Data Modeller

Clarion6

SoftVelocity

Contents:

Introduction

Documentation Conventions

The documentation uses the typeface and keyboard conventions that appear below.

Typeface Conventions

Italics	Indicates what to type at the keyboard, such as *Type This*. It also indicates the text of a window's title bar.
ALL CAPS	Indicates keystrokes to enter at the keyboard, such as ENTER or ESCAPE, and also indicates Clarion Language keywords. For more information on these keywords, see the *Language Reference* PDF.
Boldface	Indicates commands or options from a pull down menu or text in a dialog window.
`COURIER NEW`	Used for diagrams, source code listings, to annotate examples, and for examples of the usage of source statements.

These graphics indicate information that is not immediately evident from the topic explanation.

Keyboard Conventions

F1   Indicates a keystroke. Press and release the F1 key.

ALT+X Indicates a combination of keystrokes. Hold down the alt key and press the x key, then release both keys.

Data Modeller

Overview

Data Modeller is a graphical, point and CLICK database dictionary editor for Clarion.

Data Modeller draws your dictionary design on a graphical (visual) Design Pad. The Design Pad displays your tables in boxes containing column and key names. You can optionally display column types, pictures, key structures and prompts as well. You can create relationships between tables simply by dragging and dropping. Data Modeller displays the resulting relationships as lines drawn between the boxes.

Dictionary, table, key, column and relationship attributes are immediately accessible with the right mouse button—simply RIGHT-CLICK on the item you want to modify and Data Modeller provides the appropriate popup menu choices for the selected item.

Tip The right mouse button is the key to a successful relationship with Data Modeller!

Editing data dictionaries with Data Modeller is very fast and very easy, plus you can print the graphical representation of the dictionary—up to 10 x 10 pages large! Of course you can print a detailed text report of the dictionary too.

Data Modeller has comprehensive built-in error checking that ensures your dictionaries are accurately designed with the minimum of column name and type inconsistencies. Data Modeller analyzes existing dictionaries too.

Data Modeller provides a wealth of time-saving utilities:

Column Pool
Stores entire column definitions (independent of any tables) for easy reuse. For example, you may use a customer number column in several tables in your dictionary. Add the column to the column pool, then simply select it from the column pool for each additional table that uses it. This guarantees that a particular column is defined the same way every time. In addition, Data Modeller optionally propagates changes from the column pool to each instance of the column in the dictionary.

Key Pool
Stores entire key definitions for easy reuse. Add the key to the key pool, then simply select it from the pool for each table that uses it.

Type Pool
Stores column type definitions for easy reuse. For example, you may frequently create dates using a LONG, with picture @D6 and the Initial Value set to TODAY(). Store all these attributes as a Column Type. The next time you create a date column, select the attributes from the Type Pool.

Favorite Pictures
Instead of typing in the picture every time you create a column, point and CLICK to select a picture from the favorite pictures list.

Data Type Defaults
Create defaults for data types, complete with size and picture. For example, you may only use BYTE columns for check boxes—simply check the True or False attribute in the *Data Type Defaults* dialog. Whenever you create a new column, the default attributes are set.

Prompts Manager
Perform global search and replace on prompts, adjust the position of the prompt colons, and generate prompt hot keys. Use the Prompts Manager to strip out undesired underscores, including those that may have remained from very old Clarion applications.

Display Subsets
If you are working with a very large dictionary you can focus on specific areas by defining and viewing subsets of the tables.

SQL Script Generator
Data Modeller automatically generates custom SQL scripts for creating and maintaining the SQL tables defined within your data dictionary.

Technical Support

Primary support for Data Modeller is provided by SoftVelocity. However, you may also contact Pea Brain Software directly at:

> Pea Brain Software cc
> PO Box 51694
> Wierdapark
> 0149
> SOUTH AFRICA

Or by email at: peabrain@global.co.za

In order to provide you with quick efficient replies we ask that you be as clear and concise as possible in your queries. Always include the version number of your Data Modeller (for example, version 2.0, release 001). To see the version number, choose **Help ▶ About** from the menu.

If Data Modeller fails with a specific dictionary, please send both the Clarion dictionary file and the .TXD file that are causing the problem.

Design Pad

The Design Pad contains the graphical representation of the active dictionary. When displaying a dictionary, it looks something like this:
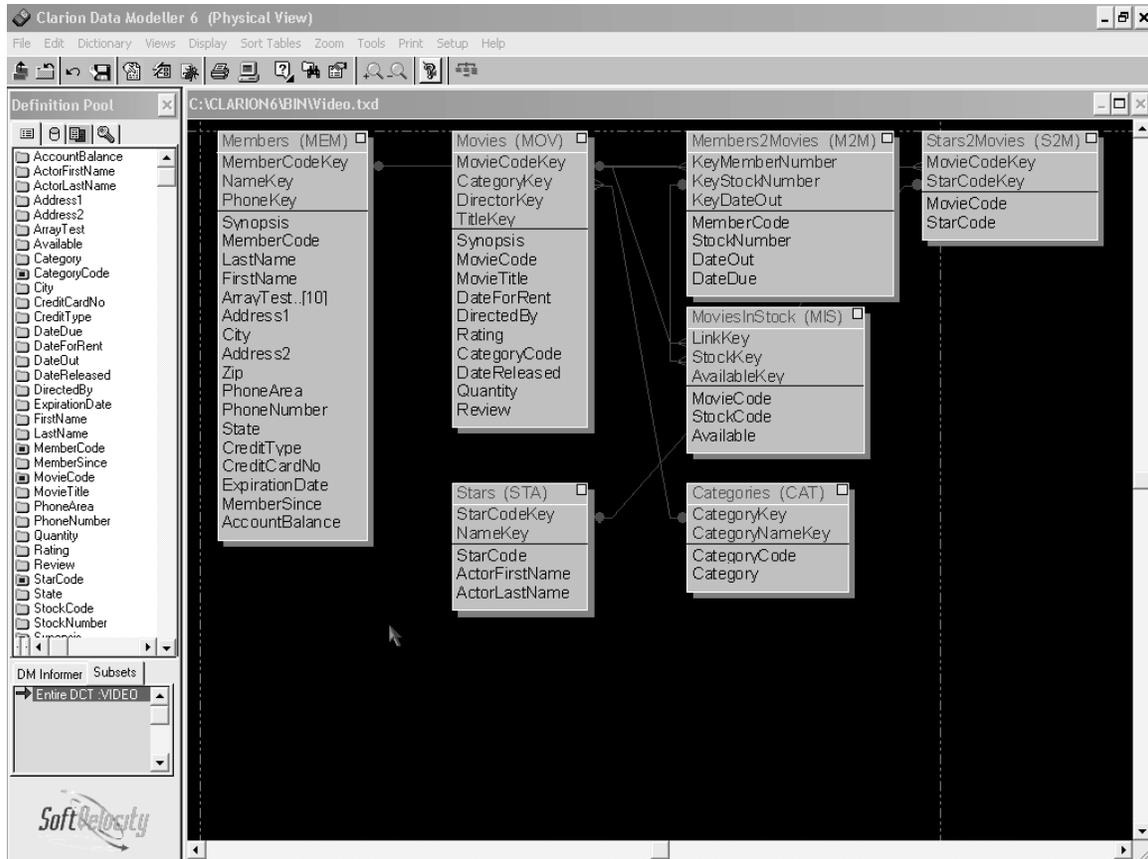
Data Modeller displays database tables as boxes containing column and key names. It displays relationships between the tables as lines drawn between the boxes.

RIGHT-CLICK on the Design Pad to access the Design Pad popup menus. A different popup menu appears for each discrete area in the Design Pad.

Let's look at each of the menus in turn.

Table Popup Menu

RIGHT-CLICK on a table name. The resulting popup menu contains the following options.

Table to Populate
Toggles the Table to Populate mode. When the mode is on, the background color of the table name is red, and you can add new columns to the table simply by CLICKing on the column names in the Column Pool.

Table Properties
Opens the *Table Properties* dialog. This is the same as the Clarion Table Properties dialog.

Delete Table
Delete the table and its relationships from the dictionary. Data Modeller will prompt first for confirmation.

Summary
Opens the *Table Statistics* dialog which displays information about the table including the number of keys and columns as well as the row length.

Copy Table
Opens the *Copy Table* dialog which lets you create a new table with an identical layout.

Select fields for action
This option, once activated allows you to select multiple columns from a file or from different tables. The option is in the form of a toggle and it you call for the popup menu again only the multiple field options will be shown. They are Move Columns, Copy Columns and Delete Columns.

To use the option do the following. CLICK on the "Select Columns For Action" option on the Table or Columns Popup menu. Your cursor will return to normal once the selection is made. Select the Columns you wish to Move, Copy or delete. You may select from different tables at the same time.

Once your selection is made use the right mouse and on the Target table call the Table Popup menu. You will notice that only a few multi column option are available. If you wish to cancel the action select Cancel from the option list and your menu will return to normal.

Attachments
This is used for the Smart documentation add-on available from PeaBrain.

Print Structure
Prints a report with the details of this table (only). You can control whether the print options dialog and print preview display in the User Preferences.

Print Fields In File
Prints the column detail, similar to the Column Details Printout but only the fields for this selected table.

Tools (sub-menu)
Provides quicker access to the tools that are more fully described later, in the section regarding the Data Modeller menus:

> **Easy Documentation**
> An oversize comment column, allowing both short table descriptions and extensive programmers' notes.

> **Browse / Convert Table . . .**
> Displays the contents of the selected table.
> Please refer to the much fuller description of this function that can be found, under Tools, in the section titled *The Data Modeller Menus*.

> **Convert Table (Advanced). . .**
> Allows you to convert the contents of a modified table to the new layout.
> Please refer to the much fuller description of this function that can be found, under Tools, in the section titled The Data Modeller Menus.

> **Create Test Data . . .**
> Enables you to generate test data for the selected table in the Design Pad.
> Please refer to the much fuller description of this function that can be found, under Tools, in the section titled The Data Modeller Menus.

> **Create New Empty Table**
> Opens the *Table Properties* dialog to create a new (empty) table. Similar to the Create Table command in the Dictionary menu. In contrast to the related command Create Table and Populate.

> **Delete Table from disk**
> Deletes the table and its associated relations from the dictionary.

> **Export Structure As Source**
> Use this dialog to generate the Clarion source code declaration for the selected table.

> > **Export File**   The name of the .CLW file to be generated. Type the full file name, including the extension.

> > **Append File**   Check to append this table declaration to an existing source file. If this option is not checked, any existing file is overwritten.

> > **Export Comments:**
> > Include the short table description. (see Edit Comments)

Export Long Descriptions:
> Include the full text of any developer notes.
> (see Edit Comments)

Keys (sub-menu)

Create New Key
Opens the *Key Properties* dialog which is the same as the corresponding Clarion dialog.

Add Selected Key
Adds the selected key in the Key Pool to the table. This option is disabled until you select a key.

Attachments
This is used for the Smart documentation add-on available from PeaBrain.

Columns (sub-menu)

Create New Column
Opens the *Column Properties* dialog which is the same as the corresponding Clarion dialog. By selecting the **Multiple** option, initial development can go much faster, since on OK the user is returned to the top instead of exiting to the Design Pad.

Add Selected Column
Adds the selected column in the Column Pool to the table. This option is disabled until you select a column.

Subsets (sub-menu)

Hide Table Only
Hides this table only. See also: Define Subsets.

Hide Table and Related Tables (Setup)
Hides this table and all related tables.

Hide All But... and Related Tables (Setup)
Hides all the tables in the dictionary, except for this table and its related tables.

Hide All But... and Related Tables (First Level)
Hides all the tables in the dictionary, except for this table and its related tables.

Cancel Subset Display
Un-hides all the tables in the dictionary.

Key Popup Menu

Key Properties
Opens the *Key Properties* dialog, which looks and acts the same as the corresponding Clarion dialog.

Edit Comments
Description columns for the key.

Delete Key
Deletes the selected key and all relationships depending on this key.

Column Popup Menu

Create New Column
Opens the *Column Properties* dialog. This dialog is similar to its equivalent in Clarion. It allows full access to, and editing of, the column attributes.

Create New Column (multiple)
Opens the *Column Properties* dialog to create new columns for the selected table. The Dialog redisplays to allow multiple adding of new columns. CLICK on **Cancel** to exit the Dialog.

Add Selected Column
Adds the currently selected key in the Column Pool to the table. Note that this option is disabled unless you have already selected a column.

Attachments
This is used for the Smart documentation add-on available from PeaBrain.

Subsets
The Subsets sub menu contains the following options:

Hide Table Only
Hides this table from the Design Pad. See also: Define Subsets.

Hide Table and Related Tables (Setup)
Hides this table and all related tables from the Design Pad. You can specify whether directly related tables only or all related tables are to be hidden. See Preferences, Other Settings.

Hide All But and Related Tables (Setup)
Hides all the tables in the dictionary, except for this table and all its related tables.

Hide All But and Related Tables (First Level)
Hides all the tables in the dictionary, except for this table and all its immediate related tables.

Cancel Subset Display   Un-hides all the tables in the dictionary.

Relationship Popup Menu

This popup menu is available when RIGHT-CLICKing on a relationship line.

Relation Properties

Opens the *Relation Properties* dialog for the selected relationship. This dialog is identical to its equivalent in Clarion, with the exception that in Data Modeller, you can name the relationships.

Tip

Use meaningful relationship names to make your data dictionary self-documenting.

You can display the relation names on the title bar of the Design Pad. Choose **View ▶ Relation Names** to toggle the display of relation names. Set the default in the *User Preferences* dialog in the **Other Settings** tab. You can set the color of the relation names in the **Color Settings** tab.

Delete Relation	Deletes the selected relationship.
Print Relations	Prints a report showing all the relations for the dictionary.
Go to Primary File	Moves the mouse cursor to the primary file in a relationship.
Go to Secondary File	Moves the mouse cursor to the secondary file in a relationship.

Tip

In Data Modeller, you can create relationships by dragging and dropping. See *Creating a Two-way Relationship* and *Creating a One-way Relationship*.

Open Area Popup Menu

Dictionary Properties

Opens the *Dictionary Properties* dialog.

Create Table

Opens the *Table Properties* dialog to create a new (empty) table with a blank key and a blank column to act as placeholders for the respective popup menus. When you enter a Key or a Column, the respective placeholder disappears.

Create Table and Populate

Creates a new table and automatically fills it with selected columns from the Column Pool.

Tip

You must switch tagging on in the Column Pool (by RIGHT-CLICKING anywhere in that box), and then CLICK the columns that you want in the table before you select this option.

Import Structure From Table
See the section on the File menu for more about this command.

Include Table in subsets
This is enabled only when subsets are active. To use this feature, make a subset with all tables. Then for each table you wish to add to the current subset, use this menu to select which tables make up the subset.

Locate Tables
Opens the *Locate Tables* dialog. This is most useful when you have a dictionary that is very large, with many tables. Simply highlight the table you want to locate then CLICK on OK (or DOUBLE-CLICK on the table name). The Design Pad places the mouse cursor on the selected table.

Aliases
Opens the Alias Editor. You can set up aliases for any table in the dictionary. See *Aliases* for more information.

Tip

The fastest way to work with Data Modeller, is in 100% zoom mode, and to locate tables by DOUBLE-CLICKING in the *Locate Table* dialog. If you have a large dictionary, 'scale to fit' is not efficient as it can take a long time to redraw all the tables. See also Define Subsets.

Re-Position Tables
Rearranges the Design Pad, so that the tables are displayed from left to right with the larger tables on the left, the smaller tables on the right. Note: Re-Position Tables is not reversible!

Re-size View
Centers the dictionary display on the Design Pad

Attachments
This is used for the Smart documentation add-on available from PeaBrain..

Data Pools

Column Pool

The Column Pool lists all the columns that have been defined in your dictionary. This makes it easy, quick and accurate to create a new table based on existing columns, and it also helps avoid common bugs in your applications.

Locating Columns

CLICK on a column name in the Column Pool. All instances of the column in the dictionary are immediately highlighted.

If there is more than one instance of the column, they are displayed in different colors. The first instance that directly corresponds with the version selected in the Column Pool is displayed in one color. All other instances are displayed in a second color. You can choose the colors in the *User Preferences* dialog.

Columns that have the same name

By default the Column Pool lists all the columns in your dictionary, displaying each version of columns that have the same name. These are color coded so that identical columns are tagged with a blue flag icon, while columns that have the same name but different attributes are tagged with a red flag icon.

Columns that have different attributes are always displayed. In the **Advanced Settings** tab of the *User Preferences* dialog, you can choose whether or not to display those columns that have identical attributes.

Changing a column's attributes

You can choose in the **Advanced Settings** tab of the *User Preferences* dialog whether to cascade the changes automatically to other columns that have the same name and identical attributes. Columns with the same name but different attributes are not affected.

Column Order

In the Item Pool, there are 4 tabs across the top. The first tab is the Column Order. This lists all the columns in name order.

Set Filter

Opens the *Pool Filter* dialog which lets you display a subset of the columns in the Column Pool. This is particularly useful if you have a large dictionary with many columns defined. For example, CLICK on the A tab to list only those columns whose names begin with 'A' (or 'a'). CLICK on the All tab to cancel the subset display.

Show Only Tables Where Used

Displays a subset of the dictionary, revealing just the tables where this column is used. Select Cancel Subset Display from the View Menu, to return the Design Pad to normal.

Create Column

Opens the Column Properties dialog to create a new column.

Quick Add

Opens the *Quick Columns* dialog, which lets you create a number of columns rapidly. The Quick Columns feature was inspired by its equivalent in the Clarion Quick Start utility. However, in Data Modeller you can choose the data types for your columns.

Column Name	Type a column name.
Data Type	Select a data type from the drop-down list.
Size	Type the size required. (For numeric data types this column is disabled.)
Use Data Type defaults	Check to automatically apply attributes from the data type pool.
OK	Save the new column to the quick list.
Edit	Edit the selected column.
Delete	Delete the selected column

Column Properties

Opens the *Column Properties* dialog to change the attributes of the selected column. Note that if you have multiple columns with the same name, any changes that you make may be carried through to the other columns that have the same attributes. You can control this feature in the *User Preferences* dialog.

Delete Column

Deletes the column from the Column Pool. The column is also deleted from all tables, keys and relations.

Copy Column

Opens the *Column Properties* dialog. The attributes of the selected column are copied into the dialog. You must type a new name for the column.

Untag All
Quickly releases multiple tags (checks). Use this when you wish to cancel all tagged columns from any tagging operation.

Import From...
Lets you merge dictionaries. You can import all columns from the selected dictionary. Only the first occurrence of each column is imported. Data Modeller does not check whether column names already exist so the import may result in duplicate column names in the Column Pool.

Table order
This is the second tab and shows the columns in table order. This is a tree list and you may expand or contract any table. This shows the columns in the context they are used. The pop-up menu is exactly the same as the Column Order. See *Column Order* for details.

Subset order
This is active only when a subset is active. It is the same as the column order, except only for the current subset.

Key Order
The Key Order lists all the keys defined in your dictionary.

<u>Locating Keys</u>
CLICK on a key name in the Key Pool. Every occurrence of that key throughout the dictionary is highlighted on the Design Pad. The highlight color can be set in the *User Preferences* dialog.

<u>Creating a Key</u>
In the Design Pad, RIGHT-CLICK on the Table Name of the table for which you wish to create a key. From the popup menu, select Keys -> Create New Key.

<u>Using an Existing Key</u>
You can add an existing key to a table. Highlight the key in the Key Pool. Now RIGHT-CLICK on an existing key in the table. Select Keys->Add Selected Key. The key is added to the table. Note that the table must have a key, before another can be added this way.

| Tip |

If the key columns don't exist in the table, they are automatically added to the table as well.

Key Pool Popup Menu
Opens the *Key Properties* dialog for the selected key. The *Key Properties* dialog is similar to its equivalent in Clarion. The only difference is in the Columns tab, where you choose the key columns directly from a list box.

Note:

DOUBLE-CLICK on a column in the Key Columns list box to change the sort order.

Delete Key
Deletes the selected key. The key is also deleted from its table. If the key is involved in a relation, the relation is also deleted.

Column Pool
Opens the Column Pool and closes the Key Pool.

The Data Modeller Menus

File Menu

The File menu lets you open, close, import and export dictionary files.

Import Current DCT

Imports the dictionary currently loaded in Clarion.

Export to Current DCT

Exports your changes back to the dictionary currently loaded in Clarion.

Support/Updates

Describes how to obtain support.

New Dictionary

Create a new dictionary. You will be asked whether you wish to save the current dictionary.

Undo

DM saves a copy of the DCT at every startup point. If you press undo it will restore the previous undo point and you will loose all changes made since them.

Open DML

Opens a selected .DML file for editing.

Close Dictionary

Close the current dictionary. You will be asked whether the dictionary should be saved.

Export TXD

Saves the dictionary to a .TXD file. Note that this option does not update the currently loaded dictionary (if any) in Clarion. In order to so, select the File, Export to Current DCT option.

Export As

Creates a .TXD file with the name you specify.

Export to SQL Script

Opens the Export Script Type dialog, which allows to define the type of SQL script you wish to create. See SQL Script Generation below.

Delete TXD File

Deletes the .TXD file of your choice from your hard drive.

Printer Setup

Calls the Windows Print Setup dialog.

Import Structure from Table
Imports a table structure into Data Modeller by allowing the user to select table type and the name of the data table to be imported.

MRU List
The names of the four most recently edited dictionaries are listed in the File menu. To open one of these dictionaries, CLICK on the name or type Alt-# where # is the number of the dictionary in the list.

Exit
Exit Data Modeller.

Edit Menu
The Edit menu provides the following choices:

Aliases
Opens the *Alias Editor*. See the section named *Table Aliases* later in this chapter.

Dictionary Menu
The Dictionary menu provides the following choices:

Properties
Opens the *Dictionary Properties* dialog.

Create Table
Opens the *Table Properties* dialog to create a new (empty) table with a blank key and a blank column to act as placeholders for the respective popup menus. When you enter a Key or a Column, the respective placeholder disappears.

Create Table and Populate
Creates a new table and automatically fills it with selected columns from the Column Pool.

Tip

You must switch tagging on in the Column Pool, and CLICK on the columns that you want in the table before you select this option.

Views Menu

The View menu lets you change the way the tables are displayed in the Design Pad.

Physical View

This shows the physical layout of your dictionary.

Logical View

This shows the logical layout of your dictionary. When in this mode, you see any labels you may have attached to relationships, virtual relationships, etc.

Wizatron View

This shows the physical layout of your dictionary. The type and size attributes of each column display. Wizatron properties are applied, E.g. Column orders, No populate fields are let-out etc.

Sort Tables Menu

This menu allows you to sort the tables. This is effective as a way to quickly find tables when using a large dictionary.

Note:

All sort operations are not reversible!

by Size

Re-arranges the tables starting with the biggest table first.

by Name

Re-arranges the tables alphabetically.

by Prefix

Re-arranges the tables alphabetically by prefix

Zoom Menu

The Zoom menu lets you display as much of the dictionary as you want.

You can also zoom by CLICKing on the Design Pad with the left mouse button, if you Activate Left Mouse Button Zoom in the *User Preferences* dialog.

Zoom +

Reveals more table, column name, and relation details, by showing less of the big picture.

Zoom -

Reveals more of the schema, at the expense of some structure detail.

Scale to Fit

Re-scales the Design Pad so that all the tables in the dictionary are visible.

25%
Scales the Design Pad so that the tables are displayed at 25%.

50%
Scales the Design Pad so that the tables are displayed at 50%.

75%
Scales the Design Pad so that the tables are displayed at 75%.

100%
Scales the Design Pad so that the tables are displayed at 100%.

Tools Menu
The Tools menu contains options that allow you to analyze your dictionary, control the Design Pad and edit your own user-defined data types.

Prompts Manager
Use the Prompts Manager dialog to organize and control the prompts that have been set up in your dictionary.

Apply to Selected Table only
Allows the settings for prompts to be made table-by-table, or for the entire dictionary. This is enabled only when a table is selected.

Remove Colons
Select to remove all colons from all prompts throughout your dictionary.

Add Colons
Select to add colons to all prompts throughout your dictionary.

> **Spaces between text and colon**
> The number of spaces that will be generated between the last character of the prompt and the colon.

The Microsoft Windows interface guidelines call for prompts to have a colon at the immediate right hand side of the text like this:

```
My Prompt:
```

Some developers, however, prefer their prompts to have a space before the colon like this:

```
My Prompt :
```

With Data Modeller, either style is easy to generate!

Hot Keys
Select to generate or delete hot keys for your prompts. The algorithm used is as follows: if possible the first letter of the prompt is used. If that has already been used, then the first letter of the second word (if it exists) is used. If that letter has already been used, then the second letter of the first word is used, and so on. If there are no unique letters left, the first letter found with the least duplicates is used.

Create Hot Keys
Select to generate hot keys in all prompts.

Remove Hot Keys
Select to remove all existing hot keys from all prompts.

Remove All Underscores
Select to remove underscores from all the prompts in the dictionary. (Those of us who knew (and loved!) Clarion Professional Developer will appreciate this Prompt Manager utility. In ancient times programmers did not have the space-character option, and so they used underscores to make labels and prompts more readable, as in FIRST_NAME_:. When you create a dictionary by importing a CPD table definition, therefore, you'll see that "legacy" prompts are infected with underscores. Use this procedure to get rid of them.)

Search and Replace
Select to perform search and replace on all prompts.
Search For   The string to search for.
Replace With The string with which to replace the search string. If you leave this blank, it will have the effect of deleting the search string.
Case Sensitive Check this box to make the search case sensitive.

Change Justification
New Justification
The choices are Left, Right, Center, and Decimal. You may also choose "None".

Make Prompts Transparent
Make all prompts for the selected table or all tables transparent. This is useful when you use background images for windows.

Easy Documentation
Edit your comments and short descriptions from one function.

Properties Manager . . .
Change many of the principal properties and options for one, for a group, or for all tables or columns. DOUBLE-CLICK on a column or a table to "tag" that item and add it to the batch for editing. Less frequently-changed attributes will still have to be changed via the Edit Properties dialog in Clarion.

Volumetric Calculation
A handy tool for rough extrapolation of your capacity expectations for a specified table, based on the ratio of file size to rows in the existing table. Permits early estimation of performance penalties associated with different layouts.

Browse / Convert Table . . .
Displays the contents of the selected table. The Data Modeller Table Browser is similar to Clarion's. Using either the menus or a RIGHT-CLICK popup, list or Print the rows in a specified table; Order the rows by any key, or leave unsorted (i.e., "row order"); Filter the rows by any value of any column; Change the column formatting in a specified table, even while the table is in use. Especially useful is the Header option, which allows you to view and change the label, picture, and data type of any column (a.k.a. *column*) attributes.

In addition, the powerful Data Modeller browser has the following features:

> You can display and edit the contents of ARRAY columns. (+ - Keys to scroll). BLOBs can also be displayed using the appropriate viewer.

> You can **Search** for and **Replace** any column in a table.

Convert Tables (Advanced)
This dialog (CLICK on Tools, Create Convert Program) allows you to transform data files from one layout to another. For example you may want to simply add a column to an existing table and simply convert the table without losing data. Or you may want to create an entirely new table by copying and modifying selected columns from an existing table.

Table Convert Advanced	✕
Source Input Table	
Driver:	TOPSPEED ▼
Owner:	
Table:	...
Driver String:	
Target Table Structure	
Table Name:	C:\C6EXAM~1\INVOICE\Movies ...
Dictionary:	Data Modeller (Current) ?
Structure:	Movies ...
Program Name:	C:\C6EXAM~1\INVOICE\CNVMovie.CLW ...

Assign Columns

Execute Internal | Write Code | Help | Cancel

You can either have Data Modeller execute the changes automatically, or you can generate source code for a conversion program that may be compiled and shipped to your customers.

Source Input Table

Driver   Select the driver for the source file.

Owner   Type the Owner Name which is typically a password for access to the source file.

Table   Type or select the name of the source file.

Driver String

Type the Driver Options string necessary for access to the file. See your Clarion documentation for more details.

Target Table Structure

Table Name   Type or select the name of the target table.

Dictionary   Data Modeller requires that the target table's structure exists in the currently loaded dictionary.

        Structure   Select the table structure for the target table. Note that this name need not correspond with the physical table name chosen.

        Program Name
        Type or select the name of the table that will contain the source code for the conversion program. This table can be edited later in the Clarion source editor. Note that a project file is also automatically created.

Assign Columns
Opens the *Convert Table, Assign* dialog that allows you to control how the columns are copied across to the target table.

Execute Internal
Simply executes the conversion process immediately without generating the conversion program.

Write Code
Creates the conversion program, complete with project file for you to modify (if necessary), compile and execute.

Create Test Data . . .
This dialog enables you to generate test data for the selected table in the Design Pad.

Disk File Name:
Type (or select) the name of the physical data file into which the test data will be placed. The file extension is optional.
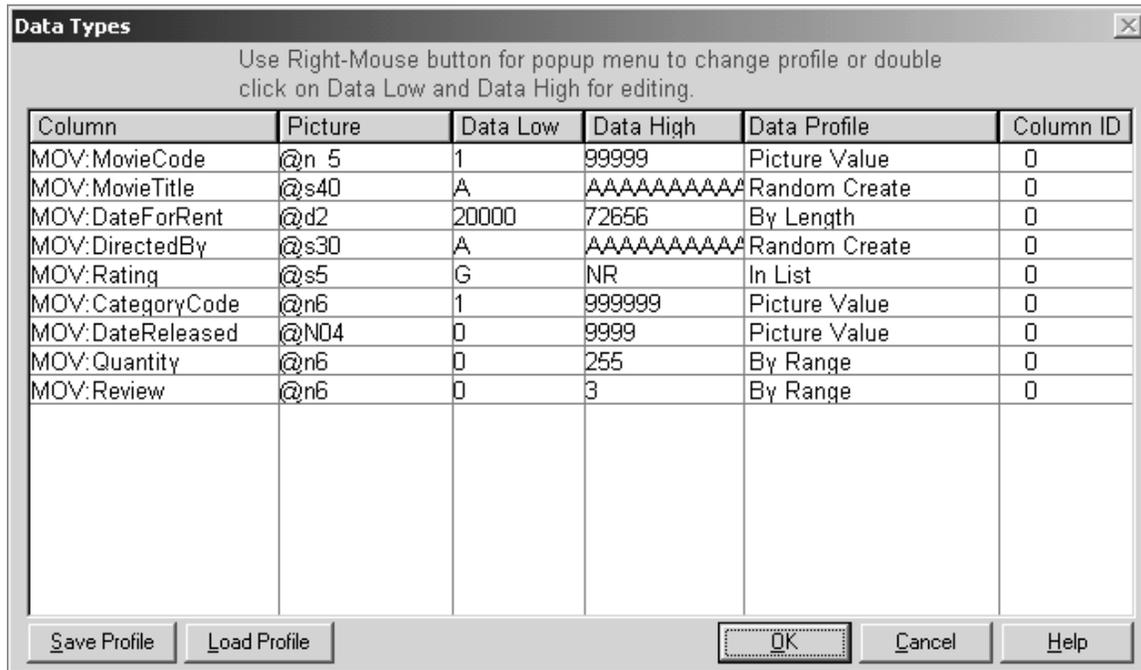
Dictionary:
The current dictionary loaded in Data Modeller will be used. This cannot be changed.

Structure:
Type (or select) the structure of the table into which the test data will be placed. Make sure that the table structure and table name are matched - you will overwrite data if the wrong disk target is selected.

Data Profile:
CLICK to open the *Data Types* dialog.

Data Types

Use Right-Mouse button for popup menu to change profile or double click on Data Low and Data High for editing.

Column	Picture	Data Low	Data High	Data Profile	Column ID
MOV:MovieCode	@n 5	1	99999	Picture Value	0
MOV:MovieTitle	@s40	A	AAAAAAAAAA	Random Create	0
MOV:DateForRent	@d2	20000	72656	By Length	0
MOV:DirectedBy	@s30	A	AAAAAAAAAA	Random Create	0
MOV:Rating	@s5	G	NR	In List	0
MOV:CategoryCode	@n6	1	999999	Picture Value	0
MOV:DateReleased	@N04	0	9999	Picture Value	0
MOV:Quantity	@n6	0	255	By Range	0
MOV:Review	@n6	0	3	By Range	0

Save Profile   Load Profile   OK   Cancel   Help

This dialog is used to control the generation of test data.

The column name and declared Picture are displayed for each column in the selected table.
Control the test data generation by CLICKing on the list box to edit-in-place the following values:

Data Low
>   Type the minimum acceptable value for the column. Take both the column Type and Display picture into consideration when the value is changed.

Note:

Typing an incorrect value will result in data over flow indicated by the # sign in your application.

Data High
Type the maximum acceptable value for the column. Take both the column Type and Display Picture into consideration when the value is changed.

Note:

Typing an incorrect value will result in data over flow indicated by the # sign in your application.

Data Profile
The default Data Profile is generated by Data Modeller depending on the Column Type, Picture and Length. You can change the Data Profile by RIGHT-CLICKing on the cell. See Data Profile Popup Menu below for an explanation of the available options.

Column ID
Shows the ID number of the column selected from the Generation Database. Choose the column by CLICKing on Fill From in the Data Profile Popup Menu.

Save Profile
CLICK to save your profile settings.

Load Profile
CLICK to load a previously defined profile for this table.

Required no of Rows:
Type the number of rows you wish to generate. Data Modeller will generate up to 200,000 rows per table.
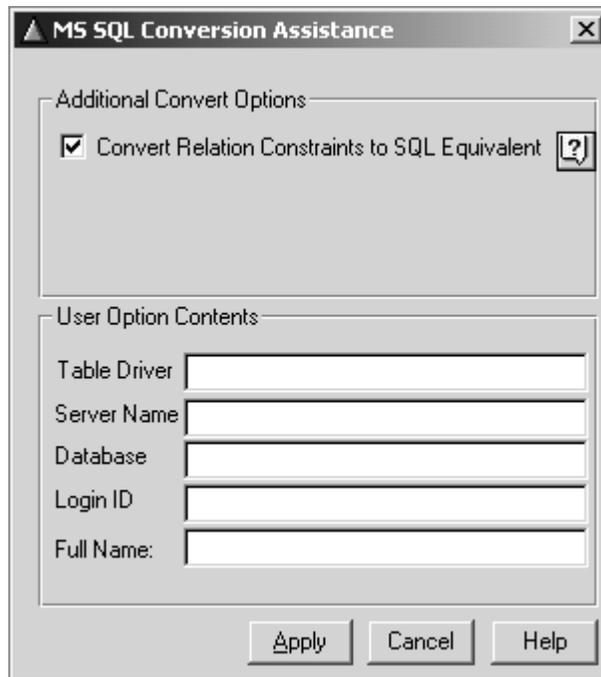
Create Data:
CLICK to generate the test data. If Data Modeller detects rows in the table before the generation starts it will prompt you to clear the table or append rows to the table.

SQL Converter Assistant
This menu provides access to tools to assist you in writing scripts for SQL tables.

SQL Converter

Relational Constraints
This option will convert all relations to server constraints.

Table Driver
All Tables will be changes to this driver.

Server Name
The Server name, Database and Login ID will be used to create the Owner name of the Table.

Example:
If you enter *ZASQL1* as the server name, *AMIC* as the database name and *buser* as the Login ID then the Owner name field of table properties will be filled with
ZASQL1,AMIC,buser

Database   Enter the Database name (Example: Northwind)

Login ID   Enter the login name.

Full Name

This field will create the full name field on Table Properties. If you enter
DB0. the table name will be added, resulting in *DB0.MyTables*

Create Script from Design
This opens a dialog to assist you in creating tables in a database.

Output Query File Name
File name of the SQL script file to be generated.

Database Name
Name of the database. Normally corresponds with the dictionary name.

Create Database
Check to generate script to create the database.

Device Name
Device on which the database is created.

Database Size
Database size in Mb.

Create Tables
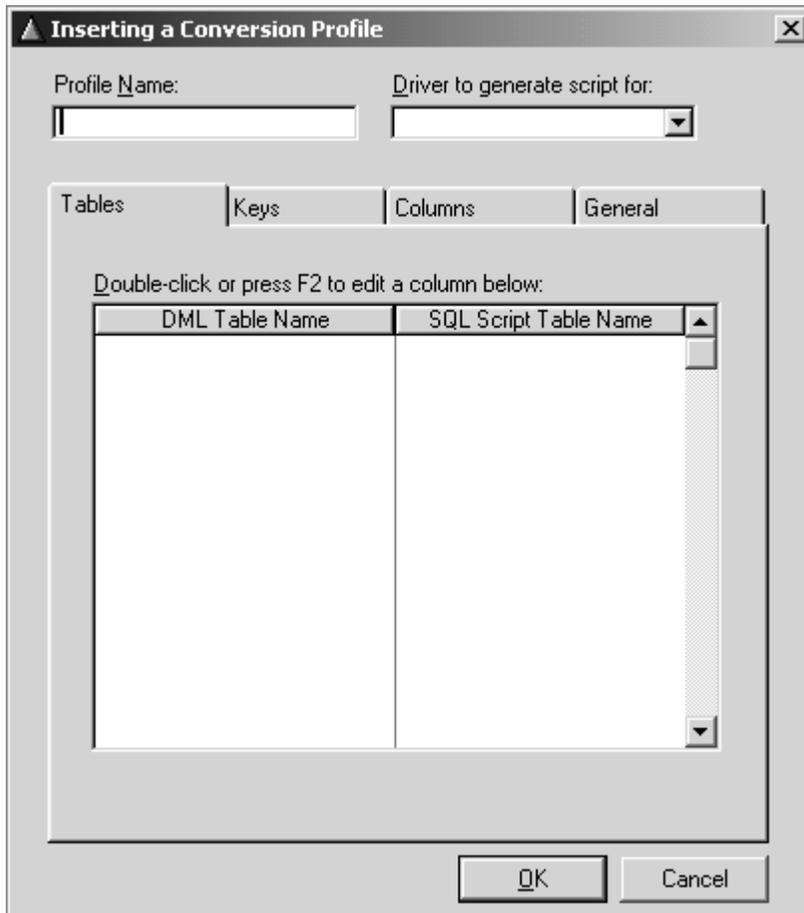Check to generate script to create all tables.

Create Indexes
Check to generate script to create indexes for all tables.

Create Rules
Check to generate script to create rules on all columns that have validity checks set on them.

Conversion Profile
A list of available conversion profiles, used to convert names and data types and to set some general settings.

Profile Name
A user-defined name for the conversion profile.

Driver to generate script for
The file driver of the tables for which the SQL script must be generated for.

Tables
A conversion from a Data Modeller table name to the expected SQL script table name.

Keys
A conversion from a Data Modeller key name to the expected SQL script key name.

Columns - Names
A conversion from the Data Modeller column name to the expected SQL script column name.

Columns - Data Types
A conversion from the Data Modeller column data type to the expected SQL script data type.

From Data Type	To Data Type
`REAL`	`FLOAT(24)`
`STRING`	`CHAR`
`STRING(8)`	`DATETIME`

General - Create primary key constraints
Create every table with its primary key constraint.

General - Create foreign key constraints
Create every table with its foreign key constraint, as defined by a Clarion key and a relationship with another table.

General - Exclude DIMmed columns
Exclude array columns.

Use external names if available
For columns and keys, use external provided names.

OVER
Toggles the generation of OVER or OVERed columns. For example, if the following Clarion column definition is provided:

```
DT_TransDate      STRING (8)
TransDate_Group   GROUP, OVER (DT_TransDate)
TransDate         DATE
TransDate_Time    TIME
                  END
```

The first choice (Generate only OVER columns) will generate the columns TransDate and TransDate_Time. The second choice (Generate only OVERed columns) will generate DT_TransDate.

Set Table Export Seq
This dialog shows the order in which tables are exported to the .TXD file. This is important because column declarations that are referred to in LIKE statements must be processed before the references.

Data Modeller stores the import sequence of your dictionary and maintains it unless you change it in this dialog. The export sequence has no effect on any other part of Data Modeller.

Analyse Import Error . . .
When errors are detected as Data Modeller attempts to import a dictionary ("*The dictionary that you have tried to load has duplicate Ident numbers and cannot be imported*"), enter the given line number in this dialog to display the "duplicate Ident numbers". You can then edit the source dictionary, in the source application. See: *Duplicate Ident Numbers* at the end of this manual.

Analyze Dictionary (Report)
Creates a report that lists all possible errors that Data Modeller has detected in your dictionary.

Print Menu

Print All Table Reference
Prints a detailed text report of your dictionary, one page per table.

Print Selected Table Reference
Prints a detailed text report of the selected table(s).

Print Relations
Prints a report of all the relations in your dictionary.

Print Column Details
Prints a report of all the columns in your dictionary.

Print Design
Prints a comprehensive report, listing all files, columns, keys and relations in your dictionary.

> **Number of pages wide**
> Specify the width of the design (in pages). The height is adjusted automatically. This setting lets you make a readable representation of very large dictionaries. The largest allowable width is 10 pages.

Do not print background shading
This setting is ON by default. Check it OFF if you have a color printer—the dictionary is then printed in full color. If you have a non-color printer we recommend leaving the setting ON both to save ink and because shading usually does not work well on black and white printers.

Analysis Report
Prints a report of the discrepancies found in your dictionary. For example, columns in different files that have the same name but different attributes are listed. This report can be used to help avoid bugs in your applications.

Setup Menu

Preferences
Opens the *User Preferences* dialog where you can customize the look and feel of Data Modeller. See *User Preferences* below.

Data Type Defaults
Opens the *Data Type Defaults* dialog. This allows you to set the default characteristics for columns of each data type.
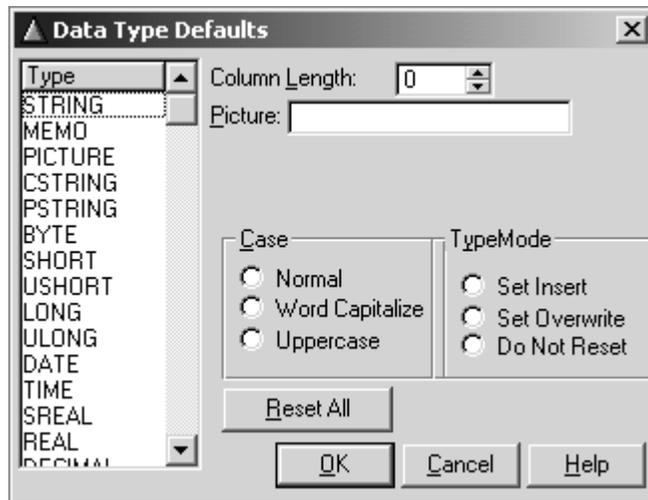
This dialog allows you to set defaults for each data type. For example you may know that most often the STRING columns that you declare will be length 80, picture @s20. DECIMALs may usually be currency columns and as such have length 8,2 and a picture of @N$12.2.
The defaults that you set here are automatically applied to new columns created in Data Modeller. See also: *Quick Columns*.

Column Length
Type the length of the Column. (If the data type is numeric, this column is disabled.)

Must be True or False
Check for BYTE data type to set this attribute automatically. BYTE variables are often used for True/False flags. (This option is hidden for any data type except BYTE.)

Case   Set the default attribute.

Typing Mode   Set the default attribute.

Driver Type Defaults
Opens the *Table Type Defaults* dialog which enables you to set the default settings for tables.
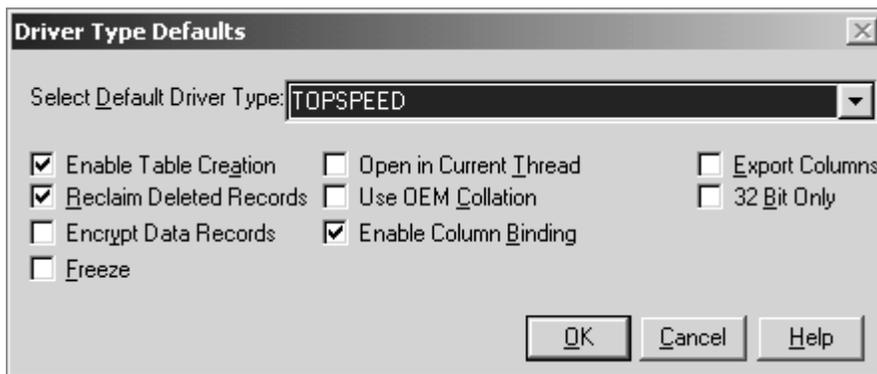
Help Menu

Contents
Opens the Windows Help application and displays a list of main topics.

Search for Help On
Opens the Search dialog in the Windows Help application, allowing you to search for help topics containing a specific keyword.

How to Use Help
Opens the Windows Help application and displays instructions for using the Help system.
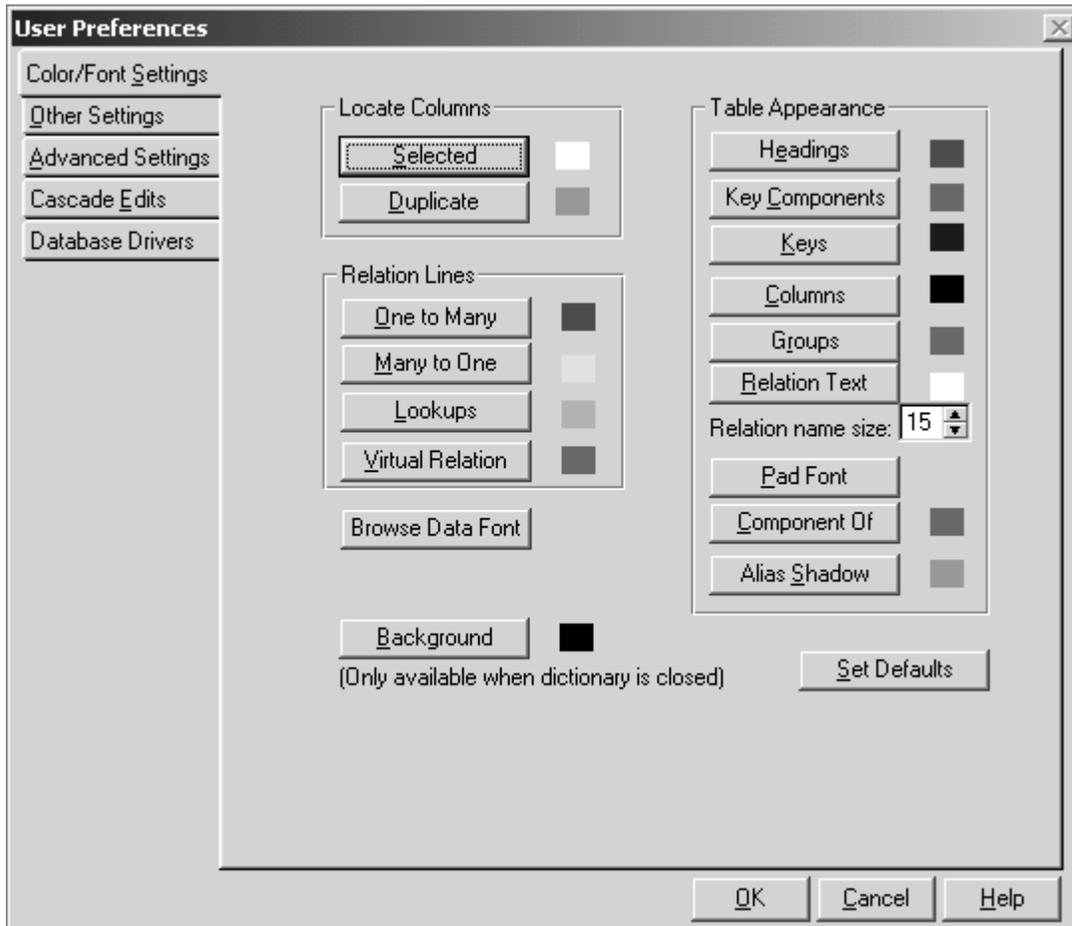
About
Displays the program name, version, registration, and copyright information.

User Preferences

Select **Preferences** in the Setup menu. This dialog lets you change settings that control the appearance and behavior of Data Modeller.

Color Settings

This tab controls the Design Pad display.

Locate Columns

> **Selected**   Sets the Design Pad color for the current selected column. When you
> select a column name in the Column Pool, all instances of the name in
> files in the Design Pad are highlighted in the color chosen.

> **Duplicate**   Sets the highlight color for duplicate columns. See also: Column Pool.

Choose two well-contrasted colors so that you can easily see the selected column, and quickly
recognize any duplicates.

Relation Lines
CLICK on the buttons to set colors for the One to Many, Many to One, Lookups, Alias lines, and
Virtual Relations in the Design Pad.

Table Appearance
CLICK on the buttons to select the colors for the respective table components displayed in the
Design Pad.

Changing the Pad Font is particularly useful if you have a high resolution monitor and a very busy
dictionary! There are fonts provided with MS-Word, for example, which are clearly readable even
when the writing on your screen is very small.

Background
You can only change the Design Pad background color when no dictionary is loaded.

Other Settings

Design Pad (Graphics Area)
Check **Show Relation Names** to actually label the relation lines on the Design Pad. This sets
the default for all dictionaries loaded into Data Modeller. To temporarily toggle the display of
relation names, choose **View ▶ Relation Names** in the View Menu.

| Tip |

Switch Relation Names OFF to speed up the repainting of the Design Pad window. You can
switch them back on just before you print the dictionary.

Check **Show Column and Key Pools on the right-hand side** to move the list box.

Check **Highlight all occurrences...** to reveal all instances of a column across the database,
when you CLICK on the column name either in the Design Pad or the Column Pool.

Other self-evident options are to Create Hot Keys Automatically, to Untag columns after
populating (columns to a table), and to Add Colons to Column Prompts.

Printing

Check **Preview report before printing** to preview reports before they are sent to the printer.

Check **Allow printer setup on reports** to switch on the Printer Setup icon in the Report Preview window.

Check **Include long descriptions** if you wish to see the long descriptions in reports that list column attributes.

Check **Include short descriptions** if you wish to see the short descriptions in reports that list column attributes.

Subset Creation and Related Files

Check **Cascade related table display to all levels** to control the creation of Display Subsets. If this check box is ON, when you choose **Hide Table and Related Files**, all related files, no matter how distantly, are hidden. For example if table A is related to table B which is related to table C, all three tables are hidden. If the check box is OFF then only tables A and B are hidden.

Importing Dictionaries

Switch on or off any system prompting of your import options. Choose whether or not to keep the source dictionary table after the import.

Tips

Check **Show Tip of the Day** to see useful hints whenever you load a new dictionary. Check **Disable Tooltips** to prevent tool tips from displaying.

Application

Check **Always keep Data Modeller on top of other applications**, if you prefer it that way. We don't recommend this setting when Data Modeller is maximized!

Advanced Settings

This TAB controls a variety of more advanced Data Modeller preferences and settings.
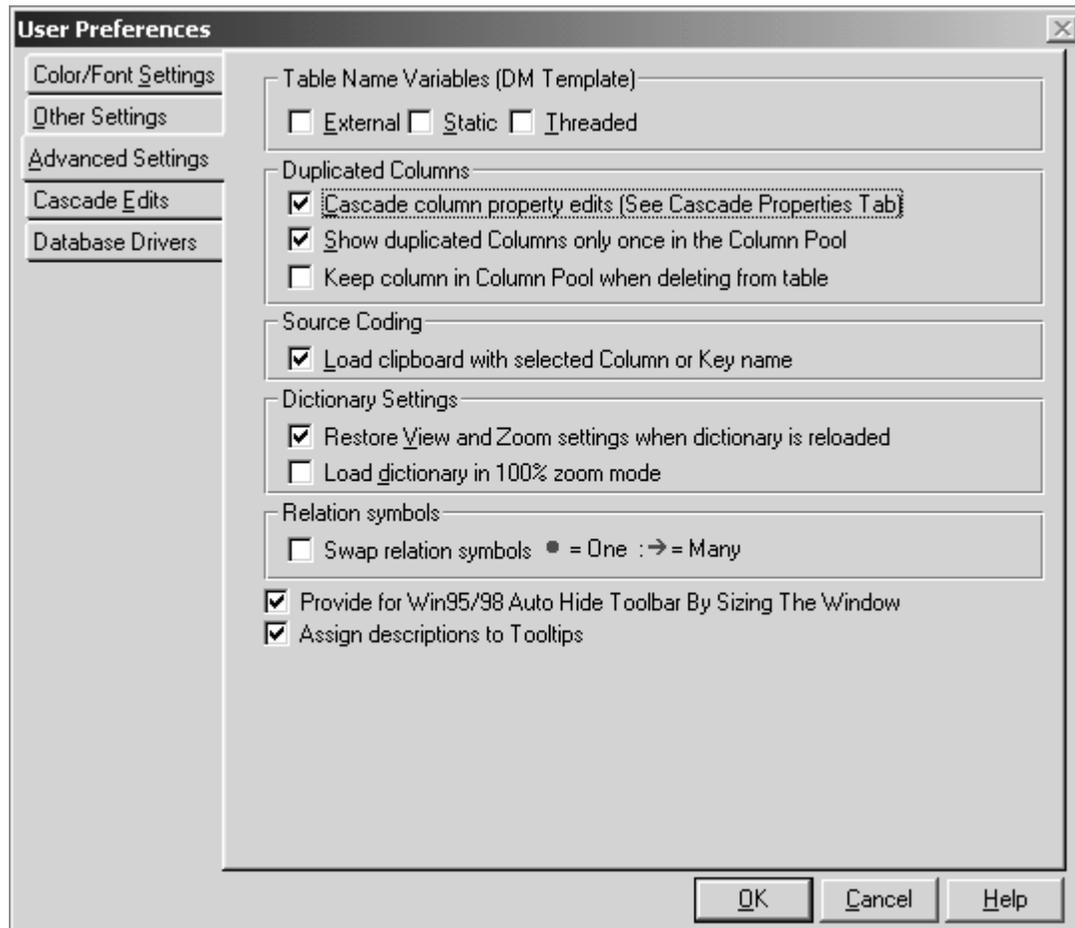

Table Name Variables (DM Template)

These settings are use with the DM Template. They control the memory storage for global variables used throughout your application.

Duplicated Columns
Check **Cascade Column Property Edits** to have changes made to the first occurrence of a column, automatically cascade to the other identical instances of the same column. When this option is ON, the **Cascade Edits** tab becomes visible.

Note:

Changes are never cascaded to columns that have the same name but different attributes.

CLICK on **Show duplicated Columns only once . . .** to display only one instance of duplicate column names in the Column Pool. If this option is OFF, then the Column Pool displays only those duplicate columns whose column attributes are not identical.

CLICK on Keep column in Column Pool when deleting from table to keep the column with its attributes in the Column Pool even though it has been deleted from a table.

Source Coding
Check the **Load Clipboard With Selected Column or Key** option to automatically copy the name to the clipboard whenever you CLICK on a column. Then you can switch back to Clarion and simply paste the name into place.

Dictionary Settings

Check **Restore View and Zoom...** to restore the appearance of your dictionary when you reload it. Otherwise the dictionary is scaled to fit.

Check **Load dictionary in 100% zoom mode** to load the dictionary at 100% zoom mode. See also the Zoom Menu. This setting overrides the Restore View setting. Otherwise the dictionary is scaled to fit.

Relation symbols

Check **Swap relation symbols** to swap the arrow and ball symbols that appear at either end of the relation lines.

Provide for Win 95/98 Auto Hide Toolbar...

Check to have Data Modeller leave a space for the toolbar when first loading.

Assign Descriptions to Tool Tips
Check this box to allow column descriptions to be applied to the tool tip attribute.
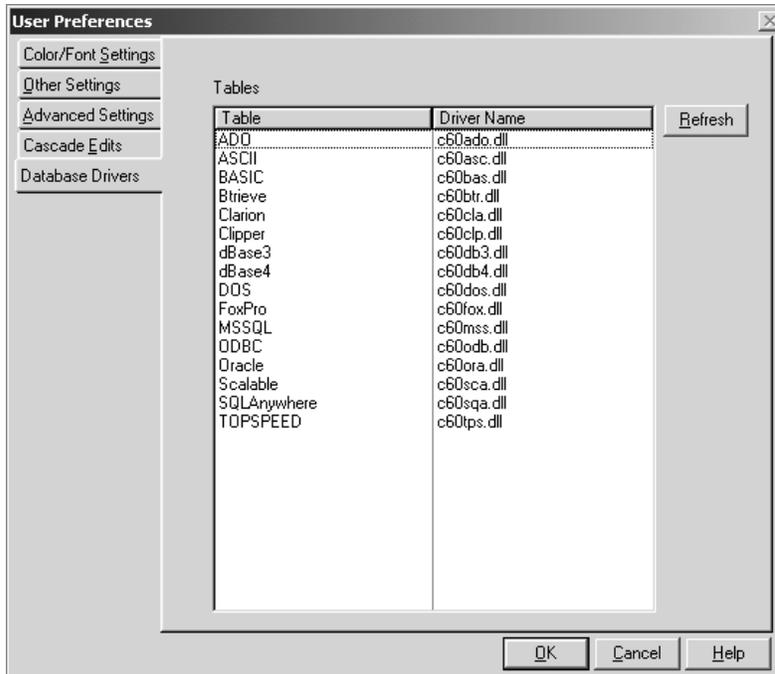
Cascade Edits

The Cascade Edits tab is only visible if you have checked **Cascade Column Property Edits** in
the **Advanced Settings** tab.
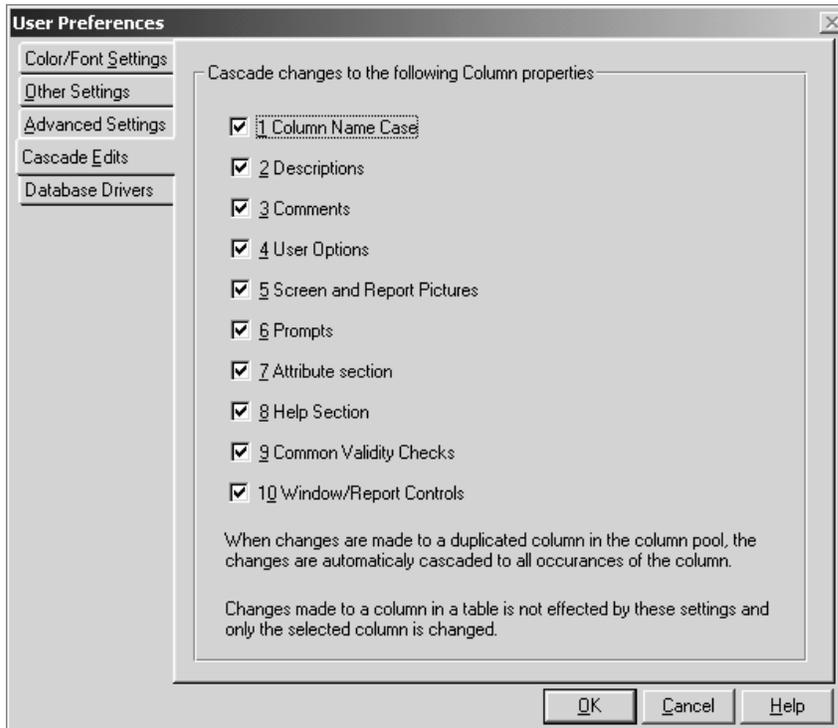
Check the properties that you want to be updated when you change a duplicate column.

Database Drivers

Use this tab to select database drivers that Data Modeller might not otherwise be aware of, for example, the SQL Server or Oracle drivers. Data Modeller uses database drivers for validity-checking of the data dictionary.

User Preferences			
Color/Font Settings	**Tables**		
Other Settings			
Advanced Settings	Table	Driver Name	Refresh
Cascade Edits	ADO	c60ado.dll	
Database Drivers	ASCII	c60asc.dll	
	BASIC	c60bas.dll	
	Btrieve	c60btr.dll	
	Clarion	c60cla.dll	
	Clipper	c60clp.dll	
	dBase3	c60db3.dll	
	dBase4	c60db4.dll	
	DOS	c60dos.dll	
	FoxPro	c60fox.dll	
	MSSQL	c60mss.dll	
	ODBC	c60odb.dll	
	Oracle	c60ora.dll	
	Scalable	c60sca.dll	
	SQLAnywhere	c60sqa.dll	
	TOPSPEED	c60tps.dll	

OK   Cancel   Help

If you add a new driver to Clarion, you must register the driver in Data Modeller as well. To do this, simply CLICK on the Refresh button. **All new drivers will automatically be registered.**
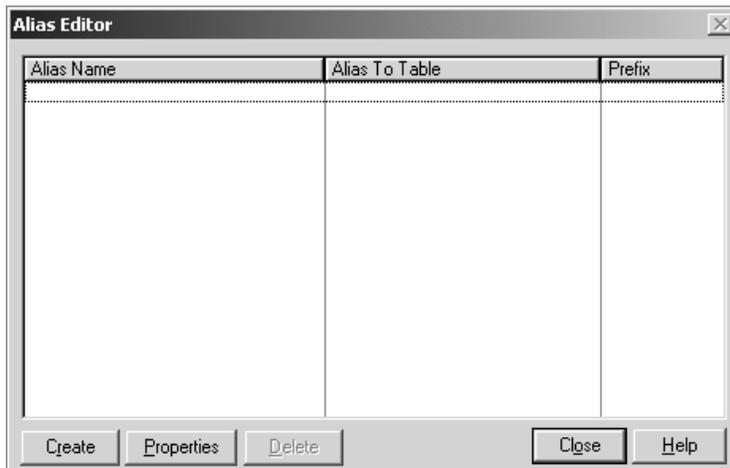
Table Aliases

An alias creates a second reference for a table without duplicating the table on disk. Using an alias can help in complex relationships. See your Clarion documentation for more information.

Alias Editor

The Alias Editor lets you create or delete aliases for tables. Simply RIGHT-CLICK on an open area of the Design Pad, then choose **Aliases** from the popup menu (or choose **Edit ▶ Aliases**).

Tip

You can add an alias for a table only if the table is already on the Dictionary list.

Alias Name	Alias To Table	Prefix

Create   Properties   Delete   Close   Help

Aliased tables appear with a different shadow color. You can set up the alias color in the **User Preferences** window by choosing **Setup ▶ Preferences** in the Main Menu.

Create
Opens the *Alias Properties* dialog which provides the following prompts.

Alias Name
Type a table "name", as you wish to refer to it in your code. The name must be a valid Clarion label.

Prefix
By default, Clarion will use the first three letters of the Name for the prefix. Optionally specify up to 14 characters to use as a Prefix.

Alias to Table
Choose a table from the drop down list. This is the original table that the alias "references." The drop down list shows only the tables previously defined.

Properties

Opens the *Alias Properties* dialog for the selected alias.

Delete

Deletes the highlighted table alias.

Table Relationships

<u>One-way Relationships</u>

One-way relationships are so called because you can't 'see' them from both tables. Only one table needs a key which contains the linking column(s). (You can also create two-way relationships.)

Referential Integrity constraints cannot be defined for a one-way relationship.

What's the point of a one-way relationship? In order to have Clarion automatically generate code to perform lookups or validations, you must have a relationship defined between the tables. But you may not want the overhead of maintaining a key in each of the two tables.

A two-way hypothesis can almost always be manufactured - but many times the relation is deliberately kept simpler. Perhaps for security, but usually just to keep the logic manageable wherever possible. Remember that any design has to have some defined constraints, even with fast and cheap processing. Remember too that we are talking just about one relation that exists between two tables. "One-way" doesn't tell you anything about either table - it describes just one simple relation in the midst of perhaps many complex interactions that each of these tables has with the rest of the database.

If it can be declared then that in a given relationship between two tables, a specified table will always be a provider of data, never a seeker of data, then the provider table does not need to know how to get to the other table. (It simply must wait to be found, instead). So the provider table does not need a key for this relationship. The seeking table does need to have some handle, some way of sorting and ordering, even indexing the rows that it finds in the provider table. The only handle that works is a column whose internals are understood both by the seeker and by the provider - namely, a column that is a part of both their rows. Only shared columns can ever be keys.

The seeker table needs that key - the provider does not. The provider needs only to have that shared column, the column that makes up the key, in order to be sorted and indexed by the Seeker key.

The benefit of a one-way relationship? A little less overhead means slightly faster throughput - but then think of an airline reservation system, for instance, using simple, highly inflexible, "hardwired" lookups, and reusing those pathways a million times an hour. However, the more important benefit for most of us, of simplified relations (no referential integrity to worry about), is the probable earlier delivery of the application, and easier troubleshooting.

CLICK on OK to complete the relationship definition.

Two-way Relationships
Two-way relationships are so called because you can 'see' them from both tables. Both tables must have a key which contains the linking column(s). (For a simple lookup, this might be an unnecessary overhead - you can also create one-way relationships.)

Referential Integrity constraints can be defined for a two-way relationship.

Relationships can be ONE:MANY. For example, one Invoice row can be related to many Item rows. One Customer to many Invoices.

MANY:ONE relationships are exactly the same as ONE:MANY - the viewpoint is merely shifted from the one table to the other.

ONE:ONE relationships are just special cases of ONE:MANY.

MANY:MANY cannot be handled directly by relational database theory - you get around it by creating an extra intermediate table and declaring two ONE:MANY relationships.

In Data Modeller, relationships are represented by lines drawn between the tables in the Design Pad. You create a relationship by CLICKing on one key and dragging to another key. For example, consider the following tables:

One invoice can have many items. So you want to create a ONE:MANY between the Invoice table and the Item table. (From the Item table's point of view, of course, the relationship is a MANY:ONE.)

If you want referential integrity to be coded into the application, you must specify the 'On delete' and 'On update' restrictions. The 'On delete' restriction defines the action that must be taken when a row on the ONE side is deleted. For example - what if an Invoice row is deleted? In this familiar example we might say that if line item rows exist, no user is allowed to delete the Invoice. The restriction, then, would be set to RESTRICT:

However, we want to allow the user to change the invoice number in the Invoice row. When he does that, though, the changed number must automatically be updated to all the line item rows. So we choose CASCADE for 'On Update':

Note that there are no other choices: NO ACTION which merely means that there is **no referential integrity** implemented between the two tables and CLEAR which means that the value of the linking column is blanked. For example set the 'On Update' restriction to CLEAR. When the user changes the InvoiceNumber column in the Invoice table, the InvoiceNumber column in all the related Item rows would simply be set to zero.

SQL Script Generation

This dialog controls the creation of the SQL script table. Choose **Table ▶ Export to SQL Script** to open this dialog.

Output Table Name
The name of the SQL script table to be created. Data Modeller automatically appends the suffix .SQL to the name.

Database Name
The name of the database to be created.

Create Database
Check to include SQL statements to create the database.

Device Name
The name of the Device where the database will be stored.

Database Size
The size of the database in Megabytes.

Create Tables
Check to generate CREATE TABLE statements.

Create Indexes
Check to generate CREATE INDEX statements for keys that are not involved in relationships.

Create Primary Keys
Check to generate CREATE PRIMARY KEY statements for keys that are referenced in the ONE side of ONE:MANY relationships.

Create Foreign Keys
Check to generate CREATE FOREIGN KEY statements for keys that are referenced in the MANY side of ONE:MANY relationships.

Create Rules
Check to create sets of triggers to implement validity checks specified in your dictionary.

Drop rules for all columns
Check to generate DROP TRIGGER statements on all columns in the dictionary.

Drop rules to be created
Check to generate DROP TRIGGER statements on existing triggers before generating CREATE TRIGGER statements.

Do not drop rules
Check to prevent DROP TRIGGER statements from being generated.

Create Triggers
Check to generate error codes to be raised by triggers.

Raise Error Codes For Triggers
The error codes to be raised by the database triggers.
For more information, refer to your database manual.

Large Dictionaries

Very large dictionaries can be slow and cumbersome to edit. Try the following to streamline processing of large dictionaries.

♦ In **User Preferences**, set Load Dictionary in 100% Zoom Mode ON. This will speed up the re-display of the dictionary.

♦ Reduce the number of visible tables by creating a subset display. Now you can focus in on the tables you're working with.

♦ Find tables using the *Locate Tables* dialog (RIGHT-CLICK in an open area of the Design Pad).

♦ Print the dictionary. Print the graphical representation of either the subsets or the entire dictionary. (choose **Print ▶ Print Design**).

♦ Limit the number of columns displayed in the Column Pool by using the Column Pool Filter (RIGHT-CLICK in the Column Pool, then choose **Set Filter**).

Duplicate Idents

Duplicate Ident numbers are sometimes found in corrupted Clarion dictionaries. The Ident is an identification number that is used by Clarion to synchronize columns declared in a dictionary with controls in an application. The corruption has been found to occur with earlier versions of Clarion, particularly when tables have been imported from one dictionary to another.

Data Modeller halts with an error message if you try to load a dictionary with duplicate idents. The error message includes the name of the offending column name. If you create a .TXD file for the dictionary (from the dictionary editor in Clarion), and try to re-import the .TXD file, Clarion stops with an error message which includes the line number where the error was detected. Between the two error messages you should be able to identify the location of the offending ident.

One way of fixing the problem is to manually edit the .TXD file, replacing the duplicate ident with another (large) number that you know has not been used elsewhere in the dictionary. You can then create a new dictionary (with a different name) in Clarion by importing the corrected .TXD file. If the dictionary has been used in an application, you must change the dictionary in the application, re-synchronizing the application and dictionary. See the Clarion documentation for more details. Note that you cannot simply re-import the .TXD file into a new dictionary of the same name, as this may cause synchronization problems that could corrupt your application file.

Index: