Relational Diagramming Software Overview

Or, What the Competition is Up To

This was the product of our evaluation of other software products that can be used for relational and/or ER diagramming as part of the requirements gathering process for the relational designer.

Display of Keys

When we talk about showing the keys on a column, the general idea is that each key will be represented by a key glyph next to the column name.

SQL Server 2005 does this for only primary keys. It does not show any foreign or uniqueness keys on columns. In fact, there is no graphical display of which columns have foreign keys associated with them. Foreign key lines between tables only identify the direction of the relationship.

Access bolds the primary key columns and points foreign key lines to their associated columns. It does not show foreign keys in any other way. It doesn’t show UKs at all.

Visio Modeler does the most complete job of graphically showing key information. It connects foreign key lines to their columns and shows codes for each key on a column next to that column. For example, a column that is part of the primary key of a table, is involved in a uniqueness key, and which references a column in another table will display like this: “PK, FK, UK1 | ColumnName”.

Visio itself numbers FKs and UKs to identify keys that span columns. It does not connect FK lines to their columns.

AllFusion Erwin does not connect foreign key lines to their columns, but otherwise does a pretty good job of graphically showing key information. Primary keys are represented as icons to the left side of each column. FKs and UKs are shown as text to the right of each column and UKs are identified further with numbers.

Oracle Designer LOOKS like it shows primary keys with a ‘P’ next to columns. FKs are similarly shown as an ‘F’. Foreign key lines do not attach to specific columns. Key constraints are also listed at the bottom of each table.

Sybase Power Designer identifies keys next to their columns with abbreviated strings (pk, fk, ak2, etc.). It does not point FK lines to columns, but it does place the name of the FK across the center of the FK line.

Discussion of Features in Other Relational Modeling Software

AllFusion ERwin:

ERwin has a concept of subject area. A subject area is an additional view of the diagram that tables may be added to. One table can be present in multiple subject areas. The subject area options occupy the same panel as the “model browser”. To change between subject areas, the user must select the subject area tab for the side panel, and then select the new subject area from a dropdown. I believe pages are a better way of doing this.

ERwin also makes the color of text, table backgrounds and table borders completely customizable. I’m not sure I see any value in this.

Visio:

Features worth considering

1. Clear separation between primary key columns and other columns

2. Numbered foreign keys

Things to avoid

1. The column containing the label FK causes some confusion as to which column its referring to since there are no horizontal lines.

2. Custom table and font colors don’t seem to be useful

3. Rotating tables isn’t useful

Sybase Power Designer:

Pros:

1. Users can add multiple shapes lines and notes to the diagram to explain, expand on, or highlight aspects of the diagram that may or may not be visible/intuitive.
2. SQL Preview. Selecting an element of the diagram and choosing SQL preview from the context menu showed a preview of the SQL code that would be generated by that element. It worked for tables and foreign keys.

Users could also view a preview for the entire diagram.

1. Spell Check dialog
2. Tables and Columns were fully customizable through the Format Dialog including Size, Line Style, fill, shadow, font, and individual column fonts.
3. They had a robust and well done Table Properties dialog that used tabs to show detailed editable information on:
   1. General( Name, comments, owner, number, Dimensional Type
   2. Columns (Name, Code, DataType, PK, FK, Mandatory, UK)
   3. Indexes ( Name, Code, U/ P/F/A)
   4. Keys (Add Row, Remove row, Name, Code, P)
   5. Triggers ( Code, G)
   6. Procedures ( Name Code)
   7. Notes
   8. Rules (Name, Code)
   9. SQL Preview
   10. As a Note, most sections contained a Search with Filters
4. They had a Workspace/Model viewer very similar to the Model Browser.
5. A very robust and well done report generator. From 3 tables the report generated 18 pages with everything on. The generator had 3 formats: HTML, RTF, local. It covered tables, keys, constraints, indexes, columns by key, keys by tables/columns, columns in tables, and more.

Cons:

1. The management of foreign keys is not intuitive. There is no dialog to add keys. The only way to add them is on the model by connecting a Reference connector. The Foreign keys showed up in none of the dialogs and no intuitive way was found to have a foreign key from/to multiple columns. Nor could you specify a column other than the Primary Key which the foreign key was referencing.
2. Users could not select columns on the diagram. Columns could only be modified through the column dialog.
3. Tables did not re-size automatically. To resize a table the user must manually drag the out points or right-click “size to text” or “size to normal”.
4. Custom shape option in the Format Table Dialog. It always turns columns invisible, and Noah found it to be totally useless.

Sybase Power Designer Table Attributes

Annotated

Begin Script

Check Constraint Name

Class Name

Cluster (Group)

Code (DDL Name)

Comment (Description)

Creation Date

Creator

DBMS

Default Mapping

Dimensional Type

Fact

Dimension

End Script

Fully qualified Code

Generate (T/F)

Generated Name

Generation Origin

Has Symbol

Meta Class Stereotype

Model

Modification Date

Modifier

Name (Display Name)

Name (Name)

Number of Records

Number of Test Records

Object Location

Object Type

Options (Text Field?)

Original Object

Overall Modification Date

Owner

Parent

Parent Folder

Parent Package

Primary Key

Qualified Code

Replica (T/F)

Short Description

Stereotype

Reference Attributes

Annotated

Auto Arrange Join Order

Cardinality

Change Parent Allowed

Child Role

Child Table

Check role

Class Name

Cluster

Code

Comment

Creation Date

Creator

Comment

DBMS

Delete Constraint

Foreign Key columns

Foreign Key constraint Name

Generate

Generation Origin

Has Symbol

Implementation

Mandatory

Metaclass Stereotype

Model

Modification Date

Modifier

Name (DisplayName)

Name (Name)

Object Location

Object type

Original Object

Overall Modification Date

Parent

Parent Folder

Parent Key

Parent Key Columns

Parent Package

Parent Role

Parent Table

Replica

Short Description

Stereotype

Update constraint