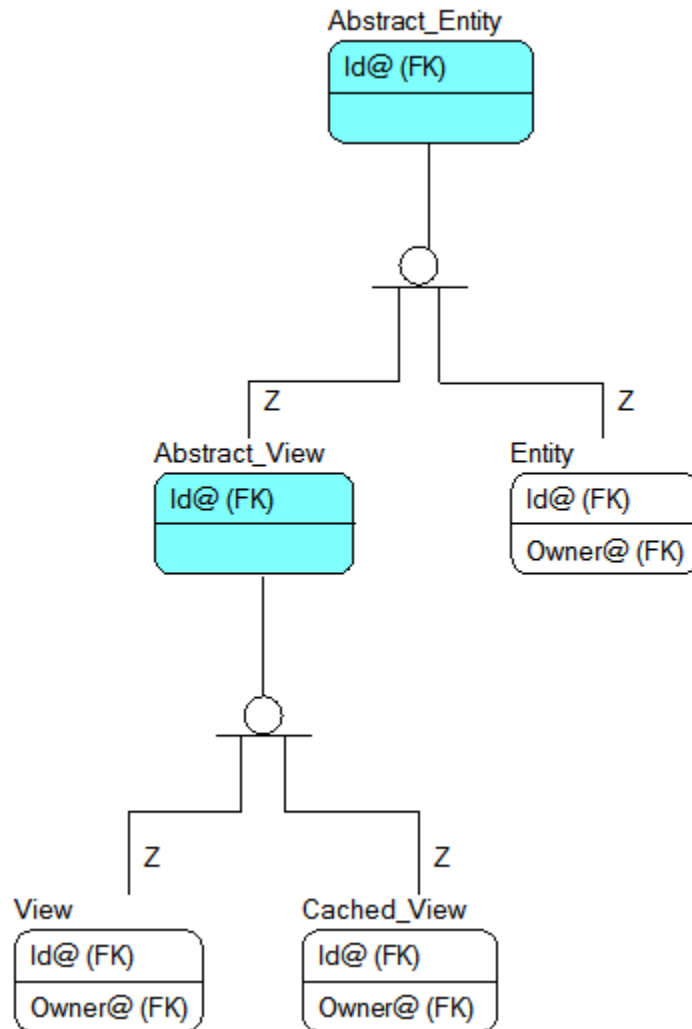
This diagram shows the object type structure for Entities, Views, and Cached Views. This diagram makes the following assertions:

- *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:



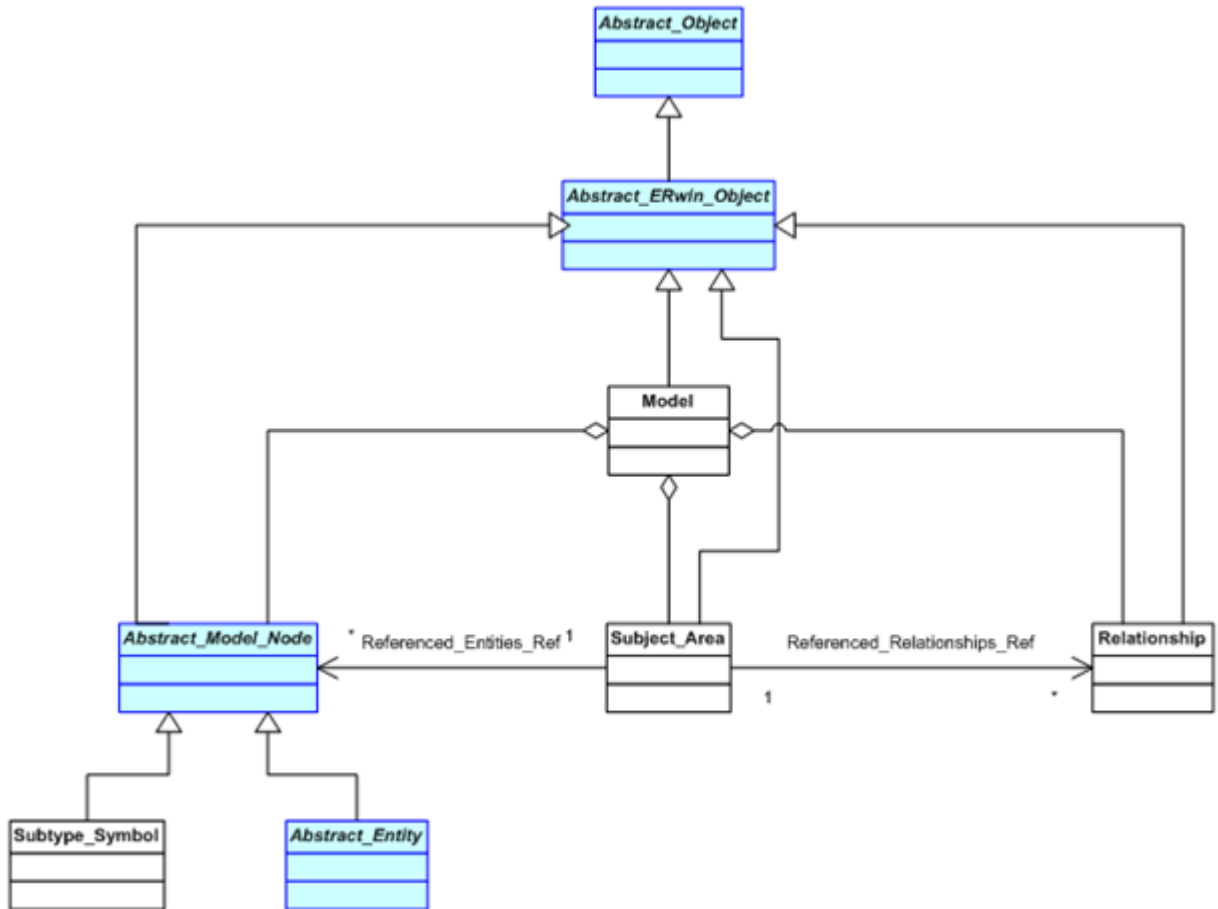
Model and Subject Area Diagram

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

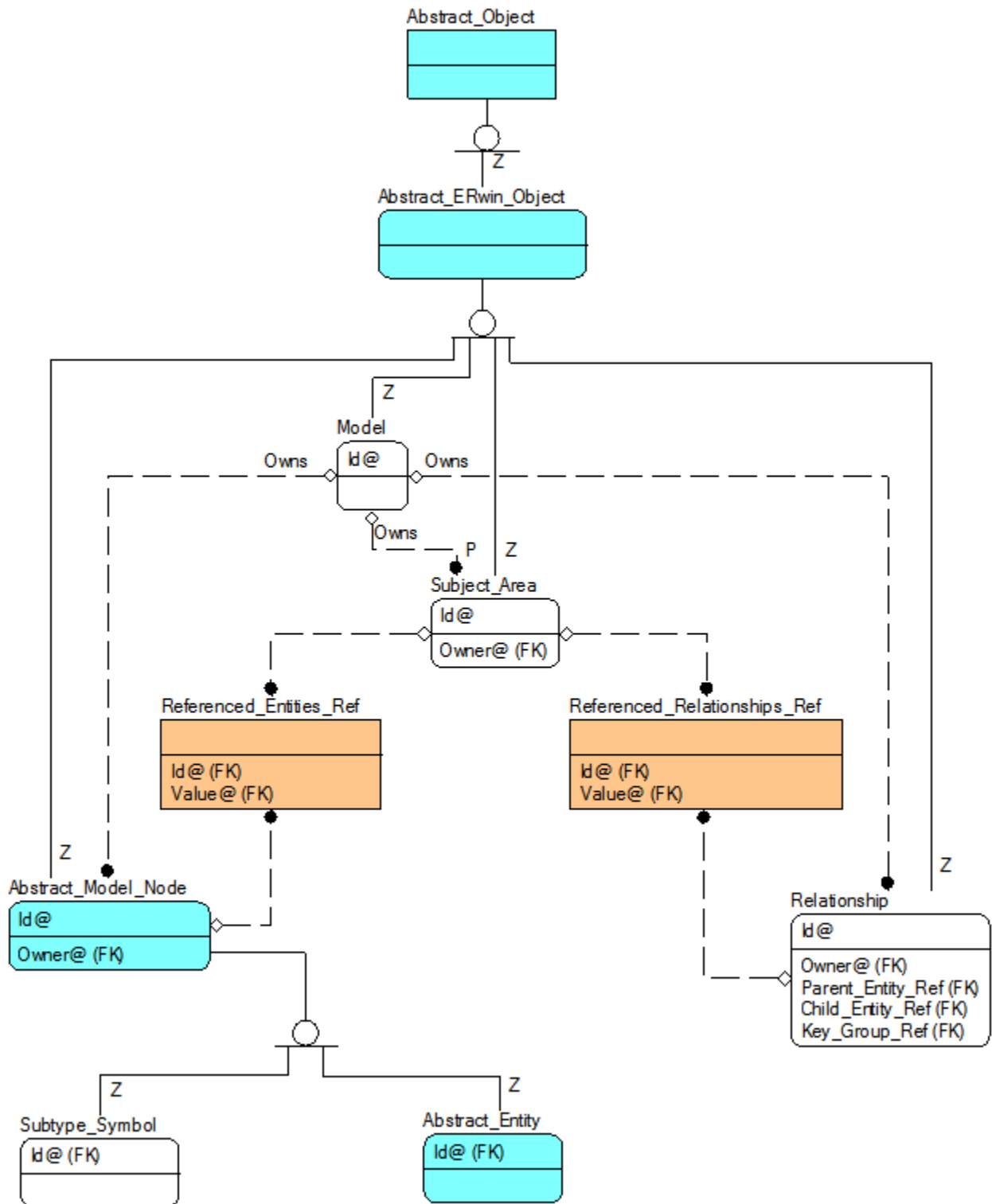
- *Abstract_ERwin_Object* is a type of *Abstract_Object*
- The object types *Abstract_Model_Node*, *Model*, *Subject_Area*, and *Relationship* are all types of *Abstract_Objects*
- The object types *Subtype_Symbol* and *Abstract_Entity* are both types of *Abstract_Model_Nodes*
- *Abstract_Model_Nodes* 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 CA 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:

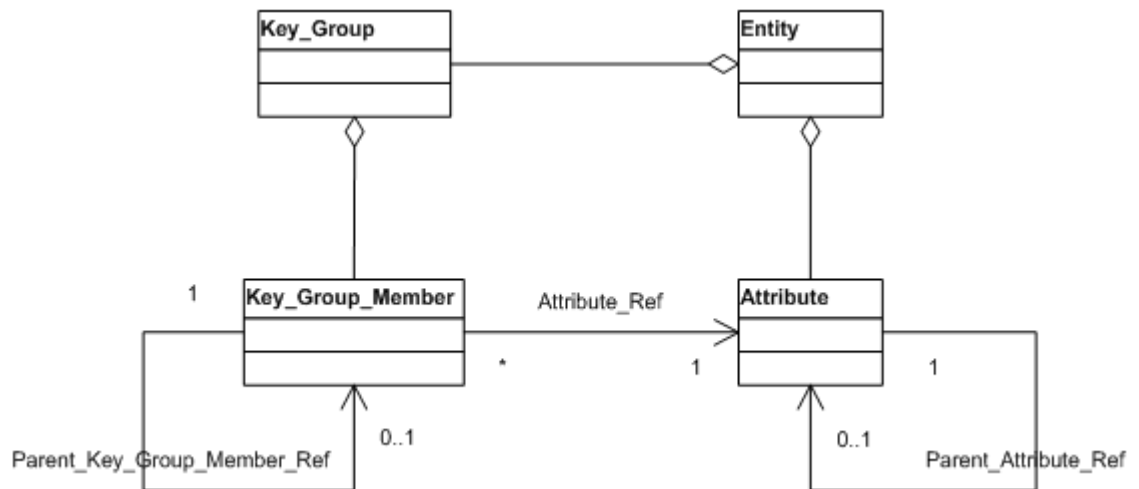


Entity, Attribute, and Key_Group Diagram

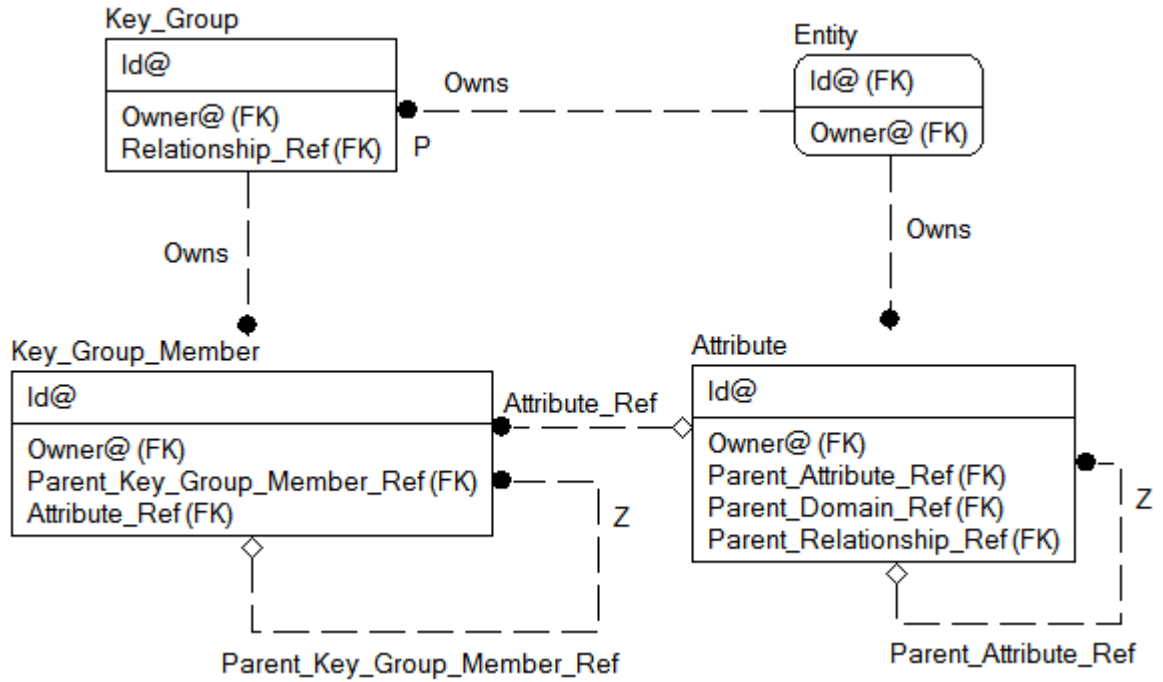
This diagram shows the structure of Entities and Attributes and their associated Key_Groups and Key_Group_Members. This diagram makes the following assertions:

- *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:

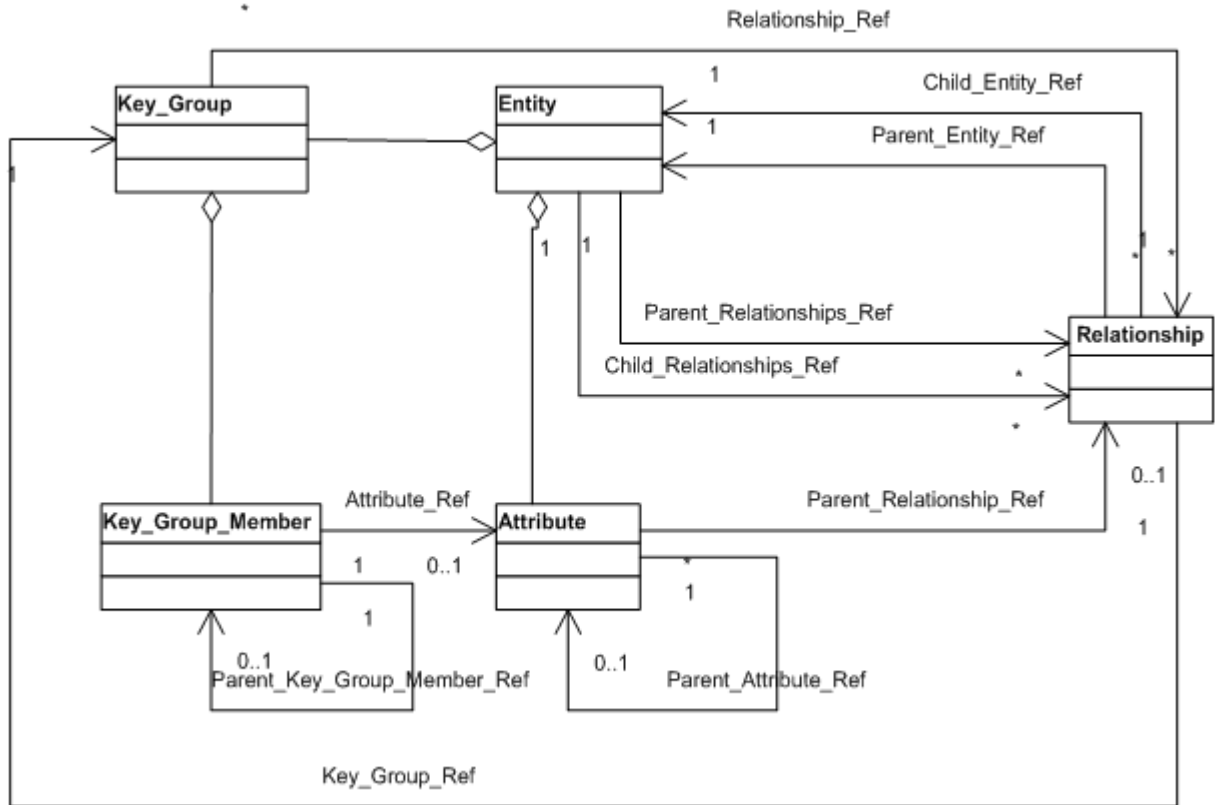


Entity, Attribute, Key_Group, and Relationship Diagram

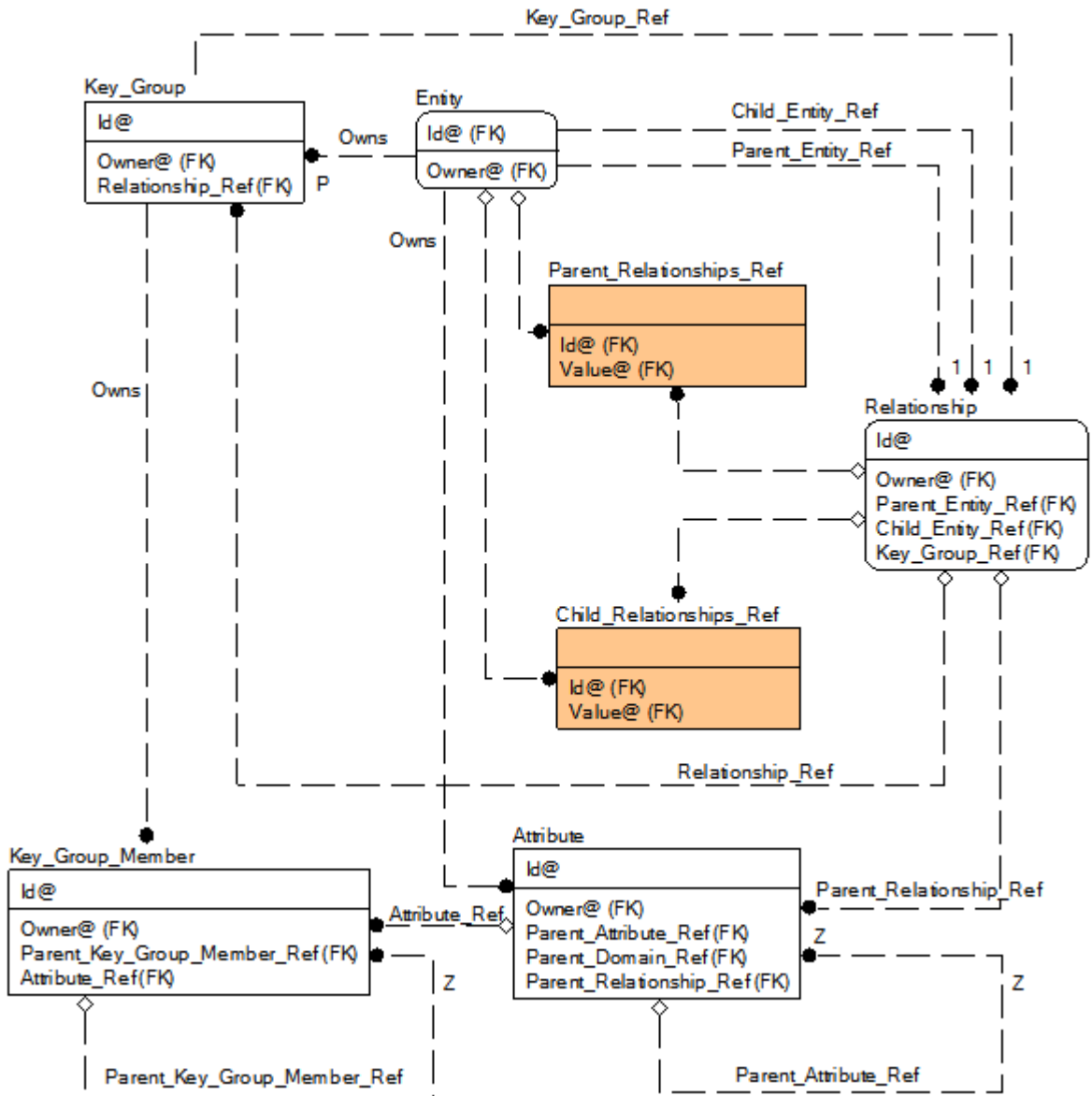
This diagram extends the prior diagram by adding Relationships. The following assertions are added:

- *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:

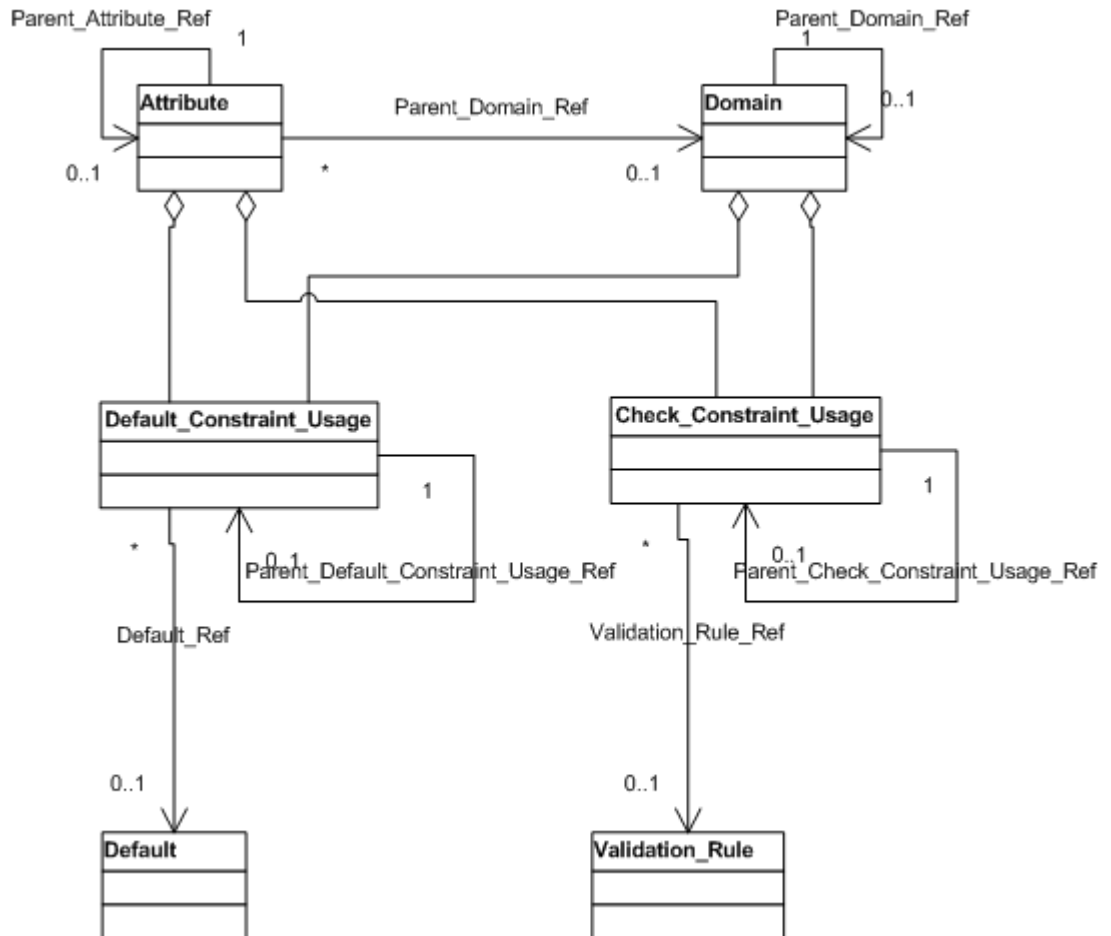


Attribute, Domain, Default, and Validation Rule Diagram

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:

